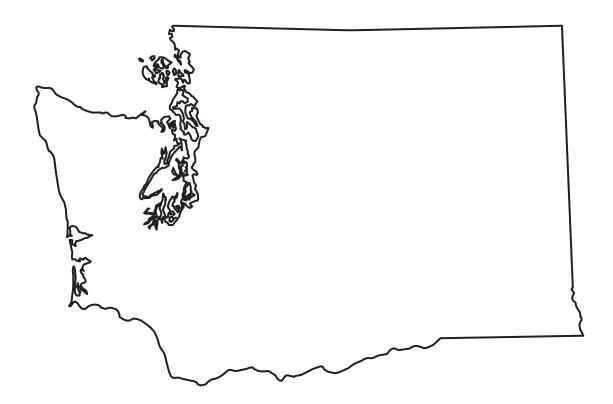


Water Resources Data Washington Water Year 2002

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CALENDAR FOR WATER YEAR 2002

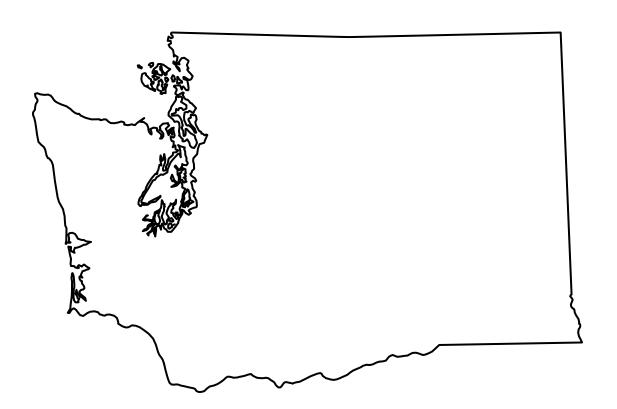
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Water Resources Data Washington Water Year 2002

By R.A. Kimbrough, W.D. Wiggins, R.R. Smith, G.P. Ruppert, S.M. Knowles, and V.F. Renslow

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See additional USGS information on water resources of Washington on the World Wide Web at http://wa.water.usgs.gov/

2003

PREFACE

This volume of the annual Washington 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.

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 Washington and with other agencies under the general supervision of Robert A. Kimbrough, Assistant Director for Hydrologic Data, Cynthia Barton, Director, Washington Water Science Center, and William T. Sexton, Regional Executive for Water, Western Region, USGS.

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Water resources data for the 2002 water year for Washington consist of records of stage, discharge, and water quality of streams; stage and contents of lakes and reservoirs; and water levels of wells.

- Water discharge for 245 gaging stations on streams, canals and drains.
- Stage only records for 10 gaging stations.
- Discharge data for 211 partial-record and miscellaneous sites.
- Stage and (or) contents for 36 lakes and reservoirs.
- Water-quality data for 40 surface-water sites.
- Water levels for 26 observation wells.
- Water-quality data for 16 observation wells.

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 Washington.

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NOTE--Data for miscellaneous sites are published in separate sections of the data report. See references at the end of this list of page numbers for these sections.

Letter after station name designates type of data: (c) chemical, including periodic biological, microbiological, sediment, pesticide, and radio-chemical where applicable; (d) discharge; (e) elevation; (g) gage height; (g%) total dissolved gas; (k) specific conductance; (o) dissolved oxygen; (p) pH; (r) rainfall; (t) water temperature; and (v) contents.

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		COLU	MBIA COUNTY	
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Well	473442118162201	Local number	24N/36E-16A01	540
Well	473442118162202	Local number	24N/36E-16A02	541
Well	473442118162203	Local number	24N/36E-16A03	541
Well	473442118162204	Local number	24N/36E-16A04	541
Well	473442118162205	Local number	24N/36E-16A05	541
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Well	471148122305501	Local number	20N/02E-26C02	549
Well	471032122292701	Local number	20N/02E-36K01	549
Well	472121122442011	Local number	22N/01W-36H01D11	550
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		SPOK	ANE COUNTY	
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Well	465033122570202	Local number	16N/02W-29L02P2	551
Well	465033122570203	Local number	16N/02W-29L02P3	551
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***	450045445544504			
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Well	463745119164601	Local number	13N/28E-11E02 PN17	553
		GRA	ANT COUNTY	
Well	470850119323501	Local number	19N/26E-15B01 PN57	553
Well	471013119433401	Local number	19N/25E-06H01 PN49	553
		PIER	RCE COUNTY	
Well	470240122214501	Local number	18N/03E-13K01 UR-24	553
Well	470603122305101	Local number	19N/02E-26P01 LC-149C	553
Well	470732122252801	Local number	19N/03E-21C01 UR-32	553
Well	471018122143302	Local number	20N/04E-36P02 UR-35B	553
		THUR	STON COUNTY	
Well	470035122444601	Local number	18N/01W-36B01 UR-12	553
Well	470110122484201	Local number	18N/01W-28G03 UR-04A	553
		WHAT	COM COUNTY	
Well	485303122190901	Local number	39N/04E-08G01 AGG03	553
Well	485917122241901	Local number	40N/03E-03G02 AG06	553
		BRITI	SH COLUMBIA	
Well	490011122193201	Local number	092G.009.1.2.1-ABB4	553
Well	490042122241001	Local number	092G.008.2.2.2-99 ABB1	553

092G.009.1.1.4-18 BC-A-25553

Local number

Well

490101122221501

DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

The following continuous-record surface-water discharge or stage-only stations (gaging stations) in Washington have been discontinued. Period of record for daily streamflow or stage records collected and published as daily means, or monthly means for some periods, for the period of record, expressed in water years, are shown for each station. Those stations with an asterik (*) after the station number are currently operated as a crest-stage station. Discontinued stations with less than 3 years of records are included. Information and data regarding any station may be obtained from the District Office at the address given on the back side of the title page of this report.

	Station	Drainage area	Period of record
Station name	number	(mi ²)	(water years)
SOUTHWEST W	VASHINGTON RIVER BASII	NS	
ear Branch (River) near Naselle, Wa.	12009500	11.7	1963-75
almon Creek near Naselle, Wa.	12010500	16.4	1953-65
outh Fork Naselle River near Naselle, Wa.	12010700	17.9	1964-75;1977
Jorth Nemah River near South Bend, Wa.	12011000	18.0	1946-54;1964-68;1977
Villiams Creek near South Bend, Wa.	12011200	9.43	1964-74;1977
Villapa River at Lebam, Wa.	12011500	41.4	1948-71
ork Creek near Lebam, Wa.	12012000	20.4	1953-70
tringer Creek near Holcomb, Wa.	12012500	3.02	1953
Iill Creek near Willapa, Wa.	12013000	23.7	1953
ard Creek near Willapa, Wa.	12014000	19.3	1953
outh Fork Willapa River near Raymond, Wa.	12014500	27.8	1953-71
Ikhorn Creek near Raymond, Wa.	12015000	15.6	1953
learwater Creek near Raymond, Wa.	12015100	3.98	1964-75
mith Creek near Raymond, Wa.	12015200	57.7	1963-66
orth River near Brooklyn, Wa.	12015500	29.8	1953-65
all River at Brooklyn, Wa.	12016000	41.0	1953
ittle North River near Cosmospolis, Wa.	12016500	18.6	1946-49;1953
orth River near Raymond, Wa.	12017000	219	1927-77;1995-2000
ohns River near Markham, Wa.	12017500	18.9	1942-43
ewskah Creek near Aberdeen, Wa.	12018000	7.44	1946-49
harley (Charlies) Creek near Aberdeen, Wa.	12018500	5.93	1946-49
	IALIS RIVER BASIN		
hehalis River near Pe Ell, Wa.	12019000	54.7	1944
ock Creek near Pe Ell, Wa.	12019500	13.4	1944
lk Creek near Doty, Wa.	12020500	46.7	1942-50;1967-70
outh Fork Chehalis River near Boistfort, Wa.	12020900	44.9	1965-80
outh Fork Chehalis River at Boistfort, Wa.	12021000	48.0	1942-50;1961-65
alfway Creek near Boistfort, Wa.	12021500	13.4	1944
unker Creek near Adna, Wa.	12022000	20.1	1944
tearns Creek near Napaville, Wa.	12022500	14.1	1945
tearns Creek near Adna, Wa.	12023000	27.1	1944
Thehalis River near Chehalis, Wa.	12023500	434	1929-31
orth Fork Newaukum River near Forest, Wa.	12024500	31.5	1944;1957-66
alzer Creek near Centralia, Wa.	12025300	12.6	1968-71
hehalis River at Centralia, Wa. (S)	12025500		1910-11
kookumchuck River near Centralia, Wa.	12026000	61.7	1929-34;1940-69
Ianaford Creek near Centralia, Wa.	12026500	13.3	1944
incoln Creek near Rochester, Wa.	12027000	19.3	1942-50
catter Creek near Ground Mound, Wa.	12028000	21.0	1944
Vadell Creek near Little Rock, Wa.	12028500	15.9	1944
lack River at Little Rock, Wa.	12029000	63.7	1942-50
arrard (Garrod) Creek near Oakville, Wa.	12029500	27.7	1944
ock Creek near Cedarville, Wa.	12030000	24.8	1942-71
edar Creek near Cedarville, Wa.	12030500	38.2	1944
orter Creek at Porter, Wa.	12030900	35.3	1942-49
fildcat Creek near Elma, Wa.	12032000	19.8	1944
loquallum River (Creek) near Elma, Wa.	12032500	64.9	1942-72
hehalis River at South Elma, Wa.	12032300	1,417	1942-45;1947-52
ast Fork Satsop River near Matlock, Wa.	12033500	23.7	1942-43;1947-32 1946-47
*	12033300	30.0	
ingham Creek near Satsop, Wa. ast Fork Satsop River near Elma, Wa.	12034000	65.9	1946-48 1957-71
liddle Fork Satsop River near Elma, wa.			1957-71
	12034500	63.0	1942-43 1977-83
hehalis River near Satsop, Wa. ig Creek near Grisdale, Wa.	12035002 12035450	1,761 9.57	1977-83 1973-96
12 CICEN HEAL CHISUAIC, WA.	12000400	9.37	17/3-70

[Data listed are for discharge, except where noted with the letter: (E) elevation, (S) stage.]			
Station name	Station number	Drainage area (mi ²)	Period of record (water years)
			·
	ER BASINContinued		
Schafer Creek near Grisdale, Wa.	12036400	12.1	1987-96
Wynoochee River near Montesano, Wa.	12036500	112	1923-30
Anderson Creek near Montesano, Wa.	12036650	2.72	1972-85
City Aberdeen River Intake near Montesano, Wa.	12037000	180	1942
Wynoochee River below Black Creek, near Montesano, Wa. Wishkah River near Wishkah, Wa.	12037500	57.8	1942-50 1942-43
	12038000 MOUNTAIN RIVER BA		1942-43
West Fork Hoquiam River near Hoquiam, Wa.	12038500	16.0	1942-44
Humptulips River near Humptulips, Wa.	12039000	130	1933-35;1942-79
Moclips River at Moclips, Wa.	12039220	35.0	1975-81
North Fork Quinault River near Amanda Park, Wa.	12039300	74.1	1964-86
Raft River below Rainy Creek, near Queets, Wa.	12039520	76.0	1974-81
Clearwater River near Clearwater, Wa.	12040000	140	1932;1937-50
Hoh River below Mt. Tom Creek near, Forks, Wa.	12040700	97.8	1985-89
South Fork Hoh River near Forks, Wa.	12040900	50.4	1985-89
Hoh River near Forks (Spruce), Wa.	12041000	208	1926-64
Soleduck River near Fairholm, Wa.	12041500	83.8	1918-21;1933-71; 1977-8
Soleduck River at Snider Ranger Station, near Beaver, Wa.	12042000	116	1922-28
Soleduck River near (at) Quillayute, Wa.	12042500	219	1898-1902;1978-80
Bogachiel River near Forks, Wa.	12042800	111	1975-80
East Fork Dickey River near La Push, Wa.	12043080	39.8	1962-68
Dickey River near La Push, Wa.	12043100	86.3	1962-73;1977-80
Ozette River near Ozette, Wa.	12043150	77.5	1976-79
Sooes River below Miller Creek, near Ozette, Wa.	12043163	32.0	1976-86
EASTERN OLYMPIC N	MOUNTAIN RIVER BAS	SINS	
Waatch River below Educket Creek, at Neah Bay, Wa.	12043173	9.96	1976-79
Sail River near Neah Bay, Wa.	12043190	5.42	1976-79
Clallam River near Clallam Bay, Wa.	12043350	137	1962
East Twin River near Pysht, Wa.	12043430	14.0	1962-72
Lake Crescent at Piedmont, Wa (S)	12043500	49.1	1919-27
Lyre River at Piedmont, Wa.	12044000	49.5	1918-27
Salt Creek near Port Angeles, Wa.	12044500	8.31	1952
Elwha River above Lake Mills, near Port Angeles, Wa.	12044900	198	1994-98
Elwha River near Port Angeles, Wa. (S)	12046000	315	1911-12
Elwha River below Diversion, near Port Angeles, Wa.	12046500	318	1951-54
Ennis Creek near Port Angeles, Wa.	12047000	8.32	1952
Morse Creek near Port Angeles, Wa.	12047300	46.6	1966-76
Siebert Creek near Port Angeles, Wa.	12047500	15.5	1952-69
Dungeness River below Canyon Creek, near Sequim, Wa.	12048500	170	1897-98
Dungeness River at Dungeness, Wa.	12049000	197	1899-1901;2000-01
immycomelately Creek near Blyn, Wa.	12049500	18.3	1952
Salmon Creek near Maynard, Wa.	12050000	13.0	1952
Snow Creek near Maynard, Wa.	12050500	11.2	1952-72
Andrews Creek near Maynard, Wa.	12051000	10.2	1952
Chimacum Creek near Chimacum, Wa.	12051500	13.8	1952-58
Little Quilcene River near Quilcene, Wa.	12052000	23.7	1926-27;1951-58
Big Quilcene River near (at) Quilcene, Wa.	12052500	66.0	1971-72
Oosewallips River near Brinnon, Wa.	12053000	93.5	1931-50
Oosewallips River at Brinnon, Wa.	12053500	116	1911;1924-25; 1928-30
Hamma Hamma River near Eldon, Wa.	12054500	51.3	1951-71
efferson Creek near Eldon, Wa.	12054600	21.6	1958-71
Hamma Hamma River near Hoodsport, Wa.	12055000	83.5	1926-30
Eagle Creek near Lilliwaup, Wa.	12055500	7.06	1951
Finch Creek at Hoodsport, Wa.	12056000	3.45	1951
Lake Cushman (Reservoir) near Hoodsport, Wa. (E)	12057000	93.7	1925-82
North Fork Skokomish River near Hoodsport, Wa. (S 1910-11)	12057500	93.7	1910-82
Dear Meadow Creek near Hoodsport, Wa.	12058000	1.83	1950-73
Dow Creek near Hoodsport, Wa.	12058500	1.67	1950-54
McTaggert Creek near Hoodsport, Wa.	12059000	1.30	1951-53
1. 4. F. 1. Cl. 1	12059800	26.0	1964-70
South Fork Skokomish River near Hoodsport, wa.	12039800	20.0	1904-70
South Fork Skokomish River near Hoodsport, Wa. South Fork Skokomish River near Potlatch, Wa.	12060000	65.6	1924-32;1946-64

Station Drainage area Period of record			
Station name	number	(mi ²)	(water years)
SOUTHWESTERN P	UGET SOUND RIVER BA	SINS	
urdy Creek near Union, Wa.	12062500	3.73	1954-60
nion River near Bremerton, Wa.	12063000	3.16	1946-59
nion River near Belfair, Wa.	12063500	19.8	1947-59
ission Lake near Bremerton, Wa. (S)	12064000	1.83	1945-53
ission Creek near Belfair, Wa.	12065000	4.43	1946-53
old Creek near Bremerton, Wa.	12065500	1.51	1946-70
ahuya River (Creek) near Bremerton, Wa.	12066000	5.99	1945-56
anther Lake near Bremerton, Wa. (S)	12066500	0.80	1945-53
inther Creek near Bremerton, Wa.	12067000	1.00	1945-53
ahuya River (Creek) near Belfair, Wa.	12067500	15.0	1945-56
ahuya River near Tahuya, Wa.	12068000	42.2	1947
ewatto River (Creek) near Dewatto, Wa.	12068500	18.4	1947-54;1958-74
nderson Creek near Holley, Wa.	12069000	6.30	1947
ravis Creek near Seabeck, Wa.	12069500	5.60	1947
evils Hole Creek at Bangor Subbase, near Bangor, Wa.	12069600	2.61	1995-96
amble Creek near Port Gamble, Wa.	12069651	5.97 5.01	1995-96 1947-71
ogfish Creek near Poulsbo, Wa. bhnson Creek DNR site near Poulsbo, Wa.	12070000	5.01	1947-71 1995-96
orth Fork Johnson Creek near Poulsbo, Wa.	12070040 12070045	0.17 2.04	1995-96 1995-96
orth Fork Johnson Creek near Poulsbo, wa. bhnson Creek near Poulsbo, Wa.	12070045	2.52	1995-96 1995-96
lear Creek near Silverdale, Wa.	12070500	8.50	1947
Vildcat Lake near Bremerton, Wa. (S)	12071000	2.50	1947-50
itsap Lake near Bremerton, Wa. (S)	12071500	2.73	1947-50
hico Creek near Bremerton, Wa.	12072000	15.3	1947-50;1961-74
lackjack Creek at Port Orchard, Wa.	12072500	14.5	1947-50
irdy Creek at Purdy, Wa.	12072800	3.44	1960-62
urley Creek at Burley, Wa.	12073000	10.7	1947-50;1960-65
nnamed Tributary to Beaver Creek, near Herron, Wa.	12073550	0.21	1991-94
nnamed Creek near Key Center, Wa.	12073600	0.20	1991-94
numocher Creek (Sherwood Creek) near Union, Wa.	12074000	12.2	1951
Iason Lake near Union, Wa. (S)	12074500	20.2	1951-75
eer Creek near Shelton, Wa.	12075000	13.6	1943;1948-51
ranberry Creek near Shelton, Wa.	12075500	15.2	1942-43;1948-51
ohns Creek near Shelton, Wa.	12076000	17.7	1943;1948-51
oldsborough Creek near Shelton, Wa.	12076500	39.3	1951-71
oldsborough Creek at Shelton, Wa.	12077000	55.0	1943;1951
Iill Creek at Shelton, Wa.	12077500	19.5	1943;1951
lack Lake Ditch at Lake Outlet, near Tumwater, Wa.	12078705	ND	1988-90
lack Lake Ditch near Olympia, Wa.	12078720	ND	1988-90
ercival Creek near Olympia, Wa.	12078730	5.84	1988-90
cookum Creek at Kamliche, Wa.	12078000	16.1	1951-59
ennedy Creek near Kamliche, Wa.	12078400	17.4	1960-71
ennedy Creek near New Kamliche, Wa.	12078500	18.7	1951
nder Creek near Olympia, Wa.	12078650	0.52	1971-74
ourgeon Creek near Olympia, Wa.	12079500	11.0	1949-50
eschutes River near Olympia, Wa.	12080000	160	1945-54;1957-64
oodward Creek near Olympia, Wa. oodland Creek at Martin Way, at Lacey, Wa.	12080500	3.80 12.4	1949;1988-90
oodland Creek at Martin Way, at Lacey, Wa. oodland Creek near Olympia, Wa.	12080670 12081000	24.6	1988-90 1949-69;1988-90
codiand Creek near Olympia, wa.	12081500	24.0	1951-64
	LLY RIVER BASIN	- -	1/31-04
isqually River near Ashford, Wa.	12082000	68.5	1910-14
ast Creek near Elbe, Wa.	12082000	11.5	1910-14
isqually River near Alder, Wa.	12083300	252	1931-45
ittle Nisqually River near Alder, Wa.	12084500	28.0	1920-43
acoma Power Conduit near LaGrande, Wa.	12084300	28.0	1919-31
hop Lake near Eatonville, Wa. (S)	12087400	17.3	1960-75
ynch Creek near Eatonville, Wa.	12087500	16.3	1949
isqually River above Powell Creek, near McKenna, Wa.	12088400	431	1969-79
isqually River near McKenna, Wa.	12088500	445	1941-63
anwax Lake near Kapowsin, Wa. (S)	12088900	4.08	1962-75

	Station	Drainage area	Period of record
Station name	number	(mi ²)	(water years)
NISQUALLY RIVER BASI	NContinued		
nwax Creek near McKenna, Wa.	12089000	26.0	1945-50
ick Creek near Loveland, Wa.	12090000	16.9	1949
ick Creek at Roy, Wa.	12090200	86.8	1956-72
SOUTH CENTRAL PUGET SOUN			
nerican Lake near Tillicum, Wa. (E)	12090300	24.5	1956-59
named Tributary to Clover Creek, at Bingham Avenue East, near Parkland, Wa.	12090340	0.14	1991-92
named Tributary to North Fork Clover Creek, at Waller Rd E, near Parkland, Wa.	12090365	0.14	1990-94
named Tributary to North Fork Clover Creek, at 99th Avenue East, near Tacoma, Wa.	12090380	0.19	1991-92
nambers Creek at Steilacoom Lake, near Steilacoom, Wa.	12091000	78.4	1939-40
ambers Creek above Flett Creek, near Steilacoom, Wa.	12091040	90.4	1966-71
ett Creek at 74th Street, at Tacoma, Wa.	12091050	4.23	1959-63
ett Creek at Mountain View Memorial Park, at Tacoma, Wa.	12091060	5.91	1967-79
ett Creek below Flett Springs, at Tacoma, Wa.	12091070	6.72	1959-65
ach Creek at Holding Pond, at Fircrest, Wa.	12091180	4.59	1967-90
ld Creek near Burton, Wa.	12091700	4.41	1968-75
PUYALLUP RIVER I	BASIN		
vallup River at Electron, Wa.	12092500	131	1946
powsin Creek near Kapowsin, Wa.	12093000	25.9	1927-32;1942-57
rbon River at Fairfax, Wa.	12093900	76.2	1911-12;1965-78
uth Prairie Creek near Enumclaw, Wa.	12094400	22.4	1963-68
lkeson (Gale) Creek at Wilkeson, Wa.	12094500	25.0	1949
ight Creek near Crocker, Wa.	12095500	22.9	1949
nnel Creek near McMillan, Wa.	12096000	12.5	1949
nite River near Greenwater, Wa.	12096600	16.2	1964-70
nite River at Greenwater, Wa.	12097000	216	1911-12;1929-75
nite River below Clearwater, near Budkley, Wa.	12097850	375	1975-76;1983-96
ite River Flume near Buckley, Wa.	12098910		1972-73
se Creek above Reservoir, near Enumclaw, Wa.	12099300	4.60	1963-66
se Creek below Millpond, near Enumclaw, Wa.	12099400	8.27	1963-66
se Creek near Enumclaw, Wa.	12099500	12.3	1945-46;1963-66
ite (Stuck) River near Sumner, Wa.	12100500	470	1945-71
urk Creek at Puyallup, Wa.	12102000	1.66	1946-48
ru Creek below Hatchery at Pioneer Way, near Tacoma, Wa.	12102025	1.18	1990-91
ear Creek at Pioneer Way, below Fish Hatchery, near Tacoma, Wa.	12102140	3.09	1990-91
an Creek at Pioneer Way, near Tacoma, Wa. SOUTH CENTRAL PUGET SOUND RIV	12102212	3.45	1990-91
pato Creek near Tacoma, Wa.	12102500	6.00	1949
lebos Creek at 5th Avenue, at Milton, Wa.	12102900	4.77	1987-88
est Tributary to Hylebos Creek at south 356th, near Milton, Wa.	12102920	5.67	1987-88
est Tributary to Hylebos Creek at south 373rd, near Milton, Wa.	12103000	7.33	1987-88
lebos Creek at Highway 99, at Fife, Wa.	12103020	16.8	1995-99
s Creek at Marine Drive, near Tacoma, Wa.	12103205		1987-88
xota Creek above Sewage Treatment Plant, near Tacoma, Wa.	12103207	2.19	1987
dondo Creek No. 1 at Redondo Shores, Wa.	12103210	0.82	1987-88
dondo Creek No. 2 near Des Moines, Wa.	12103212	1.10	1987-88
named Creek at Sltwater State Park, near Des Moines, Wa.	12103220	2.94	1987-88
DUWAMISH (GREEN) RI	VER BASIN		
	12103380	16.5	1993-99
•	12103400	34.8	1966-77
•	12103400		1945-65
en River below intake Creek, near Lester, Wa.	12103400	11.5	
een River below intake Creek, near Lester, Wa. ow Creek near Lester, Wa. day Creek near Lester, Wa.		4.67	1945-77
een River above Twin Camp Creek near Lester, Wa. een River below intake Creek, near Lester, Wa. ow Creek near Lester, Wa. day Creek near Lester, Wa. een River near Lester, Wa.	12103500 12104000 12104500	4.67 96.2	1945-90;1993
een River below intake Creek, near Lester, Wa. ow Creek near Lester, Wa. day Creek near Lester, Wa. een River near Lester, Wa. een Canyon Creek near Lester, Wa.	12103500 12104000 12104500 12104700	4.67 96.2 3.23	1945-90;1993 1960-70
een River below intake Creek, near Lester, Wa. ow Creek near Lester, Wa. day Creek near Lester, Wa. een River near Lester, Wa. een Canyon Creek near Lester, Wa. ay Creek near Lester, Wa.	12103500 12104000 12104500 12104700 12105000	4.67 96.2 3.23 8.56	1945-90;1993 1960-70 1947-70
een River below intake Creek, near Lester, Wa. ow Creek near Lester, Wa. day Creek near Lester, Wa. een River near Lester, Wa. een Canyon Creek near Lester, Wa. ay Creek near Lester, Wa. ay Creek near Lester, Wa. arley Creek near Eagle Gorge, Wa.	12103500 12104000 12104500 12104700 12105000 12105500	4.67 96.2 3.23 8.56 11.3	1945-90;1993 1960-70 1947-70 1947-55
een River below intake Creek, near Lester, Wa. ow Creek near Lester, Wa. day Creek near Lester, Wa. een River near Lester, Wa. een Canyon Creek near Lester, Wa. ay Creek near Lester, Wa. ay Creek near Lester, Wa. arley Creek near Eagle Gorge, Wa. rth Fork Green River near Palmer, Wa.	12103500 12104000 12104500 12104700 12105000 12105500 12105700	4.67 96.2 3.23 8.56 11.3 16.5	1945-90;1993 1960-70 1947-70 1947-55 1957-65
ten River below intake Creek, near Lester, Wa. tow Creek near Lester, Wa. day Creek near Lester, Wa. ten River near Lester, Wa. ten Canyon Creek near Lester, Wa. ay Creek near Lester, Wa. ay Creek near Lester, Wa. arley Creek near Eagle Gorge, Wa. th Fork Green River near Palmer, Wa. th Fork Green River near Lemolo, Wa.	12103500 12104000 12104500 12104700 12105000 12105500 12105700 12105710	4.67 96.2 3.23 8.56 11.3 16.5	1945-90;1993 1960-70 1947-70 1947-55 1957-65 1965-87
en River below intake Creek, near Lester, Wa. w Creek near Lester, Wa. lay Creek near Lester, Wa. en River near Lester, Wa. en Canyon Creek near Lester, Wa. ay Creek near Lester, Wa. lay Creek near Lester, Wa. lay Creek near Lester, Wa. which was the ster of	12103500 12104000 12104500 12104700 12105000 12105500 12105700	4.67 96.2 3.23 8.56 11.3 16.5	1945-90;1993 1960-70 1947-70 1947-55 1957-65

Station Drainage area Period of record			
Station name	number	(mi ²)	(water years)
DUWAMISH (GREEN) RI	VED DASIN Conti		
y Creek near Black Diamond, Wa.	12107300	3.29	1963-68
Green River near Black Diamond, Wa.	12107500	285	1939-48
orth Fork Newaukum Creek near Enumclaw, Wa.	12107950	1.93	1977-78
•	12107930	13.0	1945
ewaukum Creek near Enumclaw, Wa.	12108050	0.26	1977-78
lovercrest Outfall at Enumclaw, Wa.		1.52	
ewaukum Creek Tributary near Black Diamond, Wa.	12108450		1977-78
urns Creek near Black Diamond, Wa. ttle Soos Creek near Kent, Wa.	12109000 12109500	3.47 6.08	1945 1985-86
,			
g Soos Creek above Jenkins Creek, near Auburn, Wa.	12110000	20.9	1944-45;1985-86
ilderness Lake Outlet near Maple Valley, Wa.	12110003	0.66	1977
outh Fork Jenkins Creek near Covington, Wa.	12110400	3.47	1985-86
nkins Creek near Auburn, Wa.	12110500	13.5	1985-86
ake Sawyer near Black Diamond, Wa. (S)	12111000	13.0	1952-75
ovington Creek near Black Diamond, Wa.	12111500	13.0	1953-60
ovington Creek near Auburn, Wa.	12112000	21.6	1944-45
g Soos Creek near Auburn, Wa.	12112500	62.9	1944-56
posette Creek near Auburn, Wa.	12112550	5.50	1985-86
LAKE WASHINGTON - C	EDAR RIVER BAS	SIN	
orth Fork Cedar River near Lester, Wa.	12113500	9.30	1944-63
outh Fork Cedar River near Lester, Wa.	12114000	6.00	1944-83
ack Creek near Cedar Falls, Wa.	12115800	2.14	1983-93
edar River at Chester Morse (Cedar) Lake, near North Bend, Wa.	12116000	77.7	1898-99;1902-03
liddle Fork Taylor Creek near Selleck, Wa.	12116700	5.17	1956-64
orth Fork Taylor Creek near Selleck, Wa.	12116800	3.77	1956-64
ock Creek above Walsh Lake Ditch near Landsburg, Wa.	12117700	4.91	1986-90
alsh Lake Ditch near Landsburg, Wa.	12117820	9.42	1986-90
ock Creek Diversion near Landsburg, Wa.	12118000	11.0	1932-48
ock Creek near Ravensdale, Wa.	12118300		1956-58
LAKE WASHINGTO			1,00000
		2.82	1079 70
Iay Creek near Issaquah, Wa.	12119300		1978-79
Iay Creek Tributary at State Road 900 near Issaquah, Wa.	12119302		1978-79
Iay Creek at Renton, Wa.	12119375	7.57	1978-79
oney Creek near Renton, Wa.	12119450	0.70	1978-79
lay Creek near Renton, Wa.	12119500	12.5	1945-50;1955-58;1964
ay Creek at Mouth near Renton, Wa.	12119600	12.7	1964-72;1978-79
oal Creek near Bellevue, Wa.	12119700	6.80	1964-68
ake Hills Storm Sewer Outfall at Bellevue, Wa.	12119725		1980-82
18th Ave Storm Sewer below Lake Hills Boulevard, near Bellevue, Wa.	12119730		1980-82
48th Ave Upstream Manometer at Bellevue, Wa.	12119731		1980-82
48th Ave Downstream Manometer at Bellevue, Wa.	12119732		1980-82
urrey Downs Storm Sewer Outfall at Bellevue, Wa.	12120005		1980-82
anita Creek near Kirkland, Wa.	12120500	6.69	1945;1963-90
LAKE WASHINGTON - SAM	IMAMISH RIVER I	BASIN	
saquah Creek near Issaquah, Wa.	12121000	27.0	1945-64
ast Fork Issaquah Creek near Issaquah, Wa.	12121500	8.54	1945
ast Fork Issaquah Creek at mouth, at Issaquah, Wa.	12121510	9.50	1975-81
bbetts Creek near Issaquah, Wa.	12121700	3.90	1963-68;1971-76
aughing Jacobs Creek near Issaquah, Wa.	12121720	5.05	1987-88
ne Lake near Issaquah, Wa. (S)	12121800	1.06	1956-77
ne Lake Creek near Issaquah, Wa.	12121810	1.06	1980-81
glewood Creek near Redmond, Wa.	12121830	4.24	1987-88
ımmamish River above Bear Creek, near Redmond, Wa.	12122010	102	1975-78
ear Creek near Redmond, Wa.	12122500	13.9	1946-49;1980-96
ottage Lake Creek near Redmond, Wa.	12123000	10.7	1945;1955-65
ottage Lake Creek above Bear Creek, near Redmond, Wa.	12123100	12.2	1985-86
ear Creek Tributary near Redmond, Wa.	12123200	1.40	1985-86
vans Creek near Redmond, Wa.	12123500	10.9	1945
vans Creek above mouth, near Redmond, Wa.	12124000	13.0	1955-76;1985-86
	12124500	48.2	1945-50;1955-58; 1984-
ear Creek at Redmond Wa			
ear Creek at Redmond, Wa. ammamish River near Redmond, Wa.	12125000	150	1939-57

DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

[Data listed are for discharge, except where noted with the letter: (E) elevation, (S) stage.]

	Drainage area	Period of record	
Station name	Station number	(mi ²)	(water years)
Station name		(m)	
LAKE WASHINGTON - SAMM	AMISH RIVER BASIN	IContinued	
Penny Creek near Everett, Wa.	12125800	3.67	1985-86
North Creek below Penny Creek, near Bothell, Wa.	12125900	9.12	1985-86
North Creek Tributary near Woodinville, Wa.	12125950	4.20	1985-86
North Creek near Bothell, Wa.	12126000	24.6	1945-73
North Creek near Woodinville, Wa.	12126100	27.0	1985-86
Sammamish River at Bothell, Wa.	12126500	212	1940-63;1983-87
Swamp Creek near Alderwood Manor, Wa.	12126800	9.55	1984-86
Scriber Creek near Mountlake Terrace, Wa.	12126900	6.14	1985-86
Swamp Creek near Bothell, Wa.	12127000	21.8	1945
Swamp Creek at Kenmore, Wa.	12127100	23.1	1963-90
Lyon Creek at Lake Forest Park, Wa.	12127300	3.67	1963-68
ake Ballinger near Edmonds, Wa. (S)	12127400	5.09	1961-77
McAleer Creek near Bothel, Wa.	12127500	7.48	1945;1947-49
McAleer Creek at Lake Forest Park, Wa.	12127600	7.80	1963-72
EAST CENTRAL PUGE	T SOUND RIVER BAS		
Powder Creek near Mukulteo, Wa	12128500	2.11	1946
	I RIVER BASIN		
Sye River near Skykomish, Wa.	12129000	79.8	1929-31;1946
East Fork Foss River near Skykomish, Wa. (S)	12129500	21.6	1911
Foss River near Skykomish, Wa.	12130000	54.8	1911
South Fork Skykomish (Tye) River near Skykomish, Wa.	12130500	135	1930-31;1946-50
Beckler River near Skykomish, Wa.	12131000	96.5	1929-33;1946-49
Vest Fork Miller River near Miller River (Berlin), Wa. (S)	12131500	13.4	1911
Miller River (Creek) at (near) Miller River, Wa.	12132000	13.2	1911-19;1929-31;1946
South Fork Skykomish River near Miller River (Berlin), Wa. (S)	12132500	313	1910-11
South Fork Skykomish River near Index, Wa.	12133000	355	1903-05;1911-82
Froublesome Creek near Index, Wa.	12133500	10.6	1929-41
North Fork Skykomish River at Index, Wa.	12134000	146	1911-22;1929-38; 1946-4
Vallace River near Gold Bar, Wa.	12135000	18.6	1929-33; 1946-78; 1980-9
Olney Creek near Gold Bar, Wa.	12135500	8.31	1946-50
Olney Creek neary Startup, Wa.	12136000	10.3	1923-26;1929-34
May Creek near Gold Bar, Wa.	12136500	3.80	1928-35;1946-47
Elk Creek near Sultan, Wa.	12137200	11.4	1977-83
Villiamson Creek near Sultan, Wa.	12137260	15.6	1977-83
Sultan River near Startup, Wa.	12137500	74.5	1934-71
Sultan River near Sultan, Wa.	12138000	86.6	1911-27;1929-31
Sultan River below Chaplain Creek, near Sultan, Wa.	12138150	92.6	1975-84
AcCoy Creek near Sultan, Wa.	12138500	6.17	1946-50
Elwell Creek near Sultan, Wa.	12139000	22.9	1946
Roesiger Creek near Machias, Wa.	12139500	3.80	1946-48
Voods Creek below Roesiger Creek, near Monroe, Wa.	12140000	19.0	1946
Carpenter Creek near Machias, Wa.	12140500	8.89	1946
Voods Creek near Monroe, Wa.	12141000	56.4	1946-71
Middle Fork Snoqualmie River near North Bend, Wa.	12141500	169	1907-26;1929-32;1945
Calligan Creek near Snoqualmie, Wa.	12142200	7.31	1964-70
Hancock Creek near Snoqualmie, Wa.	12142300	7.67	1964-71
North Fork Snoqualmie River at cable bridge,. near North Bend, Wa.	12142500	85.6	1914-15
North Fork Snoqualmie River near North Bend, Wa.	12143000	95.7	1907-26;1929-38; 1961-7
bouth Fork Snoqualmie River near Garcia, Wa.	12143500	45.8	1910-15
Beaver Creek near Snoqualmie, Wa.	12144800	4.13	1964-67
Cokul Creek near Snoqualmie, Wa.	12145000	32.2	1907-15;1929-31;1945
Patterson Creek near Fall City, Wa.	12146000	15.5	1947-50;1955-71
Patterson Creek 0.8 miles above mouth, near Fall City, Wa.	12146500	21.3	1945
Griffin Creek near Carnation (Tolt), Wa.	12147000	17.1	1945-70
Phelps Creek near Index, Wa.	12147700	2.04	1961
South Fork Tolt River at upper station, near Carnation, Wa.	12147700	8.82	1958-59
**	12147000	5.58	1957-63
MOSSELUTEEK DEALUARDADON WA	12170/00	5.50	1701 00
Stossel Creek near Carnation, Wa.	12140500	8 30	1945
Harris Creek near Carnation, wa. Ames Creek near Tolt, Wa. Ames Creek near Tolt, Wa.	12149500 12150000	8.39 3.17	1945 1945

[Data listed are for discharge, except where no			
Station name	Station number	Drainage area (mi ²)	Period of record (water years)
SNOHOMISH RIVER	BASINContinued		
Evans Creek near Snohomish, Wa.	12151000	2.75	1946
French Creek near Monroe, Wa.	12151500	7.09	1946
ilchuck River below Worthy Creek, near Granite Falls, Wa.	12152000	41.7	1946
ilchuck River near Granite Falls, Wa.	12152500	54.5	1911;1943-58
ittle Pilchuck River near Lake Stevens, Wa.	12153000	17.0	1946-70
ake Stevens at Lake Stevens, Wa. (S)	12153500	6.83	1946-50
tevens Creek at Lake Stevens, Wa.	12154000	15.3	1946-50
Oubuque Creek near Lake Stevens, Wa.	12154500	7.16	1946-50
anther Creek near Lake Stevens, Wa.	12155000	5.93	1946
Vood Creek near Everett, Wa.	12156000	1.89	1946-48
llen Creek at Marysville, Wa.	12156500	7.93	1946
uilceda Creek near Marysville, Wa.	12157000	15.4	1946-69;1975-77
uilceda Creek above west fork, near Marysville, Wa.	12157005	17.4	1985-86
est Fork Quilceda Creek near Marysville, Wa.	12157020	9.41	1985-86
EAST CENTRAL PUGET SOUNI	D RIVER BASINS (Continued)	
ake Goodwin (Tulalip Creek) near Silvana, Wa. (S)	12157500	5.17	1953-75
ake Shoecraft near Tulalip, Wa. (S)	12158000	6.02	1953-75
STILLAGUAMISH	RIVER BASIN		
outh Fork Stillaguamish River at Silverton, Wa.	12158500	32.7	1929-32
outh Fork Stillaguamish River below Bender Creek, near Silverton, Wa.	12159000	40.7	1950
outh Fork Stillaguamish River near Silverton, Wa.	12159500	43.7	1910-18
oardman Creek near Silverton, Wa.	12160000	8.52	1950
enson Creek near Granite Falls, Wa.	12160500	2.70	1950
anyon Creek near Granite Falls, Wa. (S 1911-13)	12161500	55.3	1911-13;1929-32;1950
outh Fork Stillaguamish River at Granite Falls, Wa.	12162000	182	1911;1914-16
outh Fork Stillaguamish River above Jim Creek, near Arlington, Wa.	12162500	199	1937-58
im Creek near Oso, Wa.	12163000	10.9	1948-50
dub Creek near Oso, Wa.	12163500	6.44	1949-50
m Creek near Arlington, Wa.	12164000	46.2	1938-57
outh Fork Stillaguamish River near Arlington, Wa.	12164500	254	1929-37
quire Creek near Darrington, Wa.	12165000	20.0	1950-69
kykomish River at Sultan, Wa.	12137000	618	1911
Iorth Fork Stillaguamish River near Darrington, Wa.	12165500	82.2	1951-57
oulder Creek near Oso, Wa.	12166000	27.0	1950
Deer Creek near Oso, Wa.	12166500	65.9	1917-30;1950
armstrong Creek near Arlington, Wa.	12167500	7.33	1951-58
tillaguamish River at Silvana, Wa.	12167700	557	1975
Cavanaugh Lake (Lake Creek) near Oso, Wa. (S)	12168000	6.70	1950-51
ilchuck Creek near Bryant, Wa.	12168500	52.0	1929-31; 1950-51; 1952-7 1980-98
ortage Creek near Arlington, Wa.	12169000	8.80	1950
ish Creek near Arlington, Wa.	12169500	7.52	1950-54
Church Creek near Stanwood, Wa.	12170000	6.40	1950
SKAGIT RIV	ER BASIN		
kagit River near Hope, B.C.	12170500	357	1915-22;1935-55
ightening Creek near Newhalem, Wa.	12171000	129	1944-48
kagit River above Devils Creek, near Newhalem, Wa.	12171500	655	1940-45
ig Beaver Creek near Newhalem, Wa.	12172000	63.2	1940-48;1963-69
kagit River above Ruby Creek, near Newhalem, Wa.	12172500	780	1929-40
ranite Creek near Newhalem, Wa.	12173000	71.0	1947-48
uby Creek below Panther Creek, near Newhalem, Wa.	12173500	206	1948-56;1963-69
uby Creek near Newhalem, Wa.	12174000	210	1919-20;1928-49
kagit River below Ruby Creek near, Newhalem, Wa.	12174500	999	1919-30
hunder Creek below McAllister Creek, near Newhalem, Wa.	12175400	91.7	1958-62
hunder Creek near Marblemount, Wa.	12176000	114	1919-30
kagit River at Reflector Bar, near Newhalem, Wa.	12177000	1,125	1909-22
tetattle Creek near Newhalem, Wa.	12177500	22.0	1914-15;1933-83
oodell Creek near Newhalem, Wa.	12178500	38.7	1943-44
kagit River above Alma Creek, near Marblemount, Wa.	12179000	1,274	1951-95
alma Creek near Marblemount, Wa.	12179500	8.37	1943

DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

[Data listed are for discharge, except w	here noted with the letter: (E	E) elevation, (S) stag	e.]
G	Station	Drainage area	Period of record
Station name	number	(mi^2)	(water years)
SKAGIT RI	VER BASINContinued		
kagit River above Bacon Creek near Marblemount, Wa.	12179800	1,289	1977-83
Bacon Creek near Marblemount, Wa.	12180000	50.9	1943-50
Diobsud Creek near Marblemount, Wa.	12180500	25.4	1943-44
Marble Creek near Marblemount, Wa.	12181500	15.9	1943-44
Cascade River near Marblemount, Wa.	12182000	140	1909-13
Cascade River at Marblemount, Wa.	12182500	172	1929-79
Clark Creek at Marblemount, Wa.	12183000	1.42	1944-46
ordan Creek at Marblemount, Wa.	12183500	12.0	1943-48
tocky Creek near Marblemount, Wa.	12184000	10.0	1943-44
Ipper Illabot Creek near Rockport, Wa.	12184200	27.0	1982-83
llabot Creek near Rockport, Wa.	12184500	42.4	1943-45;1982-85
North Fork Sauk River near Barlow Pass, Wa.	12185000	76.4	1918-20
Elliot Creek at Goat Lake Outlet, near Monte Cristo, Wa.	12185300	3.03	1983-93
outh Fork Sauk River near Barlow Pass, Wa.	12185500	33.1	1918-21;1929-31
Whitechuck River near Darrington, Wa. (S 1910-11)	12186500	77.9	1910-11;1919-22
Sauk River above Clear Creek, near Darrington, Wa.	12187000	259	1910-11;1913
Sauk River at Darrington, Wa.	12187500	293	1914-26;1928-32
Suiattle River below Lime Creek, near Darrington, Wa.	12188000	213	1921-22
Suiattle River above Big Creek, near Darrington, Wa.	12188400	307	1971-80
Big Creek near Mansford, Wa.	12188500	21.0	1943-47
Suiattle River near Mansford, Wa.	12189000	335	1938-50
ackman Creek near Concrete, Wa.	12190000	23.9	1943-47
Baker Lake near Concrete, Wa. (S)	12190500	119	1910-15
Swift Creek near Concrete, Wa.	12190710	36.4	1982-90
ark Creek at Upper Bridge, near Concrete, Wa.	12190718	10.5	1982-90
andy Creek near Concrete, Wa.	12191000	10.8	1953-54
Baker River below Anderson Creek, near Concrete, Wa.	12191500	211	1911-25;1928-32; 1955-
Sulphur Creek near Concrete, Wa.	12191800	8.36	1963-74;1981-82
Bear Creek near Concrete, Wa.	12192000	10.0	1953-55
North Fork Bear Creek near Concrete, Wa.	12192500	20.2	1953-55
Bear Creek below Tributaries, near Concrete, Wa.	12192600	14.4	1982-86
Chunder Creek near Concrete, Wa.	12192700	22.4	1983-94
inney Creek near Concrete, Wa.	12194500	51.6	1943-48
Grandy Creek near Concrete, Wa.	12195000	18.9	1943-45
O'Toole Creek near Hamilton, Wa.	12195500	5.69	1943-45
Alder Creek near Hamilton, Wa.	12196000	10.7	1943-71
Skagit River near Hamilton, Wa.	12196150	2,870	1975-77
Day Creek below Day Lake, near Lyman, Wa.	12196200	6.56	1963-71
Day Creek near Hamilton, Wa.	12196400	32.3	1962-69
Day Creek near Lyman, Wa.	12196500	34.2	1943-61
ones Creek near Lyman, Wa.	12197000	7.80	1943-44
Childs Creek near Lyman, Wa.	12197020	2.40	1974-76
Sank Creek near Lyman, Wa.	12197040	2.50	1974-80
Minkler Creek near Lyman, Wa.	12197110	5.00	1974-80
Gilligan Creek near Lyman, Wa.	12197500	6.31	1943-44
black Creek near Minkler, Wa.	12197680	0.50	1975-80
lack Creek near Lyman, Wa.	12197690	0.50	1974-75
Viseman Creek near Lyman, Wa.	12197700	3.00	1974-83
dool (Coal) Creek near Sedro Woolley, Wa.	12198000	1.88	1948-50
Iansen Creek near Sedro Woolley, Wa.	12198500	9.66	1943-45
lookachamps Creek near Mount Vernon, Wa.	12199500	22.2	1943-44
East Fork Nookachamps Creek near Big Lake, Wa.	12199800	3.56	1962-71
ast Fork Nookachamps Creek near Clear Lake, Wa.	12200000	20.5	1943-50;1962-63
PUGET S	SOUND LOWLANDS		
Innamed Tributary to Jasper Bay, on LopezIsland, Wa.	12200728	0.61	1997-98
Innamed Tributary to Davis Bay, on Lopez Island, Wa.	12200720	1.84	1997-98
Innamed Tributary to Squaw Bay, on Shaw Island, Wa	12200737	0.30	1997-98

12200737

12200750

12200762

0.30

0.50

0.56

1997-98

1997-98

1997-98

Unnamed Tributary to Squaw Bay, on Shaw Island, Wa.

Unnamed Tributary to Trout Lake, on San Juan Island, Wa.

Unnamed Tributary to Massaxre Bay, on Orcas Island, Wa.

[Data listed are for discharge, except where noted with the letter: (E) elevation, (S) stage.]				
	Station	Drainage area	Period of record	
Station name	number	(mi^2)	(water years)	
NORTHEASTERN PUGET S	OUND RIVER BA	SINS		
riday Creek near Burlington, Wa.	12201000	37.1	1943-49	
Anderson Creek near Bellingham, Wa.	12201950	4.13	1968-70;1972	
Austin Creek near Bellingham, Wa.	12202000	7.73	1948;1954;1968-70	
mith Creek near Bellingham, Wa.	12202050	5.12	1968-69	
Olsen Creek near Bellingham, Wa.	12202300	3.78	1968-69	
Whatcom Creek near Bellingham, Wa. (S 1910-14)	12203000	56.1	1911-12;1939-46; 1974-7	
Vhatcom Creek below Hatchery, near Bellingham, Wa.	12203500	56.1	1946-57;1968-69	
qualicum Creek at Bellingham, Wa.	12204000	12.0	1948-49;1954-55	
NOOKSACK RIV	ER BASIN			
looksack River at Excelsior, Wa.	12204500	95.7	1920-21	
Jooksack (North Fork) River near Glacier, Wa. (S 1910)	12205500	193	1911;1934-38	
Kendall Creek at Kendall, Wa.	12206000	24.0	1948-50	
Kendall Creek at mouth, at Kendall, Wa.	12206500	29.2	1954-55	
Coal Creek near Kendall, Wa.	12207000	4.57	1948-49;1954-55	
North Fork Nooksack River near Deming, Wa.	12207200	282	1964-75	
Middle Fork Nooksack River at Ranger Station, near Deming, Wa. (S)	12207500		1910	
kookum Creek near Wickersham, Wa.	12209500	23.1	1948-69	
bouth Fork Nooksack River at Saxon Bridge, Wa.	12210000	129	1920-21;1933-34	
Anderson Creek near Goshen, Wa.	12211000	12.9	1948;1954-55	
Nooksack River near Lynden, Wa.	12211500	648	1945-67	
ishtrap Creek at Lynden, Wa.	12212000	22.3	1948-71	
Bertrand Creek near Lynden, Wa.	12212500	40.3	1948;1954-55	
Senmile Creek near Laurel, Wa.	12212900	23.6	1968-72	
Senmile Creek near Ferndale, Wa.	12213000	22.7	1948;1954-55	
NORTHEASTERN PUGET SOUND			1710,1731 33	
California Creek near Custer, Wa.	12213500	6.85	1954-55	
Dakota Creek near Blaine, Wa.	12214000	18.4	1948-55	
dumas River near Sumas, Wa.	12214500	33.0	1948-51;1954-55	
ohnson Creek at Sumas, Wa.	12215000	23.0	1954-55	
Sumas River near Huntington, B.C. (S 1935-52)	12215100	57.6	1960-78	
daar Creek near Sumas, Wa.	12215500	9.76	1948;1954-55	
	12215700	131	1946,1934-33	
Chilliwack River (at Lake Outlet) near Vedder Crossing, B.C.	12215700	62.7	1961-78	
lesse Creek near Vedder Crossing, B.C. UPPER COLUMBIA		02.7	1901-78	
Calispell Creek near Dalkena, Wa.	12396000	68.3	1950-73	
Vinchester Creek near Cusick, Wa.	12396100	16.8	1957	
Imalle Creek near Cusick, Wa.	12396100	25.1	1957	
rimble Creek near Cusick, Wa.				
	12396300 12397500	3.50	1957	
ullivan Creek near Metaline Falls, Wa. end Oreille River below Z Canyon, near Metaline Falls, Wa. (\$ 1908-10)		122	1912-25	
almo River near Salmo, B.C.	12398500 12398900	25,200 476	1909-10;1913-64	
almo (Salmon) River near Waneta, B.C.	12398900	500	1961-78 1936-46	
	12399600	191	1972-75	
Deep Creek near Northport, Wa. Big Sheep Creek (HD Sheep Cr.) near Rossland, B.C.				
	12399900	134	1961-78	
heep Creek near Velvet, Wa.	12400000	171 225	1929-32	
heep Creek near Northport, Wa. KETTLE RIVE	12400500 R BASIN	223	1929-42	
KETTE KIVE	12401000	85.7	1926-50	
Avers Creek near Mynageter R C	12401000		1953-54	
		65.9	1933-34	
Myers Creek near Myncaster, B.C. Curlew Lake near Malo, Wa. (S)		66 0	1051 54	
Curlew Lake near Malo, Wa. (S) Curlew Creek near Malo, Wa.	12402500	66.8	1951-54	
Curlew Lake near Malo, Wa. (S) Curlew Creek near Malo, Wa. Curlew Creek near Curlew, Wa.	12402500 12403000	89.8	1917-21	
Curlew Lake near Malo, Wa. (S) Curlew Creek near Malo, Wa.	12402500			

	Station	Drainage area	Period of record
Station name	number	(mi^2)	(water years)
UPPER COLUMBIA	RIVER BASIN (Continue	ed)	
Columbia River at Kettle Falls, Wa.	12405500	64,500	1913-41
	E RIVER BASIN	- 1,	
		10.2	1052 79
Deer Lake near Loon Lake, Wa. (S) Loon Lake near Loon Lake, Wa. (E)	12406000 12406500	18.2 14.1	1953-78 1950-89
Sheep Creek at Loon Lake, Wa.	12407000	37.9	1950-59
Sheep Creek at Springdale, Wa.	12407500	48.2	1953-72
Deer Creek near Valley, Wa.	12407520	36.0	1959-72
Sumpoff Joe Lake near Valley, Wa. (S)	12407530	2.35	1961-75
Waitts Lake near Valley, Wa. (S)	12407550	14.2	1961-75
Chewelah Creek at Chewelah, Wa.	12407700	94.1	1957-74
Colville River at Blue Creek, Wa.	12408000	428	1923-24;1960-66;1979
Lake Thomas near Tiger, Wa. (S)	12408210	12.7	1961-66
Little Pend Oreille River near Colville, Wa.	12408300	132	1958-75
Haller Creek near Arden, Wa.	12408420	37.0	1959-70
White Mud Lake near Colville, Wa. (S)	12408440	15.3	1961-66
Mill Creek below Forks, near Colville, Wa.	12408450	67.9	1959
Mill Creek near Colville, Wa.	12408500	83.0	1939-72;1977-86
UPPER COLUMBIA RIVER E	BASIN (Franklin D. Roos	sevelt Lake)	
Mill Creek at Mouth near Colville, Wa.	12408700	146	1959-65
Hall Creek at (near) Inchelium, Wa.	12409500	161	1913-29;1972-73
Stranger Creek at Meteor, Wa.	12410000	50.9	1916-29
Stranger Creek at Inchelium, Wa.	12410500	80.2	1914-17
Harvey Creek near Cedonia, Wa.	12410700	29.9	1958
SPOKANE	E RIVER BASIN		
Newman Lake near Newman Lake, Wa. (S)	12419800	28.6	1958-80
Liberty Lake at Liberty, Wa. (E)	12420000	13.3	1950-89
Spokane River at Trent, Wa.	12421000	4,200	1912-13
Spokane River below Trent Bridge, near Spokane, Wa.	12421500	4,200	1948-54
Spokane River below Green Street, at Spokane, Wa.	12422000	4,220	1949-52
Hangman (Latah) Creek at Tekoa, Wa.	12423000	130	1904-05
North Fork Hangman (NF Latah) Creek at Tekoa, Wa.	12423500	60.0	1904-05
Spokane River above 7 Mile Bridge, near Spokane, Wa.	12424500	5,020	1949-52
Medical Lake at Medical Lake, Wa. (E)	12425000	1.35	1953-58
Deep Creek near Spokane, Wa.	12425500	76.6	1949
Spokane River below Nine-Mile Dam, near Spokane, Wa.	12426000	5,200	1948-50
Little Spokane River at Scotia, Wa.	12426500	74.2	1948
Little Spokane River at Elk, Wa.	12427000	115 17.4	1948-71 1053-78
Diamond Lake (W. Branch Little Spokane) near Newport, Wa. (S)	12427500		1953-78 1954-75
Sacheen Lake near Newport, Wa. (S) Eloika Lake near Elk, Wa. (S)	12428000 12428500	33.5 101	1954-75 1953-75
Little Spokane River at Milan, Wa	12429000	274	1948
Little Spokane River at Chattaroy, Wa.	12429500	301	1948
Wethey Creek near Deer Park, Wa.	12430000	12.0	1948
Deep Creek at Colbert, Wa.	12430500	32.8	1948
Little Spokane River at Norman's Ranch near Spokane, Wa. (S)	12431900	700	1911-12
Little Spokane River near Spokane, Wa.	12432000	701	1913
Chamokane Creek near Springdale, Wa.	12433100	99.9	1973-78
Spokane River below Little Falls, near Long Lake, Wa.	12433500	6,220	1913-40
Blue Creek below Midnight Mine drainage, near Wellpinit, Wa.	12433558	7.3	1980;1984-92
Blue Creek near mouth, near Wellpinit, Wa.	12433561	19.1	1984-92
UPPER COLUMBIA RIVER BASIN	(Franklin D. Roosevelt l	Lake) (Continued)	
Sanpoil River above Thirteen Mile Creek, near Republic, Wa.	12433890	263	1972-74
Lost Creek near Aeneas, Wa.	12434000	84.0	1921
West Fork Sanpoil River near Republic, Wa.	12434110	308	1972-74
Sanpoil River near Keller, Wa.	12434500	880	1952-55;1972-74
Sanpoil River at Keller, Wa.	12435000	928	1911-18
Nespelem Canal at Nespelem, Wa.	12437000		1921-29
Nespelem River at (near) Nespelem, Wa.	12437500	122	1911-29
Nespelem River below Millpond at Nespelem, Wa.	12437505	123	1972-74
Rufus Woods Lake at Bridgeport, Wa.	12437900	75,400	1955-62

[Data listed are for discharge, except where noted with the letter: (E) elevation, (S) stage.]				
	Station	Drainage area	a Period of record	
Station name	number	(mi ²)	(water years)	
OKANOG <i>A</i>	N RIVER BASIN			
anagan River at Okanagan Falls, B.C.	12438500	2,650	1915-65	
anogan River at Bridge Street, at Oroville, Wa. (S,E)	12439150	3,133	1965-91	
asket River at Oroville, Wa.	12439300	60.1	1967-91	
nogan River at Zosel Millpond, at Oroville, Wa. (S,E)	12439400	3,195	1965-86	
hekin Creek above Blue Lake, near Loomis, Wa.	12440000	41.7	1924-30	
hekin Creek at Blue Lake, near Loomis, Wa.	12440500	42.9	1920	
hekin Creek at Twin Bridge, near Loomis, Wa.	12441000	75.5	1921-23	
hekin Creek near Loomis, Wa.	12441500	86.0	1903-05	
Coulee Creek near Loomis, Wa.	12442000	130	1920-26;1957-70	
estone Irrigation Canal near Loomis, Wa.	12442200		1957-70	
hekin Creek above Chopaka Creek, near Loomis, Wa.	12442300	256	1957-66	
r Lake near Nighthawk, Wa. (E)	12442400	293	1956-68	
lle-Tonasket Irrigation District Canal near Oroville, Wa.	12443000		1916-28	
kameen River near Oroville, Wa.	12443500	3,580	1911-28	
acle Lake near Loomis, Wa. (S)	12443800	17.2	1956-71	
stone Lake near Tonasket, Wa. (S)	12444000	52.3	1958-71	
stone Creek near Tonasket, Wa.	12444100	55.4	1959-72	
parte Creek near Wauconda, Wa.	12444490	96.6	1968-73	
parte Creek near Anglin, Wa.	12444550	110	1921	
as Lake near Tonasket, Wa. (S)	12444700	32.4	1964-83	
on Creek near Riverside, Wa.	12445500	68.2	1903-08	
c Creek near Omak, Wa.	12445900	119	1972-74;1976-79	
ame Creek near source, near Omak, Wa.	12445939		1976-78;1981-88	
ame Creek Diversion near Omak, Wa.	12445940		1976-88	
ame Creek below Diversion near Omak, Wa.	12445941		1976-88	
ame Creek Diversion Return near Omak, Wa.	12445942		1976-79	
ame Creek at Granite Lip,near Omak, Wa.	12445944		1976-78;1981-88	
ogan River at Okanogan, Wa.	12446000	7,900	1911-25	
on Creek near Concully (Okanogan), Wa.	12446500	121	1910-22	
on Creek near Okanogan (Malott), Wa. (S 1911-12)	12447000	150	1903-10	
ogan River near Malott, Wa.	12447300	8,220	1958-67	
METHOV	RIVER BASIN			
ack Creek below Boulder Creek near Winthrop, Wa.	12447500	465	1920-21	
River at Twisp, Wa. (S)	12449000	250	1911-13	
er Creek below South Fork near Twisp, Wa.	12449600	62.0	1960-78	
er Creek near Twisp, Wa.	12449700	68.1	1956-61	
er Creek near mouth near Twisp, Wa.	12449710	110	2001	
Lake near Pateros, Wa. (S)	12450000	5.01	1954-75	
ow River at Pateros, Wa.	12450500	1,810	1903-20	
,	D CHELAN RIVER BAS			
oad Creek at Lucerne, Wa.	12451500	64.8	1911-13;1927-57	
y Harbor Creek near Manson, Wa.	12451600	7.85	1961-69	
e Creek near Manson, Wa.	12451620	8.45	1961-69	
Creek near Manson, Wa.	12451650	6.30	1961-69	
on Creek Feeder System Canal near Manson, Wa.	12451700		1958-69	
•	RIVER BASIN			
River at Entiat, Wa.	12453000	419	1911-25;1951-58	
MID-COLUM	BIA RIVER BASIN			
anyon Creek near Waterville, Wa.	12453500	11.1	1945-47	
	EE RIVER BASIN			
(HD Wenatchee) River near Plain, Wa.	12454000	150	1911-14;1954-8	
tchee Lake near Plain, Wa. (E)	12454500	273	1932-71	
tchee River below Wenatchee Lake, Wa.	12455000	273	1932-58	
Creek near Nason, Wa.	12455500	88.7	1911	
s Creek near Plain, Wa.	12456000	16.4	1927-31	
aukum Creek near Chiwaukum, Wa.	12457500	49.6	1911	
Creek near Leavenworth, Wa.	12458500	211	1911-15	
stin Creek at Blewett, Wa.	12459500	40.0	1911-12	
stin Creek below Ingall Creek near Leavenworth, Wa.	12460000	101	1911-12	

	Station D	Drainage area	Period of record
Station name	number	(mi ²)	(water years)
WENATCHEE RIV	ER BASINContinued		
enatchee River at Dryden (Cashmere), Wa.	12461000	1,155	1904-17
lission Creek above Sand Creek near Cashmere, Wa.	12461400	39.8	1958-71
and Creek near Cashmere, Wa.	12461500	18.6	1954-56
lission Creek at (near) Cashmere, Wa.	12462000	81.2	1954-59
ouglas Creek near Alstown, Wa.	12463000	99.9	1949-55;1963-68
ouglas Creek near Palisades, Wa.	12463500	206	1951-52
ouglas Creek at Palisades, Wa.	12464000	844	1954-55
-	VER BASINContinue		1754-55
blumbia River at Trinidad (Wenatchee) (Vernita), Wa. (S 1910)	12464500	90,500	1911,1913-63
		90,300 47	
and Hollw at CRS SW, near Vantage, Wa.	12464606		1993-95
Vest Medical Lake near Medical Lake, Wa. (S)	12464669	1.84	1964-75
lear Lake near Medical Lake, Wa. (S)	12464670	9.51	1958-80
rab Creek at Marcellus Road, near Ritzville, Wa.	12464770	384	1994-95
rab Creek above Sylvan Lake near Lamona, Wa.	12464780	542	1972-74
oal Creek at Mohler, Wa.	12464800	64.7	1963-74
ylvan Lake near Lamona, Wa.	12464809	675	1973-74
rab Creek below Sylvan Lake near Odessa, Wa.	12464810	686	1972-74
Vilson Creek below Corbett Draw near Almira, Wa.	12465400	327	1969-71,1972-79;1991-
Vilson Creek, Wa.	12465500	427	1951-73
rab Creek at Wilson Creek, Wa. (S)	12466000	1,765	1904
rab Creek (Upper Crab) Creek at Adrain, Wa.	12466500	1,950	1910-12
ark Creek (Continuation of Grand Coulee) nr Coulee City, Wa.	12467500	400	1942-45
ark Lake near Coulee City, Wa. (E)	12468000	317	1938-68
ark Creek below Park Lake near Coulee City, Wa.	12468500	317	1945-68
lue Lake near Coulee City, Wa. (E)	12469000	334	1938-68
ocky Ford Creek near Ephrata, Wa.	12470500	458	1909-12;1942-91
renchman Hills Wasteway on SE C Rd,near Moses Lake, Wa.	12471090	202	1993-94
arrier Coulee near Schrag, Wa.	12471270	42.0	1963-74
ind Coulee Wasteway at State Route 17, near Warden, Wa.	12471400	703	1993-95;1990-2001
rab Creek (Lower Crab Creek) near Warden, Wa.	12471500	4,470	1909-12;1943-66
W 272A1 Drain near Royal Camp, Wa.	12472300	0.88	1977-81
W 272A Drain near Royal Camp, Wa.	12472350	3.36	1977-81
· ·		3.30	
rab Creek Lateral abv Royal Lake, nr Othello, Wa.	12472380	4.500	1994-96
rab Creek near Smyrna, Wa.	12472500	4,500	1942-60
olumbia River near Julia, Wa. (S)	12473000		1905
olumbia River at Hanford, Wa. (S)	12473500		1910
E 16.4 Wasteway near Mouth, near Hanford, Wa.	12473508	118	1987;1994
olumbia River at Ringold, Wa. (E)	12473510		1980-81
L 68-D Wasteway near Othello, Wa.	12473740	121	1979;1994
YAKIMA I	RIVER BASIN		
eechelus Lake near Martin, Wa.	12474000	55.8	1906-88
akima River near Martin, Wa.	12474500	54.7	1903-78
abin Creek near Easton, Wa.	12475000	31.7	1909-11
Cachess Lake near Easton, Wa.	12475500	63.6	1905-88
Cachess River near Easton, Wa.			
•	12476000	63.6	1904-78
akima River at Easton, Wa.	12477000	188	1904-05;1910-15; 1941- 1950-55
ig Creek near Cle Elum, Wa. (S)	12477500		1909
orth Fork Cle Elum River at Galena, Wa. (S 1911)	12478000		1907;1911
le Elum River near Roslyn, Wa.	12479000	203	1904-78
akima River at Cle Elum, Wa.	12479500	495	1906-78;1987-90
eanaway River below Forks near Cle Elum, Wa.	12480000	172	1911-12;1968-73
eanaway River near Cle Elum, Wa.	12480500	200	1909-14;1947-52
wauk Creek near Cle Elum, Wa.	12481000	87.8	1909-14
ascade Canal near Ellensburg, Wa. (S 1905)	12481500		1905;1909-11
aneum Creek near Thorp, Wa.	12482000	74.3	1909-12
•			
Vest Kittitas Canal near Thorp, Wa.	12482500		1904-05;1909-11
llensburg Water Co Canal near Ellensburg, Wa.	12483000		1904-05;1909-11
Ianastash Creek near Ellensburg, Wa.	12483500	74.5	1909-14
Vilson Creek near Ellensburg, Wa.	12483600	13.6	1956-78

DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

[Data listed are for discharge, except where noted with the letter: (E) elevation, (S) stage.]

Station name	Station number	Drainage area (mi ²)	Period of record
Station name	number	(mi)	(water years)
YAKIMA RIVER B.	ASINContinued		
Naneum Creek near Ellensburg, Wa.	12483800	69.5	1957-78
Cooke Creek near Ellensburg, Wa.	12484300	18.6	1957-60
Vilson Creek at Thrall, Wa. (S)	12484490	382	1911
Roza Canal near Moxee City, Wa.	12485000		1942-78
elah-Moxee Canal near Selah, Wa.	12485500		1904-05;1909-12
Venas Creek near Selah, Wa. (S 1910-12)	12486000	192	1909-12
Caylor Canal near Selah, Wa. (S 1905)	12486500		1905;1909-12
Yakima River at Selah Gap near North Yakima, Wa. (S 1905)	12487000	2,130	1897-98;1904-05; 1911-1
Bumping Lake near Nile, Wa.	12487500	117	1906;1909-88
Bumping River near Nile, Wa.	12488000	70.7	1906;1909-78
Naches River at Anderson Ranch near Nile, Wa.	12489000	392	1909-14
Naches River at Oak Flat near Nile, Wa.	12489500	641	1904-18
North Fork Tieton River below Clear Creek near Naches, Wa	12490500	61.5	1914-15
Cieton Canal near Naches, Wa.	12492000		1910-60
Cieton River at Headworks T Canal, near Naches, Wa.	12492500	239	1906-78
Fieton River above and below Oak Creek, near Naches, Wa.	12493000	296	1902-13
Vaches River below Tieton River, near Naches, Wa.	12494000	941	1905;1908-79
Naches Canal Co (Gleed) Canal near Naches, Wa. (S 1905)	12494500		1904-05;1909-13
Yakima Valley Canal near Naches, Wa. (S 1905)	12495000		1904-05;1909-11
Vaches-Cowiche Canal near North Yakima, Wa. (S 1905)	12495500		1904-05;1909-11
North Yakima Power Canal near North Yakima, Wa. (S 1905)	12496000		1904-05;1910
Schanno Canal near North Yakima, Wa. (\$ 1905)	12496500		1904-05;1909-11
North Yakima Power Waste at North Yakima, Wa.	12497000		1909-12 1909-12
North Yakima Milling Co Waste at North Yakima, Wa.	12497500 12498000		
Old Union Canal near North Yakima, Wa. (S 1905) Vaches Avenue Union Canal at North Yakima, Wa.	12498500		1904-05;1909-11 1910
Naches River near North Yakima, Wa. (S 1893-95)	12498300	1,106	
Moxee Co Canals near North Yakima, Wa. (S 1893-93)	12499500	1,100	1893-1915;1987-90 1904-05;1909-11
Fowler Canal near North Yakima, Wa. (S 1905;1909-11)	12500000	 	1904-03,1909-11
Moxee Drain at Birchfield Road near Union Gap, Wa.	12500420	 	1999-2000
North Fork Ahtanum Creek near Tampico, Wa.	12500500	68.9	1907-78
South Fork Ahtanum Creek at Conrad Ranch, near Tampico, Wa.	12501000	24.8	1915-78
South Fork Ahtanum Creek near Tampico, Wa. (S 1907)	12501500	28.5	1908-15
Ahtanum Creek at Narrows near Tampico, Wa. (3 1907)	12502000	119	1908-13;1960-68
Yakima River at Union Gap near Yakima, Wa.	12503000	3,652	1898-1914;1963-66
New Reservation Canal near Parker, Wa.	12503500	3,032	1904-78
Old Reservation Canal near Parker, Wa. (S 1905)	12504000		1904-78
Sunnyside Canal near Parker, Wa. (5 1905)	12504500		1904-78
Vakima River near Parker, Wa.	12505000	3,660	1908-78
Reservation Drain at Alfalfa, Wa.	12505500		1913-23
Coppenish Creek near Fort Simcoe, Wa.	12506000	122	1909-24
Simcoe Creek below Spring Creek, near Fort Simcoe, Wa.	12506500	81.5	1909-23
Toppenish Creek near White Swan, Wa. (S 1912)	12507000	409	1909-12
Coppenish Creek at Alfalfa, Wa.	12507500	625	1909-12
Satus Creek near Toppenish, Wa.	12508000	271	1909-13
Satus Creek hear Toppenish, Wa.	12508500	234	1913-24
Drain 61.0 above Drain 61.4, near Sunnyside, Wa.	12508755	3.27	1979-82
Orain 61.0 above Drain 61.4, iteal Sunnyside, wa.	12508769	0.92	1979-82
Orain 59.6 below 60.2, near Sunnyside, Wa.	12508775	0.68	1979-82
Orain 59.4 near Sunnyside, Wa.	12508779		1979-82
ulphur Creek Wasteway near Sunnyside, Wa.	12508850	155	1976-77;1987-90
Vakima River near Mabton, Wa.	12509000	5,359	1911-14
'akima River at Euclid Bridge near Grandview, Wa.	12509050	5,400	1987-90
Yakima River near Prosser, Wa.	12509500	5,453	1904-06;1913-33
Kiona Canal near Kiona, Wa. (S 1908-09)	12501000		1904-05;1908-11
Cold Creek at Yakima/Benton County line, near Priest Rapids Dam, Wa.	12510618		1990-94
Cold Creek at Highway 24, near Priest Rapids Dam, Wa.	12510625	39.4	1991-95
Ory Creek at Highway 241, near Priest Rapids Dam, Wa.	12510650	57.9	1991-95
Ory Creek near Rattlesnake Spring, near Priest Rapids Dam, Wa.	12510655		1991-95
Kennewick Canal near Kiona, Wa. (S 1905)	12511000		1904-05;1910-11
Lower Yakima Canal near Kiona, Wa. (S 1905)	12511500		1905;1910-11

	Station	Drainage area	Period of record
Station name	number	(mi^2)	(water years)
YAKIMA RIVER E	BASINContinued		
akima River near Richland, Wa. (S 1907-08)	12512000	6,120	1906-11
rovidence Coulee at Cunningham, Wa.	12512500	27.8	1953-77
rovidence Coulee near Cunningham, Wa.	12512550	52.1	1998
squatzel Coulee at Eltopia, Wa.	12513500	551	1953-79
squatzel Diversion Channel below Headworks, near Pasco, Wa.	12513650	798	1994
olumbia River at Pasco, Wa. (S 1904-10;1979-80)	12514000	104,000	1904-10;1964-66; 1980-8
intel Canyon Wasteway above Vancouver Street, at Kennewick, Wa.	12514095	ND	1992-93
GRANDE RONDI	E RIVER BASIN		
rande Ronde River at Zindel, Wa.	13334000	3,950	1904-12
SNAKE RIV	ER BASIN		
sotin Creek (at Shelmans Ranch) near Asotin, Wa.	13334500	156	1904-07;1910-12;1928-60
sotin Creek below Kearner Gulch, near Asotin, Wa.	13334700	170	1960-82;1990-96
sotin Creek above Asotin, Wa. (S)	13335000		1904-06
nake River near Clarkston (at Riparia), Wa. (S 1935-48)	13343500	1,032	1900-72
nake River below Lower Granite Dam, Wa.	13343600	103,000	1979-85
Ieadow Creek near Central Ferry, Wa.	13343800	66.2	1963-74
ucannon River near Pomeroy, Wa.	13344000	160	1913-15;1924-30
PALOUSE RI	VER BASIN		
alouse River at Palouse, Wa.	13345300	360	1973-80
alouse River at Elberton, Wa. (S 1905)	13345500	406	1904;1905
alouse River near Colfax, Wa.	13346000	491	1955-64
alouse River at Colfax, Wa.	13346100	497	1955-73;1976-79
outh Fork Palouse River above Paradise Creek, near Pullman, Wa.	13346500	84.4	1934-40
aradise Creek near Pullman, Wa.	13347000	34.5	1934-38
ry Fork of South Fork Palouse River, at Pullman, Wa.	13347500	7.28	1935-38
Iissouri Flat Creek at Pullman, Wa.	13348500	27.1	1934-40;1960-79
ourmile Creek at Shawnee, Wa.	13349000	71.6	1934-40
outh Fork Palouse River at Colfax, Wa.	13349200	277	1994-94
alouse River below South Fork, at Colfax, Wa.	13349210	796	1964-72;1976-95
ebel Flat Creek at Winona, Wa.	13349320	73.2	1993-95
hilleo Ditch near Cheney, Wa.	13349325	14.7	1994-95
ine Creek at Pine City, Wa.	13349400	302	1961-75
ine Creek at Pine City Road, at Pine City, Wa.	13349410	306	1994
ock Creek near Ewan (St. John), Wa.	13349500	523	1904-05;1914-17
alouse River near Winona, Wa.	13350000	2,056	1915-17
nion Flat Creek near Colfax, Wa.	13350500	189	1953-71
ilver Lake at Medical Lake, Wa. (E)	13351300	19	1958-75
Villiams Lake near Amber, Wa. (S)	13351500	23.4	1955-75
prague (Colville) Lake near Sprague, Wa. (E)	13351800	289	1958-80
ow Creek near Keystone, Wa. (S)	13352000	117	1904-05
ow Creek at Hooper, Wa. nake River below Ice Harbor Dam, Wa.	13352500	679	1951-54;1962-70
,	13353000	108,500	1908-17;1962-90;1996-20
WALLA WALLA			
lue Creek near Walla Walla, Wa.	14013500	17	1940-71
ellowhawk Creek at Walla Walla, Wa.	14014000		1941-52
arrison Creek at Walla Walla, Wa.	14014500		1941-52
Valla Walla River at Whitman, Wa. (S)	14015500		1897-1899
ry Creek near Walla Walla, Wa.	14016000	48.4	1949-67
ast Fork Touchet River near Dayton, Wa.	14016500	102	1941-51;1956-64; 1966-6
ast Fork Touchet River below Hatley Creek, near Dayton, Wa.	14016610	106	1964-66
ouchet River at Bolles, Wa.	14017000	361	1924-29;1951-89
ouchet River near Touchet, Wa. ttalia Irrigation District Canal near Wallula, Wa.	14017500 14018000	733	1941-55 1924-25

[Data listed are for discharge, except where noted with the letter: (E) elevation, (S) stage.]				
	Station	Drainage area	Period of record	
Station name	number	(mi ²)	(water years)	
LOWER COLUM	BIA RIVER BASIN			
Alder Creek at Alderdale, Wa.	14034350	197	1962-68;1980-82	
Rock Creek near Goldendale, Wa.	14036500	120	1912-13	
Rock Creek near Roosevelt, Wa.	14036600	213	1962-68	
	RIVER BASIN			
Klickitat River above Pearl Creek, near Glenwood, Wa.	14106000	131	1910;1916-17	
Pearl Creek near Glenwood, Wa.	14106500	4	1916-17	
Swamp Creek near Glenwood, Wa.	14107500	11.2	1916-17	
West Fork Klickitat River near Glenwood, Wa.	14108000	87	1910-11;1916-17; 1945-49 1953-55	
Cunningham Creek near Glenwood, Wa.	14108500	16	1916-17	
Big Muddy Creek near Glenwood, Wa.	14109000	22.5	1916-18;1945-49	
Cougar Creek near Glenwood, Wa.	14109500	3.8	1916-17	
Klickitat River (above, below Big Muddy R) near Glenwood, Wa.	14110000	360	1905-09;1910-71;	
2 2 (2, 2 2.g	1.110000	500	(S 1905-08)	
ndian Ford Springs No 1 near Glenwood, Wa.	14110500		1947-48	
Klickitat River at Hanson Cable near Klickitat, Wa. (S)	14111000		1908-09	
Klickitat River below Glenwood, Wa.	14111500	747	1914-15	
Buttler Creek near Goldendale, Wa.	14111700	11.6	1964-68	
Little Klickitat River near Goldendale, Wa.	14112000	83.5	1911-12;1947-51; 1958-70	
Spring Creek near Blockhouse, Wa.	14112300	2.75	1964-68	
Mill Creek near Blockhouse, Wa.	14112400	26.90	1964-72	
Little Klickitat River near Wahkiacus, Wa.	14112500	280	1945-81	
WHITE SALMO	ON RIVER BASIN			
White Salmon River below Cascades Creek, near Trout Lake, Wa.	14121300	32.4	1957-78	
White Salmon River above Trout Lake Creek, near Trout Lake, Wa.	14121400	64.9	1959-69	
Frout Lake Creek near Trout Lake, Wa.	14121500	69.3	1909-12;1959-69	
White Salmon River near Trout Lake, Wa.	14122000	185	1918;1929-31; 1957-67	
White Salmon River at Splash Dam, near Trout Lake, Wa.	14122500	240	1912-17	
White Salmon River at B-Z Corner, Wa.	14122900	269	1958-65	
White Salmon River at Husum, Wa.	14123000	294	1909-20;1930-41; 1957-62	
Little White Salmon River near Willard, Wa.	14124000	39.2	1945-49	
Little White Salmon River at Willard, Wa.	14124500	114	1904-06;1945-61	
Little White Salmon River above Lapham Creek, near Willard, Wa.	14125000	117	1949-64	
Little White Salmon River near Cook, Wa.	14125500	134	1957-78	
LOWER COLUMBIA R	IVER BASIN (Continu	ied)		
falls Creek near Carson, Wa.	14126500	24.3	1945-49	
Wind River above Trout Creek, near Carson, Wa.	14127000	108	1945-69	
Frout Creek near Stabler, Wa.	14127300	21.0	1996-99	
Frout Creek near Carson, Wa.	14127500	30.3	1945-49	
Panther Creek near Carson, Wa.	14128000	30.1	1945-53	
Wind River near Carson, Wa.	14128500	225	1935-77;1996-97	
Columbia River at Stevenson, Wa.	14128600	239,000	1974-97	
Columbia River at Washougal, Wa. (S 1990)	14129400	240,000	1972-81;1990-93	
West Fork Washougal River near Washougal, Wa.	14143000	30.3	1951	
Washougal River near Washougal, Wa.	14143500	108	1944-81	
Little Washougal River near Washougal, Wa.	14144000	23.3	1951-56	
Lacamas Creek at Proebstel, Wa.	14144500	22.5	1951	
Burnt Bridge Creek at 112th Avenue at Vancouver, Wa.	14211895	3.6	1999-2000	
Burnt Bridge Creek at 118h Avenue at Vancouver, Wa.	14211898	18.9	1999-2000	
Cold Creek at mouth at Vancouver, Wa.	14211901	2.71	1999-2000	
Burnt Bridge Creek near mouth at Vancouver, Wa.	14211902	27.6	1999-2000	
Salmon Creek near Battleground, Wa.	14212000	18.3	1944-75; 1988-89	
Salmon Creek near Brush Prairie, Wa.	14212500	63.5	1941-42	
Salmon Creek near Vancouver, Wa.	14213000	80.7	1951	

DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

[Data listed are for discharge, except where	noted with the letter: (E	E) elevation, (S) stag	ge.]
Station name	Station number	Drainage area (mi ²)	Period of record (water years)
LEWIS R	IVER BASIN		
Lewis River near Trout Lake, Wa.	14213200	127	1959-72
Big Creek below Skookum Meadow, near Trout Lake, Wa.	14213500	13.2	1927-31;1955-70
Rush Creek above Meadow Creek, near Trout Lake, Wa.	14214000	5.87	1955-65
Rush Creek above Meadow Creek, near Guler, Wa.	14214200	10.1	1929-30
Meadow Creek below Lone Butte Meadow, near Trout Lake, Wa.	14214500	11.7	1927-31;1955-65
Rush Creek above Falls, near Cougar, Wa.	14215000	26	1928-31;1956-74
Curly Creek near Cougar, Wa.	14215500	11.6	1955-70
Lewis River above Muddy River, near Cougar, Wa.	14216000	227	1927-34;1955-70
Clearwater Creek near mouth, near Cougar, Wa.	14216300	33	1981-89
Muddy River above Clear Creek, near Cougar, Wa.	14216350	84.1	1981-82
Pine Creek near Cougar, Wa.	14216800	22.4	1957-70
Pine Creek at mouth, near Cougar, Wa.	14216900	26	1982
Lewis River at Peterson Ranch, near Cougar, Wa. (S 1910)	14217000	454	1909-10
Swift Creek near Cougar, Wa.	14217500	27.5	1924-34;1954-56
Lewis River near Cougar, Wa. (S 1910-12)	14218000	481	1910-12;1924-58
Canyon Creek near Amboy, Wa.	14219000	64.9	1922-34
Lewis River near Amboy, Wa.	14219500	665	1911-31
Chelatchie Creek at Amboy, Wa.	14221000	12.8	1951
Cedar Creek near Ariel, Wa.	14221500	40.8	1951-55;1961-69
East Fork Lewis River near Yacolt, Wa.	14222000	31.4	1951
	RIVER BASIN		
Kalama River near Cougar, Wa.	14222920	12.3	1969-70
Fossil Creek near Cougar, Wa.	14222930	8.21	1969-70
Ory Creek near Cougar, Wa.	14222950	3.29	1969-71
Merrill Lake near Cougar, Wa.	14222960	9.08	1969-71
Spring Creek near Cougar, Wa.	14222970		1969-71
Kalama River below Falls, near Cougar, Wa.	14222980	37.4	1969-71;1980-82
Kalama River near Kalama, Wa.	14223000	179	1911-13;1916-33
Kalama River below Italian Creek, near Kalama, Wa.	14223500	198	1947-75
	RIVER BASIN	101	1007 12
Ohanapecosh River near Lewis, Wa.	14224000	101	1907-13
Clear Fork Cowlitz River near Packwood (Lewis), Wa.	14224500	56.5	1907-13;1930-43; 1950
Coal Creek at mouth, near Lewis, Wa. (S 1915)	14225000	10.5	1911-15
Packwood Lake near Packwood, Wa. (E) Lake Creek near Packwood, Wa.	14225400 14225500	19.2 19.2	1959-80 1912-24;1930-43; 1950-5 1959-80
also Creak at Mouth poor Poolswood (Lawis) Wa	14226000	26.5	1907-15;1962-77
Lake Creek at Mouth near Packwood (Lewis), Wa. Skate Creek near Packwood, Wa.	14227000	33.9	1950
Hager Creek near Lewis, Wa.	14227500	3.81	1912-14
North Fork Hager Creek near Lewis, Wa.	14228000	1.45	1912-14
Hall Creek near Packwood, Wa.	14228500	10.9	1947-50
Johnson Creek below west fork, near Lewis, Wa.	14229000	33.3	1912-14
Johnson Creek below Glacier Creek, near Packwood, Wa.	14229500	42.8	1951-54
Johnson Creek near Packwood, Wa.	14230000	50	1907-14;1919-24; 1947-5
Silver Creek near Randle, Wa.	14230500	51.1	1950
Siler Creek near Randle, Wa.	14231500	10.1	1950
Yellowjacket Creek near Randle, Wa.	14232000	66.3	1950
Cispus River near Randle, Wa.	14232500	321	1911-12;1931-96
Fower Rock Spring near Randle, Wa.	14233000		1950-51
Cowlitz River near Randle, Wa.	14233400	1,030	1948-94
Rainy Creek near Kosmos, Wa.	14234000	17.9	1950-54
Landers Creek near Kosmos, Wa.	14234500	9.61	1950
Cowlitz River near (at) Mossyrock, Wa.	14235000	1,162	1912-17;1926-35; 1946-6
Vest Fork Tilton River near Morton, Wa.	14235500	16.4	1950-71
Tilton River at Morton, Wa.	14236000	70.2	1950
Cinnabar Creek near Cinebar, Wa.	14236400	4.55	1957-66
Tilton River near Cinebar, Wa.	14236500	156	1941-58
Klickitat Creek at Mossyrock, Wa.	14237000	3.29	1948-72
Winston Creek near Silver Creek, Wa.	14237500	37.8	1950-70

14237500

37.8

1950-70

Winston Creek near Silver Creek, Wa.

DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

[Data listed are for discharge, except where noted with the letter: (E) elevation, (S) stage.]				
	Station	Drainage area	Period of record	
Station name	number	(mi^2)	(water years)	
COWLITZ RIVER BASIN	Continued			
Mill Creek near Salkum, Wa.	14238500	20.9	1955-59	
Cowlitz River at Toledo, Wa.	14238800	1,461	1977-78;1980-82	
Salmon Creek near Toledo, Wa.	14239000	77.6	1949;1961-71	
Dlequa Creek at Winlock, Wa.	14239500	33.7	1949-50	
tillwater Creek near Vader, Wa.	14240000	25.9	1949-50	
Coldwater Lake Canal near Spirit Lake, Wa.	14240352	36.2	1985-86	
Coldwater Lake near Spirit Lake, Wa. (S)	14240350	36.2	1994-98	
North Fork Toutle River above Alder Creek, near Kid Valley, Wa.	14240490	NA	1990	
North Fork Toutle River at St. Helens, Wa.	14240500	124	1930-33	
North Fork Toutle River below Sediment Retention Structure, near Kid Valley, Wa.	14240525	175	1990-98	
Green River above Beaver Creek, near Kid Valley, Wa.	14240800	129	1981-94	
Green River near Toutle, Wa.	14241000	131	1947-50	
North Fork Toutle River at Kid Valley, Wa.	14241100	284	1980-94	
Coldspring Creek near Cougar, Wa.	14241200	5.47	1969-71	
South Fork Toutle River above Herrington Creek, near Cougar, Wa.	14241465	34.4	1981	
South Fork Toutle River at Camp 12, near Toutle, Wa.	14241490	117	1981-94	
Silver Lake at Silver Lake, Wa.	14242000	41.5	1949-50;1953-75;	
Toutle River near Silver Lake, Wa.	14242500	474	1909-12;1920-24; 1929-80	
Foutle River at Highway 99 Bridge near Castle Rock, Wa.	14242690	511	1980-82	
Delameter Creek near Castle Rock, Wa.	14243500	19.6	1949-69	
Ostrander Creek near Kelso, Wa.	14244000	25.3	1949	
Coweman River above Mulholland Creek, near Kelso, Wa.	14244500	50.5	1951	
Coweman River near Kelso, Wa.	14245000	119	1950-84	
Cowlitz River at Longview, Wa. (S)	14245150	2,480	1984-90	
Columbia River at Longview, Wa.	14245300	256,700	1984-90	
LOWER COLUMBIA RIVER B	ASIN (Continu	ied)		
Elochoman River near Cathlamet, Wa.	14247500	65.8	1941-71	
kamokawa Creek near Skamokawa, Wa.	14248000	17.4	1949-50	
im Crow Creek near Grays Harbor, Wa.	14248200	5.48	1964-74	
Grays River above South Fork Grays River, Wa.	14249000	39.9	1956-75	
Grays River below South Fork Grays River, Wa.	14249500	60.3	1956-60	
Grays River near Grays River, Wa.	14250000	60.6	1949-51	
West Fork Grays River near Grays River, Wa.	14250500	15.2	1949-69	
Hull Creek at Grays River, Wa.	14251000	11.9	1949	

DISCONTINUED SURFACE-WATER QUALITY STATIONS

The following continuous-record surface-water water-quality stations (gaging stations) in Washington have been discontinued. Period of record for daily water-quality records collected and published as daily means, or monthly means for some periods, for the period of record, expressed in water years, are shown for each station. Information and data regarding any station may be obtained from the District Office at the address given on the back side of the title page of this report.

[Type of record: do (dissolved oxygen), ph (pH), sc (specific conductance), sed (sediment), t (temperature)]

		Drainage	Type	Period
	Station	area	of	of
Station name	number	(mi ²)	record	record
SOUTHWEST W.	ASHINGTON RIVER BA	SINS		
Bear Branch (River) near Naselle, Wa.	12009500	11.7	t	1963-66
Naselle River near Naselle, Wa.	12010000	54.8	t	1963-73
North Nemah River near South Bend, Wa.	12011000	18.0	t	1970-71
Willapa River at Lebam, Wa.	12011500	41.4	t	1952-71
North River above Joe Creek, near Raymond, Wa.	12016600	188	t,sed	1965
North River near Raymond, Wa.	12017000	210	t	1963-73
СНЕНА	ALIS RIVER BASIN			
Skookumchuck River near Bucoda, Wa.	12026400	112	t,sed	1968-71
Chehalis River near Grand Mound, Wa.	12027500	895	t	1952-74
Chehalis River near Porter, Wa.	12031000	1,294	t,sc,pH,sed	1959-72
Cloquallum River (Creek) near Elma, Wa.	12032500	64.9	t	1972-73
Middle Fork Satsop River near Satsop, Wa.	12034500	56.7	t	1972-73
Wynoochee River near Grisdale, Wa.	12035400	41.3	t,sed	1966-67
Wynoochee River above Black Creek, near Montesano, Wa.	12037400	155	t	1970-86
WESTERN OLYMP	IC MOUNTAIN RIVER I	BASINS		
Humptulips River near Humptulips, Wa.	12039000	130	t	1970-71
North Fork Quinault River near Amanda Park, Wa.	12039300	74.1	t	1965-79
Hoh River at U.S. Highway 101, near Forks, Wa.	12041200	253	t,sed	1971;1978-80
EASTERN OLYMP	IC MOUNTAIN RIVER E	BASINS		
Elwha River above Lake Mills, near Port Angeles, Wa.	12044900	198	t,sed	1994-98
Elwha River at McDonald Bridge, near Port Angeles, Wa.	12045500	269	t	1976-77
Dungeness River near Sequim, Wa.	12048000	156	t,sed	2000-01
Dungeness River at Highway 101 Bridge, near Carlsberg, Wa.	12048600	178	sed	1971-74;1980;
D D' (D W	120 10000	107		1999-2000
Dungeness River at Dungeness, Wa.	12049000	197	t,sed	2000-01
Dosewallips River near Brinnon, Wa.	12053000	93.5	t	1970-71
North Fork Skokomish River near Potlatch, Wa.	12059500	117 26.0	t	1965-82
South Fork Skokomish River near Hoodsport, Wa.	12059800	63.4	t	1965-71
South Fork Skokomish River near Potlatch, Wa. South Fork Skokomish River near Union, Wa.	12060000	76.3	t	1955-64 1980-82
Vance Creek near Potlatch, Wa.	12060500 12061000	76.3 15.6	t t	1955-57
Skokomish River near Potlatch, Wa.	12061500	227	t,sc	1955-62;1964-82
SKOKOHIISH KIVEI HEAI FOUACH, WA.	12001300	221	i,sc	1996-98
SOUTHWESTERN	PUGET SOUND RIVER I	BASINS		
Purdy Creek near Union, Wa.	12062500	1.43	t	1955-60
Dewatto River near Dewatto, Wa.	12068500	18.4	t	1968-70
Deschutes River near Rainier, Wa.	12079000	89.8	t	1968-70
NISQUA	ALLY RIVER BASIN			
Nisqually River near National, Wa.	12082500	133	t	1952-82
Nisqually River at La Grande, Wa.	12086500	292	t	1966-82
PUYAL	LUP RIVER BASIN			
Clover Creek at 25th Avenue East, near Parkland, Wa.	12090355	20.7	t,sc	
Puyallup River near Orting, Wa.	12093500	172	sed	1955
South Prairie Creek at South Prairie, Wa.	12095000	79.5	t	1971
White River near Greenwater, Wa.	12096600	16.2	t	1965-68
White River below Clearwater River, near Buckley, Wa.	12097850	375	sed	1974-76
White River near Buckley, Wa.	12098500	401	t,sed	1955;1971-73
Puyallup River at Puyallup, Wa.	12101500	948	t,sc,ph,do	2001
Puyallup River above Clear Creek near Tacoma, Wa.	12102102	960	t,sc,ph,do	2001

		Drainage	Type	Period
	Station	area	of	of
Station name	number	(mi^2)	record	record
DUWAMISH (GF	REEN) RIVER BASII	N		
Green River above Twin Camp Creek, near Lester, Wa.	12103380	16.5	t,sc	1996-98
Big Soos Creek above Hatchery, near Auburn, Wa.	12112600	66.7	t,sc	1996-98
Green River near Auburn, Wa.	12113000	399	t	1952-86
Springbrook Creek near Orillia, Wa.	12113346	8.44	t,sc,ph,do	1997-2001
Mill Creek near mouth at Orillia, Wa.	12113349	6.03	t,sc,ph,do	1997-2001
Springbrook Creek near Tukwila, Wa.	12113375	20	t,sc	1996-98
LAKE WASHING	TON (CEDAR) BASI	N		
Cedar River near Landsburg, Wa.	12117500	121	t	1953-85
ssaquah Creek near mouth, near Issaquah, Wa.	12121600	54.7	t	1971
Sammamish River near Woodinville, Wa.	12125200	157	t	1965-67
Bear Creek at Woodinville, Wa.	12125500	15.3	t	1971
Wallace River at Gold Bar, Wa.	12135000	19.0	t	1955-57;1959-72
	H RIVER BASIN			
Skykomish River at Monroe, Wa.	12141100	834	t,sed	1967-69
Middle Fork Snoqualmie River near Tanner, Wa.	12141300	154	t	1979-80
North Fork Snoqualmie River near Snoqualmie Falls, Wa.	12142000	64.0	t	1979-80
South Fork Snoqualmic River above Alice Creek, near Garcia, Wa.	12142400	41.6	t	1979-80
Snoqualmie River near Carnation, Wa.	12149000	603	t,sed	1967-70
Snohomish River at Snohomish, Wa.	12155500	1,714	t,sea	1961
EAST CENTRAL PUGI		*	·	1901
				1075 76
Mission Creek near Tulalip, Wa.	12157250	7.92	t	1975-76
Fulalip Creek at Tulalip, Wa.	12158040	15.4	t	1975-76
	ISH RIVER BASIN			
North Fork Stillaguamish River near Darrington, Wa.	12165500	82.2	t	1952-57
Pilchuck River near Bryant, Wa.	12168500	52.0	t	1952-72
	RIVER BASIN			
Skagit River above Alma Creek, near Marblemount, Wa.	12179000	1,274	t	1953-83
Cascade River at Marblemount, Wa.	12182500	168	t	1952-64;1966-73
Sauk River near Sauk, Wa.	12189500	714	t	1970-71
Skagit River near Hamilton, Wa.	12196150	2,870	t	1975-77
Childs Creek near Lyman, Wa.	12197020	2.4	t	1974-76
Tank Creek near Lyman, Wa.	12197040	2.50	t	1974-80
Minkler Creek near Lyman, Wa.	12197110	5.0	t	1974-80
Black Creek near Minkler, Wa.	12197680	0.5	t	1975-80
Black Creek near Lyman, Wa.	12197690	0.5	t	1974-75
Skagit River near Sedro Wooley, Wa.	12199000	3,015	t,sc,pH,do	1975-79
Skagit River near Mount Vernon, Wa.	12200500	3,093	t,sp	1962-70;1974-82
NORTHEASTERN PUG	ET SOUND RIVER I	BASINS		
Samish River near Burlington, Wa.	12201500	87.8	t	1973-74
NOOKSACI	K RIVER BASIN			
Nooksack River at Deming, Wa.	12210500	584	sc,ph	1959-60
Nooksack River at North Cedarville, Wa.	12210700	588	t,sc,do	1996-98
Fishtrap Creek at Flynn Road, at Lynden, Wa.	12212100	38.1	t,sc,do	1996-98
Nooksack River at Brennan, Wa.	12213140	790	t,sc	1996-98
PEND OREIL	LE RIVER BASIN			
Pend Oreille River at Metaline Falls, Wa.	12398090		t	1949-50
UPPER COLUM	IBIA RIVER BASIN			
Columbia River at International Boundary	12399500	59,700	t	1952-73
Columbia River at Northport, Wa.	12400520		t,sp	1910-11;1952-94
COLVILLE	RIVER BASIN			
Chewelah Creek at Chewelah, Wa.	12407700	94.1	t	1973-74
Mill Creek near Colville, Wa.	12408500	83.0	t	1973-74

	Station	Drainage	Type of	Period of
Station name	number	area (mi ²)	record	record
Station name		(m)		
	NE RIVER BASIN			
Spokane River above Liberty Bridge, near Otis Orchards, Wa. Hangman Creek at Spokane, Wa.	12419500 12424000	3,880 689	t,sp sed	1964-65 1998-2001
Little Spokane River at Dartford, Wa.	12424000	665	t	1968-70
Spokane River at Dartford, wa.	12433000	6,020	t,sc	1959-62;
Spokulie River at Bong Bake, wa.	12133000	0,020	1,50	1967-70;1973-82
Chamokane Creek below Falls, near Longlake, Wa.	12433200	179	t	1984-90
Blue Creek above Midnite Mine Drainage, near Wellpinit, Wa.	12433542	6.0	t,sc,pH	1980; 1984-98
Midnite Mine Drainage near Wellpinit, Wa.	12433556	1.3	t,sc,pH	1980; 1984-98
Blue Creek below Midnite Mine Drainage, near Wellpinit, Wa.	12433558	7.3	t,sc,pH	1980; 1984-98
Blue Creek near mouth, near Wellpinit, Wa.	12433561	19.1	t,sc,pH	1980; 1984-98
	JMBIA RIVER BASIN			
Sanpoil River near Keller, Wa.	12434500	880	t	1968-70
Columbia River at Grand Coulee Dam, Wa.	12436500	74,700	t,sc,ph	1951-58;1974-79
	AN RIVER BASIN			
Okanogan River at Oroville, Wa.	12439500	3,210	t	1960;1986-88
Similkameen River near Nighthawk, Wa. Okanogan River near Tonasket, Wa.	12442500 12445000	3,550 7,280	t t	1967-71;1986-88 1986-88
Okanogan River at Malott, Wa.	12447200	8,100	t	1970-71
	W RIVER BASIN	8,100	t	1970-71
Methow River near Pateros, Wa.	12449950	1,772	t	1969-70
,	Γ RIVER BASIN	1,772	·	1707-70
Entiat River near Ardenvoir, Wa.	12452800	203	t	1968-71
	HEE RIVER BASIN			
White (HD Wenatchee) River near Plain, Wa.	12454000	150	t	1971
Nason Creek near Plain, Wa.	12455550	108	t	1973-74
MID-COLUI	MBIA RIVER BASIN			
Sand Hollow at CRS SW, near Vantage, Wa.	12464606	47	sc t	1993-94 1993-95
Lind Coulee Wasteway at State Route 17, near Warden, Wa.	12471400	703	t	1994-95;1997-200
Crab Creek at Morgan Lake Road, near Othello, Wa.	12472000		t	1994-95
Columbia River below Priest Rapids Dam, Wa.	12472800	96,000	t	1917-92
DW 272A1 Drain near Royal Camp, Wa.	12472300	0.88	t,sed	1977-82
Crab Creek Lateral above Royal Lake, near Othello, Wa. DW 272A Drain near Royal Camp, Wa.	12472380 12472350	3.36	t sad	1996 1977-82
Crab Creek near Beverly, Wa.	12472600	4,842	t,sed t	1959-62;
Crab Creek fical Deverty, wa.	12472000	4,042	·	1968-69,1996
Columbia River at Vernita Bridge, near Priest Rapids, Wa.	12472900	96,000	t	1974-81
Columbia River at Richland, Wa.	12473520	96,900	t	1974-93
EL 68 Wasteway near Othello, Wa.	12473740		t	1978-80
YAKIM	A RIVER BASIN			
Yakima River near Martin, Wa.	12474500	54.7	t	1981-82
Kachess River near Easton, Wa.	12476000	63.6	t	1981-82
Yakima River at Cle Elum, Wa.	12479500	495	t	1981-82
Yakima River at Roza Dam, Wa.	12484900	1,802	t,sp	1966-71
Roza Canal below Sulphur Creek Wasteway near Sunnyside, Wa.	12485012	70.7	t,sc,sed	1976-77
Bumping River near Nile, Wa. American River near Nile, Wa.	12488000 12488500	70.7 78.9	t t	1971;1981-82 1969-71
Tieton River at Tieton Dam, near Naches, Wa.	12488300	78.9 187	t	1981-82
Yakima River above Ahtanum Creek, at Union Gap, Wa.	12500450	3,479	t	1981-82
Ahtanum Creek at Union Gap, Wa.	12502500	173	t	1981-82
Sunnyside Canal below Sulphur Creek Wasteway, near Sunnyside, Wa.	12504512		t,sc,sed	1976-77
Yakima River near Parker, Wa.	12505000	3,660	t,sc	1959-70
Toppenish Creek at Indian Church Road, near Granger, Wa.	12507508		t	1981-82
Satus Creek at Satus, Wa.	12508621		t	1981-82
Drain 61.0 above Drain 61.4, near Sunnyside, Wa.	12508755	3.27	t,sed	1979-82
Drain 60.7 near Sunnyside, Wa.	12508769	0.92	t,sed	1979-82
Drain 59.6 below 60.2, near Sunnyside, Wa.	12508775	0.68	t,sed	1979-82

	Station	Drainage area	Type of	Period of
Station name	number	(mi ²)	record	record
		()		
YAKIMA RIVI	ER BASINContinued	1		
Orain 59.4 near Sunnyside, Wa.	12508779	0.68	t,sed	1978-81
DID 18 Drain at Sunnyside, Wa.	12508790	14.7	t,sc,sed	1976-77
Black Canyon Creek at Waneta Road, near Sunnyside, Wa.	12500820	35.8	t,sc,sed	1976-77
DID 9 Drain near Sunnyside, Wa.	12508830	27.1	t,sc,sed	1976-77
DID 3 Drain near Sunnyside, Wa.	12508840	18.8	t,sc,sed	1976-77
Sulphur Creek Wasteway near Sunnyside, Wa.	12508850	155	t,sc,sed	1981-82;1976-77 1987-90
Yakima River at Mabton, Wa.	12508990	5,359	t	1981-82
Yakima River at Kiona, Wa.	12510500	5,615	sc,sed	1953-82
Esquatzel Diversion Channel below Headworks, near Pasco, Wa.	12513650	798	t	1993-95;
	RIVER BASIN			
Snake River near Clarkstown (at Riparia), Wa.	13343500	103,200	t	1952-55;1959-64
Tucannon River near Starbuck, Wa.	13344500	431	t,sed	1963-70
	E RIVER BASIN			
South Fork Palouse River at Colfax, Wa.	13349200	277	t	1994-95
Rebel Flat Creek at Winona, Wa.	13349320	73.2	sed	1965;1994
Pine Creek at Pine City, Wa.	13349400	302	t	1970-71
Pine Creek at Pine City Road, at Pine City, Wa.	13349410	306	t	1994-95
			sed	1994
Snake River below Ice Harbor Dam, Wa.	13353000	108,500	t	1980
Snake River at Burbank, Wa.	13353200	108,800	t,sc	1960-69;1972-92
WALLA WA	LLA RIVER BASIN			
Mill Creek below Blue Creek, near Walla Walla, Wa.	14013600	91	t,sed	1963-70
Γouchet River at Bolles, Wa.	14017000	361	t	1970-71
LOWER COLU	MBIA RIVER BASIN	N		
Alder Creek at Alderdale, Wa.	14034350	196	t,sed	1963-68
Rock Creek near Roosevelt, Wa.	14036600	213	t,sed	1963-68
KLICKITA	T RIVER BASIN			
Klickitat River near Pitt, Wa.	14113000	1,297	t	1950-70
WHITE SALM	MON RIVER BASIN			
White Salmon River near Underwood, Wa.	14123500	386	t	1968-69
LOWER COLUMBIA	A RIVER BASINCor	ntinued		
Wind River below Dry Creek near Carson, Wa.	14126600	79.0	t	1973-74
Columbia River at Vancouver, Wa.	14144700	241,000	t,sed	1964-70;1972-80
LEWIS	RIVER BASIN			
Clearwater Creek near mouth, near Cougar, Wa.	14216300	33	sed	1982-88
Yale Reservoir near Yale, Wa.	14218500	596	t,sed	1969-70
Lewis River at Ariel, Wa.	14220500	731	t	1961-63
East Fork Lewis River near Heisson, Wa.	14222500	125	t	1950-72
KALAMA	A RIVER BASIN			
Kalama River near Cougar, Wa.	14222920	12.3	t	1969-70
Fossil Creek near Cougar, Wa.	14222930	8.21	t	1969
	14222950	3.29	t,sed	1969-70
Ory Creek near Cougar, Wa.		9.08	t,sed	1969-70
Ory Creek near Cougar, Wa. Merrill Lake near Cougar, Wa.	14222960	9.08 37.4	t,sed t	1969-70 1970-71
Ory Creek near Cougar, Wa. Merrill Lake near Cougar, Wa. Kalama River below Falls near Cougar, Wa.		37.4		1969-70 1970-71 1955-72
Ory Creek near Cougar, Wa. Merrill Lake near Cougar, Wa. Kalama River below Falls near Cougar, Wa. Kalama River below Italian Creek, near Kalama, Wa.	14222960 14222980		t	1970-71
Dry Creek near Cougar, Wa. Merrill Lake near Cougar, Wa. Kalama River below Falls near Cougar, Wa. Kalama River below Italian Creek, near Kalama, Wa. Kalama River Above Spencer Creek, near Kalama, Wa.	14222960 14222980 14223500	37.4 198	t t	1970-71 1955-72
Ory Creek near Cougar, Wa. Merrill Lake near Cougar, Wa. Kalama River below Falls near Cougar, Wa. Kalama River below Italian Creek, near Kalama, Wa. Kalama River Above Spencer Creek, near Kalama, Wa. COWLITZ	14222960 14222980 14223500 14223600	37.4 198 202	t t	1970-71 1955-72
Ory Creek near Cougar, Wa. Merrill Lake near Cougar, Wa. Kalama River below Falls near Cougar, Wa. Kalama River below Italian Creek, near Kalama, Wa. Kalama River Above Spencer Creek, near Kalama, Wa. COWLITZ Cowlitz River at Packwood, Wa	14222960 14222980 14223500 14223600 Z RIVER BASIN 14226500	37.4 198 202 287	t t t	1970-71 1955-72 1970-79
Ory Creek near Cougar, Wa. Merrill Lake near Cougar, Wa. Kalama River below Falls near Cougar, Wa. Kalama River below Italian Creek, near Kalama, Wa. Kalama River Above Spencer Creek, near Kalama, Wa. COWLITZ Cowlitz River at Packwood, Wa Cispus River near Randle, Wa.	14222960 14222980 14223500 14223600 Z RIVER BASIN 14226500 14232500	37.4 198 202 287 321	t t t	1970-71 1955-72 1970-79 1971 1950-72;
Ory Creek near Cougar, Wa. Merrill Lake near Cougar, Wa. Kalama River below Falls near Cougar, Wa. Kalama River below Italian Creek, near Kalama, Wa. Kalama River Above Spencer Creek, near Kalama, Wa. COWLITZ Cowlitz River at Packwood, Wa Cispus River near Randle, Wa. Cowlitz River near Randle, Wa.	14222960 14222980 14223500 14223600 Z RIVER BASIN 14226500 14232500 14233400	37.4 198 202 287 321 1,030	t t t t t t	1970-71 1955-72 1970-79 1971 1950-72; 1953-82
Dry Creek near Cougar, Wa. Merrill Lake near Cougar, Wa. Kalama River below Falls near Cougar, Wa. Kalama River below Italian Creek, near Kalama, Wa. Kalama River Above Spencer Creek, near Kalama, Wa. COWLITZ Cowlitz River at Packwood, Wa Cispus River near Randle, Wa. Cowlitz River near Randle, Wa. Cowlitz River near Kandle, Wa. Cowlitz River near Kosmos, Wa.	14222960 14222980 14223500 14223600 Z RIVER BASIN 14226500 14232500 14233400 14233500	37.4 198 202 287 321 1,030 1,042	t t t t t	1970-71 1955-72 1970-79 1971 1950-72; 1953-82 1953-68
Dry Creek near Cougar, Wa. Merrill Lake near Cougar, Wa. Kalama River below Falls near Cougar, Wa. Kalama River below Italian Creek, near Kalama, Wa. Kalama River Above Spencer Creek, near Kalama, Wa.	14222960 14222980 14223500 14223600 Z RIVER BASIN 14226500 14232500 14233400	37.4 198 202 287 321 1,030	t t t t t t	1970-71 1955-72 1970-79 1971 1950-72; 1953-82

Station name	Station number	Drainage area (mi ²)	Type of record	Period of record
COWLITZ RIV	ER BASINContinued			
Tilton River above Bear Canyon, near Cinebar, Wa.	14236200	141	t	1965-82
Winston Creek near Silver Creek, Wa.	14237500	37.8	t	1965-71
Cowlitz River below Mayfield Dam, Wa.	14238000	1,400	t	1950-82
North Fork Toutle River above Alder Creek, near Kid Valley, Wa.	14240490		t,sc	1990
Green River above Beaver Creek, near Kid Valley, Wa.	14240800	129	t,sc,sed	1980-94
North Fork Toutle River at Kid Valley, Wa.	14241100	284	t,sc,sed	1980-94
Cold Spring Creek near Cougar, Wa.	14241200	5.47	t	1969-71
South Fork Toutle at Camp 12 near Toutle, Wa.	14241490	117	t,sc,sed	1981
Γoutle River at Tower Road near Silver Lake, Wa.	14242580	496	t,sc	1990-91
Γoutle River near Silver Lake, Wa.	14242500	474	t	1951-62;1964-72
Гoutle River at Highway 99 Bridge, near Castle Rock, Wa	14242690	512	t,sc,pH,sed	1980-82
Cowlitz River at Castle Rock, Wa.	14243000	2,238	t,sed	1950-73,1980-85
Coweman River near Kelso, Wa.	14245000	125	t	1950-72
LOWER COLUMBI	A RIVER BASINCont	inued		
Abernathy Creek near Longview, Wa.	14246000	20.3	t	1950;1953-57
Mill Creek near Cathlamet, Wa.	14246500	28.3	t	1954
Elochoman River near Cathlamet, Wa.	14247500	65.8	t	1950-71

1

INTRODUCTION

The Washington Water Science Center of the U.S. Geological Survey (USGS), in cooperation with State, local, and other Federal agencies, obtains a large amount of data pertaining to the water resources of Washington each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series, entitled "Water Resources Data—Washington."

This report includes records on both surface and ground water in the State. The report contains discharge records for 245 stream-gaging stations, stage-only records for 10 gaging stations, discharge measurements for 211 miscellaneous streamflow stations, and annual maximum discharge for 3 crest-stage partial-record streamflow stations; stage and (or) contents records for 36 lakes and reservoirs; water-quality records for 40 surface-water sites; water-level records for 26 observation wells; and water quality records for 16 observation wells.

This series of annual reports for Washington began with the 1961 water year with a report that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report format was changed to present, in one volume, data on quantities of surface water, quality of surface and ground water, and ground-water levels.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for Washington were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States, Parts 12, 13, and 14." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." These Water-Supply Papers may be consulted in the libraries of the principal cities of the United States, or if not out of print, may be purchased from the U.S. Geological Survey, Branch of Information Services, Federal Center, Box 25286, Denver, CO 80225.

Publications similar to this report are published annually by the USGS for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report WA-02-1." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the Information Specialist at the address given on back of title page or by telephone (253) 428-3600.

The USGS is continually updating the availability of its information on the internet. Current streamflow conditions (via satellite) for Washington and other water-resource information can be found at the following Universal Resource Locator (URL): http://wa.water.usgs.gov. Nationwide information on water resources, including real-time and historic streamflow data, water-use data, publications, and USGS program activities, can be found at URL: http://water.usgs.gov.

COOPERATION

The U.S. Geological Survey, in cooperation with Tribes and State and local agencies within the State of Washington, have had joint-funding agreements for the systematic collection of surface-water, ground-water, and water-quality records since 1909. Organizations that supplied data are acknowledged in the station descriptions. Organizations that assisted in collecting data through joint-funding agreements with the Survey are:

Washington State Department of Ecology
City of Chewelah
Chelan County Conservation District
Chelan County, P.U.D. No. 1
City of Kent

Douglas County, P.U.D. No. 1 City of Lakewood, Public Works Department

Energy Northwest Lakewood Water District
Grays Harbor County City of Port Townsend
Jefferson County City of Puyallup

King County
City of Seattle, City Light Department

Kitsap County
City of Seattle, Seattle Water Department

Lewis County, Department of Public Works

City of Spokane, Wastewater Management Division

Mason County

City of Tacoma, Department of Public Utilities

Okanogan County

City of Tacoma, Department of Public Works,

Sewer Utility Division

Pierce County, Department of Public Works

Coeur D'Alene Tribe

Skagit County Public Works Department

Lummi Tribe

Snohomish County Department of Public Works
Snohomish County, P.U.D. No. 1

Makah Nation

Sinch and Grant WOMP.

Nisqually Indian Tribe

Spokane County, WQMP

Nooksack Tribe

Spokane County Conservation District
Stevens County Public Utility District
Puyallup Tribe of Indians

Stevens County Conservation District

Quileute Tribe

Stevens County Commissioners Office

Quinault Indian Nation

Skokomish Tribe of Indians

Thurston County Department of Water and
Waste Management
Spokane Tribe

Whatcom County Tulalip Tribes

City of Bellevue, Department of Public Works, Storm umatilla Tribal Council and Surface Water Utility

Yakama Tribal Council
City of Bellingham

Assistance in the form of funds or services in collecting records was given by the Corps of Engineers, U.S. Department of State; Bonneville Power Administration, U.S. Department of Energy; Bureau of Reclamation; Bureau of Indian Affairs; U.S. Department of Interior; U.S. Fish and Wildlife Service; Bureau of Land Management, and National Marine Fisheries Service.

The following organizations aided in collecting records for stations under Federal Energy Regulatory Commission licenses:

City of Seattle; Lewis County P.U.D.; P.U.D. No. 1 of Chelan County, City of Tacoma Department of Public Utilities; P.U.D. No. 1 of Pend Oreille County; P.U.D. No. 1 of Grant County; P.U.D. No. 1 of Douglas County; Puget Sound Energy; Snohomish County P.U.D. No. 1; Cowlitz County P.U.D.; Avista Corporation; Hydro Technology Systems, and PacificCorp.

SUMMARY OF HYDROLOGIC CONDITIONS

Hydrologic Setting

A distinctively varied climate characterizes Washington and results primarily from two features: (1) the Cascade Range, and (2) the prevailing marine influence of the Pacific Ocean (fig. 1). The north-south trending Cascade Range divides Washington into two areas: the wet western part and the dry eastern part. Average annual precipitation west of the Cascade Range is about 70 inches and ranges from about 30 to 40 inches in the Puget Sound Basin to about 150 to 200 inches on the western slopes of the Olympic Mountains, where temperate rain forests thrive. The Cascade Range acts as a barrier to air masses that move across the State, producing 100 to 150 inches of annual precipitation on the high western slopes of the Cascade Range and leaving much less moisture in the clouds for eastern Washington. Average annual precipitation in eastern Washington is only 7 to 40 inches, with the driest part being the Columbia Basin (fig. 1), where sagebrush and grasses grow and irrigation is required for most crops. About two-thirds of the precipitation in Washington occurs from October to March, either as rain in the lowlands or as snow at high elevations. Occasionally during winter, western Washington receives large amounts of rainfall from Pacific storms, accompanied by mild temperatures. The combination of melting snowpack at high elevations and rainfall during these storms can produce flooding in the lowlands. Snowpack and glaciers in the Olympic Mountains and Cascade Range are sources of water for many rivers in Washington and become the primary source of flow during the relatively dry summer.

Washington's varied climate and topography result in variable streamflow patterns throughout the State, as shown in the graphs of daily mean discharge for selected long-term gaging stations (figs. 1 and 2, table 1). Daily mean discharge at the Chehalis River near Grand Mound (fig. 2A) is representative of the streamflow patterns in the southwest lowlands of the State, where seasonal high flow occurs from November to March, coinciding with the typical winter rainfall. Flow normally decreases through the spring and summer months due to the generally dry weather and absence of snowpack. Daily mean discharge at the Quinault River at Quinault Lake (fig. 2B) is representative of the Olympic Peninsula. Two seasonal peak periods at this gaging station result from winter rainfall from November to January and late spring snowmelt from high altitudes in May and June. Winter rainfall and spring snowmelt in the East Fork Lewis River near Heisson in the southern Cascade Range overlap to produce a high-flow season that generally extends from November to May (fig. 2C). High flow in the Nooksack River at Deming (fig. 2D) is generated by rainfall in winter and again in May and June from a combination of spring rainfall and snowmelt. Daily mean discharge at Puyallup River near Orting (fig. 2E) is representative of the typical winter rainfall of the central Cascade Range and a late spring snowmelt sustained by the permanent snowfields and glaciers on the west slope of the Cascade Range.

Peak flows in rivers draining the east side of the Cascade Range, such as the Wenatchee River at Plain (fig. 2F), normally occur in April to July as a result of snowmelt. Streamflow during the winter generally stays low due to freezing weather that maintains or contributes to the snowpack; exceptions occur when mild weather and heavy rain combine to cause flooding. Daily mean discharge at Ahtanum Creek at Union Gap (fig. 2G) and the Walla Walla River near Touchet (fig. 2H) are representative of agricultural drainage basins in the lower Columbia Basin, where irrigation-return flows cause an increase in discharge from August to winter. During winter, high flows are sustained by a combination of precipitation and return flows. The daily mean discharge at Hangman Creek at Spokane (fig. 2I) is representative of rivers draining the eastern Washington highlands, where a combination of precipitation and melting snow produces maximum discharge in late winter and early spring.

Hydrologic Conditions for 2002

Annual mean streamflow for rivers in Washington for the 2002 water year ranged from below normal to above normal, but was below normal only in the Yakima River Basin and in some river basins in eastern Washington. Only a few stations, such as the Duckabush River near Brinnon, had new period-of-record peak-flow discharges. No rivers had new period-of-record low-flow discharges.

As described in the previous section, streamflow is largely influenced by variabilities in precipitation and snowpack. In general, precipitation for the 2002 water year was near normal except for some areas of eastern Washington, which were below normal, and the northern Cascade Range, which were above normal.

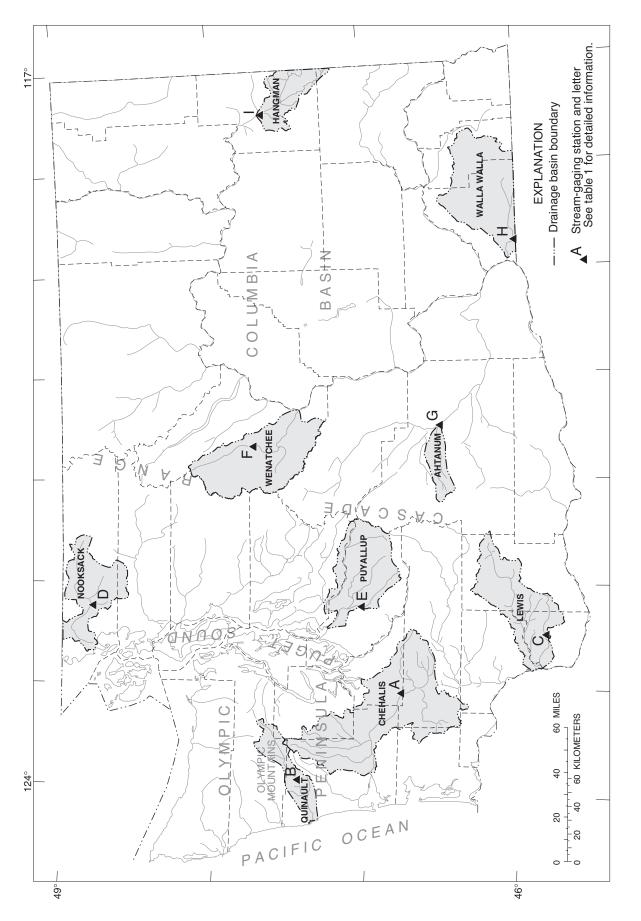


Figure 1. Selected stream-gaging stations and drainage basins in Washington.

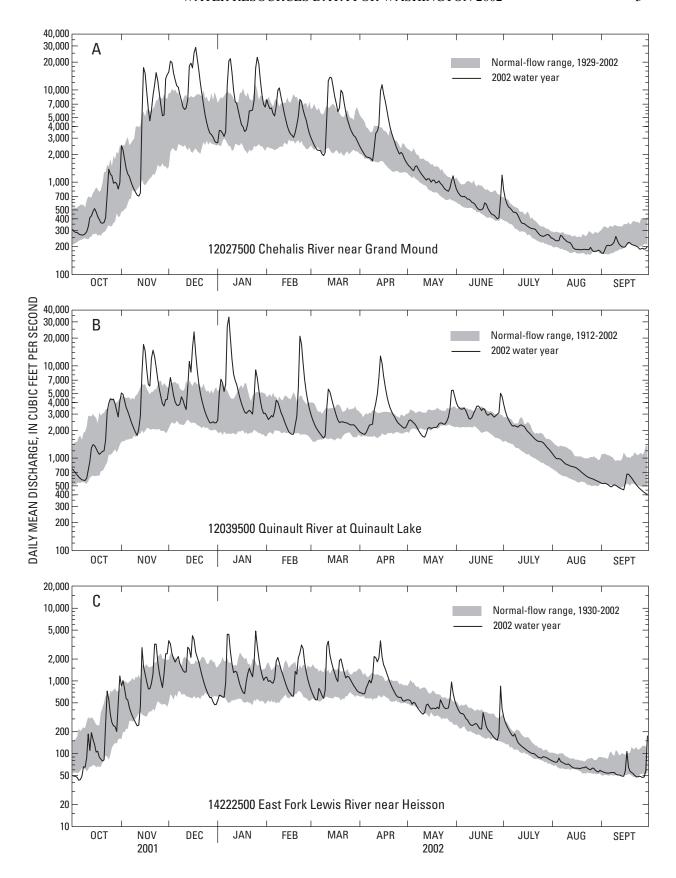


Figure 2. Daily mean discharge for water year 2002 compared with the percentile distribution of daily mean discharges for the period of record, for selected stream-gaging stations. Daily mean discharges equal to or greater than the 25th percentile and equal to or less than the 75th percentile are within the normal range of flow.

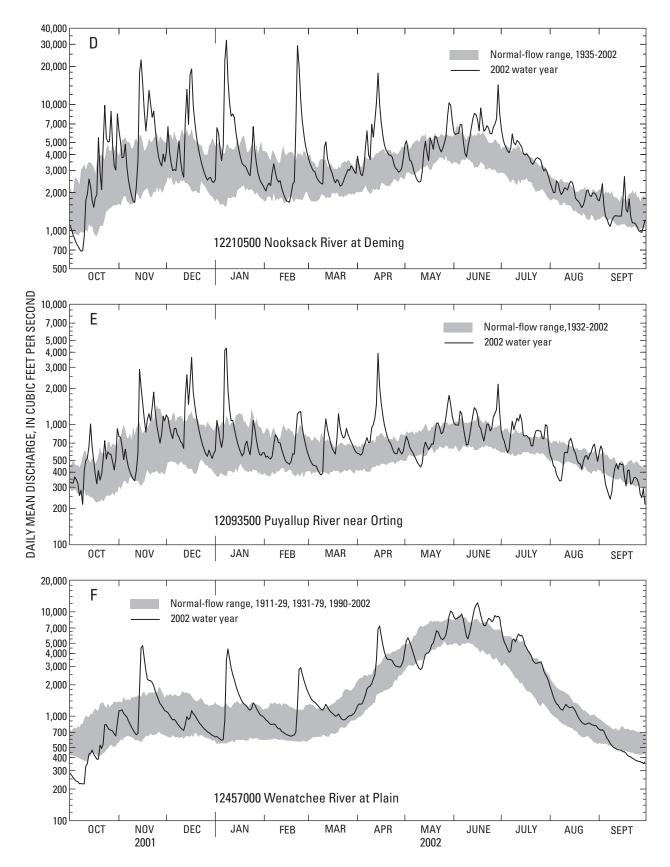


Figure 2. Continued

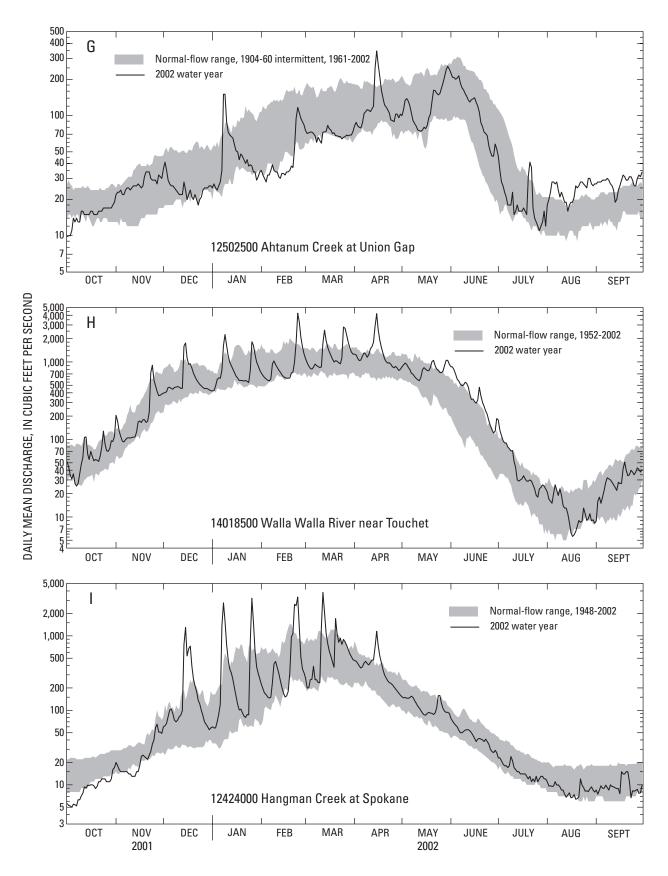


Figure 2. Continued

Letter in			Period of		an streamflow, ater year
figure 2	Station number	Stream-gaging station	record	Streamflow, in cubic feet per second	Percentage of long-term mean
A	12027500	Chehalis River near Grand Mound	1929-2002	3,638	129
В	12039500	Quinault River at Quinault Lake	1912-2002	3,419	119
C	14222500	East Fork Lewis River near Heisson	1930-2002	779	105
D	12210500	Nooksack River at Deming	1935-2002	4,412	132
E	12093500	Puyallup River near Orting	1932-2002	790	110
F	12457000	Wenatchee River at Plain	1911-1929, 1931-79, 1990-2002	2,468	110
G	12502500	Ahtanum Creek at Union Gap	1961-2002	58	74
Н	14018500	Walla Walla River near Touchet	1952-2002	572	100
I	12424000	Hangman Creek at Spokane	1948-2002	229	97

The precipitation during the water year was variable throughout the year and across the State. Precipitation for the period October through January was above normal for most areas except eastern Washington, for February was below to near normal throughout the State, and for March through June was near normal except for the southern Cascade Range, which varied for the period from above normal to below normal. The period July through September was a period of below normal precipitation throughout the State.

The snowpack for the 2002 water year, measured from January through June, was consistently near normal to above normal throughout the State with the exception of January through March in the upper Okanogan River Basin, which was below normal. By April though, all areas reported at least 100 percent of normal, and some areas in the Cascade Range reported significantly above-normal snowpack. The snowpack reached the peak in late March to mid-April in all areas except some upper-elevation sites in the Cascade Range, where the snowpack reached a peak in May. The snowmelt ended before or near the normal date for most areas for that area, from late April to late June.

The annual mean streamflow was above average for the river basins along the Pacific Ocean, the Olympic Peninsula, and the northern Cascade Range (sites A-D, table 1). Some river basins in the central Cascade Range had below-average annual mean streamflows, for example Ahtanum Creek (site G, table 1). Rivers in eastern-most Washington had annual mean streamflows near average (sites H, I, table 1). The variability of streamflow across the State is seen in the daily mean streamflows, which are described by the general regions in the State.

Daily mean streamflows for the rivers along the Pacific Ocean and the Olympic Peninsula were above normal for many days between November and April, depending on the river, and were between normal and above normal for other months (figures 2A and 2B). Streamflow patterns in rivers draining the western Cascade Range varied north to south. Daily mean streamflow in the rivers in the southern Cascade Range were normal for most of the year, with occasional periods of above-normal flow between December and April (figure 2C). Daily mean streamflows in the rivers in the central Cascade Range were primarily between the 50th and 75th percentiles or above normal for the period November through July (figure 2E), and were below normal for parts of August and September. Daily mean streamflows in the rivers in the northern Cascade Range were primarily near or above the 75th percentile from November through July, and normal during other months (figure 2D).

Daily mean streamflows in the rivers draining the eastern side of the Cascade Range varied north to south and were near normal, with most having monthly mean streamflows near normal in most rivers (figures 2F and 2G). Daily mean streamflows in the northern Cascade Range were normal or above the 75th percentile for November through July (figure 2F). Daily mean streamflows in these basins were below normal in October and September. Daily mean streamflows were normal for most of the year in the rivers in the Yakima River basin and southern Cascade Range, with exceptions of some below-normal days in October and February and above-normal days during August and September (figure 2G). The streamflow in eastern Washington varied between the southeastern rivers and the northeastern rivers (figures 2H and 2I). Daily mean streamflows in the rivers in southeastern Washington (figure 2H) were normal except for most days between late May through June, which were above normal. Daily mean streamflows in the rivers in northeastern Washington were primarily normal throughout the year except for several days in October and November, which were below normal.

Surface-Water Quality

The National Water-Quality Assessment (NAWQA) program was established to assess the current water-quality conditions for a large part of the Nation's freshwater streams, rivers, and aquifers and to describe how water quality is changing over time. In 2002, Washington operated seven long-term surface-water-quality NAWQA stations throughout the State. Four of the stations are located in eastern Washington (Palouse River at Hooper, Crab Creek at Rocky Ford Road, Yakima River at Kiona, and Granger Drain at Granger) and are representative of agricultural land use; three are in western Washington, one representing urban land use (Thornton Creek near Seattle), one integrating mixed land use for which the samples are collected at a site locally influenced by urban land use (Duwamish River at Tukwila), and one representing relatively pristine conditions (North Fork Skokomish River near Hoodsport). In addition to these NAWQA stations, the Washington Water Science Center also continued operation of two long-term monitoring sites on the middle Columbia River (Columbia River at Richland and Columbia River near Priest Rapids Dam).

Specific conductance and dissolved-solids concentration generally have an inverse relation to streamflow. The smallest concentrations of dissolved solids usually occur during the high flows of late fall and winter and early spring runoff, when rainfall and snowmelt are the major sources of water. Dissolved solids in western Washington are usually most concentrated during late summer and early fall, when base flow from ground-water sources is the dominant component of flow; but in eastern Washington, dissolved solids may be more concentrated during the irrigation season due to return irrigation flows. Analysis of dissolved solids at these seven sites was discontinued in 2001, but there is a good relation between dissolved solids and specific conductance. Specific conductance at the surface-water NAWQA and Columbia River stations during 2002 ranged from an average of 69 μ S/cm (microsiemens per centimeter at 25 degrees centigrade) on the North Fork Skokomish near Hoodsport to an average of 448 μ S/cm at Granger Drain. The largest value of specific conductance during 2002 was 716 μ S/cm, in a sample from Granger Drain during November, and the smallest value of specific conductance was 49 μ S/cm, in a sample from the North Fork Skokomish during November. The average specific conductance for all stations sampled was 258 μ S/cm.

Surface waters in Washington generally are classified as clear and carry only small amounts of sediment, except where influenced by glaciers, unconsolidated volcanic deposits, or disturbed soils. Water flowing in the Columbia River is very low in sediment, usually less than 10 mg/L (milligrams per liter), and at times there is no measurable sediment. The streams east of the Cascades that characteristically carry sediment concentrations greater than 10 mg/L are those that carry return flow from heavily irrigated and farmed lands in the semiarid region. Concentrations of suspended sediment in samples from the Columbia River during 2002 ranged from 2 to 8 mg/L. Concentrations of suspended sediment in samples from NAWQA stations ranged from an average of 6 mg/L at Crab Creek near Rocky Ford Road to an average of 100 mg/L at Granger Drain near Granger. Samples from Granger Drain generally had the largest sediment concentrations (ranging from 18 to 281 mg/L, with an average of 100 mg/L). The largest sediment concentration (520 mg/L in a sample during April) was measured at the Yakima River at Kiona.

Forty-six different pesticides, metabolites (degradation products), or other trace organic compounds were detected in samples collected from the seven NAWQA surface-water stations during the 2002 water year. The herbicides atrazine, diuron, and 2,4-D, as well as the pesticide degradate deethylatrazine, were the pesticides detected most frequently in samples from the NAWQA stations in eastern and western Washington. Samples for the analysis of pesticides were not collected from the reference station North Fork Skokomish during 2002. Samples collected from Thornton Creek and the Duwamish River each contained pesticides. Samples from both sites contained the insecticides carbaryl and diazinon and the herbicides atrazine, prometon, and simazine; samples from Thornton Creek also contained the herbicides napropamide and trifluralin, and samples from the Duwamish River contained the herbicide metolachor and deethylatrazine, a pesticide degradate of the herbicide atrazine. Concentrations in samples from these urban sites ranged from at or near the limit of detection to a maximum of $0.483~\mu g/L$ (micrograms per liter) and $0.230~\mu g/L$ for the insecticide carbaryl at Thornton Creek and the Duwamish River, respectively.

Eight herbicides, 2 insecticides, an herbicide degradate, and a trace organic stimulant (caffeine) were detected in samples from Crab Creek at Rocky Ford Road, ranging in concentration from at or near the limit of detection to a maximum concentration of $0.240~\mu g/L$ for the herbicide 2,4-D. Twenty herbicides, 3 insecticides, 1 herbicide degradate, and a trace organic stimulant (caffeine) were detected in samples from Palouse River at Hooper, ranging in concentration from at or near the limit of detection to a maximum concentration of $0.180~\mu g/L$ for 2,4-D. Fourteen herbicides, 4 insecticides, 3 herbicide degradates, and 1 trace organic stimulant (caffeine) were detected in samples from the Yakima River at Kiona, ranging in concentration from at or near the limit of detection to a maximum concentration of $0.110~\mu g/L$ for the herbicide 2,4-D. Ninteen herbicides, 5 insecticides, 8 pesticide degradates, a fungicide, and a trace organic stimulant (caffeine) were detected in samples from Granger Drain at Granger, with a maximum concentration of $1.67~\mu g/L$ for the herbicide 2,4-D.

No concentrations for pesticides detected in samples from NAWQA surface-water stations during the 2002 water year exceeded the U.S. Environmental Protection Agency (USEPA) Maximum Contaminant Levels or Health Advisories for drinking water. The USEPA fresh-water chronic criteria for the protection of aquatic life for carbaryl, diazinon, azinphos methyl, and disulfoton are 0.02, 0.009, 0.01, and 0.05 µg/L, respectively. Concentrations of carbaryl in three samples from Thornton Creek in March, April, and May; three samples from Granger Drain in May, August, and September; and two samples from the Duwamish River in November and March exceeded the freshwater chronic criteria for the protection of aquatic life. Concentrations of diazinon in three samples from Thornton Creek during March, April, and May; one sample from the Duwamish River in March; and one sample from Granger Drain during October exceeded the fresh-water chronic criteria for the protection of aquatic life. Concentrations of azinphos methyl in 11 samples from Granger Drain from May through August; 4 samples from the Yakima River at Kiona during May, July, and August; and 2 samples from Crab Creek at Rocky Ford Road during July and August exceeded the fresh-water chronic criteria for the protection of aquatic life. Concentrations of disulfoton in one sample from Granger Drain during August also exceeded the fresh-water chronic criteria for the protection of aquatic life.

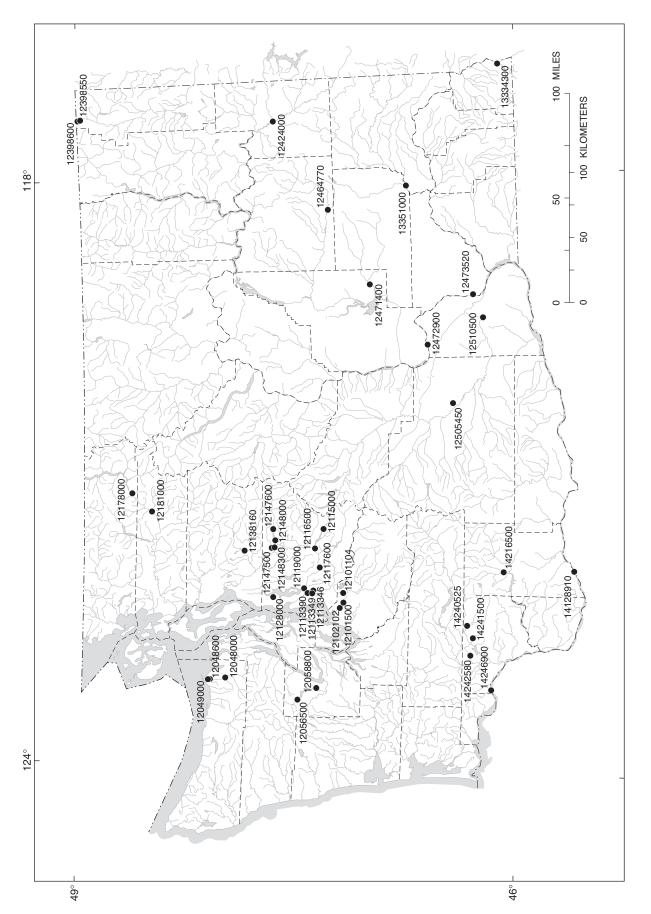


Figure 3. Surface-water stations with water-quality data collection in Washington.

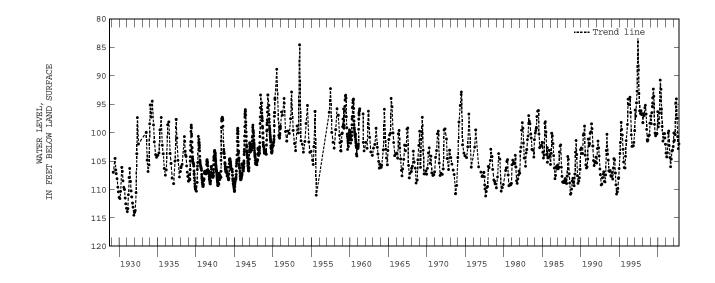
Ground Water

In eastern Washington, water levels in water-table wells in Spokane (25N/45E-16C01) and Whitman (18N/43E-35L01) Counties were above average levels throughout the year, ranging from +0.8 foot to +6.4 feet, and the water-table well in Columbia County (10N/37E-23R01) was below average all year. Water levels in Lincoln County confined well 24N/36E-16A06 were above average (1.9 to 5.5 feet) all year, and water levels in confined well 24N/36E-16A08 ranged from 3.1 feet above to 4.2 feet below average. Long-term water levels for well 25N/45E-16C01 are shown in the hydrograph below.

WATER LEVELS, IN FEET BELOW LAND-SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31, 2001	103.23	JAN 31, 2002	101.54	MAY 31, 2002	94.07	SEPT 30, 2002	101.98
NOV 30	103.11	FEB 28	101.36	JUNE 30	97.48		
DEC 31	102.44	MAR 29	100.31	JULY 31	100.7		
JAN 31, 2002	100.06	APR 30	94.80	AUG 30	102.82		

WATER YEAR 2002 HIGHEST 94.07 MAY 31, 2002 LOWEST 103.23 OCT 31, 2001



In western Washington, water levels in the confined wells in Thurston County (16N/02W-29L02P2 and L02P3) started the year below average (4.6 feet), reached a maximum deviation of 9.4 feet above average in December and ended the year at 2.9 feet above average. Long-term water levels for well 16N/02W-29L02P2 are shown in the hydrograph below.

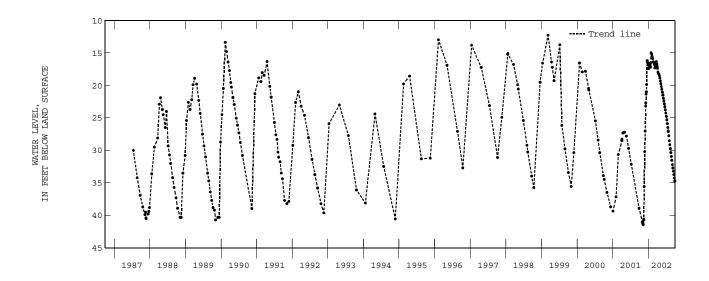
WATER LEVELS, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
5		41.19	23.19	17.39	15.20	16.79	17.34	19.30	21.98	24.76	28.51	32.20
10		41.43	21.32	16.66	15.55	17.30	17.92	19.74	22.39	25.28	29.13	32.71
15		40.73	19.84	16.64	15.85	17.13	18.19	20.17	22.84	25.87	29.73	33.22
20		35.57	16.18	16.97	16.38	16.75	18.24	20.58	23.28	26.46	30.33	33.74
25		30.19	16.47	16.49	16.45	16.33	18.51	21.04	23.75	27.09	30.93	34.25
End of month		27.02	16.83	14.97	16.45	16.69	18.86	21.50	24.25	27.74	31.51	34.71

WATER YEAR 2002

HIGHEST 14.97 JAN 30, 2002

LOWEST 41.43 NOV 10, 2001



Departure from long-term average ground-water levels

[All values are in feet; —, no data; *, less than 10 years of record; **, less than 5 years of record, no departure calculated]

Well No.	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
10N/37E-23R01	_	**	_	-1.0*	_	-4.8*	_	-2.5	_	-1.3*	_	_
12N/26E-31C01D1	_	**	+0.9	_	**	**	_	**	+1.0	_	**	**
16N/02W-29L02P3 ^a	-4.6											
16N/02W-29L02P2	_	-0.3	+9.4*	+8.6	+5.7	+2.2*	+2.7	+1.6	+3.7*	+1.9	+1.6	+2.9*
18N/43E-35L01	_	+0.8	+2.6	_	+1.6	_	+3.2	+2.4	+1.3	+1.8	_	+2.1
22N/01W36H01D11	_	-3.3*	**	_	**	_	_	**	**	_	**	_
24N/36E-16A01	-0.4	+1.9	_	+1.0	+1.3	-0.8	-1.7	+1.3	-0.2	-0.2	-0.2	+0.5
24N/36E-16A06	+5.5	_	_	+2.1	+3.4	_	+1.9	_	_	+2.3	_	_
24N/36E-16A08	+0.7	_	_	-1.9	-4.2	_	-3.4	_	_	+3.1	_	_
25N/45E-16C01	+2.2	+2.4	+2.0	+4.6	+2.8	+1.4	+6.4	+5.6	+2.2	+1.9	+1.6	+2.8

^a This site replaced by 16N/02W-29L02P2 in November 2001.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Benchmark Network is a network of 50 sites in small drainage basins around the country whose purpose is to provide consistent data on the streamflow representative of undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by human activities. At 10 of these sites, water-quality information is being gathered on major ions and nutrients, primarily to assess the effects of acid deposition on stream chemistry. Additional information on the Hydrologic Benchmark Program can be found at http://water.usgs.gov/hbn/.

National Stream-Quality Accounting Network (NASQAN) monitors the water quality of large rivers within the Nation's largest river basins. From 1995 through 1999, a network of approximately 40 stations was operated in the Mississippi, Columbia, Colorado, and Rio Grande basins. For the period 2000 through 2004, sampling was reduced to a few index stations on the Colorado and Columbia so that a network of 5 stations could be implemented on the Yukon River. Samples are collected with sufficient frequency that the flux of a wide range of constituents can be estimated. The objective of NASQAN is to characterize the water quality of these large rivers by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major ions, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. This information will be used (1) to describe the long-term trends and changes in concentration and transport of these constituents; (2) to test findings of the National Water-Quality Assessment Program (NAWQA); (3) to characterize processes unique to large-river systems such as storage and re-mobilization of sediments and associated contaminants; and (4) to refine existing estimates of off-continent transport of water, sediment, and chemicals for assessing human effects on the world's oceans and for determining global cycles of carbon, nutrients, and other chemicals. Additional information about the NASQAN Program can be found at http://water.usgs.gov/nasqan/.

The National Atmospheric Deposition Program/National Trends Network (NADP/NTN) provides continuous measurement and assessment of the chemical constituents in precipitation throughout the United States. As the lead federal agency, the USGS works together with over 100 organizations to provide a long-term, spatial and temporal record of atmospheric deposition generated from a network of 225 precipitation chemistry monitoring sites. This long-term, nationally consistent monitoring program, coupled with ecosystem research, provides critical information toward a national scorecard to evaluate the effectiveness of ongoing and future regulations intended to reduce atmospheric emissions and subsequent impacts to the Nation's land and water resources. Reports and other information on the NADP/NTN Program, as well as all data from the individual sites, can be found at http://bqs.usgs.gov/acidrain/.

The National Water-Quality Assessment (NAWQA) Program of the U.S. Geological Survey is a long-term program with goals to describe the status and trends of water-quality conditions for a large, representative part of the Nation's ground- and surface-water resources; provide an improved understanding of the primary natural and human factors affecting these observed conditions and trends; and provide information that supports development and evaluation of management, regulatory, and monitoring decisions by other agencies.

Assessment activities are being conducted in 59 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents will be measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide information for decision making by water-resources managers and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

Communication and coordination between USGS personnel and other local, State, and federal interests are critical components of the NAWQA Program. Each study unit has a local liaison committee consisting of representatives from key federal, State, and local water resources agencies, Indian nations, and universities in the study unit. Liaison committees typically meet semiannually to discuss their information needs, monitoring plans and progress, desired information products, and opportunities to collaborate efforts among the agencies. Additional information about the NAWQA Program can be found at http://water.usgs.gov/nawqa/.

EXPLANATION OF THE RECORDS

The surface-water and ground-water records published in this report are for the 2002 water year that began October 1, 2001, and ended September 30, 2002. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, water-quality data for surface water, and ground-water-level data. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

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

Downstream Order System

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

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station, such as 12020000, which appears just to the left of the station name, includes the two-digit Part number "12" plus the six-digit downstream-order number "020000." The Part number designates the major river basin; for example, part "12" refers to the Pacific slope basins in Washington and upper Columbia River basin.

Latitude-Longitude System

The identification numbers for wells and miscellaneous surface-water sites are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells or other sites within a one-second grid. This site-identification number, once assigned, is a pure number, and has no locational significance. In the instance where the initial determination of latitude and longitude are found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description.

Well-Numbering System

The USGS assigns numbers to wells and springs in Washington that identify their location in a township, range, and section (fig. 4). Well number 12N/26E-31C01 indicates, successively, the township (T. 12 N.) and range (R. 26 E.) north and east of the Willamette base line and meridian. The first number following the hyphen indicates the section (31) within the township, and the letter following the section number gives the 40-acre subdivision of the section, as shown below (fig. 15). The number (01) following the letter is the sequence number of the well within the 40-acre subdivision. This number indicates that the well was the second one inventoried by the USGS personnel in that 40-acre tract. An "S" following the sequence number indicates that the site is a spring, a "D1" after the sequence number indicates that the original reported depth of the well has been changed once, and successive numbers indicate the number of changes in the well depth.

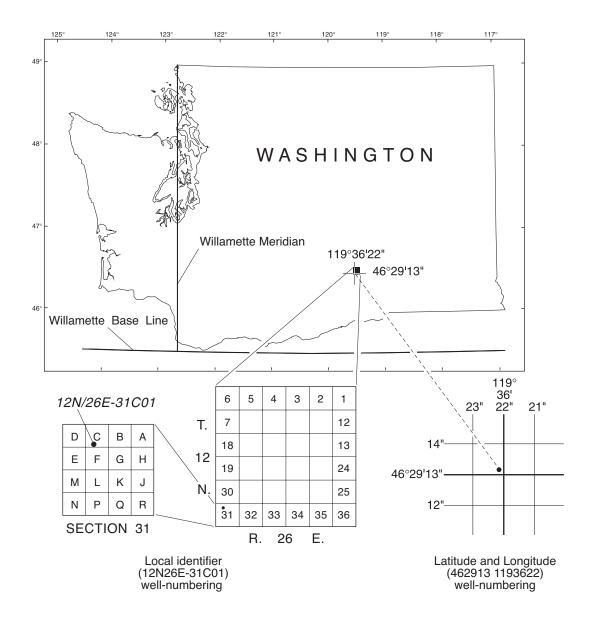


Figure 4. Well-numbering systems used in the State of Washington.

Records of Stage and Water Discharge

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

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

Data Collection and Computation

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

Continuous records of stage are obtained with satellite telemetry data collection platforms that transmit data at selected time intervals via satellite to a direct readout ground station, with electronic recorders that store stage values on computer chips at selected time intervals, or with analog recorders that trace continuous graphs of stage. Measurements of discharge are made with current meters using methods adapted by the Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations (TWRI), Book 3, Chapter A6. These methods are described in standard textbooks, Water-Supply Paper 2175, and The U.S. Geological Survey Techniques of Water-Resources Investigations (TWRI's), Book 3, Chapters A1 through A19 and Book 8, Chapters A2 and B2. The methods are consistent with The American Society for Testing and Materials (ASTM) standards and generally follow the standards of the International Organization for Standards (ISO).

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves are extended using:

(1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow-over-dams or weirs; or (4) step-backwater techniques.

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

At some stream-gaging stations the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some gaging stations, acoustic velocity meter (AVM) systems are used to compute discharge. The AVM system measures the stream's velocity at one or more paths in the cross section. Coefficients are developed to relate this path velocity to the mean velocity in the cross section. Because the AVM sensors are fixed in position, the adjustment coefficients generally vary with stage. Cross-sectional area curves are developed to relate stage, recorded as noted above, to cross section area. Discharge is computed by multiplying path velocity by the appropriate stage related coefficient and area.

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

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

Data Presentation

Streamflow data in this report are presented in a new format that is considerably different from the format in data reports prior to the 1991 water year. The major changes are that statistical characteristics of discharge now appear in tabular summaries following the water-year data table and less information is provided in the text or station manuscript above the table. These changes represent the results of a pilot program to reformat the annual water-data report to meet current user needs and data preferences.

The records published for each continuous-record surface-water discharge station (gaging station) now consist of four parts, the manuscript or station description; the data table of daily mean values of discharge for the current water year with summary data; a tabular statistical summary of monthly mean flow data for a designated period, by water year; and a summary statistics table that includes statistical data of annual and daily flows as well as data pertaining to annual runoff, 7-day low-flow minimums, and flow duration. Summary statistics were not included for certain sites where these data would be misleading. Contact the District Office for information concerning summary statistics for these sites.

Station manuscript

The manuscript provides, under various headings, descriptive information, such as station location; period of record; historical extremes outside the period of record; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

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

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

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

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

GAGE.--The type of gage in current use, the datum of the current gage referred to sea level (see "DEFINITION OF TERMS"), and a condensed history of the types, location, and datums of previous gages are given under this heading.

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

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

AVERAGE DISCHARGE.--The discharge value given is the arithmetic average of the water-year mean discharges. Average discharge is computed only for stations having at least 2 water years of complete record; water years with incomplete record are not included in the computation. The mean-discharge value that uses all published data may differ from that given in the summary statistics data, which is based only on computer-stored data. The summary data does not include values of monthly or yearly data that were determined by various methods for the series of Water-Supply Papers entitled "Compilation of Records of Surface Water of the United States". The average-discharge value is not computed for stations where diversions, storage or other water-use practices cause the value to be meaningless. If water projects that significantly alter flow at a station are put into use after the station has been in operation for a period of years, the new average is computed as soon as 2 water years of record have accumulated after the project began.

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

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

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

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made in the U.S. Geological Survey's distributed data system, NWIS, and subsequently to its web-based National data system, NWISWeb [http://water.usgs.gov/nwis]. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from NWIS or NWISWeb to ensure the most recent updates. Updates to NWISWeb are currently made on an annual basis.

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

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

Data table of daily mean values

The daily table of discharge records for stream-gaging stations gives mean discharge for each day of the water year. In the monthly summary for the table, the line headed "TOTAL" gives the sum of the daily figures for each month. 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 mean discharges, respectively, for the month. Discharge for the month also is usually expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN."), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. At some stations monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversion data or reservoir contents are given. These figures are identified by a symbol and corresponding footnote.

Statistics of monthly mean data

A tabular summary of the mean (line headed "MEAN"), maximum (line headed "MAX"), and minimum (line headed "MIN") of monthly mean flows for each month for a designated period is provided below the mean values table. The water years of the first occurrence of the maximum and minimum monthly flows are provided immediately below those figures. The designated period will be expressed as "FOR WATER YEAR_______, BY WATER YEAR (WY)", and will list the first and last water years of the range of years selected from the PERIOD OF RECORD paragraph in the station manuscript. It will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript.

Summary statistics

The date or water year, as appropriate, of the first occurrence of each statistic reporting extreme values of discharge is provided adjacent to the statistic. Repeated occurrences may be noted in the REMARKS paragraph of the manuscript or in footnotes. Because the designated period may not be the same as the station period of record published in the manuscript, occasionally the dates of occurrence listed for the daily extremes in the designated-period column may not be within the selected water years listed in the heading. When this occurs, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration curve statistics and runoff data are also given. Runoff data may be omitted if there is extensive regulation or diversion of flow in the drainage basin.

The following summary statistics data, as appropriate, are provided with each continuous record of discharge. Comments to follow clarify information presented under the various line headings of the summary statistics table.

ANNUAL TOTAL.--The sum of the daily mean values of discharge for the year. At some stations the annual total discharge is adjusted for reservoir storage or diversion. The adjusted figures are indentified by a symbol and corresponding footnotes.

ANNUAL MEAN.--The arithmetic mean of the individual daily mean discharges for the year noted or for the designated period. At some stations the yearly mean discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes. At least 5 complete years of record must be available before this statistic is published for the designated period.

HIGHEST ANNUAL MEAN.--The maximum annual mean discharge occurring for the designated period.

LOWEST ANNUAL MEAN.--The minimum annual mean discharge occurring for the designated period.

HIGHEST DAILY MEAN.--The maximum daily mean discharge for the year or for the designated period.

LOWEST DAILY MEAN.--The minimum daily mean discharge for the year or for the designated period.

ANNUAL 7-DAY MINIMUM.--The lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1 - March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

MAXIMUM PEAK FLOW.--The maximum instantaneous peak discharge occurring for the water year or designated period. Occasionally the maximum flow for a year may occur at midnight at the beginning or end of the year, on a recession from or rise toward a higher peak in the adjoining year. In this case, the maximum peak flow is given in the table and the maximum flow may be reported in a footnote or in the REMARKS paragraph in the manuscript.

MAXIMUM PEAK STAGE.--The maximum instantaneous peak stage occurring for the water year or designated period. Occasionally the maximum stage for a year may occur at midnight at the beginning or end of the year, on a recession from or rise toward a higher peak in the adjoining year. In this case, the maximum peak stage is given in the table and the maximum stage may be reported in the REMARKS paragraph in the manuscript or in a footnote. If the dates of occurrence of the maximum peak stage and maximum peak flow are different, the REMARKS paragraph in the manuscript or a footnote may be used to provide further information.

INSTANTANEOUS LOW FLOW.--The minimum instantaneous discharge occurring for the water year or for the designated period.

ANNUAL RUNOFF.--Indicates the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurement in presenting annual runoff data:

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

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile area drained, assuming the runoff is distributed uniformly in time and area.

Inches (INCHES) indicates the depth to which the drainage area would be covered if all of the runoff for a given time period were uniformly distributed on it.

10 PERCENT EXCEEDS.--The discharge that is exceeded 10 percent of the time for the designated period.

50 PERCENT EXCEEDS.--The discharge that is exceeded 50 percent of the time for the designated period.

90 PERCENT EXCEEDS.--The discharge that is exceeded 90 percent of the time for the designated period.

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

Identifying Estimated Daily Discharge

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

Accuracy of the Records

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

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

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft³/s; the nearest tenth between 1.0 and 10 ft³/s; whole numbers between 10 and 1,000 ft³/s; and 3 significant figures for more than 1,000 ft³/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

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

Other Records Available

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

For most gaging stations, unpublished, detailed information, on file in the Washington office, includes discharge measurements, gage-height records, and rating tables. Many gaging-station records in Washington through 1979 have been analyzed to determine several statistical summaries: (1) The number of days in each year that the daily discharge was between selected limits (duration tables); (2) the lowest mean discharge for selected numbers of consecutive days in each year; and (3) the highest mean discharge for selected numbers of consecutive days in each year.

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

Records of Surface-Water Quality

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

Classification of Records

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

A careful distinction needs to be made between "continuous records" as used in this report and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape or obtained via data collection platform. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figure 3.

Accuracy of the Records

One of four accuracy classifications is applied for measured physical properties at continuous-record stations on a scale ranging from poor to excellent. The accuracy rating is based on data values recorded before any shifts or corrections are made, as described by Wagner and others (2000). Additional consideration also is given to the amount of publishable record and to the amount of data that have been corrected or shifted.

Rating continuous water-quality records

[≤, less than or equal to; ±, plus or minus value shown; °C, degree Celsius; >, greater than; %, percent; mg/L, milligram per liter; pH unit, standard pH unit]

Macaumad physical property	Ratings							
Measured physical property	Excellent	Good	Fair	Poor				
Water temperature	≤±0.2°C	$> \pm 0.2$ to 0.5° C	$> \pm 0.5 \text{ to } 0.8^{\circ}\text{C}$	> ± 0.8°C				
Specific conductance	<u>≤ ±</u> 3%	$> \pm 3$ to 10%	> ± 10 to 15%	> <u>+</u> 15%				
Dissolved oxygen	$\leq \pm 0.3 \text{ mg/L}$	$> \pm 0.3$ to 0.5 mg/L	$> \pm 0.5$ to 0.8 mg/L	> ± 0.8 mg/L				
рН	<u>≤ ±</u> 0.2 unit	$> \pm 0.2$ to 0.5 unit	$> \pm 0.5$ to 0.8 unit	> <u>+</u> 0.8 unit				
Turbidity	<u>≤ ±</u> 5%	$> \pm 5$ to 10%	> ± 10 to 15%	> <u>+</u> 15%				

Arrangement of Records

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

On-site Measurement and Sample Collection

In obtaining water-quality data, it is important that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, treating the samples to prevent changes in quality pending analysis, and shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are detailed in the TWRI Book 1, Chapter D2; Book 3, Chapter C2; Book 5, Chapter A1, A3, and A4, and Book 9, chapters A1-A9. These references are listed in the PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS section of this report. These methods are consistent with ASTM standards and generally follow ISO standards. Also, detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey, Water Resources Division office in Tacoma, Washington.

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

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

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

Water Temperature

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

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

Sediment

Suspended-sediment concentrations are determined from samples collected by one of the standard sampling techniques discussed in TWRI, Book 3, Chapter C2, "Field methods for measurement of fluvial sediment," 1985 revision. Samples are obtained using standard depth- or point-integrating samplers, or by means of an approved pumping sampler. Mean concentrations for the sampled cross section are in turn determined from these samples.

During periods of rapidly changing flow or rapidly changing suspended-sediment concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily discharges of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge. Methods used in the computation of sediment records are described in the TWRI Book 3, Chapters C1 and C3. These methods are consistent with ASTM standards and generally follow ISO standards.

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

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

Laboratory Measurements

Sediment samples, samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the Geological Survey laboratory in Arvada, Colorado. Methods used to analyze samples and to compute sediment records are given in the TWRI Book 5, Chapter C1. Methods used by the Geological Survey laboratories are given in the TWRI Book 1, Chapter D2; Book 3, Chapter C2; Book 5, Chapters A1, A3, A4, and A5. These methods are consistent with ASTM standards and generally follow ISO standards.

In March 1989, the National Water-Quality Laboratory discovered a bias in the turbidimetric method for sulfate analysis, indicating that values below 75 mg/L have a median positive bias of 2 mg/L above the true value for the period between 1982 and 1989. Sulfate values in this report have not been corrected for this bias.

Estimated pesticide concentrations published in this report are identified by flagging individual values with the symbol "E" and printing a table footnote "E - Estimated". "E" codes (used to define surface-water and water-quality table values) are also used to signify estimated values for all detections that are below the lowest calibration standard, above the highest calibration standard, or otherwise less reliable than average because of sample-specific or compound-specific considerations. All E-coded data are considered to be reliable detections, but with greater than average uncertainity in quantification.

Data Presentation

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

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

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

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

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

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

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

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

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

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

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

Remark Codes

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

PRINT OUTPUT

E	Estimated value.
>	Actual value is known to be greater than the value shown.
<	Actual value is known to be less than the value shown.
K	Results based on colony count outside the acceptance range (non-ideal colony count).
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted).
D	Biological organism count equal to or greater than 15 percent (dominant).
V	Analyte was detected in both the environmental sample and the associated blanks
&	Biological organism estimated as dominant.
M	Presence of material verified, but not quantified.

REMARK

Quality-Control Data

Data generated from quality-control (QC) samples are a requisite for evaluating the quality of the sampling and processing techniques as well as data from the actual samples themselves. Without QC data, environmental sample data cannot be adequately interpreted because the errors associated with the sample data are unknown. The various types of QC samples collected by this District are described in the following section. Procedures have been established for the storage of water-quality-control data within the USGS. These procedures allow for storage of all derived QC data and are identified so that they can be related to corresponding environmental samples.

BLANK SAMPLES—Blank samples are collected and analyzed to ensure that environmental samples have not been contaminated by the overall data-collection process. The blank solution used to develop specific types of blank samples is a solution that is free of the analytes of interest. Any measured value signal in a blank sample for an analyte (a specific component measured in a chemical analysis) that was absent in the blank solution is believed to be due to contamination. There are many types of blank samples possible, each designed to segregate a different part of the overall data-collection process. The types of blank samples collected in this District are:

Source solution blank - a blank solution that is transferred to a sample bottle in an area of the office laboratory with an atmosphere that is relatively clean and protected with respect to target analytes.

Ambient blank - a blank solution that is put in the same type of bottle used for an environmental sample, kept with the set of sample bottles before sample collection, and opened at the site and exposed to the ambient conditions.

Field blank - a blank solution that is subjected to all aspects of sample collection, field processing preservation, transportation, and laboratory handling as an environmental sample.

Trip blank - a blank solution that is put in the same type of bottle used for an environmental sample and kept with the set of sample bottles before and after sample collection.

Equipment blank - a blank solution that is processed through all equipment used for collecting and processing an environmental sample (similar to a field blank but normally done in the more controlled conditions of the office).

Sampler blank - a blank solution that is poured or pumped through the same field sampler used for collecting an environmental sample.

Pump blank - a blank solution that is processed through the same pump-and-tubing system used for an environmental sample.

Stand-pipe blank - a blank solution that is poured from the containment vessel (stand-pipe) before the pump is inserted to obtain the pump blank.

Filter blank - a blank solution that is filtered in the same manner and through the same filter apparatus used for an environmental sample.

Splitter blank - a blank solution that is mixed and separated using a field splitter in the same manner and through the same apparatus used for an environmental sample.

Preservation blank - a blank solution that is treated with the sampler preservatives used for an environmental sample.

Canister blank - a blank solution that is taken directly from a stainless-steel canister just before the VOC sampler is submerged to obtain a field blank sample.

REFERENCE SAMPLES—Reference material is a solution or material prepared by a laboratory whose composition is certified for one or more properties so that it can be used to assess a measurement method. Samples of reference material are submitted for analysis to ensure that an analytical method is accurate for the known properties of the reference material. Generally, the selected reference material properties are similar to the environmental sample properties.

REPLICATE SAMPLES—Replicate samples are a set of environmental samples collected in a manner such that the samples are thought to be essentially identical in composition. Replicate is the general case for which a duplicate is the special case consisting of two samples. Replicate samples are collected and analyzed to establish the amount of variability in the data contributed by some part of the collection and analytical process. There are many types of replicate samples possible, each of which may yield slightly different results in a dynamic hydrologic setting, such as a flowing stream. The types of replicate samples collected in this District are:

Concurrent sample - a type of replicate sample in which the samples are collected simultaneously with two or more samplers or by using one sampler and alternating collection of samples into two or more compositing containers.

Sequential sample - a type of replicate sample in which the samples are collected one after the other, typically over a short time.

Split sample - a type of replicate sample in which a sample is split into subsamples contemporaneous in time and space.

SPIKE SAMPLES - Spike samples are samples to which known quantities of a solution with one or more well-established analyte concentrations have been added. These samples are analyzed to determine the extent of matrix interference or degradation on the analyte concentration during sample processing and analysis.

Concurrent sample - a type of spike sample that is collected at the same time with the same sampling and compositing devices then spiked with the same spike solution containing laboratory-certified concentrations of selected analytes.

Split sample - a type of spike sample in which a sample is split into subsamples contemporaneous in time and space then spiked with the same spike solution containing laboratory-certified concentrations of selected analytes.

Records of Ground-Water Levels

Water-level data from only a few of the many observation wells in Washington are given in this report.

Ground-water records obtained through cooperative efforts of many Federal, State, and local agencies for several thousand observation wells throughout Washington are not included in this report. These records may be placed in computer storage, published in reports, or kept in files. Information about the availability of ground-water data may be obtained from the District Chief, Washington District, U.S. Geological Survey, 1201 Pacific Avenue, Suite 600, Tacoma, Washington 98402.

Data Collection and Computation

Measurements of water levels 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.

Tables of water-level data are presented by counties arranged in alphabetical order. The prime identification number for a given well is the 15-digit number that appears in the upper left corner of the table. The secondary identification number is the local well number, an alphanumeric number, derived from the township-range location of the well.

Water-level records are obtained from direct measurements with a steel or electrical tape or from the graph or punched tape of a water-stage recorder. The water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the elevation of the land-surface datum is given in the 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 hundreth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given to a tenth of a foot or a larger unit.

Data Presentation

Each well record consists of two parts, the station description and the data table of water levels observed during the water year. The description of the well is presented first through use of descriptive headings preceding the tabular data. The comments to follow clarify information presented under the various headings.

LOCATION.--This paragraph follows the well-identification number and reports the latitude and longitude (given in degrees, minutes, and seconds); a landline location designation; the hydrologic unit number; the distance and direction from a geographic point of reference; and the owner's name.

AQUIFER.--This entry designates by name (if a name exists) and geologic age the aquifer(s) open to the well.

WELL CHARACTERISTICS.--This entry describes the well in terms of depth, diameter, casing depth and (or) screened interval, method of construction, use, and additional information such as casing breaks, collapsed screen, and other changes since construction.

INSTRUMENTATION.--This paragraph provides information on both the frequency of measurement and the collection method used, allowing the user to better evaluate the reported water-level extremes by knowing whether they are based on weekly, monthly, or some other frequency of measurement.

DATUM.--This entry describes the land-surface elevation at the well. The elevation of the land-surface datum is described in feet above (or below) sea level; it is reported with a precision depending on the method of determination.

REMARKS.--This entry describes factors that may influence the water level in a well or the measurement of the water level. It should identify wells that also are water-quality observation wells, and may be used to acknowledge the assistance of local (non-Survey) observers.

PERIOD OF RECORD.--This entry indicates the period for which there are published records for the well. It reports the month and year of the start of publication of water-level records by the U.S. Geological Survey and the words "to current year" if the records are to be continued into the following year. Periods for which water-level records are available, but are not published by the Geological Survey, may be noted.

EXTREMES FOR PERIOD OF RECORD.--This entry contains the highest and lowest water levels of the period of published record, with respect to land-surface datum, and the dates of their occurrence.

A table of water levels follows the station description for each well. Water levels are reported in feet below land-surface datum and all taped measurements of water level are listed. For wells equipped with a recorder, only abbreviated tables are published; generally, only water-level lows are listed for every fifth day and at the end of the month (eom). The highest and lowest water levels of the water year and their dates of occurrence are shown on a line below the abbreviated table. Because all values are not published for wells with recorders, the extremes may be values that are not listed in the table. Missing records are indicated by dashes in place of the water level.

ACCESS TO USGS WATER DATA

The USGS provides near real-time stage and discharge data for many of the gaging stations equipped with the necessary telemetry and historic daily-mean and peak-flow discharge data for most current or discontinued gaging stations through the internet. These data may be accessed at:

http://water.usgs.gov

Some water-quality and ground water data also are available through the internet. In addition, data can be provided in various machine-readable formats on magnetic tape or 3-1/2 inch floppy disk. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the USGS Water Resources Program Offices in each state (see address on the back of the title page).

DEFINITION OF TERMS

Specialized technical terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. Definitions of common terms such as algae, water level, and precipitation are given in standard dictionaries. Not all terms defined in this alphabetical list apply to every State. See also table for converting inch/pound units to International System (SI) units on the inside of the back cover.

Acid neutralizing capacity (ANC) is the equivalent sum of all bases or base-producing materials, solutes plus particulates, in an aqueous system that can be titrated with acid to an equivalence point. This term designates titration of an "unfiltered" sample (formerly reported as alkalinity).

Acre-foot (AC-FT, acre-ft) is a unit of volume, commonly used to measure quantities of water used or stored, equivalent to the volume of water required to cover 1 acre to a depth of 1 foot and equivalent to 43,560 cubic feet, 325,851 gallons, or 1,233 cubic meters. (See also "Annual runoff")

Adenosine triphosphate (ATP) is an organic, phosphaterich compound important in the transfer of energy in organisms. Its central role in living cells makes ATP an excellent indicator of the presence of living material in water. A measurement of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter.

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

Alkalinity is the capacity of solutes in an aqueous system to neutralize acid. This term designates titration of a "filtered" sample.

Annual runoff is the total quantity of water that is discharged ("runs off") from a drainage basin in a year. Data reports may present annual runoff data as volumes in acre-feet, as discharges per unit of drainage area in cubic feet per second per square mile, or as depths of water on the drainage basin in inches.

Annual 7-day minimum is the lowest mean value for any 7-consecutive-day period in a year. Annual 7-day minimum values are reported herein for the calendar year and the water year (October 1 through September 30). Most low-flow frequency analyses use a climatic year (April 1-March 31), which tends to prevent the low-flow period

from being artificially split between adjacent years. The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day, 10-year low-flow statistic.)

Aroclor is the registered trademark for a group of polychlorinated biphenyls that were manufactured by the Monsanto Company prior to 1976. Aroclors are assigned specific 4-digit reference numbers dependent upon molecular type and degree of substitution of the biphenyl ring hydrogen atoms by chlorine atoms. The first two digits of a numbered aroclor represent the molecular type, and the last two digits represent the percentage weight of the hydrogen-substituted chlorine.

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

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500 °C for 1 hour. Ash mass of zooplankton and phytoplankton is expressed in grams per cubic meter (g/m³), and periphyton and benthic organisms in grams per square meter (g/m²). (See also "Biomass" and "Dry mass")

Aspect is the direction toward which a slope faces with respect to the compass.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, whereas 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.

Bankfull stage, as used in this report, is the stage at which a stream first overflows its natural banks formed by floods with 1- to 3-year recurrence intervals.

Base discharge (for peak discharge) is a discharge value, determined for selected stations, above which peak discharge data are published. The base discharge at each station is selected so that an average of about three peak flows per year will be published. (See also "Peak flow")

Base flow is sustained flow of a stream in the absence of direct runoff. It includes natural and human-induced streamflows. Natural base flow is sustained largely by ground-water discharge.

Bedload is material in transport that is supported primarily by the streambed. In this report, bedload is considered to consist of particles in transit from the bed to an elevation equal to the top of the bedload sampler nozzle (ranging from 0.25 to 0.5 foot) that are retained in the bedload sampler. A sample collected with a pressure-differential bedload sampler also may contain a component of the suspended load.

Bedload discharge (tons per day) is the rate of sediment moving as bedload, reported as dry weight, that passes through a cross section in a given time. NOTE: Bedload discharge values in this report may include a component of the suspended-sediment discharge. A correction may be necessary when computing the total sediment discharge by summing the bedload discharge and the suspended-sediment discharge. (See also "Bedload," "Dry weight," "Sediment," and "Suspended-sediment discharge")

Bed material is the sediment mixture of which a streambed, lake, pond, reservoir, or estuary bottom is composed. (See also "Bedload" and "Sediment")

Benthic organisms are the group of organisms inhabiting the bottom of an aquatic environment. They include a number of types of organisms, such as bacteria, fungi, insect larvae and nymphs, snails, clams, and crayfish. They are useful as indicators of water quality.

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

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

Biomass pigment ratio is an indicator of the total proportion of periphyton that are autotrophic (plants). This is also called the Autotrophic Index.

Blue-green algae (*Cyanophyta*) are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water. Concentrations are expressed as a number of cells per milliliter (cells/mL) of sample. (See also "Phytoplankton")

Bottom material (See "Bed material")

Bulk electrical conductivity is the combined electrical conductivity of all material within a doughnut-shaped volume surrounding an induction probe. Bulk conductivity is affected by different physical and chemical properties of the material including the dissolved solids content of the pore water and lithology and porosity of the rock.

Cells/volume refers to the number of cells of any organism that is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample volume, and are generally reported as cells or units per milliliter (mL) or liter (L).

Cells volume (biovolume) determination is one of several common methods used to estimate biomass of algae in aquatic systems. Cell members of algae are frequently used in aquatic surveys as an indicator of algal production. However, cell numbers alone cannot represent true biomass because of considerable cell-size variation among the algal species. Cell volume (µm³) is determined by obtaining critical cell measurements or cell dimensions (for example, length, width, height, or radius) for 20 to 50 cells of each important species to obtain an average biovolume per cell. Cells are categorized according to the correspondence of their cellular shape to the nearest geometric solid or combinations of simple solids (for example, spheres, cones, or cylinders). Representative formulae used to compute biovolume are as follows:

sphere $4/3 \pi r^3$ cone $1/3 \pi r^2 h$ cylinder $\pi r^2 h$.

pi (π) is the ratio of the circumference to the diameter of a circle; pi = 3.14159....

From cell volume, total algal biomass expressed as biovolume ($\mu m^3/mL$) is thus determined by multiplying the number of cells of a given species by its average cell volume and then summing these volumes for all species.

Cfs-day (See "Cubic foot per second-day")

Channel bars, as used in this report, are the lowest prominent geomorphic features higher than the channel bed.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with BOD or with carbonaceous organic pollution from sewage or industrial wastes. [See also "Biochemical oxygen demand (BOD)"]

Clostridium perfringens (C. perfringens) is a spore-forming bacterium that is common in the feces of human and other warmblooded animals. Clostridial spores are being used experimentally as an indicator of past fecal contamination and presence of microorganisms that are resistant to disinfection and environmental stresses. (See also "Bacteria")

Coliphages are viruses that infect and replicate in coliform bacteria. They are indicative of sewage contamination of water and of the survival and transport of viruses in the environment.

Color unit is produced by 1 milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Confined aquifer is a term used to describe an aquifer containing water between two relatively impermeable bound-aries. The water level in a well tapping a confined aquifer stands above the top of the confined aquifer and can be higher or lower than the water table that may be present in the material above it. In some cases, the water level can rise above the ground surface, yielding a flowing well.

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.

Continuous-record station is a site where data are collected with sufficient frequency to define daily mean values and variations within a day.

Control designates a feature in the channel that physically affects the water-surface elevation and thereby determines the stage-discharge relation at the gage. This feature may be a constriction of the channel, a bedrock outcrop, a gravel bar, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure, as used in this report, is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of saltwater.

Cubic foot per second (CFS, ft³/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point in 1 second. It is equivalent to approximately 7.48 gallons per second or approximately 449 gallons per minute, or 0.02832 cubic meters per second. The term "second-foot" sometimes is used synonymously with "cubic foot per second" but is now obsolete.

Cubic foot per second-day (CFS-DAY, Cfs-day, [(ft³/s)/d]) is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.98347 acre-feet, 646,317 gallons, or 2,446.6 cubic meters. The daily mean discharges reported in the daily value data tables are numerically equal to the daily volumes in cfs-days, and the totals also represent volumes in cfs-days.

Cubic foot per second per square mile [CFSM, (ft³/s)/mi²] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming the runoff is distributed uniformly in time and area. (See also "Annual runoff")

Daily mean suspended-sediment concentration is the time-weighted concentration of suspended sediment

passing a stream cross section during a 24-hour day. (See also "Sediment" and "Suspended-sediment concentration")

Daily-record station is a site where data are collected with sufficient frequency to develop a record of one or more data values per day. The frequency of data collection can range from continuous recording to periodic sample or data collection on a daily or near-daily basis.

Data collection platform (DCP) is an electronic instrument that collects, processes, and stores data from various sensors, and transmits the data by satellite data relay, line-of-sight radio, and/or landline telemetry.

Data logger is a microprocessor-based data acquisition system designed specifically to acquire, process, and store data. Data are usually downloaded from onsite data loggers for entry into office data systems.

Datum is a surface or point relative to which measurements of height and/or horizontal position are reported. A vertical datum is a horizontal surface used as the zero point for measurements of gage height, stage, or elevation; a horizontal datum is a reference for positions given in terms of latitude-longitude, State Plane coordinates, or UTM coordinates. (See also "Gage datum," "Land-surface datum," "National Geodetic Vertical Datum of 1929," and "North American Vertical Datum of 1988")

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

Diel is of or pertaining to a 24-hour period of time; a regular daily cycle.

Discharge, or flow, is the rate that matter passes through a cross section of a stream channel or other water body per unit of time. The term commonly refers to the volume of water (including, unless otherwise stated, any sediment or other constituents suspended or dissolved in the water) that passes a cross section in a stream channel, canal, pipeline, etc., within a given period of time (cubic feet per second). Discharge also can apply to the rate at which constituents, such as suspended sediment, bedload, and dissolved or suspended chemicals, pass through a cross section, in which cases the quantity is expressed as the mass of constituent that passes the cross section in a given period of time (tons per day).

Dissolved refers to that material in a representative water sample that passes through a 0.45-micrometer membrane filter. This is a convenient operational definition used by Federal and State agencies that collect water-quality data. Determinations of "dissolved" constituent concentrations are made on sample water that has been filtered.

Dissolved oxygen (DO) is the molecular oxygen (oxygen gas) dissolved in water. The concentration in water is a function of atmospheric pressure, temperature, and dissolved-solids concentration of the water. The ability of water to retain oxygen decreases with increasing temperature or dissolved-solids concentration. Photosynthesis and respiration by plants commonly cause diurnal variations in dissolved-oxygen concentration in water from some streams.

Dissolved-solids concentration in water is the quantity of dissolved material in a sample of water. It is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. In the mathematical calculation, the bicarbonate value, in milligrams per liter, is multiplied by 0.4926 to convert it to carbonate. Alternatively, alkalinity concentration (as mg/L CaCO₃) can be converted to carbonate concentration by multiplying by 0.60.

Diversity index (H) (Shannon index) is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\overline{d} = -\sum_{i=1}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n} ,$$

where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specific location is that area upstream from the location, measured in a horizontal plane, that has a common outlet at the site for its surface runoff from precipitation that normally drains by gravity into a stream. Drainage areas given herein include all closed basins, or noncontributing areas, within the area unless otherwise specified.

Drainage basin is a part of the Earth's surface that contains a drainage system with a common outlet for its surface runoff. (See "Drainage area")

Dry mass refers to the mass of residue present after drying in an oven at 105 °C, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass. (See also "Ash mass," "Biomass," and "Wet mass")

Dry weight refers to the weight of animal tissue after it has been dried in an oven at 65 °C until a constant weight is achieved. Dry weight represents total organic and inorganic matter in the tissue. (See also "Wet weight")

Embeddedness is the degree to which gravel-sized and larger particles are surrounded or enclosed by finer-sized particles. (See also "Substrate embeddedness class")

Enterococcus bacteria are commonly found in the feces of humans and other warmblooded animals. Although some strains are ubiquitous and not related to fecal pollution, the presence of enterococci in water is an indication of fecal pollution and the possible presence of enteric pathogens. Enterococcus bacteria are those bacteria that produce pink to red colonies with black or reddish-brown precipitate after incubation at 41 °C on mE agar (nutrient medium for bacterial growth) and subsequent transfer to EIA medium. Enterococci include *Streptococcus feacalis, Streptococcus feacium, Streptococcus avium*, and their variants. (See also "Bacteria")

EPT Index is the total number of distinct taxa within the insect orders Ephemeroptera, Plecoptera, and Trichoptera. This index summarizes the taxa richness within the aquatic insects that are generally considered pollution sensitive; the index usually decreases with pollution.

Escherichia coli (E. coli) are bacteria present in the intestine and feces of warmblooded animals. E. coli are a member species of the fecal coliform group of indicator bacteria. In the laboratory, they are defined as those bacteria that produce yellow or yellow-brown colonies on a filter pad saturated with urea substrate broth after primary culturing for 22 to 24 hours at 44.5 °C on mTEC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also "Bacteria")

Estimated (E) concentration value is reported when an analyte is detected and all criteria for a positive result are met. If the concentration is less than the method detection limit (MDL), an 'E' code will be reported with the value. If the analyte is qualitatively identified as present, but the quantitative determination is substantially more uncertain, the National Water Quality Laboratory will identify the result with an 'E' code even though the measured value is greater than the MDL. A value reported with an 'E' code should be used with caution. When no analyte is detected in a sample, the default reporting value is the MDL preceded by a less than sign (<).

Euglenoids (*Euglenophyta*) are a group of algae that are usually free-swimming and rarely creeping. They have the ability to grow either photosynthetically in the light or heterotrophically in the dark. (See also "Phytoplankton")

Extractable organic halides (EOX) are organic compounds that contain halogen atoms such as chlorine. These organic compounds are semivolatile and extractable by ethyl acetate from air-dried streambed sediment. The ethyl acetate extract is combusted, and the concentration is determined by microcoulometric determination of the halides formed. The concentration is reported as micrograms of chlorine per gram of the dry weight of the streambed sediment.

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

Fecal streptococcal bacteria are present in the intestines of warmblooded animals and are ubiquitous in the environment. They are characterized as gram-positive, cocci bacteria that are capable of growth in brain-heart infusion broth. In the laboratory, they are defined as all the organisms that produce red or pink colonies within 48 hours at 35 °C plus or minus 1.0 °C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also "Bacteria")

Fire algae (*Pyrrhophyta*) are free-swimming unicells characterized by a red pigment spot. (See also "Phytoplankton")

Flow-duration percentiles are values on a scale of 100 that indicate the percentage of time for which a flow is not exceeded. For example, the 90th percentile of river flow is greater than or equal to 90 percent of all recorded flow rates.

Gage datum is a horizontal surface used as a zero point for measurement of stage or gage height. This surface usually is located slightly below the lowest point of the stream bottom such that the gage height is usually slightly greater than the maximum depth of water. Because the gage datum itself is not an actual physical object, the datum usually is defined by specifying the elevations of permanent reference marks such as bridge abutments and survey monuments, and the gage is set to agree with the reference marks. Gage datum is a local datum that is maintained independently of any national geodetic datum. However, if the elevation of the gage datum relative to the national datum (North American Vertical Datum of 1988 or National Geodetic Vertical Datum of 1929) has been determined, then the gage readings can be converted to elevations above the national

datum by adding the elevation of the gage datum to the gage reading.

Gage height (G.H.) is the water-surface elevation, in feet above the gage datum. If the water surface is below the gage datum, the gage height is negative. Gage height often is used interchangeably with the more general term "stage," although gage height is more appropriate when used in reference to a reading on a gage.

Gage values are values that are recorded, transmitted, and/ or computed from a gaging station. Gage values typically are collected at 5-, 15-, or 30-minute intervals.

Gaging station is a site on a stream, canal, lake, or reservoir where systematic observations of stage, discharge, or other hydrologic data are obtained.

Gas chromatography/flame ionization detector (GC/FID) is a laboratory analytical method used as a screening technique for semivolatile organic compounds that are extractable from water in methylene chloride.

Geomorphic channel units, as used in this report, are fluvial geomorphic descriptors of channel shape and stream velocity. Pools, riffles, and runs are types of geomorphic channel units considered for National Water-Quality Assessment (NAWQA) Program habitat sampling.

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

Habitat, as used in this report, includes all nonliving (physical) aspects of the aquatic ecosystem, although living components like aquatic macrophytes and riparian vegetation also are usually included. Measurements of habitat are typically made over a wider geographic scale than are measurements of species distribution.

Habitat quality index is the qualitative description (level 1) of instream habitat and riparian conditions surrounding the reach sampled. Scores range from 0 to 100 percent with higher scores indicative of desirable habitat conditions for aquatic life. Index only applicable to wadable streams.

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

High tide is the maximum height reached by each rising tide. The high-high and low-high tides are the higher and lower of the two high tides, respectively, of each tidal day. *See NOAA web site:*

http://www.co-ops.nos.noaa.gov/tideglos.html

Hilsenhoff's Biotic Index (HBI) is an indicator of organic pollution that uses tolerance values to weight taxa abundances; usually increases with pollution. It is calculated as follows:

$$HBI = sum \frac{(n)(a)}{N}$$
,

where n is the number of individuals of each taxon, a is the tolerance value of each taxon, and N is the total number of organisms in the sample.

Horizontal datum (See "Datum")

Hydrologic index stations referred to in this report are continuous-record gaging stations that have been selected as representative of streamflow patterns for their respective regions. Station locations are shown on index maps.

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

Inch (IN., in.), as used in this report, refers to the depth to which the drainage area would be covered with water if all of the runoff for a given time period were uniformly distributed on it. (See also "Annual runoff")

Instantaneous discharge is the discharge at a particular instant of time. (See also "Discharge")

Island, as used in this report, is a mid-channel bar that has permanent woody vegetation, is flooded once a year on average, and remains stable except during large flood events.

Laboratory reporting level (LRL) is generally equal to twice the yearly determined long-term method detection level (LT-MDL). The LRL controls false negative error. The probability of falsely reporting a nondetection for a sample that contained an analyte at a concentration equal to or greater than the LRL is predicted to be less than or equal to 1 percent. The value of the LRL will be reported with a "less than" (<) remark code for samples in which the analyte was not detected. The National Water Quality Laboratory (NWQL) collects quality-control data from selected analytical methods on a continuing basis to determine LT-MDLs and to establish LRLs. These values

are reevaluated annually on the basis of the most current quality-control data and, therefore, may change. [Note: In several previous NWQL documents (NWQL Technical Memorandum 98.07, 1998), the LRL was called the nondetection value or NDV—a term that is no longer used.]

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

Latent heat flux (often used interchangeably with latent heat-flux density) is the amount of heat energy that converts water from liquid to vapor (evaporation) or from vapor to liquid (condensation) across a specified cross-sectional area per unit time. Usually expressed in watts per square meter.

Light-attenuation coefficient, also known as the extinction coefficient, is a measure of water clarity. Light is attenuated according to the Lambert-Beer equation:

$$I = I_o e^{-\lambda L} ,$$

where I_o is the source light intensity, I is the light intensity at length L (in meters) from the source, λ is the light-attenuation coefficient, and e is the base of the natural logarithm. The light-attenuation coefficient is defined as

$$\lambda = -\frac{1}{L} \log_e \frac{I}{I_o} \ .$$

Lipid is any one of a family of compounds that are insoluble in water and that make up one of the principal components of living cells. Lipids include fats, oils, waxes, and steroids. Many environmental contaminants such as organochlorine pesticides are lipophilic.

Long-term method detection level (LT-MDL) is a detection level derived by determining the standard deviation of a minimum of 24 method detection limit (MDL) spike sample measurements over an extended period of time. LT-MDL data are collected on a continuous basis to assess year-to-year variations in the LT-MDL. The LT-MDL controls false positive error. The chance of falsely reporting a concentration at or greater than the LT-MDL for a sample that did not contain the analyte is predicted to be less than or equal to 1 percent.

Low tide is the minimum height reached by each falling tide. The high-low and low-low tides are the higher and lower of the two low tides, respectively, of each tidal day. *See NOAA web site*:

http://www.co-ops.nos.noaa.gov/tideglos.html

Macrophytes are the macroscopic plants in the aquatic environment. The most common macrophytes are the rooted vascular plants that usually are arranged in zones in aquatic ecosystems and restricted in the area by the extent of illumination through the water and sediment deposition along the shoreline.

Mean concentration of suspended sediment (Daily mean suspended-sediment concentration) is the time-weighted concentration of suspended sediment passing a stream cross section during a given time period. (See also "Daily mean suspended-sediment concentration" and "Suspended-sediment concentration")

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period. (See also "Discharge")

Mean high or **low tide** is the average of all high or low tides, respectively, over a specific period.

Mean sea level is a local tidal datum. It is the arithmetic mean of hourly heights observed over the National Tidal Datum Epoch. Shorter series are specified in the name; for example, monthly mean sea level and yearly mean sea level. In order that they may be recovered when needed, such datums are referenced to fixed points known as benchmarks. (See also "Datum")

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

Membrane filter is a thin microporous material of specific pore size used to filter bacteria, algae, and other very small particles from water.

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

Method detection limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99-percent confidence that the analyte concentration is greater than zero. It is determined from the analysis of a sample in a given matrix containing the analyte. At the MDL concentration, the risk of a false positive is predicted to be less than or equal to 1 percent.

Methylene blue active substances (MBAS) are apparent detergents. The determination depends on the formation

of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

Micrograms per gram (UG/G, μ g/g) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per kilogram (UG/KG, μg/kg) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the constituent per unit mass (kilogram) of the material analyzed. One microgram per kilogram is equivalent to 1 part per billion.

Micrograms per liter (UG/L, μ g/L) is a unit expressing the concentration of chemical constituents in water as mass (micrograms) of constituent per unit volume (liter) of water. One thousand micrograms per liter is equivalent to 1 milligram per liter. One microgram per liter is equivalent to 1 part per billion.

Microsiemens per centimeter (US/CM, μS/cm) is a unit expressing the amount of electrical conductivity of a solution as measured between opposite faces of a centimeter cube of solution at a specified temperature. Siemens is the International System of Units nomenclature. It is synonymous with mhos and is the reciprocal of resistance in ohms.

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

Minimum reporting level (MRL) is the smallest measured concentration of a constituent that may be reliably reported by using a given analytical method.

Miscellaneous site, miscellaneous station, or miscellaneous sampling site is a site where streamflow, sediment, and/or water-quality data or water-quality or sediment samples are collected once, or more often on a random or discontinuous basis to provide better areal coverage for defining hydrologic and water-quality conditions over a broad area in a river basin.

Most probable number (MPN) is an index of the number of coliform bacteria that, more probably than any other number, would give the results shown by the laboratory examination; it is not an actual enumeration. MPN is determined from the distribution of gas-positive cultures among multiple inoculated tubes.

Multiple-plate samplers are artificial substrates of known surface area used for obtaining benthic invertebrate samples. They consist of a series of spaced, hardboard plates on an eyebolt.

Nanograms per liter (NG/L, ng/L) is a unit expressing the concentration of chemical constituents in solution as mass (nanograms) of solute per unit volume (liter) of water. One million nanograms per liter is equivalent to 1 milligram per liter.

National Geodetic Vertical Datum of 1929 (NGVD of 1929) is a fixed reference adopted as a standard geodetic datum for elevations determined by leveling. It was formerly called "Sea Level Datum of 1929" or "mean sea level." Although the datum was derived from the mean sea level at 26 tide stations, it does not necessarily represent local mean sea level at any particular place. See NOAA web site: http://www.ngs.noaa.gov/faq.shtml#WhatVD29VD88 (See "North American Verti-

Natural substrate refers to any naturally occurring immersed or submersed solid surface, such as a rock or tree, upon which an organism lives. (See also "Substrate")

cal Datum of 1988")

Nekton are the consumers in the aquatic environment and consist of large free-swimming organisms that are capable of sustained, directed mobility.

Nephelometric turbidity unit (NTU) is the measurement for reporting turbidity that is based on use of a standard suspension of formazin. Turbidity measured in NTU uses nephelometric methods that depend on passing specific light of a specific wavelength through the sample.

North American Vertical Datum of 1988 (NAVD 1988) is a fixed reference adopted as the official civilian vertical datum for elevations determined by Federal surveying and mapping activities in the United States. This datum was established in 1991 by minimum-constraint adjustment of the Canadian, Mexican, and United States first-order terrestrial leveling networks.

Open or **screened interval** is the length of unscreened opening or of well screen through which water enters a well, in feet below land surface.

Organic carbon (OC) is a measure of organic matter present in aqueous solution, suspension, or bottom sediment. May be reported as dissolved organic carbon (DOC), particulate organic carbon (POC), or total organic carbon (TOC).

Organic mass or **volatile mass** of a living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. Organic

mass is expressed in the same units as for ash mass and dry mass. (See also "Ash mass," "Biomass," and "Dry mass")

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 meter (m²), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

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

Organochlorine compounds are any chemicals that contain carbon and chlorine. Organochlorine compounds that are important in investigations of water, sediment, and biological quality include certain pesticides and industrial compounds.

Parameter code is a 5-digit number used in the USGS computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent or property.

Partial-record station is a site where discrete measurements of one or more hydrologic parameters are obtained over a period of time without continuous data being recorded or computed. A common example is a crest-stage gage partial-record station at which only peak stages and flows are recorded.

Particle size is the diameter, in millimeters (mm), of a particle determined by sieve or sedimentation methods. The sedimentation method utilizes the principle of Stokes law to calculate sediment particle sizes. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube, sedigraph) 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, as used in this report, agrees with the recommendation made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay	>0.00024 - 0.004	Sedimentation
Silt	>0.004 - 0.062	Sedimentation
Sand	>0.062 - 2.0	Sedimentation/sieve
Gravel	>2.0 - 64.0	Sieve
Cobble	>64.0 - 256	Manual measurement
Boulder	>256	Manual measurement

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

Peak flow (peak stage) is an instantaneous local maximum value in the continuous time series of streamflows or stages, preceded by a period of increasing values and followed by a period of decreasing values. Several peak values ordinarily occur in a year. The maximum peak value in a year is called the annual peak; peaks lower than the annual peak are called secondary peaks. Occasionally, the annual peak may not be the maximum value for the year; in such cases, the maximum value occurs at midnight at the beginning or end of the year, on the recession from or rise toward a higher peak in the adjoining year. If values are recorded at a discrete series of times, the peak recorded value may be taken as an approximation of the true peak, which may occur between the recording instants. If the values are recorded with finite precision, a sequence of equal recorded values may occur at the peak; in this case, the first value is taken as the peak.

Percent composition or **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, numbers, weight, mass, or volume.

Percent shading is a measure of the amount of sunlight potentially reaching the stream. A clinometer is used to measure left and right bank canopy angles. These values are added together, divided by 180, and multiplied by 100 to compute percentage of shade.

Periodic-record station is a site where stage, discharge, sediment, chemical, physical, or other hydrologic measurements are made one or more times during a year but at a frequency insufficient to develop a daily record.

Periphyton is the assemblage of microorganisms attached to and living upon submerged solid surfaces. Although primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton are useful indicators of water quality.

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

pH of water is the negative logarithm of the hydrogen-ion activity. Solutions with pH less than 7.0 standard units are termed "acidic," and solutions with a pH greater than 7.0 are termed "basic." Solutions with a pH of 7.0 are

neutral. The presence and concentration of many dissolved chemical constituents found in water are affected, in part, by the hydrogen-ion activity of water. Biological processes including growth, distribution of organisms, and toxicity of the water to organisms also are affected, in part, by the hydrogen-ion activity of water.

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

Picocurie (PC, pCi) is one trillionth (1 x 10⁻¹²) of the amount of radioactive nuclide represented by a curie (Ci). A curie is the quantity of radioactive nuclide that yields 3.7 x 10¹⁰ radioactive disintegrations per second (dps). A picocurie yields 0.037 dps, or 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers. Concentrations are expressed as a number of cells per milliliter (cells/mL) of sample.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Polychlorinated naphthalenes (PCNs) are industrial chemicals that are mixtures of chlorinated naphthalene compounds. They have properties and applications similar to polychlorinated biphenyls (PCBs) and have been identified in commercial PCB preparations.

Pool, as used in this report, is a small part of a stream reach with little velocity, commonly with water deeper than surrounding areas.

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

Primary productivity (carbon method) is expressed as milligrams of carbon per area per unit time [mg C/(m²/time)] for periphyton and macrophytes or per volume [mg C/(m³/time)] for phytoplankton. The carbon method defines the amount of carbon dioxide consumed as measured by radioactive carbon (carbon-14). The carbon-14 method is

of greater sensitivity than the oxygen light and dark bottle method and is preferred for use with unenriched water samples. Unit time may be either the hour or day, depending on the incubation period. (See also "Primary productivity")

Primary productivity (oxygen method) is expressed as milligrams of oxygen per area per unit time [mg O/(m²/time)] for periphyton and macrophytes or per volume [mg O/(m³/time)] for phytoplankton. The oxygen method defines production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period. (See also "Primary productivity")

Radioisotopes are isotopic forms of elements that exhibit radioactivity. Isotopes are varieties of a chemical element that differ in atomic weight but are very nearly alike in chemical properties. The difference arises because the atoms of the isotopic forms of an element differ in the number of neutrons in the nucleus; for example, ordinary chlorine is a mixture of isotopes having atomic weights of 35 and 37, and the natural mixture has an atomic weight of about 35.453. Many of the elements similarly exist as mixtures of isotopes, and a great many new isotopes have been produced in the operation of nuclear devices such as the cyclotron. There are 275 isotopes of the 81 stable elements, in addition to more than 800 radioactive isotopes.

Reach, as used in this report, is a length of stream that is chosen to represent a uniform set of physical, chemical, and biological conditions within a segment. It is the principal sampling unit for collecting physical, chemical, and biological data.

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

Recurrence interval, also referred to as return period, is the average time, usually expressed in years, between occurrences of hydrologic events of a specified type (such as exceedances of a specified high flow or nonexceedance of a specified low flow). The terms "return period" and "recurrence interval" do not imply regular cyclic occurrence. The actual times between occurrences vary randomly, with most of the times being less than the average and a few being substantially greater than the average. For example, the 100-year flood is the flow rate that is exceeded by the annual maximum peak flow at intervals whose average length is 100 years (that is, once in 100 years, on average); almost two-thirds of all exceedances of the 100-year flood occur less than 100 years after the previous exceedance, half occur less than 70 years after the previous exceedance, and about one-eighth occur more than 200 years after the previous exceedance. Similarly, the 7-day, 10-year low flow $(7Q_{10})$ is the flow rate below which the annual minimum 7-day-mean flow dips at intervals whose average length is 10 years (that is, once in 10 years, on average); almost two-thirds of the nonexceedances of the $7Q_{10}$ occur less than 10 years after the previous nonexceedance, half occur less than 7 years after, and about one-eighth occur more than 20 years after the previous nonexceedance. The recurrence interval for annual events is the reciprocal of the annual probability of occurrence. Thus, the 100-year flood has a 1-percent chance of being exceeded by the maximum peak flow in any year, and there is a 10percent chance in any year that the annual minimum 7day-mean flow will be less than the $7Q_{10}$.

Replicate samples are a group of samples collected in a manner such that the samples are thought to be essentially identical in composition.

Return period (See "Recurrence interval")

Riffle, as used in this report, is a shallow part of the stream where water flows swiftly over completely or partially submerged obstructions to produce surface agitation.

River mileage is the curvilinear distance, in miles, measured upstream from the mouth along the meandering path of a stream channel in accordance with Bulletin No. 14 (October 1968) of the Water Resources Council and typically is used to denote location along a river.

Run, as used in this report, is a relatively shallow part of a stream with moderate velocity and little or no surface turbulence.

Runoff is the quantity of water that is discharged ("runs off") from a drainage basin during a given time period.

Runoff data may be presented as volumes in acre-feet, as mean discharges per unit of drainage area in cubic feet per second per square mile, or as depths of water on the drainage basin in inches. (See also "Annual runoff")

Sea level, as used in this report, refers to one of the two commonly used national vertical datums (NGVD 1929 or NAVD 1988). See separate entries for definitions of these datums.

Sediment is solid material that originates mostly from disintegrated rocks; when transported by, suspended in, or deposited from water, it is referred to as "fluvial sediment." Sediment 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 affected by environmental and land-use factors. Some major factors are topography, soil characteristics, land cover, and depth and intensity of pre-cipitation.

Sensible heat flux (often used interchangeably with latent sensible heat-flux density) is the amount of heat energy that moves by turbulent transport through the air across a specified cross-sectional area per unit time and goes to heating (cooling) the air. Usually expressed in watts per square meter.

Seven-day, 10-year low flow ($7Q_{10}$) is the discharge below which the annual 7-day minimum flow falls in 1 year out of 10 on the long-term average. The recurrence interval of the $7Q_{10}$ is 10 years; the chance that the annual 7-day minimum flow will be less than the $7Q_{10}$ is 10 percent in any given year. (See also "Annual 7-day minimum" and "Recurrence interval")

Shelves, as used in this report, are streambank features extending nearly horizontally from the flood plain to the lower limit of persistent woody vegetation.

Sodium adsorption ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Sodium hazard in water is an index that can be used to evaluate the suitability of water for irrigating crops.

Soil heat flux (often used interchangeably with soil heatflux density) is the amount of heat energy that moves by conduction across a specified cross-sectional area of soil per unit time and goes to heating (or cooling) the soil. Usually expressed in watts per square meter.

Soil-water content is the water lost from the soil upon drying to constant mass at 105 °C; expressed either as mass of water per unit mass of dry soil or as the volume of water per unit bulk volume of soil.

Specific electrical conductance (conductivity) is a measure of the capacity of water (or other media) to conduct an electrical current. It is expressed in microsiemens per centimeter at 25 °C. Specific electrical conductance is a function of the types and quantity of dissolved

substances in water and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is from 55 to 75 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stable isotope ratio (per MIL) is a unit expressing the ratio of the abundance of two radioactive isotopes. Isotope ratios are used in hydrologic studies to determine the age or source of specific water, to evaluate mixing of different water, as an aid in determining reaction rates, and other chemical or hydrologic processes.

Stage (See "Gage height")

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

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

Substrate is the physical surface upon which an organism lives.

Substrate embeddedness class is a visual estimate of riffle streambed substrate larger than gravel that is surrounded or covered by fine sediment (<2mm, sand or finer). Below are the class categories expressed as the percentage covered by fine sediment:

0 no gravel or larger substrate 3 26-50 percent 1 > 75 percent 4 5-25 percent 2 51-75 percent 5 < 5 percent

Surface area of a lake is that area (acres) encompassed by the boundary of the lake as shown on USGS topographic maps, or other available maps or photographs. Because surface area changes with lake stage, surface areas listed in this report represent those determined for the stage at the time the maps or photographs were obtained.

Surficial bed material is the upper surface (0.1 to 0.2 foot) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is defined operationally as the material retained on a 0.45-micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative suspended water-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 are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results. Determinations of "suspended, recoverable" constituents are made either by directly analyzing the suspended mate-rial collected on the filter or, more commonly, by difference, on the basis of determinations of (1) dissolved and (2) total recoverable concentrations of the constituent. (See also "Suspended")

Suspended sediment is the sediment maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid. (See also "Sediment")

Suspended-sediment concentration is the velocityweighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 foot above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L). The analytical technique uses the mass of all of the sediment and the net weight of the water-sediment mixture in a sample to compute the suspended-sediment concentration. (See also "Sediment" and "Suspended sediment")

Suspended-sediment discharge (tons/d) is the rate of sediment transport, as measured by dry mass or volume, that passes a cross section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge (ft³/s) x 0.0027. (See also "Sediment," "Suspended sediment," and "Suspended-sediment concentration")

Suspended-sediment load is a general term that refers to a given characteristic of the material in suspension that passes a point during a specified period of time. The term needs to be qualified, such as "annual suspended-sediment load" or "sand-size suspended-sediment load," and so on. It is not synonymous with either suspended-sediment discharge or concentration. (See also "Sediment")

Suspended, total is the total amount of a given constituent in the part of a water-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.

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 directly analyzing portions of the suspended material collected on the filter or, more commonly, by difference, on the basis of determinations of (1) dissolved and (2) total concentrations of the constituent. (See also "Suspended")

Suspended solids, total residue at 105 °C concentration is the concentration of inorganic and organic material retained on a filter, expressed as milligrams of dry material per liter of water (mg/L). An aliquot of the sample is used for this analysis.

Synoptic studies are short-term investigations of specific water-quality conditions during selected seasonal or hydro-logic periods to provide improved spatial resolution for critical water-quality conditions. For the period and conditions sampled, they assess the spatial distribution of selected water-quality conditions in relation to causative factors, such as land use and contaminant sources.

Taxa (Species) richness is the number of species (taxa) present in a defined area or sampling unit.

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: Ephemeroptera
Family: Ephemeridae
Genus: Hexagenia
Species: Hexagenia limbata

Thalweg is the line formed by connecting points of minimum streambed elevation (deepest part of the channel).

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

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water resulting from the mixing of flow proportionally to the duration of the concentration.

Tons per acre-foot (T/acre-ft) is the dry mass (tons) of a constituent per unit volume (acre-foot) of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

Tons per day (T/DAY, tons/d) is a common chemical or sediment discharge unit. It is the quantity of a substance in solution, in suspension, or as bedload that passes a stream section during a 24-hour period. It is equivalent to 2,000 pounds per day, or 0.9072 metric tons per day.

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

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. This group includes coliforms that inhabit the intestine of warmblooded animals and those that inhabit soils. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria that ferment lactose with gas formation within 48 hours at 35 °C. In the laboratory, these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35 °C plus or minus 1.0 °C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 milliliters of sample. (See also "Bacteria")

Total discharge is the quantity of a given constituent, measured as dry mass or volume, that passes a stream cross section per unit of time. When referring to

constituents other than water, this term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total in bottom material is the amount of a given constituent in a representative sample of bottom material. 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 judge when the results should be reported as "total in bottom material."

Total length (fish) is the straight-line distance from the anterior point of a fish specimen's snout, with the mouth closed, to the posterior end of the caudal (tail) fin, with the lobes of the caudal fin squeezed together.

Total load refers to all of a constituent in transport. When referring to sediment, it includes suspended load plus bed load.

Total organism count is the number of organisms collected and enumerated in any particular sample. (See also "Organism count/volume")

Total recoverable is the amount of a given constituent in a whole-water sample after a 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 for whole-water samples, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures may produce different analytical results.

Total sediment discharge is the mass of suspended-sediment plus bed-load transport, measured as dry weight, that passes a cross section in a given time. It is a rate and is reported as tons per day. (See also "Bedload," "Bedload discharge," "Sediment," "Suspended sediment," and "Suspended-sediment concentration")

Total sediment load or total load is the sediment in transport as bedload and suspended-sediment load. The term may be qualified, such as "annual suspended-sediment load" or "sand-size suspended-sediment load," and so on. It differs from total sediment discharge in that load refers to the material, whereas discharge refers to the quantity of material, expressed

in units of mass per unit time. (See also "Sediment," "Suspended-sediment load," and "Total load")

Transect, as used in this report, is a line across a stream perpendicular to the flow and along which measurements are taken, so that morphological and flow characteristics along the line are described from bank to bank. Unlike a cross section, no attempt is made to determine known elevation points along the line.

Turbidity is the reduction in the transparency of a solution due to the presence of suspended and some dissolved substances. The measurement technique records the collective optical properties of the solution that cause light to be scattered and attenuated rather than transmitted in straight lines; the higher the intensity of scattered or attenuated light, the higher the value of the turbidity. Turbidity is expressed in nephelometric turbidity units (NTU). Depending on the method used, the turbidity units as NTU can be defined as the intensity of light of a specified wavelength scattered or attenuated by suspended particles or absorbed at a method specified angle, usually 90 degrees, from the path of the incident light. Currently approved methods for the measurement of turbidity in the USGS include those that conform to U.S. EPA Method 180.1, ASTM D1889-00, and ISO 7027. Measurements of turbidity by these different methods and different instruments are unlikely to yield equivalent values.

Ultraviolet (UV) absorbance (absorption) at 254 or 280 nanometers is a measure of the aggregate concentration of the mixture of UV absorbing organic materials dissolved in the analyzed water, such as lignin, tannin, humic substances, and various aromatic compounds. UV absorbance (absorption) at 254 or 280 nanometers is measured in UV absorption units per centimeter of pathlength of UV light through a sample.

Unconfined aquifer is an aquifer whose upper surface is a water table free to fluctuate under atmospheric pressure. (See "Water-table aquifer")

Vertical datum (See "Datum")

Volatile organic compounds (VOCs) are organic compounds that can be isolated from the water phase of a sample by purging the water sample with inert gas, such as helium, and subsequently analyzed by gas chromatography. Many VOCs are human-made chemicals that are used and produced in the manufacture of paints, adhesives, petroleum products, pharmaceuticals, and refrigerants. They are often components of fuels, solvents, hydraulic fluids, paint thinners, and dry cleaning agents commonly used in urban settings.

VOC contamination of drinking-water supplies is a human health concern because many are toxic and are known or suspected human carcinogens.

Water table is that surface in a ground-water body at which the water pressure is equal to the atmospheric pressure.

Water-table aquifer is an unconfined aquifer within which the water table is found.

Water year in USGS reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 2002, is called the "2002 water year."

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

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

Wet mass is the mass of living matter plus contained water. (See also "Biomass" and "Dry mass")

Wet weight refers to the weight of animal tissue or other substance including its contained water. (See also "Dry weight")

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

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

TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS OF THE U.S. GEOLOGICAL SURVEY

The USGS publishes a series of manuals titled the "Techniques of Water-Resources Investigations" that describe procedures for planning and conducting specialized work in water-resources investigations. The material in these manuals 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) pertains to surface water. Each chapter then is limited to a narrow field of the section subject matter. This publication format permits flexibility when revision or printing is required.

Manuals in the Techniques of Water-Resources Investigations series, which are listed below, are available online at http://water.usgs.gov/pubs/twri/. Printed copies are available for sale from the USGS, Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (an authorized agent of the Superintendent of Documents, Government Printing Office). Please telephone "1-888-ASK-USGS" for current prices, and refer to the title, book number, section number, chapter number, and mention the "U.S. Geological Survey Techniques of Water-Resources Investigations." Other products can be viewed online at http://www.usgs.gov/sales.html, or ordered by telephone or by FAX to (303)236-4693. Order forms for FAX requests are available online at http://mac.usgs.gov/isb/pubs/forms/. Prepayment by major credit card or by a check or money order payable to the "U.S. Geological Survey" is required.

Book 1. Collection of Water Data by Direct Measurement

Section D. Water Quality

- 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, chap. D1. 1975. 65 p.
- 1-D2. Guidelines for collection and field analysis of ground-water samples for selected unstable constituents, by W.W. Wood: USGS-TWRI book 1, chap. D2. 1976. 24 p.

Book 2. Collection of Environmental Data

Section D. Surface Geophysical Methods

- 2-D1. Application of surface geophysics to ground-water investigations, by A.A.R. Zohdy, G.P. Eaton, and D.R. Mabey: USGS–TWRI book 2, chap. D1. 1974. 116 p.
- 2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F.P. Haeni: USGS–TWRI book 2, chap. D2. 1988. 86 p.

Section E. Subsurface Geophysical Methods

- 2-E1. *Application of borehole geophysics to water-resources investigations*, by W.S. Keys and L.M. MacCary: USGS–TWRI book 2, chap. E1. 1971. 126 p.
- 2-E2. *Borehole geophysics applied to ground-water investigations*, by W.S. Keys: USGS–TWRI book 2, chap. E2. 1990. 150 p.

Section F. Drilling and Sampling Methods

2-F1. Application of drilling, coring, and sampling techniques to test holes and wells, by Eugene Shuter and W.E. Teasdale: USGS–TWRI book 2, chap. F1. 1989. 97 p.

Book 3. Applications of Hydraulics

Section A. Surface-Water Techniques

- 3-A1. *General field and office procedures for indirect discharge measurements*, by M.A. Benson and Tate Dalrymple: USGS–TWRI book 3, chap. A1. 1967. 30 p.
- 3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M.A. Benson: USGS—TWRI book 3, chap. A2. 1967. 12 p.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G.L. Bodhaine: USGS-TWRI book 3, chap. A3. 1968. 60 p.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H.F. Matthai: USGS-TWRI book 3, chap. A4. 1967. 44 p.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS–TWRI book 3, chap. A5. 1967. 29 p.

- 3-A6. *General procedure for gaging streams*, by R.W. Carter and Jacob Davidian: USGS–TWRI book 3, chap. A6. 1968. 13 p.
- 3-A7. *Stage measurement at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS–TWRI book 3, chap. A7. 1968. 28 p.
- 3-A8. *Discharge measurements at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS–TWRI book 3, chap. A8. 1969. 65 p.
- 3-A9. *Measurement of time of travel in streams by dye tracing*, by F.A. Kilpatrick and J.F. Wilson, Jr.: USGS–TWRI book 3, chap. A9. 1989. 27 p.
- 3-Alo. Discharge ratings at gaging stations, by E.J. Kennedy: USGS-TWRI book 3, chap. Alo. 1984. 59 p.
- 3-A11. *Measurement of discharge by the moving-boat method*, by G.F. Smoot and C.E. Novak: USGS–TWRI book 3, chap. A11. 1969. 22 p.
- 3-A12. *Fluorometric procedures for dye tracing*, Revised, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS–TWRI book 3, chap. A12. 1986. 34 p.
- 3-A13. *Computation of continuous records of streamflow*, by E.J. Kennedy: USGS–TWRI book 3, chap. A13. 1983. 53 p.
- 3-A14. *Use of flumes in measuring discharge*, by F.A. Kilpatrick and V.R. Schneider: USGS–TWRI book 3, chap. A14. 1983. 46 p.
- 3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS–TWRI book 3, chap. A15. 1984. 48 p.
- 3-A16. *Measurement of discharge using tracers*, by F.A. Kilpatrick and E.D. Cobb: USGS–TWRI book 3, chap. A16. 1985. 52 p.
- 3-A17. Acoustic velocity meter systems, by Antonius Laenen: USGS-TWRI book 3, chap. A17. 1985. 38 p.
- 3-A18. Determination of stream reaeration coefficients by use of tracers, by F.A. Kilpatrick, R.E. Rathbun, Nobuhiro Yotsukura, G.W. Parker, and L.L. DeLong: USGS-TWRI book 3, chap. A18. 1989. 52 p.
- 3-A19. Levels at streamflow gaging stations, by E.J. Kennedy: USGS-TWRI book 3, chap. A19. 1990. 31 p.
- 3-A20. Simulation of soluable waste transport and buildup in surface waters using tracers, by F.A. Kilpatrick: USGS-TWRI book 3, chap. A20. 1993. 38 p.
- 3-A21 Stream-gaging cableways, by C. Russell Wagner: USGS-TWRI book 3, chap. A21. 1995. 56 p.

Section B. Ground-Water Techniques

- 3-B1. Aquifer-test design, observation, and data analysis, by R.W. Stallman: USGS-TWRI book 3, chap. B1. 1971. 26 p.
- 3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G.D. Bennett: USGS—TWRI book 3, chap. B2. 1976. 172 p.
- 3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J.E. Reed: USGS–TWRI book 3, chap. B3. 1980. 106 p.
- 3-B4. *Regression modeling of ground-water flow*, by R.L. Cooley and R.L. Naff: USGS–TWRI book 3, chap. B4. 1990. 232 p.
- 3-B4. Supplement 1. Regression modeling of ground-water flow—Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems, by R.L. Cooley: USGS-TWRI book 3, chap. B4. 1993. 8 p.
- 3-B5. Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems—An introduction, by O.L. Franke, T.E. Reilly, and G.D. Bennett: USGS–TWRI book 3, chap. B5. 1987. 15 p.
- 3-B6. *The principle of superposition and its application in ground-water hydraulics*, by T.E. Reilly, O.L. Franke, and G.D. Bennett: USGS–TWRI book 3, chap. B6. 1987. 28 p.
- 3-B7. Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow, by E.J. Wexler: USGS–TWRI book 3, chap. B7. 1992. 190 p.

3-B8. *System and boundary conceptualization in ground-water flow simulation*, by T.E. Reilly: USGS-TWRI book 3, chap. B8. 2001. 29 p.

Section C. Sedimentation and Erosion Techniques

- 3-C1. Fluvial sediment concepts, by H.P. Guy: USGS-TWRI book 3, chap. C1. 1970. 55 p.
- 3-C2. *Field methods for measurement of fluvial sediment*, by T.K. Edwards and G.D. Glysson: USGS–TWRI book 3, chap. C2. 1999. 89 p.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS–TWRI book 3, chap. C3. 1972. 66 p.

Book 4. Hydrologic Analysis and Interpretation

Section A. Statistical Analysis

- 4-A1. Some statistical tools in hydrology, by H.C. Riggs: USGS-TWRI book 4, chap. A1. 1968. 39 p.
- 4-A2. Frequency curves, by H.C. Riggs: USGS-TWRI book 4, chap. A2. 1968. 15 p.
- 4–A3. *Statistical methods in water resources*, by D.R. Helsel and R.M. Hirsch: USGS–TWRI book 4, chap. A3. 1991. Available only online at http://water.usgs.gov/pubs/twri/twri4a3/. (Accessed August 30, 2002.)

Section B. Surface Water

- 4-B1. Low-flow investigations, by H.C. Riggs: USGS-TWRI book 4, chap. B1. 1972. 18 p.
- 4-B2. *Storage analyses for water supply*, by H.C. Riggs and C.H. Hardison: USGS–TWRI book 4, chap. B2. 1973. 20 p.
- 4-B3. Regional analyses of streamflow characteristics, by H.C. Riggs: USGS-TWRI book 4, chap. B3. 1973. 15 p.

Section D. Interrelated Phases of the Hydrologic Cycle

4-D1. *Computation of rate and volume of stream depletion by wells*, by C.T. Jenkins: USGS–TWRI book 4, chap. D1. 1970. 17 p.

Book 5. Laboratory Analysis

Section A. Water Analysis

- 5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M.J. Fishman and L.C. Friedman, editors: USGS–TWRI book 5, chap. A1. 1989. 545 p.
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P.R. Barnett and E.C. Mallory, Jr.: USGS–TWRI book 5, chap. A2. 1971. 31 p.
- 5-A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R.L. Wershaw, M.J. Fishman, R.R. Grabbe, and L.E. Lowe: USGS–TWRI book 5, chap. A3. 1987. 80 p.
- 5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by L.J. Britton and P.E. Greeson, editors: USGS–TWRI book 5, chap. A4. 1989. 363 p.
- 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, chap. A5. 1977. 95 p.
- 5-A6. Quality assurance practices for the chemical and biological analyses of water and fluvial sediments, by L.C. Friedman and D.E. Erdmann: USGS–TWRI book 5, chap. A6. 1982. 181 p.

Section C. Sediment Analysis

5-C1. *Laboratory theory and methods for sediment analysis*, by H.P. Guy: USGS–TWRI book 5, chap. C1. 1969. 58 p.

Book 6. Modeling Techniques

Section A. Ground Water

6-A1. *A modular three-dimensional finite-difference ground-water flow model*, by M.G. McDonald and A.W. Harbaugh: USGS–TWRI book 6, chap. A1. 1988. 586 p.

- 6-A2. Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model, by S.A. Leake and D.E. Prudic: USGS–TWRI book 6, chap. A2. 1991. 68 p.
- 6-A3. A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual, by L.J. Torak: USGS–TWRI book 6, chap. A3. 1993. 136 p.
- 6-A4. A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions, by R.L. Cooley: USGS—TWRI book 6, chap. A4. 1992. 108 p.
- 6-A5. A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3: Design philosophy and programming details, by L.J. Torak: USGS–TWRI book 6, chap. A5. 1993. 243 p.
- 6-A6. A coupled surface-water and ground-water flow model (MODBRANCH) for simulation of stream-aquifer interaction, by Eric D. Swain and Eliezer J. Wexler: USGS-TWRI book 6, chap. A5. 1996. 125 p.
- 6–A7. User's guide to SEAWAT: A computer program for simulation of three-dimensional variable-density ground-water flow, by Weixing Guo and Christian D. Langevin: USGS–TWRI book 6, chap. A7. 2002. 77 p.

Book 7. Automated Data Processing and Computations

Section C. Computer Programs

- 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, chap. C1. 1976. 116 p.
- 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, chap. C2. 1978. 90 p.
- 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, chap. C3. 1981. 110 p.

Book 8. Instrumentation

Section A. Instruments for Measurement of Water Level

- 8-A1. *Methods of measuring water levels in deep wells*, by M.S. Garber and F.C. Koopman: USGS–TWRI book 8, chap. A1. 1968. 23 p.
- 8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J.D. Craig: USGS–TWRI book 8, chap. A2. 1983. 57 p.

Section B. Instruments for Measurement of Discharge

8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G.F. Smoot and C.E. Novak: USGS—TWRI book 8, chap. B2. 1968. 15 p.

Book 9. Handbooks for Water-Resources Investigations

Section A. National Field Manual for the Collection of Water-Quality Data

- 9-A1. *National Field Manual for the Collection of Water-Quality Data: Preparations for Water Sampling*, by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A1. 1998. 47 p.
- 9-A2. National Field Manual for the Collection of Water-Quality Data: Selection of Equipment for Water Sampling, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS-TWRI book 9, chap. A2. 1998. 94 p.
- 9-A3. *National Field Manual for the Collection of Water-Quality Data: Cleaning of Equipment for Water Sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A3. 1998. 75 p.
- 9-A4. *National Field Manual for the Collection of Water-Quality Data: Collection of Water Samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A4. 1999. 156 p.

- 9-A5. *National Field Manual for the Collection of Water-Quality Data: Processing of Water Samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A5. 1999. 149 p.
- 9-A6. *National Field Manual for the Collection of Water-Quality Data: Field Measurements*, edited by F.D. Wilde and D.B. Radtke: USGS–TWRI book 9, chap. A6. 1998. Variously paginated.
- 9-A7. *National Field Manual for the Collection of Water-Quality Data: Biological Indicators*, edited by D.N. Myers and F.D. Wilde: USGS–TWRI book 9, chap. A7. 1997 and 1999. Variously paginated.
- 9-A8. *National Field Manual for the Collection of Water-Quality Data: Bottom-material samples*, by D.B. Radtke: USGS–TWRI book 9, chap. A8. 1998. 48 p.
- 9-A9. *National Field Manual for the Collection of Water-Quality Data: Safety in Field Activities*, by S.L. Lane and R.G. Fay: USGS–TWRI book 9, chap. A9. 1998. 60 p.

SURFACE-WATER-DISCHARGE AND SURFACE-WATER-QUALITY RECORDS

Remark Codes

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

PRINTED OUTPUT	REMARK
E	Value is estimated.
>	Actual value is known to be greater than the value shown.
<	Actual value is known to be less than the value shown.
M	Presence of material verified, but not quantified.
N	Presumptive evidence of presence of material.
U	Material specifically analyzed for, but not detected.
A	Value is an average.
V	Analyte was detected in both the environmental sample and the associated blanks.
S	Most probable value.

Dissolved Trace-Element Concentrations

*NOTE.--Traditionally, dissolved trace-element concentrations have been reported at the microgram per liter (μ g/L) level. Recent evidence, mostly from large rivers, indicates that actual dissolved-phase concentrations for a number of trace elements are within the range of 10's to 100's of nanograms per liter (ng/L). Data above the μ g/L level should be viewed with caution. Such data may actually represent elevated environmental concentrations from natural or human causes; however, these data could reflect contamination introduced during sampling, processing, or analysis. To confidently produce dissolved trace-element data with insignificant contamination, the U.S. Geological Survey began using new trace-element protocols at some stations in water year 1994.

Change in National Trends Network Procedures

*NOTE.--Sample handling procedures at all National Trends Network stations were changed substantially on January 11, 1994, in order to reduce contamination from the sample shipping container. The data for samples before and after that date are different and not directly comparable. A tabular summary of the differences based on a special intercomparison study, is available from the NADP/NTN Coordination Office, Colorado State University, Fort Collins, CO 80523 (Telephone: 303-491-5643).

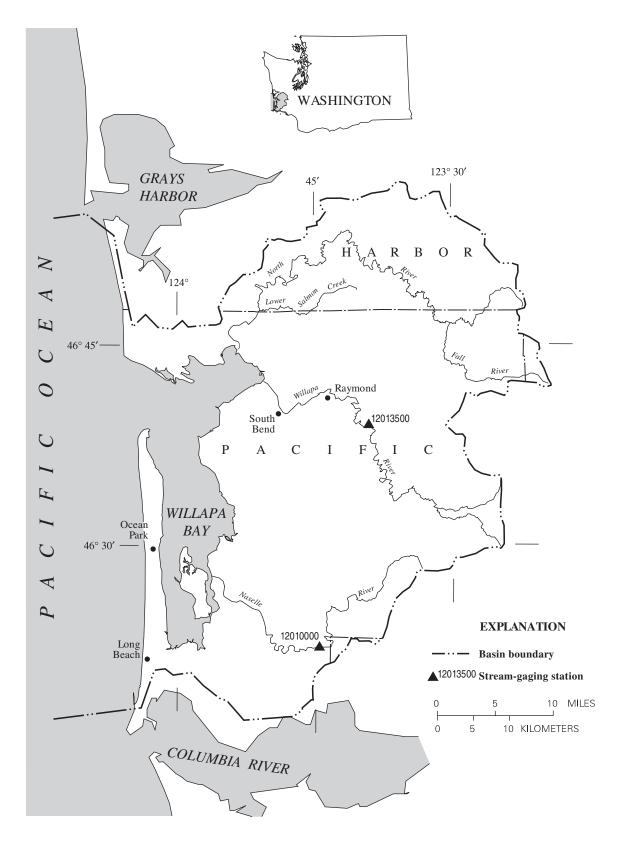


Figure 5. Location of surface-water stations in the Naselle and Willapa River Basins.

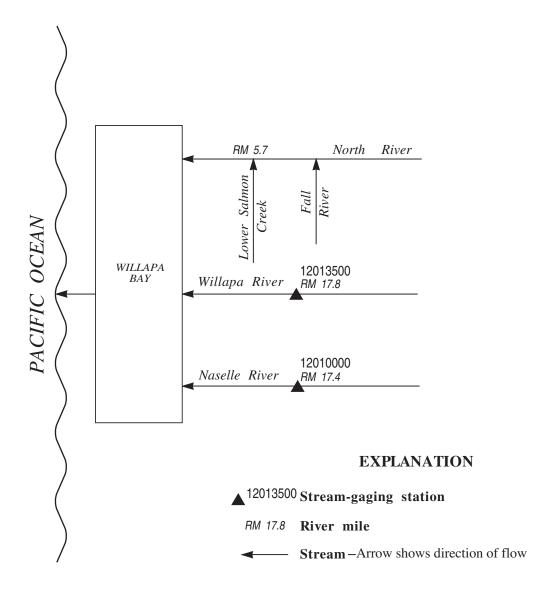


Figure 6. Schematic diagram showing surface-water stations in the Naselle and Willapa River Basins.

NASELLE RIVER BASIN

12010000 NASELLE RIVER NEAR NASELLE, WA

LOCATION.--Lat $46^{\circ}22'27"$, long $123^{\circ}44'32"$, in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.1, T.10 N., R.9 W., Pacific County, Hydrologic Unit 17100106, on right bank 0.2 mi upstream from county highway bridge, 2.2 mi upstream from Salmon Creek, 3.4 mi east of Naselle, and at mile 17.4.

DRAINAGE AREA.--54.8 mi².

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

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1316: 1930(M), 1932-40(M), 1945-46(M).

GAGE.--Water-stage recorder. Elevation of gage is 24 ft above NGVD of 1929, by barometer. Prior to Jan. 11, 1957, nonrecording gage and crest-stage gage at site 1,350 ft downstream at present datum. Jan. 11, 1957, to Dec. 31, 1961, nonrecording gage and crest-stage gage at site 1,200 ft downstream at present datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station. Chemical analyses October 1965 to September 1970, January to September 1973, November 1975 to June 1980. Water temperatures August 1963 to September 1973. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--73 years (water years 1930-2002), 429 ${\rm ft^3/s}$, 106.28 ${\rm in/yr}$, 310,600 acre- ${\rm ft/yr}$.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,600 ft³/s Mar. 18, 1997, gage height, 19.26 ft; minimum discharge, 18 ft³/s Aug. 30, 31, Sept. 1, 1970, Sept. 3, 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ${\rm ft}^3/{\rm s}$ and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 14	2000	*6,870	*14.42	Jan. 7	1230	4,180	11.39
Dec. 13	2030	4,410	11.67	Jan. 25	0230	4,820	12.16
Dec. 16	2230	6,210	13.73				
Minimum dis	charge, 22 f	Et ³ /s Sept. 2	7.				
		DISCHARGE, C	UBIC FEET PER	SECOND, WATER		2001 TO SEP	TEMBER 2002

		DISCHAF	RGE, CUBI	C FEET PE		WATER Y MEAN V		ER 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	54 52 51 49 48	574 538 459 404 362	3500 2510 1440 1170 1030	256 279 288 324 355	1180 892 843 722 656	301 274 250 230 216	253 228 211 197 188	179 172 166 155 167	167 155 148 143 143	182 e150 132 126 121	43 43 42 44 47	28 29 31 29 28
6 7 8 9 10	46 49 57 51 77	312 277 249 226 206	997 848 735 661 687	1110 3630 2710 1490 935	735 841 893 763 653	207 191 186 188 450	192 215 192 e240 e550	169 167 147 140 136	135 124 120 114 110	107 103 e98 92 86	61 44 42 41 40	27 27 29 33 29
11 12 13 14 15	106 94 165 149 129	192 189 593 4440 3720	787 889 2530 3090 1920	667 824 692 570 477	559 471 412 368 335	1540 1170 909 840 734	e540 e760 e1000 e2200 e1900	129 122 121 125 115	105 99 e92 91 90	83 79 76 e73 70	40 38 36 35 e35	27 26 26 25 26
16 17 18 19 20	110 101 91 107 113	2140 1240 819 756 1210	4860 3900 2030 1460 1060	423 379 345 400 919	322 293 287 363 334		850 643 513		89 104 144 110 94	e68 67 67 65 63	35 e35 34 34 34	30 e32 28 e26 26
21 22 23 24 25	110 264 404 382 480	1470 2800 2420 1390 892	785 614 497 422 366	846 718 711 2560 4040	645 632 656 597 498		428 374 329 294 269	95 100 94 e87 82	89 e86 e84 81 76	59 54 52 52 51	34 34 32 31 31	e25 24 24 23 e23
26 27 28 29 30 31	394 375 331 276 207 588	657 517 1280 2030 1880	324 294 292 250 227 217	2100 1210 806 605 672 1420	428 375 335 	366 339 340 317 289 267	260 242 220 203 193	83 92 176 375 236 192	74 75 152 450 224	52 51 49 50 e49 45	31 30 29 28 28 28	23 e22 e23 24 51
TOTAL MEAN MAX MIN AC-FT CFSM IN.	5510 177.7 588 46	34242 1141 4440	40392 1303 4860 217		1180 287	1540 186	2200 188	4332 139.7 375 82 8590 2.55 2.94	450 74	2472 79.74 182 45 4900 1.46 1.68	61 28	51 22
STATIST	rics of M	ONTHLY MEA	AN DATA F	OR WATER	YEARS 1930	- 2002	, BY WATER	R YEAR (WY)				
MEAN MAX (WY) MIN (WY)	275.6 862 1998 20.9 1988	721.9 1539 1984 37.3 1937	2530 1934	860.7 1969 1953 215 1985	1587 1961			209.5 448 1948 82.0 1956		76.77 250 1983 33.8 1970		83.70 455 1978 26.4 1999
SUMMARY	STATIST	rics	FOR	2001 CALE	NDAR YEAR		FOR 2002 W	NATER YEAR		WATER YEAR	RS 1930 -	2002
ANNUAL ANNUAL HIGHES' LOWEST HIGHES' LOWEST ANNUAL ANNUAL ANNUAL 10 PERC 90 PERC	MEAN	MEAN EAN EAN AN Y MINIMUM AC-FT) CFSM) INCHES) EDS EDS EDS		150223 411.6 4860 38 41 298000 7.5: 101.9i 749 272 59			174662 478.5 4860 22 23 346400 8.7 118.5 1170 207 32			428.7 611 226 10400 18 19 310600 7.82 106.28 1060 219		1974 1977 : 1935 : 1970 : 1987

e Estimated

54 WILLAPA RIVER BASIN

12013500 WILLAPA RIVER NEAR WILLAPA, WA

LOCATION.--Lat $46^\circ39^\circ04^\circ$, long $123^\circ39^\circ05^\circ$, in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.35, T.14 N., R.8 W., Pacific County, Hydrologic Unit 17100106, on right bank 2,150 ft downstream from Mill Creek, 1.8 mi southeast of Willapa, and at mile 17.8.

DRAINAGE AREA. -- 130 mi².

Date

Time

10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS

PERIOD OF RECORD.--August to October 1947, July 1948 to December 1954, water years 1955-56, 1958-59 (annual maximum), April 1961 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 3.57 ft above NGVD of 1929. Aug. 26 to Oct. 16, 1947, water-stage recorder at site 2,060 ft upstream at different datum. July 28, 1948, to Dec. 2, 1954, water-stage recorder, water years 1955-56, 1958-59, nonrecording gage, and Apr. 1, 1961, to Apr. 14, 1974, water-stage recorder at site 2,000 ft upstream at datum 2.12 ft higher.

REMARKS.--Records good. Some diversion for domestic use and irrigation upstream from station. No regulation. U.S. Geological Survey satellite telemeter at station. Chemical analyses October 1965 to September 1986.

AVERAGE DISCHARGE.--47 years (water years 1949-1954, 1962-2002), $641 \text{ ft}^3/\text{s}$, 66.97 in/yr, 464,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $14,800~{\rm ft}^3/{\rm s}$ Dec. 20, 1994, from rating curve extended above 8,000 ft $^3/{\rm s}$, gage height, 27.28 ft; minimum discharge, 13 ft $^3/{\rm s}$ Aug. 20, 1967.

Date Time

Discharge Gage height (ft³/s) (ft)

2210 290

 $\hbox{\it EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,000 ft^3/s and maximum (*): } \\$

Discharge Gage height (ft³/s) (ft)

		, ,	,,	, .,				, , , ,	,	,		
Nov. 15 Nov. 22 Dec. 01	0000 1500 2100 0000	5,0 7,7	730	20.58 13.92 18.40	Dec. Dec. Jan. Jan.	. 17 . 07	0200 0300 2100	*11,0 9,1	 00	23.17 *23.18 20.52		
Dec. 14 Minimum disc		7,1 8 f+ ³ /a Se		17.53	uaii.	. 25	0800	7,6	00	18.33		
MINIMUM GISC	marge, r		_									
		DISCHAF	RGE, CUB	IC FEET PER		WATER Y	/EAR OCTOBER /ALUES	2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	659	6690	483	1950	552	428	303	167	175	41	23
2 3	52 51	533 412	5520 3120	592 567	1590 1480	502 459	392 360	290 276	150 139	144 125	41 40	24 26
4	48	337	2720	595	1270	423	336	258	133	116	41	26
5	46	317	2410	577	1160	407	318	273	133	114	51	23
6 7	45	277	2100	1490	1320	396	318	291	136	102	64	24
8	47 50	240 218	1770 1510	7670 6540	1670 1990	369 358	324 296	274 244	121 117	92 90	52 45	25 25
9	50	205	1360	3340	1760	370	347	230	116	86	42	28
10	55	190	1210	2140	1520	896	694	217	107	79	39	28
11	94	178	1200	1590	1350	3120	667	206	100	73	39	26
12 13	78 119	177 260	1170 3430	1840 1630	1110 959	2950 2440	836 1210	196 191	95 90	71 69	36 33	24 23
14	114	5640	5610	1360	827	2150	2950	199	85	67	30	23
15	108	6250	3520	1130	730	1730	2320	182	85	64	28	22
16	91	3550	7130	971	710	1480	2170	171	82	62	28	24
17 18	85 76	2180 1480	8450 4340	863 751	634 599	1280 1210	1880 1480	167 160	85 111	61 60	27 27	27 27
19	74	1370	3190	813	819	1700	1170	156	111	60	28	25
20	79	2730	2370	1450	745	2030	963	162	91	60	27	23
21	76	3310 4450	1800 1420	1520 1390	1500 1480	1610 1280	803 694	160	82 77	55	28 30	23 23
22 23	121 363	3980	1140	1320	1290	1070	603	158 149	73	52 49	29	23
24	272	2470	942	3550	1110	911	534	139	72	48	28	19
25	307	1700	801	6790	925	787	481	132	67	47	27	18
26	260	1270	697	4100	797	685	449	128	64	48	27	19
27 28	299 298	1020 2250	625 606	2550 1810	693 616	641 615	437 383	127 179	62 83	48 46	27 25	18 19
29	246	4250	534	1410		561	347	354	493	47	24	22
30	217	3510	486	1300		509	323	245	244	46	24	60
31	695		458	2060		466		192		44	23	
TOTAL	4569	55413	78329	64192	32604	33957	24513	6409	3571	2300	1051	738
MEAN MAX	147 695	1847 6250	2527 8450	2071 7670	1164 1990	1095 3120	817 2950	207 354	119 493	74.2 175	33.9 64	24.6 60
MIN	45	177	458	483	599	358	296	127	62	44	23	18
AC-FT	9060	109900	155400	127300	64670	67350	48620	12710	7080	4560	2080	1460
CFSM IN.	1.13	14.2 15.86	19.4 22.41	15.9 18.37	8.96 9.33	8.43 9.72	6.29 7.01	1.59 1.83	0.92 1.02	0.57 0.66	0.26	0.19 0.21
							2, BY WATER					
							•		1.00	76 *	46.5	B5 6
MEAN MAX	273 1187	1001 2270	1509 2844	1417 3115	1278 3445	974 2009	604 1312	301 600	166 486	76.4 203	48.6 161	75.6 378
(WY)	1998	1984	1995	1953	1999	1997	1991	1984	1968	1983	2001	1978
MIN (WY)	25.6 1988	65.1 1994	240 1977	213 1977	284 1993	253 1992	284 1949	139 1994	59.8 1992	34.5 1992	20.4 1992	22.6 1998
									1992			
	/ STATIST	TCS	FOR	2001 CALEN	DAR YEAR		FOR 2002 WA	TER YEAR		WATER YEAR	RS 1949	- 2002
ANNUAL ANNUAL HIGHEST	MEAN C ANNUAL	MEAN		228406 626			307646 843			641 1048		1999
	ANNUAL M			8450	Dec 17		8450	Dec 17		294 12800	Dec 2	1977
	DAILY ME			39 41	Aug 20		18	Sep 25		14	Aug 2	
ANNUAL	SEVEN-DA	MUMINIM Y			Aug 15		10	Sep 23			Aug 2	
	RUNOFF (AC-FT)		453000 4.81			610200 6.48	!		464200 4.93	1	
	RUNOFF (65.36			88.03			66.97		
	TENT EXCE			1200			2210			1630		

1200 337

62



Figure 7. Location of surface-water stations in the Chehalis River Basin.

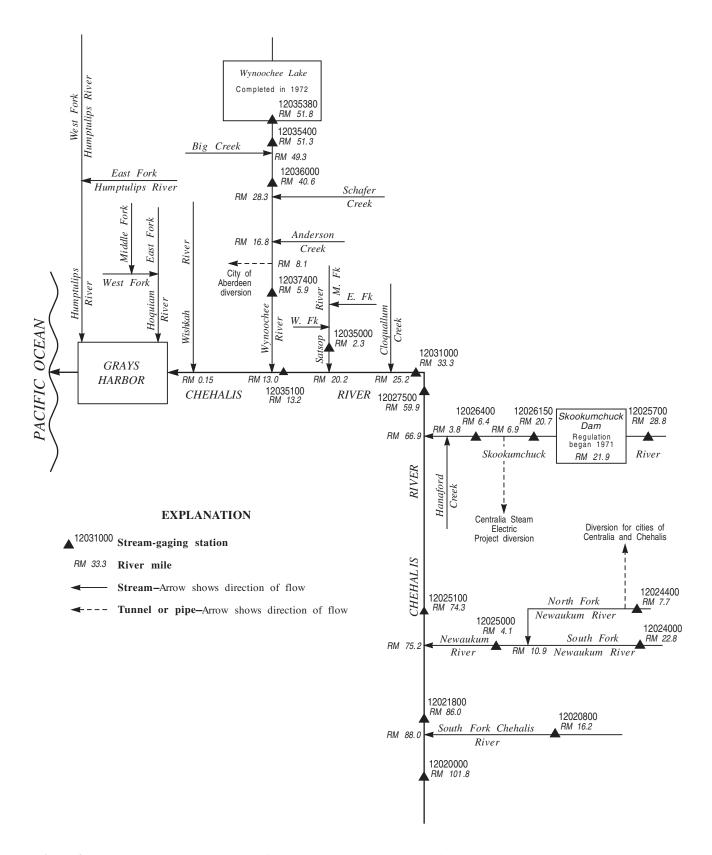


Figure 8. Schematic diagram showing surface-water stations in the Chehalis River Basin.

12020000 CHEHALIS RIVER NEAR DOTY, WA

LOCATION.--Lat $46^\circ37^\circ03^\circ$, long 123 $^\circ16^\circ35^\circ$, in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.14, T.13 N., R.5 W., Lewis County, Hydrologic Unit 17100103, on right bank 1.3 mi south of Doty, 1.6 mi upstream from Elk Creek, 3.4 mi north of Pe Ell, and at mile 101.8.

DRAINAGE AREA. -- 113 mi2.

PERIOD OF RECORD. -- October 1939 to current year.

REVISED RECORDS.--WSP 1316: 1943 (M). WSP 1446: 1946 (M). WDR-WA-72-1: 1945 (M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 301.1 ft above NGVD of 1929 (river-profile survey). Prior to Oct. 1, 1961, nonrecording gage and crest-stage gage at site 50 ft upstream at datum 1 ft higher. Oct 1, 1961 to Sept. 15, 1995, water-stage recorder at site 150 ft upstream at datum 1 ft higher. Prior to Feb. 24, 1999, at same site at datum 1 ft higher.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station. Chemical analyses July 1959 to September 1970, sedment records October 1961 to December 1964 (partial-record station).

 $\label{eq:average_decomposition} \text{AVERAGE DISCHARGE.--63 years (water years 1940-2002), 575 ft}^3/\text{s, 69.16 in/yr, 416,700 acre-ft/yr.}$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,900 ft³/s Feb. 8, 1996, gage height, 20.37 ft, from rating curve extended above 8,000 ft³/s on basis of slope-area measurement at gage height 18.36 ft; minimum discharge, 16 ft³/s Aug. 31, Sept. 3, 4, 7, 8, 1992.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,800 $\mathrm{ft^3/s}$ and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov 14	1300	14,500	14.67	Jan 07	2030	12,500	13.45
Dec 13	2030	9,170	11.28	Jan 25	0715	8,100	10.51
Dec 16	2300	*16,600	*15.90				

Minimum discharge, 25 ft³/s Aug. 29-31, Sept. 25-29.

			_	-								
		DISCH	ARGE, CUB	IC FEET PI		WATER Y	EAR OCTOBER	2001 TO	SEPTEMB	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	822	5450	488	1140	470	458	249	137	162	37	26
2	34	586	4180	598	1030	440	421	236	123	126	37	26
3	33		2400	604	1260	401	381	226	115	108	36	28
		420								108		
4	31	323	2000	614	1220	374	348	209	110		39	26
5	31	294	1730	592	1070	359	330	224	108	92	54	26
6 7	30 31	243 208	1840	1640 10700	1240 1930	358 331	339 337	253 237	109 99	82 77	47 42	26 27
8			1780						99			
9	34 35	181 159	1470 1350	6650 3050	1980 1720	322 338	308 345	215 203	97	78 73	38 36	28 30
10	35	142	1210	1950	1360	620	759	196	88	67	34	29
10												
11	62	129	1220	1410	1170 981	3320 3060	792	189 183	84 80	62 59	34 33	28 27
12	56 65	137	1190	1450			1020	183	77	56		27
13		225	4370	1350	834	2710	1490			54	32	
14	63	9740	5260	1170	719	2200	3420	188	73	53	31	26
15	66	4470	2780	983	629	1610	2010	169	71	53	30	26
16	56	2240	9200	880	594	1270	1670	158	70	52	30	28
17	54	1340	8070	795	557	1030	1430	153	72	50	30	30
18	50	942	3360	724	558	912	1110	142	103	49	29	30
19	48	975	2470	829	900	1120	889	136	98	49	29	29
20	51	2150	1940	1180	887	1680	737	140	81	49	29	29
21	52	2510	1540	1370	1930	1330	627	133	73	47	30	29
22	105	4150	1250	1190	1650	1070	549	123	69	44	29	28
23	410	3430	1010	1080	1290	917	482	117	67	43	29	27
24	281	2090	853	3090	1060	848	429	112	66	42	28	26
25	269	1420	734	6420	846	774	386	107	63	42	28	26
26	215	1070	644	3060	727	694	368	104	60	42	28	26
27	228	868	579	1950	628	653	362	102	59	42	28	25
28	224	1760	581	1370	532	637	319	127	74	41	26	25
29	178	3850	516	1050		598	290	253	429	42	25	26
30	166	2820	470	931		544	268	200	241	41	25	41
31	904		447	1160		496		157		38	25	
TOTAL	3935	49694	71894	60328	30442	31486	22674	5421	3091	1961	1008	831
MEAN	127	1656	2319	1946	1087	1016	756	175	103	63.3	32.5	27.7
MAX	904	9740	9200	10700	1980	3320	3420	253	429	162	54	41
MIN	30	129	447	488	532	322	268	102	59	38	25	25
AC-FT		98570	142600	119700	60380	62450	44970	10750	6130	3890	2000	1650
CFSM	1.12	14.7	20.5	17.2	9.62	8.99	6.69	1.55	0.91	0.56	0.29	0.25
IN.	1.30	16.36	23.67	19.86	10.02	10.37	7.46	1.78	1.02	0.65	0.33	0.27
									1.02	0.05	0.55	0.27
STATI	STICS OF M	ONTHLY M	EAN DATA	FOR WATER	YEARS 1940	- 2002	, BY WATER	YEAR (WY)				
MEAN	275	920	1271	1225	1170	886	575	275	146	71.0	46.1	76.7
MAX	1121	2131	2486	2888	2940	1870	1285	700	390	183	124	357
(WY)	1998	1956	1995	1953	1999	1956	1996	1948	1968	1983	1968	1959
MIN	20.5	57.6	217	176	278	216	207	125	62.8	33.9	23.6	22.0
(WY)	1988	1994	1977	1977	1993	1992	1941	1994	1992	1951	1951	1998
SUMMA	RY STATIST	ics	FOR	2001 CALE	ENDAR YEAR		FOR 2002 WA	TER YEAR		WATER YEARS	3 1940 -	2002
ANNUA	L TOTAL			194665			282765					
ANNUA	L MEAN			533			775			575		
HIGHE	ST ANNUAL	MEAN								911		1956
LOWES'	T ANNUAL M	IEAN								253		2001
	ST DAILY M			9740	Nov 14		10700	Jan 7		19200	Feb 8	
LOWES'	T DAILY ME	AN		30	Oct 6		25	Aug 29		16	Sep 3	1992
ANNUA:	L SEVEN-DA	UMINIM Y	M	32 386100	Oct 2		26	Aug 27		17	Aug 29	1992
	L RUNOFF (386100			560900			416700	_	
ANNUA:	L RUNOFF (CFSM)		4.7	72		6.86			5.09		
	L RUNOFF (64.0	08		93.09			69.16		
	RCENT EXCE			1050			1940			1460		
	RCENT EXCE			250			241			259		
90 PE	RCENT EXCE	EDS		39			29			36		

12020800 SOUTH FORK CHEHALIS RIVER NEAR WILDWOOD, WA

LOCATION.--Lat 46°26'42", long 123°04'57", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.17, T.11 N., R.3 W., Lewis County, Hydrologic Unit 17100103, on left bank at Wildwood Road bridge, 0.4 mi downstream from Black Creek, 1.2 mi southeast of Wildwood, and at mile 16.2.

DRAINAGE AREA. -- 27.0 mi².

PERIOD OF RECORD.--October 1998, to current year (seasonal records).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is NGVD of 1929 (levels by Lewis County).

REMARKS.--Records good except for estimated discharges and daily discharges Oct. 31 to Nov. 13, which are fair. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,370 ft 3 /s Nov. 25, 1998, elevation, 361.44 ft, from floodmarks; minimum daily discharge, 7.2 ft 3 /s, Oct. 19, 21-23, 1999.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 8, 1996, reached a stage of 363.57 ft from floodmarks, discharge, 5,620 $\rm ft^3/s$, from rating curve extended above 2,600 $\rm ft^3/s$.

EXTREMES FOR PERIOD OCTOBER TO APRIL.--Maximum discharge, 3,310 ft³/s Dec. 16, elevation 359.69 ft; minimum discharge, 9.3 ft³/s Oct. 18, 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO APRIL 2002

DISCHAR	GE, CUBI	C FEET PER		MEAN VALUES	OCTOBER	2001 10	APRIL 20
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR
1		134	1470	109	243	110	89
2		96	998	112	215	94	83
3		70	606	106	261	86	80
4		59	542	103	244	79	74
5		57	460	101	220	76	70
6		51	538	200	241	77	65
7		48	485	1760	363	70	64
8		48	384	1240	431	65	62
9		46	310	567	352	64	72
10		44	276	367	284	e94	149
11		42	264	278	236	e840	142
12		45	268	281	197	e760	153
13		148	1130	236	168	e680	338
14		2420	1290	202	143	e560	948
15	15	961	756	174	124	e460	542
16	12	455	2230	154	116	e365	
17	11	283	1740	136	105	e290	
18	9.9	204	884	121	100	e250	
19	10	185	669	139	142	e310	
20	11	327	501	211	130	445	
21	11	428	379	241	413	345	
22	50	845	301	217	319	e270	
23	74	647	247	208	268	e235	
24	47	420	207	819	218	204	
25	41	297	176	1880	182	180	
26	36	227	155	823	158	160	
27	39	181	143	478	136	142	
28	38	532	144	332	119	133	
29	31	844	122	257		119	
30	36	686	111	215		109	
31	159		105	269		98	
TOTAL	630.9	10830	17891	12336	6128	7770	2931
MEAN	37.11	361.0	577.1	397.9 2	218.9	250.6	195.4
MAX	159	2420	2230	1880	431	840	948
MIN	9.9	42	105	101	100	64	62
AC-FT	1250	21480	35490	24470	12150	15410	5810
CFSM	1.37	13.4	21.4	14.7	8.11	9.28	7.24
IN.	0.87	14.92	24.65	17.00	8.44	10.71	4.04

e Estimated

12021800 CHEHALIS RIVER NEAR ADNA, WA

LOCATION.--Lat $46^{\circ}37'33"$, long 123 $^{\circ}06'02"$, in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.7, T.13 W., R.3 W., Lewis County, Hydrologic Unit 17100103, on right bank at railroad bridge, 2.0 mi downstream from South Fork Chehalis River, 2.0 mi west of Adna, and at mile 86.0.

DRAINAGE AREA. -- 340 mi².

PERIOD OF RECORD.--October 1998, to current year (seasonal records).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is NGVD of 1929 (levels by Lewis County).

REMARKS.--Elevation record only. Probably some diversion upstream for irrigation and domestic use. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 206.66 ft Dec. 17, 2001.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 8, 1996, reached an elevation of 213.14 ft from floodmark at site.

EXTREMES FOR PERIOD OCTOBER TO APRIL.--Maximum elevation, 206.66 ft Dec. 17; minimum elevation, 189.62 ft Oct. 19, 20.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2001 TO APRIL 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR
1 2 3 4 5		191.49 191.05 190.74 190.54	199.26 199.44 196.33 195.57	191.62 191.78	193.73 193.29 193.40 193.38 193.06	191.78 191.66 191.56 191.47 191.42	191.53 191.46 191.39 191.32 191.27
6 7 8 9 10	 	190.37 190.29 190.23 190.18 190.14	194.45 193.74 193.40 192.99	192.61 201.69 201.82 196.90 194.71	193.14 194.32 195.00 194.49 193.72	191.43 191.38 191.33 191.30	191.26 191.24 191.19 191.17 191.76
11 12 13 14 15	 189.77	190.11 190.12 190.18 199.15 199.46	192.90 192.77 195.55 200.28 196.63	193.65 193.62 193.51 193.07 192.76	193.32 192.87 192.59 192.34 192.15	195.39 196.77 196.42 195.54 194.31	191.88 192.02 192.54 196.03 194.79
16 17 18 19 20	189.72 189.68 189.66 189.63 189.64	195.12 193.43 192.51 192.32 194.06	200.12 203.86 198.26 196.56 195.29	192.54 192.42 192.21 192.37 192.85	192.05 191.96 191.91 192.34 192.43	193.59 193.14 192.79 193.28 194.42	
21 22 23 24 25	189.68 189.74 190.57 190.53 190.44	195.24 197.55 197.47 195.04 193.68	194.30 193.59 193.05 192.64 192.36	193.35 193.17 193.00 195.28 201.31	193.81 194.00 193.30 192.87 192.49	193.73 193.13 192.74 192.50 192.30	
26 27 28 29 30 31	190.32 190.27 190.36 190.23 190.16 191.11	192.89 192.38 193.72 198.18 196.45	192.15 191.99 191.94 191.79 191.66 191.60	198.28 195.54 194.17 193.39 193.00 193.50	192.24 192.05 191.91 	192.11 191.99 191.92 191.84 191.72 191.62	
MEAN MAX MIN	190.09 191.11 189.63	193.15 199.46 190.11	194.98 203.86 191.60	194.43 201.82 191.62	193.01 195.00 191.91	192.78 196.77 191.30	192.06 196.03 191.17

12024000 SOUTH FORK NEWAUKUM RIVER NEAR ONALASKA, WA

LOCATION.--Lat $46^{\circ}34'33"$, long $122^{\circ}41'02"$, on south line of SE $\frac{17}{4}$ sec.28, T.13 N., R.1 E., Lewis County, Hydrologic Unit 17100103, on right bank at Jorgenson Road bridge, 1 mi upstream from Lost Creek, 1.7 mi east of Onalaska, and at mile 22.8.

DRAINAGE AREA. -- 42.4 mi2.

PERIOD OF RECORD.--July to October 1942, July to October 1943, July 1944 to November 1948, June 1957 to September 1971, October 1943 to September 1958, published as Newaukum River near Onalaska, October 1998, to current year (seasonal records).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is NGVD of 1929 (levels by Lewis County). Prior to October 1998 at same site at different datum. Prior to September 28, 1944, nonrecording gage at same site at different datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Probably some small diversions for irrigation and domestic use upstream from station. No regulation. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--18 years (water years 1944-48, 1957-71) 200 ft³/s, 64.06 in/yr, 144,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,810 ${\rm ft}^3/{\rm s}$ Dec. 11, 1946, gage height, 8.40 ft, datum then in use; minimum discharge, 17.5 ${\rm ft}^3/{\rm s}$ Sept. 6-8, 1958.

EXTREMES FOR PERIOD OCTOBER TO APRIL.--Maximum discharge 2,140 ft³/s Jan. 25, elevation 534.68 ft; minimum discharge 47 ft³/s Oct. 19, 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO APRIL 2002

KGE, CODI	C FEET FER			OCTOBER	2001 10	AINID 20
OCT	NOV	DEC	JAN	FEB	MAR	APR
	270	1120	175	331	226	234
	250	1000	197	295	204	220
	200	708	178	351	187	207
	164	585	164	333	174	199
	155	506	158	310	171	202
	130	589	198	343	181	217
						219
						196
						213
	90	467	389	433	169	407
	85	490	307	380	585	588
						658
						696
						1170
77	826	874	216	228	e470	728
63	528	1410	203	217	e380	
57	339	1510	191	203	e320	
50	257	896	182	229	e285	
51	258	702	260	285	e620	
50	275	542	413	279	785	
57	407	417	456	498	568	
120		340		559	447	
234	417	224	1680	483	341	
169	333	202	971	359	316	
241		160	356		250	
2120	11631	18351	12816	10721	11305	6154
124.7	387.7	592.0	413.4	382.9	364.7	410.3
241	1250	1510			880	1170
50						196
					22420	12210
	9.14		9.75	9.03	8.60	9.68
1.86	10.20	16.10	11.24	9.41	9.92	5.40
	OCT	OCT NOV 270 250 200 164 155 130 113 103 96 90 85 90 123 1250 77 826 63 528 57 257 51 258 50 275 57 407 120 877 236 945 209 578 234 417 169 333 150 271 129 578 234 417 169 333 150 271 129 578 234 417 169 333 150 271 129 578 234 417 169 333 150 271 129 578 234 417 169 333 150 271 129 578 234 417 169 333 150 271 129 578 234 417	DAILY N OCT NOV DEC 270 1120 250 1000 200 708 164 585 155 506 130 589 113 544 103 485 96 487 90 467 85 490 90 467 85 490 123 1050 1250 1320 77 826 874 63 528 1410 57 339 1510 50 257 896 51 258 702 550 257 896 51 258 702 57 407 417 120 877 340 236 945 288 209 578 252 234 417 224 169 333 202 150 271 188 209 578 252 234 417 224 169 333 202 150 271 188 129 537 193 110 850 170 117 814 159 241 1250 1510 50 85 159 4210 23070 36400 2.94 9.14 14.0	DAILY MEAN VALUES OCT NOV DEC JAN 270 1120 175 250 1000 197 250 1000 197 200 708 178 164 585 164 155 506 158 155 506 158 130 589 198 113 544 768 103 485 848 90 467 389 90 467 389 90 467 389 90 473 320 90 473 320 1250 1320 244 77 826 874 216 63 528 1410 203 5	DAILY MEAN VALUES OCT NOV DEC JAN FEB 270 1120 175 331 250 1000 197 295 200 708 178 351 164 585 164 333 155 506 158 310 113 544 768 465 103 485 848 648 96 487 576 547 90 467 389 433 90 473 320 322 90 473 320 322 90 473 320 322 1250 1320 244 251 77 826 874 216 228 63 528 1410 203 217 </td <td>OCT NOV DEC JAN FEB MAR 270 1120 175 331 226 250 1000 197 295 204 200 708 178 351 187 164 585 164 333 174 164 585 164 333 174 155 506 158 310 171 155 506 158 310 171 130 589 198 343 181 103 485 848 648 153 96 487 576 547 150 96 487 576 547 150 90 467 389 433 169 90 473 320 322 e720</td>	OCT NOV DEC JAN FEB MAR 270 1120 175 331 226 250 1000 197 295 204 200 708 178 351 187 164 585 164 333 174 164 585 164 333 174 155 506 158 310 171 155 506 158 310 171 130 589 198 343 181 103 485 848 648 153 96 487 576 547 150 96 487 576 547 150 90 467 389 433 169 90 473 320 322 e720

e Estimated

12024400 NORTH FORK NEWAUKUM RIVER NEAR FOREST, WA

LOCATION.--Lat $46^{\circ}40^{\circ}03^{\circ}$, long $122^{\circ}46^{\circ}08^{\circ}$, in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.26, T.14 N., R.1 W., Lewis County, Hydrologic Unit 17100103, on right bank 0.5 mi upstream from Bear Creek, at North Fork Road bridge, 6.3 mi northeast of Forest, and at mile 7.7.

DRAINAGE AREA.--29.6 mi².

PERIOD OF RECORD.--October 1998 to current year (seasonal records).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is NGVD of 1929 (levels by Lewis County).

REMARKS.--Records fair. Probably some small diversions for irrigation and domestic use upstream from station. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $4,090 \text{ ft}^3/\text{s}$ Dec. 15, 1999, elevation 406.44 ft; minimum daily discharge 11 ft^3/s , Oct. 18-23.

EXTREMES FOR PERIOD OCTOBER TO APRIL.--Maximum discharge 2,470 ${\rm ft^3/s}$ Dec. 16, elevation 405.20 ft; minimum discharge 18 ${\rm ft^3/s}$, Oct. 18-21.

DISCHAR	GE, CUBIC	FEET PER		WATER YEAR EAN VALUES	OCTOBER	2001 TO	APRIL 2002
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR
1 2		100 91	676	113	298	132	126
3		72	535 361	126 107	265 322	120 111	120 112
4		60	316	98	267	104	104
5		63	294	95	198	92	99
6		54	336	127	219	91	97
7		48	293	506	344	83	95
8		44	246	556	551	77	87
9		41	226	342	369	78	93
10		39	216	231	282	114	132
11		37	255	178	236	443	169
12		40	257	179	200	579	160
13		55	635	151	175	731	226
14		901	843	136	153	377	567
15	28	509	517	122	140	284	372
16	24	329	1000	117	134	253	
17	23	206	1160	110	126	208	
18	20	154	583	105	139	188	
19	20	164	557	146	187	440	
20	20	193	404	251	176	540	
21	23	268	304	281	274	344	
22	51	567	243	217	284	265	
23	85	411	199	194	e400	227	
24 25	69 74	257 195	170	588	e520	217	
25	74	135	150	1410	e320	205	
26	53	166	134	727	e200	202	
27	55	153	125	429	170	189	
28	50	367	123	353	149	181	
29	42	555	108	289		169	
30	44	411	100	269		155	
31	95		102	306		136	
TOTAL	776	6550	11468	8859	7098	7335	2559
MEAN	45.65	218.3	369.9		253.5	236.6	170.6
MAX	95	901	1160	1410	551	731	567
MIN	20	37	100	95	126	77	87
AC-FT	1540	12990	22750	17570	14080	14550	5080

e Estimated

12025000 NEWAUKUM RIVER NEAR CHEHALIS, WA

LOCATION.--Lat $46^\circ37^\circ13^\circ$, long $122^\circ56^\circ38^\circ$, in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.9, T.13 N., R.2 W., Lewis County, Hydrologic Unit 17100103, on left bank at highway bridge 3.0 mi southeast of Chehalis, and at mile 4.1.

DRAINAGE AREA. -- 155 mi2.

PERIOD OF RECORD.--March 1929 to September 1931, July 1942 to September 1981, October 1982 to current year.

REVISED RECORDS.--WSP 1012: 1943. WSP 1316: 1929-30(M), 1960(M). WSP 1716: Drainage area. WSP 1932: 1931(M), 1945-49, 1954(M), 1956(P), 1958(M), 1959-60.

GAGE.--Water-stage recorder. Elevation of gage is 190 ft above NGVD of 1929, from topographic map. Prior to Oct. 1, 1929, nonrecording gage at same site at datum 1.0 ft higher. Oct. 1, 1929, to July 5, 1962, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Cities of Chehalis and Centralia divert about 3 ft³/s from North Fork Newaukum River for municipal use. No regulation upstream from station.

AVERAGE DISCHARGE.--61 years (water years, 1930-31, 1943-81, 1983-2002), 503 ${\rm ft}^3/{\rm s}$, 44.07 in/yr, 364,200 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,300 ft³/s Feb. 8, 1996, gage height, 13.54 ft from outside high-water mark; maximum gage height, 13.62 ft Dec. 9, 1953; minimum discharge, 12 ft³/s Sept. 13, 14, 1949, Aug. 29, 1967.

 $\hbox{ \it EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft}^3/s \ and \ maximum \ (\star): \\$

Date		Time	(ft ³ /s)	(ft)	Date		Time	(ft ³ /s)	(ft)
Nov.	14	1800	6,870	10.66	Dec.	14	0200	6,750	10.56
Nov.	22	2100	4,390	8.58	Dec.	17	0400	*7,920	*11.43
Nov.	29	0900	4,240	8.45	Jan.	25	1500	6,600	10.44
Dec.	01	2100	5.780	9.75					

		DISCH	ARGE, CUBI	C FEET PE		WATER Y	EAR OCTOBER ALUES	2001 TO 8	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	52 50 49 47 46	608 544 431 336 320	4590 4040 2470 2100 1920	487 725 583 507 467	1220 978 1050 1010 869	565 504 451 417 394	506 471 440 413 400	299 289 277 256 267	182 167 163 155 163	153 131 115 108 103	53 52 52 53 57	39 40 42 43 41
6 7 8 9	45 45 48 51 52	272 233 204 185 172	1800 1650 1310 1270 1180	655 2520 3070 1880 1270	880 1210 2380 1790 1300	443 418 380 364 428	410 412 380 377 608	312 299 269 247 232	160 146 154 148 136	93 90 101 93 84	57 54 51 50 49	40 41 45 45 43
11 12 13 14 15	110 81 141 138 148	162 163 224 4040 3170	1400 1450 2880 5130 2530	969 982 886 741 636	1130 914 791 684 607	1590 2270 2530 1950 1440	1060 1070 1080 2700 1770	218 208 204 239 220	130 124 115 108 106	78 74 71 69 68	50 49 45 44 43	40 38 38 38 37
16 17 18 19 20	107 98 85 77 82	1860 1140 807 769 1090	4310 6160 2890 2600 1850	578 631 538 758 1000	583 548 564 730 762	1320 1200 1000 1680 2450	1370 1250 1010 834 720	199 228 211 194 233	103 105 120 137 114	66 64 64 63 63	43 43 42 42 43	40 48 46 42 42
21 22 23 24 25	78 128 410 380 433	1510 2730 2910 1680 1220	1390 1100 890 753 654	1350 1140 1080 1660 5350	1150 1380 1510 1780 1200	1580 1200 993 891 842	627 559 500 449 412	221 226 210 188 176	100 93 90 87 84	61 58 57 58 57	43 44 43 41 40	42 40 38 38 37
26 27 28 29 30 31	325 267 271 210 197 439	1030 822 1850 3580 2570	578 526 557 487 435 445	3410 1930 1390 1080 951 1110	924 758 653 	750 710 679 651 601 546	385 426 391 339 311	172 168 239 289 252 206	80 78 101 281 201	58 60 59 59 57 55	42 43 42 39 39 39	37 36 37 38 46
TOTAL MEAN MAX MIN AC-FT CFSM IN.	4690 151 439 45 9300 0.98 1.13	36632 1221 4040 162 72660 7.88 8.79	61345 1979 6160 435 121700 12.8 14.72	40334 1301 5350 467 80000 8.39 9.68	29355 1048 2380 548 58230 6.76 7.05	31237 1008 2530 364 61960 6.50 7.50	21680 723 2700 311 43000 4.66 5.20	7248 234 312 168 14380 1.51 1.74	3931 131 281 78 7800 0.85 0.94	2390 77.1 153 55 4740 0.50 0.57	1427 46.0 57 39 2830 0.30 0.34	1217 40.6 48 36 2410 0.26 0.29
STATIST							, BY WATER					
MEAN MAX (WY) MIN (WY)	182 646 1998 25.5 1988	741 1717 1956 47.6 1930	1066 2244 1997 194 1977	1081 2169 1953 192 1977	988 1940 1999 262 1977	768 1609 1972 280 1992	541 1052 1991 278 1998	296 680 1960 130 1947	184 464 1981 66.3 1992	90.7 307 1983 36.1 1951	54.9 159 1968 21.6 1951	68.5 243 1968 27.9 1987
SUMMARY	STATIST	ICS	FOR	2001 CALE	NDAR YEAR	1	FOR 2002 WA	TER YEAR		WATER YEARS	1930	- 2002
ANNUAL TOTAL ANNUAL MEAN HIGHEST ANNUAL MEAN LOWEST ANNUAL MEAN HIGHEST DAILY MEAN HIGHEST DAILY MEAN ANNUAL SEVEN-DAY MINIMUM ANNUAL RUNOFF (AC-FT) ANNUAL RUNOFF (CFSM) 10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS		ч	173495 475 6160 45 47 344100 3.0' 41.6. 1100 231 52			241486 662 6160 36 37 479000 4.27 57.96 1770 289 43			503 795 244 10200 14 15 364200 3.24 44.07 1220 261 45	Sep 1	1997 1977 8 1996 3 1949 0 1951	

12025100 CHEHALIS RIVER AT WASTEWATER TREATMENT PLANT AT CHEHALIS, WA

LOCATION.--Lat $46^\circ39^140^\circ$, long $122^\circ58^158^\circ$, in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.31, T.14 N., R.2 W., Lewis County, Hydrologic Unit 17100103, on right bank at City of Chehalis wastewater treatment plant, 0.25 mi downstream from State Highway 6 bridge, and at mile 74.3.

DRAINAGE AREA. -- 618 mi².

PERIOD OF RECORD.--Water years 1999, 2000 (annual maximum). October 2000 to current year (seasonal records).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is NGVD of 1929 (levels by Lewis County).

REMARKS.--Elevation record only. Probably some diversion upstream for irrigation and domestic use. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Peak of Nov. 26, 1998, reached an elevation of 177.61 ft from floodmarks at site.

EXTREMES FOR PERIOD OCTOBER TO APRIL.--Maximum elevation, 177.20 ft Dec. 17; minimum elevation, 148.63 ft Oct. 20.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2001 TO APRIL 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR
1		153.32	169.92		159.84		152.60
2		152.51	173.46		158.48		152.27
3		151.62	171.40				151.86
4		150.93	167.53				151.75
5		150.62	165.47		157.02		151.72
6		150.40	163.36	154.70	156.82		151.71
7		150.14	162.69		159.23		151.65
8		149.93	160.45		162.81		151.56
9		149.79	159.13	173.42	162.78	151.97	151.38
10		149.68	157.79	167.28	160.24	152.61	152.93
11		149.59	157.64	161.48	158.47	158.38	154.61
12		149.59	157.58	159.13	156.90	167.37	154.80
13		149.83	159.64	158.90	155.73	167.49	155.63
14		159.16	168.78	157.25		166.56	160.82
15	149.08	173.38	170.74	156.24	153.98	163.04	163.31
16	148.90	168.14	169.88	155.20	153.99	160.71	
17	148.79	161.42	175.88	155.12	153.90	159.29	
18	148.72	157.62	174.60	154.19	153.46	157.72	
19	148.65	156.02	172.05	154.76	154.00	158.76	
20	148.66	158.79	167.69	156.05	154.99	162.84	
21	148.67	162.31	163.11	158.37	156.82	161.14	
22	148.84	165.94	159.81	157.94	160.34	158.89	
23	150.22	169.85		157.90		157.31	
24	150.98	165.50		160.10		156.32	
25	150.72	161.10		169.59	157.12	155.61	
26	150.43	158.46		173.95	155.64	154.96	
27	150.05	156.63		170.14		154.51	
28	150.24	157.92		164.28		154.12	
29	149.97	168.55		160.39		153.86	
30	149.74	168.39		158.12		153.47	
31	150.97			158.28		152.99	
MEAN	149.63	157.57	165.85	160.53	157.26	158.26	153.91
MAX	150.98	173.38	175.88	173.95	162.81	167.49	163.31
MIN	148.65	149.59	157.58	154.19	153.46	151.97	151.38

12025700 SKOOKUMCHUCK RIVER NEAR VAIL, WA

LOCATION.--Lat $46^{\circ}46^{\circ}2^{\circ}$, long 122°35'34", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.20, T.15 N., R.2 E., Thurston County, Hydrologic Unit 17100103, on right bank about 150 ft downstream from logging bridge, 0.4 mi downstream from Hospital Creek, 5.8 mi southeast of Vail, and at mile 28.8.

DRAINAGE AREA. -- 40.0 mi2.

PERIOD OF RECORD. -- October 1967 to current year.

REVISED RECORDS.--WDR WA-75-1: 1974.

Time

GAGE.--Water-stage recorder. Elevation of gage is 710 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,350 ft³/s Feb. 8, 1996, gage height, 11.24 ft; minimum discharge, 13 ft³/s Oct. 29. 1987.

Time

Discharge Gage height (ft^3/s) (ft)

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,250 ft^3/s and maximum (*):

Dacc	TIME	(10	, 5,	(10)	Dacc		TIME	(10 / 5)		(10)		
Nov. 14 Nov. 22 Nov. 29 Dec. 1 Dec. 13	1045 1515 0530 1845 2045	1, 1, 1,	840 450 320 980 580	7.02 6.59 6.43 7.16 7.72	Dec. Jan. Jan. Mar. Apr.	7 25 11	0000 2130 0715 1515 0315	*3,850 2,050 2,770 2,060 1,830)))	*8.30 6.90 7.50 6.91 6.71		
Minimum disc	charge, 2	$3 ext{ ft}^3/\text{s Oc}$	t. 4-10,	Sept. 22	-29.							
		DISCHAR	GE, CUBI	C FEET PE		WATER YE MEAN VA		R 2001 TO 8	SEPTEMBI	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2	25 25	281 227	1500	180	266	208 187	220 212	146	93 88	85 75	35 35	27 27
3	25	173	1280 735	241 211	243 323	172	200	143 136	83	75	35	28
4	24	141	534	185	312	160	193	125	81	66	36	27
5	23	129	432	176	296	157	197	138	89	62	37	27
6	23	111	567	310	403	150	227	133	79	59	36	27
7	23	98	546	1550	644	140	228	127	75	60	34	28
8	24 23	88 81	445 406	1530 870	621 519	132 134	201 249	120 115	75 72	61 55	33 32	27 27
10	31	75	352	543	421	231	470	110	69	52	33	26
11	37	70	363	391	374	1270	591	106	68	50	33	25
12	32	74	379	434	316	1220	736	106	65	49	31	25
13	44	131	1340	408	268	952	912	117	63	48	31	25
14	63	1440	1470	338	229	664	1450	118	62	47	30	25
15	52	874	815	277	205	483	866	108	60	46	30	25
16	44	580	1970	237	192	378	675	103	59	46	30	27
17 18	40	361	2190	205	185	301	543	109	60	45 44	29 29	27
18	36 35	259 245	1100 851	191 202	204 342	262 411	436 363	102 99	68 64	44	29	26 25
20	33	327	634	310	331	704	313	104	58	43	29	25
21	36	549	475	353	760	502	271	100	56	41	29	24
22	72	1020	377	281	861	398	241	99	54	40	29	24
23	184	961	306	247	785	353	214	92	53	39	28	23
24	161	556	259	971	690	339	194	e86	52	39	28	23
25	165	383	225	2070	472	330	182	e83	51	38	28	23
26	121	292	201	1010	359	314	174	e85	49	38	28	23
27 28	124 109	240 467	187 193	603 421	289 242	299 291	171 156	e88 e150	51 78	38 38	28 27	23 23
29	92	1100	181	324		275	148	e220	178	38	27	25
30	98	803	169	276		254	145	110	105	36	27	27
31	283		169	285		233		100		36	27	
TOTAL	2106	12136	20651	15630	11152	11904	11178	3578	2158	1528	953	764
MEAN	67.9	405	666	504	398	384	373	115	71.9	49.3	30.7	25.5
MAX	283	1440 70	2190 169	2070	861	1270	1450 145	220	178 49	85 36	37 27	28 23
MIN AC-FT	23 4180	24070	40960	176 31000	185 22120	132 23610	22170	83 7100	4280	3030	1890	1520
CFSM	1.70	10.1	16.7	12.6	9.96	9.60	9.32	2.89	1.80	1.23	0.77	0.64
IN.	1.96	11.29	19.21	14.54	10.37	11.07	10.40	3.33	2.01	1.42	0.89	0.71
STATIST	rics of M	ONTHLY MEA	N DATA F	OR WATER	YEARS 1968	- 2002,	BY WATER	YEAR (WY)				
MEAN	87.3	293	407	390	364	304	233	137	91.2	48.2	32.0	38.2
MAX	298	622	756	756	797	621	454	261	187	122	71.2	95.7
(WY) MIN	1998 14.6	1984 37.4	1997 78.4	1971 68.6	1999 92.5	1972 90.9	1991 112	1984 65.1	1981 33.3	1983 27.1	1968 19.3	1968 18.6
(WY)	1988	1994	1977	1977	1977	1992	1973	1994	1992	1992	1992	1987
SUMMARY	Y STATIST	ICS	FOR	2001 CALE	NDAR YEAR	F	OR 2002 W	ATER YEAR		WATER YEAR	RS 1968 -	2002
ANNUAL	TOTAL			65333			93738					
ANNUAL				179			257			201		
	r annual i									302		1999
	ANNUAL M DAILY M			2190	Dec 17		2190	Dec 17		103 5550	Feb 8	1977
	DAILY ME			23	Oct 5		2190	Oct 5		14	Oct 11	
ANNUAL	SEVEN-DA	MINIMUM		23	Oct 3		23	Sep 22		14	Oct 17	
	RUNOFF (129600			185900	_		145800		
	RUNOFF (4.4			6.4			5.03		
	RUNOFF (60.7 378	0		87.1 652	0		68.36 463		

378 102 28

10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS

e Estimated

12026150 SKOOKUMCHUCK RIVER BELOW BLOODY RUN CREEK, NEAR CENTRALIA, WA

LOCATION.--Lat $46^{\circ}47'25"$, long $122^{\circ}44'03"$, in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.18, T.15 N., R.1 E., Thurston County, Hydrologic Unit 17100103, on right bank 0.7 mi downstream from Bloody Run Creek, 1.2 mi downstream from Skookumchuck Dam, 12 mi northeast of Centralia, and at mile 20.7.

DRAINAGE AREA.--65.9 mi^2 . Prior to August 1969, 61.7 mi^2 .

PERIOD OF RECORD.--April 1929 to November 1933, October 1939 to current year. Monthly discharge only for some periods, published in WSP 1316 and 1736. Published as "near Centralia" (12026000) prior to August 1969.

GAGE.--Water-stage recorder. Datum of gage is 317.34 ft above NGVD of 1929. Apr. 1, 1929, to Sept. 30, 1931, and Feb. 1, 1932, to Dec. 6, 1933, nonrecording gage at site 1.1 mi upstream at different datum. Oct. 9, 1939, to July 31, 1969, at site 1.3 mi upstream at datum 301.04 ft above NGVD OF 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Skookumchuck Dam since January 1971. No diversions upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--67 years (water years 1930-33, 1940-2002), 256 ft^3/s , 185,500 acre-ft/yr, unadjusted. 31 years (water years 1972-2002), 264 ft^3/s , 190,900 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,020 ft³/s Feb. 8, 1996, gage height, 13.41 ft, result of flow over dam computation, provided by Pacific Power & Light; minimum discharge, 12 ft³/s May 28, 1970, caused by pumping during dam construction.

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EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discha (ft ³ /	irge Ga 's)	ge height (ft)	Date		Time	Discha: (ft ³ /s	rge Ga	ge height (ft)
Dec. 02	0015	2,7	740	10.68	Dec.	17	0245	*4,3	90	*11.88
Dec. 14	0415	2,9	00	10.83	Jan.	25	1245	2,9	90	10.91
Minimum	discharge, 9	2 ft³/s Ju	ne 2.							
		DISCHARO	E, CUBIC	C FEET PER		NATER YE MEAN VA	AR OCTOBER LUES	2001 TO 8	SEPTEMBE	R 2002
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
1	150	149	1830	342	410	378	269	201	121	106
2	146	148	2200	338	381	369	256	197	120	106
3	141	146	1290	296	374	358	244	195	122	106
4	140	147	910	269	389	353	233	190	122	106
5	139	151	724	266	377	325	232	188	124	106
6	138	149	810	267	391	294	234	185	122	106
7	136	148	843	380	637	245	244	183	117	106
8	136	148	684	1610	931	222	240	178	117	106
9	137	148	606	1230	829	212	236	174	118	101
10	139	146	538	787	633	209	330	170	122	100
10	133	110	550	707	033	205	330	170	122	100
11	146	146	533	567	530	271	507	166	132	99
12	145	148	583	502	446	1100	644	160	133	99
13	141	156	1070	521	393	1350	768	159	130	98
14	141	317	2440	477	377	1050	1540	156	126	99
15	140	239	1370	416	372	744	1150	152	123	99

16	138	213	2090	386	364	572	844	168	123	99	102	143
17	139	196	3360	384	355	462	678	173	119	99	104	143
18	139	181	1630	370	347	389	540	169	115	99	104	143
19	138	184	1210	364	343	468	444	166	112	100	104	143
20	139	198	931	362	352	893	383	162	108	100	104	142
20	100	100	331	302	332	0,55	505	102	200	100	101	
21	139	204	714	376	380	755	336	157	108	100	104	141
22	132	235	552	382	554	572	300	153	106	99	104	141
23	126	223	459	388	785	468	271	151	106	99	103	141
24	123	200	400	501	859	418	247	149	105	98	103	139
25	128	187	374	2440	681	393	228	149	106	98	102	139
26	128	178	368	1680	532	369	218	148	106	100	102	141
27	131	177	358	946	424	356	216	142	106	100	102	141
28	130	198	369	680	380	339	212	141	107		102	142
29	128	286	364	500		327	209	141	109	100	101	141
30	129	588	355	425		308	206	142	106	100	100	143
31	144		348	400		286				100	100	
31	144		340	400		200		123		100	100	
TOTAL	4246	5934	30313	18874	13826	14855	12459		3491		3149	4159
MEAN	137		978		494		415	164	116	101	102	139
MAX	150	588	3360	2440 266	931 343	1350	1540	201	133		104	146
MIN	123	146	348	266	343	209	206	129	105		98	100
AC-FT	8420	11770	60130	37440	27420	29460	24710	10100	6920	6220	6250	8250
STATIST	CS OF M		AN DATA E		YEARS 1972			R YEAR (WY)				
MEAN	141	237	506	494	466	376	294 590 1991	183 365	136	105	97.6	137
MAX	230	552	1100	910	1131	829	590	365	254	140	134	167
(WY)	1998	1984	1978	1974	1999	1972	1991	1984	1990	1997	1997	1983
MIN	102	87.6	95.8	92.6	62.5	88.0	145	109	85.4	81.7	78.9	114
(WY)	1999	1988	1977	1977	1977	1977	1973	1989	1989	1992	1985	1998
SUMMARY	STATIST	ICS	FOR	2001 CALE	NDAR YEAR	F	OR 2002	WATER YEAR		WATER YEAR	RS 1972 -	2002
ANNITAT.	тотат.			78435			119534					
ANNUAL	MEAN			215			327			264		
	ANNUAL	MEAN		213			32,			413		1999
	ANNUAL M									119		1977
	DAILY M	DAM.		2260	Dec 17		2260	Dec 17		6600	Feb 8	
	DAILY ME			3300	Mar 14		3300	Jec 17		6666	Feb 18	
		AIN Y MINIMUM		92 94	Mar 14 Aug 10		20	Jul 13 Jul 11		52 53 190900	Feb 14	
				155600	Mug 10		227100	our 11		100000	ren 14	12//
AMMUAL .	ENT EXCE	AC-FT)		350			696			508		
IU PERC				135			166			147		
EU DEDG				135								
50 PERC	ENT EXCE	DDC		98			101			96		

12026400 SKOOKUMCHUCK RIVER NEAR BUCODA, WA

LOCATION.--Lat $46^\circ 46^\circ 20"$, long $122^\circ 55^\circ 23"$, in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.22, T.15 N., R.2 W., Thurston County, Hydrologic Unit 17100103, on left bank 100 ft downstream from bridge on State Highway 507, 3.3 mi southwest of Bucoda, and at mile 6.4.

DRAINAGE AREA. -- 112 mi2.

Date

PERIOD OF RECORD. -- December 1967 to current year.

Time

GAGE.--Water-stage recorder. Datum of gage is 198.19 ft above NGVD of 1929. Prior to Oct. 1, 1992, at datum 0.41 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated by Skookumchuck Dam since January 1971. An average of 30 ft³/s is diverted at point 0.5 mi upstream for consumptive use at Centralia Steam Electric Project. During peak demand months, up to 54 ft³/s may be diverted for periods of one day or less. Other minor diversions for domestic use and irrigation upstream from station. Water temperatures October 1968 to September 1971; sediment records July 1968 to September 1971.

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,300 ft³/s Feb. 8, 1996, gage height, 17.87 ft, present datum, estimated based on comparison with upstream gaging stations; minimum discharge, 21 ft³/s Aug. 15, 16, 18, 19, 20, 1970, gage height, 3.85 ft.

Time

Date

Discharge Gage height (ft³/s) (ft)

 $\hbox{\it EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,750 ft}^3/s \ \hbox{\it and maximum} \ \ (\star): \\$

Dec 02 Dec 14	0830 1300	3,2 3,5		13.27 13.90	Dec Jan		1300 2200	*6,06 4,60		*15.97 14.80		
Minimum disc	harge, 6	0 ft ³ /s Au	g. 14-16.									
		DISCHAR	GE, CUBIC	C FEET PER		WATER Y	EAR OCTOBER ALUES	2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	126	149	1710	453	767	489	336	265	128	103	71	63
2	127	145	2920	502	701	474	314	257	127	101	72	72
3 4	131 128	134 129	1940 1420	471 423	649 619	457 445	295 280	251 244	125 124	104 106	70 71	101 100
5	127	132	1190	404	608	418	275	238	131	105	72	100
6	125	133	1130	406	595	379	275	238	129	104	80	99
7	125	129	1220	703	763	334	281	235	125	104	75	99
8	126	127	1030	1890	1260	289	279	228	125	104	75	100
9 10	126 130	125 123	925 823	1670 1100	1190 962	275 275	274 389	221 214	124 126	102 96	74 74	124 131
11	130	123	800	822	e775	479	563	206	129	91	74	104
12 13	141 133	123 135	923 1150	687 701	e624 559	1260 1890	698 842	198 189	141 134	80 85	73 67	104 104
14	134	935	3190	642	513	1530	1640	186	128	93	62	104
15	132	1060	2090	559	496	1100	1540	179	125	92	64	104
16	129	619	2170	500	478	890	1140	184	125	92	65	108
17	126	399	5200	482	466	742	949	205	126	91	66	108
18	114	289	2550	456	459	628	767	198	120	91	66	109
19	111	279	1700	453	481	747	626	192	118	91	66	109
20	111	371	1340	465	504	1270	535	189	110	91	66	107
21	112	458	1080	516	645	1120	471	183	108	87	66	106
22	113	723	836	553	775	868	422	174	106	78	66	105
23 24	116 114	862 527	673 581	624 859	1010 1180	691 597	384 351	169 166	104 104	72 72	65 72	111 101
25	111	390	532	3110	958	547	324	161	104	72	75	100
26 27	111 115	322 293	518 483	2970 1480	749 597	493 468	302 302	168 156	101 100	73 73	65 63	111 110
28	123	396	489	1070	510	440	295	156	105	73	63	113
29	113	901	486	864		419	281	156	119	73	62	112
30	111	872	475	712		393	273	154	108	72	63	110
31	135		465	700		363		147		71	62	
TOTAL	3806	11403	42039	27247	19893	20770	15703	6107	3579	2742	2125	3129
MEAN	123	380	1356	879	710	670	523	197	119	88.5	68.5	104
MAX MIN	141 111	1060 123	5200 465	3110 404	1260 459	1890 275	1640 273	265 147	141 100	106 71	80 62	131
AC-FT	7550	22620	83380	54040	39460	41200	31150	12110	7100	5440	4210	63 6210
	ICS OF M						, BY WATER					
MEAN	142	354	741	726	686	548	400	228	158	102	82.5	124
MAX	294	846	1669	1367	1559	1446	970	461	331	156	123	180
(WY)	1998	1984	1997	1997	1996	1972	1991	1984	1990	1983	1997	1978
MIN	89.6	66.4	105	95.0	85.7	130	180	118	78.5	62.7	56.3	87.4
(WY)	1999	1988	1977	1977	1977	2001	1973	1994	1979	1992	1985	1998
SUMMARY	STATIST	ICS	FOR 2	2001 CALE	NDAR YEAR	1	FOR 2002 WA	TER YEAR		WATER YEARS	1972	- 2002
ANNUAL				99184			158543					
ANNUAL		MEAN		272			434			356 571		1972
	HIGHEST ANNUAL MEAN LOWEST ANNUAL MEAN									143		2001
HIGHEST	HIGHEST DAILY MEAN			5200	Dec 17		5200	Dec 17		8560		8 1996
	LOWEST DAILY MEAN			62	Aug 3		62	Aug 14		46	Sep :	
		Y MINIMUM		66 196700	Jul 31		63 314500	Aug 26		50 258000	Aug 2	4 1989
	ANNUAL RUNOFF (AC-FT) 10 PERCENT EXCEEDS			522			1040			258000 771		
50 PERC	ENT EXCE	EDS		131			192			168		
90 PERC	ENT EXCE	EDS		89			74			86		

e Estimated

12027500 CHEHALIS RIVER NEAR GRAND MOUND, WA

LOCATION.--Lat $46^{\circ}46^{\circ}34^{\circ}$, long $123^{\circ}02^{\circ}04^{\circ}$, in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.22, T.15 N., R.3 W., Thurston County, Hydrologic Unit 17100103, on left bank at downstream side of highway bridge at Meadows, 1.5 mi southwest of Grand Mound, 7.0 mi downstream from Skookumchuck River, and at mile 59.9.

DRAINAGE AREA. -- 895 mi2.

PERIOD OF RECORD. -- October 1928 to current year.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1286: 1929-30(M), 1931, 1932-34(M).

GAGE.--Water-stage recorder. Datum of gage is 123.65 ft above NGVD of 1929. Prior to Oct. 3, 1934, nonrecording gage at present site at datum 3.0 ft higher.

REMARKS.--Records good except for estimated daily discharges which are fair. Minor effect from regulation on Skookumchuck River by Skookumchuck Dam since January 1971. Up to 54 ft³/s of Skookumchuck River is consumptively used at Centralia steam generating plant. Many small diversions for irrigation and domestic use upstream from station, including about 3 ft³/s for municipal water supply for Centralia and Chehalis. Water temperatures March 1952 to September 1974. Miscellaneous suspended sediment data published for water years 1962-64. U.S. Geological Survey satellite telemeter at station.

 $AVERAGE \ \ DISCHARGE. --74 \ \ years \ \ (water \ years \ 1929-2002), \ \ 2,819 \ \ \text{ft}^3/s, \ \ 42.80 \ \ in/yr, \ \ 2,042,000 \ \ acre-ft/yr.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 74,800 ft³/s Feb. 9, 1996, gage height, 19.98 ft; minimum discharge, 82 ft³/s Aug. 30, 1967.

AUG

246

SEP

170

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 16,000 ${\rm ft}^3/{\rm s}$ and maximum (*):

Date	Date Time		Gage height (ft)	Gage height (ft) Date			Discharge (ft ³ /s)		Gage height (ft)
Nov. 15 Dec. 02 Dec. 18	2 2000 21,300		13.15 14.01 *16.33		. 09 . 26	0400 1100	23,0 23,1		14.51 14.54
Minimum di	scharge, 16	8 ft ³ /s Sept	. 1, 2.						
		DISCHARGE,	CUBIC FEET PER		WATER YEA Y MEAN VA		2001 TO	SEPTEM	BER 2002
DAY	OCT	NOV D	EC JAN	FEB	MAR	APR	MAY	JUN	JUL
1	308	2490 156	00 2680	7850	3030	2430	1580	845	818
2	292	2230 205	00 3640	6870	2760	2260	1500	780	662
3	285	1780 198	00 3600	6240	2530	2110	1450	734	585
4	285	1410 153	00 3390	6360	2360	1980	1370	704	540
5	274	1230 129	00 3130	5520	2230	1880	1330	694	523

1	308	2490	15600	2680	7850	3030	2430	1580	845	818	246	170
2	292	2230	20500	3640	6870	2760	2260	1500	780	662	238	169
3	285	1780	19800	3600	6240	2530	2110	1450	734	585	232	184
4	285	1410	15300	3390	6360	2360	1980	1370	704	540	231	203
5	274	1230	12900	3130	5520	2230	1880	1330	694	523	233	207
6	269	1150	11100	3500	5220	2210	1860	1480	703	501	265	205
7	267	1020	10700	11400	6700	2200	1840	1500	683	474	259	207
8	268	911	8910	20600	9880	2020	1790	1380	657	470	245	213
9	275	834	7670	21800	10500	1940		1290	653	466	236	226
10	291	772	6470	15400	8440	2100	2320	1220	631	435	227	258
11	328	723	6130	9920	6990	5070		1160	602	402	223	232
12	412	705	6380	7460	5660	12600		1100	593	368	221	214
13	430	760	7800	7150	4790	13700	4130	1050	568	356	210	204
14	481	5200	18200	5950	4080	13500	9700	1090	533	355	194	199
15	517	17500	19500	4960	3600	10800	11400	1080	509	344	188	197
16	475	15200	17300	4210	3330	8520	9060	1000	501	334	186	199
17	423	9560	25200	3990	3220	7180		1050	503	325	187	212
18	395	6210	28900	3540	3050	5820	6130	1050	519	317	185	222
19	363	4630	21600	3680	3440	6350		982	596	313	185	219
20	358	6000	16400	4340	4170	9940	4010	994	576	312	186	211
21	366	8760	11800	5930	5130	9300		1030	519	308	187	208
22	411	11400	8920	5950	e7900	7250	3040	967	486	292	186	205
23	734	15400	6820	6050	e7400	5780	2710	932	457	278	186	202
24	1380	12600	5350	7710	e6100	4830		875	444	266	185	198
25	1220	9100	4420	17300	e5300	4260	2190	833	437	261	196	188
26	1170	6750	3780		e4700	3740	2020	814	418	258	183	189
27	973	5240	3390	19000	3890 3380	3450	2100	795	400	262	177	192
28	1000	5350		e12600	3380	3210	2020	867	412	268	178	187
29	962	13200	3090	e8860		3100	1820	1030	662	271	179	191
30	843	14600	2790	6960		2870	1680	1170	1190	263	183	201
31	983		2680	6500		3450 3210 3100 2870 2630		814 795 867 1030 1170 972		249	179	
TOTAL	17038	182715	352680	263800				34941		11876	6396	6112
MEAN	550	6090	11380	8510	5704	5396			600	202	200	204
								1127	1100	383	206	
MAX	1380	17500	28900	22600	10500	13700			1190	818 249	265 177	258
MIN	267	705	2680	2680		1940				240	1,,	169
AC-FT	33790	362400	699500	523200	316800	331800	213100	69310	35720	23560	12690	12120
CFSM	0.61	6.81	12.7	9.51	6.37	6.03	4.00	1.26	0.67	0.43	0.23	0.23
IN.	0.71	7.59	14.66	10.96	6.64	6.95	4.47	1.45	0.75	0.43	0.23	0.25
STATIST	TTCS OF N	M VIHTION	ZAN DATA	FOR WATER	YEARS 192	9 - 2002	2. BY WATE	R YEAR (WY)				
MEAN	917	3838	6362	6388	5868	4512		1389	814		241	337
MAX	3643	9697	19280		13680		6787	3496	2482	934		1289
(WY)	1998	1956	1934		1999	1972		1948 549	1936	1983	1968	1978
MIN	125	221	884	860	1201	1354	1086	549	352	174	118	117
(WY)	1953	1937	1977	1977	1977	1992		1939	1992		1967	1967
SUMMARY	Y STATIST	rics	FOR	2001 CALE	ENDAR YEAR		FOR 2002 I	WATER YEAR		WATER YEAR	RS 1929 -	2002
ANNUAL	TOTAL			882245			1328017					
										2819		
HIGHEST	P ANIMITIAT	MEAN		/			5050			4480		1999
I UMBGu	TAINING A	NEVVI								1122		1077
TOWES!	TWOMIN'T	TIDENIN		20000	D 10		20002	D 10		1122	n-1- ^	1006
HIGHEST	T DATEA I	VIEAN		28900	Dec 18		28900	Dec 18		64200	rep 9	1996
LOWEST	DAILY ME	≾AN		204	Aug 17		169	Sep 2		85	Aug 30	1967
ANNUAL	SEVEN-DA	AY MINIMUM	M.	212	Aug 14		176	Aug 27		91	Aug 28	1967
ANNUAL	RUNOFF	(AC-FT)		1750000			2634000			2042000		
ANNUAL	RUNOFF	(CFSM)		2.7	70		4.0	07		3.1	5	
ANNUAL	RUNOFF	(INCHES)		36.6	57		55.2	20		42.8	C	
10 PERC	CENT EXC	EEDS		5690			10200			7480		
	NNUAL MEAN IGHEST ANNUAL MEAN OWEST ANNUAL MEAN OWEST DAILY MEAN OWEST DAILY MEAN NNUAL SEVEN-DAY MINIMUM NNUAL RUNOFF (AC-FT) NNUAL RUNOFF (CFSM) NNUAL RUNOFF (CFSM) NNUAL RUNOFF (TOKES) O PERCENT EXCEEDS			1000			10200			1040		

	ANNUAL TOTAL	882245		1328017					
	ANNUAL MEAN	2417		3638		2819			
	HIGHEST ANNUAL MEAN					4480			1999
	LOWEST ANNUAL MEAN					1122			1977
	HIGHEST DAILY MEAN	28900	Dec 18	28900	Dec 18	64200	Feb	9	1996
	LOWEST DAILY MEAN	204	Aug 17	169	Sep 2	85	Aug	30	1967
	ANNUAL SEVEN-DAY MINIMUM	212	Aug 14	176	Aug 27	91	Aug	28	1967
	ANNUAL RUNOFF (AC-FT)	1750000		2634000		2042000			
	ANNUAL RUNOFF (CFSM)	2.70		4.07	7	3.15			
	ANNUAL RUNOFF (INCHES)	36.67		55.20)	42.80			
	10 PERCENT EXCEEDS	5690		10200		7480			
	50 PERCENT EXCEEDS	1200		1230		1240			
	90 PERCENT EXCEEDS	283		206		223			

e Estimated

12031000 CHEHALIS RIVER AT PORTER, WA

LOCATION.--Lat $46^{\circ}56^{\circ}17^{\circ}$, long 123 $^{\circ}18^{\circ}45^{\circ}$, on north line of NE $^{1}\!\!/_{4}$ sec.28, T.17 N., R.5 W., Grays Harbor County, Hydrologic Unit 17100103, at downstream end of left bank bridge pier, 30 ft downstream from Porter Creek, 0.1 mi west of Porter, and at mile

DRAINAGE AREA. -- 1.294 mi2.

PERIOD OF RECORD.--January 1952 to September 1972, water years 1973-75 (annual maximum), May 1975 to September 1985, October 1985 to September 1986 (monthly means only), October 1986 to current year. Daily routed values for October 1985 to September 1986 are available in the files of the U.S. Geological Survey.

REVISED RECORDS. -- WSP 1716: Drainage area. WSP 1932: 1954, 1956, 1960(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 23.64 ft above NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good. Minor effect from regulation on Skookumchuck River by Skookumchuck Dam since January 1971. Up to 54 ft³/s of Skookumchuck River is consumptively used at Centralia steam generating plant. Many small diversions for irrigation and domestic use upstream from station, including about 3 ft³/s for municipal water supply for Centralia and Chehalis. U.S. Geological Survey satellite telemeter at station. Suspended sediment October 1961 to September 1971. Water temperatures July 1959 to September 1960, October 1961 to July 1972. Chemical analyses July 1959 to September 1973, October 1974 to September 1994.

AVERAGE DISCHARGE.--47 years (water years 1953-72, 1976-2002), 4,101 ft³/s, 43.06 in/yr, 2,971,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,700 $\mathrm{ft^3/s}$ Feb. 9, 1996, gage height, 25.22 ft ; minimum, 164 $\mathrm{ft^3/s}$ Oct. 17, 1952, gage height, 2.25 ft .

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 28, 1937, reached a stage of 24.7 ft, from levels by Grays Harbor County. Flood of December 1933 reached a stage of 23.13 ft, from river profile by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 20,000 ft 3 /s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov 16	1200	21,000	19.82	Jan 09	2200	28,300	20.57
Dec 03	0900	26,700	20.73	Jan 27	0500	30,500	20.93
Dog 10	0200	*41 200	*22 41				

Minimum discharge, 336 ft³/s Sept. 26, 27.

		22001	1102, 002		DAIL	Y MEAN V	ALUES	2001 10	021 1211	2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	460	2380	20600	4610	12500	5140	3930	2550	1310	1240	452	378
2	445	2730	24500	5450	11900	4640	3660	2420	1200	1000	446	377
3 4	432 425	2300	26100	5920	10400	4240	3420	2310	1130 1100	876 810	441 451	382 390
5	425	1900 1650	24900	4610 5450 5920 5610 5260	9220	5140 4640 4240 3930 3710	3200 3020	2200 2150	1080		471	390
3	122	1050					3020	2150			4/1	333
6	415	1510	16800	5610	8600 9170 11800 14400 13100	3540	2910	2230	1070 1040 1010 983 955	743	467	400
7	412	1370	15000	12300	9170	3520	2890	2300	1070 1040 1010 983 955	715	481	402
8	418	1240	13200	23000	11800	3300	2790	2170	1010	703	467	422
9 10	419 452	1140 1060	11000 9210	27000	12100	3130	2700 3070	2020 1900	983	694 668	455 450	438 429
									933	000	430	423
11	506 536 630 653 660	1000 978 1060	8230	21000	11000 9260 7980 6900 6090	5490	4350 4870 5890	1810	915 890 864 819 787	633	449	436
12	536	978	8190	13800	9260	13200	4870	1720	890	599	442	400
13	630	1060 5390	10100	11800	7980	17600	5890	1660	864	570	433	384
14 15	653	17200	22900	10200 9730	6900	19700	10400 16100	1670 1660	707	566 557	424 415	375 369
		1/200	23000	6730	0090	10000	10100				413	309
16	656	20400 16000 9520 6750 7100	27100	7530	5540 5260 4980 5090 5990	13800	14400 12000	1570	766 774 841 851 875	545	411	378
17	603	16000	29500	6780	5260	11300	12000	1570	774	537	412	391
18	562	9520	35300	6180	4980	9490	9910	1590	841	533	415	389
19 20	555	6750	37100 29900	5960	5090	9350	9910 8170 6770	1520 1480	851 875	527 525	419 416	389 385
20	340	7100	29900	6760	3990	12300	6770	1400	0/5	525	410	305
21	544	9550	24400	8370	6950 10600	14000	5790	1500	800	524	419	373
22	658	12600	17900	9080	10600	11800	5070			516	421	366
23		16500	13000	9240	10600 10600 9440	9520	4490 4000 3610	1390	712 689	507	411	361
24		17900	10100	11700	10600	8060	4000				407	358
25	1670	13800					3610	1270	669	490	407	348
26	1510	9520	7210 6310 5860 5510 4970 4650	28200	7930 6670 5780 	6220	3360	1230	649	491	413	341
27	1420	7300	6310	30000	6670	5600	3330	1210	634	489	393	344
28	1340	6750	5860	26000	5780	5260	3260	1280	673	486	386	345
29	1300	12600 17900	5510	18700		4950	2980	1500	1000	489	384	346
30 31	1480	1/900	4970	13400		4610	3260 2980 2740	1600 1480	673 1000 1340	489 486 489 479 461	382 385	351
31	1400		4050	11600		4230		1400		401	303	
TOTAL	23688	227098	517580	410590	247850	249900	163080	53740	27173	19249	13225	11446
		7570	16700	13240	8852 14400 4980	8061	5436	1734	906	621	427	382
MAX	1670	20400	37100	30000	14400	19700	16100	2550	1340	1240	481	438
MIN		978	4650	4610	4980	3130	2700	1210	634	461	382	341
	0.59	5.85	1027000	10.2	491600 6.84	6.23	323500 4.20	106600	53900	38180	26230	22700
IN.	0.68	6.53	14.88	11.80	7.13	7.18	4.69	1.54	0.70	1240 461 38180 0.48 0.55	0.33	0.23
2211	0.00	0.55	11.00	11.00	7.15	7.10	1.05	1.01	0.70	0.55	0.50	0.55
STATIST	rics of I	MONTHLY M	EAN DATA	FOR WATER	YEARS 195	3 - 2002	, BY WATE	R YEAR (WY)				
MEAN	1246	5253		9438	8487	6615		2136	1212	617 1295 1983 350	411	538
MAX	4627	12770	17710	19050	20550	12920			2456	1295	838	1879
(WY)	1998	1956	1978	1971	1999	1972	1991	1984	1968	1983	1968	1978
MIN (WV)	1953	1953	12/3	1971 1360 1977	1999 1711 1977	2287	2025 1977	1024 1994	1992	1992	223 1967	228 1967
										WATER YEAR		
								AMAI AAIMW		WAIDK IDAN	(2 1323 ·	- 2002
ANNUAL	TOTAL			1227598			1964619 5383			43.03		
ANNUAL	MEAN	MIPANI		3363			5383			4101		1000
LOWEST	C ANNUAL MEAN									1578		2001
HIGHES!	EST ANNUAL MEAN HEST DAILY MEAN 37100 Dec 19					37100	Dec 19		55000	Feb !	9 1996	
LOWEST	EST DAILY MEAN 3/100 Dec 19 EST DAILY MEAN 364 Aug 18					341	Sep 26		166	Oct 1	7 1952	
ANNUAL	UAL SEVEN-DAY MINIMUM 367 Aug 15					348	Sep 24		169	Oct (6 1952	
ANNUAL	RUNOFF	(AC-FT)		2435000			3897000			2971000		
ANNUAL	KUNOFF	(CFSM)		2.	60		4.	16		3.17		
ANNUAL	NNUAL RUNOFF (INCHES) 35.29 0 PERCENT EXCEEDS 8210						14400	40		10000)	
50 PER	NNUAL MEAN 3363						1810			2000		
90 PER	CENT EXC	EEDS		445			412			379		

12035000 SATSOP RIVER NEAR SATSOP, WA

LOCATION.--Lat $47^{\circ}00^{\circ}03^{\circ}$, long $123^{\circ}29^{\circ}37^{\circ}$, in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.36, T.18 N., R.7 W., Grays Harbor County, Hydrologic Unit 17100104, in west pier of bridge on old U.S. Highway 410, 0.6 mi west of Satsop, and 2.3 mi upstream from mouth.

DRAINAGE AREA. -- 299 mi2.

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

REVISED RECORDS.--WSP 1286: 1930-35(M), 1937(M). WSP 1716: Drainage area. WSP 1932: 1945, 1949(M), 1951(M), 1956-57(M), 1959(M).

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Prior to Mar. 19, 1938, nonrecording gage at site 60 ft upstream at datum 20.9 ft higher.

REMARKS.--Records good. No regulation or diversion upstream from station. Chemical analyses July 1960 to September 1971, October 1974 to September 1975, October 1976 to June 1980; sediment records November 1961 to June 1965 (partial-record station). U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--73 years (water years 1930-2002), 2,047 ${\rm ft}^3/{\rm s}$, 93.02 ${\rm in/yr}$, 1,483,000 ${\rm acre-ft/yr}$.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 63,600 ft³/s Mar. 19, 1997, elevation, 38.87 ft; maximum elevation, 38.9 ft Jan. 22, 1935, from floodmarks, present datum; minimum discharge, 147 ft³/s Aug. 31, Sept. 1, 2, 1994; minimum elevation, 21.66 ft, present datum, Sept. 3-6, 1934.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1909 reached a stage of 37.1 ft, from high-water mark, at railroad bridge 300 ft downstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 13,500 ${\rm ft}^3/{\rm s}$ and maximum (*):

Date	Time	Discharge (ft ³ /s)	e Gage height (ft)	Date		Time	Discharge (ft ³ /s)	Gage heigh (ft)	t
Nov. 15	0300	21,500	33.68	Jan.	08	0000	23,000	34.03	
Dec. 02	0200	15,500	32.18	Jan.	25	0600	18,200	32.88	
Dec. 14	0300	23,700	34.17	Feb.	22	1600	21,100	33.58	
Dec. 17	0400	*30,100	*35.49						
Minimum	discharge,	237 ft ³ /s Sept							
		DISCHARGE,	CUBIC FEET PER		MEAN V		2001 TO SEP	TEMBER 2002	
DAY	OCT	NOV I	DEC JAN	FEB	MAR	APR	MAY	JUN JUL	

					DAIL	Y MEAN	ALUES					
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	340	2910	10200	e2510	4780	2730	1610	1220	859	937	356	268
2	331	2950	11700	e3690	4080	2450	1520	1170	796	805	351	266
3	324	2540	6540	3760	4130	2250	1450	1130	755	726	346	272
4	319	2120	5260	3550	4110	2100	1380	1070	729	681	351	267
5	309	1880	4560	3230	3560	1970	1330	1080	738	658	373	263
6	305	1630	4490	5320	4590	1840	1340		718	612	360	259
7	304	1430	4620	19000	6760	1740	1360		681	586	346	258
8	308	1280	4230	17600	5260	1650	1280		669		338	263
9	305	1160	4640	9960	4400	1580	1300		645	548	332	291
10	340	1060	4090	6900	3720	1800	1940	913	631	529	325	279
11	428	974	3720	5470	3330	6030 6420	2240	884	616	510	324	263
12	407	1020	3760	5020	2900	6420	3650	85/	599	499	320	256
13	571	1360	11200	4450	2580	4960	6080	844	586	484	315	254
14	550	13300	17000	3810	2300	4180	10300	879	571	475	310	251
15	518	16700	8450	3270	2080	3530	7420	839	564	466	306	251
16	462	9260	18400	2840	1950	3150	5660	804	552	457	303	272
17	428	5980	22100	2540	1850	2760	4870		572	449	299	366
18	402	4340	10700	2330	1790	2520	3810		719	442	298	301
19	433	4060	8180	2320	2370	2540	3140	756	651	435	295	275
20	437	7050	6590	2720	2520	3030	2700	760	598	427	293	270
21	435	9360	5480	3040	6040	3060	2360	736	568	421	290	260
22	897	10400	4590	2950	18100	2760	2110	722	548	410	290	253
23	2950	7830	3890	2890	12000	2520	1900		541	401	288	248
24	2580	5480	3390	7580	7480	2360	1750		530	393	285	247
25	4430	4200	3030	15900	5360	2190	1630		512	392	283	243
23	1130	1200	3030	13300	3300	2150	1030	074	512	3,72	203	245
26	3390	3420	2750	8900	4190	2060	1570		500	390	281	240
27	2720	2970	2540	6100	3510	2000	1570		494	386	280	240
28	2420	3380	2720	4660	3070	2000	1440		545	380	276	239
29	1930	6450	2660	3770		1910	1350		1740	375	273	237
30	1660	5980	2420	3720		1800	1280		1210	368	270	237
31	2730		2450	5330		1690		955		361	269	
TOTAL	33963	142474	206350	175130	128810	83580					9626	7889
MEAN	1096		6656	5649	4600	2696			681		311	263
MAX	4430		22100	19000	18100	6420			1740		373	366
MIN	304	974	2420	2320	1790	1580			494		269	237
AC-FT	67370	282600	409300	347400	255500	165800					19090	15650
CFSM	3.66	15.9	22.3	18.9	15.4	9.02	9.07		2.28		1.04	0.88
IN.	4.23	17.73	25.67	21.79	16.03	10.40	10.12	3.46	2.54	1.94	1.20	0.98
STATIST	CICS OF 1	MONTHLY ME	AN DATA	FOR WATER	YEARS 193	30 - 2002	2, BY WAT	ER YEAR (WY)				
MEAN	1147	3023	4323	4180	3848	2996	2071	1147	705	455	332	435
MAX	3814	6887	9553	9598	8123	7785			1686	1133	674	1791
(WY)	1976	1991	1995	1953	1999	1997			2000	1983	2001	1978
MIN	201	268	1361	1127	1148				407	287	198	208
(WY)	1988	1937	1986	1949	1993	1155 1992	1942		1992	1951	1994	1938
SUMMARY	STATIS	rics	FOR	2001 CAL	ENDAR YEAR	2	FOR 2002	WATER YEAR		WATER YEA	RS 1930 -	2002
	moma r			500054			020044					
ANNUAL ANNUAL				722254 1979			932944 2556			2047		
	ANNUAL	MEAN		13.3						2025		1997
LOWEST	ANNUAL 1	MEAN								1199		1977
HIGHEST	DAILY 1	MEAN		22100	Dec 17	7	22100	Dec 17		51800	Mar 19	1997
LOWEST	DAILY M	EAN		304	Oct 7	7	237	Sep 29		147	Sep 1	1994
ANNUAL	SEVEN-DA	AY MINIMUM		311	Oct 7	3	240	Sep 24		154	Aug 27	1994
ANNUAL	RUNOFF	AY MINIMUM (AC-FT) (CFSM)		1433000			1850000	Dec 17 Sep 29 Sep 24		1483000	-	
				6.6 89.8	62		8	.55		6.8	35	
ANNUAL	RUNOFF	(INCHES)		89.8	86		116	.07		93.0	2	
	CENT EXC			4130			6030			4780		
	CENT EXC			1220			1330			1160		
90 PERC	CENT EXC	EEDS		363			289			285		

e Estimated

12035100 CHEHALIS RIVER NEAR MONTESANO, WA

LOCATION.--Lat 46° 57'45", long 123°36'12", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.18, T.17 N., R.7 W., Grays Harbor County, Hydrologic Unit 17100104, on downstream side of State Highway 107 bridge, 0.2 mi upstream from Wynoochee River, 1.1 mi south of Montesano and at mile 13.2.

DRAINAGE AREA. -- 1,780 mi².

PERIOD OF RECORD. -- October 2001 to September 2002.

YEAR 18.66 -1.17

 ${\tt GAGE.--Water-stage}$ recorder. Datum of gage is 3.32 ft above NGVD of 1929.

REMARKS.--Elevation record only. Large diurnal fluctuation because of tides. Minor effect from regulation on Skookumchuck River by Skookumchuck Dam since January 1971. Up to 54 ft³/s of Skookumchuck River is consumptively used at Centralia steam generating plant. Many small diversions for irrigation and domestic use upstream from station, including about 3 ft²/s for municipal water supply for Centralia and Chehalis. U.S. Geological Survey satellite telemeter at station. Chemical analyses, March 1970 to September 1971, October 1977 to June 1980.

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded elevation, 18.66 ft Dec. 17, 2001, minimum recorded elevation, -1.17 ft July 12, 2002.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Maximum recorded elevation, 18.66 ft Dec. 17; minimum recorded elevation, -1.17 ft July 12.

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCT	OBER	NOV	EMBER	DEC	EMBER	JAN	IUARY	FEBI			ARCH
1 2	12.20	1.58	13.21 13.13	2.39	16.82 16.07 15.13 14.97	11.87	14.22 14.59 13.33 12.75	2.66	13.50 13.35	5.74	12.95 13.05 13.02 13.10	2.38
3	12.32	1.20	13.05	1.33	15.13	10.21	13.33	3.98	13.77	5.60	13.02	2.09
4 5	12.31 12.89	1.07 1.27	12.86 12.48	1.24	14.97 14.20	9.90 8.74	12.75 13.01	3.79 3.59	12.88 13.18	5.33 5.26	13.10 13.10	2.45
6 7	12.67 12.37	1.01	11.98 11.13	1.11	13.56 12.51	8.28 7.69	13.18 15.52	4.87 8.45	13.09 13.59	5.51 6.36	12.41 11.89	3.27
8			10.80	1.37	12.99	6.99	16.18	12.90	13.29	5.78	11.39	2.59
9 10			11.98 11.13 10.80 11.12 11.96	1.65 1.73	13.56 12.51 12.99 12.67 13.35	6.56 5.75	13.18 15.52 16.18 15.40 15.16	11.54 10.95	13.09 13.59 13.29 13.00 13.28	5.81 5.46	11.87 13.03	2.99 3.32
												6.75
11 12			12.87 13.41 13.87	2.07	13.56	4.84	14.76	6.61	12.68	3.66	13.68 14.09 13.48 13.14	7.44
13			13.87	3.06	15.37	7.59	13.54	5.29	12.51	3.19	13.48	7.30
14 15			15.51 16.43	11.39	13.56 13.78 15.37 16.00 15.37	10.87	14.76 14.29 13.54 13.26 12.87	3.66	11.88	3.24	13.14	7.23 7.03
16										3 76	13 28	6.15
17			15.52 14.39 13.56	7.43	18.66	15.98	11.65	3.11	12.35	4.34	12.72	5.37
18 19			13.56 13.42	5.11	17.22	14.73	11.42	3.90	12.09	4.62	12.25	4.61 4.60
20			13.57	6.31	17.35 18.66 17.22 16.09 15.15	11.68	12.69 11.65 11.42 11.81 12.28	4.55	12.09 12.35 12.09 12.96 11.88	4.66	12.06	5.06
21			13.11	7.47	13.97	9.77						5.96
22			13.11 13.64 12.88 13.06	8.78	13.97 12.99 12.21 12.00 12.17	8.49	12.32 12.23 11.77 13.08 15.61	5.94	12.69 13.99 14.07 13.38 13.20	10.19	11.89	5.69
23 24	10.08	2.82	12.88	9.55 8.86	12.21	6.32	11.77	5.23 7.31	14.07	8.19 6.21	11.87	4.74 3.51
	10.71	3.73	13.06 13.09	8.01	12.17	5.11						2.87
	11.08	3.97	12.45	5.87	12.73	4.12	15.37	11.22	13.61 13.59 13.30	3.85	13.10	2.49
	11.28 11.60	3.41	12.67	4.68	13.20	3.73	15.42	10.73	13.59	3.17	13.07	2.13
29	12.06	2.70	15.01	8.04	14.02	2.44	14.83	7.10			13.12	1.96
30 31	12.97 13.29	2.85	12.45 12.67 14.49 15.01 15.07	8.68	13.98 14.22	2.07	15.37 15.42 15.19 14.83 14.51	5.83			13.21	1.49
	13.23	2.51			11.22							
MONTH	13.29	1.01	16.43	1.02	18.66	2.07	16.18	2.66	14.07	2.55	14.09	1.44
			ELEVATION	(FEET NO	WD), WATE	R YEAR OO	CTOBER 2001	L TO SEPI	EMBER 2002	2		
DAY	MAX	MIN	ELEVATION MAX	(FEET NO	WATE!	R YEAR OO MIN	CTOBER 2001 MAX	L TO SEPT	TEMBER 2002 MAX	MIN	MAX	MIN
DAY	AP	RIL	MAX	MIN	MAX JI	MIN UNE	MAX JU	MIN	MAX AUG	MIN GUST	SEPT	MIN FEMBER
1	AP	RIL	MAX	MIN	MAX JI	MIN UNE	MAX JU	MIN	MAX AUG	MIN GUST	SEPT	TEMBER 2.26
1 2	AP	RIL	MAX	MIN	MAX JI	MIN UNE	MAX JU	MIN	MAX AUG	MIN GUST	SEPT	TEMBER 2.26 1.68
1 2 3 4	AP	RIL	MAX	MIN	MAX JI	MIN UNE	MAX JU	MIN	MAX AUG	MIN GUST	SEPT	2.26 1.68 0.97 0.17
1 2 3	13.27 12.52 11.85 11.01 11.07	1.13 1.04 1.44 2.18 2.98	12.62 11.97 10.79 10.05 10.29	MIN 0.58 1.31 1.82 2.63 2.77	MAX JI 10.73 10.33 10.71 11.32 11.53	MIN 1.86 2.21 2.81 3.26 3.73	MAX JU 10.79 10.69 10.77 11.25 11.75	MIN 2.43 2.97 3.73 3.15 2.43	MAX AUC 11.18 11.25 11.49 11.84 12.46	MIN 3.68 3.13 2.74 1.89 0.82	SEPT 10.88 11.49 12.01 12.38 12.67	2.26 1.68 0.97
1 2 3 4 5	13.27 12.52 11.85 11.01 11.07	1.13 1.04 1.44 2.18 2.98	12.62 11.97 10.79 10.05 10.29	MIN 0.58 1.31 1.82 2.63 2.77	MAX JI 10.73 10.33 10.71 11.32 11.53	MIN 1.86 2.21 2.81 3.26 3.73	MAX JU 10.79 10.69 10.77 11.25 11.75	MIN 2.43 2.97 3.73 3.15 2.43	MAX AUC 11.18 11.25 11.49 11.84 12.46	MIN 3.68 3.13 2.74 1.89 0.82	SEPT 10.88 11.49 12.01 12.38 12.67	2.26 1.68 0.97 0.17 -0.28
1 2 3 4 5	13.27 12.52 11.85 11.01 11.07	1.13 1.04 1.44 2.18 2.98	12.62 11.97 10.79 10.05 10.29	MIN 0.58 1.31 1.82 2.63 2.77	MAX JI 10.73 10.33 10.71 11.32 11.53	MIN 1.86 2.21 2.81 3.26 3.73	MAX JU 10.79 10.69 10.77 11.25 11.75	MIN 2.43 2.97 3.73 3.15 2.43	MAX AUC 11.18 11.25 11.49 11.84 12.46	MIN 3.68 3.13 2.74 1.89 0.82	SEPT 10.88 11.49 12.01 12.38 12.67	2.26 1.68 0.97 0.17 -0.28 -0.44 -0.42
1 2 3 4 5 6 7 8 9	13.27 12.52 11.85 11.01 11.07 11.07 11.07 10.90 11.03 11.86	1.13 1.04 1.44 2.18 2.98 2.79 2.47 2.54 2.84	12.62 11.97 10.79 10.05 10.29	MIN 0.58 1.31 1.82 2.63 2.77	MAX JI 10.73 10.33 10.71 11.32 11.53	MIN 1.86 2.21 2.81 3.26 3.73	MAX JU 10.79 10.69 10.77 11.25 11.75	MIN 2.43 2.97 3.73 3.15 2.43	MAX AUC 11.18 11.25 11.49 11.84 12.46	MIN 3.68 3.13 2.74 1.89 0.82	SEPT 10.88 11.49 12.01 12.38 12.67	2.26 1.68 0.97 0.17 -0.28 -0.44 -0.42 -0.31 0.05
1 2 3 4 5 6 7 8 9	13.27 12.52 11.85 11.01 11.07 11.07 10.90 11.03 11.86 12.06	1.13 1.04 1.44 2.18 2.98 2.79 2.47 2.54 2.84 3.56	MAX 12.62 11.97 10.79 10.05 10.29 10.71 11.04 11.07 11.27 11.56	MIN 0.58 1.31 1.82 2.63 2.77 2.77 2.70 2.57 1.94 1.03	MAX JI 10.73 10.33 10.71 11.32 11.53 11.39 11.52 11.69 11.87 12.36	MIN UNE 1.86 2.21 2.81 3.26 3.73 2.58 2.15 1.00 0.04 0.12	MAX 10.79 10.69 10.77 11.25 11.75 12.23 12.42 12.51 12.54 12.97	MIN JLY 2.43 2.97 3.73 3.15 2.43 1.78 1.02 0.00 -0.63 -0.78	MAX AUC 11.18 11.25 11.49 11.84 12.46 12.48 12.81 13.00 13.11 13.19	MIN 3.68 3.13 2.74 1.89 0.82 0.16 -0.49 -0.89 -0.93 -0.97	SEPT 10.88 11.49 12.01 12.38 12.67 13.11 13.38 13.17 13.29 13.34	2.26 1.68 0.97 0.17 -0.28 -0.44 -0.42 -0.31 0.05 0.51
1 2 3 4 5 6 7 8 9 10	13.27 12.52 11.85 11.01 11.07 11.07 10.90 11.03 11.86 12.06	1.13 1.04 1.44 2.18 2.98 2.79 2.47 2.54 2.84 3.56	MAX 12.62 11.97 10.79 10.05 10.29 10.71 11.04 11.07 11.27 11.56	MIN MAY 0.58 1.31 1.82 2.63 2.77 2.77 2.70 2.57 1.94 1.03	MAX JI 10.73 10.33 10.71 11.32 11.53 11.52 11.69 11.87 12.36	MIN UNE 1.86 2.21 2.81 3.26 3.73 2.58 2.15 1.00 0.04 0.12	MAX 10.79 10.69 10.77 11.25 11.75 12.23 12.42 12.51 12.54 12.97	MIN JLY 2.43 2.97 3.73 3.15 2.43 1.78 1.02 0.00 -0.63 -0.78	MAX AUC 11.18 11.25 11.49 11.84 12.46 12.48 12.81 13.00 13.11 13.19	MIN 3.68 3.13 2.74 1.89 0.82 0.16 -0.49 -0.89 -0.93 -0.97	SEPT 10.88 11.49 12.01 12.38 12.67 13.11 13.38 13.17 13.29 13.34	2.26 1.68 0.97 0.17 -0.28 -0.44 -0.42 -0.31 0.05 0.51
1 2 3 4 5 6 7 8 9 10	13.27 12.52 11.85 11.01 11.07 11.07 11.07 11.03 11.86 12.06	1.13 1.04 1.42 2.18 2.98 2.79 2.47 2.54 2.84 3.56 3.96 3.96 5.04	MAX 12.62 11.97 10.79 10.05 10.29 10.71 11.04 11.07 11.56 11.80 11.99 12.33	MIN 0.58 1.31 1.82 2.63 2.77 2.70 2.77 2.70 1.94 1.03 0.45 0.15	MAX JI 10.73 10.33 10.71 11.32 11.53 11.52 11.69 11.87 12.36	MIN UNE 1.86 2.21 2.81 3.26 3.73 2.58 2.15 1.00 0.04 0.12	MAX 10.79 10.69 10.77 11.25 11.75 12.23 12.42 12.51 12.54 12.97	MIN JLY 2.43 2.97 3.73 3.15 2.43 1.78 1.02 0.00 -0.63 -0.78	MAX AUC 11.18 11.25 11.49 11.84 12.46 12.48 12.81 13.00 13.11 13.19	MIN 3.68 3.13 2.74 1.89 0.82 0.16 -0.49 -0.89 -0.93 -0.97	SEPT 10.88 11.49 12.01 12.38 12.67 13.11 13.38 13.17 13.29 13.34	2.26 1.68 0.97 0.17 -0.28 -0.44 -0.42 -0.31 0.05 0.51 0.61 0.75
1 2 3 4 5 6 7 8 9 10 11 12 13 14	13.27 12.52 11.85 11.01 11.07 11.07 11.07 11.03 11.86 12.06	1.13 1.04 1.42 2.18 2.98 2.79 2.47 2.54 2.84 3.56 3.96 3.96 5.04	MAX 12.62 11.97 10.79 10.05 10.29 10.71 11.04 11.07 11.56 11.80 11.99 12.33	MIN 0.58 1.31 1.82 2.63 2.77 2.70 2.77 2.70 1.94 1.03 0.45 0.15	MAX JI 10.73 10.33 10.71 11.32 11.53 11.52 11.69 11.87 12.36	MIN UNE 1.86 2.21 2.81 3.26 3.73 2.58 2.15 1.00 0.04 0.12	MAX 10.79 10.69 10.77 11.25 11.75 12.23 12.42 12.51 12.54 12.97	MIN JLY 2.43 2.97 3.73 3.15 2.43 1.78 1.02 0.00 -0.63 -0.78	MAX AUC 11.18 11.25 11.49 11.84 12.46 12.48 12.81 13.00 13.11 13.19	MIN 3.68 3.13 2.74 1.89 0.82 0.16 -0.49 -0.89 -0.93 -0.97	SEPT 10.88 11.49 12.01 12.38 12.67 13.11 13.38 13.17 13.29 13.34	2.26 1.68 0.97 0.17 -0.28 -0.44 -0.42 -0.31 0.05 0.51 0.61 0.75 1.40
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	AP. 13.27 12.52 11.85 11.01 11.07 10.90 11.03 11.86 12.06 12.37 12.86 13.48 14.24 13.83	1.13 1.04 1.44 2.18 2.98 2.79 2.47 2.54 2.84 3.56 3.96 3.87 5.04 8.01 7.89	MAX 12.62 11.97 10.79 10.05 10.29 10.71 11.04 11.07 11.27 11.56 11.80 11.99 12.33 12.37 12.16	MIN 0.58 1.31 1.82 2.63 2.77 2.77 2.77 2.57 1.94 1.03 0.45 0.15 0.05 -0.11 -0.28	MAX J1 10.73 10.33 10.71 11.32 11.53 11.39 11.52 11.69 11.87 12.36 12.66 12.65 12.43	MIN 1.86 2.21 2.81 3.26 3.73 2.58 2.15 1.00 0.04 0.120.90 -0.51 -0.36 -0.17	MAX JU 10.79 10.69 10.77 11.25 11.75 12.23 12.42 12.51 12.54 12.97 13.11 12.87 12.87 12.43 12.23	MIN 2.43 2.97 3.73 3.15 2.43 1.78 1.02 0.00 -0.63 -0.78 -0.89 -1.17 -0.69 -0.36 0.13	MAX AUX 11.18 11.25 11.49 11.84 12.46 12.81 13.00 13.11 13.19 12.87 12.69 12.90 12.88 12.66	MIN 3.68 3.13 2.74 1.89 0.82 0.16 -0.49 -0.89 -0.97 -0.65 -0.31 0.70 1.76 1.80	SEPT 10.88 11.49 12.01 12.38 12.67 13.11 13.38 13.17 13.29 13.34 13.21 12.70 12.16 11.76 11.68	2.26 1.68 0.97 0.17 -0.28 -0.44 -0.42 -0.31 0.05 0.51 0.51 0.75 1.40
1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15	AP. 13.27 12.52 11.85 11.01 11.07 10.90 11.03 11.86 12.06 12.37 12.86 13.48 14.24 13.83	1.13 1.04 1.44 2.18 2.98 2.79 2.47 2.54 2.84 3.56 3.96 3.87 5.04 8.01 7.89	MAX 12.62 11.97 10.79 10.05 10.29 10.71 11.04 11.07 11.27 11.56 11.80 11.99 12.33 12.37 12.16	MIN 0.58 1.31 1.82 2.63 2.77 2.77 2.77 2.57 1.94 1.03 0.45 0.15 0.05 -0.11 -0.28	MAX J1 10.73 10.33 10.71 11.32 11.53 11.39 11.52 11.69 11.87 12.36 12.66 12.65 12.43	MIN 1.86 2.21 2.81 3.26 3.73 2.58 2.15 1.00 0.04 0.120.90 -0.51 -0.36 -0.17	MAX JU 10.79 10.69 10.77 11.25 11.75 12.23 12.42 12.51 12.54 12.97 13.11 12.87 12.87 12.43 12.23	MIN 2.43 2.97 3.73 3.15 2.43 1.78 1.02 0.00 -0.63 -0.78 -0.89 -1.17 -0.69 -0.36 0.13	MAX AUX 11.18 11.25 11.49 11.84 12.46 12.81 13.00 13.11 13.19 12.87 12.69 12.90 12.88 12.66	MIN 3.68 3.13 2.74 1.89 0.82 0.16 -0.49 -0.89 -0.97 -0.65 -0.31 0.70 1.76 1.80	SEPT 10.88 11.49 12.01 12.38 12.67 13.11 13.38 13.17 13.29 13.34 13.21 12.70 12.16 11.76 11.68	2.26 1.68 0.97 0.17 -0.28 -0.44 -0.42 -0.31 0.05 0.51 0.61 0.75 1.40
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	AP. 13.27 12.52 11.85 11.01 11.07 10.90 11.03 11.86 12.06 12.37 12.86 13.48 14.24 13.83	1.13 1.04 1.44 2.18 2.98 2.79 2.47 2.54 2.84 3.56 3.96 3.87 5.04 8.01 7.89	MAX 12.62 11.97 10.79 10.05 10.29 10.71 11.04 11.07 11.27 11.56 11.80 11.99 12.33 12.37 12.16	MIN 0.58 1.31 1.82 2.63 2.77 2.77 2.77 2.57 1.94 1.03 0.45 0.15 0.05 -0.11 -0.28	MAX J1 10.73 10.33 10.71 11.32 11.53 11.39 11.52 11.69 11.87 12.36 12.66 12.65 12.43	MIN 1.86 2.21 2.81 3.26 3.73 2.58 2.15 1.00 0.04 0.120.90 -0.51 -0.36 -0.17	MAX JU 10.79 10.69 10.77 11.25 11.75 12.23 12.42 12.51 12.54 12.97 13.11 12.87 12.87 12.43 12.23	MIN 2.43 2.97 3.73 3.15 2.43 1.78 1.02 0.00 -0.63 -0.78 -0.89 -1.17 -0.69 -0.36 0.13	MAX AUX 11.18 11.25 11.49 11.84 12.46 12.81 13.00 13.11 13.19 12.87 12.69 12.90 12.88 12.66	MIN 3.68 3.13 2.74 1.89 0.82 0.16 -0.49 -0.89 -0.97 -0.65 -0.31 0.70 1.76 1.80	SEPT 10.88 11.49 12.01 12.38 12.67 13.11 13.38 13.17 13.29 13.34 13.21 12.70 12.16 11.76 11.68	2.26 1.68 0.97 0.17 -0.28 -0.44 -0.42 -0.31 0.05 0.51 0.61 0.75 1.40 1.87
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	AP. 13.27 12.52 11.85 11.01 11.07 10.90 11.03 11.86 12.06 12.37 12.86 13.48 14.24 13.83	1.13 1.04 1.44 2.18 2.98 2.79 2.47 2.54 2.84 3.56 3.96 3.87 5.04 8.01 7.89	MAX 12.62 11.97 10.79 10.05 10.29 10.71 11.04 11.07 11.27 11.56 11.80 11.99 12.33 12.37 12.16	MIN 0.58 1.31 1.82 2.63 2.77 2.77 2.77 2.57 1.94 1.03 0.45 0.15 0.05 -0.11 -0.28	MAX J1 10.73 10.33 10.71 11.32 11.53 11.39 11.52 11.69 11.87 12.36 12.66 12.65 12.43	MIN 1.86 2.21 2.81 3.26 3.73 2.58 2.15 1.00 0.04 0.120.90 -0.51 -0.36 -0.17	MAX JU 10.79 10.69 10.77 11.25 11.75 12.23 12.42 12.51 12.54 12.97 13.11 12.87 12.87 12.43 12.23	MIN 2.43 2.97 3.73 3.15 2.43 1.78 1.02 0.00 -0.63 -0.78 -0.89 -1.17 -0.69 -0.36 0.13	MAX AUX 11.18 11.25 11.49 11.84 12.46 12.81 13.00 13.11 13.19 12.87 12.69 12.90 12.88 12.66	MIN 3.68 3.13 2.74 1.89 0.82 0.16 -0.49 -0.89 -0.97 -0.65 -0.31 0.70 1.76 1.80	SEPT 10.88 11.49 12.01 12.38 12.67 13.11 13.38 13.17 13.29 13.34 13.21 12.70 12.16 11.76 11.68	2.26 1.68 0.97 0.17 -0.28 -0.44 -0.42 -0.31 0.51 0.51 0.75 1.40 1.87
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	13.27 12.52 11.85 11.01 11.07 11.07 11.08 11.86 12.06 12.37 12.86 13.48 14.24 13.83 13.66 13.19 12.28 13.33 11.09	RIL 1.13 1.04 1.44 2.18 2.98 2.79 2.47 2.54 2.84 3.56 3.96 3.96 7.04 8.01 7.89 7.24 6.14 4.87 4.06 3.54	12.62 11.97 10.79 10.05 10.29 10.71 11.04 11.07 11.56 11.80 11.99 12.33 12.37 12.16	MIN 0.58 1.31 1.82 2.63 2.77 2.70 2.77 2.70 2.57 1.94 1.03 0.45 0.15 0.05 -0.11 -0.28 -0.09 0.34 2.33 1.76 1.82	MAX J1 10.73 10.33 10.71 11.32 11.53 11.59 11.59 12.66 12.65 12.65 12.43 11.95 12.22 12.25 12.43 12.61	MIN UNE 1.86 2.21 2.81 3.26 3.73 2.58 2.15 1.00 0.04 0.120.90 -0.51 -0.30 1.55 2.06 2.35 1.50	MAX 10.79 10.69 10.77 11.25 11.75 12.23 12.42 12.51 12.54 12.97 13.11 12.94 12.87 12.43 12.23 12.34 12.37 12.56 12.73 12.57	MIN JLY 2.43 2.97 3.73 3.15 2.43 1.78 1.02 0.00 -0.63 -0.78 -0.89 -1.17 -0.69 -0.13 1.31 2.43 1.92 1.30 0.48	MAX AUX 11.18 11.25 11.49 12.46 12.48 12.81 13.00 13.11 13.19 12.87 12.69 12.90 12.88 12.66 12.28 12.04 12.33 12.42 12.53	MIN 3.68 3.13 2.74 1.89 0.82 0.16 -0.49 -0.93 -0.97 -0.65 -0.31 0.70 1.70 1.80 1.70 1.22 0.70 0.46 0.02	SEPT 10.88 11.49 12.01 12.38 12.67 13.11 13.38 13.17 13.29 13.34 13.21 12.70 12.16 11.76 11.68 11.84 11.88 11.93 12.05 11.99	2.26 1.68 0.97 0.17 -0.28 -0.44 -0.42 -0.31 0.05 0.51 0.61 0.75 1.40 1.87
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	13.27 12.52 11.85 11.07 10.90 11.03 11.86 12.06 12.37 12.86 13.48 14.24 13.83 13.66 13.19 12.28 11.33 11.09	1.13 1.04 1.44 2.18 2.98 2.79 2.47 2.54 2.84 3.56 3.96 3.87 5.04 8.01 7.89	12.62 11.97 10.79 10.05 10.29 10.71 11.04 11.07 11.56 11.80 11.99 12.33 12.37 12.16	MIN 0.58 1.31 1.82 2.63 2.77 2.77 2.77 2.57 1.94 1.03 0.45 0.15 0.05 -0.11 -0.28	MAX J1 10.73 10.33 10.71 11.32 11.53 11.59 11.59 12.66 12.65 12.65 12.43 11.95 12.22 12.25 12.43 12.61	MIN 1.86 2.21 2.81 3.26 3.73 2.58 2.15 1.00 0.04 0.120.90 -0.51 -0.36 -0.17	MAX 10.79 10.69 10.77 11.25 11.75 12.23 12.42 12.51 12.54 12.97 13.11 12.94 12.87 12.43 12.23 12.34 12.37 12.56 12.73 12.57	MIN 2.43 2.97 3.73 3.15 2.43 1.78 1.02 0.00 -0.63 -0.78 -0.89 -1.17 -0.69 -0.36 0.13	MAX AUX 11.18 11.25 11.49 12.46 12.48 12.81 13.00 13.11 13.19 12.87 12.69 12.90 12.88 12.66 12.28 12.04 12.33 12.42 12.53	MIN 3.68 3.13 2.74 1.89 0.82 0.16 -0.49 -0.89 -0.97 -0.65 -0.31 0.70 1.76 1.80	SEPT 10.88 11.49 12.01 12.38 12.67 13.11 13.38 13.17 13.29 13.34 13.21 12.70 12.16 11.76 11.68 11.84 11.88 11.93 12.05 11.99	2.26 1.68 0.97 0.17 -0.28 -0.44 -0.42 -0.31 0.51 0.51 0.61 1.40 1.87
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	13.27 12.52 11.85 11.07 10.90 11.03 11.86 12.06 12.37 12.86 13.48 14.24 13.83 13.66 13.19 12.28 11.33 11.09	RIL 1.13 1.04 1.44 2.18 2.98 2.79 2.47 2.54 3.56 3.96 3.87 5.04 8.01 7.89 7.24 4.06 3.54 3.05 2.51 1.81	12.62 11.97 10.79 10.05 10.29 10.71 11.04 11.07 11.27 11.56 11.80 11.99 12.33 12.16 11.65 11.65 11.49 11.05 11.61	MIN 0.58 1.31 1.82 2.63 2.77 2.70 2.57 1.94 1.03 0.45 0.15 0.15 -0.11 -0.28 -0.09 0.34 2.33 1.76 1.82 2.01 1.94	MAX J1 10.73 10.33 10.71 11.32 11.52 11.69 11.87 12.36 12.66 12.65 12.43 11.95 12.22 12.25 12.25 12.43 13.03 13.18	MIN 1.86 2.21 2.81 3.26 3.73 2.58 2.15 1.00 0.04 0.120.90 1.55 2.06 0.30 1.55 2.06 0.38 0.40 0.38 0.40 0.42	MAX 10.79 10.69 10.77 11.25 12.42 12.51 12.54 12.97 13.11 12.94 12.87 12.43 12.23 12.43 12.55 12.55 12.55 12.55	MIN 2.43 2.97 3.73 3.15 2.43 1.02 0.00 -0.63 -0.78 -0.89 -1.17 -0.69 -0.36 0.13 1.31 2.43 1.92 1.30 0.48 -0.12 -0.07	MAX AUX 11.18 11.25 11.49 11.84 12.46 12.48 12.81 13.00 13.11 13.19 12.87 12.69 12.90 12.88 12.66 12.28 12.04 12.33 12.53 12.53 12.53	MIN 3.68 3.13 2.74 1.89 0.82 0.16 -0.49 -0.89 -0.97 -0.65 -0.31 0.70 1.76 1.80 1.70 1.22 0.70 0.46 0.02 -0.19 -0.29	SEPT 10.88 11.49 12.01 12.38 12.67 13.11 13.38 13.17 13.29 13.34 13.21 12.70 12.16 11.76 11.68 11.84 11.88 11.93 12.05 11.99 11.88 12.03 12.34	2.26 1.68 0.97 0.17 -0.28 -0.44 -0.42 -0.31 0.05 0.51 0.61 0.75 1.40 1.87 0.78 0.66 0.77 0.78
1 2 3 4 4 5 6 7 8 9 10 11 12 13 14 15 16 17 17 18 19 20 21 22	13.27 12.52 11.85 11.01 11.07 11.07 11.08 11.86 12.06 12.06 13.48 14.24 13.83 13.66 13.19 12.28 11.33 11.09	RIL 1.13 1.04 1.44 2.18 2.98 2.79 2.47 2.54 2.84 3.56 3.96 3.87 5.04 8.01 7.89 7.24 6.14 4.06 3.54 3.05	12.62 11.97 10.79 10.05 10.29 10.71 11.04 11.07 11.27 11.56 11.80 11.99 12.33 12.37 12.16	MIN MAY 0.58 1.31 1.82 2.63 2.77 2.77 2.77 2.77 2.79 1.94 1.03 0.45 0.05 -0.11 -0.28 -0.09 0.34 1.76 1.82 2.01 1.94	MAX J10.73 10.33 10.71 11.32 11.53 11.39 11.52 11.69 11.87 12.36 12.65 12.43 11.95 12.25 12.43 12.61 13.02 13.02	MIN UNE 1.86 2.21 2.81 3.26 3.73 2.58 2.15 1.00 0.04 0.120.90 -0.51 -0.36 -0.17 0.30 1.55 1.50 0.38 0.40	MAX 10.79 10.69 10.77 11.25 11.75 12.23 12.42 12.51 12.54 12.97 13.11 12.87 12.23 12.23 12.37 12.56 12.37 12.56 12.73 12.55 12.65 12.85	MIN JLY 2.43 2.97 3.73 3.15 2.43 1.78 1.02 0.00 -0.63 -0.78 -0.89 -0.19 -0.36 0.13 1.31 2.43 1.92 1.30 0.48 -0.12 -0.37	MAX AUX 11.18 11.25 11.49 11.84 12.46 12.48 12.81 13.00 13.11 13.19 12.87 12.69 12.90 12.88 12.66 12.28 12.04 12.33 12.42 12.53 12.53	MIN 3.68 3.13 2.74 1.89 0.82 0.16 -0.49 -0.93 -0.97 -0.65 -0.31 0.70 1.76 1.80 1.70 1.22 0.70 0.46 0.02 -0.19 -0.28	SEPT 10.88 11.49 12.01 12.38 12.67 13.11 13.38 13.17 13.29 13.34 13.21 12.70 12.16 11.76 11.68 11.84 11.88 11.93 12.05 11.99	2.26 1.68 0.97 0.17 -0.28 -0.44 -0.42 -0.31 0.05 0.51 0.61 0.75 1.40 1.87 1.68 1.55 0.77 0.78
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	13.27 12.52 11.85 11.01 11.07 11.07 11.08 11.86 12.06 13.48 14.24 13.83 13.66 13.19 12.28 11.33 11.09 10.71 10.99 11.27 11.52 12.30	RIL 1.13 1.04 1.44 2.18 2.98 2.79 2.47 2.54 2.84 3.56 3.96 3.87 5.04 6.14 7.89 7.24 6.14 7.89 7.24 6.14 7.89 7.25 1.51 1.51	12.62 11.97 10.79 10.05 10.29 10.71 11.04 11.07 11.27 11.56 11.80 11.99 12.33 12.37 12.16 11.65 11.49 11.05 11.49 11.05 11.49 11.05 11.49 11.05 11.49 11.05	MIN MAY 0.58 1.31 1.82 2.63 2.77 2.77 2.77 2.77 2.57 1.94 1.03 0.45 0.05 -0.11 -0.28 -0.09 0.34 2.33 1.76 1.82 2.01 1.94 1.25	MAX J10.73 10.33 10.71 11.32 11.53 11.39 11.52 11.69 11.87 12.36 12.65 12.43 11.95 12.25 12.43 11.95 12.25 12.43 11.95 12.22 12.25 12.43 13.03 13.18	MIN UNE 1.86 2.21 2.81 3.26 3.73 2.58 2.15 1.00 0.04 0.12 -0.90 -0.51 -0.36 -0.17 0.30 1.55 2.06 2.35 1.50 0.38 0.40 -0.42 -0.68	MAX 10.79 10.69 10.77 11.25 11.75 12.23 12.42 12.51 12.54 12.97 13.11 12.94 12.87 12.43 12.23 12.23 12.34 12.27 12.55 12.285 12.57	MIN JLY 2.43 2.97 3.73 3.15 2.43 1.78 1.02 -0.63 -0.78 -0.89 -0.117 -0.69 -0.36 0.13 1.31 2.43 1.92 1.30 0.48 -0.12 -0.37 -0.07	MAX AUX 11.18 11.25 11.49 11.84 12.46 12.81 13.00 13.11 13.19 12.87 12.69 12.88 12.66 12.28 12.04 12.33 12.42 12.53 12.53 12.53 12.53	MIN SUST 3.68 3.13 2.74 1.89 0.82 0.16 -0.49 -0.93 -0.97 -0.65 -0.31 0.70 1.76 1.80 1.70 1.22 -0.46 0.46 0.19 -0.28 -0.17 0.15	10.88 11.49 12.01 12.38 12.67 13.11 13.38 13.17 13.29 13.34 13.21 12.70 12.16 11.76 11.68 11.84 11.88 11.93 12.05 11.99 11.88 12.03 12.03 12.03	2.26 1.68 0.97 0.17 -0.28 -0.44 -0.42 -0.31 0.05 0.51 0.61 0.75 1.68 1.55 0.77 0.78 0.68 1.68 1.68 1.68
1 2 3 4 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	13.27 12.52 11.85 11.07 10.90 11.03 11.06 12.06 12.37 12.86 13.48 14.24 13.83 13.66 13.19 12.28 11.33 11.09 10.71 10.99 11.27 11.52 12.30 13.47 14.47	RIL 1.13 1.04 1.44 2.18 2.98 2.79 2.47 2.54 3.56 3.96 3.87 5.04 8.01 7.89 7.24 6.14 4.87 4.06 3.54 3.05 2.51 1.52 1.52 1.52	12.62 11.97 10.79 10.05 10.29 10.71 11.04 11.07 11.27 11.56 11.80 11.99 12.33 12.37 12.16 11.05 11.65 11.49 11.05 11.65 11.49 11.05 11.49 11.05 11.49 11.05 11.34 11.34 12.37 13.48	MIN 0.58 1.31 1.82 2.63 2.77 2.70 2.57 1.94 1.03 0.45 0.15 0.05 -0.11 -0.28 -0.09 0.34 2.33 2.33 2.31 -0.15 -0.13 -0.29	MAX J1 10.73 10.33 10.71 11.32 11.53 11.52 11.69 11.87 12.36 12.66 12.65 12.65 12.43 11.95 12.22 12.25 12.25 12.43 12.61 13.03 13.18 13.31 13.25	MIN 1.86 2.21 2.81 3.26 3.73 2.58 2.15 1.00 0.04 0.12 0.95 -0.36 -0.17 0.30 1.55 2.06 0.38 0.40 0.42 -0.68 -0.76 -0.36	MAX 10.79 10.69 10.77 11.25 12.23 12.42 12.51 12.54 12.97 13.11 12.94 12.87 12.43 12.23 12.43 12.37 12.55 12.38 12.37 12.56 12.38 13.31 13.11 13.06 12.47	MIN 2.43 2.97 3.73 3.15 2.43 1.02 0.00 -0.63 -0.78 -0.89 -1.17 -0.69 -0.36 0.13 1.31 2.43 1.92 1.30 0.48 -0.12 -0.37 -0.07 -0.30 -0.18	MAX AUX 11.18 11.25 11.49 11.84 12.46 12.48 12.81 13.00 13.11 13.19 12.87 12.69 12.90 12.88 12.66 12.28 12.33 12.53 12.53 12.53 12.53 12.53 12.53 12.53	MIN 3UST 3.68 3.13 2.74 1.89 0.82 0.16 -0.49 -0.89 -0.97 -0.65 -0.31 0.70 1.76 1.80 1.70 1.22 0.70 0.46 0.02 -0.19 -0.28 -0.15 0.51	SEPT 10.88 11.49 12.01 12.38 12.67 13.11 13.38 13.17 13.29 13.34 13.21 12.70 12.16 11.76 11.68 11.84 11.88 11.93 12.05 11.99 11.88 12.03 12.14 12.03 12.34 12.42 12.08	2.26 1.68 0.97 0.17 -0.28 -0.44 -0.42 -0.31 0.51 0.51 0.61 0.75 1.40 1.87 0.78 0.66 0.42 0.83 1.61 1.49 1.88
1 2 3 4 4 5 6 7 8 9 10 11 12 13 14 15 16 17 17 18 19 20 21 22 23 24 25 26 27 28	13.27 12.52 11.85 11.07 10.90 11.03 11.06 12.06 12.37 12.86 13.48 14.24 13.83 13.66 13.19 12.28 11.33 11.09 10.71 10.99 11.22 11.23 11.23 11.23 11.23 11.23 11.23 11.23 11.23 11.23 11.23 11.24 11.23	RIL 1.13 1.04 1.44 2.18 2.98 2.79 2.47 2.54 2.84 3.56 3.96 3.97 5.04 8.01 7.89 7.24 6.14 4.06 3.54 3.55 1.81 1.52	12.62 11.97 10.79 10.05 10.29 10.71 11.04 11.07 11.27 11.56 11.80 11.99 12.33 12.37 12.16 11.65 11.65 11.65 11.61 12.27 12.82 12.82 12.82 13.48 13.48	MIN 0.58 1.31 1.82 2.63 2.77 2.70 2.77 2.70 2.57 1.94 1.03 0.45 0.15 0.15 0.15 0.15 1.76 1.82 2.01 1.92 2.01 1.92 2.01 1.93 2.03 2.04 2.33 2.76 2.33 2.76 2.33 2.76 2.33 2.76 2.33 2.76 2.33 2.76 2.33 2.76 2.33 2.76 2.33 2.76 2.33 2.76 2.33 2.76 2.33 2.76 2.33 2.76 2.33 2.76 2.33 2.76 2.33 2.76 2.33 2.76 2.33 2.76 2.31 2.76 2.31 2.31 2.31 2.31 2.31 2.31 2.31 2.31	MAX J1 10.73 10.33 10.71 11.32 11.53 11.39 11.52 11.69 11.87 12.36 12.66 12.65 12.43 11.95 12.22 12.25 12.43 12.61 13.02 13.03 13.18	MIN UNE 1.86 2.21 2.81 3.26 3.73 2.58 2.15 1.00 0.04 0.120.90 -0.51 -0.36 -0.17 0.30 1.55 2.06 2.35 1.50 0.38 0.40 -0.42 -0.68 -0.79	MAX 10.79 10.69 10.77 11.25 11.75 12.23 12.42 12.51 12.54 12.97 13.11 12.94 12.87 12.43 12.23 12.43 12.23 12.34 12.37 12.56 12.73 12.56 12.73 12.56 12.73 12.57 12.65 13.28 13.31 13.11 13.06 12.47 11.67	MIN JLY 2.43 2.97 3.73 3.15 2.43 1.78 1.02 0.00 -0.63 -0.78 -0.89 -0.12 -0.36 0.13 1.31 2.43 1.92 1.30 0.48 -0.12 -0.37 -0.07 -0.37 -0.07 -0.30 -0.18 0.04 0.22 0.61	MAX AUX 11.18 11.25 11.49 11.84 12.46 12.48 12.81 13.00 13.11 13.19 12.87 12.69 12.90 12.88 12.66 12.28 12.04 12.33 12.42 12.53 12.53 12.55 12.37 12.02 11.49 11.60	MIN SUST 3.68 3.13 2.74 1.89 0.82 0.16 -0.49 -0.93 -0.97 -0.65 -0.31 0.70 1.76 1.80 1.70 1.22 0.70 0.46 0.02 -0.19 -0.28 -0.17 0.151	SEPT 10.88 11.49 12.01 12.38 12.67 13.11 13.38 13.17 13.29 13.34 13.21 12.70 12.16 11.76 11.68 11.84 11.88 11.93 12.05 11.99 11.88 12.03 12.34 12.24 12.08	2.26 1.68 0.97 0.17 -0.28 -0.44 -0.42 -0.31 0.05 0.51 0.61 0.75 1.40 1.87 1.68 1.55 0.77 0.78 0.66 0.42 0.48 1.63 1.61 1.49
1 2 3 4 5 6 7 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	13.27 12.52 11.85 11.01 11.07 11.07 11.08 11.86 12.06 13.48 14.24 13.83 13.66 13.19 12.28 11.33 11.09 11.27 11.52 12.30 13.43 13.67 13.45	RIL 1.13 1.04 1.44 2.18 2.98 2.79 2.47 2.54 2.84 3.56 3.96 3.96 3.97 5.04 6.14 7.89 7.24 6.14 1.05 1.51 1.81 1.81 1.54 1.20 1.15 1.69 0.44	MAX 12.62 11.97 10.79 10.05 10.29 10.71 11.04 11.07 11.27 11.56 11.80 11.99 12.33 12.37 12.16 11.95 11.65 11.61 12.27 12.82 13.11 13.48 13.64 13.78 13.72	MIN MAY 0.58 1.31 1.82 2.63 2.77 2.77 2.77 2.77 2.57 1.94 1.03 0.45 0.05 0.15 0.05 -0.11 -0.28 -0.09 0.34 1.76 1.82 2.01 1.94 1.25 1.94 1.25 -0.15 -0.15 -0.15 -0.15 -0.18 -0.19 -0.18 -0.19 0.34 1.25 -0.19 0.31 -0.15 -0.18	MAX J10.73 10.33 10.71 11.32 11.53 11.39 11.52 11.69 11.87 12.36 12.65 12.43 11.95 12.25 12.43 11.95 12.22 12.25 12.43 13.31 13.25 13.18 12.87 12.51 12.61	MIN UNE 1.86 2.21 2.81 3.26 3.73 2.58 2.15 0.00 0.04 0.12 -0.90 -0.51 -0.36 -0.17 0.30 1.55 2.06 2.35 1.50 0.38 0.40 -0.42 -0.68 -0.79 -0.68 -0.79 -0.67 -0.36 -0.16 2.23	MAX 10.79 10.69 10.77 11.25 11.75 12.23 12.42 12.51 12.54 12.97 13.11 12.87 12.43 12.23 12.43 12.23 12.43 12.37 12.56 12.73 12.56 12.73 12.56 12.73 12.57 12.65 13.11 13.16 13.11 13.06 12.47 11.67 11.40 10.95	MIN JLY 2.43 2.97 3.73 3.15 2.43 1.78 1.02 0.00 -0.63 -0.78 -0.89 -1.17 -0.69 -0.13 1.31 2.43 1.92 1.30 0.13 4.91 -0.70 -0.89 -0.18 -0.12 -0.37 -0.07 -0.37 -0.07 -0.37 -0.07 -0.37 -0.07 -0.37 -0.07 -0.37 -0.07 -0.37 -0.07 -0.37 -0.07 -0.37 -0.	MAX AUX 11.18 11.25 11.49 11.84 12.46 12.48 12.81 13.00 13.11 13.19 12.87 12.69 12.88 12.66 12.28 12.04 12.33 12.42 12.53 12.53 12.53 12.53 12.53 12.53 12.53 12.53 12.53	MIN SUST 3.68 3.13 2.74 1.89 0.82 0.16 -0.49 -0.93 -0.97 -0.65 -0.31 0.70 1.76 1.80 1.70 0.46 0.70 0.46 0.70 0.51 0.70 0.46 0.70 0.51 0.70 0.46 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	SEPT 10.88 11.49 12.01 12.38 12.67 13.11 13.38 13.17 13.29 13.34 13.21 12.70 12.16 11.76 11.68 11.84 11.93 12.05 11.99 11.88 12.03 12.05 11.99 11.88 12.03 12.13 12.72 10.83 11.72 11.32 10.83 10.79	2.26 1.68 0.97 0.17 -0.28 -0.44 -0.42 -0.31 0.05 0.51 0.51 0.75 1.40 1.87 1.68 1.55 0.77 0.78 0.68 1.63 1.61 1.49 1.81 1.88
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	13.27 12.52 11.85 11.07 10.90 11.03 11.86 12.06 12.37 12.86 13.48 14.24 13.83 13.66 13.19 12.28 13.83 11.09 12.28 13.29 12.28 13.30 13.67 13.67 13.75 13.67	RIL 1.13 1.04 1.44 2.18 2.98 2.79 2.47 2.54 3.56 3.96 3.96 3.87 7.24 6.14 4.87 4.06 3.54 3.05 1.52 1.54 1.20 1.15 0.69 0.44	12.62 11.97 10.79 10.05 10.29 10.71 11.04 11.07 11.27 11.56 11.80 11.99 12.33 12.37 12.16 11.65 11.65 11.65 11.65 11.65 11.49 11.05 11.61	MIN 0.58 1.31 1.82 2.63 2.77 2.70 2.70 2.57 1.94 1.03 0.45 0.15 0.05 -0.11 -0.28 -0.09 0.34 2.33 1.76 1.82 2.01 1.94 1.25 0.31 -0.15 -0.13 -0.29 0.12	MAX J1 10.73 10.33 10.71 11.32 11.52 11.69 11.87 12.36 12.66 12.65 12.61	MIN UNE 1.86 2.21 2.81 3.26 3.73 2.58 2.15 1.00 0.04 0.12 0.90 0.551 -0.36 -0.17 0.38 0.42 -0.68 -0.79 -0.68 -0.79 -0.68 -0.79 -0.67 -0.36 0.16	MAX 10.79 10.69 10.77 11.25 11.75 12.23 12.42 12.51 12.54 12.97 13.11 12.87 12.23 12.34 12.87 12.55 12.85 13.31 13.11 13.06 12.47 11.67	MIN LY 2.43 2.97 3.73 3.15 2.43 1.02 0.00 -0.63 -0.78 -0.89 -1.17 -0.69 -0.13 1.31 2.43 1.92 0.00 0.48 -0.12 -0.37 -0.30 -0.18 0.04 0.22 0.61 1.37	MAX AUX 11.18 11.25 11.49 12.46 12.48 12.81 13.00 13.11 13.19 12.87 12.69 12.90 12.88 12.66 12.28 12.04 12.33 12.53 12.53 12.53 12.53 12.53 12.53 12.53 12.53	MIN SUST 3.68 3.13 2.74 1.89 0.82 0.16 -0.49 -0.89 -0.97 -0.65 -0.31 0.70 1.76 1.80 1.70 1.22 0.70 0.46 0.02 -0.19 -0.25 0.15 0.51	SEPT 10.88 11.49 12.01 12.38 12.67 13.11 13.38 13.17 13.29 13.34 13.21 12.70 12.16 11.76 11.68 11.84 11.88 11.93 12.05 11.99 11.88 12.03 12.14 12.42 12.08 12.13 11.72 11.32 11.32 11.32 11.32	2.26 1.68 0.97 0.17 -0.28 -0.44 -0.42 -0.31 0.05 0.51 0.61 0.75 1.40 1.68 1.55 0.77 0.78 0.66 0.42 0.88 1.63 1.61 1.49 1.88 2.16

12035380 WYNOOCHEE LAKE NEAR GRISDALE, WA

LOCATION.--Lat $47^{\circ}23^{\circ}08^{\circ}$, long $123^{\circ}36^{\circ}16^{\circ}$, in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.20, T.22 N., R.7 W., Grays Harbor County, Hydrologic Unit 17100104, Olympic National Forest, in monolith No. 6, near center line axis of Wynoochee Dam on Wynoochee River, 2.0 mi north of Grisdale, at river mile 51.8.

DRAINAGE AREA. -- 41.0 mi².

PERIOD OF RECORD. -- October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Corps of Engineers). Prior to May 22, 1973, staff gage on upstream face of dam.

REMARKS.--Reservoir is formed by concrete gravity-type dam with gate-type spillway; construction began in 1969; completed in 1972. Usable capacity, 67,288 acre-ft below elevation 690 ft, sluice invert level, and 800 ft, full pool elevation. Dead storage, 2,117 acre-ft below elevation 690 ft. Figures given herein represent total contents. Water is used for flood control, water supply, and recreation. Tacoma Public Utilities satellite telemetry at station.

COOPERATION.--Daily elevations at 2400 hours, and capacity table furnished by Corps of Engineers, and by Tacoma Public Utilities.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 70,078 acre-ft July 13, 1983, elevation, 800.60 ft; minimum contents observed, 4,227 acre-ft Oct. 19, 1992, elevation, 701.04 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 69,237 acre-ft May 6-7, elevation, 799.85 ft; minimum contents, 34,644 acre-ft Dec. 8, elevation, 762.90 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	772.80	42,599	
Oct. 31	768.95	39,409	-3,190
Nov. 30	768.87	39,344	-65
Dec. 31	764.48	35,861	-3,483
CAL YR 2001			-1,719
Jan. 31	768.50	39,045	+3,184
Feb. 28	775.20	44,656	+5,611
Mar. 31	774.99	44,474	-182
Apr. 30	799.05	68,341	+23,867
May 31	798.95	68,229	-112
June 30	798.87	68,140	-89
July 31	792.07	60,801	-7,339
Aug. 31	780.50	49,411	-11,390
Sep. 30	771.35	41,381	-8,030
WTR YR 2002			-1,218

12035400 WYNOOCHEE RIVER NEAR GRISDALE, WA

LOCATION.--Lat $47^{\circ}22^{\circ}50^{\circ}$, long $123^{\circ}36^{\circ}31^{\circ}$, in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.20, T.22 N., R.7 W., Grays Harbor County, Hydrologic Unit 17100104, Olympic National Forest, on right bank 0.5 mi downstream from Wynoochee Dam, 1.7 mi north of Grisdale, 1.7 mi downstream from Scatter Creek, and at mile 51.3.

DRAINAGE AREA. -- 41.3 mi².

PERIOD OF RECORD. -- October 1965 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 630 ft above NGVD of 1929, from topographic map. Prior to Nov. 3, 1967, at site 1,500 ft upstream at different datum.

REMARKS.--Records good including estimated daily discharges. Since August 1972, flow regulated by Wynoochee Lake (station 12035380) for flood control, during summer months to augment the natural river flow, and for the water supply for the City of Aberdeen. Some regulation from 1969 to August 1972 due to dam construction. No diversion upstream from station. Tacoma Public Utilities satellite telemeter at station.

AVERAGE DISCHARGE.--37 years (water years 1966-2002), 525 ft³/s, 172.63 in/yr, 380,400 acre-ft/yr, adjusted for storage in Wynoochee Lake since October 1972.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,800 ft³/s Dec. 12, 1966, gage height, about 18.0 ft, from graph based on gage readings, site and datum then in use; minimum discharge, 0.9 ft³/s Sept. 10, 12, 1974, gage height, 0.06 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,720 ${\rm ft^3/s}$, gage height, 6.17 ft Dec. 17; minimum discharge, 183 ${\rm ft^3/s}$ Sept. 09; minimum daily discharge, 187 ${\rm ft^3/s}$ Sept. 09.

		DISCH	ARGE, CODI	.C FEET FE		Y MEAN VA		SK 2001 10) SEFIENDI	5K 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	253	884	1320	418	385	1230	223	280	349	264	274	193
2	253	884	1320	583	385	544	243	281	348	241	333	193
3	256	830	1310	1150	385	540	244	284	348	241	315	193
4	256	412	1310	1310	385	540	253	284	402	241	304	193
5	256	405	1300	1300	385	540	253	284	449	241	304	193
6	256	404	1050	1100	647	546	253	284	451	241	304	193
7	256	404	855	629	846	546	253	284	449	241	304	193
8	256	404	754	3870	675	535	253	284	447	241	304	193
9	256	404	e400	4300	480	399	253	308	301	241	304	187
10	259	404	e399	4220	480	399	274	321	300	241	304	198
11	260	404	399	2420	480	906	284	321	300	241	304	213
12	260	404	401	1310	480	1140	284	321	300	241	315	213
13	260	789	630	1310	480	802	289	321	300	241	334	213
14	260	1350	1330	1310	481	403	533	367	300	241	339	213
15	260	1350	1340	1310	480	394	875	475	300	241	339	213
16	260	1340	380	1310	480	394	e600	475	300	251	339	213
17	260	1340	3630	1310	480	394	432	470	325	263	316	211
18	260	1350	3960	1300	482	390	280	349	454	276	281	209
19	260	1350	1310	1010	478	389	280	348	454	276	262	209
20	260	1330	1610	848	480	389	280	348	373	276	240	209
21	260	2230	1530	842	946	389	280	348	328	286	234	209
22	262	2290	1320	637	667	389	280	348	304	296	232	209
23	315	1580	1320	296	1290	389	280	348	280	301	220	209
24	361	1320	1320	867	2580	389	280	348	272	319	208	209
25	889	1320	1310	1300	2340	389	280	348	272	326	203	209
26	913	1320	1300	917	1300	389	280	348	272	326	203	209
27	991	1320	951	396	1310	374	280	348	271	326	199	209
28	986	1250	524	385	1310	227	280	579	471	326	193	209
29	982	1320	421	385		227	280	1320	1060	326	193	209
30	927	1320	418	385		223	280	553	456	326	193	209
31	884		418	385		223		540		326	193	
TOTAL	12927	31712	35840	39113	21597	15028	9439	12117	11236	8464	8390	6135
MEAN	417	1057	1156	1262	771	485	315	391	375	273	271	204
MAX	991	2290	3960	4300	2580	1230	875	1320	1060	326	339	213
MIN	253	404	380	296	385	223	223	280	271	241	193	187
AC-FT	25640	62900	71090	77580	42840	29810	18720	24030	22290	16790	16640	12170
MEAN†	365	1056	1099	1313	873	482	716	389	373	154	85.4	69.6
CFSM†	8.84	25.57	26.61	31.79	21.14	11.67	17.34	9.42	9.03	3.73	2.07	1.69
IN.†	10.19	28.53 62840	30.69 67610	36.66 80760	22.00 48450	13.45 29630	19.34 42590	10.86 23920	10.08 22200	4.29 9450	2.38 5250	1.88
AC-FT†	22450	62840	6/610	80760	48450	29630	42590	23920	22200	9450	5250	4140

CAL YR 2001 TOTAL 166536 MEAN 456 MAX 3960 MIN 209 AC-FT 330300 MEAN† 454 CFSM† 10.99 IN.† 149.18 AC-FT† 328600 WTR YR 2002 TOTAL 211998 MEAN 581 MAX 4300 MIN 187 AC-FT 420500 MEAN† 579 CFSM† 14.01 IN.† 190.36 AC-FT† 419300

[†] Adjusted for change in contents in Wynoochee Lake.

e Estimated

12036000 WYNOOCHEE RIVER ABOVE SAVE CREEK, NEAR ABERDEEN, WA

LOCATION.--Lat $47^{\circ}17'57''$, long $123^{\circ}39'07''$, in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.23, T.21 N., R.8 W., Grays Harbor County, Hydrologic Unit 17100104, on right bank 0.8 mi upstream from Save Creek, 2.5 mi downstream from Oxbow Dam Site, 11.0 mi downstream from Wynoochee Dam, 23.5 mi northeast of city hall in Aberdeen, and at mile 40.6.

DRAINAGE AREA.--74.1 mi².

PERIOD OF RECORD.--May 1925 to current year. Published as "at Oxbow, near Aberdeen" 1925-52, where drainage area was 70.7 mi². Records published for both sites October 1951 to October 1952.

REVISED RECORDS. -- WSP 1346: 1952. WSP 1736: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 401 ft above NGVD of 1929 (stadia traverse). Prior to Nov. 7, 1925, nonrecording gage at site 2.3 mi upstream at different datum. Nov. 7, 1925, to Sept. 3, 1947, water-stage recorder at site 1.5 mi upstream at datum 444.0 ft above NGVD of 1929 (levels by City of Aberdeen). Sept. 4, 1947, to Oct. 13, 1952, water-stage recorder at site 2.5 mi upstream at datum about 91 ft higher. Oct. 5, 1951, to Sept. 30, 1976, water-stage recorder on left bank at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are poor. Since August 1972, flow regulated by Wynoochee Lake (station 12035380) for flood control, during summer months to augment the natural river flow, and for the water supply for the City of Aberdeen. Some regulation from August 1969 to September 1972 due to dam construction. No diversions upstream from station. Tacoma Public Utilities satellite telemeter at station.

AVERAGE DISCHARGE.--77 years (water years 1926-2002), 835 ${\rm ft}^3/{\rm s}$, 153.03 in/yr, 605,000 acre-ft/yr, adjusted for storage in Wynoochee Lake since October 1972.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,600 ft³/s Dec. 9, 1956, gage height, 16.95 ft, from rating curve extended above 9,000 ft³/s; minimum discharge, 57 ft³/s Sept. 3-5, 1972, gage height, 4.43 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,720 ft³/s Dec. 17, gage height, 9.92 ft; minimum discharge, 219 ft³/s Sept. 09.

		DISCH	ARGE, CUB	IC FEET PI	ER SECOND, DAII	, WATER YE LY MEAN VA		ER 2001 T) SEPTEMBI	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	321	1420	3160	792	922	1790	494	500	e620	493	369	239
2	316	1420	2610	1070	887	977	489	494	e540	426	391	242
3	315	1270	2110	1760	1090	909	491	485	e500	411	393	239
4	315	789	1980	1840	993	887	487	479	e487	403	386	239
5	315	716	1890	1840	964	871	489	494	e630	393	378	239
6	315	679	1820	2550	1900	857	493	486	e620	385	375	239
7	315	651	1540	4090	2110	845	498	475	e605	380	372	239
8	316	629	1630	5930	1620	832	477	466	e610	375	371	252
9	313	610	1220	5690	1220	679	556	483	e530	369	371	244
10	346	593	1050	5190	1130	791	724	499	e470	365	370	248
11	348	585	981	3470	1070	2290	817	495	e430	363	369	266
12	418	621	1080	2180	1000	2090	1040	491	e400	359	374	265
13	416	1210	3080	2060	938	1600	1600	495	e385	357	395	263
14	418	3170	3170	1960	895	1060	2190	523	e378	355	404	261
15	384	3030	2510	1900	868	943	1940	648	e375	352	404	261
16	368	2260	4590	1850	864	884	1580	647	e370	358	400	315
17	354	1940	5300	1810	851	826	1200	645	e430	367	379	281
18	349	1830	5630	1780	856	796	908	510	e540	381	343	270
19	366	2060	2270	1510	1090	795	813	491	e580	380	328	267
20	354	2630	2290	1400	989	919	747	491	e520	375	305	263
21	388	3320	2190	1390	2920	882	693	485	e440	382	297	261
22	649	3620	1860	1180	4180	855	652	480	e400	394	292	260
23	974	2570	1810	731	2880	831	618	476	e380	398	278	256
24	893	2040	1750	2380	3440	807	589	472	e370	410	267	256
25	1630	1920	1710	3090	3370	772	569	472	e362	417	260	256
26 27 28 29 30 31	1370 1440 1340 1270 1250 1500	1850 1810 1890 2200 2110	1670 1360 935 749 711 740	1950 1090 946 873 891 1020	2000 1930 1870 	761 752 599 558 529 510	562 548 529 519 508	471 474 701 1880 e850 e780	359 361 522 1710 759	417 415 411 411 409 406	256 253 245 244 239 239	256 254 251 250 251
TOTAL MEAN MAX MIN AC-FT MEAN† CFSM† IN.† AC-FT†	19666	51443	65396	66213	44847	29497	23820	17838	15683	12117	10347	7683
	634	1715	2110	2136	1602	952	794	575	523	391	334	256
	1630	3620	5630	5930	4180	2290	2190	1880	1710	493	404	315
	313	585	711	731	851	510	477	466	359	352	239	239
	39010	102000	129700	131300	88950	58510	47250	35380	31110	24030	20520	15240
	582	1713	2052	2187	1703	948	1196	573	521	271	148	121
	7.85	23.12	27.69	29.51	22.98	12.79	16.14	7.73	7.03	3.66	2.00	1.63
	9.06	25.78	31.93	34.03	23.93	14.76	18.00	8.92	7.85	4.22	2.31	1.82
	35820	101900	126200	134500	94560	58330	71120	35270	31020	16690	9130	7210

CAL YR 2001 TOTAL 281810 MEAN 772 MAX 5630 MIN 313 AC-FT 559000 MEAN† 770 CFSM† 10.39 IN.† 141.02 AC-FT† 557300 WTR YR 2002 TOTAL 364550 MEAN 999 MAX 5930 MIN 239 AC-FT 723100 MEAN† 997 CFSM† 13.45 IN.† 182.67 AC-FT† 721900

 $[\]ensuremath{^{\dagger}}$ Adjusted for change in contents in Wynoochee Lake.

e Estimated

12037400 WYNOOCHEE RIVER ABOVE BLACK CREEK, NEAR MONTESANO, WA

LOCATION.--Lat $47^{\circ}00'42"$, long $123^{\circ}39'15"$, in SE $\frac{1}{4}$ sec.27. T.18 N., R.8 W., Grays Harbor County, Hydrologic Unit 17100104, on left bank 2,000 ft upstream from Black Creek, 3.5 mi northwest of Montesano, and at mile 5.9.

DRAINAGE AREA. -- 155 mi2.

PERIOD OF RECORD.--October 1956 to current year.

REVISED RECORDS. -- WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 40 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair. City of Aberdeen diverted about 96 ft³/s for municipal supply at intake 2.2 mi upstream. Other small diversions for irrigation and domestic use. Since August 1972, flow regulated by Wynoochee Dam, 45.7 mi upstream, for flood control, during summer months to augment the natural river flow, and for the water supply for the City of Aberdeen. Some regulation from 1969 to August 1972 due to dam construction. Sediment records October 1961 to June 1965. Water temperatures October 1969 to September 1986. Tacoma Public Utilities satellite telemeter at station.

AVERAGE DISCHARGE.--16 years (water years 1957-72), 1,316 $\mathrm{ft^3/s}$, 953,600 acre-ft/yr, unregulated. 30 years (water years 1973-2002), 1,323 $\mathrm{ft^3/s}$, 958,300 acre-ft/yr, regulated.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,600 ${\rm ft}^3/{\rm s}$ Mar. 19, 1997, gage height, 20.21 ${\rm ft}$; maximum gage height, 20.54 ${\rm ft}$ Dec. 10, 1956; minimum discharge, 3.0 ${\rm ft}^3/{\rm s}$ part or all of each day Aug. 26-30, 1967, gage height, 2.86 ${\rm ft}$.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, $14,300 \text{ ft}^3/\text{s}$ Dec. 17, gage height, 14.89 ft; minimum discharge, $155 \text{ ft}^3/\text{s}$ Sept. 2, 5-8.

		DISCHA	ARGE, CUBI	C FEET PE		WATER YI LY MEAN V	EAR OCTOBEF ALUES	R 2001 TO	SEPTEMBER	2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	267	2180	5860	1300	2120	2220	713	639	751	775	323	158
2	261	2220	5680	1600	1860	1710	668	625	566	547	282	158
3	253	2040	3800	2150	1890	1310	647	599	522	473	314	167
4	249	1690	3340	2500	1840	1220	615	572	507	444	309	160
5	245	1380	3100	2450	1690	1170	603	598	615	422	311	157
6	243	1220	3070	3220	2310	1120	610	601	610	391	307	155
7	245	1100	2730	7370	3570	1080	626	576	588	372	294	155
8	253	1020	2620	8810	2900	1040	584	545	584	368	290	164
9	248	951	2520	7350	2260	949	632	524	523	351	283	195
10	294	895	2160	6150	1980	1110	989	549	408	337	288	169
11	362	854	2010	5140	1830	2810	1130	542	388	326	e289	174
12	371	893	2070	3200	1630	3510	1560	523	373	321	e292	184
13	537	1230	5740	2880	1500	2690	2700	521	364	308	e300	182
14	529	6760	8440	2620	1390	2230	4240	553	356	304	e308	178
15	470	7380	4980	2440	1320	1850	3560	607	355	299	e308	182
16	413	4980	9550	2320	1290	1700	3010	662	346	294	307	227
17	380	3530	10500	2210	1250	1540	2510	673	370	301	304	250
18	358	2900	8450	2140	1240	1440	1950	612	544	310	279	205
19	409	2960	4830	2120	1470	1490	1600	507	568	314	259	194
20	405	4020	3590	2090	1480	1690	1410	506	531	309	243	195
21	415	5000	3470	2160	2930	1650	1260	479	428	306	224	186
22	808	6460	2810	2050	7700	1510	1150	473	382	315	217	180
23	1830	4860	2580	1650	5470	1390	1030	461	356	321	210	176
24	1770	3400	2410	3780	4210	1300	930	448	332	327	197	173
25	2920	2880	2280	7420	4860	1210	861	442	318	341	188	173
26 27 28 29 30 31	2610 2390 2180 1950 1850 2140	2610 2440 2820 4200 3830	2180 2060 1660 1370 1210 1240	4420 2690 2080 1770 1790 2400	2880 2530 2340 	1130 1100 1040 873 796 760	836 827 762 708 673	440 441 548 1680 1240 899	309 311 368 1770 1190	345 343 340 337 329 325	180 175 169 162 158 158	171 173 172 172 170
TOTAL	27655	88703	118310	102270	69740	46638	39394	19085	15633	11195	7928	5355
MEAN	892	2957	3816	3299	2491	1504	1313	616	521	361	256	178
MAX	2920	7380	10500	8810	7700	3510	4240	1680	1770	775	323	250
MIN	243	854	1210	1300	1240	760	584	440	309	294	158	155
AC-FT	54850	175900	234700	202900	138300	92510	78140	37860	31010	22210	15730	10620

e Estimated

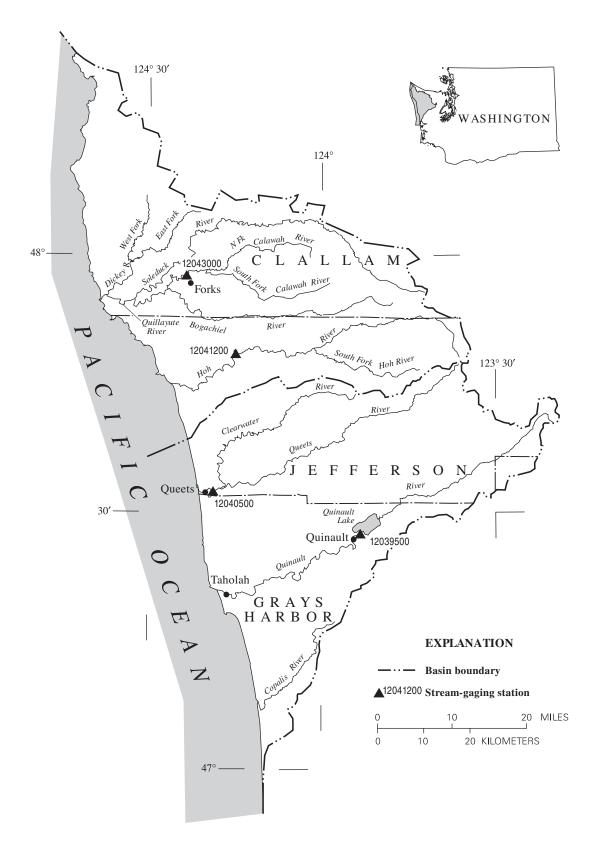


Figure 9. Location of surface-water stations in the Quinault, Queets, Hoh and Quillayute River Basins.

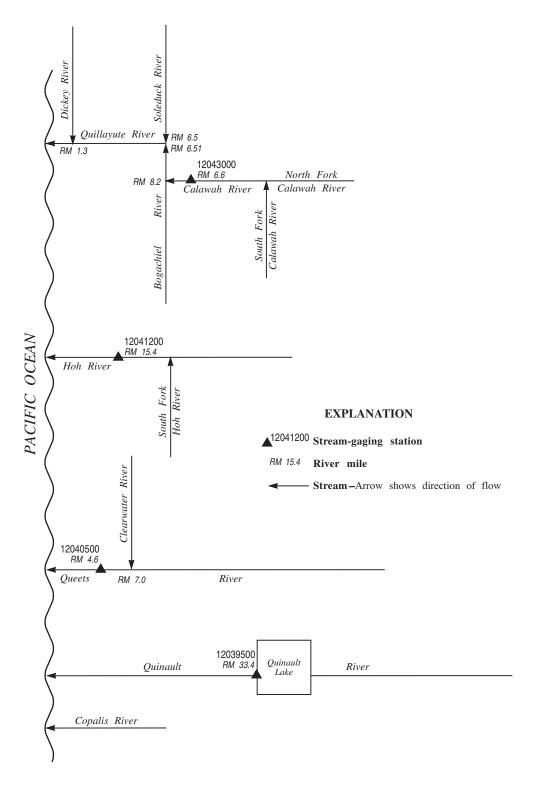


Figure 10. Schematic diagram showing surface-water stations in the Quinault, Queets, Hoh, and Quillayute River Basins.

QUINAULT RIVER BASIN 77

12039500 QUINAULT RIVER AT QUINAULT LAKE, WA

LOCATION.--Lat $47^{\circ}27^{\circ}28^{\circ}$, long $123^{\circ}53^{\circ}17^{\circ}$, in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.25, T.23 N., R.10 W., Grays Harbor County, Hydrologic Unit 17100102, Quinault Indian Reservation, on left bank at outlet of Quinault Lake, 50 ft downstream from Olympic Highway bridge on U.S. Highway 101, 2.0 mi southwest of Quinault, and at mile 33.4.

DRAINAGE AREA. -- 264 mi².

PERIOD OF RECORD.--October 1911 to current year. Monthly discharge for some months during the 1923-25, 1933 water years, published in WSP 1316.

REVISED RECORDS.--WSP 442: Drainage area. WSP 1286: 1915-16(M), 1934, 1936-39(M). WSP 1316: 1923, 1925, 1933. WSP 1635: 1917.

GAGE.--Water-stage recorder. Datum of gage is 178.44 ft above NGVD of 1929. Prior to Sept. 30, 1916, nonrecording gages at sites within 4 mi northeast of present site, at different datum. Oct. 1, 1916, to May 2, 1935, water-stage recorder at site 300 ft downstream from present site at datum 0.36 ft higher than present datum.

REMARKS.--No estimated daily discharges. Records good. Flow affected by natural storage in Quinault Lake. No diversions upstream from station. Chemical analyses July 1959 to June 1960, October 1962 to September 1970 (partial-record station), October 1971 to September 1974. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--91 years (water years 1912-2002), 2,868 ft³/s, 147.62 in/yr, 2,078,000 acre-ft/yr. Includes mean discharges for water years 1923-25, 1933, which were estimated for WSP 1316.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,200 ft 3 /s Nov. 4, 1955, gage height, 20.51 ft; minimum daily discharge, 250 ft 3 /s Oct. 29, 30, 1987.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1909 reached a stage of approximately 22 ft, present datum, discharge, $52.600 \text{ ft}^3/\text{s}$.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 12.000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 15	1700	19,100	11.71	Jan. 08	0000	*39,700	*17.78
Nov. 21	1200	15,200	10.43	Feb. 22	1600	23,700	13.14
Dec. 17	0300	27,300	14.21	Apr. 14	1200	13,700	9.88

Minimum discharge, 402 ft³/s Sept. 30.

		DISCHA	RGE, CUB	IC FEET P		WATER Y Y MEAN V		ER 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEI
1	765	5090	5680	2580	2860	2970	1920	2330	4010	3840	1110	533
2	722	4910	7470	5160	2620	2630	1870	2550	3650	3250	1050	529
3	688	4210	6020	7170	2730	2380	1830	2600	3500	2860	1000	534
4	656	3550	4830	6510	2890	2180	1810	2500	3390	2620	982	528
5	625	3220	4070	5280	2800	2040	1900	2410	3410	2440	988	515
6	601	2860	3770	6290	3260	1920	2080	2320	3490	2280	972	498
7	582	2540	3720	26900	4240	1820	2280	2170	3290	2220	941	487
8	576	2280	3860	33800	4060	1730	2300	2010	2970	2250	903	499
9 10	572 606	2060 1890	4620 4230	20000 11800	3600 3130	1650 1750	2340 3290	1880 1780	2680 2650	2200 2170	868 853	515 505
11	740	1760	3690	8130	2860	3510	3940	1710	2780	2250	840	492
12	916	2080	3360	6950	2560	5600	4980	1690	3060	2290	825	478
13	1290	2870	5890	6270	2310	5230	7380	1860	3340	2240	813	469
14	1400	8500	11200			4460	12800	2100	3650	2200	805	459
15	1370	17100	8550	5270 4480	1920	3800	10600	2150	3670	2080	796	453
16	1270	14600	15500	3920	1850	3350	7750	2100	3500	1960	784	533
17	1170	9210	23400	3500	1810	2910	6000	2120	3280	1890	760	669
18	1100	6320	13700	3170	1820	2590	4790	2150	3460	1810	737	669
19	1140	6040	8990	3050 3180	2280	2430	4020	2140	3340	1740	710	639
20	1180	12000	6440	3180		2470	3550	2200	3030	1660	687	610
21	1200	14800	5020	3300	5740 21000 17200	2480	3220	2350 2410 2390 2330	2910	1600	665	574
22	1560	12600	4190	3170	21000	2440	2970	2410	3000	1550	645	542
23	3190	9690	3590	3000			2780	2390	3040	1520	626	512
24 25	3930 4410	7190 5600	3160 2840	9030	10600 7080	2340	2580 2420	2330	2900 2790	1520 1500	615 606	490 470
26	4290	4580	2600	7420	E210	2290	2220	2510	2000	1470	598	454
27	4350	3890	2410	7430 5440	5210 4130 3450 	2290	2330	2510 2770 3430 5410 5450	2880 3000 3100	1410	590	434
28	3870	3670	2410	4190	3120	2300	2230	2//0	3100	1340	576	425
29	3240	4300	2420	3410	3430	2220	2110	5410	5040	1280	566	413
30	2800	4320	2410	3050		2110	2150	5450	4670	1230	556	404
31	4140		2420	3070		2000		4670		1170	545	
TOTAL	54949	183730	182530	223030	128950	82710	112410	78840	99480	61840	24012	15336
MEAN		6124	5888	7195	4605	2668	3747	2543	3316	1995	775	
MAX	4410	17100	23400	33800	21000	5600	12800	5450	5040	3840	1110	669
MIN	572	1760	2410	2580	1810	1650	1810	1690	2650	1995 3840 1170	545	404
AC-FT	109000	364400	362000	442400	255800	164100	223000	156400	197300	122700	47630	30420
CFSM	6.71	23.2	22.3	27.3	17.4	10.1	14.2	9.63	12.6	7.56	2.93	1.94
IN.	7.74	25.89	25.72	31.43	18.17	11.65	15.84	11.11	14.02	8.71	3.38	2.16
STATIS	STICS OF N	MONTHLY ME	AN DATA	FOR WATER	YEARS 1912	2 - 2002	, BY WATE	R YEAR (WY)			
MEAN	2292	4220	4905			2952			2758	1805	944 2491 1999	1005
MAX	6703	11220			8244			4575		3775	2491	3573
(WY)	1922	1991	1980 1676	1953	1961	1972		1948				
MIN (WY)	266 1988	410 1937	1676 1986	1177 1937	673 1929	1162 1912	1182 1912	1635 1920			422 1944	
	RY STATIST	rics	FOR	2001 CAL	ENDAR YEAR		FOR 2002	WATER YEAR		WATER YEA	RS 1912 -	2002
	TOTAL			939147			1247817					
ANNUAL				2573			3419			2868		
	T ANNUAL	MEAN								4072		1999
HIGHES	T DAILY	MEAN		23400	Dec 17		33800	Jan 8		42600	Mar 19	1997
LOWEST	DAILY M	EAN		572	Oct 9		404	Sep 30		250	Oct 29	1987
ANNUAL	SEVEN-DA	AY MINIMUM		603	Oct 4		442	Sep 24		254	Oct 24	1987
ANNUAL	RUNOFF	(AC-FT)		1863000			2475000			2078000		
ANNUAL	RUNOFF	(CFSM)		9.	75		12.	9		10.9		
ANNUAL	RUNOFF	(INCHES)		132.	33		175.	83		147.6	2	
10 PER	RCENT EXC	EEDS		4380			6300			1785 42600 250 254 2078000 10.9 147.6 5510 2180 669		
50 PER	CENT EXC	EEDS		1950			2470			2180		
90 PER	RCENT EXC	EEDS		809			604			669		

78 QUEETS RIVER BASIN

12040500 QUEETS RIVER NEAR CLEARWATER, WA

LOCATION.--Lat $47^{\circ}32^{\circ}17^{\circ}$, long $124^{\circ}18^{\circ}52^{\circ}$, in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.36, T.24 N., R.13 W., Jefferson County, Hydrologic Unit 17100102, Quinault Indian Reservation, on right bank 2.4 mi downstream from mouth of Clearwater River, 0.8 mi east of Queets, and at mile 4.6.

DRAINAGE AREA.--445 mi².

PERIOD OF RECORD.--September 1930 to November 1949, water years 1950-67 (annual maximum), April 1974 to current year.

REVISED RECORDS. -- WSP 1316: 1931-49(m).

GAGE.--Water-stage recorder. Datum of gage is 14.5 ft above NGVD of 1929 (river-profile survey). Sept. 15, 1930, to Jan. 22, 1935, at datum 4.0 ft higher.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station. Chemical analyses October 1977 to September 1993.

AVERAGE DISCHARGE.--47 years (water years 1931-49, 1975-2002), $4,370 \text{ ft}^3/\text{s}$, 133.43 in/yr, 3,166,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 133,000 ft^3/s Dec. 15, 1999, gage height, 27.18 ft, minimum discharge, 300 ft^3/s Oct. 21-25, 29, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 42,000 ft 3 /s and maximum (*):

Date	2	Time	Dischard (ft ³ /s)		ge height (ft)	Date		Time	Dischar (ft ³ /s)		height ft)
Nov. Dec.	. 13	1200 2200 2300	51,500 51,600 *88,600)	18.89 18.90 *23.18	Jan. Feb.		1900 0830	86,30 70,80		2.95 1.27
Min	mum dischar	rge, 464	$\mathrm{ft^3/s}$ Sept	. 28, 2	29, 30						
			DISCHARGE	, CUBIC	FEET PER		WATER MEAN	YEAR OCTOBER VALUES	2001 TO	SEPTEMBER	2002
	DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
	1	920	8340 2	1600	4170	4670	3830	3290	2570	3290	3080

					DAIL	Y MEAN V	/ALUES					
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	920	8340	21600	4170	4670	2020	3290	2570	3290	3080	888	543
2	857	8200	15600	9030	4150	3380	3050	2570 2590 2330 2090	3040	2540	846	552
3	809	5600	8740	8840	6980	3050	2830	2330	2890	2260	807	658
4	780	5080	7460	6240	5480	2800	2760	2090	2750	2140	798	590
5	746	4950	6410	4170 9030 8840 6240 5010	5600	3830 3380 3050 2800 2630	2980	2410	3030	2090	943	532
6	721 706 741 769	3960		13500	12100	2430	3470	2350	3030	1870	867	510
7	706	3400		61400			3980		2480	1840	775	494
8	741	2950			8250	2170	3180	2020	2190	2140	739	533
9 10	769 984	2630 2380	11000 9080	9690	6470 5330	2080	3850 7210	1850 1820	1970 2180	1860 1830	733 764	694 590
10	304	2300	3000	3630	5550	3010	7210	1020	2100	1030	/04	590
11	1980	2210	7260	7120	4980	18100	6320	1730	2310	1990	755	531
12	4650	4210	7470	10400	3890	12500			2550	1900	728	512
13	4310	7130	30100	8000	3290	11200	20300	2150	2640	1780	756	509
14	3900	25000	27400	8000 5870 4680	2860	9160	27700	2470	2830	1740	785	501
15	2680	37500	13900	4680	2550	7490	14600	2120	2500	1550	756	497
1.0	0100	1		2050	0.500	6400	10000	1000	0050	1400	700	1.000
16 17	2190 2020	17300 9510	57700	3950 3430	2600	6400	12900 9780 7020	1860	2260 2160	1480 1490	729 692	1700 1470
18	1770	9510	16500	3430	2720	5230	7020	2030	3220	1420	662	806
19	4010	10600	11600	3960	6840	5500	5650	1840	2380	1370	637	667
20	3130	20700	8100	7200	2950 6840 5460	6890	4820	2110	2050	1320	625	676
21	3290	22600	6270	6060	25500 59200 21700 12400 8420	5990	4230	2260	2090	1270	603	604
22	7960	14900	5090	4960	59200	5370	3810	2100	2260	1240	588	550
23	10900	11500	4250	4920	21700	4950	3420	1970	2160	1290	590	522
24	8350	8410 6540	3670	21900	12400	4590	3050	1840	1950	1310	595	507
25	11800	6540	3260	24700	8420	4180	2780	1970	1880	1320	611	495
26	8090	EC10	2050	10400	6440	4000	2720	2210	2140	1240	600	487
27	8090 8190 5460	5060	2740	6760	5240	4070	2720	2380	2210	1140	580	477
28	5460	6640	3390	4970	4420	5260	2410	4850	2900	1050	576	469
29	4210	10400	3020	4020		4330	2290	9460	10300	1070	579	468
30	3740	8340	2680	4410		3820	2360	5330	4180	1000	576	470
31	10900		3040	6310	6440 5240 4420 	3420		3920		1240 1140 1050 1070 1000 951	556	
	121563	288380			251690				83820		21739	18614
MEAN	3921	9613	11710			5329			2794		701	620
MAX MIN	11800 706	37500 2210	57700 2680	61400 3050	59200	18100 2080			10300 1880		943 556	1700 468
	241100	572000	720100	650900	2550	227700	366900	160000	166300	100300	42120	36920
CFSM	8.81	21.6	26.3	23.8	20.2	12.0	13.9	5.85	6.28	3 67	1 58	1 39
IN.	10.16	24.11	30.35	27.43	21.04	13.81	15.46	6.74	7.01	100300 3.67 4.23	1.82	1.56
STATIS	TICS OF I	MONTHLY M	EAN DATA	FOR WATER	YEARS 193	1 - 2002	, BY WATE	R YEAR (W)	7)			
MEAN	3494	7502	8340	7539	6846	5277	4134	3189	2452	1617	1043	1368
MAX	10050				14040		7093		4642		1043 4396	4531
(WY)	1976	1991	1980	1935	1999	1997	1937	1948	1997		1991	1997
MIN	348	754	2435	1787	1818	1876	1546	1765	980	682	469	
(WY)	1988	1937	1980 2435 1986	1937	1993	1992	1998	1931	1992	1992	1938	1993
SUMMAR	Y STATIS				ENDAR YEAR		FOR 2002	WATER YEAR	?	WATER YEAR	S 1931 -	- 2002
ANNUAL ANNUAL	TOTAL			1549706 4246			1958397 5365			4370		
	T ANNUAL	MEAN		4240			2362			6595		1000
TOTTOGE										2872	Man. 16	1944
HIGHES	T DATLY I	MEAN		57700	Dec 16		61400	Jan 7	7	91100	Mar 19	9 1997
LOWEST	DAILY M	EAN		706	Oct 7		468	Sep 29	9	300	Oct 22	2 1987
ANNUAL	SEVEN-D	AY MINIMU	M	753	Oct 7 Oct 3		482	Sep 24	Į.	303	Oct 19	9 1987
ANNUAL	RUNOFF	(AC-FT)		3074000			3884000	-		6595 2872 91100 300 303 3166000 9.82 133.43		
ANNUAL	RUNOFF	(CFSM)		9.5	54		12.	1		9.82	2	
ANNUAL	RUNOFF	(INCHES)		129.	55		163.	71		133.43	}	
10 PER	CENT EXC	EEDS		8370			11200			9320		
50 PER	CENT EXC	MEAN MEAN EAN AY MINIMUI (AC-FT) (CFSM) (INCHES) EEDS EEDS EEDS		2530 918			2980 650			2540 722		
90 PER	CENI EXC	アアカン		318			650			122		

HOH RIVER BASIN 79

12041200 HOH RIVER AT U.S. HIGHWAY 101, NEAR FORKS, WA

LOCATION.--Lat $47^{\circ}48^{\circ}25^{\circ}$, long $124^{\circ}14^{\circ}59^{\circ}$, in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.33, T.27 N., R.12 W., Jefferson County, Hydrologic Unit 17100101, on left bank 250 ft downstream from U.S. Highway 101, 1.0 mi downstream from Hell Roaring Creek, 11.5 mi southeast of Forks, and at mile 15.4.

DRAINAGE AREA.--253 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 163.64 ft above NGVD OF 1929.

REMARKS.--Records good except for estimated discharges, which are fair. No regulation or diversion upstream from station.

Chemical analyses July 1960 to September 1961, November 1961 to September 1970 (partial-record station), October 1971 to September 1974. Prior to November 1961, published as Hoh River near Forks (Spruce). U.S. Geological Survey satellite telemeter at station. Water temperatures November 1970 to April 1971.

 $AVERAGE \ DISCHARGE. --42 \ years \ (water years \ 1961-2002), \ 2,546 \ ft^3/s, \ 136.72 \ in/yr, \ 1,844,000 \ acre-ft/yr.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 54,500 ft³/s Nov. 24, 1990, gage height, 19.61 ft from rating curve extended above 34,000 ft³/s on basis of slope-area measurement at gage height 17.74 ft; minimum discharge, 249 ft³/s Oct. 23, 1987, gage height, 2.13 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of $16,000~{\rm ft}^3/{\rm s}$ and maximum (*):

Date	Time	Disch (ft ³		Gage height (ft)	Dat	e	Time	Discha (ft ³ /		Gage height (ft)
Nov. 15 Dec. 14 Dec. 16	1300 0000 2230	18,	100 100 800	12.18 10.25 14.80		. 07	1830 0530	*45,9 26,0		*16.99 12.43
Minimum dis	charge, 45		-	BIC FEET PER		WATER YE. Y MEAN VA		R 2001 TO	SEPTEM	MBER 2002
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	1 JUL
1 2	864 783	4240 3770	7770 6620	3090 6410	e2990 e2860	2210 2050	1860 1780	1830 1780	2250 2140	
3	712	2860	4420	5700	e4500	1920	1710	1620	2110	

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	864	4240	7770	3090	e2990	2210	1860	1830	2250	2370	1160	858
2	783	3770	6620	6410	02060	2050		1780	2140	2000	1080	902
3	712		4420	5700	04500	1920		1620	2110	1900	1000	1110
4	700		3890	4220	-4000	1820		1620	2110	1700	1000	881
				4230	e4500 e4000 e4100	1820	1680	1520	2080	2000 1800 1700 1600	958	
5	677	2750	3350									733
6	649	2260	e4300	6730	e6000	1660	2040	1620	2560	1540	958	656
7	644	2010	3630	34300	e5700	1550	2220	1480	2090	1620	870	607
8	696	1810	5210	21700	e3750	1480	1940	1360	1780	2040	853	570
9	703	1670	5080	9930	3140	1440	2140	1290	1610	1840	894	639
10	649 644 696 703 735		4160	6270	2830	1800	3360	1620 1480 1360 1290 1280	1760	1940	1030	e590
		1510	2570									0530
12	1410 2140 2260 2140 1650	3510	3570 3630 10300 11200	4910	2030	6290	2540	1230	1300	2270	222	e530 e515 e510 e500
12	2140	3510	3630	5900	2290	5320	3570	1250	2300	2180	9/6	e515
13	2260	4100 11500	10300	4830	2080	4660	6230	1560	2550	2040	1110	e510
14	2140	11500	11200	3950	1910	3860	11000	1720	2910	2020	1200	e500
15	1650	19300	6700	3420				1230 1250 1560 1720 1520			1170	e495
16	1440	9790	23900	3080	1820 1880 1990 3250 2920	2820	5070	1400 1530 1500 1450 1590	2360	1670	1090	e1400
17	1370	5880	17100	2810	1880	2370	3880	1530	2130	1750	992	e1300
18	1250	4360	8650	2620	1990	2170	3090	1500	2740	1750	914	914
19	2100	7270	6340	2920	3250	2410	2700	1450	2160	1710	882	791
20	1250 2100 1800	13200	8650 6340 4880	3500	2920	2650	2450	1590	1930	1630	843	810
0.7	1750	11600										660
21	1760 3280	11600	4120 3600	3290	10900	2420	2290	1/10	2010	1540	799	667
22	3280	7690	3600	3000	22200	2390	2170	1650	2270	1500	782	595
23	5290	6030	3190	2960	9650	2320	2060	1570	2200	1680	812	602
24	5290 4070 4660	4700	3190 2900 2680	7620	6020	2260	1890	1520	2030	1800	890	590
25	4660	3890	2680	9120	4170	2160	1780	1710 1650 1570 1520 1630	2020	1840	975	580
26	4190	3460	2490	4840	3310	2150	1760	1970 2230 3070 4680 3420 2610	2490	1720	938	555
27	4440	3140	2390	3640	2810	2170	1720	2230	2650	1560	888	543
28	3030	3770	2680	3000	2450	2390	1640	3070	2870	1480	918	518
29	2460	4490	2530	2720	2150	2120	1610	4680	5990	1600	981	514
30	2400	4060	2330	2/20		1070	1010	3430	2100	1400	201	171
31	2200	4000	2360	2920		1970	1000	3420	3100	1490	952	4/4
21	3360											
	65743	158930	176180	186980	123960	77710	86310	56300 1816 4680 1230 111700	72200	54740	29850	20949
MEAN	2121	5298	5683	6032	4427	2507	2877	1816	2407	1766	963	698
MAX	5560	19300	23900	34300	22200	6290	11000	4680	5990	2370	1200	1400
MIN	644	1510	2360	2620	1790	1440	1610	1230	1610	1320	782	474
AC-FT	130400	315200	349500	370900	245900	154100	171200	111700	143200	108600	59210	41550
	8.38	20.9	22.5	23.8	17.5	9.91	11.4	7.18	9.51	6.98	3.81	2.76
IN.		23.37	25.90	27.49	18.23	11.43	12.69	7.18 8.28	10.62	8.05	4.39	3.08
CTATT	TOTAL OF M	MONTHELL V. MI	מיחמרו זממי	DOD WATED	VENDO 106	1 2001	יייי אנע ערו	ER YEAR (WY	1			
							•					
MEAN	2134	3985	4200	3804	3414	2664	2120	2047	2114	1706	1259	1155
MAX	5602	10690	8701	6780	6214	5697	3248	2915	3117	2820	2557	2266
(WY)	1968	1991	1980	1974	1982	1972	1981	1997	1964	1999	1991	1969
MIN	381	1022	1282	992	1121	1261	925	1531	1285	1012	760	603
(WY)	1988	1994	1986	1979	1993	1992	1975	2047 2915 1997 1531 1995	1992	1992	1994	1993
								WATER YEAR				
												2002
	TOTAL			886753			1109852 3041			2546		
ANNUAL	J MEAN	MUDAT		2429			3041			2546		1000
HIGHES	T ANNUAL	MEAN								3452		1999
LOWEST	ANNUAL N	VIEAN		02	.					1645		TA /./
HIGHES	T DAILY I	VIEAN		23900	рес 16		34300	Jan 7		39000	NOV 2	1990
LOWEST	DAILY ME	≾AN		644	Oct 7		474	Sep 30		252	Oct 23	1987
ANNUAL	SEVEN-DA	AY MINIMUM	N.	683	Oct 3		539	Sep 24		259	Oct 19	9 1987
ANNUAL	RUNOFF	(AC-FT)		1759000			2201000			1844000		
ANNUAL	RUNOFF	(CFSM)		9.6	0		12	.0		10.1		
ANNUAL	RUNOFF	(INCHES)		130.3	8		163	.19		136.7	2	
10 PER	CENT EXC	EEDS		4170			5890	Jan 7 Sep 30 Sep 24 .0		4650		
50 PER	CENT EXC	EEDS		1740			2130			1820		
90 PER	CENT EXC	EEDS		1020			849			888		
50 LIII				1020			049			000		

e Estimated

80 QUILLAYUTE RIVER BASIN

12043000 CALAWAH RIVER NEAR FORKS, WA

LOCATION.--Lat $47^{\circ}57^{\circ}37^{\circ}$, long $124^{\circ}23^{\circ}30^{\circ}$, in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.4, T.28 N., R.13 W., Clallam County, Hydrologic Unit 17100101, on left bank 30 ft downstream from U.S. Highway 101 bridge, 0.8 mi northwest of Forks, and at mile 6.6.

DRAINAGE AREA. -- 129 mi2.

PERIOD OF RECORD.--November 1897 to December 1901, October to December 1975 (discharge measurements and peak discharges), January 1976 to September 1980, March 1984 to current year. Monthly and peak discharge only, November 1897 and August 1898, published in WSP 1316. Published as Calowa River at Forks, November 1897 to December 1899; as Calowa River near Forks, 1900; and as Kalawa River near Forks, 1901.

REVISED RECORDS.--WSP 1316: 1898-1902. WSP 1736: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 201.58 ft above NGVD of 1929. November 1897 to December 1901, nonrecording gage at same site but at different datum; October to December 1975, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records fair except estimated daily discharges, which are poor. No regulation or diversion upstream from station. Chemical analyses October 1976 to September 1978.

AVERAGE DISCHARGE.--25 years (water years 1899-1901, 1977-80, 1985-2002), 1,047 ft³/s, 110.22 in/yr, 758,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,100 ft³/s Dec. 15, 1999, gage height, 20.74 ft, from rating curve extended above 10,000 ft³/s on basis of step-backwater analysis; minimum discharge, 15 ft³/s Sept. 28, 1899.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 10,000 ${\rm ft}^3/{\rm s}$ and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 15	1100	12,400	13.18	Jan. 07		(a)	*18.55
Dec. 13	2100	12,400	13.20	Jan. 25	0000	10,300	12.21
Dec. 16	1900	23,800	17.48	Feb. 22	0100	18,000	15.46
Jan. 07	1600	*24.100	17.56				

Minimum discharge, 50 ${\rm ft}^3/{\rm s}$ Aug 29-31. (a) from crest-stage gage.

		DISCHA	ARGE, CUB	IC FEET PI	ER SECOND, DAILY	WATER Y		R 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	.TAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	210	2040	5310	1420	1440 1320 2260 1980 1980	970	1160 1050 919 864 938	559	496	410	e105	e51
2	194	1730	4490	2130	1320	866	1050	530	449	350	e100	e66
3	184	1330	2500	2190	2260	791	919	488	414	314	e95 e112 e133	e80
4	175	1220	1900	1750	1980	737	864	471	390	296	e112	e74
5	168	1130									e133	e64
6	163	970	1990	3520	3180 3230 2500 2060 1750	655	1010	564	389	251	e101	e58
7	160 166 166	846 741 660 598	1980	14600	3230	624	1110	533	363	237	e94	e55
8	166	741	2870	8680	2500	589	895	493	343	276	e91	e62
9	166	660	2850	4130	2060	585	1030	468	320	239	e88	e85
10	205	598					1550	463	307	217	e84	e72
11	319	555	1790	1860	1570 1350 1180 1040 943	4790	1400	440	292	204 195 187 182 173	e82	e62
12	695	711	1840 6780 5950	2810	1350	3480	1750	432	279	195	e79	e55
13	757	1310	6780	2450	1180	3160	3850	465	266	187	e76	e52
14	771	4060 7590	5950	1830	1040	2700	5240	519	258	182	e72	e51
15	757 771 609	7590	3430	1480	943	2050	3190				e70	e56
16	536	3710	15300	1260 1100 1000 1170 1630	950	1620	2810	421 447 409 392 430	241	168	e66	e210
17	478 459 1040 889	2180	7720	1100	1040	1310	2290	447	257	168 164 161 158 151	e64	e150
18	459	1520	3950	1000	1220	1160	1730	409	312	161	e61	e110
19	1040	2380	3170	1170	2300	1270	1460	392	263	158	e60	e119
20	889	4920	2280	1630	2060	1330	1240	430	240	151	e60	e150
21	793	5390	1770	1680	9930	1180	1070 954				e58	e120
22	1440 2430 1900	3550	1480	1440	13000	1220	954	383	217	139	e57	e98
23	2430	2760	1280	1340	4840	1280	848	367	213	e137	e56	e87
24	1900	2130	1130	5940	2890	1290	759	351	209	e130	e53	e74
25	2550	1690	1020	5980	9930 13000 4840 2890 2020	1200	848 759 690	409 383 367 351 353	199	e128	e53	e66
26	2470	1450						252	102	6127	e53	e62
27	2470 2450 1520 1130 987	1290	893	1970	1300	1160	633	348	192	e127	e52	e62
28	1520	1930	1010	1510	1110	1400	579	492	374	e117	e51	
29	1130	2600	921	1260		1320	551	893	1040	e120	e50	61
30	987	2280	849	1350		1230	546	680	526	e115	e50	
31	2320		969	1680	1580 1300 1110 	1130		564		e110	e50	
TOTAL	28334	65271	92045	85940	72023	43787	42780	14754	9916	5995	2276	2427
MEAN	914	2176	2969	2772	2572	1412	1426	476	331	193	73 4	80 9
MAX	2550	7590	15300	14600	13000	4790	5240	893	1040	410	133	210
MIN	160	555	849	1000	943	585	546	348	192	110	50	51
AC-FT	56200	129500	182600	170500	142900	86850	84850	29260	19670	11890	4510	4810
CFSM	7.09	16 9	23 0	21 5	19 9	10 9	11 1	3 69	2 56	1 50	0.57	0.63
IN.	8.17	18.82	26.54	24.78	20.77	12.63	12.34	4.25	2.86	5995 193 410 110 11890 1.50 1.73	0.66	0.70
STATIS					YEARS 1898							
MEAN	720	1054	2107	1001	1022	1/20	1000	650	121	219 788 1997 95.9	164	206
MAX	1977	4706	4205	2420	2702	2502	1522	1161	1120	700	766	200
(WY)	1998	1991	1980	1997	1999	1997	1997	1984	1900	1997	1991	1978
MIN	49.3	439	585	476	405	419	451	258	124	95 9	63 9	59 0
(WY)	1988	1994	1986	1979	1833 3782 1999 405 1993	1992	1998	1984 258 1995	1995	1995	1992	1998
SUMMAR	Y STATIST									WATER YEAR	3 1898 -	- 2002
7. NTNTT 17. T	TOTAL			374952			465548					
ANNITAL.	MEAN			1027			1275			1047		
HIGHES	T ANNITAL.	MEAN		1027			1275			1555		1999
LOWEST	ANNUAL N	MEAN								665		1977
HIGHES'	T DAILY N	MEAN		15300	Dec 16		15300	Dec 16		22900	Dec 14	1 1979
LOWEST	DAILY ME	EAN		127	Aug 1		50	Aug 29		15	Sep 28	3 1899
ANNUAL	SEVEN-DA	AY MINIMUM	4	140	Jul 21		51	Aug 26		26	Sep 22	2 1899
ANNUAL	RUNOFF	(AC-FT)		743700			923400			758100	-	
ANNUAL	RUNOFF	(CFSM)		7.9	96		9.8	9		8.11		
ANNUAL	RUNOFF	(INCHES)		108.3	13		134.2	5		110.22		
10 PER	CENT EXC	EEDS		2150			2810			2430		
50 PER	CENT EXC	EEDS		630			737			560		
90 PER	CENT EXC	EEDS		181			73			1047 1555 665 22900 15 26 758100 8.11 110.22 2430 560 97		

e Estimated

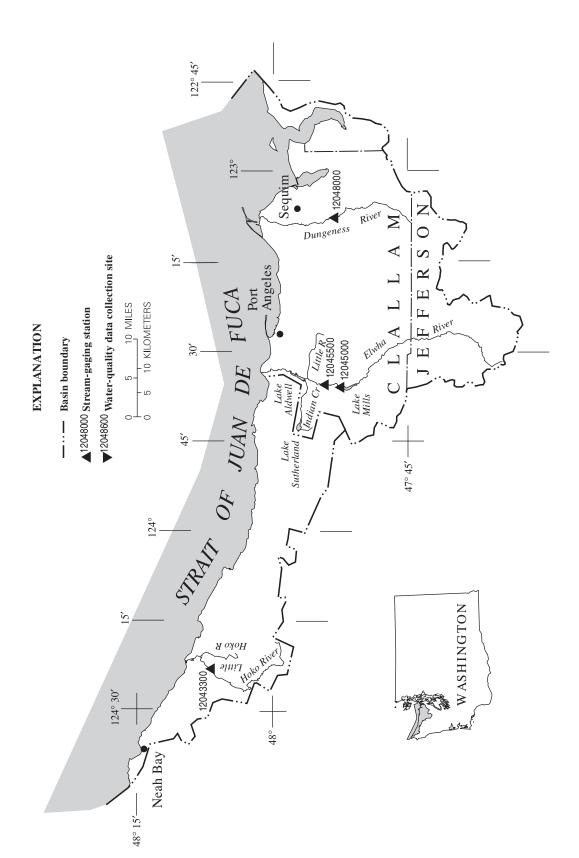


Figure 11. Location of surface-water and water-quality stations in the Hoko, Elwha, and Dungeness River Basins.

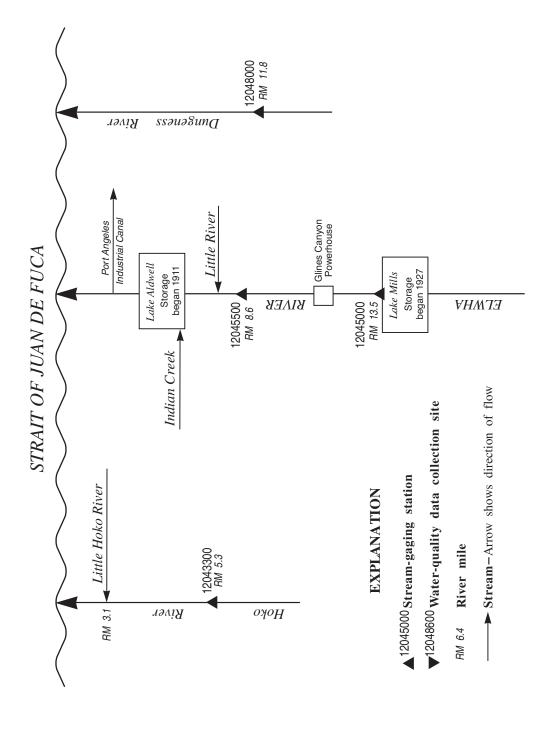


Figure 12. Schematic diagram showing surface-water and water-quality stations in the Hoko, Elwha, and Dungeness River Basins.

HOKO RIVER BASIN 83

12043300 HOKO RIVER NEAR SEKIU, WA

LOCATION.--Lat $48^{\circ}14^{\circ}30^{\circ}$, long $124^{\circ}22^{\circ}57^{\circ}$, in NE $\frac{1}{4}^{\prime}$ SW $\frac{1}{4}^{\prime}$ sec.28, T.32 N., R.13 W., Clallam County, Hydrologic Unit 17110021, on right bank 2.2 mi upstream from Little Hoko River, 4.0 mi southwest of Sekiu and at mile 5.3.

DRAINAGE AREA. -- 51.2 mi².

Time

Date

PERIOD OF RECORD.--July 1962 to September 1974, water years 1976-78 (annual maximum), June 1983 to September 1995 (seasonal records), October 1995 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 50 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except for period Dec. 16 to Feb. 5, and estimated periods, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--19 years (water years 1963-74, 1996-2002), 412 ft³/s, 109.23 in/yr, 298,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,400 ft³/s Dec. 15, 1999, gage height, 16.75 ft, from rating curve extended above 2,100 ft³/s, on basis of slope-area measurement at gage height, 12.49 ft; minimum discharge, 11 ft³/s Oct. 1-13, 21-24, 1987, Aug. 29, 30, 1992, Sept. 30, 1998, Oct. 01, 1999.

Time

Date

Discharge Gage height (ft³/s) (ft)

1000

30

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,400 ft 3 /s and maximum (*):

Discharge Gage height (ft³/s) (ft)

Date		TIME	(IL.	/S)	(IL)	Date	2	TIME	(IL.)	8)	(IL)		
Dec. 13 Dec. 16		2300 2000			9.32 10.86	Jan. Feb.	. 07	1645 0230	6,5 *10,2		9.54 *12.05		
Minimum	n disch	narge,	15 ft ³ /s Au	g. 28-31	, Sept. 1,	2, 14, 1	.5.						
			DISCHAR	GE, CUBI	C FEET PER		WATER Y	/EAR OCTOBER /ALUES	2001 TO	SEPTEMB	BER 2002		
DA	ΑY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
	1	113	742	e1500	693	672	279	392	121	128	151	30	15
	2	96 85	765 526	e1300 e900	934 757	571 739	247 224	324 276	117 112	114 105	126 112	30 29	22 28
	4	74	542	e700	609	639	203	241	113	99		34	25
	5	68	486	e600	549	637	191	220	148	121	99	45	22
	6	64	409	801	1100	1250	173		135	113		35	19
	7 8	62 65	336 285	707 904	3970 3010	1430 1190	163 156	294 235	122 111	100 93	81 91	31 29	17 19
	9	61	247	824	1410	1000	151	249	106	85	81	28	29
1	LO	79	218	720	858	801	219	338	102	80	73	27	24
	L1 L2	125 485	197 221	618 754	661 960	750 594	1240 891	316 432	96 91	78 74	66 62	26 25	20 18
	L2 L3	440	317	2920	776	500	1030	1230	90	68	59	e23	16
	L4	515	1040	2730	590	429	812	1830	106	64	57	e22	15
1	L5	361	2090	1330	484	384	744	1160	92	64	54	e22	17
	L6 L7	304 253	1140 671	5270 2890	425 369	359 360	625 471	960 713	85 93	60 68	51 51	21 20	86 60
	L 7	270	478	1530	333	370	411	510	84	93	50	19	37
	L9 20	584 429	950 1270	1290 890	404	558 499	603	398 326	79 85	76	50 46	19 19	40 55
2	20	429			656		644			66	46	19	
	21	407 575	998 757	677 575	644 611	4990 6240	474 393	280 249	83 78	60 55	43 40	18 18	40 32
	23	886	565	483	640	1890	366	219	74	53	38	17	28
	24 25	689 1080	482 403	424 376	1990 1690	920 610	368 327	196 180	70 71	52 50	36 36	17 18	26 24
	26 27	1030 922	379 379	350 330	935 679	466 379	337 354	177 169	72 70	47 48	36 35	18 17	22 21
	28	585	e600	364	524	321	464	149	91	90	35	16	20
	29 30	428 361	e900 e800	312 315	428 606		395 375	139 129	242 188	357 195	35 34	15 15	21 20
	31	822		353	878		361	129	148	195	34		
TY	OTAL	12318	19193	33737	29173	29548	13691	12564	3275	2756	1956	718	838
ME	EAN	397	640	1088	941	1055	442	419	106	91.9	63 1	23 2	27.9
MA MI		1080 61	2090 197	5270 312	3970 333	6240 321	1240 151		242 70	357 47	151 32	45 15	86 15
	C-FT	24430	38070	66920	57860	58610	27160	24920	6500	5470	3880	1420	1660
	FSM	7.76	12.5	21.3	18.4	20.6	8.63	8.18	2.06	1.79		0.45	0.55
IN		8.95	13.94	24.51	21.20	21.47	9.95	9.13	2.38	2.00	1.42	0.52	0.61
ST	TATIST:	ICS OF	MONTHLY MEA	N DATA F	OR WATER Y	EARS 1962	2 - 2002	2, BY WATER	YEAR (WY)				
	EAN	309	726	883	898	682	536	328	184	110	68.6	44.5	70.1
MA (W	AX) YX	907 1968	1706 1996	1376 1967	1414 1997	1410 1999	1140 1997	625 1970	383 1974	373 1997	296 1997	288 1991	322 1968
MI		13.0	200	464	427	251	177	146	81.4	35.3	22.0	14.6	14.6
(W	VY)	1988	2001	2001	1963	2001	1965	1973	1998	1972	1967	1967	1998
SUM	MARY S	STATIST	ICS	FOR 2	001 CALENI	AR YEAR	I	FOR 2002 WAT	ER YEAR		WATER YEAR	S 1962 -	2002
	NUAL T				121891			159767					
	NUAL N	MEAN ANNUAL	MEAN		334			438			412 585		1974
LC	OWEST A	ANNUAL	MEAN								231		2001
		DAILY DAILY M			5270	Dec 16 Jul 26		6240	Feb 22 Aug 29		9320	Dec 15 Oct 10	
			EAN AY MINIMUM		28 32	Jul 26 Jul 21		15 16	Aug 29 Aug 26		11 11	Oct 10	
AN	NUAL I	RUNOFF	(AC-FT)		241800			316900	_		298200		
		RUNOFF	(CFSM) (INCHES)		6.52 88.56			8.55 116.08			8.0 109.2		
		KUNOFF ENT EXC			712			954			109.2	ے	

51

10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS

e Estimated

84 ELWHA RIVER BASIN

12045000 LAKE MILLS AT GLINES CANYON, NEAR PORT ANGELES, WA

LOCATION.--Lat $48^{\circ}00^{\circ}08^{\circ}$, long $123^{\circ}35^{\circ}55^{\circ}$, in SW $\frac{1}{4}$ sec.17, T.29 N., R.7 W., Clallam County, Hydrologic Unit 17110020, Olympic National Park, at Glines Canyon Dam on Elwha River, 2 mi upstream from Griff Creek, 4.1 mi south of Elwha, and 11 mi southwest of Port Angeles.

DRAINAGE AREA. -- 245 mi².

PERIOD OF RECORD.--April 1927 to current year. Prior to October 1950, monthly change in contents only, published in WSP 1316.

GAGE.--Nonrecording gage. Datum of gage is 19.67 ft below NGVD of 1929.

REMARKS.--Reservoir is formed by concrete dam, completed in 1927; storage began Apr. 1, 1927. Usable capacity, 6,150 acre-ft between gage heights 592.0 ft, normal minimum operation level, and 610.0 ft, top of spillway gates. Storage below gage height 592.0 ft, 25,240 acre-ft. Figures given herein represent total contents. Water is used for power production.

COOPERATION.--Gage-height record furnished by Daishowa America Co., Ltd., Oct. 1 to Feb. 28, 2000. By Bureau of Reclamation since Mar. 1, 2000. Capacity table, revised Oct. 1, 1989, was furnished by Hosey and Associates to be used starting in the 1990 water year.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 39,940 acre-ft Dec. 22, 1936, gage height, 613.0 ft; minimum contents observed since reservoir first filled in May 1927, 24,290 acre-ft Nov. 14, 1929, gage height, 574.4 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 31,488 acre-ft Nov. 13, gage height, 610.3 ft; minimum contents observed, 30,121 acre-ft Oct. 9, gage height, 606.3 ft.

MONTHEND GAGE HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	608.8	30,975	==
Oct. 31	609.8	31,317	+342
Nov. 30	609.8	31,317	0
Dec. 31	609.7	31,283	-34
CAL YR 2001			+205
Jan. 31	608.8	30,975	-308
Feb. 28	609.8	31,317	+342
Mar. 31	609.6	31,249	-68
Apr. 30	609.9	31,351	+102
May 31	609.7	31,283	-68
June 30	609.6	31,249	-34
July 31	609.1	31,078	-171
Aug. 31	607.8	30,634	-444
Sept. 30	608.8	30,975	+341
WTR YR 2002			0

ELWHA RIVER BASIN 85

12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA

LOCATION.--Lat $48^{\circ}03^{\circ}18^{\circ}$, long $123^{\circ}34^{\circ}55^{\circ}$, in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.33, T.30 N., R.7 W., Clallam County, Hydrologic Unit 17110020, Olympic National Forest, on right bank 300 ft upstream from site of McDonald Bridge (now removed), 0.7 mi upstream from Little River, 4.9 mi below Glines Canyon Dam, 8 mi southwest of Port Angeles, and at mile 8.6.

DRATNAGE AREA. -- 269 mi.

PERIOD OF RECORD.--October 1897 to December 1901, October 1918 to current year. Published as "at McDonald" October 1897 to December 1901.

REVISED RECORDS.--WSP 1246: Drainage area. WSP 1286: 1898, 1899(M), 1900-1902, 1919, 1920-31(M), 1932, 1933(M). WSP 1566:

GAGE.--Water-stage recorder. Datum of gage is 200.00 ft above NGVD of 1929. Oct. 1, 1897, to Dec. 31, 1901, nonrecording gage at McDonald Bridge at different datum. Dec. 9, 1918, to May 1, 1936, water-stage recorder under McDonald Bridge at datum 7.4 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are fair. Water is diverted through Glines Canyon powerhouse and returned to river upstream from gage. Flow partly regulated by Lake Mills 4.9 mi upstream (station 12045000). Chemical analyses July 1959 to June 1960, July 1960 to September 1970 (partial-record station), October 1971 to September 1986. Water temperatures April 1976 to August 1977, October 1994 to April 1998. Suspended sediment discharge April 1994 to September 1995. Miscellaneous sediment measurements October 1995 to September 1997. Prior to 1962, published as Elwha River near Port Angeles. October 1971 to September 1974 published as Elwha River below Little River, near Port Angeles. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--88 years (water years 1898-1901, 1919-2002), 1,511 ft³/s, 76.28 in/yr, 1,095,000 acre-ft/yr, adjusted for storage since April 1927.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $41,600~{\rm ft}^3/{\rm s}$ Nov. 18, 1897, gage height, $14.5~{\rm ft}$, from graph based on gage readings, site and datum then in use, from rating curve extended above $3,300~{\rm ft}^3/{\rm s}$ on basis of two determinations of flow over dam at discharge $26,700~{\rm ft}^3/{\rm s}$ and $30,100~{\rm ft}^3/{\rm s}$, referred to 1897 datum; minimum daily discharge, 10 ${\rm ft}^3/{\rm s}$ Oct. 3, 1938.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 25,700 ft^3/s Jan. 7, gage height, 22.84 ft; minimum discharge, 144 ft^3/s Oct. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		DISCH	ARGE, COD.	IC FEET FE		Y MEAN V		5K 2001 IV	J SEFIEND.	BR 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	369	1370	2520	1470	1160	1630	1100	1840	2530	2180	879	555
2	364	1270	2460	3490	1280	1460	1060	2200	2530	2040	816	554
3	367	1020	1870	3120	1270	1450	e959	1930	2600	1910	783	554
4	367	971	1630	2390	1220	1210	1030	1830	2640	1780	802	535
5	367	1080	1440	2140	1160	1310	1190	1680	3050	1660	809	414
6	367	862	1620	3620	1400	1210	1260	1610	2990	1640	784	409
7	367	802	1340	18000	1460	1190	1330	1450	2400	1710	716	424
8	367	727	1900	12600	1380	1040	1240	1310	2170	1920	655	452
9	367	682	1790	7100	1240	1020	1280	1300	1920	1750	748	344
10	368	681	1540	5050	1160	1040	1830	e1280	2190	1970	852	375
11	456	682	1420	4000	1150	2190	1730	e1260	2570	2160	750	409
12	481	1670	1380	3540	1010	2130	2020	e1400	2870	2090	656	384
13	605	1930	2810	3130	997	1910	2820	e1580	3210	1970	725	367
14	531	6090	3780	2830	1030	1680	5550	1560	3600	1940	819	369
15	441	8070	2540	2540	861	1470	3400	1540	3470	1790	764	372
16	408	4450	8800	2330	1020	1260	2830	1470	3140	1630	706	438
17	415	2940	8330	2090	902	1240	2180	1610	2960	1690	683	580
18	398	2230	4400	1950	876	1220	1980	1650	2970	1580	625	407
19	399	3810	3290	1900	1240	1160	1860	1570	2540	1510	561	318
20	399	6260	2760	1810	1110	1130	1770	1630	2440	1470	523	399
21	408	5480	2310	1710	3280	916	1710	1800	2520	1370	527	371
22	714	4310	2000	1610	7740	1060	1710	1810	2850	1370	538	365
23	1500	3240	1800	1460	4630	1030	1590	1790	2690	1480	541	345
24	881	2740	1550	2330	3140	1060	1560	1750	2540	1480	548	312
25	909	2310	1590	3120	2570	1110	1500	1950	e2640	1520	652	310
26	972	1950	1410	2110	2180	1120	1450	2340	2960	1400	694	318
27	1450	1800	1370	1880	1840	1080	1380	2590	3040	1300	638	318
28	961	1850	1390	1680	1750	1060	1280	3030	2890	1110	572	318
29	773	1860	1360	1460		1050	1460	3900	3790	1280	558	317
30	699	1670	1260	1460		1010	1460	3110	2550	1110	558	281
31	1930		1270	1450		926		2750		1040	556	
TOTAL	19400	74807	74930	105370	50056	39372	53519	58520	83260	50850	21038	11914
MEAN	626	2494	2417	3399	1788	1270	1784	1888	2775	1640	679	397
MAX	1930	8070	8800	18000	7740	2190	5550	3900	3790	2180	879	580
MIN	364	681	1260	1450	861	916	959	1260	1920	1040	523	281
AC-FT	38480	148400	148600	209000	99290	78090	106200	116100	165100	100900	41730	23630
MEAN†	631	2495	2416	3393	1794	1269	1787	1886	2775	1637	671	403
CFSM†	2.35	9.28	8.98	12.61		4.72	6.64	7.01	10.32	6.09	2.49	1.50
IN.†	2.71	10.34	10.36	14.55	6.94	5.44	7.41	8.09	11.51	7.02	2.88	1.67
AC-FT†	38820	148400	148600	208700	99630	78020	106300	116000	165100	100700	41290	23970

CAL YR 2001 TOTAL 414141 MEAN 1135 MAX 8800 MIN 310 AC-FT 821400 MEAN† 1135 CFSM† 4.22 IN.† 57.27 AC-FT† 821600 WTR YR 2002 TOTAL 643036 MEAN 1762 MAX 18000 MIN 281 AC-FT 1275000 MEAN† 1761 CFSM† 6.55 IN.† 88.87 AC-FT† 1275000

[†] Adjusted for change in contents in Lake Mills.

e Estimated

86 DUNGENESS RIVER BASIN

12048000 DUNGENESS RIVER NEAR SEQUIM, WA

LOCATION.--Lat $48^{\circ}00^{\circ}52^{\circ}$, long $123^{\circ}07^{\circ}53^{\circ}$, in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.13, T.29 N., R.4 W., Clallam County, Hydrologic Unit 17110020, on right bank 1.0 mi upstream from Canyon Creek, 4.8 mi southwest of Sequim, and at mile 11.8.

DRAINAGE AREA. -- 156 mi2.

PERIOD OF RECORD.--June 1923 to September 1930, June 1937 to current year. July 1897 to July 1898 at site downstream from Canyon Creek, published as "near Sequim," records not equivalent.

REVISED RECORDS.--WSP 1316: 1924-25(M), 1927(M). WSP 1932: 1957, 1958-59(M), 1960.

GAGE.--Water-stage recorder. Datum of gage is 569.3 ft above NGVD of 1929 (river-profile survey). June 8, 1923, to Sept. 30, 1930, nonrecording gage just above fish-hatchery diversion 0.5 mi downstream at different datum. June 19 to Aug. 12, 1937, nonrecording gage at present site and datum.

REMARKS.--Records good. No estimated daily discharges. No regulation or diversion upstream from station. Water temperatures July 1968 to September 1969, October 1970 to December 1970, January 2000 to September 2001. Suspended sediment discharge November 1999 to September 2001. U.S. Geological Survey satellite telemeter at station.

 $AVERAGE \ \ DISCHARGE. --72 \ \ years \ \ (water \ years \ 1924-30, \ 1938-2002), \ 384 \ \ ft^3/s, \ 33.40 \ \ in/yr, \ 277,800 \ \ acre-ft/yr.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,610 ft³/s Jan. 7, 2002, gage height, 8.37 ft; maximum gage height, 8.58 ft Nov. 27, 1949; minimum discharge, 61 ft³/s Nov. 23, 1993, result of freezeup.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

 $\hbox{ \it EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,700 ft}^3/s \ and \ maximum \ (\star): \\$

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 15	1215	2,770	5.97	Jan. 07	2045	*7,610	*8.37
Nov. 20	0445	2,210	5.57	Feb. 22	0630	2,230	5.58
Dec. 16	2145	5,240	7.37				

Minimum discharge, 73 ft³/s Oct. 9, 10, 18-21.

			,		DAILY	MEAN V	ALUES					
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	224	527	349	272	350	251	448	772	628	321	197
2	96	193	526	900	262	326	262	541	743	580	304	196
3	95	170	381	800	265	307	265	537 486	738	551	288	201
4	86	156	329	583	256	297	270	486	772	520	278	192
5	81	170	296	493	257	285	303	443	985	471	273	185
6	77	154	280	838	268	270	328	412	951	465	266	187
7 8	77 77	140	259	4640	288	258	326	384	758	509	257 250	197 175
9	73	129	3/2	3720 1930	272	246	312	365	625 649	576	253	167
10	76	154 140 129 125 119	347	838 4640 3720 1830 1240	255	242	344	337	576	465 509 576 572 610	269	165
11	82	124	315	962	251	425	348	330	685	707	263	160
12	78	311	288	887	238	455	363	350	800	663	253	160
13	81	416	472	739	229	399	487	423	930	636	260	160
14	81 80	1600	782	661	221	346	1320	449	1080	627	266	157
15	80									707 663 636 627 549		156
16	77	1160 679	2460	533	221	298	669	415	978	526 547 525 510 466	250	167 172 159
17		679	2520	486	222	269	558	439	871	547	236	172
18	74	497	1160	456	220	252	481	440	862	525	226	159
19 20	77 76	916	770	435	259	249	442	429	/30	510	224	155 152
21	78	1260	494	388	913	225	423	486	734	432 429 458 464 450	226	146
22	95	926	464	363	2030	233	425	499	842	429	217	142
23	154	707	413	344	1270	245	418	490	850	458	211	139
24	109	574	372	351	801	261	404	483	802	464	210	138
26	129	418	329	354	489	309	393	690	964	447	232	133
27	271	377	321	332	429	296	383	812	994	415	214	131
28	1/6	369	326	312	385	274	366	946	934	391	206	130
29	126	383	311	297		259	360	1200	751	411 201	208	130
31	309		301	282		249		863		447 415 391 411 391 356	201	
		17200	17570	25255	11871	8965	12906	16454	24905	15882	7601	4811
MEAN	107	573	567	815	424	289	430	531	830	512	245	160
MAX	309	2220	2520	4640	2030	455	1320	1200	1080	707	321	201
MIN	73	119	259	282	216	225	251	330	548	356	201	127
AC-FT	6590	34120	34850	50090	23550	17780	25600	32640	49400	31500	15080	9540
CFSM	0.09	3.68	3.63	5.22	2.72	1.85	2.76	3.40	5.32	3.28	1.57	1.03
IN.	0.79	4.10	4.19	6.02	2.83	2.14	3.08	3.92	5.94	15882 512 707 356 31500 3.28 3.79	1.81	1.15
STATIST	rics of M	ONTHLY ME	AN DATA F	OR WATER	YEARS 1923	- 2002	, BY WATER	YEAR (WY)				
MEAN	211	355	432	405	387	293	325	562	703	495 1235 1999 179 1926	267	173
MAX	621	1099	1034	1075	1042	819	519	893	1465	1235	868	
(WY)	1998	1991	1980	1968	1924	1972	1925	1956	1999	1999	1999	1954
MIN	80.6	84.9	117	74.3	106	133	171	292	289	179	129	93.8
(WY)	1988	1988	19//	1979	1929	1962	1975	19//	1926	1926	1944	1928
SUMMARY	Y STATIST	ICS	FOR	2001 CALE	NDAR YEAR		FOR 2002 W	ATER YEAR		WATER YEARS	1923 -	2002
ANNUAL	TOTAL			99074			166740					
ANNUAL	MEAN			271			457			384		
HIGHEST	r annual	MEAN								696		1999
LOWEST	ANNUAL M	EAN		0500	D 15		4540			197	37. 04	1977
HTGHES.	מוא מזועט ד האדרה ו	DM DM		∠5∠U 73	Dec 17		4640	Oct 0		528U 6E	Tan 21	1970
ANNUAL.	SEVEN-DA	Y MINIMIM		77	Oct. 6		77	Oct. 6		65	Jan 29	1979
ANNUAT	RUNOFF (AC-FT)		196500	000 0		330700	000 0		277800	-un 2)	-2.2
ANNUAL	RUNOFF (CFSM)		1.74	1		2.9	93		2.46		
ANNUAL	RUNOFF (INCHES)		23.63	3		39.7	76		33.40		
10 PERC	CENT EXCE	EDS		460			866			731		
50 PERC	CENT EXCE	EDS		185			346			294		
90 PERC	JENT EXCE	EDS		103			137			384 696 197 5280 65 65 277800 2.46 33.40 731 294 133		

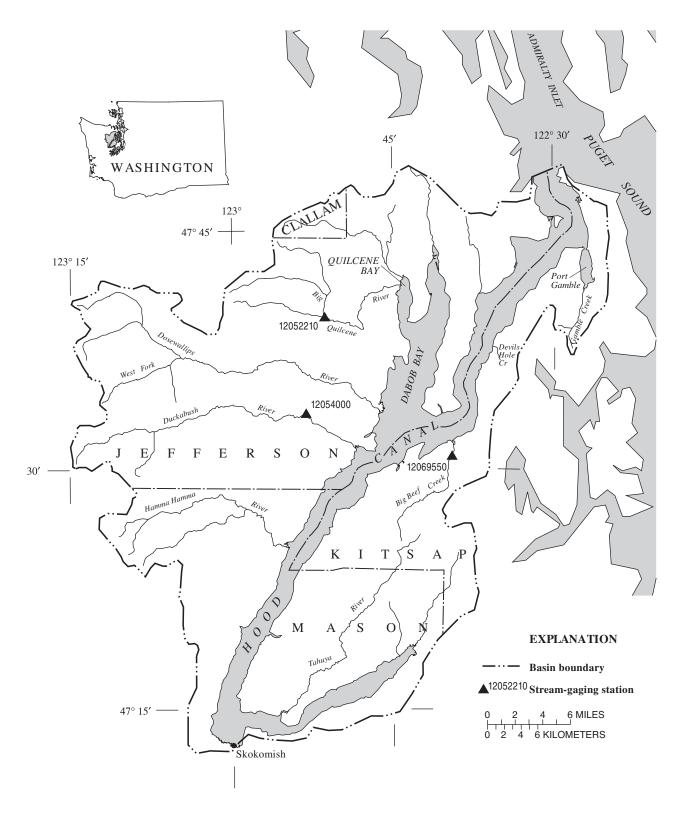


Figure 13. Location of surface-water stations in the Big Quilcene River, Duckabush River, and Big Beef Creek Basins.

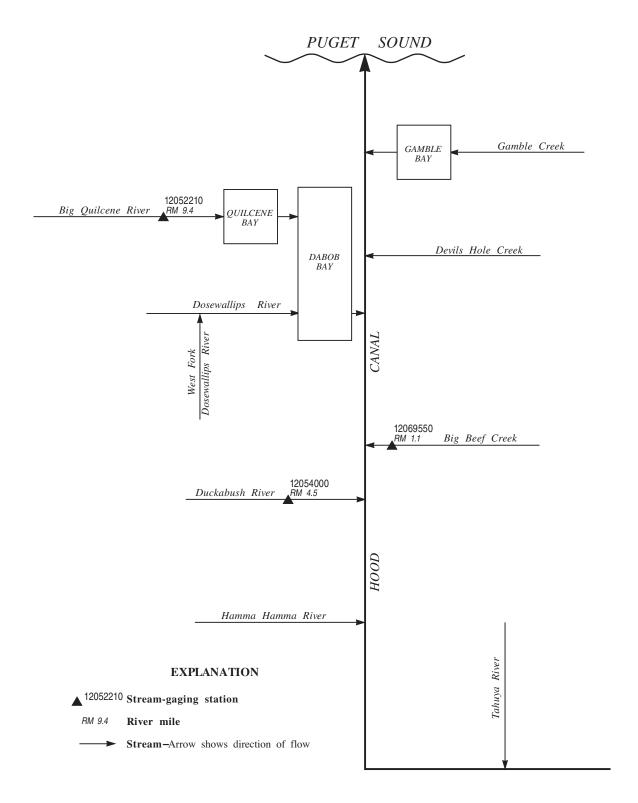


Figure 14. Schematic diagram showing surface-water stations in the Big Quilcene River, Duckabush River, and Big Beef Creek Basins.

BIG QUILCENE BASIN 89

12052210 BIG QUILCENE RIVER BELOW DIVERSION DAM, NEAR QUILCENE, WA

LOCATION.--Lat $47^{\circ}47^{\circ}05^{\circ}$, long $122^{\circ}58^{\circ}42^{\circ}$, in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.31, T.27 N., R.2 W., Jefferson County, Hydrologic Unit 17110018, on left bank, 5.5 mi southwest of Quilcene, and at mile 9.4.

DRAINAGE AREA.--49.4 mi^2 .

PERIOD OF RECORD.--January 1994 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,009.23 ft above NGVD of 1929.

REMARKS.--No estimated daily discharges. Records fair. Water for municipal use is diverted upstream by City of Port Townsend.

AVERAGE DISCHARGE.--8 years (water years 1995-2002), 155 ft³/s, 112,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,690 ft³/s Jan. 7, 2002, gage height, 5.48 ft, from rating curve extended above 2,000 ft³/s; maximum gage height, 6.41 ft Dec. 12, 1995; minimum discharge, 11 ft³/s Sept. 26, 2002.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,690 ft³/s, Jan. 7, gage height, 5.48 ft; minimum discharge, 11 ft³/s Sept. 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		DISCHA	RGE, CUBI	C FEET PE		VATER YE MEAN VA		R 2001 TO S	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	48	454	173	103	141	114	153	184	128	60	29
2	29	34	363	614	99	131	111	180	176	114	57	28
3	29	30	242	498	111	125	108	172	174	106	55	29
4	29	32	196	363	102	118	108	160	176	103	52	28
5	28	28	146	301	104	113	121	148	184	98	53	29
6 7	29 28	25 26	127 115	669 2250	122 125	106 102	134 135	138 128	190 174	95 95	51 48	31 30
8	29	26	158	1710	109	96	129	122	151	97	46	28
9	29	27	171	798	105	97	132	119	138	98	47	28
10	29	27	156	542	99	111	141	112	139	99	43	29
11	28	28	135	434	92	280	146	109	154	104	42	28
12	29	38	121	393	88	248	156	110	168	107	53	29
13 14	29 29	102 456	241 385	355 310	87 86	194 165	204 424	130 145	185 205	106 104	54 38	29 29
15	29	809	285	266	84	147	332	143	207	99	37	29
16	31	493	1350	222	83	134	272	136	199	94	41	29
17	28	286	1120	205	82	121	216	144	174	91	38	28
18	29	192	500	192	84	113	190	139	163	88	38	27
19	30	616	355	191	144	107	175	138	149	87	37	28
20	28	1540	276	190	123	103	164	142	139	83	36	29
21	28	921	214	194	312	100	154	159	135	80	33	28
22	30	621	177	159	551	99	146	168	145	77	31	28
23	22	460	156	153	431	102	137	162	154	75	29	28
24 25	25 26	350 278	144	150 162	326	107	129 125	155	144 137	76 76	29 29	28 29
			131		267	126		164				
26	30	216	117	141	206	134	123	178	144	76	29	29
27	54	176 173	113	136	180	128	120	193	154	74 71	29 28	29
28 29	31 27	189	120 116	126 120	160	121 116	116 115	217 247	154 150	71 69	∠8 28	28 28
30	30	173	110	114		115	124	239	142	66	28	29
31	68		116	107		113		208		63	28	
TOTAL	948	8420	8410	12238	4465	4013	4801	4858	4888	2799	1247	858
MEAN	30.6	281	271	395	159	129	160	157	163	90.3	40.2	28.6
MAX	68	1540	1350	2250	551	280	424	247	207	128	60	31
MIN AC-FT	22 1880	25 16700	110 16680	107 24270	82 8860	96 7960	108 9520	109 9640	135	63 5550	28	27 1700
									9700	5550	2470	1700
STATIST	ICS OF M	ONTHLY ME	AN DATA F	OR WATER	YEARS 1994	- 2002,	BY WATER	YEAR (WY)				
MEAN	74.9	183	239	241	197	172	156	179	170	120	60.3	37.3
MAX	328	316	330	395	385	326	214	308	439	360	176	73.8
(WY)	1998	2000	1996	2002	1995	1995	1999	1999	1999	1999	1999	1997
MIN (WY)	29.0 1999	38.7 2001	72.1 2001	66.8 2001	38.5 2001	36.5 2001	66.7 2001	83.7 2001	64.5 2001	46.9 2001	28.8 1994	24.3 1994
SUMMARY	STATIST	ICS	FOR	2001 CALE	NDAR YEAR	F	OR 2002 W	ATER YEAR		WATER YEARS	1994	- 2002
ANNUAL '	TOTAL			32075			57945					
ANNUAL 1				87.9			159			155		
	ANNUAL I									235		1999
TOMESI, Y	ANNUAL MI	LAN Pan		1540	Nov 20		2250	Jan 7		53.4 2250	Tan	2001 7 2002
LOWEST I	DATIA WE	NA NA		22	Oct 23		22	Oct 23		19		5 1996
ANNUAL S	SEVEN-DA	EAN AN Y MINIMUM AC-FT)		26	Aug 15		27	Nov 5		21		9 1998
ANNUAL I	RUNOFF (AC-FT)		63620	3		114900			112100	F -	
IO PERCI	DIAI DVCD	מעיי		130			285			318		
	ENT EXCE			47			116			113		
90 PERCI	ENT EXCE	EDS		28			29			28		

DUCKABUSH RIVER BASIN

12054000 DUCKABUSH RIVER NEAR BRINNON, WA

LOCATION.--Lat $47^{\circ}41^{\circ}03^{\circ}$, long 123 $^{\circ}00^{\circ}37^{\circ}$, in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.1, T.25 N., R.3 W., Jefferson County, Hydrologic Unit 17110018, Olympic National Forest, on left bank 5.2 mi west of Brinnon, and at mile 4.5.

DRAINAGE AREA. -- 66.5 mi2.

PERIOD OF RECORD.--August to December 1910 (gage height only), December 1910 to December 1911, June 1938 to current year. Published as "near Duckabush" water years 1910-11.

REVISED RECORDS. -- WSP 1216: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 241.49 ft above NGVD of 1929. Aug. 19, 1910, to Dec. 31, 1911, nonrecording gage at same site at different datum.

REMARKS.--Records good except estimated daily discharges, which are poor. No regulation or diversion upstream from station. Chemical analyses April 1972 to September 1974.

AVERAGE DISCHARGE.--64 years (water years 1939-2002), 417 ft³/s, 85.17 in/yr, 302,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,880 ft³/s Jan. 7, 2002, gage height, 8.85 ft; minimum daily discharge, 41 ft³/s Oct. 23-30, 1987, Oct. 15-17, 1992.

SEP

EXTREMES FOR CURRENT YEAR .-- Peak discharges greater than base discharge of 2,500 ft3/s and maximum (*):

Date	Time	Discha (ft ³ /		age height (ft)	Date		Time	Discharge (ft ³ /s)	Gage hei	ght
Nov. 15	0930	5.5	60	7.04	Jan.	2	1000	3.580	5.89	
Nov. 20	0215	5.1	60	6.83	Jan.	7	1730	*9,880	*8.85	
Dec. 16	2115	6,7		7.59				-,		
Minimum dis	charge, 54	ft ³ /s Oct	. 9, 10	, but may ha	ve been	lower d	uring peri	od of estima	ted record	Sep. 19-30.
		DISCHARG	E, CUBI	C FEET PER S		WATER YE MEAN VA		2001 TO SEE	PTEMBER 200	2
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN J	UL AUG
1	66	420	951	629	256	316	225	511	619 5	02 184
2	64	344	771	2760	247	289	232	590	640 4	55 176
3	62	257	513	1630	335	266	224	531	656 4	36 170
4	60	224	418	926	297	254	237	458	666 3	96 165
5	59	218	363	922	276	244	291	396	745 3	58 164

7 3610 333 87 e84 e80 143 140 e78 198 812 373 e77 e77 15 73 e97 431 e82 e81 e77 e74 399 790 584 24 e71 e68 e66 e62 e60 ---30 284 e57 e56 TOTAL MEAN 80.7 1140 502 MAX MTN 64370 30250 AC-FT CFSM 1.89 15.0 10.1 15.7 6.57 4.28 6.41 7.40 9.87 5.26 2.01 1.21 IN. 2.17 16.75 11.68 18.15 6.84 4.93 8.53 11.02 6.07 2.32 1.35 STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2002, BY WATER YEAR (WY) 598 1999 523 1978 MEAN MAX (WY) 1998 1984 1967 1953 1991 1972 1943 1956 1999 1999 MIN 44.4 79.6 75.1 57.6 (WY) SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1938 - 2002 ANNUAL TOTAL HIGHEST ANNUAL MEAN LOWEST ANNUAL MEAN HIGHEST DAILY MEAN LOWEST DAILY MEAN 41 Jan 7 2002 Oct 23 1987 Nov 20 Jan Oct Oct 57 57 Oct 7 Oct 4 ANNUAL SEVEN-DAY MINIMUM Oct Oct 23 1987 ANNUAL RUNOFF (AC-FT)
ANNUAL RUNOFF (CFSM)
ANNUAL RUNOFF (INCHES) 7.14 96.98 4.75 64.55 6.27 85.17 10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS 83

e Estimated

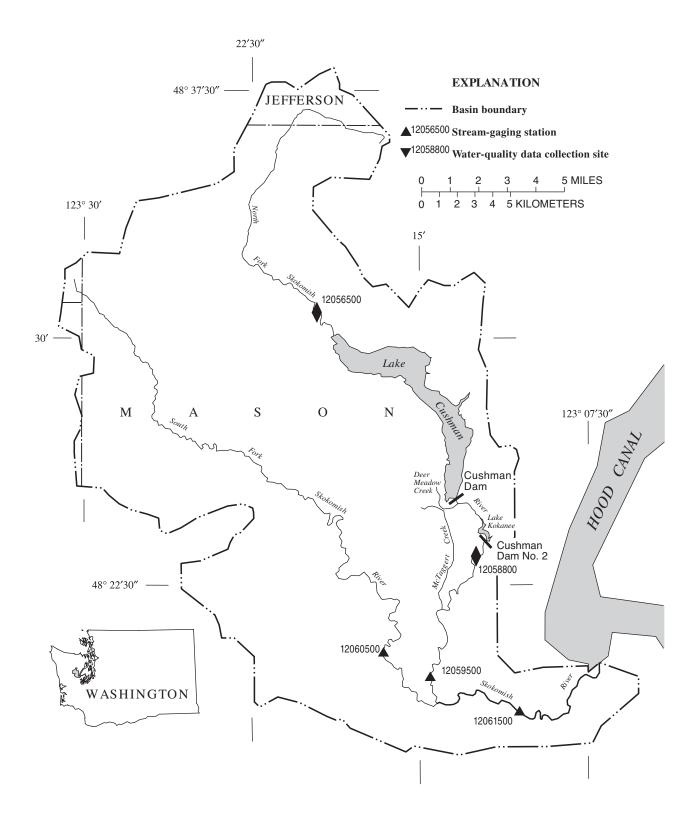


Figure 15. Location of surface-water and water-quality stations in the Skokomish River Basin.

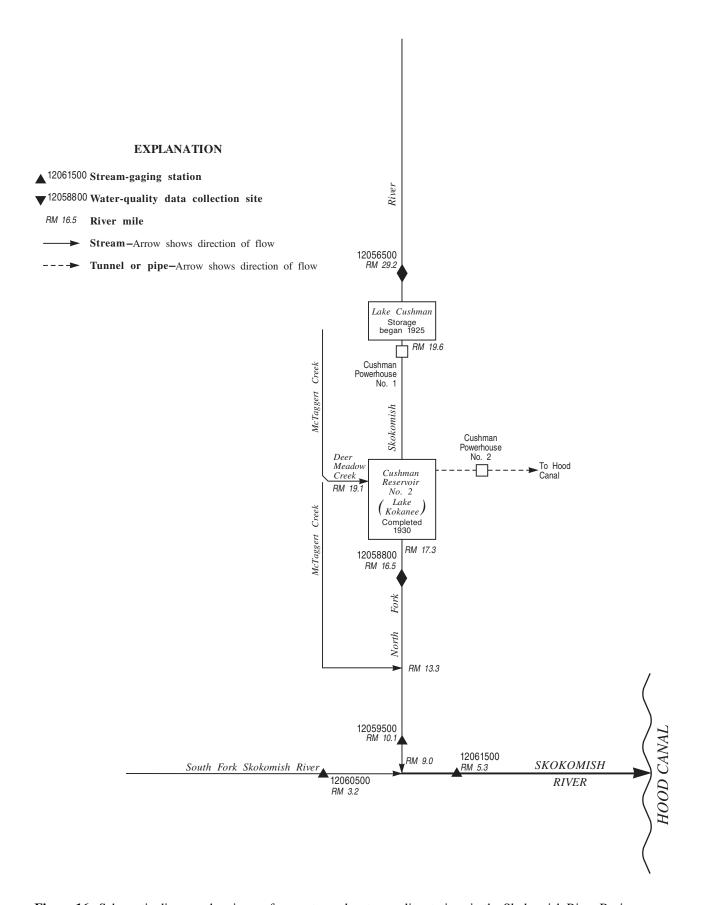


Figure 16. Schematic diagram showing surface-water and water-quality stations in the Skokomish River Basin.

Discharge Gage height (ft³/s) (ft)

12056500 NORTH FORK SKOKOMISH RIVER BELOW STAIRCASE RAPIDS, NEAR HOODSPORT, WA

LOCATION.--Lat $47^{\circ}30^{\circ}52^{\circ}$, long $123^{\circ}19^{\circ}43^{\circ}$, in NW $\frac{1}{4}$ sec.4, T.23 N., R.5 W., Mason County, Hydrologic Unit 17110017, Olympic National Park, on left bank 1.2 mi upstream from Lake Cushman, 2.8 mi upstream from Dry Creek, 11.3 mi northwest of Hoodsport, and at mile 29.2.

DRAINAGE AREA. -- 57.2 mi2.

Date Time

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1924 to current year.

REVISED RECORDS.--WSP 1286: 1932, 1935, 1937(M), 1942(M), 1947(P), 1948(M). WSP 1636: 1940(M). WSP 1736: 1927. WSP 1932:

GAGE.--Water-stage recorder. Datum of gage is 762.26 ft above NGVD of 1929. Prior to Nov. 1, 1934, water-stage recorder, and Nov. 1, 1934, to Nov. 10, 1941, nonrecording gages, on right bank at same datum.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station. Chemical analyses December 1973 to September 1985.

 $AVERAGE \ \ DISCHARGE. --78 \ \ years \ \ (water \ years \ 1925-2002), \ 510 \ \ ft^3/s, \ 121.10 \ \ in/yr, \ 369,300 \ \ acre-ft/yr.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,000 ft³/s Nov. 5, 1934, gage height, 14.4 ft, from high-water mark, from rating curve extended above 9,800 ft³/s on basis of slope-area measurement at gage height 12.2 ft; minimum discharge recorded, 16 ft³/s Sept. 23, 1930, gage height, 1.12 ft.

Date Time

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

Discharge Gage height (ft³/s) (ft)

Nov. Nov. Dec. Jan.	20 16	2000 0230 1930 0845	5	5,250 5,040 9,890 3,730	7.21 6.61 8.37 5.88	Jan. Feb. Apr.	22	1515 0030 0145	*12,9 3,9 3,4	20	*9.86 6.01 5.73		
Mini	mum	discharge,	$53 \text{ ft}^3/\text{s}$	Sept. 28,	29, 30.								
			DISCH	ARGE, CUB	IC FEET PER		WATER YE MEAN VA		R 2001 TO	SEPTEMB	BER 2002		
	DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
	1	82	593	810	1060	334	403	279	624	679	494	169	83
	2	77 74	494 378	819 585	3180 2020	323 396	366 345	283 284	661 562	723 743	450 431	163 158	83 84
	4	70	331	498	1230	357	332	314	484	726	399	159	80
	5	66	303	440	1160	344	320	383	437	770	369	161	77
	6	64	264	449	3900	419	300	425	398	718	362	164	75
	7	62	240	426	9660	456	280	418	365	596	371	151	75
	8	63 62	219 203	516 517	4620 2500	388 344	263 260	379 545	342 329	513 503	388 364	143 142	74 75
	10	88	191	453	1640	324	281	838	317	613	382	145	73
	11	105	192	407	1270	301	961	889	327	705	402	140	71
	12	129	679	396	1280	280	770	1080	390	799	377	136	69
	13	120	1150	1430	1030	263	568	1730	517	874	365	136	68
	14	111	3470	1570	867	249	464	2350	485	902	342	135	67
	15	92	3990	858	746	239	400	1140	446	805	312	129	67
	16	83	1820	4980	660	238	355	816	426	702	303	121	102
	17	79	1020	2980	596	235	318	653	471	686	292	113	83
	18 19	74 91	740 2790	1470 1000	547 511	246 496	293 282	573 537	453 452	733 570	276 262	109 104	70 67
	20	82	4200	793	500	411	280	518	513	532		102	67
	21	95	3230	666	458	1940	260	503	571	589		99	64
	22	272	2250	581	425	3410	262	489	540	646	241	98	61
	23 24	514 302	1500 1080	521 477	400 755	1710 1070	274 295	455 432	511 484	605 543	245 241	97 98	60 58
	25	402	840	440	981	743	309	420	556	559	237	98	58
	26	362	694	411	631	596	311	416	641	607	226	95	57
	27	469	604	397	511	511	311 296 284	408	703	592	208	93	56
	28	323	595	461	440	448	284	393	1340	865	201	91	54
	29 30	257 399	606 556	435 412	393 372		274 265	420 501	1590 930	1150 592	196 186	91 88	53 53
	31	1090		454	354		264		744			86	
	TOTA	L 6159	35222	26652	11607	17071	10025	10071	17600	20640			2084
	MEAN		1174			610		629	568	688	9597 310	123	69.5
	MAX	1090	4200	4980	9660	3410		2350	1590	1150	494 177	169	102
	MIN	62	191	396	354	235	260	279	317	503		86	53
	AC-F		69860 20.5	52860 15.0	88660 25.2	33860 10.7	21690 6.17	37430 11.0	34930 9.93	40940 12.0		7570 2.15	4130 1.21
	IN.	4.01	22.91	17.33	29.07	11.10	7.11	12.27	11.45	13.42	6.24	2.15	1.36
	STAT	ISTICS OF I	MONTHLY ME	EAN DATA I	FOR WATER Y	YEARS 1924	- 2002,	BY WATER	YEAR (WY)				
	MEAN	369	713	792	698	634	499	515	660	603	341	157	145
	MAX	1143	1762	1778	1915	1465	1325	901	1304	1332	1037	551	624
	(WY)	1998	1984	1934	1953	1991	1972	1943	1956	1956	1999	1999	1978
	MIN (WY)	42.3 1988	40.0 1937	244 1979	124 1937	111 1929	190 1955	268 1975	333 1930	180 1992	88.5 1926	54.9 1926	50.2 1926
	SUMM	ARY STATIS	TICS	FOR	2001 CALEN	NDAR YEAR	F	OR 2002 W	ATER YEAR		WATER YEAR	S 1924 -	2002
		AL TOTAL AL MEAN			148580 407			213351 585			510		
		EST ANNUAL	MEAN		407			363			762		1999
		ST ANNUAL I									256		1930
		EST DAILY I			4980	Dec 16		9660	Jan 7		9980 17 20	Nov 3	1955
		ST DAILY M AL SEVEN-D		νī	62 66	Oct 7 Oct 3		53 56	Sep 29 Sep 24		17	Sep 23	1930
		AL RUNOFF		•	294700	000 3		423200	DCP 24		20 369300	DCP I/	1000
	ANNU	AL RUNOFF	(CFSM)		7.12			10.2			0.51		
		AL RUNOFF			96.63	3		138.79	5		121.10)	
		ERCENT EXC			680 274			1080 399			1020 374		
		ERCENT EXC			98			82			92		

12056500 NORTH FORK SKOKOMISH RIVER BELOW STAIRCASE RAPIDS, NEAR HOODSPORT, WA

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD. --

SPECIFIC CONDUCTANCE: April 1996 to April 1998 (discontinued).
WATER TEMPERATURE: April 1965 to September 1982, June 1989 to December 1989, December 1990 to April 1991, June 1992 to April 1998, October 1999 to current year.

INSTRUMENTATION.--Temperature recorder April 1965 to September 1982, June 1989 to April 1998, October 1999 to current year.

Water-quality monitor April 1996 to April 1998 (discontinued). Electronic Data Logger with 15-minute recording interval.

Prior to June 13, 1997, a 60-minute recording interval.

REMARKS. -- Record rated poor.

EXTREMES FOR PERIOD OF DAILY RECORD. --

SPECIFIC CONDUCTANCE: Maximum recorded, 108 microsiemens September 11, 28, 1996; minimum recorded, 25 microsiemens March 18, 19, 1997.
WATER TEMPERATURE: Maximum recorded, 16.5°C (rounded) Aug. 14, 15, 1992; minimum, 0.0°C Mar. 24, 1976, Jan. 31, 1996, Dec.

29, 1996.

WATER TEMPERATURE: Maximum, 13.6°C Aug. 14 and 15; minimum, 0.3°C Jan. 25.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER		No	OVEMBER		DI	ECEMBER			JANUARY	•
1 2 3 4 5	10.3 10.4 10.0 9.8 9.3	8.7 8.8 8.5 8.3 7.8	9.4 9.4 9.1 8.8 8.5	6.8 7.0 6.8 7.1 7.4	6.3 6.7 6.2 6.1 5.9	6.6 6.8 6.5 6.6	4.2 4.7 4.6 4.4 4.0	2.9 4.1 3.4 3.4 3.1	3.5 4.5 4.4 3.9 3.8	4.4 4.4 4.6 4.8 4.6	3.8 3.8 3.7 4.3 4.2	4.2 4.1 4.2 4.6 4.4
6 7 8 9 10	9.4 9.3 9.5 9.0 8.5	8.0 8.5 8.3 7.9 7.8	8.6 8.8 8.8 8.4	6.0 5.7 5.6 5.5 6.2	5.3 5.3 4.9 5.0 5.1	5.7 5.5 5.3 5.3	3.9 4.4 4.4 4.3 4.4	2.9 3.8 4.0 3.6 1.9	3.6 4.2 4.3 4.1 3.9	4.7 5.0 5.2 4.9 5.0	3.8 3.8 4.5 4.4 3.5	4.3 4.8 4.6 4.5
11 12 13 14 15	8.5 8.7 8.8 9.0 8.6	7.6 7.8 7.9 8.2 7.7	8.0 8.2 8.3 8.5	6.8 7.1 7.0 7.6 7.6	6.1 6.7 6.5 6.6 6.6	6.5 7.0 6.8 7.1 7.3	4.3 4.4 4.3 4.3	3.9 4.1 3.2 3.5 3.0	4.2 4.2 3.8 4.1 3.9	5.3 5.0 4.4 3.6 2.9	4.4 3.3 2.8 2.4	4.7 4.0 3.2 2.7
16 17 18 19 20	8.9 8.2 8.2 8.7 8.4	7.6 7.0 7.1 7.8 7.5	8.2 7.5 7.6 8.2 7.9	6.9 6.3 5.8 7.2 7.0	6.3 5.4 4.6 5.2 6.2	6.7 6.0 5.2 6.5	4.8 4.7 4.3 4.2 4.5	3.1 4.1 3.2 3.8 4.0	3.6 4.4 3.8 4.0 4.3	3.0 2.9 3.1 2.5 3.6	1.3 1.7 1.4 1.4	2.5 2.7 2.6 1.8 2.8
21 22 23 24 25	8.4 7.9 7.0 6.7 7.0	7.6 7.0 6.4 6.1 6.2	7.9 7.5 6.7 6.4 6.6	6.6 6.3 6.1 5.9 5.6	5.7 5.5 5.5 5.3 5.1	6.3 6.0 5.9 5.6 5.3	4.6 4.4 4.4 4.1 3.9	4.2 4.1 4.1 3.8 3.7	4.4 4.3 4.2 4.0 3.8	3.1 2.8 2.9 2.7 2.5	1.6 0.6 1.1 0.6 0.3	2.6 1.9 2.3 1.6 1.1
26 27 28 29 30 31	7.2 6.9 6.0 6.3 6.5 6.7	6.6 5.9 5.2 5.5 5.9	6.9 6.3 5.6 5.9 6.2 6.3	5.2 5.4 5.2 4.5 4.2	4.9 4.9 2.3 3.7 2.8	5.1 5.1 3.6 4.2 3.5	4.2 4.4 4.4 4.3 4.6	3.7 4.0 4.0 3.9 3.8 4.2	3.9 4.2 4.2 4.2 4.1 4.4	2.8 2.3 2.3 2.3 2.2 3.4	0.4 1.0 1.5 1.4 0.4	1.9 1.6 2.1 2.0 1.6 1.8
MONTH	10.4	5.2	7.8	7.6	2.3	5.9	4.8	1.9	4.1	5.3	0.3	3.0

95 12056500 NORTH FORK SKOKOMISH RIVER BELOW STAIRCASE RAPIDS, NEAR HOODSPORT, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
2 3 4	3.6 3.8 5.9 5.5 4.1	2.3 3.2 3.3 3.7 3.6	3.2 3.5 4.2 4.1 3.8	3.8 3.7 4.1 4.4 4.4	3.0 3.0 3.2 3.4 3.8	3.4 3.3 3.6 3.9 4.1	5.3 5.2 5.3 5.4 5.0	4.4 3.8 3.8 3.8 4.1	4.8 4.5 4.5 4.6 4.5	6.8 6.5 6.1 5.2 5.4	4.9 4.8 4.0 4.2 4.3	5.7 5.6 5.0 4.8 4.8
6 7 8 9 10	3.9 3.7 4.3 4.3	2.9 3.1 3.6 3.7 3.7	3.3 3.4 3.9 3.9 3.9	3.9 3.4 3.2 3.4 2.8	2.8 2.6 2.5 2.1 2.1	3.4 2.9 2.9 2.9 2.5	5.5 5.1 5.4 4.8 4.8	4.2 4.0 3.8 4.1 3.8	4.8 4.6 4.6 4.5 4.3	5.0 5.0 5.8 5.3 6.7	3.8 3.4 3.8 4.2 3.5	4.4 4.3 4.7 4.7 5.0
11 12 13 14 15	4.0 3.9 3.9 3.9 4.0	3.5 3.2 3.4 3.4 3.3	3.7 3.6 3.6 3.6 3.6	3.1 3.2 3.8 4.2 4.0	2.7 2.7 2.6 3.3 3.3	2.9 3.0 3.2 3.8 3.7	4.8 4.9 5.1 4.4 5.2	4.0 4.0 4.2 3.2 3.7	4.3 4.4 4.6 3.6 4.4	6.9 7.4 6.1 6.1	4.6 5.0 4.8 4.2 4.3	5.8 6.1 5.3 5.1 5.2
16 17 18 19 20	4.3 4.6 4.3 4.2 4.1	3.5 3.8 3.6 3.7 3.5	3.9 4.1 4.0 3.9 3.8	3.7 3.6 3.3 3.7 3.5	2.9 2.8 2.2 2.8 3.0	3.2 3.2 2.9 3.3 3.3	4.5 5.1 5.9 5.7 6.0	3.0 3.9 4.0 4.2 4.7	3.8 4.5 4.8 5.0 5.4	6.4 6.1 6.7 5.6 5.8	4.3 4.1 4.5 4.5 4.4	5.3 5.1 5.4 5.1
		2.8 3.0 3.9 3.4 2.9		4.3 4.5 4.8 4.6 5.1								
26 27 28 29 30 31	3.9 4.0 3.7 	3.4 3.1 3.1 	3.6 3.6 3.4 	4.7 4.5 5.3 5.2 5.2 5.5	3.8 3.7 4.0 4.0 3.9 4.2	4.2 4.6 4.6 4.5 4.9	5.6 6.0 6.3 6.8 7.0	4.8 4.8 4.5 4.8 4.9	5.2 5.4 5.5 5.8 5.9	6.9 6.3 5.0 5.9 7.0 7.1	5.3 4.9 4.2 4.2 4.6 5.0	6.0 5.5 4.5 5.0 5.6 6.0
MONTH		2.3		5.5						7.4		5.3
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBE	ER
					JULY			AUGUST			SEPTEMBE	ER
1 2 3 4 5	7.8 8.1 7.3 7.6 7.8	JUNE	6.3 6.6 6.6 6.7 6.8		JULY 6.7 7.3 7.8 7.1 6.7	7.6 8.2 8.2 7.6 7.9	11.6 12.0 10.8 10.6	9.6 9.5 9.6 8.9	10.7 10.7 10.2		10.8 10.8 8.8	11.7 11.4 9.4
1 2 3 4 5 6 7 8 9	7.8 8.1 7.3 7.6 7.8 7.4 6.7 6.9 7.8 8.3	JUNE 5.2 5.5 5.9 6.1 5.9 5.4 5.2 4.9 5.7	6.3 6.6 6.7 6.8 6.4 6.0 5.9 6.6	8.4 9.1 8.6 8.1 9.3	JULY 6.7 7.3 7.8 7.1 6.7 7.5 8.3 7.9 8.8 9.4 9.5	7.6 8.2 8.2 7.6 7.9 8.5 9.2	11.6 12.0 10.8 10.6 10.5 12.0 12.0 12.6 12.8	9.6 9.5 9.6 8.9 8.8 9.3 9.9	10.7 10.7 10.2 10.1 10.5 11.0	13.0 12.3 11.2 10.7	10.8 10.8 8.8 7.9 9.6	11.7 11.4 9.4 10.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14	7.8 8.1 7.3 7.6 7.8 7.4 6.7 6.9 7.8 8.3 8.5 7.9 9.5	JUNE 5.2 5.5 5.9 6.1 5.9 5.4 5.2 4.9 5.7 5.7 5.7 6.8	6.3 6.6 6.7 6.8 6.4 6.0 5.9 7.0 6.6 7.4	8.4 9.1 8.6 8.1 9.3 9.6 9.1 9.8 10.5 11.4 11.8 11.8 11.4	JULY 6.7 7.3 7.8 7.1 6.7 7.5 8.3 7.9 8.8 9.4 9.5 10.1	7.6 8.2 8.2 7.6 7.9 8.5 9.2 10.1 10.6 10.7	11.6 12.0 10.8 10.6 10.5 12.0 12.6 12.8 12.9 13.1 13.5 13.6	9.6 9.5 9.6 8.9 8.8 9.3 9.9 10.5 10.4 10.5 11.0	10.7 10.7 10.7 10.2 10.1 10.5 11.0 11.6 11.6 11.6 11.9 12.2	13.0 12.3 11.2 10.7 11.0 11.7 12.1 12.3 12.6 12.4	10.8 10.8 10.8 8.8 7.9 9.6 9.8 10.2 10.4	11.7 11.4 9.4 10.5 10.8 11.1 11.3 11.2
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	7.8 8.13 7.6 7.8 7.4 6.7 7.8 8.3 8.5 7.9 9.0 8.6 7.5 7.5 7.8	JUNE 5.2 5.5 6.1 5.9 6.1 5.9 5.4 5.2 4.9 5.7 5.7 5.7 6.8 6.4 6.7 6.4 6.1 5.9	6.3 6.6 6.7 6.8 6.4 6.0 9 6.6 7.0 6.4 7.5 7.5 7.5 7.5	8.4 9.1 8.6 8.1 9.3 9.6 9.1 19.8 10.5 11.4 11.8 11.4 11.5 11.7	JULY 6.7 7.3 7.8 7.1 6.7 7.5 8.3 7.9 8.8 9.4 9.5 10.1 9.7 10.1 10.3	7.6 8.2 8.2 7.6 7.9 8.5 9.2 10.1 10.6 10.7 10.7 10.7	11.6 12.0 10.8 10.6 10.5 12.0 12.6 12.8 12.9 13.1 13.5 13.6 13.6	9.6 9.5 9.6 8.9 8.8 9.3 9.9 10.5 10.4 10.5 11.0 11.1	10.7 10.7 10.7 10.2 10.1 10.5 11.0 11.6 11.6 11.6 11.9 12.2 12.1	13.0 12.3 11.2 10.7 11.0 11.7 12.1 12.3 12.6 12.4 11.6	10.8 10.8 10.8 8.8 7.9 9.6 9.8 10.2 10.3 9.2 8.6 8.1	11.7 11.4 9.4 10.5 10.8 11.1 11.3 11.2 11.0 9.2 9.8 10.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	7.8 8.13 7.6 7.8 7.4 6.7 7.8 8.3 8.5 7.95 8.4 9.0 8.6 7.5 7.5 7.5 9.2 9.7 9.7	JUNE 5.2 5.5 6.1 5.9 6.1 5.9 5.4 5.2 4.9 5.7 5.7 5.7 4.9 5.3 6.8 6.4 6.7 6.4 6.1 5.9 6.4 7.0 7.4 7.3	6.3 6.6 6.7 6.8 6.4 6.9 7.6 6.9 7.6 6.9 7.5 7.5 7.5 7.5 8.5 8.1 8.1	8.4 9.1 8.6 8.1 9.3 9.6 9.1 10.5 11.4 11.8 11.4 11.5 11.7 12.0 11.8 11.4 11.5 11.7	JULY 6.7 7.3 7.8 7.1 6.7 7.5 8.3 7.9 8.8 9.4 9.5 10.1 9.7 10.1 10.3 9.8 9.9 10.2 10.8 11.2	7.6 8.2 8.2 7.6 7.9 8.5 9.2 10.1 10.6 10.7 10.7 10.7 11.0 11.0 11.1 11.2 11.5 12.0 12.3	11.6 12.0 10.8 10.6 10.5 12.0 12.6 12.8 12.9 13.1 13.5 13.6 13.6 13.6 13.2 12.8 12.8 12.8	9.6 9.5 9.6 8.9 8.8 9.3 9.9 10.5 10.4 10.5 11.0 11.1 11.1 10.3 10.1 10.0 9.9 10.3 10.7	10.7 10.7 10.7 10.2 10.1 10.5 11.0 11.6 11.6 11.9 12.2 12.1 11.9 11.3 11.1	13.0 12.3 11.2 10.7 11.0 11.7 12.1 12.3 12.6 12.4 11.6 11.6 11.6 11.6 11.6 11.6 11.6 11	SEPTEMBE 10.8 10.8 10.8 8.8 7.9 9.6 9.8 10.2 10.4 10.3 9.2 8.6 8.1 10.2 9.5 9.1 9.2 9.6	11.7 11.4 9.4 10.5 10.8 11.1 11.3 11.2 11.0 9.2 9.8 10.6 10.8 10.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	7.8 8.1 7.6 7.8 7.4 6.7 7.8 8.3 8.5 7.9 9.4 9.7 9.7 9.7 9.7 9.1 10.4 10.5 7.6 8.2	JUNE 5.2 5.5 6.1 5.9 6.1 5.7 5.7 5.7 4.9 5.8 6.4 6.7 6.4 7.0 7.4 7.3 7.8 7.9 8.0 7.3 6.9	6.3 6.6 6.7 6.8 6.4 6.0 9.6 6.9 7.4 5.5 7.5 7.5 7.5 7.5 8.5 8.1 9.2 8.8 8.7 8.7 9.2 8.7 9.2 9.2 9.2 9.2 9.2 9.2 9.2 9.2 9.2 9.2	8.4 9.1 8.6 8.1 9.3 9.6 9.1 9.8 10.5 11.4 11.8 11.8 11.4 11.5 11.7 12.0 11.8 11.4 11.5 11.7	JULY 6.7 7.3 7.8 7.1 6.7 7.5 8.3 7.9 8.8 9.4 9.5 10.1 10.3 9.7 10.1 10.3 11.0 10.6 11.0 10.6	7.6 8.2 8.2 7.6 7.9 8.5 9.2 10.1 10.6 10.7 10.7 10.7 11.0 11.0 11.1 11.2 11.5 12.0 12.3 12.2	11.6 12.0 10.8 10.6 10.5 12.0 12.6 12.8 12.9 13.1 13.5 13.6 13.6 13.2 12.8 11.3 12.4 11.8 11.3 12.4 11.8	AUGUST 9.6 9.5 9.6 8.9 8.8 9.3 9.9 10.5 10.5 11.0 11.1 11.1 10.3 10.1 10.0 9.9 10.3 10.7 10.7 10.7 10.7 10.9 11.0	10.7 10.7 10.7 10.2 10.1 10.5 11.0 11.6 11.6 11.9 12.2 12.1 11.9 11.3 11.1 10.6 11.3 11.1 11.7 	13.0 12.3 11.2 10.7 11.0 11.7 12.1 12.3 12.6 12.4 11.6 11.6 11.6 11.6 11.6 11.1 11.2 11.6 11.2 11.0 11.7	10.8 10.8 10.8 10.8 10.8 10.8 10.8 10.2 10.4 10.3 10.2 10.4 10.3 10.2 10.4 10.3 10.7 10.7 10.7 10.8 10.9 10.9 10.9 10.9 10.9 10.9 10.9 10.9	11.7 11.4 9.4 10.5 10.8 11.1 11.3 11.2 11.0 9.2 9.8 10.6 10.8 10.6 10.8 10.6 10.8 10.6 10.8

12056500 NORTH FORK SKOKOMISH RIVER BELOW STAIRCASE RAPIDS, NEAR HOODSPORT, WA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

CHLO-RIDE,

DIS-SOLVED (MG/L AS CL) (00940)

.73

.71 .84

.77

.48

.50

.91

			WATER-QUAI	LITY DATA,	WATER Y	EAR OCTO	BER 2001	TO SEPTE	EMBER 200	2			
Date	Time	CHARGE, I INST. CUBIC FEET PER SECOND	(MM I OF SO HG) (N	I SC YGEN, (F DIS- C DLVED SA MG/L) AT	DIS- WARDLIVED WERER- FICENT (STATUR- ATTON) UN	HOLE (IELD (IAND- I ARD I NITS) (OUCT- ANCE US/CM)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	
NOV 14	1150	2450	738 12	2.5 1	107	7.6	49	10.5	7.1	19	23	0	
JAN 09	1210	2520	751 13	3.2 1	L04 6	6.9	52	4.1	4.7	21	25	0	
MAR 13	1140	558	743 13	3.2 1	101	7.4	71	4.8	3.4	30	36	0	
MAY 09	1150	327	746 12	2.9 1	105	7.7	84	12.2	5.6	34	42	0	
JUN 13	1310	794	743 11	1.8 1	L03 :	7.6	59	22.1	8.1	24	29	0	
JUL 11	1340	375	746 10).8 1	100	7.7	69	18.4	11.0	29	35	0	
SEP 09	1550	75	748 10	0.8	99	7.6	101		10.9	42	52	0	
	NOV 14 JAN 09 MAR 13 MAY 09 JUN 13 JUL 11 SEP	SULFAT: DIS- SOLVE! (MG/L AS SO4 (00945) 2.8 3.9 5.0 6.2 3.8 4.5	(MG/L) AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .11 .10 <.10 <.10 <.10 <.10	GEN,	GEN, NITRITI DIS-	E NITRO GEN, D TOTAI (MG/I AS N)	DIS- SOLVE (MG/ AS E	S-FE, PHO PHOR - PHO	US MEN AL SUS //L PEN (MG 65) (801 30 27 44 32 03 2.	T, CHAF, - St PEN - JL) (T/I 54) (801 179 218 0 3. 5 0 6.	TT, -SSSSSSSSSS	
	09	7.4	<.04	<.10	<.05	<.008		<.02	2 .0	04 1.	0 .	.20	
		Date AUG	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER- ATURE WATER (DEG C) (00010)	BIOMAS: ASH WEIGH G/SQ I	N BIOMAS S TOTAI DRY I WEIGH M G/SQ) (00573	ON PHYTOS BIOMA S BIOMA ASH FREE HT DRY M G/SQ S) (4995	TON CHLO ASS PHY H RAT E PER C PHY Q M (UNI 54) (709	RO- PER LL PHY IO CHRO I- GRAP TON FLUO TS) (MG/ 50) (709	I- TON MO- HIC ROM M2) 57)		
		20	1100	0.0	11 0	220	224 0	1 - 00	20 25	2 44	0		

29... 1100 92 11.8 220 234.8 15.800 353 44.8

12058800 NORTH FORK SKOKOMISH RIVER BELOW LOWER CUSHMAN DAM, NEAR POTLATCH, WA

LOCATION.--Lat $47^{\circ}23^{\circ}27^{\circ}$, long $123^{\circ}12^{\circ}30^{\circ}$, in SE $\frac{1}{4}$ SEc. $\frac{1}{4}$ sec.17, T.22 N., R.4 W., Mason County, Hydrologic Unit 17110017, on right bank 1.2 mi downstream from Lower Cushman Dam (Cushman Dam No. 2), 2.8 mi northwest of Potlatch, and at mile 16.5.

DRAINAGE AREA.--102 mi², approximately, includes 99 mi² upstream from Cushman Dam No. 2 which is noncontributing except during spillage.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- June 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 230 ft above NGVD of 1929, from topographic map. Prior to Sept. 25, 1991, water-stage recorder at site 400 ft downstream at datum 7.66 ft lower.

REMARKS.--No estimated daily discharges. Records good. Upper portion of McTaggart Creek is diverted through Deer Meadow Creek into Cushman Reservoir No. 2. Flow regulated at Lake Cushman and at Cushman Reservoir No. 2 to supply powerplant, which discharges into Hood Canal. Entire flow of river normally diverted at Cushman Dam No. 2 except infrequent releases. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--14 years (water years 1989-2002), 54.7 ft³/s, 39,660 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,680 ${\rm ft}^3/{\rm s}$ Dec. 19, 1995, gage height, 10.97 ft, from rating curve extended above 370 ${\rm ft}^3/{\rm s}$; minimum discharge, 4.7 ${\rm ft}^3/{\rm s}$ June 13-15, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,990 ft³/s, Jan. 11, gage height, 9.41 ft; minimum discharge, 64 ft³/s, Oct. 3,

		DISCHAR	GE, CUBI	C FEET PER	R SECOND, W	VATER YE MEAN VA		2001 TO 8	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	66	77	66	68	68	67	66	66	66	66	66
2	65	66	72	67	68	67	67	67	66	66	66	66
3	65	66	68	66	68	67	67	67	66	66	67	66
4	65	66	67	65	68	67	67	66	66	66	67	66
5	65	66	67	66	68	67	67	66	66	66	66	66
6	64	66	68	73	71	67	67	66	66	66	66	66
7 8	65 65	66 66	66 66	92 77	72 70	67 67	67 66	66 66	66 66	66 66	66 66	67 66
9	66	66	66	71	69	67	67	66	66	66	66	67
10	66	66	66	1120	69	67	67	66	66	66	66	67
11	66	66	66	1930	68	73	67	66	66	66	66	67
12	66	66	66	1910	67	72	67	66	66	66	66	66
13	66	68	75	1900	68	72	69	66	66	66	66	66
14	66	77	73	900	67	71	72	66	66	66	66	67
15	66	75	71	68	67	70	71	66	66	66	66	66
16	66	71	92	68	67	68	70	66	66	66	66	66
17	66	68	79	67	67	68	70	66	66	66	66	67
18	65	67	72	67	67	69	68	66	66	66	66	66
19	65	68	69	68	67	69	68	66	66	66	66	67
20	65	72	67	67	67	70	68	66	66	66	66	66
21	65	73	66	67	75	70	67	66	66	66	66	67
22	66	73	66	67	78	70	68	66	66	66	66	67
23	66	70	66	68	72	68	68	66	66	66	66	67
24 25	66	67 67	66 66	70 72	71 70	68 68	67 67	66	66	67	66	67 67
	66							66	66	66	66	
26	66	66	66	70	69	67	67	66	66	66	67	66
27	67	66	65	69	69	67	67	66	67	66	66	67
28	66	67	66	68	68	67	67	66	67	66	66	67
29 30	66 66	69 69	65 65	68 69		67 67	67 67	66 66	66 66	66 66	66 66	67 67
31	67		65	69		67		66		66	66	
TOTAL	2035	2045	2135	9565	1935	2119	2031	2048	1982	2047	2049	1996
MEAN	65.6	68.2	68.9	309	69.1	68.4	67.7	66.1	66.1	66.0	66.1	66.5
MAX	67	77	92	1930	78	73	72	67	67	67	67	67
MIN	64	66	65	65	67	67	66	66	66	66	66	66
AC-FT	4040	4060	4230	18970	3840	4200	4030	4060	3930	4060	4060	3960
STATIST	CICS OF MC	NTHLY MEA	N DATA F	OR WATER Y	EARS 1988	- 2002,	BY WATER	YEAR (WY)				
MEAN	42.6	48.8	108	62.8	55.6	45.1	61.3	42.9	44.8	43.7	49.2	48.5
MAX	67.5	95.4	872	309	183	68.5	232	66.9	66.1	66.0	131	99.3
(WY)	2001	1991	1996	2002	1992	2000	1999	1999	2000	2002	1991	1990
MIN	33.0	33.6	32.4	33.9	30.7	30.4	31.3	29.2	30.1	29.6	28.4	31.5
(WY)	1990	1990	1989	1991	1993	1993	1993	1989	1989	1988	1988	1989
SUMMARY	STATISTI	CS	FOR	2001 CALEN	IDAR YEAR	F	OR 2002 WA	TER YEAR		WATER YEARS	1988 -	2002
ANNUAL	TOTAL			23922			31987					
ANNUAL				65.5			87.6			54.7		
	ANNUAL M									117		1996
	ANNUAL ME									33.1		1989
	DAILY ME			92	Dec 16		1930	Jan 11		3570	Dec 19	
	DAILY MEA			63	Mar 8		64	Oct 6		4.9	Jun 14	
	SEVEN-DAY			64	Jun 3		65	Oct 1		5.1	Jun 8	TA88
	RUNOFF (A CENT EXCER			47450 67			63450 70			39660 67		
	CENT EXCER			65			70 66			38		
	CENT EXCER			64			66			32		
		-										

12058800 NORTH FORK SKOKOMISH RIVER BELOW LOWER CUSHMAN DAM, NEAR POTLATCH, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.-WATER TEMPERATURE: May 1989 to August 1990, December 1990 to April 1991, August 1993 to current year.

INSTRUMENTATION. -- Temperature recorder.

REMARKS. -- Record rated good.

EXTREMES FOR PERIOD OF DAILY RECORD.-WATER TEMPERATURE: Maximum recorded, 13.0°C (rounded) July 4, 5, Oct. 6, 8-10, 1989, June 3, 4, 2000; minimum, 3.5°C (rounded) Feb. 15, 1995.

EXTREMES FOR CURRENT YEAR. --

WATER TEMPERATURE: Maximum, 10.7°C June 29; minimum, 4.5°C Mar. 18.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER		NC	VEMBER		DE	ECEMBER			JANUARY	
1 2 3 4 5	9.4 9.3 9.3 9.3 9.2	8.8 8.7 8.7 8.6 8.7	9.1 9.0 9.0 9.0	9.4 9.4 9.4 9.5 9.3	9.2 9.1 8.9 9.1 8.9	9.3 9.3 9.2 9.3 9.1	8.3 8.2 8.1 7.9 7.7	8.0 7.9 6.8 7.4 7.3	8.2 8.0 7.9 7.7 7.6	6.8 6.9 6.9 6.8 6.7	6.5 6.8 6.6 6.5	6.6 6.8 6.8 6.7 6.6
6 7 8 9 10	9.4 9.3 9.3 9.3 9.0	8.9 9.0 8.7 8.7	9.1 9.1 9.0 8.9 8.9	9.1 9.2 9.3 9.2 9.3	8.7 8.8 8.7 8.7	8.9 9.0 9.0 8.9 9.0	7.8 7.8 7.9 7.7 7.7	7.5 7.5 7.5 7.4 7.4	7.7 7.6 7.7 7.5 7.5	7.1 7.4 7.2 6.8 6.5	6.6 7.0 6.7 6.5 6.3	6.8 7.2 7.0 6.7 6.5
11 12 13 14 15	9.2 9.4 9.2 9.3 9.3	8.6 8.9 8.9 8.9	8.9 9.1 9.0 9.1 8.9	9.3 9.4 9.3 9.3 9.5	9.0 9.2 9.2 9.1 9.3	9.2 9.3 9.2 9.2 9.4	7.7 7.8 7.8 7.6 7.4	7.5 7.5 7.6 7.3 7.0	7.6 7.6 7.7 7.4 7.2	6.6 6.5 6.3 6.2	6.5 6.4 6.2 6.0 5.8	6.6 6.5 6.3 6.2 6.0
16 17 18 19 20	9.2 9.1 9.1 9.5 9.4	8.7 8.6 8.7 9.1	9.0 8.8 8.9 9.3 9.2	9.3 9.2 9.1 9.2 9.2	9.0 8.7 8.6 8.9 9.1	9.2 9.0 8.8 9.1 9.2	7.7 7.5 7.3 7.2 7.2	7.4 7.2 7.0 7.0 7.0	7.6 7.3 7.1 7.1	6.2 6.1 6.1 6.1 5.9	5.9 5.9 5.8 5.7 5.4	6.0 6.0 5.9 5.9
21 22 23 24 25	9.3 9.2 9.1 9.3 9.4	9.1 9.0 8.8 8.8 9.1	9.2 9.1 9.0 9.0	9.1 9.0 8.9 8.7 8.8	8.9 8.8 8.5 8.6 8.3	9.0 8.9 8.7 8.7	7.3 7.1 7.0 6.8 6.6	6.9 6.8 6.7 6.5 6.4	7.1 7.0 6.8 6.6 6.5	5.7 5.6 5.6 5.9	5.4 5.3 5.3 5.6 5.5	5.6 5.5 5.5 5.8 5.7
26 27 28 29 30 31	9.3 9.1 9.0 9.1 9.3 9.4	9.0 8.9 8.6 8.6 8.9 9.1	9.2 9.0 8.8 8.9 9.1 9.2	8.5 8.5 8.3 8.3	8.2 8.2 7.5 8.0 7.6	8.3 8.3 8.0 8.2 8.0	6.6 6.7 6.9 6.7 6.6 6.8	6.3 6.5 6.5 6.4 6.3	6.5 6.6 6.7 6.5 6.5	5.5 5.4 5.4 5.4 5.5 5.6	5.0 5.1 5.1 5.1 5.2 5.3	5.4 5.3 5.3 5.3 5.3
MONTH	9.5	8.6	9.0	9.5	7.5	8.9	8.3	6.3	7.2	7.4	5.0	6.1

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TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

12058800 NORTH FORK SKOKOMISH RIVER BELOW LOWER CUSHMAN DAM, NEAR POTLATCH, WA--Continued

		I Brit Br	CATORE,	WAIER (DE	3. C), W.	AIDK IDAN	COCTOBER	2001 10	OBE IBNDER	2002		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY						APRIL			MAY	
1 2	5.6 5.7	5.2 5.3 5.3 5.1 5.2	5.4 5.5	5.5 5.7	4.9	5.1 5.2 5.2 5.4 5.4	6.5 6.7 7.1 7.3 6.8	6.1 5.8	6.3	7.4 7.7	6.7 6.7	7.0 7.0
3 4	5.7 5.6	5.3	5.5	5.7 5.7 5.7	4.9	5.2	7.1	5.7	6.2	7.7 7.3	6.4 6.5 6.7	7.0 6.9
5												7.2
6 7	5.5 5.5	5.4 5.3 5.2 5.2 5.1	5.4	5.4 5.2 5.2 5.3 5.5	4.9	5.2 4.9 4.9 5.1 5.3	6.8 6.7 7.2 6.8 6.9	6.2	6.5	7.6 7.7 7.6 7.8 8.0	6.5	7.0 7.0
8 9	5.5 5.6	5.2	5.3	5.2	4.6	4.9	7.2	5.9	6.4	7.6	6.6	7.0 7.2
10							6.9	6.4	6.6	8.0	6.8	7.3
11 12	5.4 5.4	5.0 4.9 4.9 4.9	5.2 5.1	5.7 5.5 5.6 5.6	5.3	5.5 5.4 5.3 5.4 5.3	6.7	6.3	6.5	8.3 8.6 7.9 7.9	7.1	7.6 7.8
13 14	5.3 5.4 5.4	4.9	5.1	5.6	5.2	5.3	6.5	6.3	6.4	7.9	7.1 7.3 7.6 7.4	7.7 7.6
												7.4
16 17	5.6 5.6	5.1 5.2 5.0 5.2 5.1	5.3	5.7 5.4 5.2 5.3 5.1	5.1 5.0	5.3 5.2 5.0 5.1 5.0	6.4	5.8	6.1	8.0 8.3 8.4 8.0 8.6	7.0 7.3	7.5 7.7
18	5.6	5.0	5.3	5.2	4.5	5.0	6.8	6.0	6.3	8.4	7.4	
												8.0
21 22	6.1 6.1	5.4 5.8 5.6 5.3 5.1	5.8 5.9	5.6 5.7 5.9 6.3 6.4	5.0 5.0 5.2 5.4 5.5	5.2	6.7 7.3 7.0 7.1 7.1	6.1 6.1	6.3	8.6 8.3 8.5 8.8	7.7 7.6 7.8 7.7	8.0 7.9
23 24	6.1	5.6	5.9	5.9	5.2	5.5	7.0	6.0	6.3	8.5	7.8	8.0
											8.1	8.4
26 27	5.6 5.6	5.1 5.0 4.9	5.3 5.2	6.3 6.1	5.5 5.5	5.8 5.9	6.8 6.9 7.4 7.7	6.4 6.4	6.6 6.6	9.1 8.8	8.3 8.4	8.6 8.6
28 29	5.6	4.9	5.2	6.9	5.6 5.7	6.2	7.4	6.2	6.7	8.7	8.5	8.6 8.7
30 31				6.3 6.1 6.9 6.8 6.7	5.8 6.1	5.8 5.9 6.2 6.2 6.1 6.2	7.8	6.6	7.0	9.1 8.8 8.7 8.9 8.9	8.1 7.9	8.4
MONTH	6.1	4.9	5.4	6.9	4.5		7.8	5.7		9.1		7.7
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY	MAX	MIN JUNE	MEAN		MIN JULY	MEAN		MIN AUGUST	MEAN		MIN SEPTEMBE	
1	8.8	JUNE			JULY			AUGUST			SEPTEMBE	ER 9.1
1 2 3	8.8 8.8 8.7	JUNE 7.8 7.8 7.9	8.1 8.2 8.2		JULY		8.8 8.7 8.5	8.1 8.1 8.1	8.4 8.4 8.3	9.4 9.5 9.4	SEPTEMBE 8.9 8.9 8.8	9.1 9.2 9.0
1 2 3 4 5	8.8 8.8 8.7 8.8 9.2	JUNE 7.8 7.8 7.9			JULY		8.8 8.7 8.5	8.1 8.1 8.1	8.4 8.4 8.3		SEPTEMBE 8.9 8.9 8.8	9.1 9.2 9.0
1 2 3 4 5	8.8 8.8 8.7 8.8 9.2	JUNE 7.8 7.8 7.9 8.2 8.4	8.1 8.2 8.2 8.4 8.7	8.9 8.9 8.6 8.5 8.9	JULY 8.2 8.0 8.0 7.9	8.5 8.3 8.3 8.2 8.3	8.8 8.7 8.5 8.8 8.7	8.1 8.1 8.1 8.1 8.1	8.4 8.4 8.3 8.4 8.4	9.4 9.5 9.4 9.0 8.8	8.9 8.9 8.8 8.3 8.1	9.1 9.2 9.0 8.6 8.4
1 2 3 4 5	8.8 8.8 8.7 8.8 9.2	JUNE 7.8 7.8 7.9 8.2 8.4	8.1 8.2 8.2 8.4 8.7	8.9 8.9 8.6 8.5 8.9	JULY 8.2 8.0 8.0 7.9	8.5 8.3 8.3 8.2 8.3	8.8 8.7 8.5 8.8 8.7	8.1 8.1 8.1 8.1 8.1	8.4 8.4 8.3 8.4 8.4	9.4 9.5 9.4 9.0 8.8	8.9 8.9 8.8 8.3 8.1	9.1 9.2 9.0 8.6 8.4
1 2 3 4 5	8.8 8.8 8.7 8.8 9.2	JUNE 7.8 7.8 7.9	8.1 8.2 8.2 8.4 8.7	8.9 8.9 8.6 8.5 8.9	JULY 8.2 8.0 8.0 7.9	8.5 8.3 8.3 8.2 8.3	8.8 8.7 8.5 8.8 8.7	8.1 8.1 8.1 8.1 8.1	8.4 8.4 8.3 8.4 8.4	9.4 9.5 9.4	8.9 8.9 8.8 8.3 8.1	9.1 9.2 9.0 8.6 8.4
1 2 3 4 5 6 7 8 9 10	8.8 8.8 8.7 8.8 9.2 9.0 8.8 8.9 9.4	JUNE 7.8 7.8 7.9 8.2 8.4 8.2 8.1 7.9 8.2 8.5	8.1 8.2 8.2 8.4 8.7 8.5 8.4 8.3 8.7 8.9	8.9 8.6 8.5 8.9 8.7 8.3 8.9	JULY 8.2 8.0 8.0 7.9 7.9 7.9 8.1 7.9 8.0 8.0	8.5 8.3 8.3 8.2 8.3 8.2 8.3 8.4 8.5	8.8 8.7 8.5 8.8 8.7 8.7 8.8 9.1 9.1	8.1 8.1 8.1 8.1 8.2 8.2 8.2 8.2 8.2	8.4 8.3 8.4 8.4 8.4 8.5 8.6	9.4 9.5 9.4 9.0 8.8 8.8 8.8 8.7 8.5 8.9	8.9 8.9 8.8 8.3 8.1 8.1 8.2 8.2 8.2	9.1 9.2 9.0 8.6 8.4 8.4 8.4 8.5 8.7
1 2 3 4 5 6 7 8 9 10	8.8 8.8 8.7 9.2 9.0 8.8 8.9 9.4 9.6 9.6 9.6	JUNE 7.8 7.8 7.9 8.2 8.4 8.2 8.1 7.9 8.2 8.5 8.5 8.5 8.4	8.1 8.2 8.2 8.4 8.7 8.5 8.4 8.3 8.7 8.9 8.9	8.9 8.9 8.6 8.5 8.9 8.7 8.3 8.9 9.1 9.2 9.3 9.3	JULY 8.2 8.0 8.0 7.9 7.9 7.9 8.1 7.9 8.0 8.0 8.2 8.2 8.6	8.5 8.3 8.2 8.3 8.2 8.3 8.4 8.5 8.6 8.7	8.8 8.7 8.5 8.8 8.7 8.7 8.8 9.1 9.1 9.2 9.4	8.1 8.1 8.1 8.1 8.2 8.2 8.2 8.2 8.2 8.2 8.2	8.4 8.4 8.4 8.4 8.5 8.6 8.6 8.8	9.4 9.5 9.0 8.8 8.8 8.7 8.5 8.9 9.1 9.1 9.2	SEPTEMBE 8.9 8.9 8.8 8.3 8.1 8.1 8.2 8.2 8.3 8.4 8.4 8.5 8.5	9.1 9.2 9.0 8.6 8.4 8.4 8.4 8.5 8.7
1 2 3 4 5 6 7 8 9 10	8.8 8.8 8.7 8.8 9.2 9.0 8.8 9.4 9.6	JUNE 7.8 7.8 7.9 8.2 8.4 8.2 8.1 7.9 8.2 8.5 8.5	8.1 8.2 8.2 8.4 8.7 8.5 8.4 8.3 8.7 8.9	8.9 8.9 8.6 8.5 8.9 8.7 8.3 8.9 9.1 9.2	JULY 8.2 8.0 8.0 7.9 7.9 7.9 8.1 7.9 8.0 8.0 8.2 8.2	8.5 8.3 8.2 8.3 8.2 8.3 8.2 8.3 8.4 8.5	8.8 8.7 8.5 8.8 8.7 8.7 8.8 9.1 9.1 9.2 9.2	8.1 8.1 8.1 8.1 8.2 8.2 8.2 8.2 8.2 8.2	8.4 8.3 8.4 8.4 8.4 8.5 8.6 8.6	9.4 9.5 9.4 9.0 8.8 8.7 8.5 9.1	8.9 8.9 8.8 8.3 8.1 8.1 8.2 8.2 8.2 8.2	9.1 9.2 9.0 8.6 8.4 8.4 8.5 8.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	8.8 8.8 8.7 8.8 9.2 9.0 8.8 9.4 9.6 9.6 9.7 8.8 8.9	JUNE 7.8 7.8 7.9 8.2 8.4 8.2 8.1 7.9 8.2 8.5 8.5 8.5 8.4 8.4 8.3 8.2 8.1	8.1 8.2 8.4 8.7 8.5 8.4 8.3 8.7 8.9 8.9 8.9 8.9	8.9 8.6 8.5 8.9 8.7 8.3 9.1 9.2 9.3 9.3 9.2 9.3	JULY 8.2 8.0 8.0 7.9 7.9 7.9 8.1 7.9 8.0 8.0 8.2 8.6 8.5 8.5	8.5 8.3 8.2 8.3 8.2 8.3 8.4 8.5 8.6 8.7 8.8 9.0	8.8 8.7 8.5 8.8 8.7 8.7 8.8 9.1 8.9 9.2 9.4 9.3 9.3	8.1 8.1 8.1 8.2 8.2 8.2 8.2 8.2 8.4 8.5	8.4 8.4 8.3 8.4 8.4 8.5 8.6 8.6 8.8 8.8 8.7	9.4 9.5 9.4 9.0 8.8 8.7 8.5 8.9 9.1 9.1 9.3 9.2 9.0	SEPTEMBE 8.9 8.9 8.8 8.3 8.1 8.1 8.2 8.3 8.4 8.4 8.5 8.6 8.7 8.7	9.1 9.2 9.0 8.6 8.4 8.4 8.4 8.5 8.7 8.7 8.8 8.9 8.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	8.8 8.8 8.7 9.0 8.8 8.9 9.6 9.6 9.7 8.8 8.9	JUNE 7.8 7.8 7.9 8.2 8.4 8.2 8.1 7.9 8.2 8.5 8.5 8.4 8.4 8.3 8.2 8.1 8.2 8.1 8.2	8.1 8.2 8.4 8.7 8.5 8.4 8.3 8.9 8.9 8.9 8.9 8.4 8.4 8.4	8.9 8.9 8.6 8.5 8.9 8.7 8.3 8.9 9.1 9.2 9.3 9.3 9.2 9.1 9.6	JULY 8.2 8.0 8.0 7.9 7.9 7.9 8.1 7.9 8.0 8.0 8.2 8.6 8.5 8.7 8.8 8.7	8.5 8.3 8.2 8.3 8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.8 9.0	8.8 8.7 8.5 8.8 8.7 8.7 8.8 9.1 9.1 9.2 9.4 9.3 9.2 9.3	8.1 8.1 8.1 8.2 8.2 8.2 8.2 8.2 8.4 8.5 8.5 8.5	8.4 8.4 8.4 8.4 8.5 8.6 8.6 8.8 8.8 8.7 8.7 8.7	9.4 9.5 9.0 8.8 8.7 8.5 9.1 9.1 9.2 9.3 9.2 9.0	8.9 8.9 8.8 8.3 8.1 8.1 8.2 8.2 8.3 8.4 8.5 8.5 8.6 8.7 8.7	9.1 9.2 9.0 8.6 8.4 8.4 8.5 8.7 8.7 8.8 8.9 8.8 8.8 8.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	8.8 8.8 8.7 8.8 9.2 9.0 8.8 8.9 9.6 9.6 9.7 8.8 8.9	JUNE 7.8 7.8 7.9 8.2 8.4 8.2 8.1 7.9 8.2 8.5 8.5 8.4 8.4 8.4 8.3 8.2 8.1 8.2	8.1 8.2 8.4 8.7 8.5 8.4 8.7 8.9 8.9 8.9 8.9 8.4 8.4	8.9 8.6 8.5 8.9 8.7 8.3 8.9 9.1 9.2 9.3 9.3 9.2 9.1 9.6	JULY 8.2 8.0 8.0 7.9 7.9 7.9 8.1 7.9 8.0 8.0 8.2 8.6 8.5 8.7 8.8	8.5 8.3 8.2 8.3 8.2 8.2 8.3 8.4 8.5 8.6 8.7 8.8 9.0	8.8 8.7 8.5 8.8 8.7 8.7 8.8 9.1 9.1 9.2 9.4 9.4 9.3 9.3	8.1 8.1 8.1 8.2 8.2 8.2 8.2 8.2 8.4 8.5 8.5 8.5	8.4 8.4 8.3 8.4 8.4 8.4 8.5 8.6 8.6 8.8 8.8 8.7	9.4 9.5 9.4 9.0 8.8 8.7 8.5 9.1 9.1 9.2 9.3 9.2 9.0	SEPTEMBE 8.9 8.9 8.8 8.3 8.1 8.1 8.2 8.3 8.4 8.5 8.5 8.6 8.7	9.1 9.2 9.0 8.6 8.4 8.4 8.4 8.5 8.7 8.7 8.8 8.9 8.8 8.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	8.8 8.8 8.7 8.8 9.2 9.0 8.8 9.4 9.6 9.6 9.7 8.8 9.2 8.8 9.4 9.6 8.8 9.2 8.8 9.4 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6	JUNE 7.8 7.8 7.9 8.2 8.4 8.2 8.1 7.9 8.2 8.5 8.5 8.5 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7 7.8	8.1 8.2 8.4 8.7 8.5 8.4 8.7 8.9 8.9 8.9 8.9 8.9 8.4 8.4 8.4 8.3 8.1 8.1 8.1	8.9 8.6 8.5 8.9 8.7 8.3 9.1 9.2 9.3 9.3 9.2 9.1 9.6	JULY 8.2 8.0 8.0 7.9 7.9 7.9 8.1 7.9 8.0 8.0 8.2 8.6 8.5 8.7 8.8 8.7 8.8 8.7 8.8 8.7 8.8	8.5 8.3 8.2 8.3 8.2 8.2 8.3 8.4 8.5 8.6 8.7 8.8 9.0 9.1 9.0	8.8 8.7 8.5 8.8 8.7 8.7 8.8 9.1 9.1 8.9 9.2 9.4 9.3 9.2 9.2 9.3	8.1 8.1 8.1 8.2 8.2 8.2 8.2 8.4 8.5 8.4 8.5 8.7	8.4 8.4 8.4 8.4 8.4 8.5 8.6 8.6 8.8 8.7 8.7 8.7 8.7 8.9 8.9	9.4 9.5 9.4 9.0 8.8 8.7 8.5 8.9 9.1 9.2 9.3 9.2 9.0 9.2 9.0	SEPTEMBE 8.9 8.9 8.8 8.3 8.1 8.1 8.2 8.3 8.4 8.4 8.5 8.6 8.7 8.7 8.7 8.6 8.8 8.8 8.6 8.8	9.1 9.2 9.0 8.6 8.4 8.4 8.4 8.5 8.7 8.8 8.9 8.8 8.8 8.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	8.8 8.8 8.8 9.2 9.0 8.8 8.9 9.6 9.6 9.7 8.8 8.9 8.9 8.8 8.9 9.2 8.8 8.9 9.1	JUNE 7.8 7.8 7.9 8.2 8.4 8.2 8.1 7.9 8.2 8.5 8.5 8.4 8.4 8.2 8.1 8.2 8.7 7.9 8.1 8.2 8.1 8.2 8.1 8.2 8.1 8.2 8.1 8.2 8.1	8.1 8.2 8.4 8.7 8.5 8.4 8.3 8.9 8.9 8.9 8.9 8.4 8.4 8.3 8.1 8.1 8.3 8.1 8.3	8.9 8.9 8.6 8.5 8.9 8.7 8.3 8.9 9.1 9.2 9.3 9.3 9.2 9.1 9.5 9.3 9.3 9.5 9.3	JULY 8.2 8.0 8.0 7.9 7.9 8.1 7.9 8.0 8.0 8.2 8.6 8.5 8.7 8.6 8.4 8.6 8.9 8.9	8.5 8.3 8.2 8.3 8.2 8.3 8.4 8.5 8.6 8.7 8.8 9.0 9.1 9.0 8.9 8.9	8.8 8.7 8.5 8.8 8.7 8.7 8.8 9.1 9.1 9.2 9.4 9.3 9.2 9.2 9.2 9.2 9.2 9.2	8.1 8.1 8.1 8.2 8.2 8.2 8.2 8.4 8.5 8.5 8.5 8.7 8.7	8.4 8.4 8.3 8.4 8.4 8.5 8.6 8.6 8.8 8.8 8.7 8.7 8.9 8.9 9.0	9.4 9.5 9.4 9.0 8.8 8.7 8.5 9.1 9.2 9.3 9.2 9.0 9.1 9.3 9.3 9.3	SEPTEMBE 8.9 8.9 8.8 8.3 8.1 8.1 8.2 8.2 8.3 8.4 8.5 8.6 8.7 8.7 8.7 8.7 8.7 8.7	9.1 9.2 9.0 8.6 8.4 8.4 8.4 8.5 8.7 8.7 8.8 8.9 8.8 8.8 8.9 9.0
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12059500 NORTH FORK SKOKOMISH RIVER NEAR POTLATCH, WA

LOCATION.--Lat $47^{\circ}19^{\circ}42^{\circ}$, long $123^{\circ}14^{\circ}33^{\circ}$, in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.7, T.21 N., R.4 W., Mason County, Hydrologic Unit 17110017, on left bank 1.1 mi upstream from South Fork Skokomish River, 5.4 mi southwest of Potlatch, 7.2 mi downstream from City of Tacoma Cushman Dam No. 2, and at mile 10.1.

DRAINAGE AREA.--117 mi², includes 99 mi² upstream from Cushman Dam No. 2, which is noncontributing except during spillage.

PERIOD OF RECORD. -- March 1944 to November 1949 (destroyed by flood of Nov. 27, 1949), March 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 63.49 ft above NGVD of 1929 (levels by City of Tacoma). Prior to Nov. 27, 1949, and Mar. 18 to May 9, 1950, water-stage recorder at site 200 ft downstream at present datum.

REMARKS.--No estimated daily discharges. Records good. Upper portion of McTaggart Creek is diverted through Deer Meadow Creek into Cushman Reservoir No.2. Flow regulated at Lake Cushman and at Cushman Reservoir No.2 to supply powerplant, which discharges into Hood Canal. Entire flow of river normally diverted at Cushman Dam No.2 except infrequent releases. Water temperatures March 1965 to September 1982.

AVERAGE DISCHARGE.--52 years (water years 1951-2002), $118 \text{ ft}^3/\text{s}$, 85,240 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,740 ft³/s Nov. 4, 1955, gage height, 10.45 ft; minimum recorded discharge, 1.3 ft³/s Sept. 5, 14, 16, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,030 ${\rm ft^3/s}$ Dec. 16, gage height, 7.10 ${\rm ft}$; minimum discharge 62 ${\rm ft^3/s}$, several days in August and September.

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12060500 SOUTH FORK SKOKOMISH RIVER NEAR UNION, WA

LOCATION.--Lat $47^{\circ}20^{\circ}26^{\circ}$, long $123^{\circ}16^{\circ}44^{\circ}$, in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.2, T.21 N., R.5 W., Mason County, Hydrologic Unit 17110017, on right bank 3.0 mi upstream from Vance Creek, 2.3 mi upstream from confluence with North Fork, and 8.5 mi west of Union.

DRAINAGE AREA. -- 76.3 mi².

PERIOD OF RECORD.--August 1931 to September 1984, October 1995 to current year.

GAGE.--Water-stage recorder. Datum of gage is 103.35 ft above NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good except for discharges above 2,500 ft³/s, which are poor. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--60 years (water years 1932-84, 1996-2002), $747 \text{ ft}^3/\text{s}$, 133.05 in/yr, 541,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,400 ft³/s Mar. 19, 1997, gage height, 8.98 ft, from rating curve extended above 10,000 ft³/s; maximum gage height, 11.0 ft Jan. 22, 1935, Nov. 26, 1949; minimum discharge, 62 ft³/s Sept. 18, 1938; minimum gage height, 0.21 ft Sept. 30, 2002.

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 14	2230	8,130	5.35	Jan. 7	1530	*16,500	7.18
Dec. 13	2115	7,030	4.93	Feb. 21	2145	7,840	4.78
Dec. 16	1945	15,300	*7.24				
200. 10		10,000					

Minimum discharge, 73 ft³/s Sept. 30.

		DISCHA	RGE, CUBI	C FEET PE		WATER Y		BER 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4	127 122 120 118	1000 825 645 524	2440 2450 1470 1130	1010 2400 2040 1490	694 655 944 894	694 625 570 531	426 419 404 403	551 563 504 456	440 425 419 402	356 306 279 261	128 126 124 127	89 89 90 89
5	115	460	907	1290	798	501	437	431	402	250	128	89
6 7 8 9 10	113 113 113 113 128	403 363 331 305 285	936 944 1010 1130 931	4000 12400 6690 3420 2260	1330 1690 1190 930 805	474 448 416 415 543	516 523 466 552 1060	540	386 349 322 300 318	239 224 222 215 212	128 126 121 115 113	93 95 91 94 90
11 12 13 14 15	147 150 191 167 153	272 375 835 4290 4550	796 788 3530 3500 1740	1770 1790 1560 1280 1090	512	2570 2090 1500 1090 883	1200 1760 2530 3770 2000	330 392	332 342 359 366 340	207 197 196 191 185	112 108 105 105 105	89 89 89 89
16 17 18 19 20	141 133 128 128 128		8920 4850 2170 1590 1280	954 853 773 723 737	501 484 493 1130 994		1600 1310 1100 970 884	358 343 337 352	316 320 402 316 286	177 175 167 163 162	105 105 103 102 102	111 122 99 91 89
21 22 23 24 25	134 269 781 573 814	4400 3560 2130 1510 1150	1030 885 765 678 612	710 663 624 2110 3460	3860 6650 3060 1980 1420	604 569 567 587 589	802 717 646 592 554	367 352 338 324 333	278 282 275 260 250	157 154 153 149 147	101 95 95 95 95	89 85 85 85 82
26 27 28 29 30 31	627 679 572 445 465 1410	901 760 788 1180 1050	552 516 663 669 594 629	1730 1210 936 792 739 752	1100 908 783 	570 541 512 481 459 432	529 515 486 476 500	355 368 609 1150 658 505	250 251 321 945 470	140 140 138 134 132	95 95 92 92 92 90	82 82 82 78 75
TOTAL MEAN MAX MIN AC-FT CFSM IN.		43800 1460 4550								5959 192 356 131 11820 2.52 2.91	3325 107 128 90 6600 1.41 1.62	2687 89.6 122 75 5330 1.17 1.31
STATIST	rics of M							R YEAR (WY)				
MEAN MAX (WY) MIN (WY)	539 1727 1968 85.3 1937	1170 2952 1984 76.8 1937	1500 3330 1967 538 1979	1338 4030 1953 243 1949	1208 2594 1961 414 1956	932 2138 1972 446 1942	753 1397 1937 343 1973	1259 1948	387 909 1956 161 1934	1974 105	142 294 2001 80.1 1940	196 795 1978 69.0 1938
SUMMARY	Y STATIST							WATER YEAR		WATER YEARS	1931 -	2002
ANNUAL ANNUAL HIGHES' LOWEST HIGHES' LOWEST ANNUAL ANNUAL ANNUAL 10 PERG 90 PERG	TOTAL MEAN F ANNUAL ANNUAL M DAILY ME SEVEN-DA RUNOFF (R	MEAN EAN EAN AN Y MINIMUM AC-FT) CFSM) INCHES) EDS EDS EDS		209862 575 8920 109 114 416300 7.55 102.3 1040 373 131	Dec 16 Aug 20 Aug 14		288474 790 12400 75 81 572200 10. 140. 1750 456 95	Jan 7 Sep 30 Sep 24 4 65		747 1058 423 15800 63 64 541300 9.79 133.05 1620 467 113	Jan 15 Sep 16 Sep 13	1999 2001 1961 1938 1938

12061500 SKOKOMISH RIVER NEAR POTLATCH, WA

LOCATION.--Lat $47^{\circ}18^{\circ}36^{\circ}$, long 123°10'33", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.15, T.21 N., R.4 W., Mason County, Hydrologic Unit 17110017, on upstream side of right pier of bridge on U.S. Highway 101, 3.7 mi downstream from confluence of North and South Forks, 4.7 mi southwest of Potlatch, and at mile 5.3.

DRAINAGE AREA.--227 mi², includes 99 mi² upstream from Cushman Dam No. 2, which is noncontributing except during spillage.

PERIOD OF RECORD. -- July 1943 to current year.

REVISED RECORDS.--WSP 1716: 1950(M), 1956. WSP 1932: Drainage area. WDR WA-72: 1968(M), 1971(M). WDR WA-75: 1974.

GAGE.--Water-stage recorder. Datum of gage is 10.67 ft above NGVD of 1929. Prior to May 27, 1964, water-stage recorders or nonrecording gage at several sites about 0.6 mi upstream at different datums. Supplementary water-stage recorder on right bank at site 0.6 mi upstream at datum 16.47 ft above NGVD of 1929 used Nov. 16 to Dec. 10, 1964, June 11 to July 7, and Nov. 2-24 1965

REMARKS.--Records good except for estimated daily discharges and discharges above 10,000 cfs which are fair. Above stages of about 15 ft, the river flows out of the main channel upstream from the gage into three channels that bypass the gage. Plow partly regulated at Lake Cushman and Cushman Reservoir No. 2. In normal years, practically entire flow of North Fork is diverted at Cushman Dam No. 2 and is discharged into Puget Sound through Cushman powerplant No. 2. Chemical analyses August 1960 to September 1961, October 1961 to September 1970 (partial-record station), October 1971 to September 1974. Water temperatures May 1955 to September 1962, October 1963 to September 1982. Water temperatures and specific conductance July 1996 to April 1998. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--59 years (water years 1944-2002), 1,213 ft³/s, 128.72 in/yr, 878,500 acre-ft.yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,600 ft³/s, Nov. 23, 1990, gage height, 16.80 ft (floodmark), from rating curve extended above 14,000 ft³/s; maximum gage height, 17.75 ft, Mar. 19, 1997; minimum discharge, 99 ft³/s, Oct. 27, 28, Nov. 6-9, 1987.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of December 1933 reached an elevation of 30.8 ft NGVD of 1929 at site on left bank 150 ft upstream from old highway bridge, discharge, $18,600 \text{ ft}^3/\text{s}$.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 25,800 ft³/s Dec. 17, gage height, 17.17 ft; minimum discharge, 181 ft³/s Sept. 28-30.

		DISCH	ARGE, CUB	IC FEET PE		WATER Y	/EAR OCTOBEI /ALUES	R 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	231 225 221 217 213	1460 1240 1020 866 773	5340 6210 2680 2050 1720	1470 3660 3180 2370 2000	1350 1250 1540 1550 1420	1340 1220 1130 1060 1000		891 906 858 806 782	689 659 645 623 611		263 260 257 263 263	202 202 202 202 199
6 7 8 9 10	210 210 209 207 231	693 633 582 540 506	1730 1710 1700 1860 1680	5520 e20100 e16700 8170 4770	2130 2880 2100 1690 1470	958 911 870 855 1060	900 925 864 916 1470	748 714 683 658 638	603 572 543 517 526	442 430 420 407 399	264 260 251 246 242	200 209 206 210 205
11 12 13 14 15	255 260 299 289 272	480 560 947 7510 e13600	1510 1510 6180 9760 3320	5330 4700 3400	1350 1230 1130 1040 970	5160 3770 2750 2100 1730	1670 2390 3330 7050 3310		551 559 570	391 383 377 371 362	240 236 233 229 227	200 196 193 192 193
16 17 18 19 20	258 242 237 235 234	4990 2580 1880 2850 9160	e14900 e16000 5650 3330 2510	1240 1180	939 910 899 1480 1510	1500 1320 1220 1160 1330	2470 2040 1740 1550 1420	636 640 632 624 630	537 628	352 343 336 330 323	225 223 221 221 219	219 237 217 206 202
21 22 23 24 25	245 361 980 853 1190	e11800 9210 4080 2620 2020	1360	1100 1060	6340 e15800 7520 3590 2510	1240 1160 1130 1130 1120	1310 1210 1120 1040 988	644 630 619 603 605	484 482 475 459 446	316 310 304 300 297	218 217 214 212 213	198 194 193 190 189
26 27 28 29 30	980 1010 901 734 719	1680 1470 1500 2060 1970	1150 1080 1260 1260 1160	2100 1650 1420 1360	2000 1690 1490 	1090 1060 1020 975 930	936 885 860 862	622 636 794 1360 935	1170 765	283 278 273	213 212 209 206 205	188 187 186 184 184
TOTAL MEAN MAX MIN AC-FT CFSM	1780 14508 468 1780 207 28780 3.66	91280 3043 13600 480 181100 23.8	1180 106310 3429 16000 1080 210900 26.8	3916 20100 1060 240800 30.6	2492 15800 899 138400 19.5	5160 855 87650 11.1	1547 7050 812 92060 12.1	720 1360 603 44260 5.62	572 1170 441 34050 4.47	371 620 266 22800 2.90	203 7165 231 264 203 14210 1.81	5985 200 237 184 11870 1.56
IN.	4.22	26.53 MONTHLY M	30.90	35.28 FOR WATER	20.28 YEARS 1943	12.84	13.49 2, BY WATER	6.48 YEAR (WY)	4.99	3.34	2.08	1.74
MEAN MAX (WY) MIN (WY)	802 2570 1976 115 1988	1972 5582 1991 286 1994	2400 5169 1995 772 1986	2190 5540 1953 524 1949	2130 4067 1995 709 1985	1589 3432 1972 704 2001	1202 2005	848 1675 1948 473 1980	566 1213 1956 261 1992		252 690 1991 144 1944	300 1039 1978 147 1987
SUMMAR	Y STATIS	rics	FOR	2001 CALE	ENDAR YEAR		FOR 2002 W	ATER YEAR		WATER YEARS	1943 -	2002
LOWEST HIGHES' LOWEST ANNUAL ANNUAL ANNUAL ANNUAL 10 PER(50 PER(MEAN I ANNUAL ANNUAL I DAILY DAILY SEVEN-D RUNOFF	MEAN MEAN EAN AY MINIMU (AC-FT) (CFSM) (INCHES) EEDS	М	376916 1033 16000 180 185 747600 8.0 109.5 1710 597 225) /		558012 1529 20100 184 187 1107000 11.9 162.11 3310 853 212			1213 1993 635 30000 99 105 878500 9.47 128.72 2600 732 205	Dec 20 Nov 7 Oct 22	7 1987

e Estimated

BIG BEEF CREEK BASIN 103

12069550 BIG BEEF CREEK NEAR SEABECK, WA

LOCATION.--Lat $47^{\circ}38^{\circ}27^{\circ}$, long $122^{\circ}47^{\circ}02^{\circ}$, in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.22, T.25 N., R.1 W., Kitsap County, Hydrologic Unit 17110018, on left bank 1.1 mi upstream from county road bridge across Big Beef Harbor, and 1.9 mi east of Seabeck.

DRAINAGE AREA.--13.8 mi².

PERIOD OF RECORD.--August 1969 to October 1981, June 1983 to September 1995 (seasonal records), October 1995 to current year.

REVISED RECORDS.--WDR WA-76-1: 1975 (M).

GAGE.--Water-stage recorder. Elevation of gage is 40 ft above NGVD of 1929, from topographic map. Prior to July 7, 1978, at site 110 ft downstream at datum 2.03 ft lower.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Flow regulated by Lake Symington, 4.6 mi upstream. No diversions upstream from station.

AVERAGE DISCHARGE.--19 years (water years 1970-81, 1996-2002), 42.2 ft³/s, 41.57 in/yr, 30,590 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,840 ft^3/s Jan. 1, 1997, gage height, 6.97 ft, from rating curve extended above 700 ft^3/s on basis of slope-area measurement at gage height of 6.97 ft; minimum discharge, 2.2 ft^3/s Aug. 12-17, 1990.

DISCHARGE CURIC FEET PER SECOND WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,520 ${\rm ft}^3/{\rm s}$ Dec. 16; gage height, 6.53 ft; maximum gage height, 6.84 ft from inside high water mark affected by back water from debris; minimum discharge, 2.7 ${\rm ft}^3/{\rm s}$ Aug. 17, 30.

		DISCHA	RGE, CUBI	C FEET PER		VATER YE MEAN VA	AR OCTOBER LUES	2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	3.1 3.1 3.1 3.2 3.2	16 13 10 9.8 9.3	577 355 146 96 75	e62 e75 71 67 70	51 48 50 47 45	43 40 37 35 34	22 21 20 20 19	17 17 16 15	e11 e10 e10 e9.8 e9.3	6.5 5.7 5.2 5.0 4.8	3.2 3.2 3.1 3.3 3.9	2.8 3.2 3.1 3.0 2.9
6 7 8 9 10							18 18 18 20 23			4.5 4.9 5.4 4.9 4.6	3.3 3.1 3.0 3.0 3.1	2.9 2.9 3.7 3.7
11 12 13 14 15	4.1 4.3 4.2 4.4 4.1	7.4 9.1 20 137 245	60 57 165 293 195				23 24 28 49 47			4.2 4.2 4.1	4.0 3.2 3.0 2.9 2.9	3.4 3.4 3.2 3.2 3.3
16 17 18 19 20	5.1 5.4 4.8 7.0 5.4		837 761 308 179 123				41 41 34 31 28				2.8 2.8 2.8 2.8 2.9	3.4 3.3 3.2 3.1 3.0
21 22 23 24 25	4.1 5.3 7.9 9.0	258 346 208 112 66	95 78 71 e64 e58				26 24 22 21 20				2.9 2.9 2.8 2.8 3.8	2.9 3.0 3.0 3.0 3.0
26 27 28 29 30 31	8.8 17 13 9.5 10	42 29 40 149 190	e53 e50 e52 e50 e49 e51	132 96 75 61 53 55	58 51 46 	28 27 25 25 24 23	20 21 20 19 18	11 11 12 15 14	6.3 6.4 8.0 10 7.8	3.3 5.0 4.9 4.7 4.0 3.3	3.5 3.2 2.9 2.8 2.8 3.0	3.0 3.0 3.0 3.0 3.0
TOTAL MEAN MAX MIN AC-FT CFSM IN.	194.9 6.29 19 3.1 387 0.46 0.53	2473.4 82.4 346 7.4 4910 5.97 6.67	5195 168 837 47 10300 12.1 14.00	4328 140 1020 35 8580 10.1 11.67	1887 67.4 160 36 3740 4.88 5.09	1614 52.1 200 23 3200 3.77 4.35	18 1500	409 13.2 17 11 811 0.96 1.10	240.4 8.01 11 6.3 477 0.58 0.65	4.39 6.5 3.2 270	95.7 3.09 4.0 2.8 190 0.22 0.26	94.1 3.14 3.7 2.8 187 0.23 0.25
STATIST						- 2002,	BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	13.1 77.4 1998 3.36 1988	51.1 136 1976 4.23 1994	106 205 1999 8.03 1977	95.5 178 1999 9.65 1977	87.5 300 1999 15.0 1977	69.4 144 1997 27.5 1996	34.4 67.6 1996 11.1 1977	17.3 37.8 1996 9.32 1977	9.94 17.9 2000 5.05 1989	5.77 10.5 1997 3.57 1991	4.29 8.41 1975 2.48 1994	1978 2.56
SUMMARY	STATIST	rics	FOR	2001 CALENI	DAR YEAR	F	OR 2002 WA	TER YEAR		WATER YEARS	1969 -	2002
LOWEST HIGHEST LOWEST ANNUAL ANNUAL ANNUAL ANNUAL 10 PERC	MEAN LANNUAL	MEAN MEAN EAN AY MINIMUM (AC-FT) (CFSM) (INCHES) EEDS		12631.7 34.6 837 2.9 3.0 25050 2.51 34.05 59 17 3.8	Dec 16 Sep 15 Sep 12		17423.6 47.7 1020 2.8 2.8 34560 3.46 46.97 113 14 3.1	Jan 7 Aug 16 Aug 14		42.2 82.1 14.9 1600 2.2 2.3 30590 3.06 41.57 103 16 4.2		1999 1977 1997 1990 1990

e Estimated

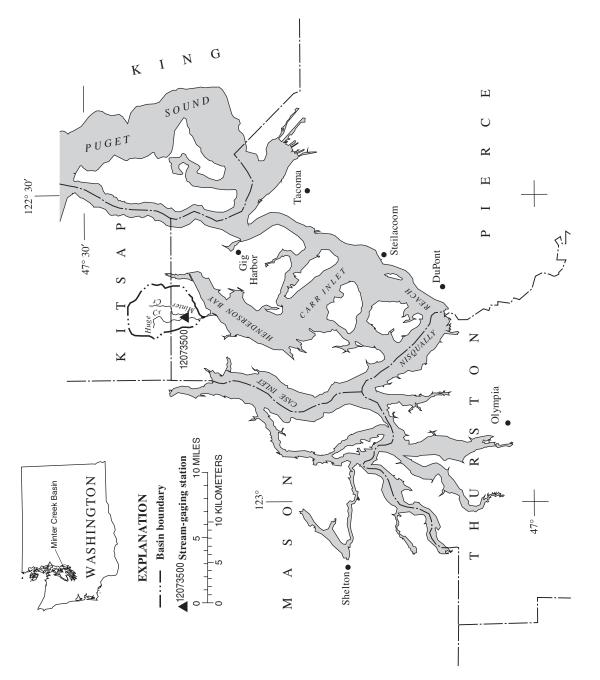
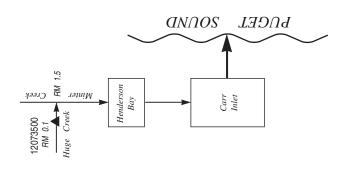


Figure 17. Location of the surface-water station in the Minter Creek Basin.



EXPLANATION

A12091200 Stream-gaging station

RM 2.0 River mile

→ Stream-Arrow shows direction of flow

---- Tunnel or pipe-Arrow shows direction of flow

Figure 18. Schematic diagram showing the surface-water station in the Minter Creek Basin.

106 MINTER CREEK BASIN

12073500 HUGE CREEK NEAR WAUNA, WA

LOCATION.--Lat 47°23'22", long 122°41'52", at north line sec.20, T.22 N., R.1 E., Pierce County, Hydrologic Unit 17110019, on right bank 25 ft upstream from bridge, 0.1 mi upstream from mouth, and 2.5 mi west of Wauna.

DRAINAGE AREA. -- 6.47 mi².

Time

Date

PERIOD OF RECORD.--July 1947 to September 1969, October 1977 to current year.

REVISED RECORDS.--WSP 1636: 1953-54, 1956, 1957(M). WSP 1932: Drainage area.

Discharge Gage height (ft³/s) (ft)

GAGE.--Water-stage recorder. Elevation of gage is 100 ft above NGVD of 1929, from topographic map. Prior to Sept. 27, 1978, at site 50 ft downstream and prior to June 26, 1951, at datum 0.86 ft higher.

REMARKS.--Records good except for period Oct. 16 to May 1, which is poor. No regulation or diversion upstream from station.

Date

AVERAGE DISCHARGE.--47 years (water years 1948-69, 1978-2002), 11.2 ft³/s, 23.59 in/yr, 8,140 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 526 $\mathrm{ft^3/s}$, Mar. 19, 1997, gage height, 5.76 ft; minimum discharge, 2.4 $\mathrm{ft^3/s}$, Sept. 30, 1994, Oct. 1, 1994.

Time

Discharge Gage height (ft³/s) (ft)

 $\hbox{\it EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 70 ft}^3/s \ \hbox{\it and maximum} \ \ (\star): \\$

Date	Time	(ft ³ ,	(s)	(ft)	Date		Time	(ft ³ /	s)	(ft)		
Dec. 16 Jan. 07			285 280	*4.43 4.40	Jan.	25	0615	2	12	3.12		
Minimum disch	harge, 2	.8 ft ³ /s, 0	Oct. 6.									
		DISCHAR	GE, CUBIC	C FEET PER		WATER YE MEAN VA	AR OCTOBER	2 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	4.5	52	e22	16	12	e8.3	e7.8	6.4	5.5	4.5	4.4
2	3.3	4.9	45	e27	15	11	e8.0	8.1	6.4	5.4	4.5	4.4
3 4	3.2 3.6	4.1 3.7	27 26	e26 e25	15 14	10 9.8	e7.8 e7.9	7.9 7.8	6.2	5.3 5.3	4.5	4.4
5	3.5	4.1	26	e25	14	9.7		7.7	6.1		5.0	4.4
6	3.2	3.8	30	e50	19	9.6	e7.6	7.9	6.0	5.1	5.0	4.4
7	3.4	3.7	21	e240	24	9.5	e7.6	7.8	6.1	5.6	4.7	4.4
8 9	3.4 3.5	e3.4	17 14	e170 e105	22	9.2	e7.9	7.5	6.3	5.6	4.5	4.5 4.5
10	4.2	3.7 e3.4 e3.4 e3.2	13	e52	22 17 16	11	e10	7.4	6.0	5.1 5.6 5.6 5.2 5.1	4.5	4.3
11	4.0	e3.4	12	e43	17 16 14 13 13 12 12	38					4.5	4.3
12	5.5	01.7	e11	e38	13	37	e10	7.2	5.7	5.0 4.9 4.8	4.4	4.1
13 14	3.9 4.0	e10 27	e15 e54	e25	13	33	e13	7.4	5.5	4.8	4.3	4.1
15	3.9	16	e40	e43 e38 e25 e22 e19	12	18	e10 e10 e13 e21 e20	7.1	5.6	5.0 4.9 4.8 4.9 4.8	4.3	4.3
16	3.6	10	e250	e18	12	16					4 3	4.9
17	3.6	7.4	e220	e16	12	15	e18 e18 e15	7.9	6.0	4.8 4.8 4.8	4.3	4.5
18	3.5	6.1	e80	e14	12	15	e15	7.2	6.7	4.8	4.3	4.2
19 20	3.6 3.5	8.0 12	e56 e42	e14 e14	12 10	15 19	e13 e12	7.2	5.6	4.8	4.5	4.2
21	2.0	20	-22	10	24	15	-10			4.6	4 5	4 1
21	3.8 5.2	37	e33 e28	13 12	24 44	14	e12 e11	7.3 7.2	5.5 5.5	4.6	4.5 4.5	4.1 4.0
23	4.9	27	e24	11	35	12	e9.9	7.0	5.4	4.5	4.5	4.0
24 25	4.3 5.5	16 11	e21 e20	43 98	25 18	11 11	e9.4 e9.0	7.3 7.2 7.0 6.8 6.7	5.4 5.3		4.5 4.5	4.1 4.1
						11	65.0					
26 27	4.3 6.3	8.4 7.2	e19 e17	53	16 14	e9.6	e8.6 e9.0	6.6 6.6 7.3 7.7	5.2 5.3		4.5	4.1 4.1
28	4.9	15	e18	53 37 27 20	12	e9.4 e9.4	e8.9	7.3	7.3	4.7	4.4	4.1
29	3.9	43	e18			e9.2	e8.6	7.7	8.3	4.8		4.1
30 31	4.2 6.3	37	e17 e18	18 18		e8.8	e8.2	6.7	5.8	4.8 4.9 4.7	4.3	4.0
						00.0	e8.9 e8.6 e8.2	0.5		4.7	4.5	
TOTAL MEAN	125.8	365.0 12.2	1284	1315	482	446.1	326.4	226.7	179.0	153.1	139.2	127.9 4.26
MAX	6.3	43	250	240	44	38	21	8.1	8.3			4.20
MIN	3.2	3.2	11	42.4 240 11 2610	10	8.6	7.6	6 5	E 2	4 5	4.3	4.0
AC-FT CFSM	250 0.63	724 1.88	2550 6.40	2610 6.56	956 2.66	885 2.22	647 1.68	450	355	304	276 0.69	254 0.66
IN.	0.72	2.10	7.38	7.56	2.77	2.56	1.88	1.30	1.03	304 0.76 0.88	0.80	0.74
STATIST	ICS OF M	ONTHLY MEA	N DATA FO	OR WATER Y	EARS 1947	- 2002,	BY WATER					
MEAN	5.50	10.5	18.6	23.5	22.5	16.3	10.6	7.51	6.08	5.06	4.60	4.66
MAX (WY)	9.76 1998	29.2 1991	41.4 2002	47.1 1966	58.1 1999	42.7 1997	24.6 1991	12.4 1959	8.60 1984	7.31 1961	6.18 1968	6.68 1978
MIN	3.45	3.55	4.97	5.37	5.73	7.16	6.07	4.52	4.24	3.50	3.15	3.23
(WY)	1988		1953	1979	1993	2001	2001	1994	2001	1994	1994	1989
SUMMARY	STATIST	ICS	FOR 2	2001 CALEN	DAR YEAR	F	OR 2002 W	TER YEAR		WATER YEA	RS 1947 -	2002
ANNUAL 7				3239.0			5170.2					
ANNUAL N		MIDANI		8.87			14.2			11.2		1000
	ANNUAL M									19.8 5.5		1999 2001
HIGHEST	DAILY M	EAN		250	Dec 16		250	Dec 16		400	Mar 19	1997
	DAILY ME	AN Y MINIMUM		3.2	Oct 3 Sep 30		3.2	Oct 3		2.7	Sep 30 Oct 4	
	SEVEN-DA RUNOFF (.			6420	sep su		10260	OCL I		8140	OCL 4	1774
ANNUAL E	RUNOFF (CFSM)		1.37			2.19			1.7		
	RUNOFF (18.62 14			29.73	3		23.5	9	

14 5.2 3.5

26 7.3 4.1

10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS

e Estimated

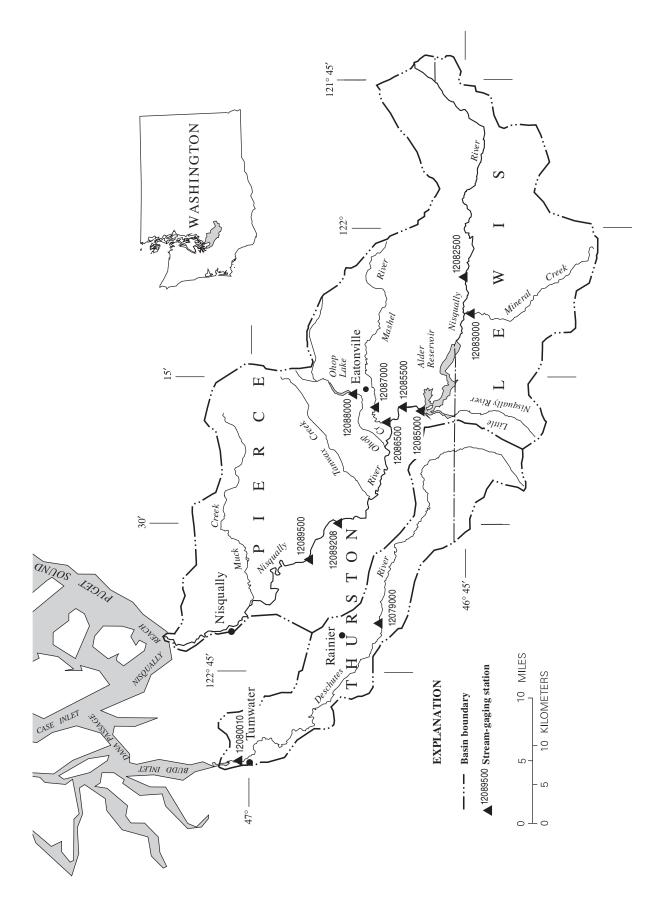


Figure 19. Location of surface-water stations in the Deschutes and Nisqually River Basins.

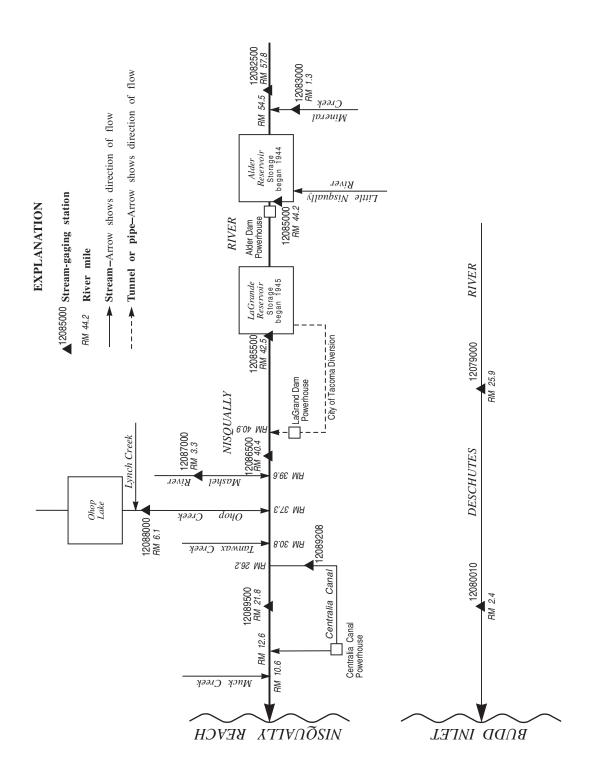


Figure 20. Schematic diagram showing surface-water stations in the Deschutes and Nisqually River Basins.

DESCHUTES RIVER BASIN 109

12079000 DESCHUTES RIVER NEAR RAINIER, WA

LOCATION.--Lat $46^{\circ}51^{\circ}08^{\circ}$, long $122^{\circ}40^{\circ}03^{\circ}$, in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.22, T.16 N., R.1 E., Thurston County, Hydrologic Unit 17110016, on right bank 75 ft upstream from county road crossing, 0.4 mi downstream from outlet of Reichel Lake, 2.7 mi southeast of Rainier, and at mile 25.9.

DRAINAGE AREA. -- 89.8 mi².

PERIOD OF RECORD.--June 1949 to September 1975; water years 1976-79 (annual maximum); June 1980 to July 1982; June 1983 to October 1987 (seasonal records); October 1987 to September 1998; October 1998 to April 1999 (seasonal record); October 1999 to current year.

REVISED RECORDS.--WSP 1246: Drainage area. WDR WA-83-1: 1978(P).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 348.77 ft above NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good except for flows above 700 ft³/s, which are fair. Probably some small diversions for irrigation and domestic use upstream from station. No regulation. U.S. Geological Survey satellite telemeter at station. Chemical analyses July 1959 to July 1960, October 1971 to September 1972. Water temperatures August 1968 to September 1970.

 $AVERAGE \ DISCHARGE. --41 \ years \ (water \ years \ 1950-75, \ 1981, \ 1988-98, \ 2000-02), \ 262 \ ft^3/s, \ 39.64 \ in/yr, \ 189,800 \ acre-ft/yr.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,600 ft³/s Jan. 9, 1990, gage height, 17.01 ft, from outside high-water mark, from rating curve extended above 3,900 ft³/s; minimum discharge, 16 ft³/s Sept. 7, 1963, gage height, 2.60 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 14	1545	2,170	8.31	Jan. 08	0230	3,340	10.20
Dec. 01	2215	2,450	8.79	Jan. 25	1200	2,540	8.95
Dec. 14	0115	3,660	10.66	Mar. 11	2015	2,530	8.93
Dec. 17	0615	*4,860	*12.29	Apr. 14	0800	2,060	8.12

Minimum discharge, 19 ft³/s Sept. 27-30.

		DISCHA	RGE, CUBI	C FEET PE		WATER Y	EAR OCTOBER ALUES	R 2001 TO 8	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	272	1740	211	352	260	231	172	116	92	35	24
2	26	199	1690	290	322	237	224	173	108	81	33	24
3	25	155	941	294	353	218	216	168	102	74	33	25
4	25	126	677	258	380	204	207	158	97	70	33	25
5	25	109	538	235	345	198	207	156	98	66	35	24
6	24	95	571	286	390	202	218	166	94	62	41	24
7	24	84	646	2000	787	188	226	160	90	61	39	28
8	25	75	495	2500	958	177	215	152	88	71	35	27
9 10	25 26	69 64	441 381	1150 692	782 568	169 262	215 333	144 139	86 81	63 58	33 32	26 25
11	31	60	371	498	502	1310	418	135	82	54	33	24
12	33	60	381	488	417	1750	529	130	79	52	32	22
13	31	74	1110	516	358	1210	645	135	76	50	30	22
14	35	1480	2370	436	310	833	1630	147	73	48	29	21
15	41	1090	1040	360	278	607	992	138	72	48	28	21
16	37	697	1990	309	261	486	694	132	70	46	28	22
17	35	429	3370	275	249	407	557	131	70	45	28	23
18	34	303	1380	247	249	350	456	128	73	45	27	24
19	32	285	1090	247	315	390	380	128	74	44	27	22
20	32	491	800	275	355	686	335	131	68	44	27	21
21	31	714	595	378	637	565	300	147	66	41	27	21
22	35	1030	475	333	866	460	272	139	62	40	27	21
23	90	1220	387	297	672	401	249	128	60	40	27	20
24	109	650	334	500	621	370	229	120	60	39	26	20
25	102	427	296	1890	479	351	213	115	57	39	25	20
26	96	322	266	1170	389	329	205	113	56	39	25	20
27	96	263	245	687	330	310	210	113	55	38	26	20
28	114	465	244	494	292	289	203	128	64	37	26	19
29	87	1370 1030	233 217	390		271	186 178	164	147	37	25	19
30 31	78 228	1030	217	341 339		255 242	1/8	152 129	118	36 35	24 24	20
TOTAL	1658	13708	25523	18386	12817	13987	11173	4371	2442	1595	920	674
MEAN	53.5	457	823	593	458	451	372	141	81.4	51.5	29.7	22.5
MAX	228	1480	3370	2500	958	1750	1630	173	147	92	41	28
MIN	24	60	209	211	249	169	178	113	55	35	24	19
AC-FT	3290	27190	50620	36470	25420	27740	22160	8670	4840	3160	1820	1340
CFSM	0.60	5.09	9.17	6.60	5.10	5.02	4.15	1.57	0.91	0.57	0.33	0.25
IN.	0.69	5.68	10.57	7.62	5.31	5.79	4.63	1.81	1.01	0.66	0.38	0.28
STATIST	rics of M	ONTHLY MEA	AN DATA F	OR WATER	YEARS 1949	- 2002	, BY WATER	YEAR (WY)				
MEAN	102	346	526	579	532	414	308	163	102	55.2	39.8	41.8
MAX	385	725	1063	1071	1087	839	659	287	233	110	74.1	89.7
(WY)	1998	1961	1956	1953	1999	1972	1991	1960	1990	1974	1968	1968
MIN	23.1	35.9	163	111	126	116	118	72.2	42.8	37.6	24.0	22.5
(WY)	1988	1953	2001	2001	1993	1992	1973	1994	1992	1970	1992	2002
SUMMARY	Y STATIST	ICS	FOR	2001 CALE	NDAR YEAR		FOR 2002 W	ATER YEAR		WATER YEAR	S 1949 -	2002
ANNUAL				71322			107254					
ANNUAL				195			294			262		
	T ANNUAL									407		1997
	ANNUAL M			2256	B		2250	D 1-		109	.	2001
	r Daily M			3370	Dec 17		3370	Dec 17		6000	Jan 9	
	DAILY ME			24	Oct 6		19	Sep 28		19	Oct 11	
		Y MINIMUM		25 141500	Oct 3		20 212700	Sep 23		20 189800	Sep 23	2002
	RUNOFF (2.1	0		3.27	7		2.92		
	RUNOFF (29.5			44.43			39.64		
	CENT EXCE			400	_		689	•		621		
	CENT EXCE			103			147			140		
	CENT EXCE			28			25			35		
>∪ Fin((CTIAL DVCD			20			2.5			رر		

110 DESCHUTES RIVER BASIN

12080010 DESCHUTES RIVER AT E STREET BRIDGE, AT TUMWATER, WA

LOCATION.--Lat 47°00'43", long 122°54'07", in NW $\frac{1}{4}$ Land Grant parcel 60, T.18 N., R.2 W., Thurston County, Hydrologic Unit 17110016, on left bank at "E" Street bridge, 0.2 mi upstream from Capitol Boulevard, and at mile 2.4.

DRAINAGE AREA. -- 162 mi2.

PERIOD OF RECORD.--April 1945 to November 1954, water years 1955-57 (annual maximum), June 1957 to June 1964, published as "12080000 Deschutes River near Olympia". October 1990 to current year.

REVISED RECORDS.--WDR WA-96-1: 1991(P), 1992(P).

GAGE.--Water-stage recorder. Datum of gage is 62.01 ft above NGVD of 1929. April 1945 to Nov. 1954, water-stage recorder, Nov. 1954 to June 1957, crest-stage gage, June 1957 to June 1964, water-stage recorder, at site 1 mi upstream, at different datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Some small diversions for irrigation and domestic use upstream from station. No regulation. Miscellaneous discharge measurement site 1971-72, 1975, 1977-90.

AVERAGE DISCHARGE.--27 years (water years 1946-54, 1958-63, 1991-2002), 408 ft³/s, 34.20 in/yr, 295,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,700 ${\rm ft}^3/{\rm s}$ Feb. 9, 1996, gage height, 34.17 ft, on basis of slope-area measurement of peak flow; minimum discharge, 51 ${\rm ft}^3/{\rm s}$ Sept. 22-24, 1995.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,400 ft^3/s and maximum (*):

Date	Time	Disch (ft ³	narge (Gage height (ft)	Date	è	Time	Discha (ft ³ /s	rge (age height (ft)		
Nov 15 Dec 02 Dec 14 Dec 17	0345 1130 1730 2130	2,4 3,0 3,4 *5,1)30 130	28.92 29.52 29.94 *31.44	Jan Jan Mar	26	1715 0145 1115	3,43 2,88 2,58	0	29.92 29.32 28.98		
Minimum disc	charge, 5	9 ft ³ /s Oc	t. 6-9.									
		DISCHAR	RGE, CUB	IC FEET PER	SECOND,	WATER Y	EAR OCTOBE ALUES	R 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	348	1730	432	743	561	397	310	222	179	e92	79
2	65	291	2690	483	691	525	385	308	211	164	e91	78
3	63 61	233 196	1660 1150	519 483	675 724	497 476	373 360	302 294	204 196	155 149	e88 e88	78 78
5	61	170	929	452	683	462	351	288	194	145	e90	79
6	60	154	850	486	684	460	358	297	192	139	e108	79
7	59	138	1030	1450	982	447	361	291	187	139	e114	79
8	61	126	849	3080	1250	428	357	283	184	141	e100	84
9	60	118	748	2010	1220	413	349	271	180	142	e96	83
10	69	110	660	1170	964	448	436	265	175	134	e94	80
11	67	104	612	886	855	906	539	258	168	128	e96	78
12	74	104	604	790	764	2290	615	254	166	125	e94	76
13	71	124	867	833	689	1700	774	254	162	124	e92	75
14 15	73 72	1020 1890	2880 1810	753 662	624 578	1280 979	1580 1510	264 258	158 155	121 120	e92 e90	74 74
16 17	75 72	1090 667	1740 3910	591 541	551 531	813 720	1020 824	252 253	154 154	118 117	e90 e89	75 74
18	69	462	2860	504	520	653	692	246	154	116	e87	76
19	68	384	1730	491	559	677	594	241	156	115	e87	75
20	68	547	1350	508	628	951	530	246	150	114	e87	74
21	70	832	1050	616	758	926	482	251	147	112	e85	73
22	80	1030	868	605	1230	782	444	253	142	109	e85	73
23	85	1800	743	567	1070	693	411	241	137	107	e83	73
24	147	1070	656	742	998	639	381	229	135	105	e83	72
25	146	690	594	1920	849	590	361	223	135	e104	e81	72
26	144	519	545	2220	740	547	348	218	133	e102	e81	72
27	147	418	509	1350	666	516	352	217	133	e100	e80	72
28 29	152 143	462 1570	491 474	1020 852	608	488 461	350 329	232 250	146 180	e98 e98	e80 e80	71 71
30	127	1570	447	765		435	315	267	218	e97	e79	71
31	156		434	737		416		242		e96	79	
TOTAL	2733	18237	37470	28518	21834	22179	16178	8058	5028	3813	2761	2268
MEAN	88.2	608	1209	920	780	715	539	260	168	123	89.1	75.6
MAX	156	1890	3910	3080	1250	2290	1580	310	222	179	114	84
MIN	59	104	434	432	520	413	315	217	133	96	79	71
AC-FT	5420	36170	74320	56570	43310	43990	32090	15980	9970	7560	5480	4500
CFSM IN.	0.54	3.75 4.19	7.46 8.60	5.68 6.55	4.81 5.01	4.42 5.09	3.33 3.71	1.60 1.85	1.03	0.76 0.88	0.55	0.47 0.52
				FOR WATER Y					1.15	0.00	0.03	0.52
MEAN	163	506	738	766	836	606	471	304	194	132	107	99.9
MEAN MAX	163 463	921	1480	1308	1753	1176	936	304 499	300	132	148	162
(WY)	1998	2000	1999	1953	1999	1950	1991	1948	1997	1997	1997	1997
MIN	76.8	84.1	239	195	244	236	283	140	110	77.1	69.8	57.2
(WY)	1953	1994	2001	2001	1993	2001	2001	1994	1992	1992	1992	1995
SUMMARY	STATIST	ICS	FOR	2001 CALEN	DAR YEAR		FOR 2002 W	ATER YEAR		WATER YEARS	S 1945 ·	2002
ANNUAL ANNUAL	MEAN			107807 295			169077 463			408		
	ANNUAL M									658 178		1999 2001
	M YLIAG 1			3910	Dec 17		3910	Dec 17		8150	Feb 9	
LOWEST	DAILY ME	AN		59	Oct 7		59	Oct 7		52	Sep 22	1995
		MUMINIM Y.		61	Oct 3		61	Oct 3		53	Sep 18	1995
		AC-FT)		213800			335400	_		295400		
	RUNOFF (1.82 24.76			2.8			2.52		
10 DED	RUNOFF (EDS		24.76 598			1020	٠,		34.20 904		

68

10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS

e Estimated

nisqually river basin 111

12082500 NISQUALLY RIVER NEAR NATIONAL, WA

LOCATION.--Lat $46^{\circ}45'10"$, long 122°04'57", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.29, T.15 N., R.6 E., Pierce County, Hydrologic Unit 17110015, on right bank 100 ft downstream from old railroad bridge, 1.2 mi west of National, 3.3 mi upstream from Mineral Creek, and at mile 57.8.

DRAINAGE AREA. -- 133 mi2.

PERIOD OF RECORD. -- May 1942 to current year.

REVISED RECORDS.--WSP 1716: 1943(M), 1947(P), 1950-51, 1956(M). WDR WA-74-1: 1968(M), 1969(M), 1972(P).

GAGE.--Water-stage recorder. Elevation of gage is 1,450 ft above NGVD of 1929, from river-profile map.

REMARKS.--Records good except for estimated daily discharges, which are fair. Small diversions for domestic use. Water temperatures published October 1951 to September 1982. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,200 ft³/s, Feb. 8, 1996, gage height, 12.18 ft; minimum discharge, 100 ft³/s, Nov. 10, 17, 1987.

AUG

SEP

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,600 ft^3/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 14 Nov. 22	1400 2245	4,610 2,800	6.40 5.90	Dec. 17 Jan. 08	0130 0030	4,840 *8,630	7.03 *8.26
Dec. 13	2230	3,260	6.19	Apr. 14	0415	5,470	6.98
Minimum discha	rge, 157	ft^3/s , Oct. 9	, 10.				
		DISCHARGE, CU	JBIC FEET PER	SECOND, WATER DAILY MEAN		2001 TO SEPTI	EMBER 2002
DAY	OCT	NOV DEC	C JAN	FEB MAR	APR	JL YAM	JN JUL
1	275	896 1060	305	485 673	572	813 148	30 1080
2	305	916 1030	434	461 616	576	937 143	30 973
3	314	802 872	429	444 574	583	868 136	50 921
4	339	702 774	1 384	426 545	628	763 131	70 844

DAI	001	INOV	DEC	OPIN	PED	PIPIC	AFIC	PPLI	OON	001	AUG	SEF
1	275	896	1060	305	485	673	572	813	1480	1080	578	568
2	305	916	1030	434	461	616	576	937	1430	973	546	579
3	314	802	872	429	444	574	583	868	1360	921	502	552
4	339	702	774	384	426	545	628	763	1370	844	497	367
5	294	707	693	363	432	535	734	710	1640	762	435	321
,	234	707	093	303	432	222	734	710	1040	702	433	321
6	278	611	708	622	479	522	817	651	1580	797 932	411	313
7	213	547	644	5130	602	481	901	595	1240	932	383	300
8	206	503	617	5910	577	454	853	539	1010	1070	402	263
9	168	467	589	2830	520	435	891	499	879	926	500	291
10	231	445	708 644 617 589 559	1840	512	472	1260	595 539 499 468	914	1060	629	357
10	231	113	333	1040	312	1/2	1200	400	214	1000	025	337
11	294	430	525	1440	503	1170	1380	475	1070	1150	617	446
12	393	491	503	1410	460	1350	1500	565	1320	1120	624	e460
13	463	687	1530	1260	435	1040	2010	791	1650	1200	693	e470
14	706	3620	2290	1070	408	877	4410	839	1930	1110	756	440
15	428	3010	1420	943	400	769	2410	818	1840	925	709	417
16	339	2120	2790	849	402 401 421 499 494	687	1560	802	1600	893	655	385
17	269	1430	3090	772	401	613	1170	e860	1300	892	605	299
18	233	982 937	1600	721	421	560	957	e940	1310	838	552	266
19	280	937	1110	712	499	566	957 830 760	e980	1140	788	524	341
20	233 280 281	1140	841	710	494	626	760	e1200	1090	720	523	383
21	298	1270	679 573	670 610 562 642	896	606	709	e1300		729 794 835 816 812	491	327
22	404	1800	573	610	1370	586	673	1140	1330	794	572	349
23		2200	485	562	1420	592	626	1060	1320	835	585	373
24	441	1470	423	642	1440	609	592	1010	1190	816	601	391
25	488	1130	375	951	1150	655	584	1080	1210	812	574	379
26	F0F	930	337	764	967	657	598	1220	1420	760	589	341
26	505 505	930 793 819 958	337	656	839	635	608	1400	1440	768 696 692 815 830	589 599	267
28	434	733	310	572	748	618	565	1830	1440	636	658	253
20	434	819	325							692		
29	380	958	293	522		601	572	2310	2130	815	673	288
30	531	875	337 310 325 293 274	511		585	653	2020	1410	830	575	212
31	908		295	498		572		1710		655	522	
TOTAL	11698	33688	27614	35092	18191	20281	30982	31193	41253	27443	17580	10998
MEAN	377	1123	891	1132	650	654	1033	1006	1375	885	567	367
MAX	908	3620	3090	5910	1440	1350	4410	2310	2130	885 1200	756	579
MIN	160	3620 430	891 3090 274	5910 305	400	1330	565	1006 2310 468	2130	655	567 756 383	212
AC-FT	23200	66820	54770	69600	36080	40230	61450	61870	81830	54430	34870	212
CFSM	2.84	8.44							10.3		34870	21810
IN.	3.27	9.42	6.70 7.72	8.51 9.82	4.88 5.09	4.92 5.67	7.76 8.67	7.57 8.72	11.54	6.66 7.68	4.26	2.76
TIN.	3.27	3.42	1.12	9.02	5.09	5.07	0.07	0.72	11.54	7.00	4.32	3.00
STATIST	rics of M	ONTHLY MEA	AN DATA F	OR WATER	YEARS 1942	- 2002,	BY WATER	YEAR (WY)				
MEAN	466	835	957	866	821	648	786	1037	1058	808	563 952 1999	432
MAX	1333	2696	2344	1805	2330	1784	1276	1681	2010	1334	952	739
(WY)	1948	835 2696 1996	1976	1974	821 2330 1996	1972	1990	1949	1974	1974	1999	1959
MIN	205	140	246	285	318	296	363	1037 1681 1949 596	490	433	333	275
(WY)	1990	1953	1953	1979	1966	1955	1975	1992	1992	1992	1994	1985
(VV I)	1220	1300	1203	13/3	1300	1300	17/0	1772	1332	1774	1224	1305
SUMMARY	STATIST	rics	FOR	2001 CALE	NDAR YEAR	F	FOR 2002 W	MATER YEAR		WATER YEAR	RS 1942 -	2002
ANNUAL	TOTAL			224486			306013					
ANNUAL				615			838			773		
	C ANNUAL									1186		1996
	ANNUAL M									496		1944
HIGHEST	r Daily M	IEAN		3620	Nov 14		5910	Jan 8		15700	Feb 8	1996
LOWEST	DAILY ME	AN		168	Nov 14 Oct 9 Oct 5		168	Oct 9		105	Nov 10	1987
ANNUAL	SEVEN-DA	AN Y MINIMUM AC-FT) CFSM)		241	Oct 5		5910 168 241 607000 6.3	Oct 5		15700 105 116 559900	Nov 26	1952
ANNUAL	RUNOFF (AC-FT)		445300			607000			559900		
ANNUAL	RUNOFF (CFSM)		4.6			6.3	10		5.81	-	
ANNUAL	RUNOFF (INCHES)		62.7			85.5			78.96		
	CENT EXCE			965			1430			1340		
	CENT EXCE			518			655			629		
	CENT EXCE			278			340			320		
_0 12100				2.0			510			220		

e Estimated

112 NISQUALLY RIVER BASIN

12083000 MINERAL CREEK NEAR MINERAL, WA

LOCATION.--Lat 46°44'40", long 122°08'36", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.35, T.15 N., R.5 E., Lewis County, Hydrologic Unit 17110015, on right bank 0.3 mi downstream from railroad bridge, 2.3 mi northeast of Mineral, and at mile 1.3.

DRAINAGE AREA. -- 75.2 mi².

PERIOD OF RECORD. -- June 1942 to current year.

REVISED RECORDS.--WSP 1932: Drainage area. WRD WA-74: 1971(P).

GAGE.--Water-stage recorder. Elevation of gage is 1,340 ft above NGVD of 1929, from topographic map. Prior to May 14, 1987, at site 0.25 mi downstream at datum 1.90 ft lower.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

 $AVERAGE \ DISCHARGE. --60 \ years \ (water years 1943-2002), \ 363 \ ft^3/s, \ 65.60 \ in/yr, \ 263,000 \ acre-ft/yr.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,900 ft³/s Feb. 8, 1996, gage height, 12.89 ft, from rating curve extended above 560 ft³/s, based on runoff comparisons with nearby stations; minimum discharge, 13 ft³/s Sept. 23-25, 1989, gage height, 6.93 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,700 ft^3/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov 14	0745	3,410	12.26	Jan 07	2215	*6,130	13.05
Dec 13	2230	4,950	12.90	Mar 11	2000	2,920	11.56
Dec 17	0030	5,860	*13.22	Apr 14	0615	4,820	12.57

Minimum discharge, 19 ${\rm ft^3/s}$ Sept. 26.

	DAILY MEAN VALUES											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	385	960	147	280	339	278	460	425	142	40	26
2	29	305	963	257	240	287	277	500	398 372 354 361	125	37	26
3	29	244 203	708	249	257	251	278	465	372	113	37	29
4	28	203	582	223	240	227	298	414	354	105	36	27
5	28	204	486	212	237	233			361		39	26
6	27	176	566	414	304	223	440	384	336	93	41	26
7 8	28 30	154	533	3870	522	192	491	355	292	117	37 35	26 26
9	31	129	407	2260	373	164	496	313	230	93	34	26
10	33	176 154 137 129 119	397	414 3870 4410 2260 1360	323	212	1030	384 355 333 313 300	227	84	34	25
11	61	111	369	940	306	1650	1100	296	238	79 72 68 66 64	34 32 30 29 28	25
12	48	111 118	350	943	263	1560	1240	320	248	72	32	24
13	53 50 46	212	2300	806	229	921	1920	401	256	68	30	23
14	50	2620	2700	673	199	664	3670	427	256	66	29	23
											28	23
16	42 45 42 41 40	843	3470	476	181 174 190 309 336	441	1200	398 406 419 411 440	205	62	28	24
17	45	599	3420	396	174	366	904	406	178	60	28	28
18 19	42	461	1350	339	190	317	726	419	176	5/	27 27	26 23
20	42 41 40	532	568	323	336	490	560	411	153	55	30	22
21	40	706	426	387	1220	414	505	513	144	52	31	22
22	71	1360	336	303	1380	374	463	494	137	51	30	21
23	230	1620	272	260	1240	370	425	454	131	49	28	21 21
25	155	691	196	1610	815	387	383	419	112	52 51 49 47 46	27	21
												20
27	132 120 116 102 131	445	145	576	507	361	391	470	104	46	30	20
28	116	534	178	429	410	334	368	580	125	43	27	20
29	102	882	144	331		316	365	723	289	43	27	21
30	131	745	126	285		304	397	589	177	42	26	24
31	409									46 46 43 43 42 41		
TOTAL	2430	17832	24951	25249	12968	13500	22248	13452	6848	41 2211 71.3 142 41 4390 0.95 1.09	972	715
MEAN	78.4	594	805	814	463	435	742	434	228	71.3	31.4	23.8
MAX	409	2620	3470	4410	1380	1650	3670	723	425	142	41	29
MIN	27	111	126	147	174	164	277	296	104	41	26	20
AC-FT	4820	35370	49490	50080	25720	26780	44130	26680	13580	4390	1930	1420
CFSM IN.	1.04	7.90 8.82	10.7 12.34	10.8	6.16	5.79	9.86	5.77	3.04	1.95	0.42	0.32
										1.05	0.40	0.55
STATIST	rics of M	ONTHLY ME	AN DATA F	OR WATER	YEARS 1942	- 2002	, BY WATER	386 745 1949 141 1994				
MEAN	153	513	685	656	614	483	493	386	209	83.0		54.8
MAX	527	1219	1463	1568	1443	1358	873	745	552	195	94.5	192
(WY)	1956	1956	1976	1953	1982	1972	1991	1949	1955	1983	1968	1959
MIN	23.1	35.9	128	138	146	155	226	141	50.9	38.9	23.6	18.3
(WY)	1953	1953	1977	1977	1977	1992	1973	1994	1992	1970	1970	1989
SUMMARY	Y STATIST	ICS	FOR	2001 CALE	NDAR YEAR		FOR 2002 W	NATER YEAR		WATER YEARS	5 1942 -	2002
ANNUAL				96121			143376					
ANNUAL				263			393			363		
HIGHEST	r annual	MEAN								527		1974
LOWEST	ANNUAL M	EAN		2470	Dog 16		4410	Top 0		1/3	Ech 0	2001
LOWEST	TOAILI M	DM DM		27	Sen 23		4410	Sen 26		13	Sen 24	1990
ANNUAL	SEVEN-DA	Y MINIMUM		28	Sep 18		21	Sep 22		527 173 9260 13 15 263000 4.83 65.60 785	Sep 19	1989
ANNUAL	RUNOFF (AC-FT)		190700			284400			263000		
ANNUAL	RUNOFF (CFSM)		3.5	0		5.2	22		4.83		
ANNUAL	RUNOFF (INCHES)		47.5	5		70.9	93		65.60		
10 PERC	CENT EXCE	EDS		516			859			785		
50 PERC	CENT EXCE	EDS		175			256 28			234 37		
90 PERC	CENI EACE	PUD		3470 27 28 190700 3.5 47.5 516 175 36			∠8			3/		

113 NISQUALLY RIVER BASIN

12085000 ALDER RESERVOIR AT ALDER, WA

LOCATION.--Lat $46^{\circ}48^{\circ}09^{\circ}$, long $122^{\circ}18^{\circ}37^{\circ}$, in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.9, T.15 N., R.4 E., Thurston County, Hydrologic Unit 17110015, near left end of Alder Dam on Nisqually River, 1.0 mi west of Alder, 1.7 mi upstream from La Grande Dam, 4.6 mi upstream from Mashel River, and at mile 44.2.

DRAINAGE AREA. -- 286 mi².

PERIOD OF RECORD. -- November 1944 to current year.

GAGE.--Water-stage recorder. Datum of gage is 7.61 ft above NGVD of 1929 (levels by Tacoma Public Utilities). Prior to July 8, 1946, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete-arch dam; storage began Nov. 7, 1944; dam completed in 1945. Usable capacity, 161,457 acre-ft (based on 1985 resurvey) between gage heights 1,114 ft, lower limit of operating range, and 1,207 ft, top of spillway gates. Unused storage below gage height 1,114 ft, 52,110 acre-ft. Crest of spillway is at gage height 1,177 ft. Figures given herein represent total contents. Water is used by City of Tacoma for power generation. Chemical analyses December 1973 to September 1983 (samples were taken near the dam).

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 233,848 acre-ft Dec. 4, 1975, gage height, 1,207.68 ft; minimum contents since reservoir first filled, 74,200 acre-ft Nov. 26, 2000, gage height, 1,137.36 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 210,500 acre-ft June 29, 30; maximum gage height, 1,206.05 ft June 29; minimum contents 102,100 acre-ft Nov. 13, gage height, 1,159.40 ft.

Capacity table (gage height, in feet, and total contents, in acre-feet) (Based on project resurvey and maps provided by Tacoma Public Utilities in 1985)

1,143	80,474	1,170	120,736	1,200	192,544
1,150	89,003	1,180	141,570	1,207	213,570
1,160	103,084	1,190	164,970		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	130600	106500	167400	168800	171900	166300	170100	178900	200200	208000	197200	172500
2	129200	107500	170200	167400	169500	164900	169500	178100	200600	207200	196400	171900
3	127900	108000	171100	165900	167100	164300	168900	177700	200700	206600	195400	171100
4	126800	108000	170500	164100	164700	163600	168600	177000	201000	206000	194700	170100
5	125600	108100	169300	162300	163000	162900	168700	176200	202500	205500	193700	168900
6	124200	107500	168800	162600	161200	162200	169200	175400	203900	205100	192600	167900
7	122800	106900	168000	182000	160100	161300	170100	174200	204500	205200	191400	166800
8	121600	105900	166400	199000	159200	160200	170600	173500	204600	205500	190200	165600
9	120000	105100	164700	203600	157700	159300	171600	173100	204400	205400	189300	164500
10	118500	104000	163100	203500	155900	158600	174600	172900	204100	205600	188600	163500
11	117200	102900	161200	201200	154900	164700	176900	172500	203700	205800	187900	162600
12	116100	102300	159300	199400	154600	171400	179900	172500	203500	206100	187100	161800
13	115400	102600	165900	196500	154300	174900	186100	173200	203900	206300	186500	161000
14	115300	119700	174500	193700	153600	176900	199300	174100	204900	206500	185900	160000
15	114600	129300	172500	192400	153300	178000	202300	174900	205800	206200	185300	159100
16	113500	134000	181900	191200	152300	178600	201800	175500	206100	206000	184700	158200
17	112300	136300	192800	189500	151700	178800	200700	176400	205500	205800	184000	157100
18	111000	137600	194200	187800	151200	178200	200000	177300	205200	205500	183200	155900
19	109700	139400	193400	186100	151200	177400	199400	178400	204700	205100	182200	154700
20	108400	141600	192400	184700	151000	177200	198600	179900	204600	204500	181400	153700
21	107100	144600	191700	183100	155600	177000	197100	181900	204800	203900	180400	152500
22	106100	151300	190900	181100	160700	177400	195500	183500	205500	203500	179500	151500
23	106300	158600	189300	178800	165600	176500	193800	184800	206200	203100	178800	150400
24	105800	161500	187600	178200	170000	175700	191800	185600	206600	202500	178100	149300
25	105600	162800	185800	182000	171700	175000	189700	186400	207100	201900	177300	148300
26 27 28 29 30 31	105000 104500 103800 103100 102600 104800	162600 161200 161100 162600 163800	183400 181000 178800 176300 173800 171000	182700 181800 180200 178400 176200 174200	171200 169900 168200 	174300 173400 172300 171400 170700 170400	187800 186000 184000 182000 180200	187600 189200 192300 196100 198600 199900	208000 208700 209300 210500 209500	201300 200400 199700 199200 198800 198000	176700 175900 175300 174800 174000 173300	147200 146000 144800 143700 142500
MAX	130600	163800	194200	203600	171900	178800	202300	199900	210500	208000	197200	172500
MIN	102600	102300	159300	162300	151000	158600	168600	172500	200200	198000	173300	142500
†	1161.09	1189.52	1192.30	1193.45	1191.25	1192.11	1195.62	1202.46	1205.71	1201.82	1193.13	1180.44
‡	-27200	+59000	+7200	+3200	-6000	+2200	+9800	+19700	+9600	-11500	-24700	-30800

CAL YR 2001 MAX 211200 MIN 84100 AC-FT# +87200 WTR YR 2002 MAX 210500 MIN 102300 AC-FT‡ +10500

[†] Gage Height, in feet, at end of month. † Change in contents, in acre-feet.

12085500 LA GRANDE RESERVOIR AT LA GRANDE, WA

LOCATION.--Lat 46°49'23", long 122°18'13", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.33, T.16 N., R.4 E., Thurston County, Hydrologic Unit 17110015, at left end of gate control structure, 1.1 mi southeast of La Grande, 1.7 mi downstream from Alder Dam, and at mile 42.5.

DRAINAGE AREA. -- 289 mi2.

- PERIOD OF RECORD.--January 1945 to current year. January 1945 to September 1951 included in combined adjustment to monthly flow of Nisqually River at La Grande. Monthend contents January 1945 to September 1950, published in WSP 1316.
- GAGE.--Water-stage recorder. Datum of gage is 7.61 ft below NGVD of 1929 (levels by City of Tacoma). Prior to June 12, 1947, monthend gage heights furnished by City of Tacoma from temporary gages in pool upstream from dam.
- REMARKS.--Reservoir is formed by concrete gravity dam completed in 1944; storage began in February 1945. Useable storage, 1,053 acre-ft between gage heights 910 ft, minimum practical head, and 935 ft, normal reservoir level. Dead storage below gage height 910 ft, 1,629 acre-ft. Figures given herein represent total contents. Water used by Tacoma Public Utilities for power generation.
- EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 2,760 acre-ft May 14, 1950, gage height, 936.4 ft; minimum contents observed since reservoir first filled, 1,370 acre-ft Aug. 24, 1956, gage height, 900.0 ft.
- EXTREMES FOR CURRENT YEAR.--Maximum contents, 2,635 acre-ft Dec. 21, gage height, 934.15 ft; minimum contents, 1,646 acre-ft Feb. 6, gage height, 910.60 ft.

MONTHEND GAGE HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	927.73	2,305	
Oct. 31	929.13	2,373	+68
Nov. 30	933.07	2,577	+204
Dec. 31	932.99	2,572	-5
CAL YR 2002			+316
Jan. 31	932.94	2,570	-2
Feb. 28	932.07	2,524	-46
Mar. 31	928.33	2,334	-190
Apr. 30	931.47	2,492	+158
May 31	924.47	2,155	-337
June 30	930.70	2,453	+298
July 31	928.76	2,355	-98
Aug. 31	930.52	2,444	+89
Sept. 30	931.40	2,489	+45
WTR YR 2002			+184

12086500 NISQUALLY RIVER AT LA GRANDE, WA

LOCATION.--Lat $46^{\circ}50'25"$, long $122^{\circ}19'38"$, in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.29, T.16 N., R.4 E., Pierce County, Hydrologic Unit 17110015, on right bank 0.4 mi downstream from Tacoma Public Utilities powerplant, 0.6 mi northwest of La Grande, 0.8 mi upstream from Mashel River, and at mile 40.4.

DRAINAGE AREA. -- 292 mi².

PERIOD OF RECORD.--September 1906 to October 1911, November to December 1911 (gage heights only), October 1919 to September 1931, October 1943 to current year. Monthly discharge only for some periods, published in WSP 1316. Published as "below Little Nisqually River, near La Grande" September 1906 to October 1911, and as "near La Grande" November to December 1911 and October 1919 to September 1931.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1316: 1927-28(M), 1949-50. WRD WA-74: 1956(M), 1959-61(M), 1965.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 490 ft above NGVD of 1929, from river-profile map. See WSP 1932 for history of changes prior to Feb. 8, 1945.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Tacoma Public Utilities powerplant at La Grande since December 1943, by Alder Reservoir (station 12085000) since November 1944, and by La Grande Reservoir (station 12085500) since February 1945. All diversions returned to river upstream from gage. U.S. Geological Survey satellite telemeter at station. Chemical analyses October 1972 to September 1985. Water temperatures October 1965 to September 1982.

AVERAGE DISCHARGE.--76 years (water years 1907-11, 1920-31, 1944-2002), 1,436 ft³/s, 66.78 in/yr, 1,040,000 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $39,500~{\rm ft}^3/{\rm s}$, Feb. 8, 1996, gage height, 15.30 ft, from rating curve extended above 5,300 ft $^3/{\rm s}$ and computed flow over dam as provided by Tacoma Public Utilities; practically no flow on many occasions at site "near La Grande" (which excluded diversion between 1920 and 1930) as a result of regulation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,750 ${\rm ft^3/s}$, Dec. 18, gage height, 7.39 ft; minimum discharge, 760 ${\rm ft^3/s}$ July 13; minimum daily discharge, 912 ${\rm ft^3/s}$, Sept. 8.

					DAIL	Y MEAN V	ALUES					
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1010	1040	2120	2250	2280	2220	1390	2260	1820	2010	1080	918
2	1010	1050	2110	2250	2280	1880	1400	2250	1830	1510	1060	921
3	997	1040	2250	2220	2300	1360	1400	1850	1810	1390	1050	916
4	998	1040	2310	2220	2260	1350	1400	1810	1820	1370	1050	918
5	1000	1040	2270	2210	2270	1370	1400	1810	1490	1160	1050	917
5	1000	1040	2270	2210	2270	1370	1400	1010	1400	1100	1030	211
6	1010	1050	2270	2210	2310	1380	1400	1820	1360	1170	1050	918
7	993	1040	2290	3190	2320	1390	1400	1780	1360	1170	1050	918
8	998	1040	2320	4220	2290	1390	1400	1440	1360	1170	1050	912
9	1000	1040	2290	4340	2290	1390	1400	1200	1360	1170	1050	916
10	1020	1050	2310	4410	2300	1390	1720	1170	1360	1180	1050	919
11	1010	1050	2300	4400	1870	1400	2280	1160	1580	1170	1050	918
12	1010	1050	2300	4420	1260	1410	2300	1160	1770	1170	1050	918
13	1000	1070	2380	4480	1240	1410	2260	1170	1760	1170	1050	930
14	1000	1220	3300	3830	1240	1400	3930	1170	1770	1220	1050	944
15	1000	1320	5080	2530	1240	1400	4380	1170	1780	1190	1050	939
13	1000	1320	3000	2330	1210	1100	1500	1170	1700	1130	1050	232
16	1000	1320	5140	2290	1230	1400	4300	1170	1790	1170	1020	939
17	1000	1290	5470	2300	1240	1400	3670	1170	1790	1150	1010	942
18	1020	1220	5010	2250	1240	1500	2790	1170	1790	1150	1010	937
19	999	1270	4390	2250	1240	1810	2330	1170	1650	1150	1000	941
20	983	1520	3510	2250	1240	1820	2340	1160	1360	1150	991	940
21	983	1520	2470	2250	1240	1650	2320	1170	1260	1140	979	939
22	989	1540	2220	2250	1240	1230	2270	1170	1050	1140	982	939
23	993	1720	2220	2250	1240	1810	2250	1180	1030	1170	988	941
24	992	1810	2200	2260	1250	1810	2250	1260	1020	1220	920	939
25	992	1800	2200	2290	1680	1810	2260	1360	1030	1200	920	939
26	993	1960	2220	2260	2280	1820	2280	1350	1030	1180	921	937
27	993	2310	2220	2260	2270	1820	2270	1360	1140	1170	925	938
28	990	2330	2240	2250	2290	1830	2280	1360	1330	1170	927	936
29	987	2340	2220	2250		1720	2280	1590	1990	1170	921	935
30	1000	2100	2230	2270		1420	2250	1820	2210	1170	918	935
31	1010		2260	2280		1400		1840		1170	919	
TOTAL	30980	42190	86120	85390	49430	48390	67600	44520	45700	37890	31141	27899
MEAN	999	1406 2340	2778	2755	1765 2320	1561 2220	2253 4380	1436	1523	1222	1005	930
MAX	1020		5470	4480		1230		2260	2210	2010	1080	944
MIN	983 61450	1040 83680	2110	2210 169400	1230 98040	95980	1390	1160	1020	1140 75150	918 61770	912
AC-FT	558		170800		98040 1657	1593	134100	88310	90650			55340
MEAN† CFSM†	1.91	2402 8.23	2894 9.91	2806 9.61	5.67	5.46	2422 8.29	1751 6.00	1689 5.78	1033 3.54	604	413 1.41
IN.†	2.20	9.18	11.43	11.08	5.67	6.29	9.25	6.00	6.45		2.97	1.41
AC-FT†	34320	9.18	178000	172600	91990	97990	9.25	107700	100500	4.08 63550	2.39 37160	24580
AC-FIT	34320	142900	T/9000	1/2600	91990	91990	144100	10//00	100200	03550	3/160	24580

CAL YR 2001 TOTAL 385830 MEAN 1057 MAX 5470 MIN 695 AC-FT 765300 MEAN† 1178 CFSM† 4.03 IN.† 54.76 AC-FT† 852800 WTR YR 2002 TOTAL 597250 MEAN 1636 MAX 5470 MIN 912 AC-FT 1185000 MEAN† 1652 CFSM† 5.66 IN.† 76.80 AC-FT† 1196000

[†] Adjusted for change in contents in Alder and La Grande Reservoirs.

116 NISQUALLY RIVER BASIN

12087000 MASHEL RIVER NEAR LA GRANDE, WA

LOCATION.--Lat $46^{\circ}51'25"$, long $122^{\circ}18'05"$, in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.21, T.16 N., R.4 E., Pierce County, Hydrologic Unit 17110015, on left bank, 50 ft downstream from State Highway 7 bridge, 1.8 mi northeast of La Grande, and at mile 3.3.

DRAINAGE AREA. -- 80.7 mi².

Date

Time

PERIOD OF RECORD.--October 1940 to September 1957, October 1991 to current year.

Discharge Gage height (ft³/s) (ft)

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 619.53 ft above NGVD of 1929. Prior to Oct. 1, 1957, on right bank at same datum.

REMARKS.No estimated daily discharges. Records good. Small diversion for municipal supply for Eatonville. Some regulation at low water by millpond in Eatonville.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,980 ${\rm ft}^3/{\rm s}$ Dec. 11, 1946, gage height, 9.30 ft, from rating curve extended above 3,200 ${\rm ft}^3/{\rm s}$, present datum; minimum discharge, 2.3 ${\rm ft}^3/{\rm s}$ Aug. 27, 1992.

Date Time

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 $\mathrm{ft^3/s}$ and maximum (*):

Date	TIME	(10	/5/	(IC)	Date		111116	(10 / 5	,	(IC)		
Nov. 22 Dec. 01 Dec. 13	2315 0615 2245	1 2	,090 ,580 ,500	5.99 5.49 6.34	Jan. Mar. Apr.	11	2330 2030 0615	2,25 1,72 1,91	0	6.12 5.64 5.82		
Dec. 17	0145	*3	,940	*7.35								
Minimum disc	charge, 7	.7 ft ³ /s s	Sept. 27-	29.								
	DI	SCHARGE,	CUBIC FEE	T PER SEC		YEAR O	OCTOBER 2001 VALUES	TO SEPTE	MBER 20	02		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	235	1370	235	258	239	276	250	118	43	14	9.6
2	13	174	1090	374	227	209	278	250	111	36	14	10
3	12 12	130 100	696 518	305 231	258 245	187 175	269 285	206 169	104 98	33 31	14 14	14 14
5	11	136	410	196	225	185	344	159	120	31	18	12
6	11	108	465	297	284	193	371	169	108	29	22	11
7	11	86	462	1470	474	165	396	162	87	28	18	13
8	12	71	388	1660	542	150	326	155	82	86	16	14
9 10	14 14	60 52	393 359	862 539	472 441	151 245	327 500	140 142	73 64	50 36	15 14	13 12
11 12	39 26	45 49	361 308	402 420	432 336	968 1180	499 509	134 145	65 62	30 26	15 13	11 11
13	76	104	1070	369	281	751	601	199	59	24	12	10
14	137	930	1640	306	238	539	1550	219	57	23	12	9.7
15	87	781	873	256	214	416	897	187	53	22	12	9.6
16	47	573	1680	224	217	344	658	164	46	21	12	10
17 18	46 34	394	2440	202	221 255	286	492	163	44 44	20 20	11 11	13 12
18	34	274 272	1310 890	184 206	360	238 397	409 341	164 155	44	20	11	11
20	38	402	609	242	379	643	300	194	40	19	12	9.9
21	34	464	451	281	614	470	264	269	36	18	14	10
22	52	1030	356	227	907	405	250	240	34	17	13	9.5
23	158	1450	289	194	1000	392	225	199	32	17	12	9.1
24 25	112 150	688 444	244 211	269 726	1020 586	396 546	200 192	172 164	31 29	17 16	11 11	8.8 8.6
26	107	334	187	516	427	449	193	161	27	17	11	8.6
27	91	255	176	356	338	395	277	160	26	17	13	8.4
28	97	558	215	274	283	356	238	206	36	17	12	8.1
29 30	70 61	999 787	198 179	227 214		346 313	208 220	213 173	112 62	17 16	11 11	9.3 11
31	215		219	263		284		139		15	9.6	
TOTAL	1833	11985	20057	12527	11534	12013	11895	5622	1907	812	408.6	321.2
MEAN	59.13	399.5	647.0	404.1	411.9	387.5	396.5	181.4	63.57	26.19	13.18	10.71
MAX	215	1450	2440	1660	1020	1180	1550	269	120	86	22	14
MIN AC-FT	11	45 23770	176 39780	184	214	150 23830	192 23590	134	26 3780	15	9.6	8.1 637
CFSM	3640 0.73	4.95	8.02	24850 5.01	22880 5.10	4.80	4.91	11150 2.25	0.79	1610 0.32	810 0.16	0.13
IN.	0.84	5.52	9.25	5.77	5.32	5.54	5.48	2.59	0.88	0.37	0.19	0.15
STATIST	TICS OF M	ONTHLY ME.	AN DATA F	OR WATER	YEARS 1941	- 2002	2, BY WATER	YEAR (WY)				
MEAN	112.0	330.3	444.1	360.6	395.1	309.1	287.1	215.6	151.1	59.27	24.53	34.60
MAX	307	688	890	694	786	567	475	441	329	178	70.6	115
(WY) MIN	1956 10.0	1956 12.9	1947 83.2	1953 113	1996 98.8	1950 88.2	1955 132	1945 67.2	1946 25.2	1993 14.7	1954 12.3	1954 10.7
(WY)	1953	1953	1953	2001	1941	1941	1942	1947	1992	1951	1996	2002
SUMMARY	Y STATIST	ICS	FOR	2001 CALE	NDAR YEAR		FOR 2002 WA	TER YEAR		WATER YEAR	RS 1941 ·	2002
ANNUAL	TOTAL			69140			90914.8					
ANNUAL				189.4			249.1			226.0		
	T ANNUAL ANNUAL M									337 125		1956 1941
	ANNUAL M T DAILY M			2440	Dec 17		2440	Dec 17		125 5570	Dec 1	
	DAILY ME			11	Sep 23		8.1	Sep 28		4.6		
ANNUAL	SEVEN-DA	Y MINIMUM		12	Sep 18		8.7	Sep 23		5.1		
	RUNOFF (137100	-		180300			163700	^	
	RUNOFF (2.3			3.09 41.91			2.8 38.0		
	CENT EXCE			405	,		564			511	_	
	CENT EXCE			110			169			141		

90 PERCENT EXCEEDS

12088000 OHOP CREEK NEAR EATONVILLE, WA

LOCATION.--Lat $46^{\circ}52^{\circ}52^{\circ}$, long $122^{\circ}16^{\circ}40^{\circ}$, in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.10, T.16 N., R.4 E., Pierce County, Hydrologic Unit 17110015, on left bank, 150 ft downstream from Lynch Creek, 0.2 mi downstream from outlet of Ohop Lake, 0.8 mi northwest of Eatonville, and at mile 6.1.

DRAINAGE AREA. -- 34.5 mi2.

PERIOD OF RECORD.--June 1927 to September 1932, September 1941 to September 1971, June 1993 to current year.

REVISED RECORDS.--WSP 1286: 1946. WSP 1932: Drainage area.

Time

Dec. 17 unknown *523 (a) *4.24

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 517.76 ft above NGVD of 1929 (stadia traverse). June 1, 1927 to Sept. 30, 1932, water-stage recorder at datum 4.83 ft higher; Sept. 6, 1941, to Mar. 17, 1942, nonrecording gage and Mar. 18, 1942, to June 15, 1964, water-stage recorder at datum 2.04 ft higher; all at site 250 ft downstream. June 15, 1964, to Aug. 26, 1966, water-stage recorder at site on left bank across stream at datum 2.04 ft higher. Aug. 27, 1966, to Sept. 30, 1971, water-stage recorder at site on right bank at same datum.

REMARKS.-Records fair except for estimated daily discharges, which are poor. Flow affected by natural storage in Ohop Lake.

AVERAGE DISCHARGE.--44 years (water years 1928-32, 1942-71, 1994-2002), 66.3 ft³/s, 26.10 in/yr, 48,010 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,620 ft^3/s Feb. 8, 1996, gage height, 8.76 ft; minimum discharge, 2.2 ft^3/s Sept. 2, 1994 and Sept. 1, 2, 2002.

Date Time

No other peak greater than base discharge.

Discharge Gage height (ft³/s) (ft)

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

Discharge Gage height (ft³/s) (ft)

Minimum disc (a) from cre			ept. 1, 2	2.								
			GE, CUBIO	C FEET PER		NATER YE. MEAN VA	AR OCTOBER LUES	2001 TO 8	SEPTEMBI	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	70	258	e70	111	129	70	51	31	24	11	2.5
2	9.9	65	252	e130	101	119	67	47	33	20	9.2	7.9
3	8.9	59	225	e110	104	111	62	43	28	17	7.4	18
4 5	7.8 6.8	52 78	192 170	e80 e70	105 92	104 103	58 57	40 40	25 29	14 14	5.5 6.7	13 10
5	0.0	70	170	270	22	103	3,	10	2,5	11	0.7	
6	6.3	67	187	e100	94	109	58	42	25	13	27	7.3
7 8	8.7 8.2	58 52	225 187	e250 e300	127 195	103 98	59 54	44 45	22 20	14 28	12 13	7.0 9.5
9	7.6	49	176	e200	210	96	54	42	18	21	12	12
10	7.9	47	160	e170	203	109	64	43	17	20	10	8.9
11	19	45	169	e150	221	186	75	40	15	19	10	6.3
12	16	48	147	e160	225	244	85	37	14	16	11	6.8
13	22	71	219	e130	190	257	104	37	12	13	13	10
14	29	194	e300	e110	163	253	311	42	16	11	11	8.8
15	25	178	e220	e90	147	220	256	37	31	9.6	9.1	7.9
16	24	168	e250	e80	138	197	246	34	23	7.0	8.0	7.0
17	24	135	e500	e70	133	177	192	33	19	5.3	6.9	7.4
18	20	102 85	e400	e60 e70	141 154	156 216	149 120	31	20 22	5.1 5.0	6.2	6.5
19 20	17 18	87	e300 e240	e80	151	337	100	30 35	17	4.8	5.4 6.7	5.5 5.4
21	20	87	e200	e90	162	245	85	67	14	4.4	7.2	4.6
22 23	29 46	151 253	e160 e130	e76 e70	180 232	188 152	74 66	56 50	12 11	4.2 7.7	5.6 4.2	4.2 4.1
24	34	191	e100	e110	274	130	58	42	13	18	3.6	3.8
25	46	141	e80	e190	221	144	53	37	16	14	3.4	3.6
0.0	4.0			.150	105	105		2.5			2.4	2.6
26 27	40	117 90	e64 e56	e150 e120	185 160	125 115	52 77	35 33	13 11	11 9.6	3.4 3.6	3.6 3.7
28	52	143	e64	e100	143	103	77	42	17	7.0	3.3	3.6
29	44	211	e62	e80		95	64	40	38	5.7	3.0	4.9
30	41	206	e60	e76		85	55	35	31	4.3	2.6	5.5
31	69		e66	95		74		30		5.6	2.7	
TOTAL	761.1	3300	5819	3637	4562	4780	2902	1260	613	372.3	243.7	209.3
MEAN	24.6	110	188	117	163	154	96.7	40.6	20.4	12.0	7.86	6.98
MAX	69	253	500	300	274	337	311	67	38	28	27	18
MIN AC-FT	6.3 1510	45 6550	56 11540	60 7210	92 9050	74 9480	52 5760	30 2500	11 1220	4.2 738	2.6 483	2.5 415
CFSM	0.71	3.19	5.44	3.40	4.72	4.47	2.80	1.18	0.59	0.35	0.23	0.20
IN.	0.82	3.56	6.27	3.92	4.92	5.15	3.13	1.36	0.66	0.40	0.26	0.23
STATIST	TTCS OF M	ONTHIV MEA	N DATA F	OR WATER VE	ZARS 1927	- 2002	BY WATER Y	YEAR (WY)				
						•						
MEAN	35.2	86.2	121	121	115	95.9	83.0	54.9	40.9	20.2	11.1	15.2
MAX (WY)	90.8 1928	235 1961	268 1947	258 1971	305 1996	191 1932	141 1928	138 1960	114 1942	64.5 1993	59.6 1968	70.9 1968
MIN	7.69	8.76	24.6	32.8	36.1	46.4	39.4	19.2	12.2	6.04	4.95	4.44
(WY)	1930	1953	1953	2001	2001	2001	1998	1947	1932	1944	1994	1952
SUMMARY	Y STATIST	ICS	FOR 2	2001 CALENI	DAR YEAR	F	OR 2002 WAT	TER YEAR		WATER YEA	RS 1927 -	2002
ANNUAL	TOTAL			20099.4			28459.4					
ANNUAL				55.1			78.0			66.3		
	r annual	MEAN		22.1			,			98.4		1956
LOWEST	ANNUAL M	IEAN								32.4		1994
	DAILY M			500	Dec 17		500	Dec 17		2090		
	DAILY ME	AN Y MINIMUM		4.7 6.9	Sep 1 Aug 29		2.5	Sep 1 Aug 26		2.5		
	RUNOFF (39870	Aug 29		56450	Aug 20		48010	Aug 20	2002
	RUNOFF (1.60			2.26			1.9	2	
ANNUAL	RUNOFF (INCHES)		21.67			30.69			26.1		
	CENT EXCE			137			198			150		
	CENT EXCE			34 8.3			50 6.3			43 8.4		
JU PER	TOTAL DVCP	وميد		0.3			0.3			0.4		

e Estimated

118 NISQUALLY RIVER BASIN

12089208 CENTRALIA POWER CANAL NEAR MCKENNA, WA

LOCATION.--Lat 46°54'01", long 122°29'50", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.1, T.16 N., R.2 E., Thurston County, Hydrologic Unit 17110015, on left bank 1,000 ft downstream from headworks at dam, and 3.7 mi southeast of McKenna.

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

GAGE.--Water-stage recorder. Elevation of gage is 330 ft above NGVD of 1929, from topographic map. Prior to Oct. 20, 1999, at site 500 ft upstream at datum 10.00 ft lower.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by headworks 1,000 ft upstream from station. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 900 ${\rm ft}^3/{\rm s}$ Nov. 11, 1990, gage height, 7.72 ft at datum then in use; minimum discharge, no flow on many days most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 828 ${\rm ft}^3/{\rm s}$ July 4, gage height, 16.26 ${\rm ft}$; Maximum gage height 16.46 Jan. 8; minimum discharge, 46 ${\rm ft}^3/{\rm s}$ Nov. 18, 19.

		DISCHARO	GE, CUBI	C FEET PE		WATER YE Y MEAN VA	AR OCTOBE	R 2001 TC	SEPTEMBE	R 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	403	720	770	771	760	756	744	744	748	743	682	563
2	396	685	769	770	760	753	739	747	750	745	682	565
3	391	620	769	770	762	750	747	750	749	748	684	577
4	391	579	771	770	760	754	740	749	744	783	684	588
5	388	615	771	770	756	752	742	747	740	724	687	583
6	388	614	770	769	759	754	740	746	733	696	704	583
7	387	554	771	769	755	755	734	748	727	699	686	586
8	392	530	772	743	748	757	731	752	724	769	675	584
9	399	510	772	766	748	752	748	755	724	760	680	590
10	415	501	771	677	747	749	752	757	744	732	687	586
11	435	494	772	745	751	743	753	752	742	719	693	582
12	437	209	768	762	754	746	758	739	736	708	694	580
13	469	51	770	763	753	755	755	744	744	690	698	590
14	514	50	765	758	751	753	756	754	750	748	696	612
15	529	49	591	760	756	748	754	751	752	731	691	608
16	460	48	717	760	756	756	752	746	750	688	673	297
17	457	48	377	751	754	756	752	744	748	654	652	106
18	458	47	707	752	746	752	746	741	748	650	655	97
19	450	47	769	759	748	741	746	723	743	650	654	221
20	436	48	767	755	754	744	740	732	748	655	648	440
21	437	48	770	760	748	750	742	740	753	651	637	378
22	457	48	770	757	744	743	747	737	698	637	640	372
23	577	232	770	757	751	742	741	732	654	642	648	408
24	554	710	773	752	747	745	744	730	648	745	581	432
25	562	766	769	743	746	738	742	739	652	728	570	402
26	551	769	767	757	754	746	755	737	648	702	570	386
27	536	770	771	747	754	751	754	736	683	681	571	381
28	559	772	768	756	755	747	752	739	738	678	575	381
29	510	770	770	759		746	749	739	739	679	574	381
30	503	771	770	759		742	752	751	740	671	569	380
31	607		770	761		741		749		662	565	
TOTAL	14448	12675	23177	23448	21077	23217	22407	23050	21797	21768	20105	13839
MEAN	466.1	422.5	747.6	756.4	752.8	748.9	746.9	743.5	726.6	702.2	648.5	461.3
MAX	607	772	773	771	762	757	758	757	753	783	704	612
MIN	387	47	377	677	744	738	731	723	648	637	565	97
AC-FT	28660	25140	45970	46510	41810	46050	44440	45720	43230	43180	39880	27450

CAL YR 2001 TOTAL 179172 MEAN 490.9 MAX 773 MIN 47 AC-FT 355400 WTR YR 2002 TOTAL 241008 MEAN 660.3 MAX 783 MIN 47 AC-FT 478000

NISQUALLY RIVER BASIN

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12089500 NISQUALLY RIVER AT MCKENNA, WA

LOCATION.--Lat 46°56'01", long 122°33'35", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.28, T.17 N., R.2 E., Thurston County, Hydrologic Unit 17110015, on left bank at downstream side of State Highway 507 bridge at McKenna, and at mile 21.8.

DRAINAGE AREA. -- 517 mi2.

PERIOD OF RECORD.--October 1947 to September 1968, May 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is 285.47 ft above NGVD of 1929. Oct.1, 1947 to Sept. 30, 1968, water-stage recorder at site 80 ft downstream at present datum, and Oct. 1, 1968 to Oct. 11, 1985, water-stage recorder at site 20 ft upstream at present datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Alder Reservoir (station 12085000) at mile 44.2 and La Grande Reservoir (station 12085000) at mile 42.5. Centralia Power Canal (station 12089208) diverts water 4.4 mi upstream from station, which is returned to river at powerplant 9.2 mi downstream from station. Centralia Power Canal was built in 1929 and put into operation in 1930. Minor diversions for irrigation upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--46 years (water years 1948-68, 1978-2002), 1,309 ft³/s, 948,200 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft³/s Feb. 8 or 9, 1996, gage height, 17.13 ft, estimated based on comparison with upstream gaging stations; minimum discharge, 20 ft³/s Sept. 10, 11, 1965, Aug. 31, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,100 ${\rm ft}^3/{\rm s}$ Dec. 17, gage height, 8.06 ft; minimum discharge, 367 ${\rm ft}^3/{\rm s}$ several days in Aug. and Sept.

		DISCHA	ARGE, CUE	BIC FEET P		WATER Y MEAN V		ER 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	574	635	3080	1970	2090	1960	1100	2010	1340	1620	434	376
2	575	588	3040	2070	2040	1590	1120	2000	1330	989	381	375
3	575	584	2750	2020	2040	1000	1080	1640	1310	681	377	376
4	574	578	2620	1920	2030	860	1080	1480	1320	667	379	374
5	576	574	2380	1850	1960	886	1130	1460	1010	538	381	373
6	577	574	2370	1870	2030	920	1150	1490	823	530	390	373
7	577	578	2530	3440	2320	895	1200	1450	772	531	398	372
8 9	577 578	580 583	2390 2340	5450 4680	2600 2640	865	1130 1090	1110 776	758 753	532 524	399 392	373 373
10	578	583 584	2340	4440	2470	847 928	1470	674	753	524 520	392	373
11	576	583	2280	4150	2230	1540	2280	659	884	522	384	372
12	577	887	2200	3970	1230	2410	2310	660	1190	527	381	371
13	578	1140	2700	4000	1050	1980	2350	695	1180	527	378	372
14	579	2060	4710	3620	965	1770	4490	723	1160	519	377	370
15	576	2410	5840	2300	890	1560	4830	696	1190	513	378	371
16	590	2200	6130	1930	859	1400	4530	667	1190	514	378	670
17	583	1900	8540	1910	849	1300	3810	665	1190	516	382	879
18	576	1660	6300	1810	883	1240	2980	660	1180	518	381	885
19	571	1580	4920	1810	969	1760	2420	663	1110	516	380	768
20	567	2060	3990	1840	1040	2380	2290	688	746	516	379	537
21	563	2180	2780	1970	1160	2150	2230	774	674	515	376	595
22	567	2490	2290	1910	1590	1370	2120	770	577	514	375	599
23	560	3510	2160	1850	1600	1920	2070	723	534	510	376	567
24	575	2240	2030	1920	1960	1860	2020	730	533	510	377	544
25	583	1790	1970	2500	1720	2010	2010	855	528	509	378	574
26	577	1680	1930	2530	2270	1910	2000	856	523	508	378	585
27	574	2000	1880	2300	2120	1830	2090	854	559	508	377	593
28	569	2230	1940	2120	2050	1760	2110	911	736	506	374	593
29	577	2930	1900	2040		1640	2030	1090	1410	507	375	595
30	582	2580	1880	2020		1290	1990	1400	1750	508	375	600
31	600		1960	2040		1130		1380		512	375	
TOTAL	17866	45968	96080	80250	47655	46961	64510	31209	28977	17927	11852	15178
MEAN	576	1532	3099	2589	1702	1515	2150	1007	966	578	382	506
MAX	600	3510	8540	5450	2640	2410	4830	2010	1750	1620	434	885
MIN	560	574	1880	1810	849	847	1080	659	523	506	374	370
AC-FT	35440	91180	190600	159200	94520	93150	128000	61900	57480	35560	23510	30110
STATIST	rics of M	ONTHLY ME	EAN DATA	FOR WATER	YEARS 1948	3 - 2002	, BY WATE	R YEAR (WY)				
MEAN	837	1661	2354	2155	2217	1589	1353	1165	906	573	436	522
MAX	1693	4071	5516	4397	6198	3398	2714	2659	1894	1419	1104	1167
(WY)	1956	1956	1978	1997	1996	1950	1991	1949	1950	1999	1999	1977
MIN	298	272	595	620	593	405	553	499	254	85.5	137	148
(WY)	1962	1953	2001	2001	2001	1962	1978	1978	1965	1965	1963	1965
SUMMARY	Y STATIST	CICS	FOR	2001 CAL	ENDAR YEAR		FOR 2002	WATER YEAR		WATER YEA	ARS 1948 -	2002
ANNUAL	TOTAL			309700			504433					
ANNUAL				848			1382			1309		
HIGHEST	r annual	MEAN								2238		1996
LOWEST	ANNUAL M	IEAN								590		2001
	r daily m			8540	Dec 17		8540	Dec 17		27300	Feb 9	
	DAILY ME			361	Sep 14		370	Sep 14		22	Sep 11	
		Y MINIMUN	M	363	Sep 20		372	Sep 9		27	Sep 1	. 1965
	RUNOFF (614300			1001000			948200		
	CENT EXCE			1980 583			2440 1000			2320 930		
	CENT EXCE			58 <i>3</i> 383			381			385		
JU FERU	באמם באוניני	פענוני		303			301			303		

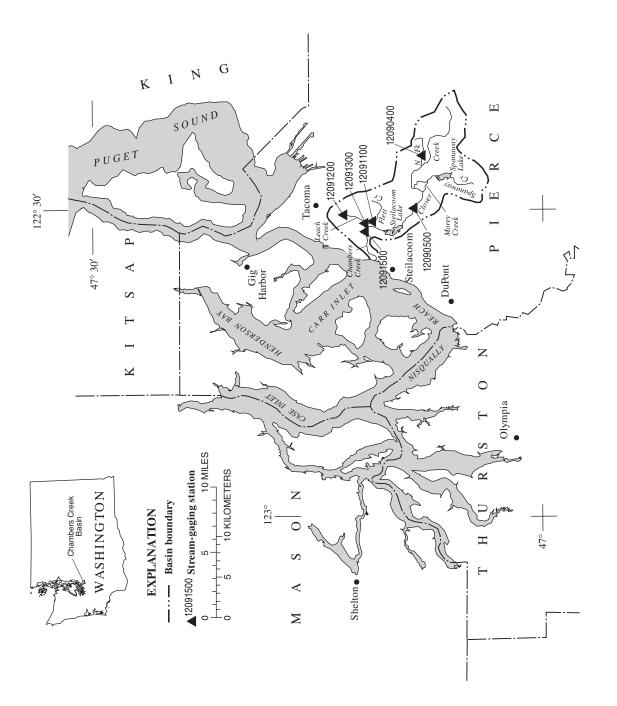


Figure 21. Location of surface-water stations in the Chambers Creek Basin.

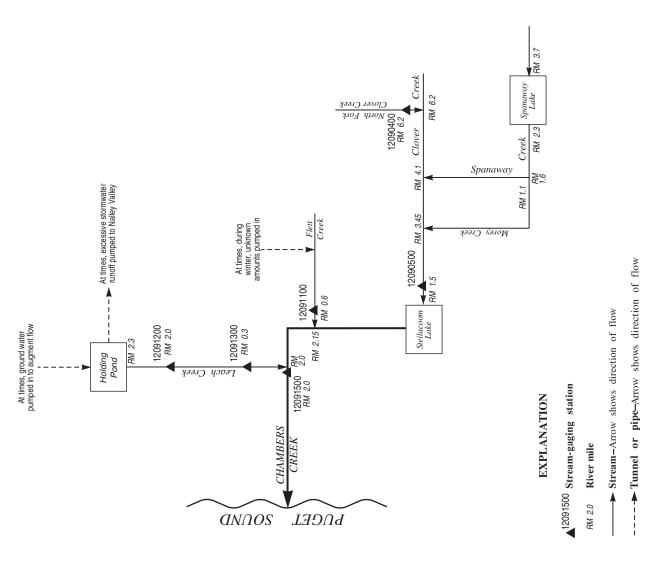


Figure 22. Schematic diagram showing surface-water stations in the Chambers Creek Basin.

12090400 NORTH FORK CLOVER CREEK NEAR PARKLAND, WA

LOCATION.--Lat $47^{\circ}08'05"$, long $122^{\circ}24'50"$, in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.15, T.19 N., R.3 E., Pierce County, Hydrologic Unit 17110019, at Golden Given Avenue crossing, 1.5 mi southeast of Parkland.

DRAINAGE AREA. -- 6.25 mi².

PERIOD OF RECORD.--Water years 1960-1975 (annual maximum), November 1990 to September 1992, October 1994 to September 1997, October 1997 to April 1999 (seasonal records), October 1999 to current year.

REVISED RECORDS.--WDR WA-01-1: 1999(M).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 315 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair. Two flood control ponds (completed in 1999 and 2000, 228 acre-ft, total) upstream from station.

AVERAGE DISCHARGE.--7 years (water years 1992, 1995-97, 2000-02), 7.79 ft³s, 16.94 in/yr, 5,640 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, not determined Feb. 8, 1996, gage height, 12.81 ft, from outside high-water mark, affected by backwater; minimum discharge, no flow for many days most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 197 ${\rm ft}^3/{\rm s}$ Nov. 14, gage height, 7.90 ft, from crest-stage gage; minimum discharge, no flow for many days during year.

_		_		-								
		DISCHA	RGE, CUBIO	C FEET PER		WATER Y Y MEAN V	EAR OCTOBER ALUES	2001 TO	SEPTEME	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
2 3 4	0.00 0.00 0.00 0.00 0.00	1.1 0.17 0.00 0.06 2.0	25 31 31 20 16	15 29 15 10 7.7	19 12 9.0 7.2 7.1	3.1 2.4 2.0 1.7 1.9	1.0 0.85 0.51 0.25 0.15	2.1 1.6 1.3 0.80 0.99	0.00 0.00 0.00 0.00 0.03	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00
7 8 9	0.00 0.00 0.00 0.00 0.46	0.00	20 11 7.7 6.7 8.0	46	9.6 18 41 19		0.10 0.00 0.00 0.83 6.9		0.00 0.00 0.00 0.00 0.00	0.00 0.10 0.72 0.08 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00
12 13 14	0.00 0.00 0.00 0.00	0.00 1.0 7.9 125 66	8.3 5.8 72 74 37	9.8 10 7.4 5.5 3.9	e5 2	27 43 28 14 9.0	8.5 10 32 101 41	1.7 0.92 0.74 0.87 0.45	0.00 0.00 0.00 0.00	0.00 0.03 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00
17 18 19	0.00 0.00 0.00 0.00	30 13 5.5 11 15	76 80 39 30 22	2.9 2.4 2.2 4.9 6.8	5.7	9.2 14 15 e34 e90	13 8.0 6.1 4.8	0.15 0.59 0.27 0.10 0.75	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00
22 23 24	0.00 0.33 2.5 0.49 1.9	15 46 38 16 8.4	15 11 7.5 5.7 4.1	9.0 6.8 4.6 21 93	33 23 39 33 16	37 18 10 6.8 5.5	4.0 3.4 2.8 2.2 1.7		0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00
27 28 29 30	0.01 7.3 1.2 0.00 0.45 9.5	4.7 2.8 42 41 24	3.3 3.0 9.1 6.1 4.1 9.1	56 30 18 11 14 22	10 6.6 4.7 	4.1 3.3 2.6 2.2 1.8 1.3	2.0 9.4 6.9 4.1 3.0	0.00 0.03 0.73 1.2 0.29 0.00	0.00 0.00 1.0 2.5 0.34	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00
MEAN MAX MIN AC-FT CFSM	24.14 0.78 9.5 0.00 48 0.12 0.14	515.78 17.2 125 0.00 1020 2.75 3.07	698.5 22.5 80 3.0 1390 3.61 4.16	576.9 18.6 93 2.2 1140 2.98 3.43	370.2 13.2 41 2.9 734 2.12 2.20	393.58 12.7 90 0.98 781 2.03 2.34	295.49 9.85 101 0.00 586 1.58 1.76	23.29 0.75 3.2 0.00 46 0.12 0.14	3.87 0.13 2.5 0.00 7.7 0.02 0.02		0.00 0.000 0.00 0.00 0.00 0.00	0.00 0.000 0.00 0.00 0.00 0.00
STATISTIC	CS OF M	ONTHLY MEA	AN DATA FO	OR WATER Y	EARS 199	1 - 2002	, BY WATER	YEAR (WY)				
MAX (WY) MIN 0	1.14 4.24 1998).000 1995	11.3 20.6 1996 2.76 1995	20.6 40.3 1999 3.63 2001	20.7 42.2 1997 7.21 2001	19.7 41.9 1996 7.29 2001	12.9 23.2 1997 3.73 1992	9.49 27.8 1991 1.55 1999	2.45 5.41 1996 0.13 1992	0.85 3.01 2001 0.023 1995	0.11 0.23 1995 0.000 1991	0.080 0.42 2001 0.000 1996	0.12 0.40 1997 0.000 2000
SUMMARY S	STATIST	CICS	FOR 2	2001 CALENI	DAR YEAR		FOR 2002 WA'	TER YEAR		WATER YEAR	RS 1991 -	2002
ANNUAL TOTAL ANNUAL MEAN HIGHEST ANNUAL MEAN LOWEST ANNUAL MEAN HIGHEST DAILY MEAN LOWEST DAILY MEAN ANNUAL SEVEN-DAY MINIMUM ANNUAL RUNOFF (AC-FT) ANNUAL RUNOFF (CFSM) ANNUAL RUNOFF (INCHES) 10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS			2458.61 6.74 125 0.00 0.00 4880 1.08 14.63 16 2.1 0.00	Nov 14 May 13 Jun 17		2902.68 7.95 125 0.00 0.00 5760 1.27 17.28 25 0.85 0.00	Nov 14 Oct 1 Oct 1		7.7: 11.8 4.1: 400 0.0: 0.0: 0.0: 16.9: 21 1.1 0.0:	Feb 8 May 23 Jun 2	1991	

e Estimated

12090500 CLOVER CREEK NEAR TILLICUM, WA

LOCATION.--Lat $47^{\circ}08^{1}46^{\circ}$, long $122^{\circ}30^{1}33^{\circ}$, in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.11, T.19 N., R.2 E., Pierce County, Hydrologic Unit 17110019, at Pacific Highway SW, Lakewood, Washington, 2.5 mi northeast of Tillicum.

DRAINAGE AREA. -- 73.8 mi².

PERIOD OF RECORD.--June 1949 to October 1954, October 1959 to September 1970 (annual maximums only), September 1990 to October 1992, October 1994 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 250 ft above NGVD of 1929, from topographic map. Prior to October 22, 1999, at Bridgeport Way, $\frac{1}{4}$ mi. upstream, at various datums.

REMARKS.--Records good except for flows below 5 ${\rm ft}^3/{\rm s}$, which are fair.

AVERAGE DISCHARGE.--15 years (water years 1950-54, 1991-92, 1995-2002), 44.8 ft³/s, 8.25 in/yr, 32,450 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 568 ft³/s Feb. 12, 1991, gage height, 5.71 ft (datum then in use); no flow for many days in 1949, 1952-53, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 119 ft³/s Dec. 16, 18, gage height, 16.30 ft; minimum discharge, no flow on many days in Oct. and Nov.

	DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1 2 3 4 5	0.00 0.00 0.00 0.00	0.10 0.00 0.00 0.00 0.79	65 65 66 66	64 66 65 63 61	83 80 76 74 72	71 68 66 64 63	69 67 65 64 62	60 57 56 54 54	32 31 30 30 30	19 19 18	6.9 6.9 6.8 7.0 6.7	2.2 2.2 2.4 2.0 2.0	
6 7 8 9 10	0.00 0.00 0.00 0.00 0.51	0.15 0.01 0.00 0.00 0.00	61 58 56 53 53	64 77 84 84 79	72 78 84 86 82	62 62 60 59 58	60 59 58 60 63	53 52 51 49 51	29 29 29 28 28	17 18 20 18 17	6.4 5.8 5.6 5.3 4.9	1.8 1.8 2.0 2.0 1.9	
11 12 13 14 15		0.00 0.61 6.3 40						49 48 47 46 44	26 24 24 25 24	15 14 13 12 12	4.7 4.5 4.1 3.8 3.7	2.0 1.4 1.4 1.4	
16 17 18 19 20	0.00 0.00 0.00 0.00 0.00	32 30 26 28 27						42 43 41 40 41		12 12 11 11 11		1.4 1.1 1.2 1.4 1.2	
21 22 23 24 25	1.0	29 41 32 27 27		57 57 56 64 89			72 69 67 64 62	39 38 38 37 36	20 18 16 17 15	10 9.6 8.5 8.1 8.2	3.4 3.1 3.7 3.5 3.4	1.0 0.99 0.94 0.94 0.88	
26 27 28 29 30 31	0.06 4.3 0.11 0.00 0.00 4.5	26 25 41 68 66	68 66 64 62 62	102 99 92 85 83 84	81 77 74 	84 81 78 76 74	63 67 66 63 62	35 34 35 35 34 33	15 15 23 22 20	8.1 8.1 7.9 7.9 7.5 7.1	3.3 3.2 3.2 2.8 2.6 2.3	0.79 0.75 0.68 0.74 0.73	
TOTAL MEAN MAX MIN AC-FT CFSM IN.	13.12 0.42 4.5 0.00 26 0.01 0.01	602.96 20.1 68 0.00 1200 0.27 0.30	2273 73.3 113 52 4510 0.99 1.15	2217 71.5 102 56 4400 0.97 1.12	2122 75.8 89 64 4210 1.03 1.07	2407 77.6 109 58 4770 1.05	2114 70.5 104 58 4190 0.95 1.07	1372 44.3 60 33 2720 0.60 0.69	717 23.9 32 15 1420 0.32 0.36	400.0 12.9 20 7.1 793 0.17 0.20	134.3 4.33 7.0 2.3 266 0.06 0.07	42.44 1.41 2.4 0.68 84 0.02 0.02	
STATIST	TICS OF M	ONTHLY MEA	N DATA FO	R WATER YE	ARS 1949	- 2002,	BY WATER Y	YEAR (WY)					
MEAN MAX (WY) MIN (WY)	4.50 13.8 1998 0.000 1953	14.8 37.0 1991 0.000 1953	56.2 119 1951 0.000 1953	90.1 232 1997 13.4 2001	114 279 1951 14.8 2001	100 196 1997 15.3 2001	70.9 133 1991 22.8 2001	42.7 78.5 1996 17.8 2001	24.8 42.1 1996 9.93 1992	26.9 1996 3.55	5.80 12.5 1996 0.56 1952	3.58 11.5 1997 0.077 1952	
SUMMAR	Y STATIST	rics	FOR 2	001 CALEND	AR YEAR	F	OR 2002 WAT	TER YEAR		WATER YEARS	5 1949 -	2002	
ANNUAL TOTAL ANNUAL MEAN HIGHEST ANNUAL MEAN LOWEST ANNUAL MEAN HIGHEST DAILY MEAN LOWEST DAILY MEAN ANNUAL SEVEN-DAY MINIMUM ANNUAL RUNOFF (AC-FT) ANNUAL RUNOFF (INCHES) 10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS			5961.08 16.3 113 0.00 0.00 11820 0.22 3.00 36 13 0.11	Dec 18 Sep 30 Sep 30		14414.82 39.5 113 0.00 0.00 28590 0.54 7.27 83 35 0.44	Dec 18 Oct 1 Oct 1		44.8 81.9 9.72 532 0.00 0.00 32450 0.61 8.25 117 23 1.9		1997 2001 1951 1949 1949		

12091100 FLETT CREEK AT TACOMA, WA

LOCATION.--Lat $47^{\circ}11^{\circ}23^{\circ}$, long $122^{\circ}31^{\circ}08^{\circ}$, in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.26, T.20 N., R.2 E., Pierce County, Hydrologic Unit 17110019, on right bank upstream of 75th Street bridge, 0.6 mi upstream from mouth and 0.7 mi west of city limits of Tacoma.

DRAINAGE AREA.--7.33 \min^2 , excludes 0.68 \min^2 storm drainage diverted to Leach Creek basin but does not include some urban storm drainage diverted into the basin.

PERIOD OF RECORD.--June 1959 to September 1985, October 1985 to September 1996 (seasonal records). October 1996 to current year. REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 189.32 ft above NGVD of 1929 (levels by USGS National Mapping Division). Prior to Oct. 11, 2000, at same site and at datum 5.74 ft higher.

REMARKS.--Records fair except for estimated daily discharges, discharges below 1.0 ft³/s, and period Nov. 14 to Jan. 10, which are poor. Storm sewer drainage upstream from station. Several diversions for irrigation and industrial use. At times during winter months 1,000 gpm are pumped into creek for short intervals from Mountain View Memorial Park. Since October 1979, Flett Creek flood control retention ponds store and release flood water upstream from station. Chemical analyses October 1964 to September 1965.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 203 ft³/s Feb. 8, 1996, gage height, 3.08 ft, site and datum then in use, from rating curve extended above 115 ft³/s; minimum discharge, 0.09 ft³/s Oct. 23-25, Nov. 11, 12, 1987, Sept. 5, 6, 9-15, 18, 2002.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 185 ft³/s Nov. 15, gage height 11.45 ft; minimum discharge, 0.09 ft³/s Sept. 5, 6, 9-15, 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

	DISCHARGE, CUBIC FEET PER SECOND, WATER TRAN OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	1.5 1.3 1.0 0.91 0.76	18 14 13 9.2 9.0	41 44 44 43 44	25 34 28 24 25	e29 e24 e20 e19 e17	17 17 17 16 15	10 8.9 8.6 8.1 7.6	7.7 6.9 5.9 4.9	5.3 4.4 3.5 2.7 2.2	3.1 2.6 2.3 2.2 2.3	0.21 0.23 0.23 0.31 0.27	0.10 0.10 0.10 0.10 0.10
6 7 8 9 10	0.83 0.84 1.1 1.2	7.8 6.2 5.6 4.9 4.5	46 39 25 22 22	23 45 54 45 e43	e16 e16 e19 e20 22	15 14 14 13 13	7.7 7.1 6.9 7.3	3.8 3.5 3.7 4.1 6.4	1.8 1.9 1.4 1.5	2.2 2.7 4.0 3.7 2.7	0.32 0.29 0.28 0.27 0.23	0.10 0.11 0.10 0.10 0.10
11 12 13 14 15	3.7 3.3 3.0 3.4 3.5	4.3 5.4 12 58 138	26 28 35 57 54	e42 e40 e40 e39 e32	24 19 17 15 15	20 39 39 36 22	16 19 23 48 41	8.1 6.9 7.7 8.1 6.9	1.2 0.95 0.97 1.00 0.88	2.0 1.4 1.1 1.0 0.98	0.20 0.18 0.17 0.16 0.15	0.10 0.10 0.10 0.10 0.10
16 17 18 19 20	3.5 3.0 2.7 2.8 3.3	69 47 40 39 40	56 59 57 57 59	e26 e22 e20 e18 e18	15 15 15 16 20	21 29 21 24 46	31 29 24 16 14	6.5 8.5 7.8 7.2 8.5	1.1 1.4 1.4 1.3	0.89 0.80 0.80 0.61 0.53	0.15 0.13 0.13 0.13 0.21	0.17 0.10 0.10 0.10 0.12
21 22 23 24 25	3.9 5.5 10 12 14	38 37 38 36 35	68 54 49 33 26	e19 e18 e18 e18 e25	30 39 40 39 38	35 34 32 23 21	9.0 7.8 7.3 6.8	8.0 7.4 6.6 6.4 6.3	1.2 1.2 1.2 1.2	0.48 0.44 0.36 0.37 0.33	0.16 0.14 0.13 0.13 0.13	0.15 0.17 0.22 0.22 0.27
26 27 28 29 30 31	13 15 16 16 13 17	27 19 25 41 41	25 24 25 25 24 24	e40 e43 e48 e45 e41 e38	26 18 17 	18 15 14 12 11		5.8 5.4 6.6 9.1 7.3 6.4	0.83 0.82 1.7 4.7 4.7	0.30 0.28 0.28 0.21 0.20 0.20	0.13 0.12 0.11 0.10 0.10	0.22 0.19 0.13 0.25 0.18
TOTAL MEAN MAX MIN AC-FT	178.84 5.77 17 0.76 355	881.9 29.4 138 4.3 1750	1235 39.8 68 22 2450	996 32.1 54 18 1980	620 22.1 40 15 1230	674 21.7 46 11 1340	436.8 14.6 48 6.8 866	9.1	56.25 1.88 5.3 0.82 112	4.0 0.20		
STATIS	STICS OF M	ONTHLY MEA	N DATA FO	R WATER Y	EARS 1959	- 2002,	BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	4.24 18.7 1998 0.13 1988	10.8 32.4 1991 1.83 1966	40.2		23.6 53.9 1999 1.69 1977	20.4 52.1 1972 5.81 1962	14.5 32.4 1991 2.96 1977	8.72 29.9 1996 2.39 1977	5.55 15.6 1997 1.63 1975	3.10 10.9 1983 0.68 1970	1.77 5.24 1983 0.18 2002	2.42 9.81 1997 0.14 2002
SUMMAF	RY STATIST	CICS	FOR 2	001 CALENI	DAR YEAR	F	OR 2002 W	TER YEAR		WATER YEARS	3 1959 -	2002
ANNUAL TOTAL 4526.76 ANNUAL MEAN 12.4 HIGHEST ANNUAL MEAN LOWEST ANNUAL MEAN LOWEST DAILY MEAN 138 LOWEST DAILY MEAN 0.22 ANNUAL SEVEN-DAY MINIMUM 0.34 ANNUAL RUNOFF (AC-FT) 8980 10 PERCENT EXCEEDS 26 50 PERCENT EXCEEDS 8.8 90 PERCENT EXCEEDS 0.99				Nov 15 Aug 19 Aug 14		138 0.10 0.10 10580 40 7.8 0.16	Nov 15) Aug 29) Aug 29		11.0 21.7 2.87 138 0.09 0.10 7980 27 6.6 1.1	Nov 15 Oct 24 Aug 29	1997 1977 2001 1987 2002	

e Estimated

12091200 LEACH CREEK NEAR FIRCREST, WA

LOCATION.--Lat $47^{\circ}13^{\circ}18^{\circ}$, long $122^{\circ}30^{\circ}29^{\circ}$, in lot 24, block 14, SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.14, T.20 N., R.2 E., Pierce County, Hydrologic Unit 17110019, on left bank 1.0 mi south of Fircrest, and 2 mi upstream from mouth.

DRAINAGE AREA.--4.73 mi² includes 0.68 mi² storm drainage from Flett Creek basin.

PERIOD OF RECORD.--March 1957 to September 1985, October 1985 to April 1988 (seasonal records), October 1988 to current year.

REVISED RECORDS. -- WSP 1932: Drainage area.

GAGE.--Water-stage recorder, metal weir control, and crest-stage gage. Prior to Oct. 19, 1979, at site 20 ft downstream at same datum. Datum of gage is 222.98 ft above NGVD of 1929 (levels by U.S. Geological Survey National Mapping Division).

REMARKS.--No estimated daily discharges.Records fair except for flows below 3 ft³/s, which are poor. Since Oct. 1, 1961, flow may be regulated at dam upstream from station. Low flows supplemented from well in basin beginning June 30, 1993. Storage is not retained. Excess stormwater runoff pumped into Nalley Valley since early 1992. Drainage into basin influenced by urbanizing of area. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--42 years (water years 1958-85, 1989-2002), $4.75~{\rm ft}^3/{\rm s}$, $13.66~{\rm in/yr}$, $3,440~{\rm acre-ft/yr}$.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 309 ft³/s Nov. 24, 1990, gage height, 5.76 ft, from rating curve extended above 200 ft³/s; minimum discharge, 0.1 ft³/s Sept. 22, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 289 ${\rm ft}^3/{\rm s}$ Nov. 14, gage height, 5.10 ft; minimum recorded discharge, 1.2 ${\rm ft}^3/{\rm s}$ Aug. 19.

	DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	2.2 1.7 1.7 1.7	4.3 6.9 3.1 8.3 5.0	22 20 12 11 9.4	21 8.6 3.6 3.2 6.7	4.1 3.9 5.5 3.6 6.1	3.2 3.0 3.0 3.0 3.6	4.1 3.6 3.7 3.7 3.7	2.6 2.7 2.6 2.6 3.0	2.5 2.5 2.5 2.5 3.2	2.3 2.3 2.3 2.3 2.3	2.1 2.1 2.1 2.5 2.2	4.1 4.2 4.2 4.2 4.1
6 7 8 9 10	1.6 2.0 1.9 1.7	3.4 3.0 2.9 2.9 2.8	14 4.4 5.5 8.4 9.8	20 42 10 4.4 3.7	13 17 13 4.0 4.1	3.0 2.9 2.9 3.4 4.0	3.8 3.8 3.8 8.8	2.7 3.2 3.0 2.7 2.9	2.5 2.7 2.5 2.4 2.4	2.2 11 7.0 2.5 2.3	2.1 2.1 2.1 2.3 2.1	4.3 4.2 4.2 4.1 4.1
11 12 13 14 15	2.0 3.2 3.3 4.5 3.0	3.1 13 22 100 26	5.2 7.0 39 12 18	3.5 11 3.3 3.1 3.0	3.5 3.4 3.4 3.3 3.3	31 21 8.8 3.8 5.9	17 9.7 29 30 5.2	2.6 2.6 3.9 3.9 2.6	2.5 2.6 2.6 2.6 2.7	2.2 2.2 2.2 2.2 2.3	2.1 2.0 2.0 2.0 2.0	4.1 4.1 4.1 4.0 4.0
16 17 18 19 20	2.9 2.8 2.8 3.1 2.9	7.4 2.6 2.1 20	41 19 9.1 9.1 6.8	2.9 2.9 7.5 3.9	5.7 4.3 5.0 16 3.7	13 5.0 8.7 17 25	5.8 3.8 3.4 3.2 3.1	2.6 5.8 3.6 3.0 6.1	2.8 8.2 2.9 2.8 2.8	2.2 2.2 2.1 2.1 2.1	2.0 2.0 2.0 1.9 2.7	7.6 4.1 4.1 4.5 4.2
21 22 23 24 25	6.4 9.4 5.8 13 9.8	12 40 7.9 2.8 3.8	3.8 3.4 3.2 3.0 2.9	3.3 2.3 3.7 36 42	28 27 24 5.5 3.9	5.3 4.5 5.5 4.4 4.1	2.9 3.0 3.0 2.8 2.6	5.6 3.5 2.7 2.7 2.7	3.0 2.6 2.4 2.3 2.3	2.1 2.1 2.1 2.1 2.1	2.1 2.1 2.0 2.3 2.1	4.2 4.2 4.2 4.2 3.6
26 27 28 29 30 31	7.4 28 2.9 2.7 7.3	3.5 2.9 34 15 16	2.9 5.0 8.6 3.0 2.9 8.4	8.6 6.6 5.6 3.9 7.4 15	3.6 3.4 3.3 	4.5 4.0 3.8 3.7 3.8 3.7	4.5 8.9 6.5 3.1 2.7	2.7 4.5 8.6 4.4 2.6 2.5	2.3 3.7 20 16 2.5	2.7 2.1 2.0 2.0 2.2 2.1	2.1 2.4 4.2 4.5 3.9 4.0	2.5 2.5 2.5 5.0 2.4
TOTAL MEAN MAX MIN AC-FT CFSM IN.	169.3 5.46 28 1.6 336 1.15	387.7 12.9 100 2.1 769 2.73 3.05	329.8 10.6 41 2.9 654 2.25 2.59	312.7 10.1 42 2.3 620 2.13 2.46	224.6 8.02 28 3.3 445 1.70	218.5 7.05 31 2.9 433 1.49 1.72	209.2 6.97 30 2.6 415 1.47 1.65	107.2 3.46 8.6 2.5 213 0.73 0.84	115.3 3.84 20 2.3 229 0.81 0.91	81.9 2.64 11 2.0 162 0.56 0.64	74.1 2.39 4.5 1.9 147 0.51 0.58	121.8 4.06 7.6 2.4 242 0.86 0.96
STATIS'	TICS OF M	ONTHLY ME.	AN DATA F	OR WATER Y	EARS 1957	7 - 2002,	BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	4.21 8.60 1998 1.57 1973	7.29 16.8 1991 2.53 1977	7.70 15.5 1997 3.54 1977	7.86 16.3 1990 2.80 1962	6.75 15.1 1999 1.72 1993	5.54 12.4 1972 2.22 1992	4.29 10.3 1991 2.09 1977	3.13 5.73 1997 1.72 1965	2.97 5.30 1997 1.40 1969	2.36 4.58 1983 1.33 1969	2.50 5.17 2001 1.12 1969	2.91 6.92 1978 1.24 1989
SUMMAR	Y STATIST	CICS	FOR	2001 CALEN	DAR YEAR	F	OR 2002 W	ATER YEAR		WATER YEAR	S 1957 ·	- 2002
ANNUAL TOTAL ANNUAL MEAN HIGHEST ANNUAL MEAN HIGHEST DAILLY MEAN HIGHEST DAILLY MEAN HIGHEST DAILLY MEAN ANNUAL SEVEN-DAY MINIMUM ANNUAL RUNOFF (AC-FT) ANNUAL RUNOFF (IOSM) ANNUAL RUNOFF (INCHES) 10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS				2024.5 5.55 100 1.6 1.7 4020 1.17 15.92 13 2.8 2.1	Nov 14 Oct 5 Oct 2		2352.1 6.44 100 1.6 1.7 4670 1.36 18.50 15 3.6 2.1	Nov 14 Oct 5 Oct 2		4.75 8.15 2.61 166 0.50 0.71 3440 1.01 13.66 10 2.6	Jan 9	1 1972

12091300 LEACH CREEK NEAR STEILACOOM, WA

LOCATION.--Lat $47^{\circ}11^{\circ}54^{\circ}$, long $122^{\circ}31^{\circ}17^{\circ}$, in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.26, T.20 N., R.2 E., Pierce County, Hydrologic Unit 17110019, on right bank 0.3 mi upstream from mouth, and 4.1 mi northeast of Steilacoom.

DRAINAGE AREA.--6.56 mi², includes 0.68 mi² storm drainage from Flett Creek basin. Area used prior to July 1967, 5.88 mi².

PERIOD OF RECORD.--February 1957 to September 1985, October 1985 to September 1992 (seasonal records), October 1992 to current year.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 140 ft above NGVD of 1929 (levels by U.S. Geological Survey National Mapping Division). Prior to June 27, 1973, water-stage recorder at site 150 ft upstream at different datum. Supplementary water-stage recorder at site 50 ft downstream at different datum used Feb. 4, 1963, to Feb. 27, 1964. June 27, 1973, to Mar. 14, 1975, nonrecording gage at site 350 ft upstream at different datum.

REMARKS.--Records fair except estimated daily discharges which are poor. Drainage basin influenced by urbanizing of area. Some pumping for community use upstream from gage. Flow can be regulated by manually operated gate in flood control dam. Beginning early 1992, during major runoff events, stormwater can be pumped from holding pond above flood control dam into Nalley Valley drainage. Low flows supplemented from well in basin beginning June 30, 1993. Chemical analyses October 1962 to September 1965, October 1975 to September 1976.

AVERAGE DISCHARGE.--38 years (water years 1958-85, 1993-2002), 10.9 ft^3/s , 7,870 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded discharge, 378 ft³/s, Jan. 18, 1986, by culvert computation of peak flow through culvert, gage height, 5.21 ft, from outside high-water mark; minimum discharge, 2.0 ft³/s, July 3, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 224 ft³/s, Nov. 14, gage height, 4.33 ft from outside high water mark; minimum discharge, 6.5 ft³/s, Aug. 19, Sept 27-30.

		DISCHA	RGE, CUBI	C FEET PER		WATER YE MEAN VA	AR OCTOBER	2001 TO	SEPTEMB:	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	7.4 6.8 6.9 6.9	11 12 7.9 8.5	25 27 20 16 14	20 18 8.5 8.2 8.9	9.3 8.9 9.9 8.5	8.2 8.1 8.1 8.0 8.6	9.6 9.2 8.7 8.4	7.8 7.9 7.7 7.7 8.1	7.6 7.5 7.5 7.6 8.0	7.8 7.9 7.9 7.8 7.8	7.2 7.3 7.2 7.6 7.4	8.5 8.5 8.6 8.5 8.4
6 7 8 9 10	7.0 7.1 7.5 7.0	7.9 8.0 7.7 7.7	21 9.7 10 12 14	22 52 22 10 8.7	13 19 23 9.0 8.8	8.1 8.0 8.0 8.2 8.7	8.4 8.4 8.3 13 24	7.9 7.8 8.2 7.7 7.9	7.5 7.7 7.6 7.5 7.5	7.8 12 13 7.8 7.7	7.3 7.3 7.2 7.4 7.3	8.5 8.6 8.6 8.6
11 12 13 14 15	7.5 7.5 8.0 9.1 7.8	7.8 16 26 e119 e43	10 11 49 23 20	8.4 16 8.3 7.9 7.7	8.4 8.2 8.1 8.0 8.0	38 26 16 9.5 11	19 18 37 40 12	7.7 7.7 8.6 9.3 7.7	7.5 7.4 7.4 7.3 7.3	7.6 7.6 7.6 7.6 7.6	7.3 7.2 7.2 7.2 7.2	8.6 8.6 8.5 8.5
16 17 18 19 20	7.8 7.8 7.8 8.0 7.8	e16 e9.4 e8.0 e25	51 30 14 15 12	7.6 7.6 8.9 11	10 8.7 9.2 20 8.7	18 13 14 21 38	9.5 8.6 8.4 8.4	7.7 10 8.8 8.0	7.3 9.9 7.8 7.5 7.5	7.7 7.6 7.5 7.6 7.6	7.2 7.1 7.1 7.0 7.5	9.7 7.6 7.4 7.4 7.8
21 22 23 24 25	11 14 12 14 19	16 54 20 8.1 8.3	9.0 8.3 8.0 7.9 7.7	9.3 7.6 7.7 36 54	34 33 31 12 9.2	9.9 10 9.1 8.8	8.3 8.3 8.1 8.0	9.7 8.3 7.6 7.6	7.6 7.4 7.3 7.3 7.2	7.5 7.6 7.6 7.6 7.5	7.2 7.2 7.2 7.3 7.3	7.6 7.6 7.4 7.5 7.5
26 27 28 29 30 31	9.0 34 10 7.5 11 27	8.4 7.5 39 26 18	7.7 7.9 15 7.9 7.7	18 12 11 8.6 12	8.6 8.4 8.4 	9.0 8.8 8.7 9.0 9.1 9.6	9.5 14 11 8.4 8.0	7.6 7.9 12 11 7.6 7.5	7.2 7.8 15 22 8.0	7.9 7.5 7.4 7.4 7.4 7.2	7.4 7.3 8.5 8.9 8.4 8.5	6.9 6.8 6.7 7.9 6.5
TOTAL MEAN MAX MIN AC-FT	326.1 10.5 34 6.8 647	585.0 19.5 119 7.5 1160	502.8 16.2 51 7.7 997	473.9 15.3 54 7.6 940	361.3 12.9 34 8.0 717	389.5 12.6 38 8.0 773	369.9 12.3 40 8.0 734	258.6 8.34 12 7.5 513	249.7 8.32 22 7.2 495	246.1 7.94 13 7.2 488	230.4 7.43 8.9 7.0 457	240.5 8.02 9.7 6.5 477
STATIST	TICS OF N	MONTHLY ME	AN DATA F	OR WATER Y	EARS 1957	7 - 2002,	BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	9.85 17.4 1986 5.96 1988	14.3 28.9 1991 7.30 1970	15.0 28.7 1997 8.64 1977	16.3 34.4 1990 6.87 1985	14.9 28.1 1974 6.66 1973	12.6 25.2 1972 5.12 1973	10.9 23.0 1991 6.36 1973	9.03 18.3 1984 5.78 1971	8.16 14.5 1984 5.23 1969	7.10 10.6 1983 5.04 1973	7.15 9.91 2001 4.40 1969	7.89 13.7 1997 5.19 1974
SUMMAR	Y STATIST	rics	FOR	2001 CALEN	IDAR YEAR	F	OR 2002 WA	TER YEAR		WATER YEAR	RS 1957 -	2002
ANNUAL TOTAL ANNUAL MEAN HIGHEST ANNUAL MEAN LOWEST ANNUAL MEAN HIGHEST DAILY MEAN LOWEST DAILY MEAN ANNUAL SEVEN-DAY MINIMUM ANNUAL RUNOFF (AC-FT) 10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS				4015.6 11.0 119 6.7 7.0 7960 19 7.8 7.2	Nov 14 Sep 20 May 21		4233.8 11.6 119 6.5 7.0 8400 20 8.3 7.3	Nov 14 Sep 30 Oct 1		10.9 15.2 7.50 250 3.6 3.8 7870 18 8.2 5.7	Nov 24	1971

e Estimated

12091500 CHAMBERS CREEK BELOW LEACH CREEK, NEAR STEILACOOM, WA

LOCATION.--Lat $47^{\circ}11^{\circ}52^{\circ}$, long $122^{\circ}31^{\circ}39^{\circ}$, in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.27, T.20 N., R.2 E., Pierce County, Hydrologic Unit 17110019, on right bank 200 ft downstream from Leach Creek, 1.5 mi downstream from outlet of Steilacoom Lake, and 4 mi northeast of Steilacoom.

DRAINAGE AREA. -- 104 mi².

PERIOD OF RECORD.--December 1937 to September 1940, July 1943 to September 1965, October 1997 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 100 ft above NGVD of 1929, from topographic map. Prior to October 1997, at several sites within 0.10 mi downstream from present site at various datums.

REMARKS.--Records good except those above 250 ft^3/s , which are fair, and estimated daily discharges, which are poor. Some diversions from tributaries for domestic use.

AVERAGE DISCHARGE.--29 years (water years 1939-40, 1944-65, 1998-2002), 112 ft^3/s , 81,270 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 792 ${\rm ft}^3/{\rm s}$, Jan. 5, 1956, gage height, 3.58 ft, site and datum then in use; minimum discharge, 14 ${\rm ft}^3/{\rm s}$ Aug. 15-17, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 360 ft³/s, Dec. 16, gage height, 3.55 ft; minimum discharge, 31 ft³/s, Oct. 4-10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

	DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	33	65	200	196	222	178	172	143	106	e62	e38	39	
2	32	60	208	209	206	175	166	141	105	e56	e38	39	
3	32	54	204	187	204	172	162	139	102	e50	e38	39	
4	32	49	202	181	197	169	159	131	100	e46	e39	39	
5	32	55	202	190	195	165	157	128	100	e45	e38	38	
6 7	31 31	46 43	211 191	202 277	198 208	162 159	156 153	130 131	98 97	e45 e50	e37 e37	38 38	
8	31	42	174	257	226	157	151	130	96	e55	e38	38	
9	31	40	171	234	205	155	128	129	95	e53	e37	38	
10	40	39	172	225	201	155	138	131	94	e48	e37	37	
11	36	39	174	216	199	210	150	131	93	e46	e37	37	
12	37	48	178	215	188	230	162	128	90	e45	e38	37	
13	39	66	249	202	183	226	212	129	88	e43	e38	37	
14	40	214	258	188	177	211	282	130	86	e42	e38	37	
15	38	154	257	182	174	193	241	125	85	e42	e37	36	
16 17	37 35	142 133	314 283	178 174	176 172	200 202	247 254	122 130	85 86	e41 e42	e37 e37	36 37	
18	35	124	271	172	170	194	214	126	75	e42	e37	36	
19	38	135	277	174	188	213	165	122	75	e42	e37	36	
20	41	133	269	183	175	288	148	127	76	e41	e37	36	
21	43	130	268	174	227	248	152	124	76	e41	e39	36	
22	46	171	248	170	239	248	153	121	76	e40	e37	36	
23	47	146	228	167	245	242	151	118	75	e39	e41	35	
24	48	137	198	212	223	219	148	117	75	e38	e40	35	
25	62	143	190	287	215	209	147	116	74	e38	e40	35	
26 27	67 94	133 122	184 179	261 247	199 186	201 193	149 164	115 114	65 e53	e39 e39	e40 e40	34 34	
28	68	176	188	241	181	187	160	119	e52	e40	e40	34	
29	59	191	175	232		181	151	119	e70	e40	e39	34	
30	58	184	171	231		178	146	112	e67	e39	39	34	
31	82		182	230		175		109		e38	39		
TOTAL	1375	3214 107	6676	6494	5579	6095	5138	3887	2515	1367	1184	1095	
MEAN	44.4	107	215	209	199	197	171	125	83.8	44.1	38.2	36.5	
MAX	94	214	314	287	245	288	282	143	106	62 38	41 37	39 34	
MIN	31	39	314 171	167	170	155	128	109	52				
AC-FT	2730	6370	13240	12880	11070	12090	10190	7710	4990	2710	2350	2170	
CFSM IN.	0.43	1.03 1.15	2.07	2.01 2.32	1.92	1.89 2.18	1.65 1.84	1.21	0.81	0.42	0.37	0.35 0.39	
									0.90	0.49	0.42	0.39	
STATIST	'ICS OF MO	ONTHLY MEA	N DATA F	OR WATER Y	ZEARS 1938	- 2002,	BY WATER	YEAR (WY)					
MEAN	54.7	71.7	129	185	213	201	153	117	85.0	61.2	49.0	46.9	
MAX	96.9	111	357	496	499	448	270	201	126	101	94.6	79.7	
(WY)	1998	1998	1956	1956	1951	1950	1950	1948	1948	1948	1948	1948	
MIN (WY)	36.0 1953	37.6 1953	40.5 1945	43.7 1945	72.1 2001	73.2 2001	63.1 1944	60.4 1944	51.5 1944	39.2 1962	34.5 1962	33.0 1998	
	STATIST	rcs			NDAR YEAR					WATER YEARS			
						-		IIII IIII		WIIIIC IIIIC	3 1930	2002	
ANNUAL				28263			44619			110			
ANNUAL		ALS VI		//.4			122			112		1951	
	'ANNUAL M ANNUAL ME	MEAIN ZAM								184 59.3		1951	
	DAILY ME	ZAN		314	Dec 16		314	Dec 16		650	Feb 13	3 1951	
	DAILY MEA	AN .		31	Sep 19		31	Oct 6		650 14 26	Aug 16	5 1965	
		MINIMUM		31	Oct 3		31 31 88500	Oct 3		26	Aug 1	3 1965	
	RUNOFF (A	AC-FT)		56060						81270	-		
	RUNOFF (CFSM)		0.74	1		1.18			1.08			
	RUNOFF (INCHES)		10.11	L		15.96	•		14.66			
	ENT EXCER	EDG FDS		161			224 126			220 84			
	ENT EXCE	EDS		28263 77.4 314 31 31 56060 0.74 10.11 161 66 34			37			84 41			
20 11110				J 1			٠, د			11			

e Estimated

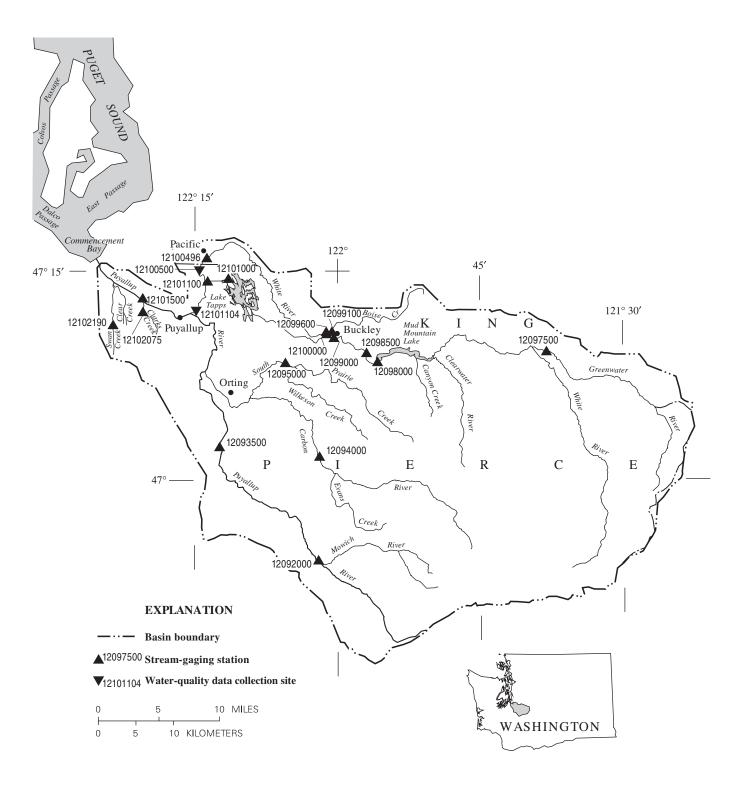


Figure 23. Location of surface-water and water-quality stations in the Puyallup River Basin.

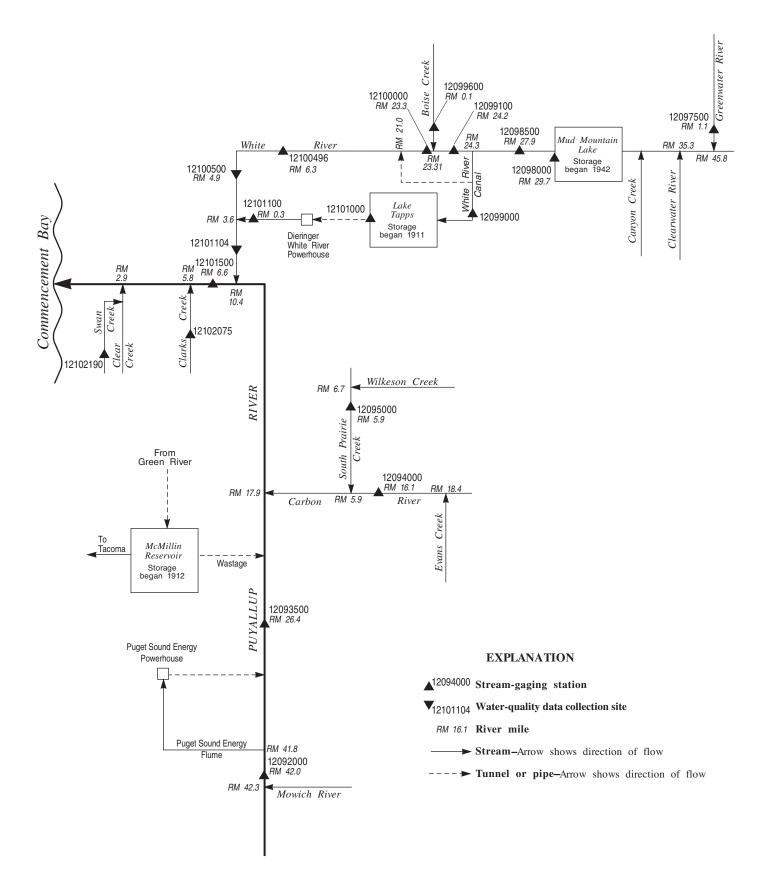


Figure 24. Schematic diagram showing surface-water stations in the Puyallup River Basin.

12092000 PUYALLUP RIVER NEAR ELECTRON, WA

LOCATION.--Lat $46^\circ54^\circ14^\circ$, long $122^\circ02^\circ02^\circ$, in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.3, T.16 N., R.6 E., Pierce County, Hydrologic Unit 17110014, on right bank 1,000 ft upstream from Puget Sound Energy's flume headworks, 0.3 mi downstream from Mowich River, 9.8 mi southeast of Electron, and at mile 42.0.

DRAINAGE AREA. -- 92.8 mi².

PERIOD OF RECORD.--October 1908 to December 1933, October 1944 to September 1949, October 1957 to current year.

REVISED RECORDS.--WSP 1092: $1946\,(M)$. WSP 1346: 1913, $1916-17\,(M)$, 1918-23, drainage area. WSP 1566: $1945\,(M)$, $1947\,(P)$.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,632.7 ft above NGVD of 1929. Prior to Jan. 1, 1913, nonrecording gage, and Jan. 1, 1913, to Sept. 30, 1926, Oct. 1, 1944, to Sept. 30, 1949, and Oct. 1, 1957, to Nov. 22, 1959 (gage destroyed by flood), water-stage recorder, at sites near present gage at different datums. Aug. 19, 1960, to Dec. 23, 1980, at site 160 ft downstream at different datum. Dec. 24, 1980, to Dec. 24, 1987, at site 60 ft downstream at different datum. Dec. 24, 1987, to Feb. 8, 1996 (gage destroyed by flood), at site on left bank near present gage at same datum. Feb. 8 to June 5, 1996, no gage at site.

REMARKS.--No estimated daily discharges. Records fair except for flows above 3,000 ft³/s, which are poor. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemetry at station.

AVERAGE DISCHARGE.--75 years (water years 1909-33, 1945-49, 1958-2002), 528 $\mathrm{ft^3/s}$, 77.27 $\mathrm{in/yr}$, 382,300 $\mathrm{acre-ft/yr}$.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 ft³/s Feb. 8, 1996, gage height, 10.94 ft, from floodmarks, result of slope-area measurement; minimum daily discharge, 75 ft³/s Oct. 19, 1994.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,300 ${\rm ft}^3/{\rm s}$ and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 14	1145	3,030	5.96	Jan. 07	2145	*4,460	*6.89
Dec. 13	2245	2,670	5.67	Apr. 14	0330	3,340	6.19
Dec. 17	0000	3,210	6.10	Jun. 29	0645	2,510	5.50

Mininum discharge, 143 ft³/s Oct. 9.

		DISCHA	RGE, CUBI	C FEET PE	R SECOND,	WATER Y		R 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	298	678	746	426	257	338	345	509	862	774	544	589
2	292	697	651	916	239	308	348	577	826	679	495	671
3	307	549	517	690	252	290	355	520	807	630	439	567
4	355	455	448	524	233	279	394	455	847	570	418	362
5	292	486	399	454	240	277	472	430	1130	532	352	286
6	279	376	460	795	269	266	528	392	1020	591	322	244
7	195	320	399	3070	309	243	576	352	786	784	297	220
8	245	281	405	2780	288	231	514	329	646	940	323	195
9	169	252	384	1450	255	224	553	308	555	827	448	253
10	370	235	359	954	267	238	721	285	595	963	598	367
11	427	228	330	775	265	624	751	281	709	1090	554	447
12	561	342	317	794	243	638	845	349	877	1030	592	464
13	600	527	1290	676	232	469	1220	503	1040	1200	737	412
14	1090	2390	1520	587	220	415	2400	527	1180	998	772	475
15	604	1780	884	510	217	371	1290	494	1150	772	689	448
16	423	1150	1690	460	222	332	891	466	1020	756	607	442
17	309	784	1940	417	225	295	679	509	841	762	562	332
18	239	599	1100	393	242	269	560	536	808	737	484	293
19	333	1040	794	394	324	340	495	548	693	717	460	414
20	277	1060	635	415	297	428	458	673	645	632	445	378
21	312	885	523	379	600	380	428	779	786	655	435	290
22	521	1160	448	334	856	382	415	783	903	791	499	308
23	626	1200	388	316	873	392	379	714	881	861	535	342
24	422	808	339	429	794	439	353	642	789	872	535	344
25	505	642	303	575	602	484	350	676	856	848	514	328
26	498	528	275	427	496	452	355	797	1050	852	565	276
27	472	453	272	358	425	416	381	993	1090	736	597	219
28	373	620	359	311	383	402	344	1280	1250	780	671	210
29	308	731	305	285		376	349	1490	1880	1000	692	241
30	494	604	277	279		352	414	1170	1080	952	542	163
31	849		345	278		340		969		634	485	
TOTAL	13045	21860	19102	21451	10125	11290	18163	19336	27602	24965	16208	10580
MEAN	421	729	616	692	362	364	605	624	920	805	523	353
MAX	1090	2390	1940	3070	873	638	2400	1490	1880	1200	772	671
MIN	169	228	272	278	217	224	344	281	555	532	297	163
AC-FT	25870	43360	37890	42550	20080	22390	36030	38350	54750	49520	32150	20990
CFSM	4.53	7.85	6.64	7.46	3.90	3.92	6.52	6.72	9.91	8.68	5.63	3.80
IN.	5.23	8.76	7.66	8.60	4.06	4.53	7.28	7.75	11.06	10.01	6.50	4.24
									11.00	10.01	0.50	4.24
STATIS'	TICS OF M	IONTHLY ME	AN DATA F	OR WATER	YEARS 1909	- 2002	, BY WATER	YEAR (WY)				
MEAN	395	568	594	534	448	368	429	620	764	674	542	404
MAX	1015	1468	2217	1071	1053	944	657	1019	1248	1256	746	727
(WY)	1960	1933	1934	1918	1996	1972	1988	1929	1974	1917	1917	1927
MIN	185	134	174	193	154	146	200	380	406	407	338	257
(WY)	1981	1930	1915	1979	1922	1922	1975	1909	1996	1996	1996	1996
SUMMAR	Y STATIST	ICS	FOR	2001 CALE	NDAR YEAR	I	FOR 2002 W	ATER YEAR		WATER YEAR	RS 1909 -	2002
ANNUAL	TOTAL			186696			213727					
ANNUAL				511			586			528		
HIGHEST	T ANNUAL	MEAN								664		1928
	ANNUAL M									378		1994
	T DAILY M			2390	Nov 14		3070	Jan 7		10000	Feb 8	
	DAILY ME			120	Feb 27			Sep 30		75	Oct 19	
		Y MINIMUM		139 150	Feb 22		163 229	Feb 12		104	Nov 18	
	RUNOFF (150 370300	100 22		423900	100 12		104 382300	1.0. 10	
	RUNOFF (5.5	1		6.3	1		5.6	9	
	RUNOFF (74.8			85.6			77.2		
	CENT EXCE			845	-		1010	-		896		
	CENT EXCE			476			486			440		
	CENT EXCE			198			269			222		
20 EDK	ULIVI DACE			100			203			222		

12093500 PUYALLUP RIVER NEAR ORTING, WA

LOCATION.--Lat $47^{\circ}02'22''$, long $122^{\circ}12'24''$, in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.17, T.18 N., R.5 E., Pierce County, Hydrologic Unit 17110014, on right bank 600 ft downstream from highway bridge, 4.0 mi south of Orting, 8.5 mi upstream from Carbon River, and at mile 26.4.

DRAINAGE AREA. -- 172 mi2.

Date

PERIOD OF RECORD. -- September 1931 to current year.

Time

REVISED RECORDS.--WSP 932: 1937-39. WSP 962: 1934. WSP 1246: Drainage area.

Discharge Gage height (ft³/s) (ft)

GAGE.--Water-stage recorder. Datum of gage is 352.5 ft above NGVD of 1929. Prior to Feb. 6, 1946, at site 600 ft upstream at datum 8.93 ft higher. Supplementary water-stage recorder 200 ft upstream at datum 7.1 ft higher than present gage datum, used at times during period in 1942-46. Feb. 6, 1946, to Mar. 12, 1965, at present site at datum 5.0 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are fair. Up to 400 ft³/s diverted for Electron powerplant of Puget Sound Energy, which is returned to river 4.8 mi upstream from gage. Minor regulation by Electron powerplant. U.S. Geological Survey satellite telemeter at station.

 $AVERAGE \ DISCHARGE. --71 \ years \ (water years 1932-2002), \ 716 \ ft^3/s, \ 56.54 \ in/yr, \ 518,500 \ acre-ft/yr.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,300 ft³/s Feb. 8, 1996, from slope area measurement, gage height, 11.37 ft; minimum discharge, 25 ft³/s Nov. 28, 1952; minimum daily, 59 ft³/s Nov. 29, 1952.

Time

Date

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of $4,500 \text{ ft}^3/\text{s}$ and $maximum \ (*):$

		,	,,	, ,					- /	,		
Dec 17 Jan 08	0130 0015	6,4 *8,2	50 30	8.80 *9.31	Apr	14	0645	5,80	0	8.59		
Minimum dis	charge,	197 ft ³ /s S	ept. 30									
		DISCHAR	RGE, CUB	IC FEET P	ER SECOND, DAILY	WATER YE MEAN V		R 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	328	794	1200	605	581	553	575	704	1030	884	556	575
2	326	781	1140	1080	534	507	570	796	993	774	519	662
3	324	657	956	916	545	476	555	736	989	722	453	619
4	365	510	838	738	524	457	573	651	988	637	440	401
5	347	622	762	645	515	454	650	611	1290	584	384	318
6	322	510	925	781	543	449	709	587	1230	623	359	288
7	e256	440	931	4150	676	413	779	547	954	841	339	e260
8	e284	402	825	4320	819	392	702	514	795	1060	340	e239
9	e216	374	788	1970	789	380	716	479	673	905	425	273
10	e411	350	720	1350	706	395	937	459	684	1010	582	366
11	498	340	693	1080	704	826	998	442	799	1130	588	436
12	524	412	633	1080	617	1110	1130	476	973	1070	581	472
13	659	573	1700	932	564	912	1470	637	1190	1210	727	423
14	1010	2880	2600	805	514	797	3930	711	1380	1070	766	474
15	658	2060	1470	708	485	699	2070	663	1330	813	692	462
16	504	1520	2190	639	476	634	1530	618	1190	801	611	467
17 18	e382 e321	1120 864	3620 1860	587 547	466 492	e594 e567	1210 1000	647 690	966 928	810 779	577 505	367 307
19	e413	1100	1450	578	571	e774	873	685	814	766	474	413
20	e343	1230	1170	684	566	1230	787	841	727	663	469	417
21	e383	1070	991	726	839	950	722	1020	854	664	426	319
22 23	511 732	1390 1860	857 750	619 559	1220 1270	829 773	694 636	1030 942	1010 1000	800 883	494 543	327 360
24	516	1250	673	718	1280	790	590	836	885	895	551	362
25	591	975	614	1080	961	927	570	857	924	884	511	350
		3,3							221			
26	568	821	568	927	795	831	571	962	1150	881	561	324
27	563	698	543	742	688	766	638	1150	1230	769	587	262
28	485	826	613	631	609	716	598	1450	1330	758	656	246
29 30	419	1170 1070	562	564 552		670	568 601	1750	2170 1270	999 968	687 578	291 215
31	514 922	1070	521 575	552 584		620 589	601	1470 1170	1270	669	492	215
31	222		373	304		505		1170		003	452	
TOTAL	14695	28669	33738	31897	19349	21080	27952	25131	31746	26322	16473	11295
MEAN	474	956	1088	1029	691	680	932	811	1058	849	531	376
MAX	1010	2880	3620	4320	1280	1230	3930	1750	2170	1210	766	662
MIN	216	340	521	547	466	380	555	442	673	584	339	215
AC-FT CFSM	29150 2.76	56860 5.56	66920 6.33	63270 5.98	38380 4.02	41810 3.95	55440 5.42	49850 4.71	62970 6.15	52210 4.94	32670	22400 2.19
TN.	3.18	6.20	7.30	6.90	4.18	4.56	6.05	5.44	6.87	5.69	3.56	2.19
STATIS					YEARS 1932							
MEAN	477	826	960	889	768	615	651	787	880	729	563	445
MAX (WY)	1291 1960	2149 1996	3015 1934	2314 1934	2291 1996	1619 1972	1038 1991	1282 1936	1470 1974	1239 1933	881 1983	748 1968
MIN	210	92.8	205	205	280	266	303	494	311	483	373	283
(WY)	1953	1953	1953	1937	1977	1941	1975	1941	1934	1977	1957	1936
	STATIST	ICS	FOR	2001 CALE	NDAR YEAR	FC	OR 2002 WAT	TER YEAR		WATER YEARS	1932 -	2002
ANNUAL				228497			288347					
ANNUAL		MUDAI		626			790			716 1174		1006
	T ANNUAL ANNUAL :									11 /4 465		1996 1941
	T DAILY			3620	Dec 17		4320	Jan 8		13400	Feb 8	
	DAILY M			215	Feb 27		215	Sep 30		59	Nov 29	1952
		AY MINIMUM		229	Feb 23		293	Sep 24		66	Nov 25	
ANNUAL	RUNOFF	(AC-FT)		453200			571900	-		518500		
ANNUAL	RUNOFF	(CFSM)		3.6			4.59	9		4.16		
ANNUAL	RUNOFF	(INCHES)		49.4	12		62.36	5		56.54		
	CENT EXC			981			1220			1180		
	CENT EXC			567			676			588		
90 PER	CENT EXC	EEDS		283			381			310		

e Estimated

12094000 CARBON RIVER NEAR FAIRFAX, WA

LOCATION.--Lat $47^{\circ}01'41"$, long $122^{\circ}01'53"$, in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.22, T.18 N., R.6 E., Pierce County, Hydrologic Unit 17110014, on left bank, 1.1 mi upstream from State Highway 165 (Fairfax) bridge, 1.2 mi northwest of Fairfax, 2.3 mi downstream from Evans Creek, 4 mi south of Carbonado, and at mile 16.1.

DRAINAGE AREA. -- 78.9 mi².

PERIOD OF RECORD.--December 1910 to June 1912, April 1929 to September 1965, October 1965 to May 1978, October 1991 to current year. Published as "at Fairfax" 1910-12, 1966-78.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,201.7 ft above NGVD of 1929 (USGS National Mapping Division). Prior to July 12, 1912, nonrecording gage at railroad crossing 1.7 mi upstream at different datum. March 1929 to September 1965, recording gage 350 ft upstream at datum 1,212.6 ft above NGVD of 1929. October 1965 to May 1978, recording gage 1.7 mi upstream at datum then in use.

REMARKS.--No estimated daily discharges. Records fair. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--59 years (water years 1930-77, 1992-2002), 429 ft³/s, 73.79 in/yr, 310,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 $\mathrm{ft^3/s}$ Feb. 8, 1996, gage height, 15.85 ft ; minimum discharge, 32 $\mathrm{ft^3/s}$ Nov. 24, 1993.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 24, 1990, reached a stage of 8.68 ft, from floodmark at former site and datum 350 ft upstream, discharge, 13,000 $\mathrm{ft^3/s}$, from rating extended above 6,200 $\mathrm{ft^3/s}$.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,800 ${\rm ft}^3/{\rm s}$ and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 14	1630	3,180	10.69	Jan. 08	0115	4,200	11.46
Dec. 14	0030	1,850	9.59	Apr. 14	0700	*4,330	*11.55
Dec. 17	0200	2,200	9.88	Jun. 29	0830	2,070	9.70

Minimum discharge, 90 ft³/s Oct. 7.

		DISCHA	RGE, CUBI	C FEET PE		WATER Y MEAN V	EAR OCTOBE ALUES	R 2001 TO	SEPTEME	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111	628	432	274	238	272	247	412 513 461 376 344	861	787	339	280
2	118	638	406	390	218	246	246	513	823	787 666 598 512 481	309	340
3	115	507	359	398	219	229	242	461	798	598	276	320
4	120	381	324	332	206	218	258	376	836	512	276	192
5	113	429	298	291	209	219					270	176
6	105	350 299 266 239	364	300	218 245 266 244 242	211	414	304	1140	499 629 830 673 751	243	155
7	96	299	325	1760	245	192	510	274	811	629	219	145
8 9	126	266	318	2890	266	180	429	260	616	830	212	127
10	121 185	239	313	218U 219	244	174 173	414 537	246	455	673 751	300	131 159
						1.5						
11 12	318 357	208 220	268 245	632 629	243 225	340 465	622 761 1170 3210	226	639 830	855 931 928 806 588	318	176 196
13	452	320	871	517	211	346	1170	390	1050	928	326	193
14	452 737 487	2270	1310	416	198	306	3210	493	1190	806	351	195
15	487	1610	729	346	189	274	1410	432	1150	588	363	212
16	301	946	1170	320	187	249	879	376	1000	557	312	220
17	242	662	1580	291	185	227	632	398	784	588	277	189
18	201	475	901	274	192	210	495	446	814	565	274	148
19	236	490	634	283	214	296	420	436	728	539	248	160
20	259	499	487	322	215	461	382	578	682	453	228	194
21	286	451	392	304	498	344	347	717	781	419	236	147
22	426	587	345	265	975	329	336	752	878	468	236	138
23 24	633 403	773 535	302 273	247 382	985 879	327 340	308 286	638 564	847 717	538 547	265 290	145 141
25	403 459	419	250	382 615	593	363	286 277	594 594	784	547	302	137
26 27	457 410	363 315	232 225 271 251 234	450 334	440 347	340	281	725	967	515 452 413 588 624 421	279	128 121
28	331	355	271	288	307	302	272	1110	1070	413	320	116
29	288	445	251	257		280	268	1410	1760	588	324	125
30	331 288 321	400	234	249		259	307	1250	1180	624	278	110
31	608		259	264		247		1010		421	229	
TOTAL	9422	16300	14669	16319	9388	8735	16583 553 3210 242 32890	17087	26880	18751 605 931 413 37190 7.67 8.84	8712	5216
MEAN	304	543	473	526	335	282	553	551	896	605	281	174
MAX	737	2270	1580	2890	985	465	3210	1410	1760	931	363	340
MIN	96	208	225	247	185	173	242	226	466	413	212	110
AC-FT	18690	32330	29100	32370	18620	17330	32890	33890	53320	37190	17280	10350
CFSM IN.	3.85 4.44	6.89 7.69	6.00 6.92	6.67 7.69	4.25 4.43	3.57 4.12	7.01	8.99	12 67	7.67 8.84	3.56 4 11	2.20
										0.04	4.11	2.40
STATIS							, BY WATER					
MEAN	313	496	545	467	381	312	385	557	649	486 828 1972 264 1940	316	243
MAX	830	1732	1952	948	1301	879	577	854	1083	828	500	538
(WY)	1960	1996	1934	1934	1996	1972	1938	1936	1964	1972	1964	1959
MIN (WY)	109 1975	59.0	110	110	131	143	134	346	306	264	201	158 1930
SUMMAR	Y STATIST	ICS	FOR	2001 CALE	NDAR YEAR		FOR 2002 W	ATER YEAR		WATER YEAR	RS 1930 -	2002
ANNUAL				130911			168062					
ANNUAL				359			460			429		
	T ANNUAL									664		1996
	'ANNUAL M T DAILY M			2270	Norr 14		2210	7mm 14		276	Fob 0	1941
TUMECT	TOTIL ME	AN		2270 96	Oct 7		3210	Apr 14		40	Nov 28	1952
ANNUAL	SEVEN-DA	Y MINIMUM		111	Oct. 1		111	Oct. 1		42	Nov 25	1952
ANNUAL	RUNOFF (EAN AN Y MINIMUM AC-FT) CFSM) INCHES) EDS		259700			333400			429 664 276 9020 40 42 310500 5.43 73.75 769		
ANNUAL	RUNOFF (CFSM)		4.5	5		5.8	4		5.43	3	
ANNUAL	RUNOFF (INCHES)		61.7	2		79.2	4		73.79	9	
10 PER	CENT EXCE	EDS		613			870			769		
JO I LIK	CENT EXCE	ши		314 149			334 191			338 159		
90 PER	CENI BACE	PDS		149			TAT			159		

12095000 SOUTH PRAIRIE CREEK AT SOUTH PRAIRIE, WA

LOCATION.--Lat $47^{\circ}08^{\circ}23^{\circ}$, long $122^{\circ}05^{\circ}29^{\circ}$, in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.18, T.19 N., R.6 E., Pierce County, Hydrologic Unit 17110014, on left bank 300 ft upstream from bridge on State Highway 162, 0.8 mi downstream from Wilkeson Creek, 0.3 mi east of South Prairie, and at mile 5.9.

DRAINAGE AREA. -- 79.5 mi2.

Date

Nov. 14 Dec. 14 Time

1330

50 PERCENT EXCEEDS 90 PERCENT EXCEEDS

PERIOD OF RECORD.--June 1949 to September 1971, October 1987 to current year.

Discharge Gage height (ft³/s) (ft)

30.16 30.07

1,590 1,670

REVISED RECORDS.--WSP 1932: Drainage area. WDR WA-96-1: 1980(M), 1991(P).

GAGE.--Water-stage recorder. Datum of gage is 400.0 ft above NGVD of 1929. June 1949 to June 1969, water-stage recorder at site 400 ft downstream at different datum. June 1969 to September 1971, at present site at different datum.

Discharge

 (ft^3/s)

Time

0130 0615 Gage height (ft)

REMARKS.--No estimated daily discharges. Records good except for period June to September, which is poor. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--37 years (water years 1950-71, 1988-2002), 236 ${\rm ft}^3/{\rm s}$, 40.27 ${\rm in/yr}$, 170,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,170 ft³/s Feb. 8, 1996, gage height, 35.14 ft, on basis of contracted-opening measurement of peak flow; minimum discharge, 20 ft³/s Sept. 23, 1967.

Date

Jan. 08 Apr. 14

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,400 ft^3/s and maximum (*):

Dec. 17	0215	1,6		30.07	ADI.	. 14	0613	~2,1	.00	"30.40		
Minimum disc	harge 2											
MIIIIIIIIIIII GISC	marge, s		_									
		DISCHAF	RGE, CUB	IC FEET PER		WATER '	YEAR OCTOBER VALUES	R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR		MAY	JUN		AUG	
1	49	253	430	216	259	215	216	216	215	261	56	40
2	48	220	358	284	239	196	213	231	213	223	52	42
3	46	166	315	259	234	184	204	211	214	204	50	66
4 5	46 45	132 206	270 259	216 284 259 224 206	259 239 234 226 220	180	213 204 204 225	216 231 211 189 182	215 213 214 213 312	261 223 204 191 187	64	52 44
6	43	157	317 309 276 270 262	210	228	181	252			174 181 227 184 172	87	43
7 8	45 58	127	309	731	290	166	274	174	200	181	65	44 46
9	58 71	109	276	747	264	158	245	1/1	174	101	10	46
10												
11	140	78	267	386	300	395	337	152	152	165 144 131 117 91	48	43
12	91	79	237	358	259	639	439	157	175	144	44	42
13	123	126	793	288	236	514	636	210	217	131	49	41
14 15	154 131	733	1200 663	253 227	214	393	1530 803	250 214	240 198	91	48 45	41 41
17	93	403	1250	197	190	248	421	196	142	69	45	47 56
18	74	304	724	187	203	225	334	201	212	66	47	49
19	71	277	533	210	218	376	284	200	156	73	47	46
										78 69 66 73 72		
21	77	251	323	384	494	647	239	315	139	68	50	48
22	131	379	275	279	783	489	227	325	136	69	48	45
23 24	208	700	244	239	725	271	210	262	125	64	46	43
25	77 131 208 147 187	251 379 700 459 334	205	765	439	397	188	227	103	68 69 64 64 63	42	44
		265	191	603	327	342	186	255	119	66	47	45
27	169	229	182	406	269	304	227	265	108	66	45	46
28	160	299	222	303	240	267	206	360	330	62	41	48
29	122	476	198	255		245	192	360	631	66	39	58
30 31	284	436	204	248		216	186 227 206 192 196	242		66 62 66 60 57	40	
TOTAL	3375	9289	12511	11250	8953	10121	10078	7006	6060	3715 120 261 57 7370 1.51 1.74	1526	1403
MEAN	109	310	404	363	320	326	336	226	202	120	49.2	46.8
MAX	284	1130	1250	1140	783	1050	1530	360	631	261	87	66
MIN	43	78	182	187	190	152	186	152	98	57	39	40
AC-FT	6690	18420	24820	22310	17760	20080	19990	13900	12020	7370	3030	2780
CFSM TN	1.37	3.89 4.35	5.08	4.56	4.02	4.11	4.23	2.84	2.54	1.51	0.62	0.59
										1.74	0.71	0.00
							2, BY WATER					
MEAN	140	313	363	382	348	274	291	259	219	111	64.2	68.8
MAX (WY)	1060	123	1056	1007	1006	1050	51 / 1001	463	1064	270	1060	233
MIN	26 4	35 2	61 5	126	112	138	157	131	59 1	48 7	32 7	34 9
(WY)	1988	1953	1953	1957	1993	1992	1995	1992	1992	111 270 1993 48.7 1995	1996	1967
SUMMARY										WATER YEARS		
A MINIT IA T	TOTAT.			60050			05207					
ANNUAL	MEAN			186			234			236		
HIGHEST	' ANNUAL	MEAN								338		1997
LOWEST	ANNUAL M	EAN		1050	D 15		1520	3 3.4		141	n-1-	1994
TUMBOD HIGHESI	DATIV MD	DAN		125U	Sen 24		30 T230	Apr. 14		6700 24	Sen	6 1951
ANNUAL.	SEVEN-DA	Y MINTMIM		39	Sep 24		41	Aug 23 Aug 27		25	Oct.	8 1987
ANNUAL	RUNOFF (AC-FT)		135000	202 13		169200	1109 27		170700	000	
ANNUAL	RUNOFF (CFSM)		2.35			2.94	1		2.96		
ANNUAL	RUNOFF (INCHES)		31.85			39.91	L		40.27		
10 PERC	ENT EXCE	EDS		333			432			236 338 141 6700 24 25 170700 2.96 40.27 451		

204 47 178 46

140 45

12097500 GREENWATER RIVER AT GREENWATER, WA

LOCATION.--Lat $47^{\circ}09^{\circ}13^{\circ}$, long $121^{\circ}38^{\circ}10^{\circ}$, in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.10, T.19 N., R.9 E., Pierce County, Hydrologic Unit 17110014, on left bank at bridge crossing, 0.7 mi east of Greenwater, and at mile 1.1.

DRAINAGE AREA. -- 73.5 mi2.

Time

0500

10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS

Date

Jan. 08

PERIOD OF RECORD.--September 1911 to August 1912 (fragmentary), May 1929 to September 1977, June 1980 to September 1993 (seasonal records), October 1993 to current year. Published as "near Enumclaw" 1911-12.

REVISED RECORDS.--WSP 1716: 1947(M). WA-94-1: 1990(M), 1993(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,720 ft above NGVD of 1929, from river-profile survey. Prior to Aug. 10, 1912, nonrecording gages at sites approximately 500 ft upstream at different datums. May 1, 1929, to Aug. 14, 1934, water-stage recorder at site 1,400 ft upstream at different datum. Aug. 17, 1934, to Sept. 30, 1977, water-stage recorder at site 500 ft upstream at different datum. U.S. Geological Survey satellite telemeter at station.

REMARKS.--No estimated daily discharges. Records good. No regulation upstream from station.

5.31

Discharge Gage height (ft³/s) (ft)

AVERAGE DISCHARGE.--57 years (water years 1930-77, 1994-2002), 213 ft³/s, 39.31 in/yr, 154,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,900 ft³/s Feb. 8, 1996, gage height, 8.94 ft, from rating curve extended above 2,400 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 22 ft³/s Oct. 27-31, 1987.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 2, 1977, reached a stage of 9.8 ft former site and datum, from floodmarks, discharge, about 10,500 ft³/s.

Time

2215

Date

May 29

Discharge Gage height (ft^3/s) (ft)

5.16

823

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 638 ft^3/s and maximum (*):

1 30 128 139 105 142 177 203 467 721 321 81 2 29 127 138 106 135 163 222 536 692 292 77 3 29 119 130 105 131 154 220 500 667 273 75 4 29 110 124 100 126 153 246 449 652 260 74 5 28 111 119 97 125 155 305 413 657 248 74 6 28 100 122 107 123 149 318 375 665 228 75 7 29 92 120 374 128 140 363 343 612 218 73 8 34 86 118 758 134 141 31 343 315 551 227 69 9 42 81 12 25 57 129 126 332 302 488 206 66 10 43 77 118 446 128 123 367 288 467 192 65 11 53 73 113 375 127 174 422 286 477 183 63 12 59 71 108 352 123 268 486 315 507 176 62 13 91 81 231 320 119 240 612 402 562 169 60 14 128 289 404 285 113 126 1430 430 626 160 58 15 86 269 276 254 114 198 976 433 642 152 57 16 65 222 316 231 149 189 876 433 642 152 57 16 65 222 316 231 189 189 876 433 642 152 57 16 65 222 316 231 189 189 766 433 642 152 57 16 65 222 316 231 189 189 766 433 642 152 57 17 58 204 427 213 118 168 566 442 582 140 55 18 5 17 78 87 87 87 87 87 87 87 87 87 87 87 87	08 14	0830	*1,	710	*6.33	May Jun.	29 15	0330	82 67		4.92		
DAY OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG 1 1 30 128 139 105 142 177 203 467 721 321 81 2 29 117 138 106 135 163 222 536 692 292 77 4 29 110 124 100 126 153 246 449 652 260 74 5 28 111 119 97 125 155 305 413 657 248 74 6 28 100 122 107 123 149 318 375 666 228 75 7 23 92 19 92 110 374 128 140 363 343 612 218 73 8 9 42 81 120 374 128 140 363 343 612 218 73 9 4 81 122 567 199 130 132 149 318 375 666 228 75 10 43 77 118 446 128 123 367 288 467 192 66 11 53 73 113 375 127 174 422 286 477 183 63 12 59 71 108 352 123 268 486 315 507 176 62 13 91 81 231 320 119 240 612 402 562 169 60 15 86 269 276 254 114 198 976 433 642 152 57 16 5 22 316 231 119 189 976 433 642 152 57 16 6 28 404 272 213 118 168 566 442 582 140 55 17 58 204 427 213 118 168 566 442 582 140 55 18 5 77 165 270 192 135 160 427 489 499 130 54 20 63 164 230 119 149 180 643 150 57 21 65 22 36 23 16 231 189 168 566 442 582 140 55 17 58 204 427 213 118 168 566 442 582 140 55 18 51 177 386 204 427 213 118 168 566 442 582 140 55 18 51 177 386 199 123 156 479 470 543 134 154 54 19 57 165 270 192 135 160 427 489 499 130 54 21 61 161 199 193 224 177 880 643 330 598 50 22 119 181 138 256 293 187 322 610 385 98 50 24 111 20 148 188 370 165 328 602 400 103 50 25 119 181 138 256 293 187 322 610 385 98 50 26 117 163 130 236 246 200 335 774 33 85 88 46 30 82 133 111 158 108 151 193 317 326 100 385 98 50 25 119 181 138 256 293 187 322 610 385 98 50 25 119 181 138 256 293 187 322 610 385 98 50 26 117 163 130 236 246 200 335 774 33 85 88 46 30 82 133 111 158 108 151 193 50 66 194 1950 1950 1950 1976 130 1071 1976 1976 1970 1776 65 130 1779 1770 1770 1770 1770 1770 1770 177	imum dis	charge, 2	28 ft ³ /s O	ct. 4, 5	, 6, 7.								
1 30 128 139 105 142 177 203 467 721 321 81 2 29 117 138 106 135 163 222 536 692 292 77 3 29 119 130 105 131 154 220 500 667 273 75 4 29 110 124 100 126 153 246 449 652 260 74 5 28 111 119 97 125 155 305 413 657 248 74 6 28 100 122 107 123 149 318 375 666 228 75 7 29 92 120 374 128 140 363 343 612 218 73 8 34 86 118 758 134 131 343 315 551 227 69 9 42 81 122 567 129 126 332 302 488 206 66 10 43 77 118 446 128 123 367 288 467 192 65 10 43 77 118 345 128 123 368 486 119 551 227 69 11 53 79 31 13 375 127 174 422 286 477 183 63 11 2 59 71 108 352 123 268 486 315 507 176 62 11 3 91 81 221 320 119 240 612 402 552 169 60 14 128 289 404 285 113 216 1430 430 626 160 58 15 86 269 276 254 114 198 976 433 642 152 57 16 65 232 316 231 119 182 704 429 626 144 56 17 58 204 427 213 118 168 566 442 582 152 57 16 65 232 316 231 119 182 704 429 626 144 56 17 58 204 427 213 118 168 566 442 582 140 55 18 51 177 336 199 123 156 479 479 479 489 499 130 54 18 51 177 386 199 123 135 160 427 489 499 130 54 18 51 177 386 199 123 135 160 427 489 499 130 54 19 18 1 61 161 199 193 224 177 380 643 430 626 124 54 20 63 164 230 186 141 189 404 587 445 145 54 21 61 161 199 193 224 177 380 643 430 616 52 21 61 161 199 193 224 177 380 643 430 166 57 22 161 162 199 193 224 177 380 643 430 166 58 23 134 228 161 165 439 161 349 637 415 106 52 24 113 201 148 188 370 165 364 670 422 110 53 23 134 228 161 165 439 161 349 637 415 106 52 24 113 201 148 188 370 165 328 602 400 103 50 25 119 181 138 256 293 187 322 610 385 98 50 26 117 163 130 296 246 209 335 714 376 94 49 29 88 141 116 163 190 331 797 385 88 46 30 82 133 111 15 108 151 193 31 797 385 88 46 31 115 108 151 193 31 797 385 88 46 31 115 108 151 193 177 175 124 159 194 195 195 195 195 197 193 193 193 193 193 193 193 193 193 193			DISCHAF	GE, CUBI	C FEET PE				R 2001 TO	SEPTEMB	BER 2002		
\$\frac{3}{29}\$ \text{119}\$ \text{130}\$ \text{131}\$ \text{154}\$ \text{220}\$ \text{500}\$ \text{667}\$ \text{273}\$ \text{75}\$ \text{28}\$ \text{111}\$ \text{119}\$ \text{120}\$ \text{125}\$ \text{125}\$ \text{256}\$ \text{260}\$ \text{278}\$ \text{74}\$ \text{278}\$ \text{278}\$ \text{278}\$ \text{278}\$ \text{278}\$ \text{278}\$ \text{278}\$ \text{278}\$ \text{278}\$ \text{278}\$ \text{278}\$ \text{278}\$ \text{278}\$ \text{278}\$	DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
2 29 119 130 105 131 154 220 500 667 273 75 4 29 110 124 100 126 153 246 449 652 260 74 5 28 111 119 97 125 155 305 413 657 248 74 6 28 100 122 107 123 149 318 375 666 228 75 7 29 92 120 374 128 140 363 343 612 218 73 8 34 86 118 758 134 131 343 315 551 227 69 9 42 81 122 567 129 126 332 302 488 206 66 10 43 77 118 446 128 123 367 288 467 192 65 11 53 73 113 375 127 174 422 286 477 166 62 11 53 73 113 375 127 174 422 286 477 166 63 13 51 51 108 352 123 268 466 315 562 169 69 13 51 51 108 352 123 268 466 315 562 169 69 14 128 289 444 285 113 240 462 562 160 68 15 86 269 276 254 114 198 376 433 642 152 57 16 65 232 316 231 623 119 18 169 433 642 152 57 16 65 232 316 231 18 16 231 119 182 704 429 626 144 56 17 58 204 427 213 118 168 566 442 582 140 55 18 51 177 336 199 123 156 479 470 543 134 54 19 57 165 270 192 135 160 427 489 499 130 54 19 57 165 270 192 135 160 427 489 499 130 54 20 63 164 230 196 141 189 404 587 456 124 54 21 61 161 161 199 193 224 177 380 643 430 116 54 22 77 175 178 176 453 165 39 163 328 602 400 103 50 26 117 163 130 236 246 208 329 668 381 97 50 26 117 163 130 236 246 208 329 668 381 97 50 25 119 181 138 265 293 167 322 610 385 98 50 26 117 163 130 236 246 208 329 668 381 97 50 26 117 163 130 236 246 208 329 668 381 97 50 26 117 163 130 236 246 208 329 668 381 97 50 27 110 148 125 202 216 200 335 714 378 94 49 28 99 142 121 181 194 194 314 760 362 90 47 29 88 141 116 163 1 190 331 797 385 88 46 30 82 133 111 158 187 381 801 346 86 46 31 115 108 151 108 151 187 391 900 371 133 31 115 108 151 193 3 193 1941 1992 1994 1990 1990 1970 1976 11 31 118 198 197 1960 1996 1934 1934 1996 1972 1956 1949 1950 1996 1976 11 31 118 119 119 119 119 129 193 119 129 193 1991 1990 1990 1976 11 31 110 140 140 140 140 140 140 140 140 14		30	128	139	105	142	177	203	467	721	321		45
6 28 100 122 107 123 149 318 375 666 228 75 7 7 29 92 120 374 128 140 363 343 612 218 73 8 34 86 118 758 134 131 343 315 551 227 69 9 9 42 81 122 567 129 126 332 302 488 206 66 10 43 77 118 446 128 123 367 288 467 192 65 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		29	127	138	106 105	135 131	163 154	222	536 500	692 667	292 273		45 46
6 28 100 122 107 123 149 318 375 666 228 75 7 7 29 92 120 374 128 140 363 343 612 218 73 8 34 86 118 758 134 131 343 315 551 227 69 9 9 42 81 122 567 129 126 332 302 488 206 66 10 43 77 118 446 128 123 367 288 467 192 65 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4	29	110	124	100	126	153	246	449	652	260	74	44
11 53 73 113 375 127 174 422 286 477 183 63 12 59 71 108 352 123 268 486 315 507 176 62 13 91 81 231 320 119 240 612 402 562 169 60 14 128 289 404 285 113 216 1430 430 626 160 58 15 86 269 276 254 114 198 976 433 642 152 57 16 65 232 316 231 119 182 704 429 626 144 56 17 58 204 427 213 118 168 566 442 582 140 55 18 51 177 336 199 123 156 479 470 543 134 54 20 63 164 230 196 141 189 404 587 456 124 54 20 63 164 230 196 141 189 404 587 456 124 54 20 63 164 230 196 141 189 404 587 456 124 54 22 77 175 178 178 176 453 165 364 670 422 110 53 23 134 228 161 165 439 161 349 637 415 106 52 24 113 201 148 188 370 165 328 602 400 103 50 25 119 181 138 256 293 187 322 610 385 98 50 26 117 163 130 236 246 208 329 668 381 97 50 27 110 148 125 202 216 200 335 714 378 94 49 128 99 142 121 181 194 194 314 760 382 90 47 29 88 141 116 163 190 331 797 385 88 46 33 115 108 151 108 151 187 113 112 128 128 129 129 123 128 128 129 129 123 128 129 129 129 129 129 129 129 129 129 129													43
11 53 73 113 375 127 174 422 286 477 183 63 12 59 71 108 352 123 268 486 315 507 176 62 13 91 81 231 320 119 240 612 402 562 169 60 14 128 289 404 285 113 216 1430 430 626 160 58 15 86 269 276 254 114 198 976 433 642 152 57 16 65 232 316 231 119 182 704 429 626 144 56 17 58 204 427 213 118 168 566 442 582 140 55 18 51 177 336 199 123 156 479 470 543 134 54 199 57 165 270 192 135 160 427 489 499 130 54 199 57 165 270 192 135 160 427 489 499 130 54 20 63 164 230 196 141 189 404 587 456 124 54 22 77 175 178 178 176 453 165 364 670 422 110 53 23 134 228 161 165 439 161 349 637 415 106 52 24 113 201 148 188 370 165 328 602 400 103 50 25 119 181 138 256 293 187 322 610 385 98 50 26 117 163 130 236 246 208 329 668 381 97 50 27 110 148 125 202 216 200 335 714 378 94 49 128 98 142 121 181 194 194 314 760 382 90 47 29 88 141 116 168 199 31 797 385 88 46 33 115 15 108 151 187 183 268 1430 807 7.9 8 38 46 15 15 15 15 15 15 15 15 15 15 15 15 15	6	28	100	122	107	123	149	318	375	666	228	75 73	42 42
11 53 73 113 375 127 174 422 286 477 183 63 12 59 71 108 352 123 268 486 315 507 176 62 13 91 81 231 320 119 240 612 402 562 169 60 14 128 289 404 285 113 216 1430 430 626 160 58 15 86 269 276 254 114 198 976 433 642 152 57 16 65 232 316 231 119 182 704 429 626 144 56 17 58 204 427 213 118 168 566 442 582 140 55 18 51 177 336 199 123 156 479 470 543 134 54 19 57 165 270 192 135 160 427 489 499 130 54 19 57 165 270 192 135 160 427 489 499 130 54 20 63 164 230 196 141 189 404 587 456 124 54 21 61 161 199 193 224 177 380 643 430 116 54 22 77 175 178 178 176 453 165 364 670 422 110 53 23 134 228 161 165 439 161 349 637 415 106 52 24 113 201 148 188 370 165 328 602 400 103 50 25 119 181 138 256 293 187 322 610 385 98 50 26 117 163 130 236 246 208 329 668 381 97 50 27 110 144 125 202 216 200 335 714 378 94 49 28 98 142 121 181 194 194 314 760 382 90 47 29 88 141 116 163 197 381 88 46 31 15 108 151 187 381 801 346 86 46 31 15 108 151 187 381 801 346 86 46 31 115 108 151 187 381 801 346 86 46 31 115 108 151 187 381 801 346 86 46 31 115 108 151 187 381 801 346 86 46 31 124 287 788 427 788 428 1590 514 521 163 55.5 381 EXTATISTICS FOOTHER AT A STATISTICS FOR 2011 EARLY STATISTICS FOR 2012 EARLY STATISTICS FOR 2014 EARLY STATISTICS FOR 2014 EARLY STATISTICS FOR 2014 EARLY STATISTICS	8	34	86	118	758	134	131	343	315	551	227	69	42
11 53 73 113 375 127 174 422 286 477 183 63 12 59 71 108 352 123 268 486 315 507 176 62 13 91 81 231 320 119 240 612 402 562 169 60 14 128 289 404 285 113 216 1430 430 626 160 58 15 86 269 276 254 114 198 976 433 642 152 57 16 65 232 316 231 119 182 704 429 626 144 56 17 58 204 427 213 118 168 566 442 582 140 55 18 51 177 336 199 123 156 479 470 543 134 54 19 57 165 270 192 135 160 427 489 499 130 54 19 57 165 270 192 135 160 427 489 499 130 54 20 63 164 230 196 141 189 404 587 456 124 54 21 61 161 199 193 224 177 380 643 430 116 54 22 77 175 178 178 176 453 165 364 670 422 110 53 23 134 228 161 165 439 161 349 637 415 106 52 24 113 201 148 188 370 165 328 602 400 103 50 25 119 181 138 256 293 187 322 610 385 98 50 26 117 163 130 236 246 208 329 668 381 97 50 27 110 144 125 202 216 200 335 714 378 94 49 28 98 142 121 181 194 194 314 760 382 90 47 29 88 141 116 163 197 381 88 46 31 15 108 151 187 381 801 346 86 46 31 15 108 151 187 381 801 346 86 46 31 115 108 151 187 381 801 346 86 46 31 115 108 151 187 381 801 346 86 46 31 115 108 151 187 381 801 346 86 46 31 124 287 788 427 788 428 1590 514 521 163 55.5 381 EXTATISTICS FOOTHER AT A STATISTICS FOR 2011 EARLY STATISTICS FOR 2012 EARLY STATISTICS FOR 2014 EARLY STATISTICS FOR 2014 EARLY STATISTICS FOR 2014 EARLY STATISTICS		42	81	122	567	129	126	332	302	488	206	66	41 41
11 53 73 113 375 127 174 422 286 477 183 63 12 59 71 108 352 123 268 486 315 507 176 62 13 91 81 231 320 119 240 612 402 562 169 60 14 128 289 404 285 113 216 1430 430 626 160 58 15 86 269 276 254 114 198 976 433 642 152 57 16 65 232 316 231 119 182 704 429 626 144 56 17 58 204 427 213 118 168 566 442 582 140 55 18 51 177 336 199 123 156 479 470 543 134 54 19 57 165 270 192 135 160 427 489 499 130 54 20 63 164 230 196 141 189 404 587 456 124 54 21 61 161 199 193 224 177 380 643 430 116 54 22 77 175 178 176 453 165 364 670 422 110 53 23 134 228 161 165 439 161 349 637 415 106 52 24 113 201 148 188 370 165 328 602 400 103 50 25 119 181 138 256 293 187 322 610 385 98 50 26 117 163 130 236 246 208 329 668 381 97 50 27 110 148 125 202 216 200 335 714 378 94 28 99 142 121 181 194 194 314 760 382 90 47 29 88 141 116 163 63 190 331 797 385 88 46 30 82 133 111 158 190 331 769 346 86 46 30 82 133 111 158 190 331 797 385 88 46 31 115 108 151 193 123 20 326 346 83 45 31 MAX 134 289 427 758 453 268 1430 801 721 321 81 MIN 28 71 108 197 138 176 4968 5449 12858 15942 15617 5048 1844 11 MEAN 69.3 148 177 240 177 176 429 514 521 163 59.5 3 MAX 134 280 427 758 453 268 1430 801 721 321 81 MIN 28 71 108 97 113 123 203 286 346 83 45 MAX 134 289 427 758 453 268 1430 801 721 321 81 MIN 28 71 108 97 113 123 203 286 346 83 45 MAX 134 289 427 758 453 268 1430 801 721 321 81 MIN 28 71 108 97 113 123 203 286 346 83 45 MAX 134 289 427 758 453 268 1430 801 721 321 81 MIN 28 71 108 97 113 123 203 286 346 83 45 MAX 134 289 427 758 453 268 1430 801 721 321 81 MIN 29 78 1090 14780 9850 10810 25500 31620 30980 371 133 31 MAX 347 784 1116 597 809 640 457 833 900 371 133 51 MAX 347 784 1116 597 809 640 457 833 900 371 133 51 MIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 33 MAY 134 299 497 758 499 1990 1990 1991 1994 1990 1990 1990													
16 65 232 316 231 119 182 704 429 626 144 56 17 58 204 427 213 118 168 566 442 582 140 55 18 51 177 336 199 123 156 479 470 543 134 54 20 63 164 230 196 141 189 404 587 456 124 54 21 61 161 199 193 224 177 380 643 430 116 54 22 77 175 178 176 453 165 364 670 422 110 53 23 134 228 161 165 439 161 349 637 415 106 52 24 113 201 148 188 370 165 328 602 400 103 50 25 119 181 138 256 293 187 322 610 385 98 50 26 117 163 130 236 246 208 329 668 381 97 50 27 110 148 125 202 216 200 335 714 378 94 49 28 99 142 121 181 194 194 314 760 382 90 47 29 88 141 16 163 190 331 797 385 88 46 30 82 133 111 158 187 381 86 44 31 115 108 151 193 3 769 83 45 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 646 66 66 66 66 66 66 66 66 66 66 66 66		53 59	73 71	113	375 352	127	174 268	422 486	286 315	477 507	183 176	63 62	40 40
16 65 232 316 231 119 182 704 429 626 144 56 17 58 204 427 213 118 168 566 442 582 140 55 18 51 177 336 199 123 156 479 470 543 134 54 20 63 164 230 196 141 189 404 587 456 124 54 21 61 161 199 193 224 177 380 643 430 116 54 22 77 175 178 176 453 165 364 670 422 110 53 23 134 228 161 165 439 161 349 637 415 106 52 24 113 201 148 188 370 165 328 602 400 103 50 25 119 181 138 256 293 187 322 610 385 98 50 26 117 163 130 236 246 208 329 668 381 97 50 27 110 148 125 202 216 200 335 714 378 94 49 28 99 142 121 181 194 194 314 760 382 90 47 29 88 141 16 163 190 331 797 385 88 46 30 82 133 111 158 187 381 86 44 31 115 108 151 193 3 769 83 45 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 646 66 66 66 66 66 66 66 66 66 66 66 66		91	81	231	320	119	240	612	402	562	169	60	40
16 65 232 316 231 119 182 704 429 626 144 56 17 58 204 427 213 118 168 566 442 582 140 55 18 51 177 336 199 123 156 479 470 543 134 54 20 63 164 230 196 141 189 404 587 456 124 54 20 63 164 230 196 141 189 404 587 456 124 54 21 61 161 199 193 224 177 380 643 430 116 54 22 77 175 178 176 453 165 364 670 422 110 53 23 134 228 161 165 439 161 349 637 415 106 52 24 113 201 148 188 370 165 328 602 400 103 50 25 119 181 138 256 293 187 322 610 385 98 50 26 117 163 130 236 246 208 329 668 381 97 50 27 110 148 125 202 216 200 335 714 378 94 49 28 99 142 121 181 194 194 314 760 382 90 47 29 88 141 116 163 190 331 797 385 88 46 30 82 133 111 58 187 381 801 346 86 46 31 115 108 151 193 769 83 45 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1 TOTAL 2147 4429 5496 7451 4968 5449 12850 1844 1 TOTAL 2	14	128	289	404	285	113	216	1430	430	626	160	58	39
18	13	00											39
18		65	232		231	119	182	704	429	626	144	56	40 40
21 61 161 199 193 224 177 380 643 430 116 54 22 77 175 178 176 453 165 364 670 422 110 53 23 134 228 161 165 439 161 349 637 415 106 52 24 113 201 148 188 370 165 328 602 400 103 50 25 119 181 138 256 293 187 322 610 385 98 50 25 119 181 138 256 202 216 200 335 714 378 94 49 28 99 142 121 181 194 194 314 760 382 90 47 29 88 141 116 163 190 331 797 385 88 46 31 115 108 151 193 769 83 45 115 115 108 151 193 769 83 45 115 115 84 148 177 240 177 176 429 514 521 163 59.5 31 MAX 134 289 427 758 453 268 1430 801 721 321 81 MIN 28 71 108 97 113 123 203 286 346 83 45 45 18 194 109 2.24 2.78 3.77 2.51 2.76 6.51 8.07 7.90 2.55 0.93 0 0 371 133 13 (WY) 1960 1996 1934 1934 1996 1972 1973 1974 1975 1978 1978 1979 1978 1978 1978 1978 1978			177		199	123	156	479	470	543	134	54	39
21 61 161 199 193 224 177 380 643 430 116 54 22 77 175 178 176 453 165 364 670 422 110 53 23 134 228 161 165 439 161 349 637 415 106 52 24 113 201 148 188 370 165 328 602 400 103 50 25 119 181 138 256 293 187 322 610 385 98 50 25 119 181 138 256 202 216 200 335 714 378 94 49 28 99 142 121 181 194 194 314 760 382 90 47 29 88 141 116 163 190 331 797 385 88 46 31 115 108 151 193 769 83 45 115 115 108 151 193 769 83 45 148 177 240 177 176 429 514 521 163 59.5 31 MAX 134 289 427 758 453 268 1430 801 721 321 81 MIN 28 71 108 97 113 123 203 286 346 83 45 AC-FT 4260 8780 10900 14780 9850 10810 25500 31620 3090 170 133 133 134 109 2.24 2.78 3.77 2.51 2.76 6.51 8.07 7.90 2.55 0.93 0 0 371 133 13 (WY) 1960 1996 1934 1934 1996 1972 1956 1949 1950 1950 1976 11 MIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NININ 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 30 NIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.	19	57	165	270	192	135	160	427	489	499	130	54	38
26		63	164	230			100						38
26	21	61			193	224	177	380	643	430	116	54	37
26	22	134			176	453 439	165	364 349	670	422	110	53 52	36 36
26	24	113	201	148	188	370	165	328	602	400	103	50	36
TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1288N 69.3 148 177 240 177 176 429 514 521 163 59.5 31 MAX 134 289 4277 758 453 268 1430 801 721 321 81 MIN 28 71 108 97 113 123 203 286 346 83 45 AC-FT 4260 8780 10900 14780 9850 10810 25500 31620 30980 10010 3660 25 CFSM 0.94 2.01 2.41 3.27 2.41 2.39 5.83 7.00 7.08 2.22 0.81 0 IN. 1.09 2.24 2.78 3.77 2.51 2.76 6.51 8.07 7.90 2.55 0.93 0 STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY) MEAN 73.8 183 259 249 220 195 284 432 364 146 65.5 55 MAX 347 784 1116 597 809 640 457 833 900 371 133 (WY) 1960 1996 1934 1934 1996 1972 1956 1949 1950 1950 1976 19 MIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 31 (WY) 1988 1937 1953 1937 1936 1941 1973 1941 1992 1934 1934 1934 1936 1941 1973 1941 1992 1934 1934 1934 1935 1937 1938 1937 1938 1937 1938 1937 1936 1941 1973 1941 1992 1934 1934 1934 1934 1934 1934 1934 1935 1937 1938 1937 1938 1937 1938 1937 1938 1941 1973 1941 1992 1934 1934 1934 1935 1937 1938 1937 1938 1941 1973 1941 1992 1934 1934 1934 1935 1937 1938 1937 1938 1941 1973 1941 1992 1934 1934 1934 1935 1937 1938 1937 1936 1941 1973 1941 1992 1934 1934 1934 1934 1934 1936 1941 1973 1941 1992 1934 1934 1934 1935 1937 1938 1937 1938 1941 1973 1941 1992 1934 1934 1934 1934 1936 1941 1973 1941 1992 1934 1934 1934 1935 1938 1937 1938 1937 1938 1941 1973 1948 1992 1934 1934 1934 1936 1937 1938 1937 1938 1937 1938 1941 1973 1948 1992 1934 1934 1934 1936 1937 1938 1937 1938 1941 1973 1948 1992 1934 1934 1934 1936 1937 1938 1937 1938 1941 1973 1948 1992 1934 1934 1934 1934 1934 1936 1941 1973 1948 1992 1934 1934 1934 1936 1937 1938 1937 1938 1941 1973 1948 1992 1934 1934 1934 1934 1934 1934 1934 1934								322	010	385			35
TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1286N 69.3 148 177 240 177 176 429 514 521 163 59.5 33 MAX 134 289 427 758 453 268 1430 801 721 321 81 MIN 28 71 108 97 113 123 203 286 346 83 45 AC-FT 4260 8780 10900 14780 9850 10810 25500 31620 30980 10010 3660 25 CFSM 0.94 2.01 2.41 3.27 2.41 2.39 5.83 7.00 7.08 2.22 0.81 0 IN. 1.09 2.24 2.78 3.77 2.51 2.76 6.51 8.07 7.90 2.55 0.93 0 STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY) MEAN 73.8 183 259 249 220 195 284 432 364 146 65.5 55 MAX 347 784 1116 597 809 640 457 833 900 371 133 (WY) 1960 1996 1994 1934 1934 1996 1972 1956 1949 1950 1950 1976 131 MIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 33 (WY) 1988 1937 1953 1937 1936 1941 1973 1941 1992 1934 1934 1934 1935 SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1929 - 2002 NANNIAL TOTAL	26	117	163	130	236	246	208	329	668	381	97	50	35
TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1286N 69.3 148 177 240 177 176 429 514 521 163 59.5 33 MAX 134 289 427 758 453 268 1430 801 721 321 81 MIN 28 71 108 97 113 123 203 286 346 83 45 AC-FT 4260 8780 10900 14780 9850 10810 25500 31620 30980 10010 3660 25 CFSM 0.94 2.01 2.41 3.27 2.41 2.39 5.83 7.00 7.08 2.22 0.81 0 IN. 1.09 2.24 2.78 3.77 2.51 2.76 6.51 8.07 7.90 2.55 0.93 0 STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY) MEAN 73.8 183 259 249 220 195 284 432 364 146 65.5 55 MAX 347 784 1116 597 809 640 457 833 900 371 133 (WY) 1960 1996 1994 1934 1934 1996 1972 1956 1949 1950 1950 1976 131 MIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 33 (WY) 1988 1937 1953 1937 1936 1941 1973 1941 1992 1934 1934 1934 1935 SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1929 - 2002 NANNIAL TOTAL	27	99	148	125	202 181	216 194	194	335 314	714 760	378	94	49 47	34 34
TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1286N 69.3 148 177 240 177 176 429 514 521 163 59.5 33 MAX 134 289 427 758 453 268 1430 801 721 321 81 MIN 28 71 108 97 113 123 203 286 346 83 45 AC-FT 4260 8780 10900 14780 9850 10810 25500 31620 30980 10010 3660 25 CFSM 0.94 2.01 2.41 3.27 2.41 2.39 5.83 7.00 7.08 2.22 0.81 0 IN. 1.09 2.24 2.78 3.77 2.51 2.76 6.51 8.07 7.90 2.55 0.93 0 STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY) MEAN 73.8 183 259 249 220 195 284 432 364 146 65.5 55 MAX 347 784 1116 597 809 640 457 833 900 371 133 (WY) 1960 1996 1994 1934 1934 1996 1972 1956 1949 1950 1950 1976 131 MIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 33 (WY) 1988 1937 1953 1937 1936 1941 1973 1941 1992 1934 1934 1934 1935 SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1929 - 2002 NANNIAL TOTAL	29	88	141	116	163		190	331	797	205	88	46	34
TOTAL 2147 4429 5496 7451 4968 5449 12858 15942 15617 5048 1844 1288N 69.3 148 177 240 177 176 429 514 521 163 59.5 31 MAX 134 289 4277 758 453 268 1430 801 721 321 81 MIN 28 71 108 97 113 123 203 286 346 83 45 AC-FT 4260 8780 10900 14780 9850 10810 25500 31620 30980 10010 3660 25 CFSM 0.94 2.01 2.41 3.27 2.41 2.39 5.83 7.00 7.08 2.22 0.81 0 IN. 1.09 2.24 2.78 3.77 2.51 2.76 6.51 8.07 7.90 2.55 0.93 0 STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY) MEAN 73.8 183 259 249 220 195 284 432 364 146 65.5 55 MAX 347 784 1116 597 809 640 457 833 900 371 133 (WY) 1960 1996 1934 1934 1996 1972 1956 1949 1950 1950 1976 19 MIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 31 (WY) 1988 1937 1953 1937 1936 1941 1973 1941 1992 1934 1934 1934 1936 1941 1973 1941 1992 1934 1934 1934 1935 1937 1938 1937 1938 1937 1938 1937 1936 1941 1973 1941 1992 1934 1934 1934 1934 1934 1934 1934 1935 1937 1938 1937 1938 1937 1938 1937 1938 1941 1973 1941 1992 1934 1934 1934 1935 1937 1938 1937 1938 1941 1973 1941 1992 1934 1934 1934 1935 1937 1938 1937 1938 1941 1973 1941 1992 1934 1934 1934 1935 1937 1938 1937 1936 1941 1973 1941 1992 1934 1934 1934 1934 1934 1936 1941 1973 1941 1992 1934 1934 1934 1935 1937 1938 1937 1938 1941 1973 1941 1992 1934 1934 1934 1934 1936 1941 1973 1941 1992 1934 1934 1934 1935 1938 1937 1938 1937 1938 1941 1973 1948 1992 1934 1934 1934 1936 1937 1938 1937 1938 1937 1938 1941 1973 1948 1992 1934 1934 1934 1936 1937 1938 1937 1938 1941 1973 1948 1992 1934 1934 1934 1936 1937 1938 1937 1938 1941 1973 1948 1992 1934 1934 1934 1934 1934 1936 1941 1973 1948 1992 1934 1934 1934 1936 1937 1938 1937 1938 1941 1973 1948 1992 1934 1934 1934 1934 1934 1934 1934 1934		82 115	133	111 108	158 151		187 193	381	801 769	346	86 83	46 45	34
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY) MEAN 73.8 183 259 249 220 195 284 432 364 146 65.5 55 MAX 347 784 1116 597 809 640 457 833 900 371 133 57 (WY) 1960 1996 1934 1934 1996 1972 1956 1949 1950 1950 1950 1976 1978 MIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 36 (WY) 1988 1937 1953 1937 1936 1941 1973 1941 1992 1934 1934 1934 SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1929 - 2003							5440	10050	15040				
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY) MEAN 73.8 183 259 249 220 195 284 432 364 146 65.5 55 MAX 347 784 1116 597 809 640 457 833 900 371 133 57 (WY) 1960 1996 1934 1934 1996 1972 1956 1949 1950 1950 1950 1976 1978 MIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 36 (WY) 1988 1937 1953 1937 1936 1941 1973 1941 1992 1934 1934 1934 SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1929 - 2003		69.3	148	5496 177	240	4968 177	176	12858 429	15942 514	521	163	1844 59.5	1175 39.2
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY) MEAN 73.8 183 259 249 220 195 284 432 364 146 65.5 55 MAX 347 784 1116 597 809 640 457 833 900 371 133 57 (WY) 1960 1996 1934 1934 1996 1972 1956 1949 1950 1950 1976 1970 MIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 36 (WY) 1988 1937 1953 1937 1936 1941 1973 1941 1992 1934 1934 1934 SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1929 - 2003	MAX	134	289	427	758	453	268	1430	801	721	321	81	46 34
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY) MEAN 73.8 183 259 249 220 195 284 432 364 146 65.5 55 MAX 347 784 1116 597 809 640 457 833 900 371 133 57 (WY) 1960 1996 1934 1934 1996 1972 1956 1949 1950 1950 1976 1970 MIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 36 (WY) 1988 1937 1953 1937 1936 1941 1973 1941 1992 1934 1934 1934 SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1929 - 2003		4260	71	108	97 14790	113	123	203	286	346	83	45	34
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY) MEAN 73.8 183 259 249 220 195 284 432 364 146 65.5 55 MAX 347 784 1116 597 809 640 457 833 900 371 133 57 (WY) 1960 1996 1934 1934 1996 1972 1956 1949 1950 1950 1976 1970 MIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 36 (WY) 1988 1937 1953 1937 1936 1941 1973 1941 1992 1934 1934 1934 SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1929 - 2003		0.94	2.01	2.41	3.27	2.41	2.39	5.83	7.00	7.08	2.22	0.81	0.53
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY) MEAN 73.8 183 259 249 220 195 284 432 364 146 65.5 5 MMXX 347 784 1116 597 809 640 457 833 900 371 133 3 (WY) 1960 1996 1934 1934 1996 1972 1956 1949 1950 1950 1976 11 MIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 36 (WY) 1988 1937 1953 1937 1936 1941 1992 1934 1994 1950 SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1929 - 2003	IN.	1.09	2.24	2.78	3.77	2.51	2.76	6.51	8.07	7.90	2.55	0.93	0.59
MAX 347 784 1116 597 809 640 457 833 900 371 133 : (WY) 1960 1996 1934 1934 1996 1972 1956 1949 1950 1950 1976 11 MIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 31 (WY) 1988 1937 1953 1937 1936 1941 1973 1941 1992 1934 1934 1934 1934 1934 1934 1934 1934	STATIST	ICS OF MO	ONTHLY MEA	N DATA F	OR WATER	YEARS 1929	- 2002,	BY WATER	YEAR (WY)				
(WY) 1960 1996 1934 1934 1996 1972 1956 1949 1950 1950 1976 11 MIN 24.1 29.7 35.0 45.3 70.3 77.5 124 158 83.0 51.6 36.5 36 (WY) 1988 1937 1953 1937 1936 1941 1973 1941 1992 1934 1934 19 SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1929 - 2003						220		284	432	364	146	65.5	51.9
SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1929 - 2003		347	784	1116	1024	809	1972	457	833	900	371	133	128 1959
SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1929 - 2003		24.1	29.7	35.0	45.3	70.3	77.5	124	158	83.0	51.6		
ANNITIAL TOWNS 49272 92424	(WY)	1988	1937	1953	1937	1936	1941	1973	1941	1992	1934	1934	1987
ANNUAL TOTAL 48273 82424 ANNUAL MEAN 132 226 213 HIGHEST ANNUAL MEAN 328 1996	SUMMARY	STATISTI	ICS	FOR	2001 CALE	NDAR YEAR	F	OR 2002 W	ATER YEAR		WATER YEARS	3 1929 -	2002
ANNUAL MEAN 132 226 213 HIGHEST ANNUAL MEAN 328 1990	ANNUAL '	TOTAL			48273			82424					
HIGHEST ANNUAL MEAN 328 1990	ANNUAL 1	MEAN			132			226			213		1006
LOWEST ANNITAL MEAN 92 4 194	LOWEST	ANNUAL N ANNITAT, ME	MEAN RAN								328 92 4		1996
HIGHEST DAILY MEAN 427 Dec 17 1430 Apr 14 4800 Nov 29 199	HIGHEST	DAILY ME	EAN		427	Dec 17		1430	Apr 14		4800	Nov 29	1995
LOWEST DAILY MEAN 28 Oct 5 28 Oct 5 22 Oct 28 198	LOWEST I	DAILY MEA	AN		28	Oct 5		28	Oct 5		22	Oct 28	1987
ANNUAL SEVEN-DAT MINIMUM 29 OCT 1 29 OCT 1 23 OCT 24 198' ANNUAL SEVEN-DAT MINIMUM 29 OCT 1 163500 154100	ANNUAL S	SEVEN-DAY RUNOFF (2	Y MINIMUM		29 95750	oct 1		29 163500	uct 1		23 154100	UCt 24	TA8./
ANNUAL RUNOFF (CFSM) 1.80 3.07 2.89	ANNUAL I	RUNOFF (C	CFSM)		1.8)		3.0	7		2.89		
ANNUAL RUNOFF (INCHES) 24.43 41.72 39.31	ANNUAL I	RUNOFF (1	INCHES)		24.4	3		41.7	2		39.31		

12098000 MUD MOUNTAIN LAKE NEAR BUCKLEY, WA

LOCATION.--Lat $47^{\circ}08^{\circ}27^{\circ}$, long $121^{\circ}55^{\circ}48^{\circ}$, in NE $\frac{1}{4}$ NEc $\frac{1}{4}$ sec.17, T.19 N., R.7 E., Pierce County, Hydrologic Unit 17110014, on left bank of reservoir just upstream from Mud Mountain Dam on White River, 5 mi southeast of Buckley, 5.6 mi downstream from Clearwater River, and at mile 29.7.

PERIOD OF RECORD.--October 1943 to current year. Daily contents at 0800 hours only October 1944 to September 1987. Monthend contents only October 1943 to September 1944, published in WSP 1316. Prior to October 1970, published as Mud Mountain Reservoir near Buckley.

GAGE. -- Nonrecording gage. Datum of gage is NGVD of 1929 (levels by Corps of Engineers).

REMARKS.--Lake, for flood control, is formed by earthfill dam. Embankment completed and storage began on small scale in 1942. Capacity, 106,000 acre-ft between elevations 895 ft, invert of outlet tunnel, and 1,215 ft, spillway crest. Storage is dissipated as soon after a flood as is possible, without creating damaging flows downstream, in order to have the maximum capacity available for any following flood which might develop.

COOPERATION.--Records of lake elevations and capacity table furnished by Corps of Engineers (revised by U.S.G.S. below 917 ft).

Table uncertain below about 970 ft, due to siltation. Mud Mountain Lake is considered to have no appreciable storage below

EXTREMES FOR PERIOD OF RECORD. -- Maximum contents observed since dam was completed, 89,245 acre-ft Feb. 9, 1996, elevation, 1,196.1 ft; no contents at times in some years.

EXTREMES FOR CURRENT YEAR .-- Maximum contents observed, 13,669 acre-ft Apr. 15, elevation, 1,057.3 ft; no contents many days during the year.

		R	ESERVOIR				YEAR OCTO		TO SEPTEM	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93	174	0.00	0.00	0.00	90	0.00	0.00	158	101	0.00	0.00
2	94	149	0.00	0.00	0.00	0.00	0.00	0.00	140	91	0.00	0.00
3	93	128	0.00	0.00	0.00	0.00	0.00	0.00	130	0.00	0.00	0.00
4	94	120	0.00	0.00	0.00	0.00	0.00	0.00	121	0.00	0.00	0.00
5	93	127	0.00	0.00	0.00	0.00	165	0.00	147	0.00	0.00	0.00
	,,,	12,	0.00	0.00	0.00	0.00	100	0.00		0.00	0.00	0.00
6	90	117	0.00	0.00	0.00	0.00	170	0.00	176	0.00	0.00	0.00
7	89	112	0.00	215	0.00	0.00	200	0.00	128	0.00	0.00	0.00
8	90	108	0.00	5240	0.00	0.00	2913	0.00	100	0.00	0.00	0.00
9	92	106	0.00	7066	0.00	0.00	3093	0.00	0.00	0.00	0.00	0.00
10	91	103	0.00	3024	0.00	0.00	2764	0.00	0.00	0.00	0.00	0.00
11	109	101	0.00	536	0.00	0.00	2855	0.00	0.00	0.00	0.00	0.00
12	97	99	578	217	0.00	144	1365	0.00	98	0.00	0.00	0.00
13	114	112	194	187	0.00	119	531	0.00	118	0.00	0.00	0.00
14	114	603	1023	170	0.00	106	5039	0.00	183	0.00	0.00	0.00
15	111	4439	215	0.00	0.00	97	13669	0.00	174	0.00	0.00	0.00
15	111	4439	215	0.00	0.00	97	13009	0.00	1/4	0.00	0.00	0.00
16	104	279	230	0.00	0.00	90	12819	0.00	174	0.00	0.00	0.00
17	101	0.00	597	1885	0.00	0.00	8345	0.00	138	0.00	0.00	0.00
18	95	0.00	270	3444	0.00	0.00	3216	0.00	114	0.00	0.00	0.00
19	95	0.00	207	0.00	0.00	0.00	149	0.00	105	0.00	0.00	0.00
20	101	0.00	172	0.00	0.00	131	0.00	0.00	93		0.00	0.00
21	100	0.00	160	0.00	0.00	112	0.00	101	101		0.00	0.00
22	107		147	0.00	130	0.00	0.00	103	101	0.00	0.00	0.00
23	156	108	140	0.00	200	0.00	0.00	96	114	0.00	0.00	0.00
24	120	0.00	134	0.00	178	0.00	0.00	0.00	103	0.00		0.00
25	127	0.00	129	0.00	142	0.00	0.00	0.00	103	0.00		0.00
23	127	0.00	123	0.00	142	0.00	0.00	0.00	102	0.00		0.00
26	123	0.00	126	0.00	119	0.00	0.00	98	111	0.00	0.00	0.00
27	115	0.00	122	0.00	106	0.00	0.00	109	130	0.00	0.00	0.00
28	109	0.00	125	0.00	98	0.00	0.00	167	120	0.00	0.00	0.00
29	107	0.00	120	0.00		0.00	0.00	220	263	0.00	0.00	0.00
30	105	0.00	117	0.00		0.00	0.00	230	150	0.00	0.00	0.00
31	143		117	0.00		0.00		195		0.00	0.00	
MAX	156	4439	1023	7066	200	144	13669	230	263	101	0.00	0.00
MIN	89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(††)	927.4	904.4	913.8	904.2	917.6	906.2	910.4	928.1	921.4	905.3	901.5	899.8
(†)	162	0	913.8	0	93	0	910.4	169	116	0	0	0
(†)	+69	-162	0	0	+93	-93	0	+169	-53	-116	0	0
(T /	+03	102	U	U	+23	23	U	+109	23	110	0	U

CAL YR 2001 AC-FT‡ -123 WTR YR 2002 AC-FT‡ -93

^{††} Monthend elevation, in feet, at 2400 hours.
† Monthend contents, in acre-feet.
‡ Change in contents, in acre-feet.

12098500 WHITE RIVER NEAR BUCKLEY, WA

LOCATION.--Lat $47^{\circ}09^{\circ}05^{\circ}$, long $121^{\circ}56^{\circ}55^{\circ}$, in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.8, T.19 N., R.7 E., King County, Hydrologic Unit 17110014, on right bank 0.4 mi upstream from Red Creek, 1.7 mi downstream from Mud Mountain Dam, 3.8 mi east of Buckley, 7.4 mi downstream from Clearwater River and at mile 27.9.

DRAINAGE AREA. -- 401 mi².

PERIOD OF RECORD. -- October 1928 to November 1933, October 1938 to current year.

REVISED RECORDS.--WSP 1247: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (Corps of Engineers bench mark). Oct. 26 to Dec. 9, 1928, nonrecording gage, and Dec. 9, 1928, to Nov. 30, 1933, water-stage recorder at site 3.0 mi upstream at different datum. Nov. 26, 1938, to Feb. 14, 1939, nonrecording gage at present site and datum.

REMARKS.--Records fair. Flow regulated by Mud Mountain Lake (station 12098000) for flood control. Storage is not retained and observed annual runoff closely represents natural runoff of basin. No diversion upstream from station. Chemical analyses July 1981; water temperatures March 1971 to September 1972; sediment records November 1971 to November 1972. U.S. Geological Survey satellite telemeter at station.

COOPERATION.--Water-stage recorder inspected by employees of Corps of Engineers.

AVERAGE DISCHARGE.--69 years (water years 1929-33, 1939-2002), 1,439 ft^3/s , 48.73 $\mathrm{in/yr}$, 1,043,000 acre-ft/yr, adjusted for storage since December 1943.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,000 ft³/s Feb. 26, 1932, gage height, 17.5 ft, site and datum then in use, from rating curve extended above 3,500 ft³/s; probably no flow for part of each day Oct. 1, 2, 7, 8, Nov. 14, Dec. 1, 5, 15, 1958; Jan. 3, Mar. 24, June 8, Aug. 19, 1959; minimum daily discharge, 59 ft³/s June 25, 1957, Mar. 26, 1958.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1933 reached a stage of 23.4 ft, from floodmarks, at former site, discharge, 28,000 $\rm ft^3/s$, from rating curve extended above 3,500 $\rm ft^3/s$.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,720 ft³/s Jan. 8, elevation, 806.02 ft; minimum discharge 282 ft³/s Dec. 12.

			•		DAIL	Y MEAN V	ALUES					
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	403	1350	1380	723	1120	1300	e1110	2010	3240	2380	1030	e881
2	410	1180	1370	780	1060	1180	e1180	2320	2970	2140	989	797
3 4	402	1000	1200	798	1040	1100	e1120	2250	2840	2010	936	e753
4	406	857	1060	758	998	1060	e1240	2040	2800	1870	935	694
5	390	924	999	739	979	1080	e1590	1920	3140	1750	881	619
6	383	787	1070	815	973	1050	e1760	1790	3330	1680	847	574
7	369	705	1020	4320	1060	971	1550	1650	2720	1790	809	559
8	398	648	954	6850	1150	932	e1440	1540	2220	2000	796	520
9	404	616	1000	6880	1080	908	2100	1490	1840	1830	812	502
10	397	593	952	5150	1040	899	2150	1430	1730	1840	864	e476
11	597	575	891	3200	1050	1500	2890	1400	1960	1990	872	e522
12	494	586	927	2890	968	2500	3220	1470	2320	1990	848	e524
13	684	751	2470	2630	932	1950	3550	1800	2880	2000	899	e546
14	848	3340	4480	2270	901	1650	4950	2010	3620	1860	930	594
15	695	5250	2500	1950	890	1470	5260	1970	3910	1660	908	e613
16	587	3820	3320	1520	904	1320	5410	1900	3560	1520	887	607
17	530	2830	4860	853	902	1200	5120	1960	2870	1510	860	e602
18	466	1860	2870	2510	944	1090	4060	2070	2620	1480	811	e516
19	508	1640	1890	1450	1020	1310	2240	2120	2320	1450	795	e560
20	552	2320	1500	1560	1070	2190	2070	2570	2090	1350	797	e626
21	519	1910	1250	1600	1860	1760	1950	2800	2210	1260	766	e502
22	627	1970	1090	1360	3860	1470	1870	2810	2460	1270	777	e489
23	1130	3230	990	1240	3710	1370	1770	2610	2550	1350	786	e507
24	862	2450	915	1550	3180	1360	1660	2440	2250	1350	795	e524
25	954	1960	860	2500	2440	1450	1620	2500	2220	1320	835	e505
26	866	1580	816	2090	1980	1490	1640	2760	2490	1320	813	e502
27	805	1330	786	1660	1680	1420	1710	3060	2760	1210	802	e463
28	707	1290	797	1390	1480	1340	1610	3550	2790	1140	e870	e511
29	623	1460	759	1220		1320	1610	4170	4090	1280	e802	e469
30	648	1310	730	1210		1250	1720	4160	3020	1340	e778	e494
31	1300		742	1200		1240		3710		1140	e771	
TOTAL	18964	50122	46448	65666	40271	42130	71170	72280	81820	50080	26301	17051
MEAN	612	1671	1498	2118	1438	1359	2372	2332	2727	1615	848	568
MAX	1300	5250	4860	6880	3860	2500	5410	4170	4090	2380	1030	881
MIN	369	575	730	723	890	899	1110	1400	1730	1140	766	463
AC-FT	37620	99420	92130	130200	79880	83560	141200	143400	162300	99330	52170	33820
MEAN†	613	1669	1498	2117	1440	1357	2374	2335	2727	1613	848	569
CFSM†	1.53	4.16	3.74	5.28	3.59	3.38	5.92	5.82	6.80	4.02	2.11	1.42
IN.†	1.76	4.64	4.31	6.09	3.74	3.90	6.60	6.71	7.58	4.64	2.44	1.58
AC-FT†	37690	99260	92130	130200	79970	83470	141200	143600	162200	99210	52170	33820

CAL YR 2001 TOTAL 417767 MEAN 1145 MAX 5250 MIN 248 AC-FT 828600 MEAN† 1144 CFSM† 2.85 IN.† 38.74 AC-FT† 828500 WTR YR 2002 TOTAL 582303 MEAN 1595 MAX 6880 MIN 369 AC-FT 1155000 MEAN† 1595 CFSM† 3.98 IN.† 54.01 AC-FT† 1155000

[†] Adjusted for change in contents in Mud Mountain Lake.

e Estimated

12099000 WHITE RIVER CANAL AT BUCKLEY, WA

LOCATION.--Lat $47^{\circ}10^{\circ}19^{\circ}$, long $122^{\circ}01^{\circ}13^{\circ}$, in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.34, T.20 N., R.6 E., Pierce County, Hydrologic Unit 17110014, on right bank 0.8 mi downstream from diversion dam, and 0.8 mi northwest of Buckley.

PERIOD OF RECORD.--February 1913 to September 1938 (monthly runoff only, published in WSP 1316), October 1981 to current year.

Records for September 1958 to September 1981 available in files of the U.S. Geological Survey. Records prior to October 1961, published as White River flume near Buckley, at site 0.5 mi downstream from White River diversion dam. September 1959 to September 1992 station at site 4.0 mi downstream from diversion dam.

GAGE.--Water-stage recorder. Elevation of gage is 650 ft above NGVD of 1929, from topographic map.

REMARKS.--Records poor. Flow completely regulated at White River diversion dam about 0.8 mi upstream from gage. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 2,340 ft³/s Dec. 17, 2001; no flow on many days during most years.

EXTREMES FOR CURRENT YEAR.--Maximum daily recorded discharge, 2,340 ${\rm ft}^3/{\rm s}$ Dec. 17; minimum discharge, no flow Nov. 18, Aug. 3-25.

		DISCHA	RGE, CUBI	C FEET PE		WATER YE Y MEAN VA		ER 2001 TO) SEPTEMBE	IR 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	e172 e188 e175 e185 e172	1190 1080 e869 e744 e819	e750 e744 e634 523 546	e583 e642 e658 e617 e598	e939 e876 e848 e815 e788	978 890 834 805 852	e737 e760 e694 e808 e1130	1660 1960 1970 1750 1580	2000 1990 1980 1960 2020	2080 1980 1850 1650 1460	847 706 23 0.00 0.00	561 512 461 387 345
6 7 8 9	e168 e155 e175 e188 e175	e671 e587 e532 e497 e471	e824 e882 e821 e858 e819	e665 e2270 e1850 e1480 e2210	e779 e862 e1000 e900 e854	825 750 728 692 817	e1300 e1020 e772 1650 1700	1470 1310 1160 1090 1030	1990 e1720 e1530 e1440 e1400	1360 1510 1790 1570 1560	0.00 0.00 0.00 0.00 0.00	292 271 228 209 172
11 12 13 14 15	e381 e281 e467 e633 e483	e453 e461 e628 e1910 e1880	e761 e775 e1950 e2310 e1940	e1570 e1480 e1400 e1150 e965	e864 e773 e740 e709 e695	1120 1950 1540 1260 1120	e2080 e2130 e2230 e2220 e2290	1010 1100 1440 1670 1620	e1520 e1720 2070 2080 2100	1700 1710 1410 1280 1250	0.00 0.00 0.00 0.00 0.00	213 211 239 279 299
16 17 18 19 20	e381 e314 e261 e294 e341	e188 e38 e16 e251 e962	e2160 e2340 e1820 e1550 e1330	e747 e498 e1530 e1150 e1290	e719 e720 e762 e842 e919	995 952 855 1090 1970	e2250 e2090 e1950 e1210 e786	1580 1610 1760 1850 2030	2090 2050 2100 1810 1200	1280 1310 1200 1180 1030	0.00 0.00 0.00 0.00	311 296 215 250 328
21 22 23 24 25	e311 e427 839 670 e769	e875 e1000 e1820 e1370 e1190	e1120 e973 e864 e791 e731	e1370 e1160 e1070 e1370 e2130	e1590 e2320 e2240 e2120 e1990	1500 1210 1090 1090 1140	e1610 e1560 e1480 e1400 e1360	2080 2070 1720 1810 2040	1960 2010 1630 1660 1800	779 772 1070 1080 1030	0.00 0.00 0.00 0.00 132	218 198 192 213 195
26 27 28 29 30 31	e711 e606 e517 e427 e473 1190	e913 e759 e735 e811 e712	e680 e650 e658 e619 e590 e600	e1840 e1480 e1220 e1070 e1070 e1060	e1730 e1490 1190 	1230 1100 1020 996 963 950	e1380 e1450 e1350 e1350 e1450	2120 2140 2050 1970 2030 2160	2000 2110 2100 2110 2100	1070 959 933 1160 1210 959	496 490 556 513 488 481	197 162 207 164 203
TOTAL MEAN MAX MIN AC-FT	12529 404 1190 155 24850	24432 814 1910 16 48460	32613 1052 2340 523 64690	38193 1232 2270 498 75760	31074 1110 2320 695 61640	33312 1075 1970 692 66070	44197 1473 2290 694 87660	52840 1705 2160 1010 104800	56250 1875 2110 1200 111600	41182 1328 2080 772 81680	4732.00 153 847 0.00 9390	8028 268 561 162 15920

CAL YR 2001 TOTAL 268124.6 MEAN 735 MAX 2340 MIN 0.00 AC-FT 531800 WTR YR 2002 TOTAL 379382.00 MEAN 1039 MAX 2340 MIN 0.00 AC-FT 752500

e Estimated

12099100 WHITE RIVER ABOVE BOISE CREEK AT BUCKLEY, WA

LOCATION.--Lat $47^{\circ}10'13"$, long $122^{\circ}00'13"$, in SW $\frac{1}{4}$ sec.35, T.20 N., R.6 E., Pierce County, Hydrologic Unit 17110014, on left bank, 200 ft below diversion dam, and 1.5 mi northeast of Buckley, and at river mile 24.2.

DRAINAGE AREA.--411 mi².

PERIOD OF RECORD.--January 1999 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 660 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Since November 1911, White River Canal has diverted water from left bank, 200 ft upstream, for storage into Lake Tapps. Water is returned to the White River 20.6 miles downstream via Lake Tapps Diversion, after power development at the Dieringer Powerplant. Since 1942, flows have been regulated by Mud Mountain Dam for flood control. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,750 $\rm ft^3/s$, Jan. 8, 2002, from rating curve extended above 6,000 $\rm ft^3/s$, gage height, 43.13 $\rm ft$ from crest-stage gage; minimum discharge, 37 $\rm ft^3/s$ Jan. 25, 2000.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, $6.750~{\rm ft}^3/{\rm s}$ Jan. 8, from rating curve extended as explained above, gage height 43.13 ft; minimum recorded discharge $60~{\rm ft}^3/{\rm s}$ Jan. 30.

		DISCHA	RGE, CUBI	C FEET PE		WATER Y	YEAR OCTOBER VALUES	2 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	240	99	e616	e134	172	e279	e364	332	e1360	546	e284	e313
2	229	87	e606	e129	175	e277	e402	392	1130	376	e349	e311
3	235	85	e548	e134	187	e274	e414	320	971	e331	e857	e309
4	231	107	504	e136	181	e283	e419	304	920	e329	e910	e301
5	236	99	459	e134	190	e280	e447	306	e1170	e332	e855	e310
6	231	107	287	e141	192	e279	e445	302	1340	e353	e838	e302
7	233	110	141	e1820	190	e280	e524	308	e908	e343	e795	e297
8	242	107	135	e4700	139	e284	e701	312	e598	e326	e785	e288
9	232	119	139	e5230	173	e286	e436	313	e349	e342	807	e299
10	240	113	134	e2670	185	e290	e423	311	e255	e364	891	e306
11	231	115	124	e1460	182	e338	e780	314	e365	e434	912	e305
12	230	118	153	e1220	185	e427	1010	328	486	394	837	e309
13	232	113	e484	e1060	191	e263	e1190	329	786	e652	920	e304
14	248	1390	e1980	e945	189	e265	e2600	316	e1420	e647	988	e307
15	237	3430	418	e816	183	e270	e2780	314	e1640	e452	e954	e303
16	224	e2990	e1010	661	181	e276	e2980	312	e1530	e330	e912	e302
17	231	e1650	e2350	e187	176	e277	e2950	317	e998	e300	e873	e305
18	234	e1450	e991	e800	179	e283	e1930	319	e718	e303	e814	e301
19	236	e1240	e335	175	182	e306	e809	322	e769	e295	e783	e306
20	228	e1270	e172	137	175	e331	e1240	e466	e1110	e280	e789	e310
21	227	e1020	e142	138	319	e229	374	e662	e633	e368	e751	e291
22	227	e957	e137	113	e1310	e249	363	e698	e695	e411	e760	e299
23	232	e1310	e132	98	1330	e263	340	e813	e1160	e300	e775	e310
24	220	e1080	e130	105	e896	e271	288	e593	e860	e299	e785	e310
25	207	e731	e126	322	e268	e274	300	e422	e721	e310	e581	e307
26	213	e670	e125	144	e160	e268	298	e649	e763	e305	e295	e302
27	223	e557	e129	107	e154	e264	310	e930	e831	e289	e301	e300
28	209	e552	e132	100	e165	e283	289	e1510	e902	e284	e302	e304
29	227	e629	e134	96		e268	305	e2090	e2050	e299	e304	e302
30	223	e579	e132	84		e274	317	e2110	e1150	e290	e289	e290
31	221		e138	85		e276		e1690		e284	e293	
TOTAL	7109	22884	13043	24081	8209	8767	26028	18704	28588	11168	21589	9103
MEAN	229	763	421	777	293	283	868	603	953	360	696	303
MAX	248	3430	2350	5230	1330	427	2980	2110	2050	652	988	313
MIN	207	85	124	84	139	229	288	302	255	280	284	288
AC-FT	14100	45390	25870	47760	16280	17390	51630	37100	56700	22150	42820	18060
STATIST	CICS OF M	ONTHLY ME	AN DATA E	FOR WATER	YEARS 1999	- 2002	2, BY WATER	YEAR (WY)				
MEAN	167	813	639	325	295	267	420	472	850	366	466	280
MAX	229	1561	1380	777	346	312	868	603	1479	662	696	339
(WY)	2002	2000	2000	2002	2001	2001	2002	2002	1999	1999	2002	2000
MIN	133	116	115	84.4	205	172	138	349	348	215	248	224
(WY)	2000	2001	2001	2000	1999	1999	1999	2001	2001	2000	2000	1999
SUMMARY	STATIST	'ICS	FOR	2001 CALE	NDAR YEAR		FOR 2002 WA	TER YEAR		WATER YEA	RS 1999 -	2002
ANNUAL				121239			199273					
ANNUAL				332			546			430		
	ANNUAL									546		2002
	ANNUAL M			2420	N 15		E020	T 0		245	NICE CO	2001
	DAILY ME			3430 85	Nov 15		5230 84	Jan 9 Jan 30		5400 68	Nov 26	
		AN Y MINIMUM		85 99	Nov 3 Nov 1		84 99	Nov 1		68 72	Jan 11 Jan 11	
	RUNOFF (240500	140 A T		395300	140 A T		311800	oan 11	2000
	CENT EXCE			402			1160			887		
	CENT EXCE			291			307			291		
	CENT EXCE			119			136			115		

e Estimated

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12099600 BOISE CREEK AT BUCKLEY, WA

LOCATION.--Lat $47^{\circ}10^{\circ}34^{\circ}$, long $122^{\circ}01^{\circ}02^{\circ}$, in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.34, T.20 N., R.6 E., King County, Hydrologic Unit 17110014, on left bank at downstream side of county road bridge, 1.0 mi northeast of Buckley, and at mile 0.1.

DRAINAGE AREA.--15.4 mi².

PERIOD OF RECORD.--March 1977 to September 1981, December 1981 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 640 ft above NGVD of 1929, from topographic map. Prior to January 25, 1984, at site 25 ft upstream at datum 0.91 ft higher. Prior to Mar. 27, 1996, at site 10 ft downstream, at datum 1.00 ft higher.

REMARKS.--No estimated daily discharges. Records fair except for discharges above 200 ft³/s, which are poor. Flow partly regulated by millpond at mile 5.6. Diversions upstream from station for domestic and industrial use. Interbasin diversion from Scatter Creek of about 2 ft³/s during low-flow periods enters Boise Creek upstream from millpond. U.S. Geological Survey satellite telemeter at station. Chemical analyses November 1961 to July 1964.

AVERAGE DISCHARGE.--24 years (water years 1978-81, 1983-2002), 32.8 ft³/s, 23,730 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,200 ft³/s Feb. 8, 1996, gage height, 4.26 ft from rating curve extended above 180 ft³/s on basis of slope-area measurement of peak flow 0.94 mi upstream from station; minimum discharge, 1.7 ft³/s Sept. 19, 1979.

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

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 14	1030	304	3.06	Mar. 19	2245	*315	*3.11
Nov. 22	2000	242	2.77	Apr. 14	0030	263	2.87
Dec. 13	1630	242	2.76	-			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

		DISCHAF	GE, CUBIC	FEET PER		WATER YEA MEAN VAI	AR OCTOBER LUES	2001 TO 8	SEPTEMB:	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	5.6 5.7 5.3 5.2 4.9	29 27 23 22 36	60 52 53 43 49	28 37 27 26 25	51 44 43 38 39	34 31 29 28 33	46 45 41 40 41	29 29 28 27 29	23 21 20 19 33	29 23 19 18 16	8.1 7.8 8.2 8.7	6.9 7.4 10 7.4 6.8
6 7 8 9 10	5.3 5.5 9.2 8.7	23 19 17 15 14	62 48 45 45 56	30 109 103 78 61	39 53 79 52 47	33 29 26 25 25	45 46 42 48 62	29 27 26 24 23	22 20 20 19 17	15 16 19 14 12	11 8.4 8.2 7.8 7.7	6.8 6.9 6.8 6.7 5.8
11 12 13 14 15	12 8.0 8.5 11 12	13 16 29 205 122	53 46 142 123 89	50 47 39 36 32	43 37 34 31 29	59 75 60 49 46	59 65 102 189 115	22 22 25 31 29	16 16 15 15	12 11 11 11 11	7.7 7.3 7.1 7.0 7.0	6.0 6.3 6.0 5.6 5.4
16 17 18 19 20	9.8 11 8.9 12 13	91 65 48 46 40	116 117 85 78 62	29 28 28 40 72	29 29 34 36 36	42 42 37 108 211	85 71 59 51 46	26 26 25 24 27	14 14 18 19	11 10 9.9 10 9.9	6.9 6.7 6.5 8.4 8.8	5.9 6.6 5.6 5.9 7.3
21 22 23 24 25	14 17 21 19 31	48 106 111 72 57	53 45 39 36 33	72 51 41 58 123	70 81 106 81 59	99 72 60 55 55	42 40 36 33 31	34 36 33 28 26	13 12 12 12 12	9.8 9.2 9.4 9.1 9.1	7.0 6.5 6.5 6.7 6.8	6.3 5.7 5.2 4.9 4.7
26 27 28 29 30 31	21 28 21 15 19 39	47 39 67 82 60	30 29 31 27 26 29	82 60 48 41 54 64	48 41 37 	51 47 44 46 44 42	31 46 35 31 29	25 26 39 35 29 26	11 13 50 71 41	9.7 9.7 9.5 11 9.1 8.3	7.4 7.0 6.6 6.3 6.6	4.5 4.7 5.1 7.2 5.4
TOTAL MEAN MAX MIN AC-FT	417.6 13.5 39 4.9 828	1589 53.0 205 13 3150	1802 58.1 142 26 3570	1619 52.2 123 25 3210	1346 48.1 106 29 2670	1637 52.8 211 25 3250	1652 55.1 189 29 3280	865 27.9 39 22 1720	71 11	391.7 12.6 29 8.3 777	234.6 7.57 11 6.3 465	185.8 6.19 10 4.5 369
							BY WATER					
MEAN MAX (WY) MIN (WY)	13.8 29.8 1986 4.65 1990	46.6 124 1991 7.85 1980	52.3 96.2 1978 18.7 2001	55.2 162 1984 20.9 2001	55.9 145 1996 17.0 2001	44.7 76.7 1997 25.1 1978	39.9 69.3 1991 16.5 1995	31.0 57.5 1984 15.6 1982	23.7 55.1 1990 8.45 1982	14.8 35.5 1983 6.20 1987	9.15 16.3 1993 4.72 1987	9.38 29.5 1978 3.37 1989
SUMMAR	Y STATISTI	ICS	FOR 2	2001 CALEN	DAR YEAR	F	OR 2002 WA	TER YEAR		WATER YEAR	RS 1977 -	2002
LOWEST HIGHES' LOWEST ANNUAL ANNUAL 10 PERO 50 PERO		EAN EAN AN MINIMUM AC-FT) EDS		9999.6 27.4 205 4.9 5.4 19830 60 19 6.8	Nov 14 Oct 5 Oct 1		2355.7 33.9 211 4.5 5.0 24510 70 28 6.8	Mar 20 Sep 26 Sep 22		32.8 50.4 21.3 898 2.0 2.4 23730 66 23 6.9	Feb 8	1989

12100000 WHITE RIVER AT BUCKLEY, WA

LOCATION.--Lat $47^{\circ}10^{\circ}28^{\circ}$, long $122^{\circ}01^{\circ}09^{\circ}$, in NE $\frac{1}{4}$ sec.34, T.20 N., R.6 E., Pierce County, Hydrologic Unit 17110014, on left bank 500 ft upstream from State Highway 410 bridge, 200 ft downstream from Boise Creek, 1.0 mi northeast of Buckley, and at mile 23.3

DRAINAGE AREA. -- 427 mi2.

PERIOD OF RECORD.--July 1910 to November 1911, April 1977 to current year. February 1913 to September 1938 (records not equivalent as they include flow of White River flume, see REMARKS).

REVISED RECORDS.--WSP 1316: Drainage area.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 620 ft above NGVD of 1929, from topographic map. June 8, 1910, to Nov. 30, 1911, nonrecording gage at site 150 ft upstream at different datum, and Jan. 18, 1913, to Sept. 30, 1938, water-stage recorder at site 100 ft upstream at datum NGVD of 1929 (levels by Puget Sound Energy).

REMARKS.--No estimated daily discharges. Records fair. Since November 1911, White River Canal (station 12099000) has diverted from left bank 1.0 mi upstream for storage in Lake Tapps (station 12101000). Water is returned to White River 19.7 mi downstream via the Lake Tapps Diversion (station 12101100) after power development at White River Powerplant at Dieringer. Since 1942, flow regulated by Mud Mountain Lake (station 12098000) for flood control. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--25 years (water years 1978-2002), 547 ft³/s, 396,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--During water years 1911-12, 1914-19, 1921-23, 1935-38, maximum discharge, 23,100 ft³/s Dec. 18, 1917, during period of combined flows; minimum, not determined. River, excluding canal, since April 1977, maximum discharge, 14,900 ft³/s Nov. 24, 1986, gage height, 8.48 ft; minimum discharge, 25 ft³/s Nov. 19, 1979, gage height, 2.41 ft; minimum daily discharge, 31 ft³/s July 30, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,560 ${\rm ft^3/s~Jan.~9}$, gage height, 6.49 ft; minimum discharge, 67 ${\rm ft^3/s~Jan.~17}$, minimum daily discharge, 114 ${\rm ft^3/s~Nov.~3}$.

	-	J .										
		DISCHAF	RGE, CUB	IC FEET PE		WATER Y		ER 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	254	131	691	168	230	328	425	434	1400	565	299	321
2	234	118	677	172	224	320	459	503	1130	391	365	319
3	239	118	616	166	233	320	459	421	1010	351	874	319
4	240	134	566	166	225	323	473	399	978	352	927	309
5	240	140	508	166	231	322	499	404	1220	352	869	318
6	237	138	309	178	230	323	499	398	1450	373	845	310
7	238	137	191	1990	244	320	585	402	958	363	800	306
8	246	132	180	4910	230	319	755	400	657	351	785	297
9	237	134	184	5370	229	320	495	401	382	358	807	307
10	244	133	191	2830	234	325	497	397	284	384	874	313
11	242	134	182	1600	228	408	856	398	391	455	891	312
12	233	140	197	1370	226	515	1120	409	584	417	860	316
13	233	150	662	1140	228	331	1340	415	887	674	920	311
14	250	1630	2120	1030	222	323	2820	409	1490	662	973	314
15	248	3490	606	905	223	323	2940	402	1700	470	968	309
16	232	3180	1170	700	214	327	3110	398	1580	350	928	309
17	235	1810	2500	245	210	325	3010	403	1100	318	886	313
18	232	1550	1140	830	215	325	2100	403	782	319	825	308
19	237	1290	455	243	220	423	1070	404	834	310	796	313
20	233	1400	247	219	214	549	1430	656	1150	294	803	318
21	234	1090	207	221	342	336	512	888	674	381	762	299
22	237	1080	194	176	1430	329	486	927	737	423	770	307
23	251	1510	182	148	1440	326	464	1060	1190	314	784	316
24	240	1150	176	172	1040	331	400	847	892	313	798	316
25	242	836	170	441	371	334	405	665	753	321	595	313
26	232	713	166	247	237	329	404	803	791	318	304	308
27	244	612	165	182	227	322	439	1070	860	302	309	307
28	225	627	169	163	242	334	398	1560	963	297	310	311
29	227	729	167	150		326	406	2120	2100	315	311	310
30	236	659	165	150		326	417	2140	1230	302	298	297
31	257		171	162		327		1740		295	301	
TOTAL	7418	25091	15324	26610	9839	10689	29282	22276	30157	11693	21837	9328
MEAN	239	836	494	858	351	345	976	719	1005	377	704	311
MAX	257	3490	2500	5370	1440	549	3110	2140	2100	674	973	321
MIN	225	114	165	148	210	319	398	397	284	294	298	297
AC-FT	14710	49770	30400	52780	19520	21200	58080	44180	59820	23190	43310	18500
STATIST	TICS OF M	ONTHLY MEA	AN DATA I	FOR WATER	YEARS 1977	- 2002	, BY WATER	R YEAR (WY)				
MEAN	185	677	913	707	871	447	455	557	691	449	366	206
MAX	510	2557	4014	2888	3789	1363	1171	2165	1898	1473	825	511
(WY)	1986	1996	1978	1984	1996	1997	1989	1997	1984	1982	1978	1988
MIN	48.4	40.9	135	69.8	130	122	89.9	67.6	172	58.2	57.4	45.2
(WY)	1980	1980	2001	1979	1985	1985	1982	1977	1992	1978	1977	1979
SUMMARY	Y STATIST	ICS	FOR	2001 CALE	NDAR YEAR		FOR 2002 W	NATER YEAR		WATER YE	ARS 1977 -	2002
ANNUAL	TOTAT.			135130			219544					
ANNUAL				370			601			547		
	r ANNUAL	MEAN		370			001			1228		1996
	ANNUAL M									200		1994
	r DAILY M			3490	Nov 15		5370	Jan 9		13500	Dec 3	
	DAILY ME				Nov 3		114	Nov 3		31	Jul 30	
		Y MINIMUM		114 130	Nov 1		130	Nov 1		37	Nov 10	
	RUNOFF (268000	1101 1		435500	1404 1		396300	1404 10	2010
	CENT EXCE			454			1220			1330		
	CENT EXCE			349			336			197		
	CENT EXCE			142			182			76		
20 11110				172			102			, 0		

12100496 WHITE RIVER NEAR AUBURN, WA

LOCATION.--Lat $47^{\circ}15^{\circ}58^{\circ}$, long $122^{\circ}13^{\circ}43^{\circ}$, in SE $\frac{1}{4}$ sec.36, T.21 N., R.4 E., King County, Hydrologic Unit 17110014, on left bank 100 ft downstream from railroad bridge, 2.7 mi upstream from the White River Power Plant tailrace, 2.9 mi south of Auburn, and at mile 6.3.

DRAINAGE AREA. -- 464 mi².

PERIOD OF RECORD. -- October 1987 to September 1989, October 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is NGVD of 1929.

REMARKS.--Records fair except estimated daily discharges, which are poor. Since November 1911, White River Canal (station 12099000) has diverted from left bank 18.0 mi upstream for storage in Lake Tapps (station 12101000). Water is returned to White River 2.7 mi downstream via the Lake Tapps Diversion (station 12101100) after power development at White River Powerplant at Dieringer. Since 1942, flow regulated by Mud Mountain Lake (station 12098000) for flood control. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--14 years (water years 1988-89, 1991-2002), 681 ft³/s, 493,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,000 $\mathrm{ft^3/s}$ Feb. 10, 1996, elevation, 83.15 ft; minimum discharge, 89 $\mathrm{ft^3/s}$ Feb. 17, 18, 1993.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,840 $\mathrm{ft^3/s}$ Jan. 9, elevation, 82.57 ft ; minimum daily discharge, 133 $\mathrm{ft^3/s}$ Nov.

		DISCHA	RGE, CUB	IC FEET PE		WATER Y		ER 2001 TO	SEPTEME	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	297	200	756	e229	336	439	e568	e581	e1450	e740	e409	e419
2	277	143	741	e232	319	437	e602	e673	e1220	e560	e477	e417
3	280	133	707	e227	316	435	e608	e570	e1080	e500	1000	e419
4	279	146	625	e227	303	435	e615	e551	e1040	e494	994	e409
5	272	181	602	e227	308	439	e635	e546	e1280	e494	951	e415
6	270	163	439	e239	312	439	e635	e538	e1550	e511	932	e407
7 8	275	160 153	268	1940	331	437 435	e750	e541 e535	e1050 750	e499	901 886	e403 e401
9	286 279	153	229 236	6020 6820	e318 e316	434	e900 e722	e532	495	e492 e499	897	e401
10	290	152	243	3730	327	437	e722	e530	383	e535	942	e417
11	293	153	268	2080	319	481	e1100	e538	415	e610	962	e415
12	274	165	239	1720	309	600	e1360	e549	e693	e553	936	e419
13	280	190	650	1470	306	492	e1610	e554	e1000	e809	973	e415
14	299	1990	2690	1330	302	466	2960	e551	e1620	e795	1010	e417
15	290	3890	786	1190	296	460	3200	e543	e1860	e584	1020	e411
16	276	4510	1100	978	286	460	3530	e535	e1700	e468	983	e410
17	277	2540	3130	e378	279	463	3670	e541	e1260	e425	954	e416
18 19	272	1800	1310	e969	289	460	2760	e546	e906	e427	912 894	e410
20	278 275	1340 1530	581 315	373 316	295 298	510 e650	1100 1610	e541 e776	e966 e1350	e418 e402	900	e414 e421
21	280	1170	e267	337	353	533	e663	e1000	e787	e493	875	e401
22	282	1240	e251	291	e1480	489	e616	e1040	e842	e527	880	e408
23 24	301 287	1860 1280	e244 e239	239 264	e1550 e1150	475 470	e589 e568	e1170 e940	e1310 e981	e420 e418	887 898	e416 e416
25	302	921	e239	559	525	468	e554	e769	e837	e427	e698	e413
26	278	789	e229	420	e368	460	e549	e899	e896	e432	e405	e408
27 28	309 280	676 735	e229 e231	321 281	e372 e380	452 451	e576	e1160 e1650	e951 e1080	e414 e409	e411 e411	e407 e410
20 29	271	848	e231	256		449	e538 e549	e2240	e2270	e409	e411	e410
30	283	761	e229	273		447	e565	e2230	1380	e411	e399	e398
31	341		e232	299		445		e1820		e407	e401	
TOTAL	8833	29971	18529	34235	12343	14548	35424	26189	33402	15593	24609	12350
MEAN	285	999	598	1104	441	469	1181	845	1113	503	794	412
MAX	341	4510	3130	6820	1550	650	3670	2240	2270	809	1020	421
MIN	270	133	229	227	279	434	538	530	383	402	399	398
AC-FT	17520	59450	36750	67910	24480	28860	70260	51950	66250	30930	48810	24500
STATIST	rics of M	ONTHLY ME	AN DATA	FOR WATER	YEARS 1988	3 - 2002	, BY WATER	R YEAR (WY)				
MEAN	294	996	1113	839	1087	539	691	690	744	426	465	325
MAX	537	2835	3794	2371	4575	1426	1415	2200	1798	1277	873	560
(WY)	1998	1996	1996	1997	1996	1997	1991	1997	1997	1988	1991	1988
MIN (WY)	165 1992	168 1994	188 1994	202 2001	176 1994	193 1992	188 1995	170 1992	189 1992	214 1998	246 1994	160 1989
	STATIST			2001 CALE				WATER YEAR			ARS 1988 -	
		100	2 010			•				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	10 1500	2002
ANNUAL ANNUAL				160290 439			266026 729			681		
	C ANNUAL	MEZN		433			123			1411		1996
	ANNUAL M									243		1994
HIGHEST	DAILY M	IEAN		4510	Nov 16		6820	Jan 9		12800	Feb 10	1996
	DAILY ME			133	Nov 3		133	Nov 3		116	Oct 12	
		MUMINIMUM	I	154	Nov 2		154	Nov 2		129	Dec 27	1987
	RUNOFF (317900			527700			493500		
	CENT EXCE			574			1370			1520		
	CENT EXCE			394 209			475 266			300 170		
30 PERC	LENI EACE	פחם		209			∠66			1/0		

e Estimated

12100500 WHITE RIVER NEAR SUMNER, WA

WATER-QUALITY RECORDS

LOCATION.--Lat $47^{\circ}14^{\circ}58^{\circ}$, long $122^{\circ}14^{\circ}36^{\circ}$, in NE $\frac{1}{4}$ Sec.1, T.20 N., R.4 E., Pierce County, Hydrologic Unit 17110014, on right bank, 300 feet downstream from 8th Street E. bridge, 3.3 miles north of Summer, WA, and at mile 4.9.

DRAINAGE AREA. -- 470 mi².

PERIOD OF RECORD. -- Water years 1961-75, August to September 2002.

PERIOD OF DAILY RECORD.--SPECIFIC CONDUCTANCE: August to September 2002.

pH: August to September 2002.
WATER TEMPERATURE: August to September 2002.
DISSOLVED OXYGEN: August to September 2002.

INSTRUMENTATION. -- Water-quality monitor since August 2002. Electronic data logger with 30-minute logging interval.

REMARKS.--Interruption in record due to malfunction of the recording instrument and removal for servicing. Specific conductance records good. pH records good, except for Aug. 8-9, which are fair. Water temperature records excellent. Dissolved-oxygen records good, except for Sept. 23-30, which are poor.

EXTREMES FOR PERIOD OF DAILY RECORD. -- No previous record.

EXTREMES FOR CURRENT YEAR.-SPECIFIC CONDUCTANCE: Maximum recorded, 88 uS/cm on Sept. 29; minimum recorded, 50 uS/cm on Aug. 3, but may have been lower during periods of missing record.

pH: Maximum recorded, 9.0 units on Sept. 13-14 and Sept. 28-30, but may have been higher during periods of missing record; minimum recorded, 7.2 units on Aug. 3 and 9, but may have been lower during periods of missing record.

WATER TEMPERATURE: Maximum recorded, 21.1°C on Aug. 28, but may have been higher during periods of missing record; minimum recorded, 9.6°C on Sept. 22.

DISSOLVED OXYGEN: Maximum recorded, 11.6 mg/L Sept. 28; minimum recorded, 8.0 mg/L Sept. 9.

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), AUGUST TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN
		AUGUST			SEPTEMB	ER
1 2 3 4 5	 66 59 61	50 56 58	 56 58 59	69 68 67 71 75	66 61 63 61 70	68 65 65 66 71
6 7 8 9 10	64 69 67	60 66 62	62 68 65	78 78 80 83 83	72 75 76 79 80	75 77 77 80 82
11 12 13 14 15	64 65 	60 60 	62 62 	81 77 76 76 73	77 74 72 71 70	79 75 74 73 72
16 17 18 19 20	60 62 64 65	57 59 61 61	59 61 63 63	73 77 78	69 70 74	71 74 76
21 22 23 24 25	65 66 64 61 63	62 60 59 57	64 63 62 59 60	79 82 84 84 86	72 76 76 78 78	74 78 80 80 81
26 27 28 29 30 31	68 70 68 66 66	63 65 62 61 62 62	66 68 66 64 64 66	87 87 87 88 87	79 79 82 81 82	83 83 84 84 84
MONTH	70	50	63	88	61	76
YEAR	88	50	70			

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12100500 WHITE RIVER NEAR SUMNER, WA--Continued PH, WATER, WHOLE, FIELD, STANDARD UNITS, AUGUST TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		AUGUST			SEPTEM	BER
1 2 3 4 5	7.4 7.4 7.5	7.2 7.4 7.4	7.3 7.4 7.4	7.7 7.6 7.6 7.7 7.8	7.5 7.4 7.4 7.4 7.4	7.5 7.5 7.5 7.5 7.5
6 7 8 9 10	7.6 7.7 7.6	7.4 7.2 7.4	7.4 7.4 7.5	7.9 8.1 8.1 8.5 8.8	7.5 7.5 7.5 7.5 7.5	7.5 7.6 7.6 7.6 7.6
11 12 13 14 15	7.8 7.8 	7.5 7.4 	7.7 7.6 	8.9 8.9 9.0 9.0	7.5 7.4 7.4 7.4 7.5	7.6 7.5 7.5 7.5 7.5
16 17 18 19 20	7.8 7.6 7.6 7.7	7.5 7.5 7.5 7.5	7.6 7.6 7.6 7.6	8.4 8.8 8.9	7.4 7.5 7.5	7.5 7.5 7.5
21 22 23 24 25	7.6 7.6 7.6 7.6	7.5 7.5 7.5 7.4 7.4	7.6 7.5 7.5 7.5 7.5	8.7 8.8 8.8 8.9	7.4 7.4 7.3 7.3 7.3	7.5 7.5 7.5 7.4 7.4
26 27 28 29 30 31	7.6 7.6 7.6 7.6 7.6 7.7	7.4 7.4 7.4 7.4 7.5	7.5 7.4 7.4 7.5 7.5 7.5	8.9 8.9 9.0 9.0	7.3 7.3 7.3 7.3 7.4	7.5 7.4 7.5 7.6 7.5
MAX MIN	7.8 7.4	7.5 7.2	7.7 7.3	9.0 7.6	7.5 7.3	7.6 7.4
YEAR	MAX MIN MEDIAN		MAX	KIMUM 9.0 KIMUM 7.5 KIMUM 7.7	MINIMU	17.2

TEMPERATURE, WATER (DEG. C), AUGUST TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN
		AUGUST			SEPTEMBE	ΞR
1 2 3 4 5	16.0 15.2 15.8	12.0 13.0 11.7	13.7 13.9 13.4	16.6 16.0 17.6 16.6 16.3	14.1 12.7 13.3 11.4 10.7	14.5 15.1 13.9
6 7 8 9 10	15.5 19.2 16.8	12.6 14.0 14.1	13.7 16.3 16.0	16.4 15.8 13.7 17.7 18.5	11.3 12.2 10.9 12.0 13.3	13.7 13.7 12.5 14.5 15.8
11 12 13 14 15	18.3 18.8 	13.9 14.4 	15.9 16.3 	18.6 18.9 19.0 18.7 16.4	13.5 13.6 13.5 13.7 14.3	16.0 16.1 16.2 16.1 15.1
16 17 18 19 20	18.1 17.0 16.0 15.3	14.2 13.6 13.4 13.4		15.3 16.2 16.2	12.4	14.0
21 22 23 24 25	15.3 17.6 18.6 18.2 15.9	12.6 14.1 14.8		14.4 14.7 15.6 16.0 15.9		12.1 12.9 13.5
26 27 28 29 30 31	17.3 19.7 21.1 20.4 19.1 18.3	13.6 13.3 14.5 15.4 14.4	16.3 17.6 17.6 16.4	14.8 14.7 15.0 13.6 12.3	11.2 10.8 10.6 11.5 9.8	12.6 12.7 12.5
MONTH	21.1	11.7	15.4	19.0	9.6	13.9
YEAR	21.1	9.6	14.6			

12100500 WHITE RIVER NEAR SUMNER, WA--Continued OXYGEN DISSOLVED (MG/L), AUGUST TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN
		AUGUST			SEPTEMBE	ER
1 2 3 4 5	10.7 10.4 10.7	9.6 10.0 9.9	10.2 10.2 10.4	9.5 10.0 9.8 10.2 10.7	8.9 9.2 8.9 9.4 9.4	9.3 9.6 9.4 9.8 10.0
6 7 8 9 10	10.6 9.8 9.7	9.9 8.9 9.1	10.3 9.4 9.3	10.7 10.5 10.9 10.3 10.7	9.4 9.6 9.8 8.0 8.9	10.0 10.0 10.3 9.4 9.7
11 12 13 14 15	9.7 9.8 	8.9 8.9 	9.4 9.3 	10.6 10.5 10.6 9.6 10.4	8.9 9.0 8.6 8.3 8.8	9.7 9.7 9.8 8.9 9.7
16 17 18 19 20	9.7 9.9 10.0 10.2	9.0 9.2 9.5 9.6	9.4 9.6 9.8 9.9	10.5 10.4 10.6	9.5 9.4 9.0	9.9 9.9 9.7
21 22 23 24 25	10.4 10.0 9.7 9.6 9.7	9.4 9.1 8.9 9.0 9.3	9.9 9.6 9.4 9.3 9.5	11.0 11.0 11.5 11.0	9.3 9.2 9.2 9.4 9.4	10.0 10.1 10.0 10.1 10.2
26 27 28 29 30 31	9.8 10.2 9.7 9.4 9.6 10.0	9.2 8.8 8.4 8.4 8.8	9.6 9.6 9.1 8.9 9.2 9.4	11.2 11.1 11.6 10.9 11.4	9.6 9.3 9.0 9.2 9.7	10.3 10.2 10.2 10.0 10.4
MONTH	10.7	8.4	9.6	11.6	8.0	9.9
YEAR	11.6	8.0	9.7			

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12101000 LAKE TAPPS NEAR SUMNER, WA

- LOCATION.--Lat $47^{\circ}14^{\circ}28^{\circ}$, long $122^{\circ}11^{\circ}26^{\circ}$, in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.8, T.20 N., R.5 E., Pierce County, Hydrologic Unit 17110014, 1.7 mi east of Dieringer, and 3.5 mi northeast of Summer.
- PERIOD OF RECORD.--November 1911 to current year. October 1934 to October 1950, change in contents published with records for Puyallup River at Puyallup. Monthend contents only November 1911 to September 1950, published in WSP 1316.
- GAGE.--Water-stage recorder. Datum of gage is 0.7 ft above NGVD of 1929 (levels by Puget Sound Energy).
- REMARKS.--Reservoir is formed by a diked natural lake into which a large part of the low-water flow of White River is diverted. Construction of dike began June 1910; storage began in 1911. Usable capacity (based on 1959 resurvey; capacity table dated July 28, 1959, put into use Oct. 1, 1958), 46,600 acre-ft between gage heights of 515 ft, normal minimum pool, and 543 ft, normal maximum pool. Dead storage unknown. Figures given herein represent usable contents. Reservoir is used for power development at the White River Powerplant at Dieringer. U.S. Geological Survey satellite telemeter at station.
- COOPERATION.--Prior to October 1, 1990, and July 1996 to May 1997, gage-height record furnished by Puget Sound Energy. Contents curve furnished by Puget Sound Energy.
- EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 51,710 acre-ft June 30, 1958, gage height, 541.57 ft, capacity table dated Jan. 19, 1920; maximum gage height observed, 543.07 ft July 8, 1990; minimum contents observed, not determined (below normal minimum pool) Apr. 3, 1978, gage height, 514.90 ft; minimum gage height, 505.70 ft June 24, 1912.
- EXTREMES FOR CURRENT YEAR.--Maximum contents, 46,353 acre-ft July 13, gage height, 542.88 ft; minimum contents 11,311 acre-ft Jan. 17, gage height, 525.27 ft.

MONTHEND GAGE HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	542.18	44,590	
Oct. 31	530.95	20,216	-24,374
Nov. 30	531.33	20,902	+686
Dec. 31	526.39	12,916	-7,986
CAL YR 2001			-27,537
Jan. 31	528.62	16,321	+3,405
Feb. 28	535.18	28,465	+12,144
Mar. 31	535.25	28,614	+149
Apr. 30	539.25	37,552	+8,938
May 31	542.53	45,472	+7,920
June 30	542.67	45,824	+352
July 31	542.34	44,993	-831
Aug. 31	542.33	44,968	-25
Sept. 30	540.81	41,241	-3,727
WTR YR 2002			-3,349

12101100 LAKE TAPPS DIVERSION AT DIERINGER, WA

LOCATION.--Lat 47°14'18", long 122°13'37", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.7, T.20 N., R.5 E., Pierce County, Hydrologic Unit 17110014, on right bank 850 ft downstream from White River Powerplant at Dieringer, and 1,400 ft upstream from mouth.

PERIOD OF RECORD. -- April 1958 to current year.

GAGE.--Water-stage recorder. Datum of gage is 42.36 ft above NGVD of 1929 (levels by Puget Sound Power and Light Co.). Prior to September 30, 1990, at same site at datum 5.00 ft higher.

REMARKS.--No estimated daily discharges. Records good except for discharges below 15 ${\rm ft}^3/{\rm s}$, which are fair. Flow regulated by White River Powerplant. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--44 years (water years 1959-2002), 944 ft³/s, 684,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,530 ft³/s Jan. 29, 1965, gage height, 6.23 ft, datum then in use; maximum gage height, 12.44 ft Dec. 1, 1995 (backwater from White River); no flow many days in July and August 1990, Sept. 29, 1993.

DICCURRED CEDES CEDES DED CECOND MATER VERD COMODED 2001 TO CEDTEMBED 2002

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,180 ft^3/s June 13, gage height, 9.63 ft ; minimum discharge, 2.0 ft^3/s Aug. 14-16, 18, 19, 21, 25.

		DISCHAF	RGE, CUE	IC FEET PE		WATER Y MEAN V	EAR OCTOBER ALUES	R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1020	651	1130	1030	1510	1400	1350	1410	2050	1960	846	23
2	998	730	1260	990	1370	1400	1100	1410	2050	1960	29	284
3	945	652	1140	34	34	1400	1030	1410	2060	1620	29	515
4	983	738	1170	1110	895	1400	1110	1400	2060	1620	29	467
5	955	679	1140	1150	52	1410	1040	1400	2070	1620	29	604
6	729	683	1170	967	1020	1200	63	1400	2070	1620	29	572
7	29	939	666	1250	890	1080	855	1400	2050	1170	25	27
8	703	1240	884	1650	997	1050	1060	1390	1690	1880	17	435
9	658	739	587	1230	939	890	1150	1400	1660	1660	17	27
10	741	784	1140	1560	950	24	1410	1420	1940	1580	17	27
11	986	831	1200	1540	1060	888	1410	1420	1940	1590	17	456
12	701	441	569	893	1040	1030	1400	1420	2010	1160	17	259
13	29	876	1320	1060	1080	1100	1410	1420	1950	1470	11	29
14	29	1110	1530	1000	81	1150	1410	1420	1970	1470	2.5	29
15	1080	1170	1850	1020	29	1330	1400	1410	1940	1470	2.2	29
16	984	1150	1870	1070	29	81	1400	1400	1860	1180	2.3	271
17	1280	1190	1890	646	865	27	1390	1350	1900	1120	2.6	547
18	990	26	1890	955	1130	996	1410	762	2000	1430	2.5	663
19	415	240	1920	166	1200	1170	1400	656	2000	1440	2.5	27
20	458	1200	1910	1020	959	1410	1400	1220	2010	1440	2.6	27
21	29	1070	1890	1240	956	1400	1400	1480	1770	477	2.5	27
22	1140	529	1780	1560	53	1410	1400	1480	1910	887	2.6	532
23	1070	526	1840	1180	32	1410	1400	1780	1660	1410	2.6	225
24	1260	576	1830	1010	1280	1410	1400	1780	1660	1130	2.6	27
25	1070	434	1790	1190	1430	1370	1420	2000	1740	875	2.4	27
26	1140	938	1690	1550	1090	1070	1420	1950	1780	969	208	578
27	1030	812	1080	1550	1150	1070	1420	1970	1760	134	754	27
28	1250	1140	1030	1550	1400	963	1420	2050	1970	1420	404	27
29	1280	636	867	1520		1140	1430	2050	1970	1150	484	587
30	1130	608	470	1070		1400	1420	2040	1960	1110	480	1340
31	1050		1500	1200		1400		2040		918	23	
TOTAL	26162	23338	42003	34961	23521	34479	38328	47138	57460	40940	3494.9	8715
MEAN	844	778	1355	1128	840	1112	1278	1521	1915	1321	113	290
MAX	1280	1240	1920	1650	1510	1410	1430	2050	2070	1960	846	1340
MIN	29	26	470	34	29	24	63	656	1660	134	2.2	23
AC-FT	51890	46290	83310	69350	46650	68390	76020	93500	114000	81200	6930	17290
STATIST	rics of N	MONTHLY MEA	AN DATA	FOR WATER	YEARS 1958	- 2002	, BY WATER	YEAR (WY)			
MEAN	619	895	1084	1184	1102	1067	1089	1054	1244	929	577	527
MAX	1443	1516	1719	1939	1819	1545	1716	1715	1925	1807	1018	1251
(WY)	1960	1959	1967	1967	1970	1961	1966	1961	2000	1999	1983	1974
MIN	163	200	135	480	159	376	298	261	415	6.09	5.88	8.11
(WY)	1988	1988	2001	1993	2001	1989	1971	1972	1972	1988	1988	1988
SUMMARY	Y STATIST	rics	FOR	2001 CALE	NDAR YEAR		FOR 2002 WA	ATER YEAR		WATER YEA	ARS 1958 -	2002
	MEAN CANNUAL			292134.0 800	9		380539.9 1043			944 1232		1961
HIGHEST LOWEST	ANNUAL N DAILY ME DAILY ME SEVEN-DA	/IEAN			Jun 14 1 Aug 8 5 Aug 8		2070 2.2 2.5	Jun 5 Aug 15 Aug 14			Jan 9 00 Jul 27 00 Jul 27	1990
ANNUAL 10 PERG	RUNOFF CENT EXCE	(AC-FT) EEDS		579400 1590	- 1149 0		754800 1870	1109 14		684100 1640	our 27	1,,0
	CENT EXCE			884 17			1130 29			960 87		

12101104 WHITE RIVER ABOVE TACOMA AVENUE BRIDGE AT SUMNER, WA

WATER-OUALITY RECORDS

LOCATION.--Lat $47^{\circ}13^{\circ}01.9^{\circ}$, long $122^{\circ}14^{\circ}08.5^{\circ}$, in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.13, T.20 N., R.4 E., Pierce County, Hydrologic Unit 17110014, on left bank, 0.1 mile upstream from Tacoma Avenue Bridge in Summer, and at mile 1.8.

DRAINAGE AREA.--470 mi², approximately.

PERIOD OF DAILY RECORD . --

SPECIFIC CONDUCTANCE: August 2001 to September 2002 (seasonal records). pH: August 2001 to September 2002 (seasonal records). WATER TEMPERATURE: August 2001 to September 2002 (seasonal records).

DISSOLVED OXYGEN: August 2001 to September 2002 (seasonal records).

INSTRUMENTATION. -- Water-quality monitor since August 2001. Electronic data logger with 30-minute logging interval.

REMARKS.--Interruption in record due to routine instrument service and to instrument failures. Specific conductance records excellent, except for Aug. 21-30, which are good. pH records excellent, except for Sept. 19-23, which are good. Water temperature records excellent. Dissolved oxygen records good Aug. 17 to Sept. 30; fair Aug. 3-9 and Aug. 13; and poor Aug. $10-\bar{1}2$ and Aug. 14-16.

EXTREMES FOR PERIOD OF DAILY RECORD.-SPECIFIC CONDUCTANCE: Maximum recorded, 98 uS/cm on Sept. 30, 2001; minimum recorded, 50 uS/cm on Aug. 30, 2002.
pH: Maximum recorded, 8.3 on Sept. 28, 2002; minimum recorded, 6.7 on Sept. 4-6, 2002.
WATER TEMPERATURE: Maximum recorded, 20.4° C on Aug. 10, 2001; minimum recorded, 9.7°C on Sept. 28, 2001.
DISSOLVED OXYGEN: Maximum recorded, 11.4 mg/L Sept. 21, 2002; minimum recorded 7.9 mg/L Aug. 12, 2001 and Sept. 3, 2002.

EXTREMES FOR CURRENT YEAR.-SPECIFIC CONDUCTANCE: Maximum recorded, 90 uS/cm on Sept. 30; minimum recorded, 50 uS/cm on Aug. 30.
pH: Maximum recorded, 8.3 on Sept. 28; minimum recorded, 6.7 on Sept. 4-6.

WATER TEMPERATURE: Maximum recorded, 19.6°C on Aug. 13, but may have been higher during periods of missing record; minimum recorded, 9.9°C on Sept. 22.

DISSOLVED OXYGEN: Maximum recorded, 11.4 mg/L Sept. 21; minimum recorded, 7.9 mg/L Sept. 3.

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), AUGUST TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN
		AUGUST			SEPTEMB	ER
1				71	69	70
2				70	55	62
3	70	52	59	67	52	59
4	61	60	60	74	53	61
5	66	60	63	76	53	63
6	68	63	66	78	55	65
7				80	78	79
8				82	55	70
9	68	64	66	85	82	83
10	65	60	63	86	82	84
11	62	58	60	85	57	71
12	62	59	61	81	56	73
13	62	57	60	80	75	77
14	58	55	57	79	74	77
15	57	53	55	78	74	76
16	58	56	57	77	56	70
17	60	58	59	77	56	66
18	62	59	61			
19	64	61	63			
20	66	62	64	88	80	82
21	68	63	66	86	79	81
22	69	65	68	88	61	74
23	68	65	67	89	60	81
24	66	63	65	87	82	84
25	71	64	66	89	83	84
26	78	62	70	89	60	73
27	77	55	62	88	63	85
28	74	53	63	89	84	85
29	69	51	59	89	61	73
30	67	50	58	90	56	66
31	71	66	68			
MONTH	78	50	62	90	52	74
YEAR	90	50	68			

12101104 WHITE RIVER ABOVE TACOMA AVENUE BRIDGE AT SUMNER, WA--Continued PH, WATER, WHOLE, FIELD, STANDARD UNITS, AUGUST TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		AUGUST			SEPTEMB	ER
1 2 3 4 5	7.3 7.3 7.3	7.1 7.2 7.2	7.2 7.3 7.2	7.1 7.0 7.0 7.0 6.9	7.0 6.9 6.8 6.7	7.0 7.0 7.0 7.0 6.8
6 7 8 9 10	7.4 7.3 7.1	7.2 7.0 7.0	7.3 7.1 7.0	6.9 7.1 7.0 7.5 7.8	6.7 6.9 6.8 6.9 7.0	6.8 7.0 6.9 7.1 7.1
11 12 13 14 15	7.1 7.1 7.1 7.0 7.0	7.0 7.0 7.0 7.0 7.0	7.0 7.0 7.0 7.0 7.0	7.2 7.4 8.1 8.0 7.4	6.9 6.9 7.0 7.0	7.0 7.0 7.1 7.1 7.1
16 17 18 19 20	7.1 7.1 7.1 7.1 7.2	7.0 7.0 7.0 7.0 7.1	7.1 7.1 7.1 7.1 7.1	7.3 7.1 8.2	6.9 6.8 7.2	7.0 7.0 7.3
21 22 23 24 25	7.2 7.2 7.2 7.2 7.2	7.1 7.1 7.1 7.1 6.9	7.1 7.1 7.1 7.1 7.1	7.9 7.2 7.8 8.0 8.1	7.2 7.0 6.8 6.9	7.3 7.2 7.2 7.0 7.0
26 27 28 29 30 31	7.0 7.0 7.0 7.0 7.0 7.1	6.8 6.8 6.8 6.8 7.0	7.0 6.8 6.9 6.9 7.0	7.1 8.1 8.3 7.2 7.1	6.8 6.9 6.8 6.8	6.9 7.0 7.1 7.0 6.9
MAX MIN	7.4 7.0	7.2 6.8	7.3 6.8		7.2 6.7	7.3 6.8
YEAR	MAX MIN MEDIAN		M	AXIMUM 8.3 AXIMUM 7.2 AXIMUM 7.3	MINIMUM	6.7

TEMPERATURE, WATER (DEG. C), AUGUST TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN
		AUGUST			SEPTEMBE	ΞR
1 2 3 4 5	 16.7 15.2 15.6	12.1 13.0 11.9	14.0 13.9 13.5	16.8 16.8 17.3 16.8 16.7	13.9 12.8 13.4 11.6 10.9	15.3 15.8 14.6
6 7 8 9 10	15.4 18.8 16.8	12.7 13.7 14.5		16.6 15.2 15.7 16.8 17.5	11.5 12.2 11.1 12.1 13.3	14.2
11 12 13 14 15	18.0 18.8 19.6 18.9 18.1	14.0 15.1 15.6		16.9 17.4 17.9 17.8 16.7	13.4 13.6 13.5 13.6 14.0	15.8
16 17 18 19 20	17.9 17.8 16.8 15.7 15.0	13.8 13.3 13.1	14.3	16.3 16.6 15.3	12.5	14.7
21 22 23 24 25	15.0 17.2 18.3 17.9 16.0	12.3 13.8 14.6		13.9 15.6 15.8 15.3 15.2	10.2 9.9 10.6 11.4 11.4	13.2 12.9 13.4
26 27 28 29 30 31	17.1 18.0 19.1 18.9 18.5	13.9 14.8	15.2 16.6 17.5 17.4 17.2	15.6 15.2 14.4 15.5 15.0	11.3 11.0 10.7 11.9 10.8	12.7 12.5
	19.6 19.6		15.5 14.9	17.9	9.9	14.3

PUYALLUP RIVER BASIN 149

12101104 WHITE RIVER ABOVE TACOMA AVENUE BRIDGE AT SUMNER, WA--Continued OXYGEN DISSOLVED (Mg/L), AUGUST TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN
		AUGUST		:	SEPTEMBE	ER
1 2 3 4 5	11.1 10.8 11.3		10.6 10.7 10.8	9.7 9.8 9.5 10.2	8.3 7.9 8.5	
6 7 8 9 10	10.9 10.0 9.8	10.2 9.1 9.3	 9.5	10.4 10.3 10.6 10.3 10.1	9.2 8.7 8.9	
11 12 13 14 15	10.0 9.8 9.7 9.6 9.8	9.1 9.0 8.9 8.9 9.2	9.6 9.5 9.3 9.3	10.2 10.0 10.0 10.1 10.1	8.4 8.6 8.8	
16 17 18 19 20	9.8 10.0 10.2 10.1 9.6	9.3 9.1 9.3 9.3	9.6 9.7 9.7 9.7 9.5	10.3 10.4 10.8	8.7 8.7 9.5	9.6 9.3 10.1
21 22 23 24 25	10.3 10.2 9.8 9.6 9.4	9.6 9.0 8.8 8.8 9.0	9.9 9.7 9.4 9.2 9.3	11.4 11.1 10.8 10.5 10.5	9.6 8.9 8.5 8.9	10.5 9.8 9.9 9.7 9.7
26 27 28 29 30 31	9.8 10.1 9.8 9.6 9.2 10.0	8.9 8.5 8.6 8.3 8.2	9.3 9.1 9.0 8.8 8.8 9.4	10.4 10.7 11.0 9.7 9.8	8.3 8.3 9.2 8.7 8.6	9.0 9.7 10.1 9.2 9.2
MONTH	11.3	8.2	9.6	11.4	7.9	9.5
YEAR	11.4	7.9	9.5			

12101500 PUYALLUP RIVER AT PUYALLUP, WA

LOCATION.--Lat $47^{\circ}12^{\circ}31^{\circ}$, long $122^{\circ}19^{\circ}33^{\circ}$, in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.20, T.20 N., R.4 E., Pierce County, Hydrologic Unit 17110014, on left bank 0.8 mi upstream from bridge at Clark Creek, 2.0 mi northwest of Puyallup City Hall, and at mile 6.6.

DRAINAGE AREA. -- 948 mi2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- May 1914 to current year.

REVISED RECORDS.--WSP 832: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Prior to Dec. 3, 1919, at sites 1.2 mi upstream and 900 ft upstream at different datums. Dec. 3, 1919, to Nov. 9, 1935, at site 500 ft upstream at datum 9.61 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are fair. All diverted water returned to river upstream from gage. Large part of flow of White River (a tributary) diverted through Lake Tapps (station 12101000). Flood flow regulated by Mud Mountain Lake (station 12098000) on White River. Some pondage on tributaries and upper Puyallup River. Diurnal fluctuations caused by powerplants and glacial melt upstream from station. U.S. Geological Survey satellite telemeter at station. Chemical analyses October 1958 to September 1968, October 1970 to September 1972, October 1974 to September 1994. Water temperatures July 1959 to September 1961, August 1965 to September 1966. Since 1912 the City of Tacoma pipeline diversion from Green River has released as much as 123 ft³/s daily, and from 1957-1990 an average of about 15 ft³/s per month into Puyallup River 0.5 mi east of McMillin. Since 1990 releases have been minimal.

AVERAGE DISCHARGE.--88 years (water years 1915-2002), 3,330 ft³/s, 2,413,000 acre-ft/yr, adjusted for storage in Lake Tapps since October 1934, and Mud Mountain Lake, October 1944 to September 1947.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $57,000 \text{ ft}^3/\text{s}$ Dec. 10, 1933, elevation, 31.0 ft, present datum; minimum discharge, 306 ft $^3/\text{s}$ Sept. 25, 1955, elevation, 8.23 ft; minimum daily discharge, 400 ft $^3/\text{s}$ Nov. 30, 1952.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,000 $\rm ft^3/s$ Jan. 8, elevation, 19.24 ft; minimum discharge, 829 $\rm ft^3/s$ Oct. 8, elevation, 9.20 ft; minimum daily discharge, 906 $\rm ft^3/s$ Oct. 7.

DAY OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP 1 1900 2860 4540 3220 3800 3120 3210 3700 5760 5050 2290 1480 2 1990 2690 4670 3720 3550 3030 3040 3970 5380 4420 1670 1930 3 1830 2410 4460 2790 2120 2970 2880 3900 5250 3960 1960 2220 4 1920 2100 4120 3410 2790 2960 2930 3620 5180 3730 2030 1770 5 1880 2330 3990 3300 1990 2970 3030 3490 5860 3630 1930 1770 6 1610 2090 4000 3220 2900 2880 2360 3470 6340 3600
2 1900 2690 4670 3720 3550 3030 3040 3970 5380 4420 1670 1930 3 1830 2410 4460 2790 2120 2970 2880 3900 5250 3960 1960 2220 4 1920 2100 4120 3410 2790 2960 2930 3620 5180 3730 2030 1770 5 1880 2330 3990 3300 1990 2970 3030 3490 5860 3630 1930 1710 6 1610 2090 4000 3220 2900 2880 2360 3470 6340 3600 1890 1630 7 906 2120 3540 7500 3130 2570 3160 3320 5430 3390 1770 1080 8 1500 2130 3380 14100 4000 2520 3470 3250 4480
2 1900 2690 4670 3720 3550 3030 3040 3970 5380 4420 1670 1930 3 1830 2410 4460 2790 2120 2970 2880 3900 5250 3960 1960 2220 4 1920 2100 4120 3410 2790 2960 2930 3620 5180 3730 2030 1770 5 1880 2330 3990 3300 1990 2970 3030 3490 5860 3630 1930 1710 6 1610 2090 4000 3220 2900 2880 2360 3470 6340 3600 1890 1630 7 906 2120 3540 7500 3130 2570 3160 3320 5430 3390 1770 1080 8 1500 2130 3380 14100 4000 2520 3470 3250 4480
3 1830 2410 4460 2790 2120 2970 2880 3900 5250 3960 1960 2220 4 1920 2100 4120 3410 2790 2960 2930 3620 5180 3730 2030 1770 5 1880 2330 3990 3300 1990 2970 3030 3490 5860 3630 1930 1770 6 1610 2090 4000 3220 2900 2880 2360 3470 6340 3600 1890 1630 7 906 2120 3540 7500 3130 2570 3160 3320 5430 3390 1770 1080 8 1500 2130 3380 14100 4000 2520 3470 3250 4480 4600 1660 1400 9 1580 1820 3000 11300 3580 2390 3320 3150 3900
4 1920 2100 4120 3410 2790 2960 2930 3620 5180 3730 2030 1770 5 1880 2330 3990 3300 1990 2970 3030 3490 5860 3630 1930 1710 6 1610 2090 4000 3220 2900 2880 2360 3470 6340 3600 1890 1630 7 906 2120 3540 7500 3130 2570 3160 3320 5430 3390 1770 1080 8 1500 2130 3380 14100 4000 2520 3470 3250 4480 4600 1660 1400 9 1580 1820 3000 11300 3580 2390 3320 3150 3900 4270 1750 1020 10 1580 1740 3630 7950 3230 1530 4050 3880 3870
5 1880 2330 3990 3300 1990 2970 3030 3490 5860 3630 1930 1710 6 1610 2090 4000 3220 2900 2880 2360 3470 6340 3600 1890 1630 7 906 2120 3540 7500 3130 2570 3160 3320 5430 3390 1770 1080 8 1500 2130 3380 14100 4000 2520 3470 3250 4480 4600 1660 1400 9 1580 1820 3000 11300 3580 2390 3320 3150 3900 4270 1750 1020 10 1580 1740 3630 7950 3230 1530 4050 3080 3870 4190 2020 1140 11 2450 1750 3650 5790 3450 2940 4370 3000 4110
6 1610 2090 4000 3220 2900 2880 2360 3470 6340 3600 1890 1630 7 906 2120 3540 7500 3130 2570 3160 3320 5430 3390 1770 1080 8 1500 2130 3380 14100 4000 2520 3470 3250 4480 4600 1660 1400 9 1580 1820 3000 11300 3580 2390 3320 3150 3900 4270 1750 1020 10 1580 1740 3630 7950 3230 1530 4050 3080 3870 4190 2020 1140 11 2450 1750 3650 5790 3450 2940 4370 3000 4110 4350 2200 1640 12 1800 1460 2810 4660 3070 4710 5130 3000 4680
7 906 2120 3540 7500 3130 2570 3160 3320 5430 3390 1770 1080 8 1500 2130 3380 14100 4000 2520 3470 3250 4480 4600 1660 1440 9 1580 1820 3000 11300 3580 2390 3320 3150 3900 4270 1750 1020 10 1580 1740 3630 7950 3230 1530 4050 3080 3870 4190 2020 1140 11 2450 1750 3650 5790 3450 2940 4370 3000 4110 4350 2200 1640 12 1800 1460 2810 4660 3070 4710 5130 3000 4680 3970 2070 1570 13 1980 2230 4790 4280 2990 4060 5920 3250 5290
8 1500 2130 3380 14100 4000 2520 3470 3250 4480 4600 1660 1400 9 1580 1820 3000 11300 3580 2390 3320 3150 3900 4270 1750 1020 10 1580 1740 3630 7950 3230 1530 4050 3080 3870 4190 2020 1140 11 2450 1750 3650 5790 3450 2940 4370 3000 4110 4350 2200 1640 12 1800 1460 2810 4660 3070 4710 5130 3000 4680 3970 2070 1570 13 1980 2230 4790 4280 2990 4060 5920 3250 5290 4480 2270 1290 14 2220 7880 9440 3980 1980 3650 12900 3600 6220
9 1580 1820 3000 11300 3580 2390 3320 3150 3900 4270 1750 1020 10 1580 1740 3630 7950 3230 1530 4050 3080 3870 4190 2020 1140 11 2450 1750 3650 5790 3450 2940 4370 3000 4110 4350 2200 1640 12 1800 1460 2810 4660 3070 4710 5130 3000 4680 3970 2070 1570 13 1980 2230 4790 4280 2990 4060 5920 3250 5290 4480 2270 1290 14 2220 7880 9440 3980 1980 3650 12900 3600 6220 4520 2420 1310 15 2850 9280 6130 3790 1740 3630 9780 3440 6520
10 1580 1740 3630 7950 3230 1530 4050 3080 3870 4190 2020 1140 11 2450 1750 3650 5790 3450 2940 4370 3000 4110 4350 2200 1640 12 1800 1460 2810 4660 3070 4710 5130 3000 4680 3970 2070 1570 13 1980 2230 4790 4280 2990 4060 5920 3250 5290 4480 2270 1290 14 2220 7880 9440 3980 1980 3650 12900 3600 6220 4520 2420 1310 15 2850 9280 6130 3790 1740 3630 9780 3440 6520 3840 2440 1340 16 2290 8550 6660 3630 1690 2350 8230 3260 6090
11 2450 1750 3650 5790 3450 2940 4370 3000 4110 4350 2200 1640 12 1800 1460 2810 4660 3070 4710 5130 3000 4680 3970 2070 1570 13 1980 2230 4790 4280 2990 4060 5920 3250 5290 4480 2270 1290 14 2220 7880 9440 3980 1980 3650 12900 3600 6220 4520 2420 1310 15 2850 9280 6130 3790 1740 3630 9780 3440 6520 3840 2440 1340 16 2290 8550 6660 3630 1690 2350 8230 3260 6090 3290 2240 1570 17 2340 5800 11400 2950 2370 2100 7470 3260 5310
12 1800 1460 2810 4660 3070 4710 5130 3000 4680 3970 2070 1570 13 1980 2230 4790 4280 2990 4060 5920 3250 5290 4480 2270 1290 14 2220 7880 9440 3980 1980 3650 12900 3600 6220 4520 2420 1310 15 2850 9280 6130 3790 1740 3630 9780 3440 6520 3840 2440 1340 16 2290 8550 6660 3630 1690 2350 8230 3260 6090 3290 2240 1570 17 2340 5800 11400 2950 2370 2100 7470 3260 5310 3200 2140 1760 18 1960 3920 7380 3200 2740 2730 6160 2790 5050 3450 1950 1720 19 1410 3530 5630 2620 2920 3210 4360 2610 4890 3440 1860 1240
12 1800 1460 2810 4660 3070 4710 5130 3000 4680 3970 2070 1570 13 1980 2230 4790 4280 2990 4060 5920 3250 5290 4480 2270 1290 14 2220 7880 9440 3980 1980 3650 12900 3600 6220 4520 2420 1310 15 2850 9280 6130 3790 1740 3630 9780 3440 6520 3840 2440 1340 16 2290 8550 6660 3630 1690 2350 8230 3260 6090 3290 2240 1570 17 2340 5800 11400 2950 2370 2100 7470 3260 5310 3200 2140 1760 18 1960 3920 7380 3200 2740 2730 6160 2790 5050 3450 1950 1720 19 1410 3530 5630 2620 2920 3210 4360 2610 4890 3440 1860 1240
13 1980 2230 4790 4280 2990 4060 5920 3250 5290 4480 2270 1290 14 2220 7880 9440 3980 1980 3650 12900 3600 6220 4520 2420 1310 15 2850 9280 6130 3790 1740 3630 9780 3440 6520 3840 2440 1340 16 2290 8550 6660 3630 1690 2350 8230 3260 6090 3290 2240 1570 17 2340 5800 11400 2950 2370 2100 7470 3260 5310 3200 2140 1760 18 1960 3920 7380 3200 2740 2730 6160 2790 5050 3450 1950 1720 19 1410 3530 5630 2620 2920 3210 4360 2610 4890 3440 1860 1240
14 2220 7880 9440 3980 1980 3650 12900 3600 6220 4520 2420 1310 15 2850 9280 6130 3790 1740 3630 9780 3440 6520 3840 2440 1340 16 2290 8550 6660 3630 1690 2350 8230 3260 6090 3290 2240 1570 17 2340 5800 11400 2950 2370 2100 7470 3260 5310 3200 2140 1760 18 1960 3920 7380 3200 2740 2730 6160 2790 5050 3450 1950 1720 19 1410 3530 5630 2620 2920 3210 4360 2610 4890 3440 1860 1240
15 2850 9280 6130 3790 1740 3630 9780 3440 6520 3840 2440 1340 16 2290 8550 6660 3630 1690 2350 8230 3260 6090 3290 2240 1570 17 2340 5800 11400 2950 2370 2100 7470 3260 5310 3200 2140 1760 18 1960 3920 7380 3200 2740 2730 6160 2790 5050 3450 1950 1720 19 1410 3530 5630 2620 2920 3210 4360 2610 4890 3440 1860 1240
16 2290 8550 6660 3630 1690 2350 8230 3260 6090 3290 2240 1570 17 2340 5800 11400 2950 2370 2100 7470 3260 5310 3200 2140 1760 18 1960 3920 7380 3200 2740 2730 6160 2790 5050 3450 1950 1720 19 1410 3530 5630 2620 2920 3210 4360 2610 4890 3440 1860 1240
17 2340 5800 11400 2950 2370 2100 7470 3260 5310 3200 2140 1760 18 1960 3920 7380 3200 2740 2730 6160 2790 5050 3450 1950 1720 19 1410 3530 5630 2620 2920 3210 4360 2610 4890 3440 1860 1240
18 1960 3920 7380 3200 2740 2730 6160 2790 5050 3450 1950 1720 19 1410 3530 5630 2620 2920 3210 4360 2610 4890 3440 1860 1240
19 1410 3530 5630 2620 2920 3210 4360 2610 4890 3440 1860 1240
20 1610 e4570 4780 3390 2820 6250 4770 3390 5040 3260 1830 1280
21 1130 e4230 4360 3920 3340 4720 3840 4380 4640 2410 1770 1130
22 2340 e4250 4010 4120 4820 4080 3600 4580 4870 2800 1800 1560
23 3170 e5700 3880 3290 5210 3850 3520 4670 5060 3470 1890 1320
24 2760 e4720 3790 3650 5870 3740 3370 4370 4720 3300 1950 1150
25 2680 e3800 3700 5260 4530 3980 3340 4320 4660 2990 1880 1120
25 2000 65000 5700 3200 1550 5500 5510 1520 1000 2550 1000 1120
26 2740 e3730 3570 5380 3460 3560 3350 4540 4920 3150 1680 1530
27 2700 e3370 3030 4510 3140 3370 3620 5120 5290 2080 2200 1110
28 2540 3880 3050 4060 3200 3140 3560 6330 5670 3130 2080 980
29 2600 4210 2790 3730 3140 3460 7530 8500 3360 2240 1570
30 2350 4090 2090 3380 3340 3500 7530 6930 3300 2090 2140
31 3310 3510 3300 3250 6440 2950 1420
TOTAL 65836 113240 139780 143400 90430 102740 135700 126360 159910 111580 61390 43710
MEAN 2124 3775 4509 4626 3230 3314 4523 4076 5330 3599 1980 1457
MAX 3310 9280 11400 14100 5870 6250 12900 7530 8500 5050 2440 2220
MIN 906 1460 2090 2620 1690 1530 2360 2610 3870 2080 1420 980
AC-FT 130600 224600 277300 284400 179400 203800 269200 250600 317200 221300 121800 86700
MEAN† 1727 3787 4379 4680 3449 3315 4675 4203 5339 3585 1980 1395
CFSM† 1.82 3.99 4.62 4.94 3.64 3.50 4.93 4.43 5.63 3.78 2.09 1.47
TN.† 2.10 4.46 5.33 5.69 3.79 4.03 5.50 5.11 6.28 4.36 2.41 1.64
AC-FT† 106200 225300 269300 287800 191500 203900 278100 258500 317600 220500 121800 82970

CAL YR 2001 TOTAL 1010567 MEAN 2769 MAX 11400 MIN 895 AC-FT 2004000 MEAN† 2729 CFSM† 2.88 IN.† 39.08 AC-FT† 1976000 WTR YR 2002 TOTAL 1294076 MEAN 3545 MAX 14100 MIN 906 AC-FT 2567000 MEAN† 3541 CFSM† 3.74 IN.† 50.71 AC-FT† 2564000

[†] Adjusted for change in contents in Lake Tapps.

e Estimated

puyallup river basin 151

12102075 CLARKS CREEK AT TACOMA ROAD, NEAR PUYALLUP, WA

LOCATION.--Lat $47^{\circ}11^{\circ}52^{\circ}$, long $122^{\circ}20^{\circ}10^{\circ}$, in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.30, T.20 N., R.4 E., Pierce County, Hydrologic Unit 17110014, at private bridge at end of Tacoma Road, 1.0 mi northwest of Puyallup, and at mile 1.5.

DRAINAGE AREA.--13.0 mi².

PERIOD OF RECORD.--October 1992 to September 1995 (discharge measurements only). March 1995 to current year.

GAGE. -- Water-stage recorder. Datum of gage is NGVD of 1929.

REMARKS.--No estimated daily discharges. Records fair.

AVERAGE DISCHARGE.--7 years (water year 1996-2002), 62.9 ft³/s, 65.75 in/yr, 45,570 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 190 ft^3/s Nov. 14, 2001, elevation 23.13 ft, but was likely exceeded Feb. 8 or 9, 1996; maximum elevation, 25.60 ft Feb. 8 or 9, 1996, from inside high-water mark, affected by backwater from the Puyallup River; minimum daily discharge, 33 ft^3/s June 26-29, 1995.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 190 ft³/s Nov. 14, elevation, 23.13 ft; minimum discharge, 37 ft³/s Apr. 2-4, 6-9.

		DISCHAR	GE, CUBIO	C FEET PER		WATER YE MEAN VA		2001 TO 8	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	52	89	75	62 59	44	40	46	45	45	48	53
2	47 48	50 49	92 91	78 70	59 59	43 43	39 39	47 47	44 44	46 45	47 48	52 52
4	46	51	84	69	57	43	39	46	45	46	49	52
5	47	57	82	69	59	44	39	47	48	45	52	51
6	47	50	87	74	59	43	39	47	45	45	52	51
7 8	47 47	50 49	77 78	101 85	63 70	43 42	38 39	48 48	46 45	50 51	50 49	52 52
9	47	48	78	74	56	42	45	47	45	47	49	52
10	54	49	82	71	55	42	49	47	45	46	50	51
11	49	48	78	70	53	59	46	46	46	45	50	51
12 13	48 47	52 61	77 119	71 68	52 51	58 48	43 57	46 47	45 44	46 46	49 50	51 50
14	48	152	100	67	50	44	81	46	43	47	50	50
15	48	109	86	67	50	43	56	45	45	47	51	50
16	48	88	110	66	50	47	51	45	45	47	51	51
17	47	78	106	65	50	45	48	47	45	47	52	51
18 19	47 48	76 86	87 85	66 67	49 50	46 62	47 47	45 46	46 43	47 47	52 52	50 50
20	47	83	80	68	47	80	47	47	43	47	52	51
21	50	82	76	66	63	51	46	47	44	48	51	50
22	51	108	74	64	51	46	46	46	44	47	52	50
23	52	94	73	64	66	43	46	46	44	47	52	50
24 25	51 54	82 78	72 72	75 110	53 48	42 41	46 46	46 45	43 43	47 48	51 51	49 49
26	51	77	71	77	47	40	48	46	42	49	52	49
27	64	76	71	67	45	40	54	45	44	49	52	50
28	51	106	74	64	45	40	47	49	52	49	51	49
29	50	97	70	62		39	47	48	51	48	52	50
30 31	51 64	89 	69 73	66 69		40 40	46	46 45	47 	48 49	52 51	50
TOTAL	1543	2227	2563	2225	1519	1423	1401	1439	1351	1461	1570	1519
MEAN	49.8	74.2	82.7	71.8	54.2	45.9	46.7	46.4	45.0	47.1	50.6	50.6
MAX	64	152	119	110	70	80	81	49	52	51	52	53
MIN	46	48	69	62	45	39	38	45	42	45	47	49
AC-FT CFSM	3060 3.83	4420 5.71	5080 6.36	4410 5.52	3010 4.17	2820 3.53	2780 3.59	2850 3.57	2680 3.46	2900 3.63	3110 3.90	3010 3.89
IN.	4.42	6.37	7.33	6.37	4.35	4.07	4.01	4.12	3.87	4.18	4.49	4.35
STATIST	CICS OF MO	ONTHLY MEA	N DATA FO	OR WATER Y	EARS 1995	- 2002,	BY WATER	YEAR (WY)				
MEAN	58.4	69.5	72.1	68.4	67.3	62.2	62.3	58.9	55.5	54.0	56.1	55.1
MAX	68.0	75.9	84.3	83.3	88.8	87.6	82.3	77.6	67.9	66.2	66.3	64.6
(WY)	1998	1999	1997	1997	1996	1997	1997	1997	1998	1999	1997	1997
MIN (WY)	46.9 1996	58.3 1996	58.5 2001	57.1 2001	53.0 2001	42.3 1995	46.7 2002	41.0 1995	37.6 1995	42.1 1996	42.8 1995	42.2 1995
SUMMARY	STATIST	rcs	FOR 2	2001 CALEN	DAR YEAR	F	OR 2002 WA	TER YEAR		WATER YEARS	1995 -	2002
ANNUAL	TOTAL			20478			20241					
ANNUAL				56.1			55.5			62.9		
	ANNUAL N									73.8		1997
	ANNUAL ME DAILY ME			152	Nov 14		152	Nov 14		53.4 190	Feb 9	2001 1996
	DAILY MEA			45	Sep 14		38	Apr 7		33	Jun 26	
ANNUAL	SEVEN-DAY	MINIMUM		46	Sep 10		39	Apr 2		34	Jun 24	
	RUNOFF (A			40620			40150			45570		
	RUNOFF (CRUNOFF (CRUNOFF (CRUNOFF))			4.32 58.60			4.27 57.92			4.84 65.75		
	CENT EXCE			58.60 76			57.92 78			65.75 78		
	CENT EXCE			51			50			62		
90 PERC	CENT EXCE	EDS		47			44			47		

12102190 SWAN CREEK AT 80TH STREET EAST, NEAR TACOMA, WA

LOCATION.--Lat $47^{\circ}11^{\circ}05^{\circ}$, long $122^{\circ}23^{\circ}33^{\circ}$, in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.26, T.20 N., R.3 E., Pierce County, Hydrologic Unit 17110014, on right bank, downstream from 80th Street East crossing, 5.1 mi south-southeast of Tacoma.

DRAINAGE AREA. -- 2.35 mi².

PERIOD OF RECORD.--October 1989 to September 1991, October 1994 to September 1997, October 1997 to current year (seasonal records).

REVISED RECORDS.--WDR WA-97-1: 1996 (M).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 395 ft above NGVD of 1929, from topographic map. Prior to November 1994, at datum 5.00 ft higher.

REMARKS.--No estimated daily discharges. Records fair except those above 100 ${\rm ft}^3/{\rm s}$ and below 5 ${\rm ft}^3/{\rm s}$, which are poor.

AVERAGE DISCHARGE.--5 years (water years 1990-91, 1995-97), 4.78 ft³s, 27.66 in/yr, 3,470 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, not determined but occurred Feb. 8, 1996, elevation, 10.85 ft, from outside high-water mark; no flow many days each year.

EXTREMES FOR PERIOD OCTOBER TO APRIL.--Maximum discharge, 123 ft³/s Nov. 14, elevation, 8.64 ft; no flow several days in October.

DISCHAF	RGE, CUBI	C FEET PER		WATER YEAR EAN VALUES	OCTOBE	R 2001 TO	APRIL 2002
DAY	OCT		DEC	JAN	FEB	MAR	APR
1 2 3 4 5	0.07 0.02 0.00 0.00 0.00	2.0 1.1 0.58 0.33 1.5	12 14 13 7.8 6.5	5.5 9.3 3.9 3.0 2.7	2.9	1.4 1.2	1.1 0.93 0.75 0.62 0.48
6 7 8 9 10	0.00 0.00 0.00 0.00 0.09	0.94 0.43 0.30 0.24 0.20	4.1 4.0	5.6 29 14 5.3 3.6	16 4.5	1.2 0.97	0.44 0.44 0.34 0.98 4.8
11 12 13 14 15	0.10	0.18 0.60 3.3 72	5.5 4.0 45 19 7.5	2.9 3.5 2.8 2.3 1.9	2.0 1.7	14 17 8.6 4.5 3.7	5.1 5.0 18 42 9.3
16 17 18 19 20	0.01 0.00 0.00 0.00 0.00	9.4 5.2 3.4 6.8 7.6	34 24 7.0 7.1 5.0	1.6 1.5 1.5 2.7 2.9	1.6 1.7 2.2 3.5 2.6	4.2 5.1 5.2 16 37	5.2 3.7 2.5 2.1 1.8
21 22 23 24 25	0.0 0.17 1.2 0.59 1.5	7.0 26 14 5.5 3.9	2.4 2.0	3.2 2.7 2.1 7.9 43	16 9.4	7.6 4.1 3.0 2.4 2.2	1.5 1.5 1.2 0.84 0.70
26 27 28 29 30 31	0.40 2.7 1.9 0.63 0.58 3.6	28 17	3.4 2.4	6.2	2.1	1.9 1.6 1.4 1.3	0.86 5.9 3.4 2.0 1.4
MEAN MAX MIN AC-FT CFSM	0.45 3.6 0.00 28 0.19	8.38 72 0.18 499	8.61 45 1.6 529 3.66	1.5 407 2.82	4.72 16 1.5 262 2.01	5.06 37 0.92 311 2.15	4.16 42 0.34 248 1.77

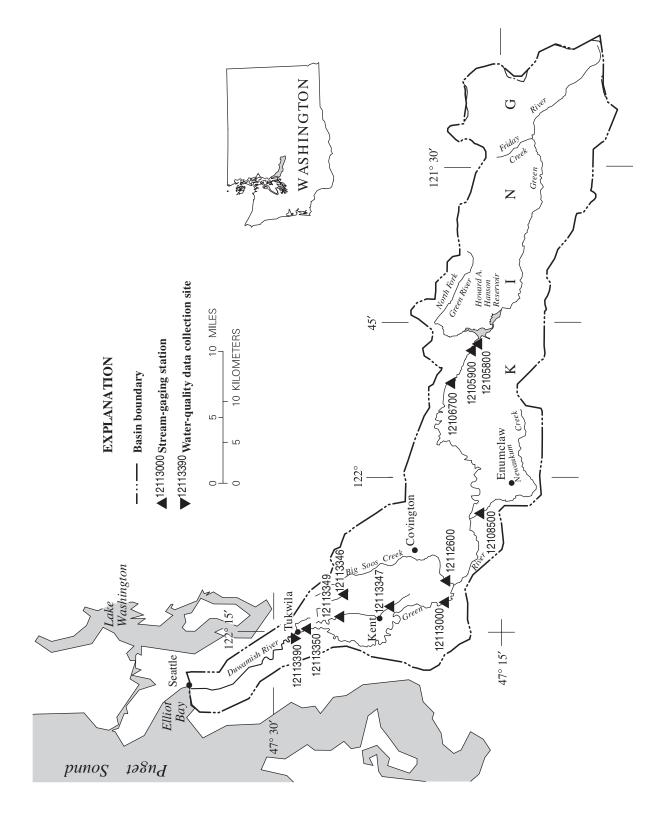


Figure 25. Location of surface-water and water-quality stations in the Duwamish River Basin.

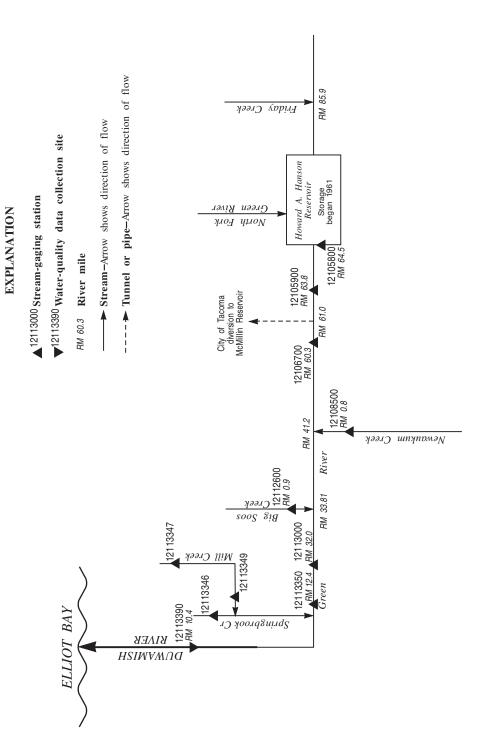


Figure 26. Schematic diagram showing surface-water and water-quality stations in the Duwamish River Basin.

12105800 HOWARD A. HANSON RESERVOIR NEAR PALMER, WA

LOCATION.--Lat $47^{\circ}16'38"$, long $121^{\circ}47'03"$, in NE $\frac{1}{4}$ sec.28, T.21 N., R.8 E., King County, Hydrologic Unit 17110013, near left bank on outlet gate structure, just upstream from Howard A. Hanson Dam on Green River, 1.4 mi upstream from Bear Creek, 5.1 mi southeast of Palmer, and at mile 64.5.

DRAINAGE AREA. -- 220 mi², approximately.

PERIOD OF RECORD. -- December 1961 to current year.

REVISED RECORDS.--WDR WA-96-1: 1985-1995 maximum and minimum contents.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929, supplementary adjustment of 1947.

REMARKS.--Reservoir is formed by earth-fill dam; completed Mar. 31, 1962; storage began Dec. 5, 1961. Capacity, 105,463 acre-ft between elevations 1,035 ft, invert of outlet tunnel, and 1,206 ft, top of spillway gates. Retained during initial flood conditions, storage is released as soon as possible after a flood to attenuate flows downstream and to maintain reservoir capacity for possible future floods. Storage is used during summer months to augment the natural river flow.

COOPERATION.--Elevations and capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 68,811 acre-ft Feb. 10, 1996, elevation, 1,182.0 ft; minimum contents observed, 34 acre-ft Nov. 2, 1962, elevation, 1,037.6 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 51,200 acre-ft June 19, elevation, 1,167.7 ft; minimum contents 777 acre-ft Dec. 16, elevation, 1,065.0 ft.

Capacity	table	(e]	levatio	on, :	in :	feet	, and	tot	cal	content	s,	in	acre-	feet)
	(Based	on	conic	metl	hod	by	Corps	of	Eng	gineers	in	198	34)	

1,045	13	1,080	2,422	1,140	24,622
1,050	64	1,090	4,081	1,150	32,982
1,055	201	1,100	6,313	1,160	42,804
1,060	439	1,110	9,271	1,170	53,902
1,065	777	1,120	13,140	1,180	66,186
1,070	1,220	1,130	18,126	1,190	79,912

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY OBSERVATION AT 0800 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2	13300 12900	3950 4320	1660 2040	2200 2020	1760 1900	2710 3600	22800 23500	43300 44000	49700 50100	50500 49900	26900 26900	22900 22600
3	12500	4320	2310	1920	1950	4280	23500	44200	50600	49200	26800	22400
4	12100	3870	1900	1790	1950	4790	24500	43700	50600	48400	26800	22300
5	11600	3290	1930	1820	1820	5510	24800	42800	50600	47700	26700	22100
6	11300	2810	1900	1920	1900	6190	25300	41800	50800	46700	26700	21800
7	11000	2460	2080	3240	2020	6760	26400	40900	50600	45600	26700	21600
8	10600	2350	1530	3650	2110	7230	27800	40600	50500	44600	26700	21300
9	10400	2130	1760	2540	2260	7430	28300	39900	50200	43800	26600	21000
10	10300	2310	2030	1920	2300	7570	29200	39400	50700	42800	26500	20800
11	10100	2390	1850	1700	2310	7780	30300	38600	50900	41900	26500	20600
12	10500	2370	1490	1650	2240	10100	30700	37900	50800	40800	26400	20300
13	10800	2370	2390	1810	2070	11800	31100	37900	50900	39700	26300	20000
14	11400	3490	3140	1440	1840	12700	35700	39000	50900	38500	26100	19800
15	12600	2170	1350	1500	1570	13200	39700	40000	50900	37300	26100	19500
16	13100	1520	1230	1890	1750	13200	39600	40300	50800	36200	25900	19300
17	13000	3110	1290	2020	1920	14100	39100	40900	50800	35000	25700	19100
18	12600	3460	1420	1890	2080	14200	39400	41900	50800	33700	25500	18900
19	12200	3200	1150	2270	1890	14300	39700	42900	51200	32700	25400	18600
20	11600	2000	1990	2620	2040	15000	39800	44200	51000	31800	25200	18400
21	10900	2000	2080	3560	1630	16300	39800	45500	50800	31000	25100	18100
22	10300	2070	2520	3600	2620	16800	39600	46300	50800	30100	24900	17800
23	10900	3840	2680	2210	2590	17100	39600	46500	50700	29400	24800	17600
24	11400	4420	2620	1470	3070	17300	39700	46800	50600	28900	24500	17200
25	10800	3870	2410	2150	2490	17300	39700	47000	50600	28400	24300	16800
26	9900	2880	2080	1790	2000	18200	39800	47700	50500	28100	24200	16400
27	8080	2030	1930	2440	1900	18900	40100	48500	50600	27800	24000	15900
28	6390	1780	1830	2650	1900	19500	40300	49300	50700	27500	23800	15400
29	4620	1560	2090	2910		20500	40500	49300	51000	27300	23600	15000
30	3870	1340	2260	2990		21300	41400	49100	50900	27100	23400	14600
31	3440		2370	2390		22100		49200		26900	23100	
MEAN	10468	2789	1978	2257	2067	12508	34057	43529	50687	37074	25552	19270
MAX	13300	4420	3140	3650	3070	22100	41400	49300	51200	50500	26900	22900
MIN	3440	1340	1150	1440	1570	2710	22800	37900	49700	26900	23100	14600
(††)	1088.1	1073.1	1078.8	1076.7	1079.9	1137.1	1160.0	1166.2	1167.1	1143.0	1137.7	1122.4
(†)	3725	1548	2255	1979	2407	22547	42804	49552	50567	26942	22963	14228
(‡)	-9680	-2177	+707	-276	+428	+20140	+20257	+6748	+1015	-23625	-3979	-8735

CAL YR 2001 MEAN 15080 MAX 31800 MIN 1150 AC-FT(†) -786 WTR YR 2002 MEAN 20264 MAX 51200 MIN 1150 AC-FT(†) +823

^{††} Monthend elevation, in feet, at 2400 hours.
† Monthend contents, in acre-feet.

[†] Change in Contents, in acre-feet.

12105900 GREEN RIVER BELOW HOWARD A. HANSON RESERVOIR, WA

LOCATION.--Lat $47^{\circ}17^{\circ}02^{\circ}$, long $121^{\circ}47^{\circ}48^{\circ}$, in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.28, T.21 N., R.8 E., King County, Hydrologic Unit 17110013, on right bank 0.7 mi upstream from Bear Creek, 0.7 mi downstream from Howard A. Hanson Dam, 5.0 mi southeast of Palmer, and at mile 63.8.

DRAINAGE AREA. -- 221 mi².

PERIOD OF RECORD.--October 1960 (monthly discharge only), November 1960 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 990 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Howard A. Hanson Reservoir (station 12105800) for flood control and during summer months to augment the natural river flow.

AVERAGE DISCHARGE.--42 years (water years 1961-2002), 1001 ft³/s, 61.51 in/yr, 725,200 acre-ft/yr, adjusted for storage in Howard A. Hanson Reservoir since December 1961.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,200 ${\rm ft}^3/{\rm s}$ Feb. 21, 1961, gage height, 14.40 ft; minimum discharge, 87 ${\rm ft}^3/{\rm s}$ Dec. 29, 1961, gage height, 3.49 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,930 ${\rm ft}^3/{\rm s}$ Jan. 8, gage height, 11.39 ft; minimum discharge, 236 ${\rm ft}^3/{\rm s}$ Aug. 11, 13, 14, gage height, 4.23 ft.

		210011	102, 002	-0 1221 12	DAIL	Y MEAN V	ALUES	DIC 2001 10	, , , , , , , , , , , , , , , , , , , ,	2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	336	1500	786	717	1020	563	978	1660	1840	1010	248	278
2	335	1580	816	707	843	529	1080	2100	1730	1000	239	277
3	333	1570	994	698	847	545	1030	2210	1790	1000	239	255
4	332	1530	937	638	843	480	1090	2050	1850	998	239	252
5	311	1400	826	604	766	445	1290	2050	1860	1020	239	266
6	287	1220	869	614	722	472	1500	1860	2000	1050	239	275
7	285	1020	1140	2960	777	480	1590	1410	1810	1040	239	283
8	284	878	1030	5590	813	536	1780	1320	1470	977	239	281
9	303	690	848	4420	822	571	1650	1340	1080	927	239	274
10	340	606	956	2840	824	573	1810	1320	1070	941	239	268
11	357	609	1020	2120	824	585	2390	1440	1340	938	239	276
12	357	608	822	1960	818	811	2920	1440	1490	948	239	273
13	359	939	2900	1970	805	1000	3500	1440	1670	963	239	268
14	363	3820	4890	1620	785	1010	4670	1600	1780	959	239	266
15	398	3770	3000	1210	623	903	4700	1810	1680	955	248	266
16	526	1680	3130	1080	536	805	3320	1690	1460	950	256	266
17	592	1380	3430	1090	546	809	2350	1500	1220	944	263	266
18	590	1470	2640	907	686	809	1850	1510	1130	895	263	270
19	780	1730	1730	824	732	814	1610	1520	1250	795	256	276
20	920	1470	1430	854	934	740	1610	1680	1180	742	246	275
21	908	1210	1200	1160	1610	773	1610	1890	1080	738	245	273
22	901	1240	1030	1610	3090	802	1580	2250	1050	677	258	273
23	1370	1780	1040	1460	2990	758	1470	2080	996	578	261	273
24	1840	2050	1030	1780	2660	758	1370	1900	891	513	261	271
25	2040	1990	1010	2890	2260	760	1250	1820	811	456	261	329
26	2220	1750	910	2200	1690	764	1180	1820	747	412	259	375
27	2140	1350	817	1450	1330	769	1240	1930	732	400	256	373
28	1980	1150	663	1200	935	774	1240	2660	773	399	266	370
29	1460	1120	587	1050		861	1180	2950	981	362	271	369
30	1150	899	595	1260		916	714	2660	1070	322	274	367
31	1260		678	1350		921		2150		277	279	
TOTAL	25657	44009	43754	50833	32131	22336	55552	57060	39831	24186	7778	8684
MEAN	827.6	1467	1411	1640	1148	720.5	1852	1841	1328	780.2	250.9	289.5
MAX	2220	3820	4890	5590	3090	1010	4700	2950	2000	1050	279	375
MIN	284	606	587		536	445	714	1320	732	277	239	252
AC-FT	50890	87290	86790	100800	63730	44300	110200	113200	79000	47970	15430	17220
MEAN†	670	1431	1423	1634	1156	1048	2194	1950	1345	396	186	143
CFSM†	3.03	6.48	6.44	7.39	5.23	4.74	9.93	8.82	6.09	1.79	0.84	0.65
IN.†	3.50		7.42	8.53	5.44	5.47	11.07	10.17	6.79	2.06	0.97	0.72
AC-FT†	41210	85110	87500	100500	64160	64440	130500	119900	80020	24340	11450	8480

CAL YR 2001 TOTAL 302835 MEAN 829.7 MAX 4890 MIN 217 AC-FT 600700 MEAN† 828 CFSM† 3.75 IN.† 50.90 AC-FT† 599900 WTR YR 2002 TOTAL 411811 MEAN 1128 MAX 5590 MIN 239 AC-FT 816800 MEAN† 1129 CFSM† 5.11 IN.† 69.37 AC-FT† 817600

 $[\]dagger$ Adjusted for change in contents in Howard A. Hanson Reservoir.

12106700 GREEN RIVER AT PURIFICATION PLANT, NEAR PALMER, WA

LOCATION.--Lat $47^{\circ}18^{\circ}19^{\circ}$, long $121^{\circ}50^{\circ}58^{\circ}$, in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.13, T.21 N., R.7 E., King County, Hydrologic Unit 17110013, on left bank at City of Tacoma purification plant, 0.7 mi downstream from diversion dam, 2 mi southeast of Palmer, and at mile 60.3.

DRAINAGE AREA. -- 231 mi².

PERIOD OF RECORD. -- July 1963 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 859.53 ft above NGVD of 1929. Prior to Oct. 1, 1987, water-stage recorder at site 0.1 mi upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Since Dec. 5, 1961, flow regulated by Howard A. Hanson Reservoir (station 12105800), 4.1 mi upstream for flood control and during summer months to augment the natural river flow. City of Tacoma diverted an average daily discharge of about 64 ft³/s upstream from station for municipal supply, of which a small amount is returned to the river 300 ft upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--39 years (water years 1964-2002), 958 ft³/s, 693,900 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,500 ft³/s Feb. 12, 1981, gage height, 12.05 ft, at site then in use; minimum discharge, 20 ft³/s part or all of each day Oct. 26, 27, Nov. 3, 4, 6, 1974, gage height, 3.90 ft, at site then in use;

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 23, 1959, had a discharge of $27,800~{\rm ft}^3/{\rm s}$, on basis of slope-area measurement at site 0.5 mi downstream from present gage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,760 ft³/s Jan 8, gage height, 9.41 ft; minimum discharge, 91 ft³/s Aug. 13.

	DI	SCHARGE,	CUBIC FEE	ET PER SEC	CTOBER 20 ALUES	01 TO SEPTE	MBER 20	02				
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	227	1430	800	666	1010	585	1050	1620	1810	934	129	149
2	226	1480	819	662	830	521	1140	2060	1700	920	118	153
3	224	1450	962	652	832	533	1100	2160	1750	903	114	139
4	220	1410	916	597	823	465	1130	2000	1820	891	116	127
5	202	1310	794	563	748	424	1320	2010	1820	905	135	142
6	177	1140	854	580	702	450	1540	1830	1930	932	124	150
7	176	958	1100	2860	767	458	1630	1410	1780	930	117	158
8	182	806	1020	5400	812	511	1810	1300	1450	866	116	158
9	200	637	860	4430	813	550	1690	1260	1100	804	114	152
10	243	548	935	2830	815	553	1920	1230	1060	817	114	145
11	269	547	994	2090	814	710	2470	1350	1290	814	116	149
12	265	548	811	1910	798	969	3040	1340	1390	821	115	148
13	268	858	3070	1880	780	1170	3670	1350	1510	837	116	143
14	286	3740	4910	1570	756	1140	4900	1490	1600	831	114	142
15	315	3810	3040	1170	605	1050	4720	1670	1510	825	119	141
16	491	1770	3170	1020	502	886	3380	1580	1320	820	127	144
17	552	1420	3520	1030	516	863	2400	1430	1100	814	134	141
18	510	1460	2680	880	652	858	1870	1420	1020	771	136	143
19	688	1670	1780	804	725	897	1620	1420	1110	680	132	154
20	823	1450	1410	891	899	988	1610	1560	1060	629	124	163
21	812	1220	1180	1160	1630	893	1600	1750	957	625	120	163
22	814	1310	990	1530	3210	887	1580	2180	930	570	133	160
23	1290	1880	984	1430	3180	824	1480	2050	884	465	136	196
24	1730	2040	971	1880	2800	824	1380	1850	784	395	136	159
25	1890	1930	951	3050	2330	833	1260	1770	707	340	136	210
26 27 28 29 30 31	2030 1940 1780 1330 1040 1210	1670 1300 1110 1120 930	862 764 624 540 545 626	2290 1430 1170 1020 1200 1310	1710 1340 970 	839 844 850 938 992 994	1200 1260 1250 1210 737	1780 1880 2610 2920 2640 2130	646 643 707 975 1020	291 274 275 241 201 195	136 132 139 162 146 150	257 254 254 259 252
TOTAL	22410	42952	43482	49955	32369	24299	56967	55050	37383	20616	3956	5105
MEAN	722.9	1432	1403	1611	1156	783.8	1899	1776	1246	665.0	127.6	170.2
MAX	2030	3810	4910	5400	3210	1170	4900	2920	1930	934	162	259
MIN	176	547	540	563	502	424	737	1230	643	195	114	127
AC-FT	44450	85200	86250	99090	64200	48200	113000	109200	74150	40890	7850	10130
STATIST	TICS OF M	ONTHLY MI	EAN DATA E	FOR WATER	YEARS 1963	- 2002	, BY WATE	R YEAR (WY)				
MEAN	473.0	1269	1572	1599	1456	1155	1325	1259	705.4	324.2	161.3	228.8
MAX	1198	4074	4591	3225	3481	3801	2376	2605	2514	809	306	757
(WY)	1996	1991	1976	1984	1982	1972	1985	1972	1974	1972	1974	1968
MIN	66.2	82.7	371	399	367	432	286	381	129	118	98.6	109
(WY)	1975	1988	1986	1979	1969	1981	1992	1994	1987	1965	1969	1979
SUMMARY	STATIST	ICS	FOR	2001 CALE	NDAR YEAR	1	FOR 2002	WATER YEAR		WATER YEAR	RS 1963 -	2002
LOWEST HIGHEST LOWEST ANNUAL ANNUAL 10 PERC 50 PERC		EAN EAN AN Y MINIMUN AC-FT) EDS EDS		273799 750.1 4910 106 112 543100 1450 547 129	Dec 14 Aug 18 Aug 15		394544 1081 5400 114 115 782600 2020 897 144	Jan 8 Aug 3 Aug 8		957.8 1562 573 10900 20 22 693900 2070 616 133	Dec 5 Nov 4 Oct 21	1974

12108500 NEWAUKUM CREEK NEAR BLACK DIAMOND, WA

LOCATION.--Lat $47^{\circ}16'33"$, long $122^{\circ}03'30"$, in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.28, T.21 N., R.6 E., King County, Hydrologic Unit 17110013, on right bank 0.1 mi downstream from West Whitney Hill bridge, 0.8 mi upstream from mouth, and 3.5 mi southwest of Black Diamond.

DRAINAGE AREA. -- 27.4 mi2.

Date

Time

1000

PERIOD OF RECORD.--July 1944 to November 1950, water years 1951-52 (annual maximum), September 1952 to current year.

REVISED RECORDS.--WSP 1396: 1946(M), 1949(P). WSP 1932: Drainage area. WDR WA-74-1: 1973(M). WDR WA-76-1: 1975. WDR WA-00-1:

GAGE.--Water-stage recorder. Elevation of gage is 310 ft above NGVD of 1929, from topographic map. November 1950 to September 1952 stilling well with nonrecording gage only.

REMARKS.--Records good except for those above 80 $\mathrm{ft^3/s}$, which are fair and those above 200 $\mathrm{ft^3/s}$, which are poor. Many small diversions upstream from station for irrigation and domestic use. No regulation.

AVERAGE DISCHARGE.--56 years (water years 1945-50, 1953-2002), $59.8~{\rm ft}^3/{\rm s}$, $29.63~{\rm in/yr}$, $43,290~{\rm acre-ft/yr}$.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,640 ft^3/s Feb. 8, 1996, gage height, 3.95 ft from rating curve extended above 1,260 ft^3/s ; minimum discharge, 8.0 ft^3/s Oct. 13, 14, 1952.

Date Time

Discharge Gage height (ft³/s) (ft)

(ft³/s)

No other peak greater than base discharge.

 $\hbox{\it EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 450 ft}^3/s \ \hbox{\it and maximum (*):}$

*3.02

Discharge Gage height (ft³/s) (ft)

*488

Minimum disc	harge, 9	.8 ft ³ /s O	ct. 7.				5			2		
	J .			C FEET PE	R SECOND, DAILY	WATER YE MEAN VA		R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	36	119	61	122	62	64	49	32	40	21	15
2	12	31	96	85	94	58	61	48	31	35	19	15
3	12	25	102	65	85	55	59	47	30	32	19	17
4	11	23	82	58	79	53	57	45	29	31	20	15
5	11	43	92	54	78	59	55	47	40	29	24	15
6 7	11 11	34	106	59	80	63	55	49	32 30	28 27	27	14
8	13	26 22	89 77	185 210	92 186	61 57	52 49	48 45	30	e27	23 20	14 14
9	16	19	81	138	117	53	56	43	30	29	19	14
10	17	18	97	97	92	49	78	41	27	28	19	14
11	21	17	112	80	84	118	75	40	26	27	19	14
12	16	19	84	79	74	181	74	39	25	26	18	13
13	16	41	183	70	70	142	110	39	23	25	e17	13
14 15	18 18	291 347	252 176	65 60	66 62	98 90	240 175	43 38	23 23	25 e24	e17 e16	13 13
16	17	264	213	58	60	88	114	37	23	24	e16	13
17	17	166	237	54	59	94	100	38	23	24	16	14
18	16	75	162	52	64	89	80	37	25	23	16	14
19	17	74	149	76	66	149	73	36	28	23	16	13
20	19	72	115	118	64	422	69	38	24	23	24	14
21	19	81	95	136	119	249	66	38	22	23	18	13
22	24	145	81	101	111	160	63	39	21	23	17	13
23	32	200	73	77	156	115	60	39	20	23	16	13
24 25	26 39	128 86	67 63	90 221	156 100	96 88	57 55	36 34	20 20	23 23	15 15	13 12
26	26	76	60	210	80	81	53	34	19	23	16	12
27 28	35 34	66 118	58 62	131 98	71 67	78 73	74 65	33 39	19 40	24 23	16 15	12 12
29	23	165	57	82		70	57	40	71	24	15	12
30	23	136	52	104		67	52	36	51	23	15	12
31	51		59	133		65		34		22	14	
TOTAL	633	2844	3351	3107	2554	3183	2298	1249	857	804	558	405
MEAN	20.4	94.8	108	100	91.2	103	76.6	40.3	28.6	25.9	18.0	13.5
MAX	51	347	252	221	186	422	240	49	71	40	27	17
MIN AC-FT	11 1260	17 5640	52 6650	52 6160	59 5070	49 6310	49 4560	33 2480	19 1700	22 1590	14 1110	12 803
CFSM	0.75	3.46	3.95	3.66	3.33	3.75	2.80	1.47	1.04	0.95	0.66	0.49
IN.	0.86	3.86	4.55	4.22	3.47	4.32	3.12	1.70	1.16	1.09	0.76	0.55
STATIST	CICS OF M	ONTHLY MEA	N DATA F	OR WATER	YEARS 1944	- 2002,	BY WATER	YEAR (WY)				
167777	04.5		0.5		105		50.4	40.5	20.4	06.0		
MEAN MAX	24.7 58.9	66.3 215	97.6 225	115 252	105 267	88.5 215	69.4 134	48.5 97.0	39.4 98.1	26.2 48.6	20.0 32.2	19.7 39.2
(WY)	1956	1991	1956	1975	1996	1950	1991	1984	1990	1997	1976	1959
MIN	9.42	9.99	11.2	37.4	34.4	40.7	40.0	31.0	20.7	16.8	12.9	11.1
(WY)	1953	1953	1953	1977	1977	1992	1977	1992	1992	1995	1958	1994
SUMMARY	STATIST	ICS	FOR 2	2001 CALE	NDAR YEAR	F	OR 2002 W	ATER YEAR		WATER YEAR	S 1944 -	2002
ANNUAL	TOTAL			17106			21843					
ANNUAL				46.9			59.8			59.8		
	ANNUAL I									85.9		1956
	ANNUAL M DAILY M			347	Nov 15		422	Mar 20		33.7 1670	Feb 9	2001
	DAILY ME			11	Aug 20		11	Oct 4		8.3	Oct 11	
		Y MINIMUM		11	Oct 1		11	Oct 1		8.3	Oct 11	
ANNUAL	RUNOFF (.	AC-FT)		33930			43330			43290		
	RUNOFF (1.7			2.18			2.18		
	RUNOFF (ENT EXCE			23.2 94	4		29.66 120	0		29.63 117		
	ENT EXCE			34			41			41		
	ENT EXCE			13			15			17		

e Estimated

12112600 BIG SOOS CREEK ABOVE HATCHERY, NEAR AUBURN, WA

LOCATION.--Lat 47°18'45", long 122°09'51", on west line NW $\frac{1}{4}$ sec.15, T.21 N., R.5 E., King County, Hydrologic Unit 17110013, on left bank 0.2 mi upstream from fish hatchery, 2.7 mi east of Auburn, and at mile 0.9.

DRAINAGE AREA.--66.7 mi², excludes 3.67 mi² in vicinity of Youngs Lake (flow from which has been diverted to Cedar River since

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

Time

2245

Date

Nov. 14 Dec. 16

GAGE.--Water-stage recorder. Datum of gage is 77.2 ft above NGVD of 1929.

Discharge Gage height (ft³/s) (ft)

*725

650

REMARKS.--Records good, except for estimated daily discharges, which are fair. City of Seattle diverts probably less than 2 ft³/s from Youngs Lake into Little Soos Creek, a tributary, during low flows. Prior to October 1966, fish hatchery 0.5 mi upstream from station diverted up to 19 ft³/s which was returned downstream from the station. U.S Geological Survey satellite telemeter at station. Chemical analyses October 1962 to September 1971, at site 1.0 mi upstream.

Time

0800

Discharge Gage height (ft³/s) (ft)

4.95

460

AVERAGE DISCHARGE.--36 years (water years 1967-2002), 125 ft^3/s , 25.45 $\mathrm{in/yr}$, 90,500 acre-ft/yr.

5.53 *5.59

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,200 ft³/s Feb. 9, 1996, gage height, 8.88 ft, estimated from slope-area measurement of peak flow; minimum discharge, 11 ft³/s Sept. 5, 1963, gage height, 1.07 ft.

Date Apr. 14

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 440 ft^3/s and maximum (*):

Dec. 16	2245		650	~5.59								
Minimum disc	Minimum discharge, 20 ft ³ /s Sept. 24, 27. DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002											
		DISCHAR	RGE, CUBI	C FEET PE		WATER YE MEAN VA		R 2001 TO :	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	63	287	184	301	198	159	127	72	50	31	26
2	29	59	288	208	270	187	153	122	71	44	29	26
3	26	54	297	191	249	179	148	119	69	43	33	29
4	27	50	281	178	231	173	144	115	68	44	35	23
5	26	59	261	170	249 231 225	170	139	117	71	43	34	24
6 7	24 24	54	262 242	177	226 234 334 295 255	167 159	139 134	113 113	66 64	42 43	31 31	24 26
8	26	48 45 42	242	314	234	159	134	109	66	43 52	31	26 26
9	26	42	217	200	334	1/17	133	106	66	46	31	26
10	28	41	226	260	255	151 147 143	171	108	62	42	34	22
11	29	40	229	229 224 211 195 183	227	206	199	104	59	40	34	21
12	28	43	216	224	210	e260	179	100	58	38	32	23
13	27	71	354	211	201	e240	245	97	55	38	27	23
14	35	506	529	195	195	210	437	101	53	38	27	24
15	35	583	460	183		194	372	95	53	37	27	25
16	34	451	539	174	174	195 206 193 210	300	92	50	35	27	26
17	32	329	593	167	170	206	264	91	47	35	29	24
18	30	246	481	164	173	193	233	90	52	35	29	24
19	30	226	416	191			209	89	55	36	29	24
20	30	245	361	222	170	352	193	94	50	35	26	23
21	32	238	316	239	237	343	180	92	46	35	27	24
22	36	275	283	214	303	293	172	88	45	34	28	25
23	35	327	258	194	333	257	161	85	44	31	26	24
24	e35	292	240	212	340	234	152	82	43	31	27	21
25	e40	249	223	365	291	216	145	81	41	31	27	21
26	45	219	211 202 201 190 180	402 343 291	252	202 191 181 174 168	141	79	40	32	27	23
27	60	195	202	343	227	191	158	78	40	34	23	23
28	e56	234	201	291	211	181	151	81	47	35	23	24
29	e52	285	190	255		174	140	87	72		23	27
30	46	284	180	258		168	132	80	58	31	22	26
31	66		101	291 255 258 290		162		75		31 31		
TOTAL	1079	5853	9245	7383	6695 239 340 170	6361	5612	3010	1683	1175	884	727
MEAN	34.8	105	200	220	220	205	107	97 1	56 1	27 0	20 5	24.2
MAX	66	583	593	402	340	352	437	127	72	52	35	29.2
MIN	24	40	180	164	170	143	129	75	40	31	22	21
AC-FT	2140	11610	18340	14640	13280	12620	11130	5970	3340	2330	1750	1440
CFSM	0.52	2.93	4.47	3.57	3.58	3.08	2.80	1.46	0.84	0.57	0.43	0.36
IN.	0.60	3.26	5.16	4.12	3.73	3.55	3.13	1.68	0.94	1175 37.9 52 31 2330 0.57 0.66	0.49	0.41
STATIST	rics of M	ONTHLY MEA	AN DATA F	OR WATER	YEARS 1967	- 2002,	BY WATER	YEAR (WY)				
MEAN	42.7	112	215	252	242	209	154	96.9	71.5	44.6	32 9	33 2
MAX	90.9	433	401	ESE	555	453	343	174	150		32.9 46.8	57 0
(WY)	1998	1991	1976	1997	1996	1972	1991	1984	1990		1976	1978
MIN	25.9	33 1	58 0	84.3	73.6	102	80.5	57.0	34.7		22.8	20.4
(WY)	1988	1994	58.0 1977	1977	1977	2001	1977	1985	1992	1985	1994	1995
SUMMARY	Y STATIST	ICS	FOR	2001 CALE	NDAR YEAR	F	OR 2002 W	ATER YEAR		WATER YEARS	3 1967 -	2002
ANNUAL	TOTAL			37881			49707					
ANNUAL	MEAN			104			136			125		
HIGHEST	r annual									195		1991
LOWEST	ANNUAL M	EAN								63.5		1977
	r daily M			593	Dec 17		593	Dec 17 Sep 11 Sep 20		3580 18 18	Feb 9	1996
LOWEST	DAILY ME	AN		2.4	Oct 6 Oct 3		21 23	Sep 11		18	Sep 16	1995
		Y MINIMUM		26	Oct 3		23	Sep 20		18	Sep 18	1995
ANNUAL	RUNOFF (AC-FT)		75140			98590			90500		
ANNUAL	RUNOFF (CFSM)		1.56	6		2.04			1.87		
	RUNOFF (21.13	3		27.72	2		25.45		
	CENT EXCE			226			290			276		
	CENT EXCE			75			95			81		
90 PERC	CENT EXCE	EDS		30			26			30		

e Estimated

12113000 GREEN RIVER NEAR AUBURN, WA

LOCATION.--Lat $47^{\circ}18^{\circ}45^{\circ}$, long $122^{\circ}12^{\circ}10^{\circ}$, in NW $\frac{1}{4}$, NW $\frac{1}{4}$, sec.17, T.21 N., R.5 E., King County, Hydrologic Unit 17110013, on left bank 1.2 mi east of Auburn, 1.8 mi downstream from Big Soos Creek, and at mile 32.0.

DRAINAGE AREA.--399 mi^2 , excludes 3.67 mi^2 in the vicinity of Youngs Lake, flow from which has been diverted to Cedar River basin since about 1935.

PERIOD OF RECORD. -- August 1936 to current year.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Prior to Oct. 19, 1936, nonrecording gage at same site and datum.

REMARKS.--Records good. Since Dec. 5, 1961, flow regulated by Howard A. Hanson Reservoir (station 12105800), 32.5 mi upstream from station, for flood control and during summer months, to augment the natural river flow. City of Tacoma diverted an average daily discharge of about 64 ft³/s from river at headworks near Palmer, 29 mi upstream from station, for municipal use. Minor diversions on upstream tributaries for domestic use. U.S. Geological Survey satellite telemeter at station. Water temperatures March 1952 to September 1986.

AVERAGE DISCHARGE.--25 years (water years 1937-61), 1,346 ft^3/s , 974,500 acre-ft/yr, unregulated. 41 years (water years 1962-2002), 1,336 ft^3/s , 967,700 acre-ft/yr, regulated.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,100 ft³/s Nov. 23, 1959, elevation, 69.75 ft; minimum discharge, 81 ft³/s Sept. 23, 1952; minimum elevation, 52.76 ft Oct. 22, 29-31, 1987.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,000 ft3/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 15	0015	7,200	60.27	Jan. 08	2315	7,080	60.22
Dec. 14	0730	7,160	60.28	Apr. 14	2345	*7,460	*60.49

Minimum discharge, 220 ft³/s Sep. 4; elevation 52.99 ft.

			,		DAILY	MEAN V	ALUES					
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	366	1740	1570	1160	2010	1210	1550	1770	2240	1220	339	255
2	361	1840	1530	1230	1590	1080	1650		2100	1190	282	259
3	356	1800	1610	1160	1540	1050	1680		2070	1170	272	278
4	353	1750	1710	1100	1490	1030	1560		2180	1150	271	234
5	345	1720	1480	1010		907	1750	2540	2220	1150	276	235
6	310	1520	1500	1030		944	2050		2240	1190	294	248
7	301	1340	1650	2470	1410	925	2080	2050	2330	1190	267	257
8	306	1050	1760	6380	1750	916	2340		1850	1210	258	261
9	314	950	1470	6270	1610	968	2260		1610	1060	255	261
10	352	749	1520	4090	1520	958	2390	1620	1290	1080	255	248
11	413	734	1680	3020	1470	1200	3020		1510	1070	255	243
12 13	402	741 915	1520 2780	2620	1410 1370	1630 1820	3630	1770	1700	1050 1080	251 243	252 242
14	401 421	3800	6790	2580 2320	1320	1730	4560	1/60	1020	1080	243	239
15	443	5880	4790	1870	1230	1660	4560 6310 7020	1760 1850 2050	1890	1070	237	241
16	516	3270	4330	1560	1010	1490	5100	2100	1700	1060	247	247
17	725	2070	5230	1530	1000	1490	3880	1820	1470	1050	252	247
18	658	2030	4140	1450	1060	1450	2880		1330	1030	255	241
19	719	2090	3190	1350	1260	1580	2480		1360	933	255	246
20	1020	2240	2360	1490	1270	2480	2380		1400	837	255	258
21	1030	1830	2140	1710	2030	2090	2330	2100	1250	827 808 696 611	245	257
22	1030	2020	1760	2120	3700	1910	2290	2500	1190	808	245	257
23	1300	2580	1680	2140 2220 3980	4410 3830	1690	2160	2610	1160 1060 962	696	250	259
24	1960	2860	1620	2220	3830	1600	2030	2300	1060	611	250	282
25	2190	2640	1560	3980	3370	1550	2160 2030 1880			303	251	252
26	2340	2350	1480	4030	2600	1520	1770	2180 2180 2860 3520 3290	879	507 474 461 460 404 374	254	338
27	2410	1960	1340	2450	2080	1500	1870	2180	850	474	245	349
28	2200	1760	1260	2100	1810	1470	1840	2860	952	461	239	354
29	1910	1930	1070	1760		1490	1800	3520	1210	460	254	368
30	1350	1830	1030	1870		1560	1350	3290	1390	404	261	358
31	1460		1080	2180		1550				3,1	254	
TOTAL	28262	59989	68630	72250	51940			68830	47083	28045 904.7	8007	8066
MEAN	911.7	2000	2214	2331	1855	1434	2663	2220	1569	904.7	258.3	268.9
MAX	2410	5880	6790	6380	4410	2480	7020	3520	2330	1220	339 237	368 234
MIN	301	734	1030	1010	1000			1620	850			
AC-FT	56060	119000	136100	143300	103000	88160	158500	136500	93390	55630	15880	16000
STATIS	TICS OF N	MONTHLY M	EAN DATA	FOR WATER	YEARS 1962	- 2002	, BY WATE	R YEAR (WY)				
MEAN	630.3	1593	2157	2289	2110	1701	1807	1592	986.5	532.0	311.8	368.2
MAX		5045	5654	3908	4969	4994	3023	2896	2849	1069	514	955
(WY)	1996	1991	1976	1975	1996	1972	1989	1972	1974	1972	1974	1968
MIN	173	194	597	703	720	891	601	603	330	262	227	210
(WY)	1988	1988	5654 1976 597 2001	1988	1977	1963	1992	1592 2896 1972 603 1994	1987	1987	1989	1989
SUMMAR	Y STATIST	TICS	FOR	2001 CAL	ENDAR YEAR		FOR 2002	WATER YEAR		WATER YE	ARS 1962 -	2002
ANNUAL	TOTAL			405145			565440					
ANNUAL	MEAN			1110			1549			1336		
HIGHES'	T ANNUAL	MEAN								2071		1972
LOWEST	ANNUAL N	IEAN								785		1977
HIGHES'	T DAILY N	IEAN		6790	Dec 14		7020	Apr 15		11600	Dec 3	1975
LOWEST	DAILY ME	EAN		250	Aug 19		234	Sep 4		152	Oct 30	1987
ANNUAL	SEVEN-DA	AY MINIMU	M	256	Sep 5		243	Sep 13		157	Oct 20	1987
ANNUAL	RUNOFF	(AC-FT)		803600			1122000			967700		
10 PER	CENT EXCE	EEDS		2020			2610			2700		
50 PER	CENI EXCE	SEDS		821			1490			9.78		
90 PER	CENI EXCE	SEUS		304			255	Apr 15 Sep 4 Sep 13		270		

e Estimated

duwamish river basin 161

12113346 SPRING BROOK CREEK NEAR ORILLIA, WA

LOCATION.--Lat $47^{\circ}25^{\circ}53^{\circ}$, long $122^{\circ}13^{\circ}35^{\circ}$, in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.31, T.23 N., R.5 E., King County, Hydrologic Unit 17110013, on right bank 50 ft upstream from 84th Avenue South (East Valley Highway), 1.2 mi upstream from confluence with Mill Creek, and 1.0 mi southeast of Orillia.

DRAINAGE AREA. -- 8.44 mi².

PERIOD OF RECORD. -- October 1993 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is NGVD of 1929 (City of Kent benchmark). U.S. Geological Survey satellite telemeter at station.

REMARKS.--Records poor. Natural flow affected by urbanization and construction of flood-control catchments.

AVERAGE DISCHARGE.--9 years (water years 1994-2002), 10.6 ft³/s, 17.07 in/yr, 7,680 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 450 $\rm ft^3/s$ Feb. 9, 1996, elevation, 19.55 ft; minimum discharge, 0.74 $\rm ft^3/s$ Aug. 2-5, 1995.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 324 ft³/s Nov. 14, elevation, 19.40 ft; minimum discharge, 1.7 ft³/s Sept. 14.

		DISCHA	RGE, CUBI	C FEET PER		WATER YE MEAN VA		R 2001 TO	SEPTEMB	ER 2002		•
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	3.1 2.9 2.8 2.8 2.7	11 15 5.3 8.9	30 28 25 19 16	20 23 10 8.5 9.6	14 10 9.3 7.9		4.2 4.0 3.9 3.9 3.8				2.8 2.8 2.9 3.0	2.1 3.1 4.8 2.7 2.3
6 7 8 9 10	2.9 2.8 9.0 3.5		26 10 9.1 11 16		18 30 43 14 10					3.2 13 38 5.1 4.6		2.2 2.6 2.3 2.3 2.1
11 12 13 14 15	10 3.9 4.2 7.5 6.2									4.1 3.7 3.5 3.5 3.9		
16 17 18 19 20	7.0 5.6 3.4 4.2 3.6			7.3 6.9 11 21 26						3.6 3.3 3.2 3.2 3.2		
21 22 23 24 25										3.1 3.2 3.0 3.5 3.0		
26 27 28 29 30 31	11 56 13 4.5 11	6.1 4.5 46 29 22	8.9 8.8 13 8.4 7.9	30 18 13 11 18 24	9.2 7.7 6.9 	5.4 5.0 4.6 4.4 4.3	9.0 16 6.3 5.4 5.1	4.0 4.6 7.8 7.8 4.2 4.0	3.5 5.1 20 34 5.7	3.5 3.2 3.2 3.4 3.0 3.0	2.4 2.3 2.3 2.3 2.1 2.0	2.0 2.0 2.0 6.8 2.5
TOTAL MEAN MAX MIN AC-FT CFSM IN.	310.2 10.01 56 2.7 615 1.19 1.37	737.0 24.57 220 3.1 1460 2.91 3.25	672.6 21.70 86 7.9 1330 2.57 2.96	593.1 19.13 67 6.9 1180 2.27 2.61	431.1 15.40 44 6.2 855 1.82 1.90	329.1 10.62 41 4.2 653 1.26 1.45	327.6 10.92 55 3.5 650 1.29 1.44	3.8	3.5 372 0.74	151.8 4.897 38 3.0 301 0.58 0.67	2.0	1.8
STATIS'	TICS OF M	ONTHLY ME.	AN DATA F	OR WATER Y	EARS 1994	- 2002,	BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	9.253 15.5 2001 4.45 1994	19.37 43.5 2000 5.08 1994	1999	17.67 25.0 1996 7.46 1994	16.19 35.8 1996 6.97 1997	11.94 15.8 1998 6.41 1996	9.111 15.0 1996 5.81 1995	1996	5.744 10.5 2001 2.99 1996	5.92 1997	4.330 7.51 2001 2.14 1994	
SUMMAR	Y STATIST	TICS	FOR	2001 CALEN	IDAR YEAR	F	OR 2002 W	ATER YEAR		WATER YEAR	RS 1994 -	2002
LOWEST HIGHES' LOWEST ANNUAL ANNUAL ANNUAL ANNUAL 10 PERO 50 PERO	MEAN I ANNUAL ANNUAL M I DAILY M DAILY ME SEVEN-DA RUNOFF	MEAN MEAN EAN MY MINIMUM (AC-FT) (CFSM) (INCHES) MEDS MEDS		3932.3 10.77 220 1.9 2.1 7800 1.28 17.33 25 5.5 2.2	Nov 14 Jul 12 Jul 2		220 1.8 2.0 8030 1.33 17.85 2.6 5.6 2.5	Nov 14 Sep 14 Sep 21		10.66 14.5 6.22 303 0.74 0.87 7680 1.26 17.07 23 5.4 2.3	2 Feb 8 4 Aug 3 7 Sep 19	1996 1994 1996 1995 1995

e Estimated

12113347 MILL CREEK AT EARTHWORKS PARK, AT KENT, WA

LOCATION.--Lat 47°23'00", long 122°13'25", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.19, T.22 N., R.5 E., King County, Hydrologic Unit 17110013, at control-manhole of flood-detention basin in Earthworks Park, 250 ft upstream from Titus St., and 0.6 mi east of Kent City

DRAINAGE AREA.--2.49 mi².

PERIOD OF RECORD .-- January 1994 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is NGVD of 1929 (City of Kent benchmark).

REMARKS.--Records poor. Natural flow affected by urbanization and construction of flood-control catchments. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--8 years (water year 1995-2002), 4.29 ft³/s, 23.40 in/yr, 3,110 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, not determined Feb. 9, 1996, elevation, 47.52 ft, affected by backwater from debris caught on downstream culvert grates; maximum elevation, 48.05 ft May 13, 1996, affected by backwater from debris caught on downstream culvert grates; minimum discharge, 0.31 ft³/s July 5, 1995, Aug. 12, 1997.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 233 ${\rm ft}^3/{\rm s}$ Nov. 14, elevation, 47.39 ft; minimum discharge, 0.44 ${\rm ft}^3/{\rm s}$ Nov. 19, but may have been less during period of estimated record in July and Aug.

-		DISCHA	RGE, CUBI	C FEET PER			YEAR OCTOBER VALUES	2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	0.87 0.85 0.85 0.85 0.84	2.0 3.4 1.3 2.5 2.4	6.8 10 6.6 2.8 2.4	5.3 4.1 2.5 2.2 2.4	5.6 4.9 4.7 4.2 5.5	3.6 3.4 3.2 3.2 3.9	1.9 1.9 1.8 1.8	1.6 1.7 1.6 1.5	1.3 1.3 1.2 1.3	1.1 e0.98 e0.98 e0.96 e0.96	e0.96 0.95 0.96 0.99	0.78 1.1 1.0 0.80 0.78
6 7 8 9 10	0.85 0.89 0.97 0.85 2.5	1.2 1.0 0.92 0.85 0.82	3.7 1.8 1.5 1.3 2.2	5.8 19 13 7.6 5.7	6.5 9.7 13 7.8 5.5	3.1 3.0 2.8 2.8 2.7	1.7 1.7 1.7 3.3 4.9	1.5 1.5 1.5 1.7	1.2 1.2 1.2 1.1	e1.1 e7.0 e3.0 e1.2 e1.1	0.97 0.94 0.94 0.99	0.78 0.80 0.76 0.76 0.74
11 12 13 14 15							3.6 3.0 19 20 8.9					0.74 0.73 0.73 0.73 0.75
16 17 18 19 20							7.4 4.5 3.2 2.6 2.3				0.88 0.87 0.87 0.91 0.95	0.82 1.2 0.78 0.76 0.75
							2.3 2.2 1.9 1.8 1.9				e0.90 e0.86 e0.86 e0.82 e0.82	0.75 0.75 0.75 0.75 0.74
26 27 28 29 30 31	1.5 7.1 1.7 1.2 2.4 6.9	4.3 2.5 8.6 7.2 4.2	2.3 2.3 3.1 2.2 2.1 3.1	25 19 11 8.3 10 7.7	5.0 4.3 4.0 	2.3 2.2 2.1 2.0 1.9	3.0 5.0 2.2 2.0 1.9	1.3 1.4 2.1 e1.5 e1.3	0.96 1.0 e5.0 2.7 1.2	0.96 0.96 0.96 0.96 0.99 e0.98	e0.80 e0.79 0.78 0.78 0.77	0.74 0.75 0.74 1.1 0.77
TOTAL MEAN MAX MIN AC-FT CFSM IN.	55.67 1.80 7.1 0.84 110 0.72 0.83	325.30 10.8 124 0.81 645 4.35 4.86	229.4 7.40 42 1.3 455 2.97 3.43	257.6 8.31 32 2.2 511 3.34 3.85	173.6 6.20 13 3.5 344 2.49 2.59	131.2 4.23 12 1.9 260 1.70 1.96	121.2 4.04 20 1.7 240 1.62 1.81	47.7 1.54 2.5 1.3 95 0.62 0.71	40.28 1.34 5.0 0.96 80 0.54 0.60	38.80 1.25 7.0 0.96 77 0.50 0.58	0.99	24.13 0.80 1.2 0.73 48 0.32 0.36
STATIST	TICS OF N	MONTHLY ME	AN DATA FO	OR WATER Y	EARS 1994	- 200	2, BY WATER Y	ZEAR (WY)				
MEAN MAX (WY) MIN (WY)	2.25 4.44 1998 1.25 2000	8.08 13.2 2000 2.82 2001	8.67 12.6 1996 2.29 2001	8.48 15.1 1997 2.73 2001	1996	5.15 8.34 1999 2.55 2001	8.03 1996 1.69	2.06 3.09 1996 1.08 1995	1.78 3.45 1997 1.08 1995	1.13 1.66 1997 0.85 2000	1.08 1.40 1999 0.59 1994	1.13 1.88 1997 0.80 1999
SUMMARY	STATIST	rics	FOR 2	2001 CALEN	DAR YEAR		FOR 2002 WAT	TER YEAR		WATER YEAR	RS 1994 -	2002
LOWEST HIGHEST LOWEST ANNUAL ANNUAL ANNUAL ANNUAL 10 PERC 50 PERC	MEAN TANNUAL ANNUAL M TDAILY M DAILY ME SEVEN-DA RUNOFF	MEAN MEAN EAN AY MINIMUM (AC-FT) (CFSM) (INCHES) EEDS		1199.88 3.29 124 0.71 0.76 2380 1.32 17.93 6.5 1.7	Nov 14 Jul 5 Jul 1		1472.22 4.03 124 0.73 0.74 2920 1.62 21.99 8.6 1.8 0.82	Nov 14 Sep 12 Sep 9		4 .22 6 .32 2 .22 124 0 .44 0 .47 3110 1 .77 2 3 .40 1 0 0 .80	Nov 14 4 Oct 24 7 Aug 26	1996 2001 2001 1994 1994

e Estimated

12113349 MILL CREEK NEAR MOUTH, AT ORILLIA, WA

LOCATION.--Lat $47^{\circ}26'20"$, long $122^{\circ}14'26"$, in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.36, T.23 N., R.4 E., King County, Hydrologic Unit 17110013, on left bank 15 ft upstream from Burlington-Northern railroad trestle, in Orillia.

DRAINAGE AREA.--6.03 mi^2 .

PERIOD OF RECORD. -- February 1994 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is NGVD of 1929 (City of Kent benchmark).

REMARKS.--No estimated daily discharges. Records fair. Natural flow affected by Green River Natural Resource area located 1.75 miles upstream and by urbanization. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--8 years (water year 1995-2002), $16.4~{\rm ft}^3/{\rm s}$, $11,910~{\rm acre-ft/yr}$.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 376 ${\rm ft}^3/{\rm s}$ Feb. 9, 1996, from rating curve extended above 133 ${\rm ft}^3/{\rm s}$, elevation, 18.77 ${\rm ft}$; minimum discharge, 0.35 ${\rm ft}^3/{\rm s}$ Aug. 12, 2001, result of construction upstream from station.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 342 ft^3/s Nov. 14, elevation, 17.53 ft ; minimum discharge, 0.98 ft^3/s Sept. 14.

		DISCH	ARGE, CUB	IC FEET PE		WATER Y	EAR OCTOBER	R 2001 TO	SEPTEMB	ER 2002		_
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	1.4 1.5 1.5 1.4	11 16 5.9 9.2 17	39 40 36 28 24	26 36 14 11	21 16 14 11 19	9.8 8.9 8.5	6.4 5.8 5.6 5.3	5.6 7.0 5.4 4.7 4.8	3.4 3.3 3.2 4.0 6.2	4.3 3.6 3.2 3.1 2.9	1.3 1.3 1.4 1.3	1.3 1.7 2.6 1.3
6 7 8 9 10	1.5 1.4 4.4 1.6 8.9	5.3 3.8 3.4 3.1	33 21 19 18 22	35 124 76 36 25	29 45 89 34 23	8.3 7.7 6.8 6.2 6.3	5.1 5.0 4.8 16	5.5 5.2 4.3 4.0 4.8	3.5 7.9 4.8 3.7 3.3	2.8 12 40 4.4 3.3	1.3 1.3 1.2 1.1	1.2 1.6 1.2 1.2
11 12 13 14 15	5.4 1.8 2.2 6.2 3.4	3.1 24 59 264 114	19 16 122 101 67	20 27 16 12	18 14 12 11 9.7	69 48 34 20 16	19 17 85 109 49	4.1 3.8 6.1 6.3 4.0	3.2 3.2 3.2 3.1 3.0	2.9 2.5 2.3 2.1 2.1	1.1 1.3 1.3 1.3	1.1 1.1 1.1 1.0
16 17 18 19 20	4.1 2.9 1.7 2.1 1.9	56 35 26 41 37	130 98 54 46 29	8.9 7.8 12 27 35	10 10 13 26 11	39 30 23 33 81	36 27 18 14	3.8 8.4 4.2 4.1	3.1 6.4 11 3.4 3.1	2.0 1.8 1.8 1.7	1.3 1.2 1.2 1.2	3.8 3.0 1.5 1.1
21 22 23 24 25	8.6 5.7 3.3 7.7 24	29 72 46 26 22	22 17 14 12 9.8	28 15 11 43 119	76 88 69 52 27	35 24 18 15 12	10 9.4 7.6 6.7 6.2	5.8 4.3 3.9 3.7 3.7	3.1 3.1 3.1 3.0 3.0	1.6 1.6 1.5 1.5	1.2 1.3 1.2 1.2	1.0 1.0 1.0 1.1
26 27 28 29 30 31	6.3 48 12 5.4 12 33	19 15 61 47 34	8.8 8.2 15 8.1 7.3	71 44 30 21 27 36	21 16 15 	10 9.3 8.5 7.8 7.1 6.7	12 23 9.1 7.2 6.3	3.6 3.9 8.6 9.1 3.9 3.5	3.0 3.7 19 35 5.6	1.5 1.5 1.6 1.5	1.2 1.2 1.2 1.2 1.2	1.1 1.1 1.1 4.7 1.4
TOTAL MEAN MAX MIN AC-FT	222.7 7.18 48 1.4 442	1107.9 36.9 264 3.1 2200	1099.2 35.5 130 7.3 2180	1015.7 32.8 124 7.8 2010	799.7 28.6 89 9.7 1590	630.9 20.4 81 6.2 1250	572.8 19.1 109 4.8 1140	162.1 5.23 12 3.5 322	167.6 5.59 35 3.0 332	117.1 3.78 40 1.3 232	38.4 1.24 1.5 1.1 76	45.1 1.50 4.7 1.0 89
STATIST	TICS OF I	MONTHLY MI	EAN DATA	FOR WATER	YEARS 1994	- 2002	, BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	10.1 18.5 1998 5.75 2000	28.5 50.7 2000 13.0 2001	33.1 51.8 1997 11.1 2001	31.6 50.8 1997 13.3 2001	30.7 64.8 1996 11.9 2001	21.5 38.5 1997 12.4 2001	14.2 27.2 1996 6.53 1998	8.42 12.5 1996 3.75 1995	6.97 13.3 2001 3.62 1995	3.78 6.66 1997 1.95 1994	3.51 6.57 2001 1.24 2002	3.51 9.19 1997 1.50 2002
SUMMARY	Y STATIS	TICS	FOR	2001 CALE	NDAR YEAR	1	FOR 2002 W	ATER YEAR		WATER YEAR	S 1994	- 2002
LOWEST HIGHEST LOWEST ANNUAL ANNUAL 10 PERO 50 PERO	MEAN I ANNUAL ANNUAL I I DAILY I DAILY M	MEAN MEAN EAN AY MINIMUI (AC-FT) EEDS EEDS	М	5176.8 14.2 264 0.9 1.2 10270 34 7.0 1.5	Nov 14 1 Aug 12 Aug 10		5979.2 16.4 264 1.0 1.1 11860 40 6.4 1.2	Nov 14 Sep 14 Sep 21		16.4 21.4 10.5 323 0.78 0.80 11910 41 7.8 1.6	Oct	1999 2001 9 1996 7 1994 6 1994

12113350 GREEN RIVER AT TUKWILA, WA

LOCATION.--Lat $47^{\circ}27'55$ ", long $122^{\circ}14'48$ ", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.24, T.23 N., R.4 E., King County, Hydrologic Unit 17110013, on left bank under West Valley Freeway bridge 0.6 mi southeast of Tukwila, 1.4 mi upstream from Black River, and at mile 12.4.

DRAINAGE AREA.--440 mi².

PERIOD OF RECORD.--October 1960 to September 1984 (discharge). October 1998 to current year (stage only).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is NGVD of 1929 (Corps of Engineers bench mark).

REMARKS.--Flow regulated by Howard A. Hanson Reservoir (station 12105800) for flood control and during summer months to augment the natural river flow. Minor diversions and regulation on upstream tributaries. River stage is affected daily by backwater during high tide. Chemical analyses October 1967 to September 1970. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 21.70 ft Jan. 31, 1965; minimum observed elevation 1.00 ft Sept. 2, 1999.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 24, 1959, reached a stage of 22.63 ft.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 16.23 ft Dec. 14, minimum elevation, 1.83 ft Sept. 5.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

NOV DEC JAN FER MAR APR MAY JIN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	3.36 3.33 3.34 3.37 3.48	6.57 6.92 6.86 6.81 6.79	7.80 7.52 7.32 7.56 7.01	6.83 6.36 6.09 5.89	8.23 7.17 6.91 6.65 6.63	6.42 5.83 5.63 5.57 5.32	6.46 6.51 6.62 6.28 6.72	6.37 8.25 8.81 8.56 8.48	8.08 7.66 7.40 7.64 7.73	5.49 5.32 5.25 5.16 5.16	3.16 3.00 3.15 3.25 3.36	2.85 3.04 3.24 3.32 3.44
6	3.40	6.42	6.93	5.96	6.47	5.27	7.25	8.45	7.67	5.30	3.55	3.63
7	3.26	5.84	6.79	7.60	6.64	5.20	7.51	7.75	8.12	5.49	3.55	3.70
8	3.21	5.31	7.32	14.33	7.65	5.11	7.82	6.82	7.20	5.71	3.57	3.66
9	3.05	5.13	6.60	15.70	7.16	5.24	7.98	6.95	6.79	5.34	3.59	3.61
10	3.32	4.62	6.57	12.67	6.92	5.43	8.07	6.58	5.90	5.39	3.64	3.55
11	3.27	4.56	6.91	10.45	6.56	6.11	8.98	6.80	6.25	5.45	3.57	3.45
12	3.36	4.75	6.75	9.53	6.42	7.02	10.05	6.88	6.74	5.37	3.43	3.32
13	3.36	5.24	7.86	9.19	6.33	7.47	11.72	6.90	6.78	5.36	3.36	3.24
14	3.61	9.23	15.12		6.10	7.15	14.13	6.98	7.19	5.27	3.34	3.17
15	3.81	15.15	14.38	7.92	6.01	7.04	15.75	7.38	7.19	5.21	3.31	3.15
16	3.97	12.29	12.43	7.06	5.53	6.73	13.92	7.68	6.86	5.15	3.26	3.20
17	4.24	8.83	14.09	6.82	5.42	6.63	11.85	7.12	6.38	5.07	3.33	3.27
18	4.30	8.33	12.91	6.73	5.40	6.41	9.78	7.01	5.97	5.03	3.33	3.12
19	4.27	8.30	11.23	6.48	6.00	6.46	8.92	6.98	5.83	4.91	3.50	3.24
20	4.64	8.97	9.31	6.79	5.73	8.47	8.52	7.09	6.13	4.77	3.46	3.18
21	4.86	7.88	8.72	7.10	7.26	8.11	8.36	7.53	5.82	4.73	3.38	3.16
22	4.94	8.23	7.77	7.69	9.99	7.56	8.25	8.03	5.73	4.85	3.40	3.16
23	4.97	8.97	7.33	8.01	12.50	6.99	7.97	8.70	5.72	4.78	3.36	3.21
24	6.37	9.67	7.11	7.77	11.52	6.82	7.68	8.12	5.56	4.56	3.31	3.33
25	7.25	9.21	6.92	10.98	10.78	6.63	7.43	7.94	5.34	4.31	3.15	3.16
26 27 28 29 30 31	7.66 8.13 7.65 7.24 6.06 6.14	8.68 7.90 7.76 8.12 7.99	6.80 6.60 6.55 6.22 6.13 6.20	12.66 9.68 8.64 7.72 7.59 8.30	 	6.59 6.53 6.49 6.41 6.56 6.53	7.27 7.47 7.37 7.22 6.65	7.92 7.94 8.64 9.97 9.95 9.14	5.18 5.02 5.14 5.50 5.86	4.13 3.87 3.65 3.53 3.39 3.17	3.00 2.95 2.92 2.87 2.80 2.79	3.26 3.34 3.36 3.38 3.27
MAX	8.13	15.15	15.12	15.70	12.50	8.47	15.75	9.97	8.12	5.71	3.64	3.70
MIN	3.05	4.56	6.13	5.89	5.40	5.11	6.28	6.37	5.02	3.17	2.79	2.85

165 GREEN RIVER BASIN

12113390 DUWAMISH RIVER AT GOLF COURSE, AT TUKWILA, WA

WATER-QUALITY RECORDS

LOCATION.--Lat $47^{\circ}28^{\circ}45^{\circ}$, long $122^{\circ}15^{\circ}27^{\circ}$, in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.14, T.23 N., R.4 E., King County, Hydrologic Unit 17110012, on left bank at footbridge, 0.5 mi downstream from Black River confluence, at Tukwila, 10.4 mi upstream from mouth.

PERIOD OF RECORD. -- March 1996 to current year.

PERIOD OF DAILY RECORD.--SPECIFIC CONDUCTANCE: March 1996 to September 1999 (discontinued). WATER TEMPERATURE: March 1996 to September 1999 (discontinued).

REMARKS.--During periods of low flow, river stage and water-quality parameters are affected to an unknown degree by daily tide cycle.

EXTREMES FOR PERIOD OF DAILY RECORD. --

SPECIFIC CONDUCTANCE: Maximum, 386 microsiemens Sept 8. 1999, but may have been higher during periods of missing record; minimum, 34 microsiemens Jan. 2, 1999, but may have been lower during periods of missing record.

TEMPERATURE: Maximum, 23.5°C July 25, 1996; minimum, 1.0°C Dec. 22-23, 1998.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
NOV													
13 DEC	1110	913	758	9.4	82	7.5	92		9.2	32	39	0	3.73
13 JAN	1020	2020	753	11.0	91	7.5	95	8.1	6.8	32	40	0	4.85
11	1040	3500	771	11.7	94	7.8	57	8.6	6.4	21	25	0	2.23
FEB 12 MAR	1220	1740	774	11.8	91	7.4	101	10.3	5.0	34	42	0	6.15
12	1110	2100	762	11.3	93	7.5	86	6.6	6.8	31	38	0	3.35
APR 09	1120	2590	759	10.9	93	7.5	66	10.5	8.4	26	32	0	2.68
MAY 13	1310	1780	772	10.4	92	7.3	71	11.6	10.5	27	33	0	3.08
JUN 11	1310	1550	767	9.6	89	7.3	85	19.1	12.3	27	33	0	5.52
JUL													
08 AUG	1120	1420	773	10.1	97	7.5	67	17.9	14.1	27	33	0	2.84
05 SEP	1040	414	768	7.8	78	7.5	191	17.7	15.8	58	70	0	19.3
10	1510	468	765	9.2	95	7.5	151	25.7	16.9	49	59	0	12.1
Date	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)
NOV	DIS- SOLVED (MG/L AS SO4) (00945)	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665)	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	CHLOR, WATER FLTRD REC (UG/L) (49260)	CHLOR, WATER, DISS, REC, (UG/L) (46342)	BHC DIS- SOLVED (UG/L) (34253)	ZINE, WATER, DISS, REC (UG/L) (39632)
	DIS- SOLVED (MG/L AS SO4)	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	GEN, NITRITE DIS- SOLVED (MG/L AS N)	GEN, TOTAL (MG/L AS N)	PHOS- PHATE, DIS- SOLVED (MG/L AS P)	PHORUS TOTAL (MG/L AS P)	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L)	CHLOR, WATER FLTRD REC (UG/L)	CHLOR, WATER, DISS, REC, (UG/L)	BHC DIS- SOLVED (UG/L)	ZINE, WATER, DISS, REC (UG/L)
NOV 13	DIS- SOLVED (MG/L AS SO4) (00945)	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665)	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	CHLOR, WATER FLTRD REC (UG/L) (49260)	CHLOR, WATER, DISS, REC, (UG/L) (46342)	BHC DIS- SOLVED (UG/L) (34253)	ZINE, WATER, DISS, REC (UG/L) (39632)
NOV 13 DEC 13 JAN 11	DIS- SOLVED (MG/L AS SO4) (00945)	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665)	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	CHLOR, WATER FLTRD REC (UG/L) (49260)	CHLOR, WATER, DISS, REC, (UG/L) (46342)	BHC DIS- SOLVED (UG/L) (34253)	ZINE, WATER, DISS, REC (UG/L) (39632)
NOV 13 DEC 13 JAN 11 FEB 12	DIS- SOLVED (MG/L AS SO4) (00945)	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) E.004	GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665)	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002	CHLOR, WATER FLTRD REC (UG/L) (49260)	CHLOR, WATER, DISS, REC, (UG/L) (46342)	BHC DIS- SOLVED (UG/L) (34253)	ZINE, WATER, DISS, REC (UG/L) (39632)
NOV 13 DEC 13 JAN 11 FEB 12	DIS- SOLVED (MG/L AS SO4) (00945) 2.8 4.4	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 .04 <.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .20 .26	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .28 .62	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) E.004 E.006 <.008	GEN, TOTAL (MG/L AS N) (00600) .47 .88	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) <.02	PHORUS TOTAL (MG/L AS P) (00665) .048 .073	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002	CHLOR, WATER FLTRD REC (UG/L) (49260) <.004	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002	BHC DIS- SOLVED (UG/L) (34253) <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.007
NOV 13 DEC 13 JAN 11 FEB 12 MAR 12 APR 09	DIS- SOLVED (MG/L AS SO4) (00945) 2.8 4.4 2.4	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 .04 <.04 E.02	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .20 .26 .15	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .28 .62 .38 .61	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) E.004 E.006 <.008	GEN, TOTAL (MG/L AS N) (00600) .47 .88 .53	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) <.02 .02 E.02	PHORUS TOTAL (MG/L AS P) (00665) .048 .073 .054	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002 <.006	CHLOR, WATER FLITRD REC (UG/L) (49260) <.004 <.006	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002	BHC DIS- SOLVED (UG/L) (34253) <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.007
NOV 13 DEC 13 JAN 11 FEB 12 MAR 12 APR 09 MAY	DIS- SOLVED (MG/L AS SO4) (00945) 2.8 4.4 2.4 4.1 3.7	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 .04 <.04 E.02 <.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .20 .26 .15 .12 .33	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .28 .62 .38 .61 .54	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) E.004 E.006 <.008 <.008	GEN, TOTAL (MG/L AS N) (00600) .47 .88 .53 .74	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) <.02 .02 E.02 E.02	PHORUS TOTAL (MG/L AS P) (00665) .048 .073 .054 .039	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002 <.006	CHLOR, WATER FLTRD REC (UG/L) (49260) <.004 <.006	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002 <.004	BHC DIS- SOLVED (UG/L) (34253) <.005 <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.007 <.007
NOV 13 DEC 13 JAN 11 FEB 12 MAR 12 APR 09 MAY 13 JUN	DIS- SOLVED (MG/L AS SO4) (00945) 2.8 4.4 2.4 4.1 3.7 2.7	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 .04 <.04 E.02 <.04 E.02	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .20 .26 .15 .12 .33 .20	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .28 .62 .38 .61 .54	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) E.004 E.006 <.008 <.008 E.006 <.008	GEN, TOTAL (MG/L AS N) (00600) .47 .88 .53 .74 .86	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) <.02 .02 E.02 E.02 .02	PHORUS TOTAL (MG/L AS P) (00665) .048 .073 .054 .039 .097	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002 <.006 <.006 <.006	CHLOR, WATER FLTRD REC (UG/L) (49260) <.004 <.006 <.006 <.006	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002 <.004 <.004	BHC DIS- SOLVED (UG/L) (34253) <.005 <.005 <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.007 <.007 .060 <.007
NOV 13 DEC 13 JAN 11 FEB 12 MAR 12 APR 09 MAY 13 JUN 11 JUN 11	DIS- SOLVED (MG/L AS SO4) (00945) 2.8 4.4 2.4 4.1 3.7 2.7	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 .04 <.04 E.02 <.04 E.02 <.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .20 .26 .15 .12 .33 .20 .27	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .28 .62 .38 .61 .54 .24 .15	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) E.004 E.006 <.008 <.008 E.006 <.008	GEN, TOTAL (MG/L AS N) (00600) .47 .88 .53 .74 .86 .44	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) <.02 .02 E.02 E.02 .03	PHORUS TOTAL (MG/L AS P) (00665) .048 .073 .054 .039 .097 .011 .027	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002 <.006 <.006 <.006 <.006	CHLOR, WATER FLITRD REC (UG/L) (49260) <.004 <.006 <.006 <.006 <.006	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002 <.004 <.004 <.004	BHC DIS- SOLVED (UG/L) (34253) <.005 <.005 <.005 <.005 <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.007 <.007 .060 <.007
NOV 13 DEC 13 JAN 11 FEB 12 MAR 12 APR 09 MAY 13 JUN 11	DIS- SOLVED (MG/L AS SO4) (00945) 2.8 4.4 2.4 4.1 3.7 2.7 2.4	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 .04 <.04 E.02 <.04 E.02 <.04 <.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .20 .26 .15 .12 .33 .20 .27 E.09	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .28 .62 .38 .61 .54 .24 .15	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) E.004 E.006 <.008 <.008 E.006 <.008 <.008	GEN, TOTAL (MG/L AS N) (00600) .47 .88 .53 .74 .86 .44	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) <.02 .02 E.02 E.02 .03 <.02	PHORUS TOTAL (MG/L AS P) (00665) .048 .073 .054 .039 .097 .011 .027	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002 <.006 <.006 <.006 <.006 <.006	CHLOR, WATER FLTRD REC (UG/L) (49260) <.004 <.006 <.006 <.006 <.006 <.006	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002 <.004 <.004 <.004 <.004	BHC DIS- SOLVED (UG/L) (34253) <.005 <.005 <.005 <.005 <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.007 <.007 .060 <.007 <.007

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12113390 DUWAMISH RIVER AT GOLF COURSE, AT TUKWILA, WA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)
NOV	. 010	. 000	E 022	. 000	. 005	. 010	. 002	. 006	. 005		. 02	. 000	. 000
13 DEC	<.010	<.002	E.033	<.020	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
13 JAN 11	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
FEB 12	<.010	<.002	<.041	<.020	<.005	<.016	<.003	<.006	<.005	<.005	<.02	<.002	<.009
MAR 12	<.010	<.002	E.230	<.020	<.005	<.018	<.003	E.003	.010	<.005	<.02	<.002	<.009
APR 09	<.010	<.002	E.006	<.020	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
MAY 13	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
JUN 11	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
JUL													
08 AUG	<.010	<.002	E.006	<.020	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
05 SEP	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
10	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
Date	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS REC (UG/L) (04095)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	P,P' DDE DISSOLV (UG/L) (34653)	PARA- THION, DIS- SOLVED (UG/L) (39542)
NOV	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	WATER DISS REC (UG/L) (04095)	DIS- SOLVED (UG/L) (39341)	URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	THION, DIS- SOLVED (UG/L) (39532)	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	LACHLOR WATER DISSOLV (UG/L) (39415)	BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	DDE DISSOLV (UG/L) (34653)	THION, DIS- SOLVED (UG/L) (39542)
NOV 13 DEC	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	WATER DISS REC (UG/L) (04095)	DIS- SOLVED (UG/L) (39341)	URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	THION, DIS- SOLVED (UG/L) (39532)	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	LACHLOR WATER DISSOLV (UG/L) (39415)	BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	DDE DISSOLV (UG/L) (34653)	THION, DIS- SOLVED (UG/L) (39542)
NOV 13 DEC 13 JAN	PROP WATER FLITRD 0.7 U GF, REC (UG/L) (82672)	WATER DISS REC (UG/L) (04095)	DIS- SOLVED (UG/L) (39341) <.004	URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666) <.035	THION, DIS- SOLVED (UG/L) (39532)	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	LACHLOR WATER DISSOLV (UG/L) (39415)	BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	INATE WATER FLTR 0.7 U GF, REC (UG/L) (82671) <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	DDE DISSOLV (UG/L) (34653) <.003	THION, DIS- SOLVED (UG/L) (39542)
NOV 13 DEC 13 JAN 11	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005	WATER DISS REC (UG/L) (04095) <.003	DIS- SOLVED (UG/L) (39341) <.004 <.004	URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666) <.035 <.035	THION, DIS- SOLVED (UG/L) (39532) <.027	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007	DDE DISSOLV (UG/L) (34653) <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.010
NOV 13 DEC 13 JAN 11 FEB 12 MAR	PROP WATER FLITRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005	WATER DISS REC (UG/L) (04095) <.003 <.003	DIS- SOLVED (UG/L) (39341) <.004 <.004	URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666) <.035 <.035	THION, DIS- SOLVED (UG/L) (39532) <.027 <.027	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006	INATE WATER FLITED 0.7 U GF, REC (UG/L) (82671) <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007	DDE DISSOLV (UG/L) (34653) <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.010
NOV 13 DEC 13 JAN 11 FEB 12 MAR 12	PROP WATER FLITRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005	WATER DISS REC (UG/L) (04095) <.003 <.003	DIS- SOLVED (UG/L) (39341) <.004 <.004 <.004	URON WATER FLITED 0.7 U GF, REC (UG/L) (82666) <.035 <.035	THION, DIS- SOLVED (UG/L) (39532) <.027 <.027	AZIN- PHOS: WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006	INATE WATER WATER FLITED 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007	DDE DISSOLV (UG/L) (34653) <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.010
NOV 13 DEC 13 JAN 11 FEB 12 MAR 12 APR 09	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005	WATER DISS REC (UG/L) (04095) <.003 <.003 <.003	DIS- SOLVED (UG/L) (39341) <.004 <.004 <.004	URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666) <.035 <.035 <.035 <.035	THION, DIS- SOLVED (UG/L) (39532) <.027 <.027 <.027 <.027	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050 <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006 <.006 <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007	DDE DISSOLV (UG/L) (34653) <.003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.010 <.010 <.010
NOV 13 DEC 13 JAN 11 FEB 12 MAR 12 APR 09 MAY 13 JUN	PROP WATER FLITRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005 <.005 <.005	WATER DISS REC (UG/L) (04095) <.003 <.003 <.003 <.003	DIS- SOLVED (UG/L) (39341) <.004 <.004 <.004 <.004	URON WATER FLITRD 0.7 U GF, REC (UG/L) (82666) <.035 <.035 <.035 <.035 <.035	THION, DIS- SOLVED (UG/L) (39532) <.027 <.027 <.027 <.027 <.027	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050 <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006 <.006 <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006	INATE WATER WATER FLITRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007	DDE DISSOLV (UG/L) (34653) <.003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.010 <.010 <.010 <.010
NOV 13 DEC 13 JAN 11 FEB 12 MAR 12 APR 09 MAY	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005	WATER DISS REC (UG/L) (04095) <.003 <.003 <.003 <.003	DIS- SOLVED (UG/L) (39341) <.004 <.004 <.004 <.004 <.004 <.004	URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666) <.035 <.035 <.035 <.035	THION, DIS- SOLVED (UG/L) (39532) <.027 <.027 <.027 <.027	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050 <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006 <.006 <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006 <.006	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007	DDE DISSOLV (UG/L) (34653) <.003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.010 <.010 <.010 <.010 <.010
NOV 13 DEC 13 JAN 11 FEB 12 MAR 12 APR 09 MAY 13 JUN 11	PROP WATER FLITRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005 <.005 <.005	WATER DISS REC (UG/L) (04095) <.003 <.003 <.003 <.003	DIS- SOLVED (UG/L) (39341) <.004 <.004 <.004 <.004	URON WATER FLITRD 0.7 U GF, REC (UG/L) (82666) <.035 <.035 <.035 <.035 <.035	THION, DIS- SOLVED (UG/L) (39532) <.027 <.027 <.027 <.027 <.027	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050 <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006 <.006 <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006	INATE WATER WATER FLITRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007	DDE DISSOLV (UG/L) (34653) <.003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.010 <.010 <.010 <.010
NOV 13 DEC 13 JAN 11 FEB 12 MAR 12 APR 09 MAY 13 JUN 11 JUN 08	PROP WATER FLITRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	WATER DISS REC (UG/L) (04095) <.003 <.003 <.003 <.003	DIS- SOLVED (UG/L) (39341) <.004 <.004 <.004 <.004 <.004 <.004	URON WATER FLITRD 0.7 U GF, REC (UG/L) (82666) <.035 <.035 <.035 <.035 <.035 <.035	THION, DIS- SOLVED (UG/L) (39532) <.027 <.027 <.027 <.027 <.027 <.027	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006 <.006 <.006 <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006 <.006	INATE WATER WATER FLITED 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007 <.007	DDE DISSOLV (UG/L) (34653) <.003 <.003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.010 <.010 <.010 <.010 <.010

GREEN RIVER BASIN 167

12113390 DUWAMISH RIVER AT GOLF COURSE, AT TUKWILA, WA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)
NOV													
13	<.002	<.010	<.006	<.011	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02
DEC													
13 JAN													
11	<.004	<.022	<.006	<.011	M	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02
FEB	1.001	1.022	1.000	V.011		1.001	V.010	V.011	1.02	1.005	1.02	1.031	1.02
12													
MAR													
12	<.004	<.022	<.006	<.011	M	<.004	<.010	<.011	<.02	.006	<.02	<.034	<.02
APR	. 004	. 000	. 006	. 011	. 01	. 004	. 010	. 011	. 00		. 00	. 024	. 00
09 MAY	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02
13	< .004	<.022	<.006	<.011	<.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02
JUN													
11	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02
JUL													
08	<.004	<.022	<.006	<.011	E.01	<.004	<.010	<.011	<.02	.017	<.02	<.034	<.02
AUG 05	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02
SEP	<.004	<.UZZ	<.000	<.UII	<.UI	<.004	<.010	<.011	<.02	<.005	<.02	<.U34	<.02
10	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02

Date	BUTHYL- AZINE, WATER, DISS, REC (UG/L)	0.7 U GF, REC (UG/L)	LATE WATER FLTRD 0.7 U GF, REC (UG/L)	WAT FLT	MENT, SUS- PENDED (MG/L)	SUS- PENDED (T/DAY)
NOV						
13 DEC	Ŭ	<.005	<.002	<.009	11	27.1
13					24	131
JAN 11	U	<.005	<.002	<.009	27	255
FEB						
12 MAR					9.0	42.3
12	U	<.005	<.002	<.009	27	153
APR 09		. OOF	. 000	<.009	20	140
MAY		<.005	<.002	<.009	20	140
13		<.005	<.002	<.009	16	76.9
JUN 11		<.005	<.002	<.009	10	41.9
JUL 08		<.005	<.002	<.009	15	57.5
AUG						
05 SEP		<.005	<.002	<.009	5.0	5.6
10		<.005	<.002	<.009	5.0	6.3

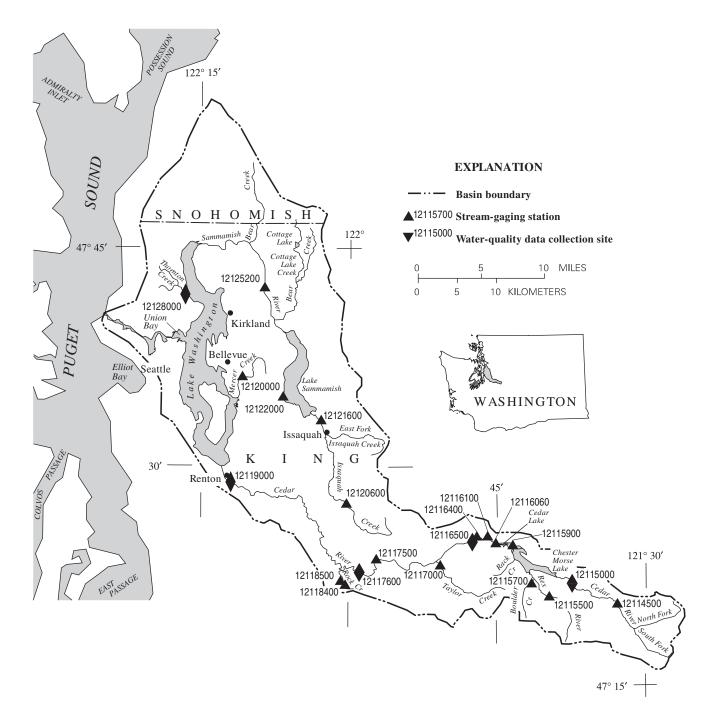


Figure 27. Location of surface-water and water-quality stations in the Lake Washington and Sammamish River Basins.

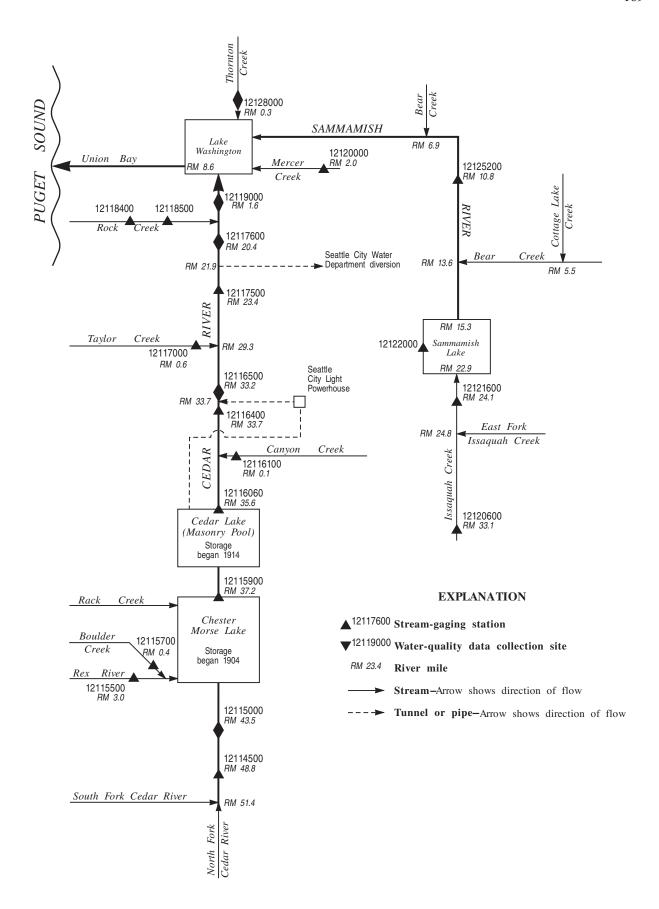


Figure 28. Schematic diagram showing surface-water and water-quality stations in the Lake Washington and Sammamish River Basins.

12114500 CEDAR RIVER BELOW BEAR CREEK, NEAR CEDAR FALLS, WA

LOCATION.--Lat 47°20'32", long 121°32'52", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.32, T.22 N., R.10 E., King County, Hydrologic Unit 17110012, on right bank 500 ft downstream from Bear Creek, and 12.2 mi southeast of town of Cedar Falls.

DRAINAGE AREA. -- 25.4 mi².

Date Nov. 14 Dec. 17

PERIOD OF RECORD. -- October 1945 to December 1963, October 1975 to current year.

Discharge Gage height (ft³/s) (ft)

REVISED RECORDS.--WSP 1716: 1956-57(M), 1959(M).

Time

0700

GAGE.--Water-stage recorder. Elevation of gage is 1,880 ft above NGVD of 1929, from topographic map. Prior to Sept. 16, 1960, at site 90 ft upstream at datum 2.35 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

 $AVERAGE \ \ DISCHARGE. --45 \ \ years \ \ (water \ years \ 1946-63, \ 1976-2002), \ 164 \ \ ft^3/s, \ 87.87 \ \ in/yr, \ 119,000 \ \ acre-ft/yr.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,620 ${\rm ft}^3/{\rm s}$ Nov. 22, 1959, gage height, 6.98 ft site and datum then in use, from rating curve extended above 890 ${\rm ft}^3/{\rm s}$ no basis of slope-area measurement of peak flow; minimum discharge, 12 ${\rm ft}^3/{\rm s}$ Nov. 27, 1952.

Time

0000

Date

Apr. 14 May 29 Discharge Gage height (ft³/s) (ft)

*1,370 712

EXTREMES FOR CURRENT YEAr.--Peak discharges greater than base discharge of 700 $\mathrm{ft^3/s}$ and maximum (*):

Jan. 8	0000		090	4.37	riay	23	0000	/1	.2	3.73		
Minimum disc	charge, 16	5 ft ³ /s Oct	. 4-7.									
				מקום שקקק	CECOMD	MATER VE	AR OCTOBER	2001 110	CEDTEMD	ED 2002		
		DISCHAR	JE, CUBIC	FEET PER		MEAN VA		2001 10	SEFIEND	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	386	115	67	88	128	129	310	469	242	47	23
2	17	331	109	69	80	115	131	353	455	217	45	24
3 4	17 17	270 232	95 88	65 65	75 71	104 97	128 135	319 277	448 454	199 185	44 43	26 23
5	16	221	82	63	68	95	157	256	504	172	43	23
6	16	186	87	103	66	88	222	229	513	172 192	45	23
7	17	159	87	633	70	81	312	200	402		41	22
8	24	142	82	958	68	77	276	178	326	207	39	22
9 10	28 30	127 112	80 74	622 382	63 63	77 73 72	257 315	165 157	285 307	170 185	38 36	23 22
11	64	100	70	291	61	185 223 184	352	160	379	181	35	21
12	68	95	67	303	e59	223	498	190	469	165	34	21
13	122	144	380	268	e57	184	727	276	585	154	33	21
14	197	666	439	221	e55	161	1150	333	616	137	32	20
15	120	460	265	185	e53	145	645	334	616 537	154 137 119	31	20
16	84	337	512	162	e51	133	418	313	448		30	23
17	79	260	554	144	e50	120	311	325	370	104	30	22
18	65	209	335	133	e55	109	259	339	412	98	29	21
19	119	188	253	128	60	104	229	350	420	92	29	20
20	112	183	204	129	e51 e50 e55 60	120 109 104 97	215	445	412 420 363	98 92 83	30	21
21	114	210	171	118	138 297 315 285 225	83	203	431	384		29	20
22	201	257	148	104	297	79	210	484	397		28	19
23	390	323	132	97	315	76	203	440	364	70	27	19
24	279	254	119	174	285	74 76	189	394	325	66	27	19
25	289	206	119 107				184	396	319	63	27	19
26	278	174	97	169	186 160 142 	79	186	438	353	60	27	19
27	247	153	91	142	160	80	185	498	332	58	26	19
28	200	142	86	127 112 104 97	142	104	186	692	321	56	25	19
29	167	129	79	112		111	203	695	410	57	25	19
30	163	114	74	104		124	241	608	284	53	25 25 24	22
31	298		74 71	97		121		438 498 692 695 608 534		50	24	
TOTAL	3855	6770	5153	6463	3021	3398	8856 295.2	11119	12251	3869	1024	635
MEAN	124.4	225.7	166.2	6463 208.5	107.9	109.6	295.2	358.7	408.4	124.8	33.03	21.17
MAX	390	666 95	554	958	315	223	1150	695	616	242	47	26
MIN	16	95	67	63	50	72	128	157	284	50	24	19
AC-FT	7650	13430	10220	12820	5990	6740	17570	22050	24300	7670	2030	1260
CFSM	4.90	8.88			4.25	4.32	11.6	14.1	16.1	4.91	1.30	0.83
IN.	5.65	9.92	7.55	9.47	4.42	4.98	12.97	16.28	17.94	4.91 5.67	1.50	0.93
STATIS	TICS OF MO	ONTHLY MEA	N DATA FO	R WATER Y	EARS 1946	- 2002,	BY WATER	YEAR (WY)				
MEAN	96.99	221.0	207.4	167.8	169.1	141.6	236.1	311.4	244.3	99.73	36.26	39.09
MAX	262	697	496	459	407	263	387	599	608			231
(WY)	1960	1991	1976	1953	1996	1997	1989	1956	1950			1959
MIN	15.3	16.6 1953	27.9	49.9	43.9	49.4	102	110	38.8	30.4	21.9	17.8
(WY)	1988	1953	1953	1952	1956	1955	1955	1992	1992	1992	1958	1998
SUMMAR	Y STATIST	ICS	FOR 2	001 CALEN	DAR YEAR	F	OR 2002 W	TER YEAR		WATER YEA	ARS 1946 -	2002
ANNUAL	TOTAL			46759			66414					
ANNUAL	MEAN			128.1			182.0			164.3	3	
	r annual n	MEAN								234		1959
												2001
HIGHES'	T DAILY ME	EAN		666	Nov 14		1150	Apr 14		3880	Nov 24	1990
LOWEST	DAILY MEA	AN		16	Oct 5		16 17 131700	Oct 5		13	Nov 29	1952
ANNUAL	SEVEN-DAY	Y MINIMUM		17	Sep 30		17	Oct 1		14	Nov 26	1952
ANNUAL	RUNOFF (A	AC-FT)		92750	-		131700			119000		
ANNUAL	RUNOFF (EAN EAN AN Y MINIMUM AC-FT) CFSM) INCHES)		5.04			1150 16 17 131700 7.16 97.27			6.4	17	
ANNUAL	RUNOFF (INCHES)		68.48			97.27	,		87.8	37	
10 000	CENT EXCEL	7DS		278			411			359		

411 128 24 359

110 28

278

10 PERCENT EXCEEDS

50 PERCENT EXCEEDS 90 PERCENT EXCEEDS

e Estimated

12115000 CEDAR RIVER NEAR CEDAR FALLS, WA

LOCATION.--Lat $47^{\circ}22^{\circ}13^{\circ}$, long $121^{\circ}37^{\circ}26^{\circ}$, in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.23, T.22 N., R.9 E., King County, Hydrologic Unit 17110012, Snoqualmie National Forest, on left bank 1.4 mi upstream from Chester Morse Lake, 8.3 mi southeast of town of Cedar Falls, and at mile 43.5.

DRAINAGE AREA. -- 40.7 mi2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year.

Time

Date

REVISED RECORDS.--WSP 1286: 1946-48. 1950(P). 1951. WSP 1516: 1946(M). 1947-48(P). 1950-51(M). 1953-54(P). 1955(M). WSP 1932:

GAGE.--Water-stage recorder. Elevation of gage is 1,560 ft above NGVD of 1929 from topographic map. Prior to Oct. 26, 1957, at site 80 ft downstream at same datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

 $AVERAGE \ DISCHARGE. --57 \ years \ (water years 1946-2002), \ 259 \ ft^3/s, \ 86.53 \ in/yr, \ 187,800 \ acre-ft/yr.$

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,490 ft³/s Nov. 22, 1959, gage height, 11.34 ft, from high-water mark in well, from rating curve extended above 4,300 ft³/s, on basis of slope-area measurements at gage heights 10.16 ft and 11.34 ft, maximum gage height, 11.4 ft Feb. 11, 1951, backwater from Chester Morse Lake; minimum discharge, 19 ft³/s Oct. 23-26, 29-31, 1987.

Time

Date

Discharge Gage height (ft³/s) (ft)

 $\hbox{\it EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft^3/s and maximum (*): } \\$

Date	11	(10	, 5,	(20)	Dace		110	(10 / 5	,	(10)		
Dec. 14 Dec. 17	0030 0145		270 380	5.79 5.93	Jan. Apr.		0130 0645	1,97 *2,48	0	6.54 *6.97		
Minimum dis	charge, 2	3 ft ³ /s Oc	t. 4-8.									
		DISCHAF	RGE, CUBI	C FEET PE		WATER Y		ER 2001 TO	SEPTEMB	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	611	217	118	161	209	231	480	e685	373	71	35
2	25	530	214	125	150	188	234	553	e675	328	68	36
3 4	24 24	422 348	187 169	119 120	145 136	173 163	221 229	495 423	e660 e670	298 276	65 64	40 36
5	23	332	156	116	131	163	272	397	e715	253	65	35
6	23	276	163	168	130	151	381	358	e760	246	71	34
7 8	23 26	235 205	166 158	1080 1660	145 147	141 133	546 475	314 282	e600 e480	263 291	64 60	34 34
9	36	182	168	1040	137	125	429	262	e420	239	57	34
10	39	162	153	656	134	127	542	246	460	250	55	33
11	109	148	141	496	131	349	605	247	555	250	54	32
12 13	97 186	139 180	136 750	512 459	121 114	451 359	839 1190	292 433	659 813	230 214	52 50	32 31
14	301	1030	928	375	108	301	2000	522	910	193	48	30
15	210	785	523	312	103	263	1080	522	e790	170	47	30
16	146	596	943	272	101	231	718	481	e660	156	47	32
17	135	446	1050	238	100	203	543	499	e540	148	45	34
18 19	108 166	350 314	631 456	216 212	108 119	186 182	441 386	526 536	e590 e600	139 132	44 43	31 30
20	175	298	359	227	126	182	359	655	e530	122	47	30
21	166	354	296	214	299	157	333	645	e555	114	45	30
22	275	449	253	190	608	147	340	719	581	108	43	29
23	569	608	221	173	619	141	331	661	537	103	42	28
24 25	443 465	453 355	197 179	313 525	543 406	140 147	306 296	601 600	465 448	97 93	41 41	27 27
26	443	296	164	356	327	155	299	649	491	90	41	27
27	378	256	153	270	274	160	300	723	476	86	40	27
28	299	238	146	224	239	198	293	1000	460	83	39	27
29	244	221	136	195		217	320	1020	627		37	27
30 31	227 432	195	128 124	185 177		229 226	375	903 e805	451	79 74	36 36	29
TOTAL MEAN	5842 188.5	11014 367.1	9665 311.8	11343 365.9	5862 209.4	6197 199.9	14914 497.1	16849 543.5	17863 595.4		1558 50.26	941 31.37
MAX	569	1030	1050	1660	619	451	2000	1020	910	373	71	40
MIN	23	139	124	116	100	125	221	246	420	74	36	27
AC-FT	11590	21850	19170	22500	11630	12290	29580	33420	35430	11070	3090	1870
CFSM TN.	4.63 5.34	9.02 10.07	7.66 8.83	8.99 10.37	5.14 5.36	4.91 5.66	12.2 13.63	13.4 15.40	14.6 16.33	4.42 5.10	1.23	0.77 0.86
								R YEAR (WY)	10.55	3.10		0.00
MEAN	149.9	335.3	350.0	305.8	293.7	240.4	353.9	455.9	356.7	150.9	58.30	65.16
MAX (WY)	403 1948	1269 1991	780 1976	722 1953	692 1996	698 1972	580 1989	834 1956	874 1974	472 1955	150 1964	365 1959
MIN	20.1	27.1	63.5	91.7	81.9	99.1	160	170	62.6	49.6	32.5	25.4
(WY)	1988	1953	1953	1979	1969	1955	1967	1992	1992	1977	1987	1987
SUMMAR	Y STATIST	ics	FOR	2001 CALE	NDAR YEAR	;	FOR 2002	WATER YEAR		WATER YEA	ARS 1946 -	2002
ANNUAL				73695			107630					
ANNUAL				201.9			294.	9		259.2	2	
	T ANNUAL ANNUAL M									373 157		1959 2001
	T DAILY M			1050	Dec 17		2000	Apr 14		6400	Nov 25	
LOWEST	DAILY ME	AN		23	Oct 5 Oct 1		23	Oct 5 Oct 1		19 19	Oct 23	1987
		Y MINIMUM		24	Oct 1		24	Oct 1		19	Oct 23	1987
	RUNOFF (146200 4.9	6		213500 7.	25		187800 6.3	17	
	RUNOFF (67.3			98.			86.5		
	CENT EXCE			444	-		637			546	-	

e Estimated

10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS

12115000 CEDAR RIVER NEAR CEDAR FALLS, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--WATER TEMPERATURE: May 1997 to current year.

INSTRUMENTATION. -- Temperature recorder since May, 1997.

REMARKS.--Records excellent except those for Oct. 1, 2 and July 19 to Sept. 30, which are good.

EXTREMES FOR PERIOD OF RECORD.-WATER TEMPERATURE: Maximum, 16.5°C (rounded) Sept.3, 4, 6, 14, 1998; minimum, 0.0°C March 19, 20, 2002.

EXTREMES FOR CURRENT YEAR.-- WATER TEMPERATURE: Maximum, 13.4°C Jul. 24; minimum, 0.0°C Mar. 19, 20.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER		NC	VEMBER		DE	CEMBER			JANUARY	
1 2 3 4 5	11.5 10.2 10.2 10.2 10.2	9.0 8.6 8.1 8.1	9.9 9.3 8.9 8.8 9.0	6.0 6.7 6.7 6.7	6.0 6.0 5.7 6.0 5.7	6.0 6.2 6.2 6.3 6.0	4.2 4.2 4.2 3.9 3.9	3.5 3.9 3.5 3.5 3.2	3.9 4.1 4.0 3.7 3.5	3.9 4.2 3.9 4.2 4.2	3.2 3.5 3.2 3.5 3.9	3.4 3.9 3.7 3.9 3.9
6 7 8 9 10	9.5 9.2 9.2 9.9 9.2	8.1 7.8 8.5 8.5 8.1	8.6 8.5 8.6 9.0 8.6	5.7 5.3 5.7 5.7 6.4	4.9 4.6 4.9 4.9 5.3	5.4 5.0 5.2 5.2 5.7	3.5 3.9 4.6 4.2 3.9	3.2 3.5 3.9 3.9 3.5	3.4 3.8 4.2 4.0 3.8	4.2 3.9 3.9 3.9 4.2	3.5 3.5 3.5 3.9 3.9	3.9 3.8 3.8 3.9 4.0
11 12 13 14 15	8.8 8.5 8.1 8.1 8.5	7.8 7.8 7.8 7.4 7.1	8.3 8.2 7.8 7.9	6.4 6.4 6.7 6.7	5.7 6.0 6.4 6.0 6.4	6.0 6.2 6.5 6.5	4.2 3.9 3.5 3.9	3.5 3.5 2.8 3.2 2.8	3.9 3.7 3.2 3.4 3.5	4.6 4.2 4.2 3.5 3.5	3.9 3.5 3.5 3.2 3.2	4.2 3.9 3.7 3.5 3.2
16 17 18 19 20	7.8 8.1 7.4 7.8 7.4	7.4 7.4 7.1 7.4 6.7	7.7 7.6 7.3 7.5 7.2	6.4 6.4 5.7 6.0 6.4	6.4 4.9 4.9 5.3 5.7	6.4 5.8 5.3 5.7 6.0	3.9 3.9 3.2 3.5 3.9	2.8 3.2 2.8 3.2 3.5	3.5 3.6 3.1 3.4 3.7	3.2 3.5 3.5 3.2 2.8	2.8 3.2 2.8 2.5 2.5	3.1 3.3 3.2 2.8 2.7
21 22 23 24 25	7.1 7.1 6.7 6.0 6.4	6.7 6.7 6.0 5.3 5.7	6.8 7.0 6.1 5.5 6.0	6.0 5.7 5.7 4.9 5.3	5.7 5.3 4.9 4.9 4.6	5.8 5.5 5.3 4.9 4.8	3.9 3.5 3.5 3.2 2.8	3.5 3.2 3.2 2.8 2.5	3.8 3.4 3.3 3.1 2.8	2.8 2.5 2.8 2.8 2.8	2.5 2.1 2.5 2.5 2.5	2.6 2.4 2.5 2.7 2.6
26 27 28 29 30 31	7.1 6.7 5.7 6.0 6.4 6.4	6.0 5.7 4.9 4.9 6.0	6.5 6.0 5.3 5.5 6.2 6.1	4.9 4.9 4.6 3.5 4.2	4.6 4.6 1.4 2.8 3.5	4.7 4.7 2.9 3.2 3.8	2.8 3.2 3.5 3.5 3.5 4.2	2.5 2.8 2.5 2.8 3.2 3.2	2.7 3.0 3.0 3.2 3.3 3.6	2.8 2.8 2.8 2.8 2.5 2.5	2.1 2.5 2.1 2.5 1.1 2.1	2.6 2.6 2.4 2.6 1.8 2.3
MONTH	11.5	4.9	7.5	6.7	1.4	5.5	4.6	2.5	3.5	4.6	1.1	3.2

LAKE WASHINGTON BASIN

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12115000 CEDAR RIVER NEAR CEDAR FALLS, WA--Continued TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		I Bit Bi	MIUKE,	WAIEK (DE	G. C), W	AIDI IDAN	CIOBER	2001 10	SEF LEMBER	2002		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY						APRIL			MAY	
1 2	3.2	2.5 2.5 3.2 2.8 2.8	2.8 2.9	3.5 3.9 4.2 4.2 3.5	2.1	2.7	4.9 5.3	3.5 2.8	3.9 3.9	7.4 4.9 5.3 4.2 4.2	4.2	5.4 4.5
3 4	3.5 3.5	3.2 2.8	3.3 3.1	4.2 4.2	2.5 2.5	3.1 3.3	6.0 6.4	2.8	$\frac{4.1}{4.4}$	5.3 4.2	3.5 3.9	4.3 4.1
7	3.5	3.2 2.5 2.1 2.8 2.8	3.2	3.2 3.2 2.8 3.2 2.8	2.5	2.8	4.2 4.2 5.7 4.6 4.6	3.5	4.0	4.2 4.2 6.0 5.7 7.1	2.1	3.3
8 9	3.2 3.9 3.9	2.1	3.1	3.2	2.1	2.3	4.6	3.5	3.9	6.0 5.7	3.2	4.4
12	3.5	2.5	2.9	3.2	2.1	2.7	4.2	3.5	3.9	8.1	4.2	6.0 4.8
14 15	3.5 3.9 4.2	2.8 2.5 2.5 2.8 2.8	3.2	2.8 3.2 3.2 3.2 3.9	2.5	2.9	3.5	2.8	3.0	7.8 8.1 5.7 5.7 6.7	4.2	4.6 5.1
17 18	3.9 4.2	3.2 3.5	3.4 3.8	3.2 2.5	2.5 1.8	2.8	4.9 4.9	3.2	3.8 4.1	7.4 5.7	4.6 4.2	5.6 4.9
19 20	3.9 4.6	3.2 3.2 3.5 3.5 3.5	3.8 3.8	3.5 3.2 2.5 2.1	0.0	1.2 1.2	6.4 4.9	3.2 3.9	4.5 4.3	7.1 7.4 5.7 6.4 5.3	4.2 4.2	5.2 4.8
22 23	3.5	3.5 3.2 3.2 2.5 1.8	3.5	3.2 3.9 4.6 3.5 4.9	2.1	2.8	4.2 6.0	2.5	4.1	4.9 4.9 6.0 7.1 6.7	4.2	4.5
24 25	2.8	1.8	2.9							6.7	4.6	5.2 5.3
26 27	3.2 3.5	1.8 2.1 2.5	2.3	3.9	2.8	3.5	4.9 5.3 7.1 7.4 7.8	3.5	4.3	5.7 6.4	4.6	5.1 5.1
28 29	3.9	2.5	3.0	3.9	3.2	3.3	7.1	3.9	5.2	5.3	4.6	4.9
30 31				3.9 3.5 3.9 3.9 4.9	2.8 3.2 3.2 3.2 3.2 3.5	3.9	7.8	3.9	5.5	5.7 6.4 5.3 5.3 7.1 7.1	4.2	5.5 5.4
MONTH	4.6	1.8	3.2	4.9	0.0		7.8	2.5		8.1		4.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY	MAX	MIN JUNE	MEAN		MIN JULY	MEAN		MIN AUGUST	MEAN		MIN SEPTEMBE	
1	7.4	JUNE			JULY			AUGUST			SEPTEMBE	≅R
1 2 3	7.4 7.8 7.1	JUNE			JULY		12.0 12.0 11.6	AUGUST 9.5 9.5 9.1	10.5 10.4 10.2	10.6 11.0 11.7	9.9 9.9 9.9 9.9	10.3 10.3 10.5
1 2 3 4 5	7.4 7.8 7.1 6.0 6.4	JUNE	5.7 5.8 5.6 5.4 5.5	8.7 9.0 8.3 7.6 9.7	JULY 6.5 5.9 6.6 6.6 6.6	7.3 7.5 7.4 7.1 7.9		AUGUST 9.5 9.5 9.1	10.5 10.4 10.2	10.6 11.0 11.7	SEPTEMBE	10.3 10.3 10.5
1 2 3 4 5	7.4 7.8 7.1 6.0 6.4	JUNE 4.2 4.2 4.2 4.9 4.9	5.7 5.8 5.6 5.4 5.5	8.7 9.0 8.3 7.6 9.7	JULY 6.5 5.9 6.6 6.6 6.6	7.3 7.5 7.4 7.1 7.9	12.0 12.0 11.6 10.9 11.0	9.5 9.5 9.1 9.8 9.5	10.5 10.4 10.2 10.1	10.6 11.0 11.7 11.4 11.4	9.9 9.9 9.9 9.9 9.2 8.9	10.3 10.3 10.5 10.0 9.9
1 2 3 4 5	7.4 7.8 7.1 6.0 6.4	JUNE 4.2 4.2 4.2 4.9 4.9	5.7 5.8 5.6 5.4 5.5	8.7 9.0 8.3 7.6 9.7	JULY 6.5 5.9 6.6 6.6 6.6	7.3 7.5 7.4 7.1 7.9	12.0 12.0 11.6 10.9 11.0	9.5 9.5 9.1 9.8 9.5	10.5 10.4 10.2 10.1	10.6 11.0 11.7 11.4 11.4	9.9 9.9 9.9 9.9 9.2 8.9	10.3 10.3 10.5 10.0 9.9
1 2 3 4 5 6 7 8 9	7.4 7.8 7.1 6.0 6.4 6.0 5.3 5.3 7.8	JUNE 4.2 4.2 4.9 4.9 4.6 4.2 4.2 4.2 4.2	5.7 5.8 5.6 5.4 5.5 5.1 4.6 5.9 6.6	8.7 9.0 8.3 7.6 9.7 10.1 9.7 8.7 10.8 11.9	JULY 6.5 5.9 6.6 6.6 6.6 7.6 7.6 6.9 8.3	7.3 7.5 7.4 7.1 7.9 8.5 8.6 8.0 8.6 9.9	12.0 12.0 11.6 10.9 11.0 10.3 11.7 11.7 12.1	9.5 9.5 9.1 9.8 9.5 9.6 9.2 9.2	10.5 10.4 10.2 10.1 10.1 9.8 10.3 10.3 10.6	10.6 11.0 11.7 11.4 11.4 10.7 10.4 11.8	9.9 9.9 9.9 9.9 9.2 8.9 9.2 9.0 9.7 9.3	10.3 10.3 10.5 10.0 9.9 9.8 9.8 9.8 10.3
1 2 3 4 5 6 7 8 9	7.4 7.8 7.1 6.0 6.4 6.0 5.3 5.3 7.8	JUNE 4.2 4.2 4.9 4.9 4.6 4.2 4.2 4.2 4.2	5.7 5.8 5.6 5.4 5.5 5.1 4.6 5.9 6.6	8.7 9.0 8.3 7.6 9.7 10.1 9.7 8.7 10.8 11.9	JULY 6.5 5.9 6.6 6.6 6.6 7.6 7.6 6.9 8.3	7.3 7.5 7.4 7.1 7.9 8.5 8.6 8.0 8.6 9.9	12.0 12.0 11.6 10.9 11.0 10.3 11.7 11.7 12.1	9.5 9.5 9.1 9.8 9.5 9.6 9.2 9.2	10.5 10.4 10.2 10.1 10.1 9.8 10.3 10.3 10.6	10.6 11.0 11.7 11.4 11.4	9.9 9.9 9.9 9.9 9.2 8.9 9.2 9.0 9.7 9.3	10.3 10.3 10.5 10.0 9.9 9.8 9.8 9.8 10.3
1 2 3 4 5 6 7 8 9 10 11 12 13 14	7.4 7.8 7.1 6.0 6.4 6.0 5.3 7.8 8.5 8.5 8.5 8.5	JUNE 4.2 4.2 4.9 4.9 4.6 4.2 4.2 4.9 4.5 5.3 5.3	5.7 5.8 5.6 5.5 5.1 6.6 5.5 6.5 6.6 6.4	8.7 9.0 8.3 7.6 9.7 10.1 9.7 8.7 10.8 11.9 11.5 11.9	JULY 6.5 5.9 6.6 6.6 6.6 7.6 7.6 6.9 8.3 8.7	7.3 7.5 7.4 7.1 7.9 8.5 8.6 8.0 8.6 9.9 9.9 10.0 9.8	12.0 12.0 11.6 10.9 11.0 10.3 11.7 12.1 12.1 12.5 12.5 12.8	AUGUST 9.5 9.5 9.1 9.8 9.5 9.6 9.2 9.6 9.9 9.9 9.9	10.5 10.4 10.2 10.1 10.1 9.8 10.3 10.6 10.8	10.6 11.0 11.7 11.4 11.4 10.7 10.4 11.8 11.8 11.8	9.9 9.9 9.9 9.2 8.9 9.2 8.9 9.2 9.0 9.7 9.3 9.3 9.3	10.3 10.3 10.5 10.0 9.9 9.8 9.8 9.8 10.3 10.3 10.3
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	7.4 7.8 7.1 6.0 6.4 6.0 5.3 7.8 8.5 8.5 8.5 8.6	JUNE 4.2 4.2 4.9 4.9 4.6 4.2 4.2 4.2 4.2 5.3 5.3 5.4	5.7 5.8 5.6 5.5 5.1 4.6 5.9 6.5 6.6 6.4 6.6	8.7 9.0 8.3 7.6 9.7 10.1 9.7 8.7 10.8 11.9 10.8 11.5 11.5	JULY 6.5 5.9 6.6 6.6 6.6 7.6 7.6 6.9 8.3 8.3 8.3 8.3	7.3 7.5 7.4 7.1 7.9 8.5 8.6 8.0 8.6 9.9 9.9 10.0 9.8 10.0	12.0 12.0 11.6 10.9 11.0 10.3 11.7 11.7 12.1 12.1 12.5 12.8 12.8	AUGUST 9.5 9.5 9.1 9.8 9.5 9.6 9.2 9.2 9.6 9.9 9.9	10.5 10.4 10.2 10.1 10.1 9.8 10.3 10.3 10.6 10.8 10.9 11.1	10.6 11.0 11.7 11.4 11.4 11.8 11.8 11.8 11.8 11.8	9.9 9.9 9.9 9.2 8.9 8.9 9.2 9.0 9.7 9.3 9.3 9.3 9.3	10.3 10.3 10.5 10.0 9.9 9.8 9.8 10.3 10.3 10.3 10.3
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	7.4 7.8 7.1 6.0 6.4 6.0 5.3 5.3 8.5 8.5 8.5 8.5 8.6 6.8	JUNE 4.2 4.2 4.9 4.9 4.6 4.2 4.2 4.9 4.9 5.3 5.4 5.4	5.78.6.45.5 5.16.6.55.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.	8.7 9.0 8.3 7.6 9.7 10.1 9.7 8.7 10.8 11.9 11.5 11.9 10.8 11.5	JULY 6.5 5.9 6.6 6.6 6.6 7.6 7.6 7.6 7.8 3 8.7 9.0 8.7 8.7 8.7	7.3 7.5 7.4 7.1 7.9 8.5 8.6 8.0 9.9 9.9 10.0 9.8 10.0	12.0 12.0 11.6 10.9 11.0 10.3 11.7 12.1 12.1 12.5 12.5 12.8 12.8 12.8	AUGUST 9.5 9.5 9.1 9.8 9.5 9.6 9.2 9.2 9.2 9.9 9.9 9.9 9.9 9.9 9.9	10.5 10.4 10.2 10.1 10.1 9.8 10.3 10.6 10.8 10.8 11.1 11.1 11.1	10.6 11.0 11.7 11.4 11.4 11.4 10.7 10.4 11.8 11.8 11.8 11.8	9.9 9.9 9.9 9.2 8.9 9.2 9.0 9.7 9.3 9.3 9.3 9.3 9.3	10.3 10.3 10.5 10.0 9.9 9.8 9.8 9.8 10.3 10.3 10.3 10.3 10.3
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	7.4 7.8 7.1 6.0 6.4 6.0 5.3 7.8 8.5 8.5 8.5 8.6 6.8 6.8 6.1	JUNE 4.2 4.2 4.9 4.9 4.6 4.2 4.2 4.9 4.9 5.3 5.4 5.4 5.4 5.8 5.0	5.7 5.8 5.4 5.5 5.1 4.6 6.6 6.6 6.6 6.6 6.6 6.6 6.6 6.6 6.6	8.7 9.0 8.3 7.6 9.7 10.1 9.7 8.7 10.8 11.9 11.5 11.9 10.8 11.5 11.5 11.5	JULY 6.5 5.9 6.6 6.6 6.6 7.6 7.6 7.6 8.3 8.7 9.0 8.7 8.7 9.4 9.7 10.2	7.3 7.5 7.4 7.1 7.9 8.5 8.6 8.0 8.6 9.9 9.9 10.0 9.8 10.0 10	12.0 12.0 11.6 10.9 11.0 10.3 11.7 12.1 12.5 12.5 12.8 12.8 12.8	AUGUST 9.5 9.5 9.1 9.8 9.5 9.6 9.2 9.6 9.9 9.9 9.9 9.9 9.9 9.9 9.9 9.9	10.5 10.4 10.2 10.1 10.1 9.8 10.3 10.6 10.8 10.9 11.1 11.1 11.1 10.9 10.7	10.6 11.0 11.7 11.4 11.4 10.7 10.4 11.8 11.8 11.8 11.8 11.5 10.7	9.9 9.9 9.9 9.2 8.9 9.2 8.9 9.2 9.0 9.7 9.3 9.3 9.3 9.3 9.7	10.3 10.3 10.5 10.0 9.9 9.8 9.8 9.8 10.3 10.3 10.3 10.3 10.3 10.3 10.3
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	7.4 7.8 7.10 6.4 6.0 5.3 5.3 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8.6 6.8 8.1 7.5 8.9	JUNE 4.2 4.2 4.9 4.9 4.6 4.2 4.2 4.2 4.9 4.5 5.3 5.4 5.4 5.4 5.0 5.0	5.7 5.8 5.4 5.5 5.1 4.6 9.6 6.5 6.6 6.4 6.6 6.1 1.8 6.8 6.8	8.7 9.0 8.3 7.6 9.7 10.1 9.7 8.7 10.8 11.9 10.8 11.5 11.5 11.5 11.5	JULY 6.5 5.9 6.6 6.6 6.6 7.6 7.6 7.6 8.3 8.3 8.3 8.7 9.0 8.7 9.0 8.7 8.7 9.1 9.7 10.2 9.5	7.3 7.5 7.4 7.1 7.9 8.5 8.6 8.0 8.6 9.9 9.9 10.0 9.8 10.0	12.0 12.0 11.6 10.9 11.0 10.3 11.7 11.7 12.1 12.1 12.5 12.8 12.8 12.8 12.8 12.5 12.5 12.5	AUGUST 9.5 9.5 9.6 9.2 9.2 9.6 9.9 10.3 9.9 10.3	10.5 10.4 10.2 10.1 10.1 9.8 10.3 10.3 10.6 10.8 10.9 11.1 11.1 11.1 11.1 10.9 10.7 10.7	10.6 11.0 11.7 11.4 11.4 11.4 11.8 11.8 11.8 11.8 11.5 10.7	9.9 9.9 9.9 9.2 8.9 8.9 9.2 9.0 9.7 9.3 9.3 9.3 9.3 9.3 9.3	10.3 10.3 10.5 10.0 9.9 9.8 9.8 9.8 10.3 10.3 10.3 10.3 10.9 9.9 10.1 9.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	7.4 7.8 7.1 6.0 6.4 6.0 5.3 5.3 7.8 8.5 8.5 8.5 8.5 8.6 6.8 6.1 7.5 8.9 9.3 9.3	JUNE 4.2 4.2 4.9 4.9 4.6 4.2 4.2 4.9 4.9 5.3 5.4 5.4 5.8 5.0 5.8	5.7 5.8 6.5 5.5 5.4 4.6 9.6 6.5 6.6 4.6 6.6 6.1 1.8 2.6 6.8 7.3	8.7 9.0 8.3 7.6 9.7 10.1 9.7 8.7 10.8 11.9 11.5 11.9 12.3 12.6 11.3 12.4	JULY 6.5 5.9 6.6 6.6 6.9 7.6 7.6 7.6 9.3 8.7 9.0 8.7 9.7 10.2 9.5 9.8	7.3 7.5 7.4 7.1 7.9 8.5 8.6 8.0 8.6 9.9 9.9 10.0 9.8 10.0 10	12.0 12.0 11.6 10.9 11.0 10.3 11.7 11.7 12.1 12.1 12.5 12.5 12.8 12.8 12.8 12.8 12.1 10.6	AUGUST 9.5 9.5 9.1 9.8 9.5 9.6 9.2 9.2 9.2 9.9 9.9 9.9 9.9 9.9 9.9 10.3 9.9 10.3	10.5 10.4 10.2 10.1 10.1 9.8 10.3 10.6 10.8 10.9 11.1 11.1 11.1 11.1 10.9 10.7 10.7	10.6 11.0 11.7 11.4 11.4 11.4 10.7 10.4 11.8 11.8 11.8 11.5 10.7	9.9 9.9 9.9 9.2 8.9 8.9 9.2 9.0 9.7 9.3 9.3 9.3 9.3 9.3 9.3	10.3 10.3 10.5 10.0 9.9 9.8 9.8 9.8 10.3 10.3 10.3 10.3 10.3 10.3 10.9 9.9 10.1 9.7 9.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	7.4 7.8 7.1 6.0 6.4 6.0 5.3 7.8 8.5 8.5 8.5 8.5 8.6 6.8 6.8 6.1 7.5 8.9 9.3 7.9	JUNE 4.2 4.2 4.9 4.9 4.6 4.2 4.2 4.9 4.9 5.3 5.4 5.4 5.8 5.0 5.8 6.1 6.1	5.78.6.45.5 5.16.6.96.6.5.5.6.44.96.6.6.6.6.6.6.6.6.7.3.3.9.5.7.5	8.7 9.0 8.3 7.6 9.7 10.1 9.7 10.8 11.9 11.5 11.9 12.3 12.3 12.4 12.4 13.1 12.4	JULY 6.5 5.9 6.6 6.6 6.6 6.9 7.6 6.9 8.3 8.7 9.0 8.7 8.7 9.4 9.7 10.2 9.5 9.8 10.2 10.5	7.3 7.5 7.4 7.1 7.9 8.5 8.6 8.6 9.9 9.9 10.0 10.2 10.7 10.7 10.7	12.0 12.0 11.6 10.9 11.0 10.3 11.7 12.1 12.5 12.5 12.8 12.8 12.8 12.8 12.5 12.5 12.5 12.5	AUGUST 9.5 9.5 9.6 9.2 9.6 9.9 9.9 9.9 9.9 9.9 10.3 9.9 10.3	10.5 10.4 10.2 10.1 10.1 9.8 10.3 10.6 10.8 10.9 11.1 11.1 11.1 10.9 10.7 10.7 10.7 10.4	10.6 11.0 11.7 11.4 11.4 11.8 11.8 11.8 11.8 11.5 10.7 10.7 11.1 10.7 11.1	9.9 9.9 9.2 8.9 9.2 8.9 9.2 9.0 9.7 9.3 9.3 9.3 9.3 9.3 9.3 9.3 9.7	10.3 10.3 10.5 10.0 9.9 9.8 9.8 9.8 10.3 10.3 10.3 10.3 10.3 10.3 9.9 10.1 9.9 10.1 9.9 9.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	7.4 7.8 7.1 6.0 6.4 6.0 5.3 5.3 8.5 8.5 8.5 8.5 8.5 8.6 6.8 6.1 7.5 9 8.9 3 9.3 7.9	JUNE 4.2 4.2 4.9 4.9 4.6 4.2 4.2 4.9 4.9 5.3 5.4 5.4 5.8 5.0 5.8 6.1	5.7 8.6 6.5 5.6 4.6 9.6 6.5 6.6 6.6 6.1 1.8 2.8 7.3 3.9	8.7 9.0 8.3 7.6 9.7 10.1 9.7 8.7 11.9 11.5 11.9 10.8 11.5 11.5 11.5 11.5 11.5 11.5 11.5	JULY 6.5 5.9 6.6 6.6 6.6 7.6 7.6 7.6 9.3 8.7 9.0 8.7 8.7 9.7 10.2 9.5 9.5 9.5 9.8	7.3 7.5 7.4 7.1 7.9 8.5 8.6 8.0 9.9 9.9 10.0 9.8 10.0 10.7 10.7 10.7	12.0 12.0 11.6 10.9 11.0 10.3 11.7 11.7 12.1 12.5 12.8 12.8 12.8 12.8 12.5 12.1 10.6 10.6	AUGUST 9.5 9.5 9.6 9.2 9.2 9.6 9.9 9.9 9.9 9.9 10.3 9.9 10.3 9.9 10.3	10.5 10.4 10.2 10.1 10.1 9.8 10.3 10.6 10.8 10.9 11.1 11.1 11.1 11.1 10.9 10.7 10.7 10.4	10.6 11.0 11.7 11.4 11.4 11.4 11.8 11.8 11.8 11.8 11.5 10.7 10.4 11.5 11.1 10.7 11.1	9.9 9.9 9.9 9.2 8.9 9.2 9.0 9.7 9.3 9.3 9.3 9.3 9.3 9.7	10.3 10.3 10.5 10.0 9.9 9.8 9.8 9.8 10.3 10.3 10.3 10.3 10.3 10.3 10.9 9.9 10.1 9.7 9.8 9.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	7.4 7.8 7.1 6.0 6.4 6.0 5.3 5.3 8.5 8.5 8.5 8.5 8.6 6.8 6.1 7.5 9.3 9.3 9.3 9.3 9.9 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6	JUNE 4.2 4.2 4.9 4.9 4.6 4.2 4.2 4.9 4.9 5.3 5.4 5.4 5.8 5.0 5.8 6.1 6.1 6.5 6.5	5.86.44.69.6 5.56.64.6 6.11.8 2.8 7.79.57 8.02.9	8.7 9.0 8.3 7.6 9.7 10.1 9.7 8.7 10.8 11.9 10.8 11.5 11.9 12.3 12.6 11.3 12.4 13.1 12.7 13.4 13.1 12.7	JULY 6.5 5.9 6.6 6.6 6.6 7.6 7.6 7.6 8.3 8.7 9.0 8.7 8.7 9.7 10.2 9.5 9.5 9.8 10.2 10.5 10.9 10.5 9.8	7.3 7.5 7.4 7.1 7.9 8.5 8.6 8.0 8.6 9.9 9.9 10.0 10.2 10.7 10.9 11.3 11.4 11.7 11.8	12.0 12.0 11.6 10.9 11.0 10.3 11.7 11.7 12.1 12.5 12.5 12.8 12.8 12.8 12.5 12.5 12.1 10.6 10.6 12.1 12.5 12.5 12.1	AUGUST 9.5 9.5 9.6 9.2 9.2 9.2 9.9 9.9 9.9 9.9 9.9 10.3 9.9 9.9 10.3	10.5 10.4 10.2 10.1 10.1 9.8 10.3 10.6 10.8 10.9 11.1 11.1 11.1 11.1 10.9 10.7 10.7 10.4 10.9 10.7 10.5 10.9	10.6 11.0 11.7 11.4 11.4 11.4 11.8 11.8 11.8 11.8 11.5 10.7 10.4 11.5 11.1 10.7 11.1 10.7 11.1 11.1	9.9 9.9 9.9 9.2 8.9 9.2 9.0 9.3 9.3 9.3 9.3 9.3 9.3 9.3 9.7	10.3 10.3 10.5 10.0 9.9 9.8 9.8 9.8 10.3 10.3 10.3 10.3 10.9 9.9 9.6 9.7 9.7 9.7 9.6 9.6 9.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	7.4 7.8 7.1 6.0 6.4 6.0 5.3 5.3 7.8 8.5 8.5 8.5 8.5 8.6 6.8 6.1 7.9 9.3 7.9 9.3 7.9 9.6 10.0 7.9 7.0 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6	JUNE 4.2 4.2 4.9 4.9 4.6 4.2 4.9 4.9 5.3 5.4 5.4 5.8 5.0 5.8 6.1 6.1 6.5 6.5 6.1	5.86.45.5 5.46.69.6 6.55.64.6 6.66.6 6.61.18.28 7.39.57.7 8.29.95 6.56.64.6 7.66.95	8.7 9.0 8.3 7.6 9.7 10.1 9.7 10.8 11.9 11.5 11.5 11.5 11.5 11.5 11.5 11.5	JULY 6.5 5.9 6.6 6.6 6.6 6.9 7.6 6.9 8.3 8.7 9.0 8.7 8.7 9.4 9.7 10.2 9.5 9.5 9.8 10.2 10.5 10.9	7.3 7.5 7.4 7.1 7.9 8.5 8.6 8.0 8.6 9.9 9.9 10.0 9.8 10.0 10.7 10.7 10.7 11.3 11.4 11.7 11.8	12.0 12.0 11.6 10.9 11.0 10.3 11.7 12.1 12.5 12.5 12.8 12.8 12.8 12.8 12.5 12.5 12.5 12.5 12.1 10.6	AUGUST 9.5 9.5 9.1 9.8 9.5 9.6 9.2 9.2 9.9 9.9 9.9 9.9 9.9 9.9 10.3 9.9 9.9 10.3	10.5 10.4 10.2 10.1 10.1 9.8 10.3 10.6 10.8 10.9 11.1 11.1 11.1 11.1 10.9 10.7 10.7 10.4 10.1 10.9 10.5 10.8	10.6 11.0 11.7 11.4 11.4 11.8 11.8 11.8 11.8 11.5 10.7 10.7 11.1 10.7 11.1 10.7 11.1 10.7 11.1 10.7 11.1	9.9 9.9 9.9 9.2 8.9 8.9 9.2 9.0 9.7 9.3 9.3 9.3 9.3 9.3 9.7 9.7 9.3 9.0 8.6 8.6 9.0 9.0	10.3 10.3 10.5 10.0 9.9 9.8 9.8 9.8 10.3 10.3 10.3 10.3 10.3 10.9 9.9 10.1 9.7 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	7.4 7.8 7.1 6.0 6.4 6.0 5.3 7.8 8.5 8.5 8.5 8.5 8.6 6.8 6.8 7.5 9.3 7.9 9.3 7.9 9.3 9.3 9.6 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10	JUNE 4.2 4.2 4.9 4.9 4.6 4.2 4.9 4.9 5.3 5.4 5.4 5.8 5.0 5.8 6.1 6.1 6.5 6.5 6.1 6.1	5.86.45 5.16.69.6 6.55.66.4 4.96.6 6.66.4 6.66.8 7.33.95.7 87.99.5 	8.7 9.0 8.3 7.6 9.7 10.1 9.7 10.8 11.9 11.5 11.9 12.3 12.4 13.1 12.4 13.1 11.6 12.4 13.1 11.6 12.4 13.1	JULY 6.5 5.9 6.6 6.6 6.6 6.9 7.6 6.9 8.3 8.3 8.7 9.0 8.7 8.7 9.4 9.5 9.5 9.8 10.2 9.5 10.2 9.5	7.3 7.5 7.4 7.1 7.9 8.5 8.6 8.6 9.9 9.9 10.0 10.2 10.7 10.7 10.7 10.7 11.3 11.4 11.7 11.8	12.0 12.0 11.6 10.9 11.0 10.3 11.7 12.1 12.5 12.5 12.8 12.8 12.8 12.8 12.8 12.5 12.5 12.5 12.1 10.6 10.6 12.1 12.5 12.5 12.5	AUGUST 9.5 9.5 9.6 9.2 9.6 9.9 9.9 9.9 9.9 9.9 10.3 9.9 9.9 10.3 9.9 9.9 10.3	10.5 10.4 10.2 10.1 10.1 9.8 10.3 10.6 10.8 10.9 11.1 11.1 11.1 11.1 10.7 10.7 10.7 10.7 10.5 10.8 10.9 10.7 10.8 10.9 1	10.6 11.0 11.7 11.4 11.4 10.7 10.8 11.8 11.8 11.8 11.5 10.7 10.7 11.1 10.7 11.1 10.7 11.1 10.7 11.1 10.7 11.1 11.1	9.9 9.9 9.2 8.9 9.2 8.9 9.2 9.0 9.7 9.3 9.3 9.3 9.3 9.3 9.3 9.7	10.3 10.3 10.5 10.0 9.9 9.8 9.8 9.8 10.3 10.3 10.3 10.3 10.3 10.9 9.9 10.1 9.7 9.8 9.8 10.3 10.3 10.3 10.3 10.3 10.3 10.3 10.3
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	7.4 7.8 7.1 6.0 6.4 6.0 5.3 5.3 7.8 8.5 8.5 8.5 8.5 8.6 6.8 6.1 7.9 9.3 7.9 9.3 7.9 9.6 10.0 7.9 7.0 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6	JUNE 4.2 4.2 4.9 4.9 4.6 4.2 4.9 4.9 5.3 5.4 5.4 5.8 5.0 5.8 6.1 6.1 6.5 6.5 6.1	5.86.45.5 5.46.69.6 6.55.64.6 6.66.6 6.61.18.28 7.39.57.7 8.29.95 6.56.64.6 7.66.95	8.7 9.0 8.3 7.6 9.7 10.1 9.7 10.8 11.9 11.5 11.5 11.5 11.5 11.5 11.5 11.5	JULY 6.5 5.9 6.6 6.6 6.6 6.9 7.6 6.9 8.3 8.7 9.0 8.7 8.7 9.4 9.7 10.2 9.5 9.5 9.8 10.2 10.5 10.9	7.3 7.5 7.4 7.1 7.9 8.5 8.6 8.0 8.6 9.9 9.9 10.0 9.8 10.0 10.7 10.7 10.7 11.3 11.4 11.7 11.8	12.0 12.0 11.6 10.9 11.0 10.3 11.7 12.1 12.5 12.5 12.8 12.8 12.8 12.8 12.5 12.5 12.5 12.5 12.1 10.6	AUGUST 9.5 9.5 9.1 9.8 9.5 9.6 9.2 9.2 9.9 9.9 9.9 9.9 9.9 9.9 10.3 9.9 9.9 10.3	10.5 10.4 10.2 10.1 10.1 9.8 10.3 10.6 10.8 10.9 11.1 11.1 11.1 11.1 10.9 10.7 10.7 10.4 10.1 10.9 10.5 10.8	10.6 11.0 11.7 11.4 11.4 11.8 11.8 11.8 11.8 11.5 10.7 10.7 11.1 10.7 11.1 10.7 11.1 10.7 11.1 10.7 11.1	9.9 9.9 9.9 9.2 8.9 8.9 9.2 9.0 9.7 9.3 9.3 9.3 9.3 9.3 9.7 9.7 9.3 9.0 8.6 8.6 9.0 9.0	10.3 10.3 10.5 10.0 9.9 9.8 9.8 9.8 10.3 10.3 10.3 10.3 10.3 10.9 9.9 10.1 9.7 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.8

12115500 REX RIVER NEAR CEDAR FALLS, WA

LOCATION.--Lat $47^{\circ}21^{\circ}03^{\circ}$, long $121^{\circ}39^{\circ}43^{\circ}$, in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.33, T.22 N., R.9 E., King County, Hydrologic Unit 17110012, Snoqualmie National Forest, on right bank 3.0 mi upstream from mouth and Chester Morse Lake, and 7.5 mi southeast of town of Cedar Falls.

DRAINAGE AREA. -- 13.4 mi².

Date

PERIOD OF RECORD. -- October 1945 to current year.

Time

REVISED RECORDS.--WSP 1286: 1946, 1948(P), 1949(M), 1950(P), 1952(M). WSP 1446: 1946(M), 1951, 1953-55(M). WSP 1932: Drainage area. WDR WA-74-1: 1973.

GAGE.--Water-stage recorder. Elevation of gage is 1,700 ft above NGVD of 1929, from topographic map. Prior to Oct. 1, 2000, published at datum 1,600 ft above NGVD of 1929.

REMARKS.--Records fair. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--57 years (water years 1946-2002), $101 \text{ ft}^3/\text{s}$, 102.71 in/yr, 73,380 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,200 ft³/s Nov. 22, 1959, gage height, 8.20 ft, from rating curve extended above 1,600 ft³/s on basis of contracted-opening measurement at gage height 7.19 ft and slope-area measurement at gage height 8.20 ft; maximum gage height, 9.31 ft Nov. 19, 1962, backwater from debris; minimum discharge, 3.0 ft³/s Sept. 6-8, 1986, gage height, 3.23 ft.

Date Time

Discharge Gage height (ft³/s) (ft)

219 65 13

8.0

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft^3/s and maximum (*):

Discharge Gage height (ft³/s) (ft)

		, .		, ,				,	,	,		
Dec. 13 Jan. 7	1715 2230		803 930	5.55 5.73	Apr.	14	0245	*1,19	0	*6.06		
Minimum d	ischarge,	$5.3 ext{ ft}^3/\text{s}$	Sept. 28,	29.								
		DISCHAF	RGE, CUBIC	FEET PER		WATER Y MEAN V	EAR OCTOBER ALUES	2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	277	73	33	45	65	78	183	236	121	15	7.0
2	7.5 7.0	217 155	77 65	43 41	43 41	58 52	76 71	190 159	232 225	100 86	14 14	8.1 15
4	7.0	127	56	44	38	48	77	129	230	78	14	8.7
5	6.5	128	50	43	36	46	97	120	273	69	15	7.9
6	6.5	99	53	99	38	42	179	105	265	62	23	7.4
7 8	6.5 21	83 71	54 52	576 588	45 44	40 e37	241 177	89 81	204 163	59 61	15 14	7.0 7.1
9	37	62	57	325	43	e34	170	77	161	51	13	7.7
10	53	54	51	204	42	35	265	74	193	48	12	7.0
11	126	49	46	153	41	181	270 405	83	217	44	12	6.7
12 13	143 160	48 100	51 583	190 155	37 34	202 140	563	128 193	241 283	41 37	12 11	6.5 6.5
14	249	361	386	118	31	105	766	238	273	33	11	6.1
15	133	273	198	97	29	86	317	194	235	31	9.8	6.1
16	92	216	397	80	29	73	222	171	193	29 27	9.4	10
17 18	72 57	158 118	341 203	68 61	29 36	63 56	164 132	204 200	171 237	25	9.0 8.9	9.0 7.1
19	125	e122	138	58	43	61	117	209	196	24	8.6	6.9
20	93	e120	104	67	46	58	109	241	168	22	11	9.6
21	112	e135	83	63	188	44	101	232	167	21	9.9	7.0
22 23	173 203	223 263	70 61	54 52	323 284	42 39	134 113	277 230	161 144	20 19	9.2 8.9	6.1 6.1
24	171	167	54	167	229	38	98	213	126	18	8.3	6.1
25	231	120	49	281	150	40	95	228	118	18	7.9	5.7
26 27	180 138	95 79	45 42	149 e95	111 e84	44 46	97 94	243 258	119 113	17 17	8.5 7.9	5.7 5.7
28	104	79	42	e73	72	70	94 95	337	150	17	7.9	5.7
29	86	69	38	63		76	112	340	235	19	7.5	7.4
30 31	92 241	59 	34 35	55 50		77 72	143	295 259	150	17 16	7.5 7.5	9.1
		4110			2211		5570		F070			222.0
TOTAL MEAN	3140.6 101.3	4118 137.3	3588 115.7	4145 133.7	2211 78.96	2070 66.77	5578 185.9	5980 192.9	5879 196.0	1247 40.23	342.7 11.05	222.0 7.400
MAX	249	361	583	588	323	202	766	340	283	121	23	15
MIN AC-FT	6.5 6230	48 8170	34 7120	33 8220	29 4390	34 4110	71 11060	74 11860	113 11660	16 2470	7.5 680	5.7 440
CFSM	7.56	10.2	8.64	9.98	5.89	4.98	13.9	14.4	14.6	3.00	0.82	0.55
IN.	8.72	11.43	9.96	11.51	6.14	5.75	15.49	16.60	16.32	3.46	0.95	0.62
							, BY WATER					
MEAN MAX	71.55 171	148.4 489	151.0 357	132.0 326	119.0 281	91.57 250	136.2 248	160.7 280	115.8 354	44.71 174	17.76	29.22 189
(WY)	1948	1991	1976	1953	1982	1972	1989	1971	1974	1955	62.4 1964	1959
MIN	6.30	7.90	28.9	32.6	20.6	28.7	50.7	41.7	17.1	12.3	6.73	6.54
(WY)	1953	1953	1986	1957	1969	1955	1967	1992	1992	1958	1986	1967
	SUMMARY STATISTICS		FOR 2001 CALENDAR YEAR			FOR 2002 WATER YEAR			WATER YEARS 1946 - 2002			
	L TOTAL			28407.6 77.83			38521.3 105.5			101.3		
	ANNUAL MEAN HIGHEST ANNUAL MEAN			11.03			105.5			146 197		
	r annual			500	D 12		866	334		61.5	37. 04	2001
	ST DAILY I DAILY M			583 6.5	Dec 13 Oct 5		766 5.7	Apr 14 Sep 25		2750 3.1	Nov 24 Sep 7	
ANNUA:	L SEVEN-D	AY MINIMUM		6.9	Oct 1		5.9	Sep 22		3.8	Sep 2	
	L RUNOFF L RUNOFF			56350 5.81			76410 7.88			73380 7.56	:	
	L RUNOFF			78.86			106.94			102.71		
	RCENT EXC			177			239			219		

177 53 8.9

10 PERCENT EXCEEDS
50 PERCENT EXCEEDS
90 PERCENT EXCEEDS

e Estimated

Lake Washington basin 175

12115700 BOULDER CREEK NEAR CEDAR FALLS, WA

LOCATION.--Lat $47^{\circ}21^{\circ}59^{\circ}$, long $121^{\circ}41^{\circ}30^{\circ}$, in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.29, T.22 N., R.9 E., King County, Hydrologic Unit 17110012, Snoqualmie National Forest, on left bank 5.8 mi southeast of Cedar Falls, and at mile 0.4.

DRAINAGE AREA. -- 4.64 mi2.

PERIOD OF RECORD. -- March 1983 to current year.

Time

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,610 ft above NGVD of 1929, from topographic map.

Date

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--19 years (water years 1984-2002), 24.6 ft³/s, 71.89 in/yr, 17,790 acre-ft/yr.

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,800 ft³/s Nov. 23, 1986, gage height, 4.16 ft; maximum gage height, 5.37 ft Feb. 8, 1996; minimum discharge, no flow for many days during August through October most years.

Time

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 310 ${\rm ft}^3/{\rm s}$ and maximum (*):

Date	Time	(ft ³ ,	/s)	(ft)	Date		Time	$(ft^3/s$;)	(ft)			
Apr. 14	0100	*	315	*4.15	No o	ther pea	k greater	than base	discha	rge.			
Minimum dis	charge, 0.	.98 ft ³ /s s	Sept. 28.										
		DISCHAR	GE, CUBIO	C FEET PER		WATER YE. MEAN VA	AR OCTOBER LUES	2001 TO 8	SEPTEMBI	ER 2002			
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	1.4	59	22	11	15 13	21	28	52	54	30	3.5	1.5	
2	1.4	54 43	25 21	13 12	13	18 16	27 25	55 47	51 49	24 20	3.3		
4	1.2	36	19	13	12	15	27	39	48	18	3.3	2.1	
5	1.2	36	17	13	12	15		38	59	16	3.9	1.8	
6	1.2	29	18	26	12 14 13 13	13	54	33	57 47 40 37 40	14 13 13	6.1	1.7 1.7 1.6	
7 8	1.2	25	18	175	14	12	66	29	47	13	4.0	1.7	
9	6.7	19	22	166 98	13	11	53 52	25	37	11	2.1	1 8	
10	9.8	29 25 22 19 16	18 18 19 22 19	61	12	11	54 66 53 52 76	24	40	9.7	3.0	1.5	
11	33	14	17 18	46	13 12 12 11 9.9 9.4 8.9	46	82	26	44	9.0 8.3 7.6 7.1 6.6	2.8	1.4	
12	27			50	11	50	121	36	48	8.3	2.7	1.3	
13 14	34 46	30 162	163 116	44 37	9.9	37	173	51	55 54	7.6	2.5	1.2	
15	32	90	61	30	8.9	26	102	26 36 51 63 54	45	6.6	2.4	1.2	
16	24	66	122	26	8.7	22	69						
17	18	51	99	22	8.9	18	52	53	34	5.8	2.1	1.8	
18 19	14	39	62	20	12	16	42	52	50	5.5	2.0	1.4	
20	29 25	41 40	43 34	20 23	15 16	16	69 52 42 38 35	61	36	6.1 5.8 5.5 5.4 5.1	2.6	1.5 1.9	
21	25		28	21	72								
22	38	47 71	28 23 20	18	139	13	45	70	33	4.5	2.1	1.3	
23	46	89	20		98	13	39	60	29	4.2	1.9	1.2	
24 25	42 62	57 42	17 16		72 48	13 15	35	54 56	26 23	4.7 4.5 4.2 4.1 3.9	1.9	1.1	
26	49	33 28	14	43	48 36 29 25								
27	39	28	13	30	29	17	33 32 32	63	22	3.8	1.8	1.1	
28	30	26	13	23	25	23	32	88	34	4.1	1.7	1.1	
29 30	24 26	23 21	11	19		26 27	36 44	90 72	54 37	4.6	1.6	1.4	
31	51		12	43 30 23 19 18		25		59 63 88 90 72 60		3.9 3.8 4.1 4.6 4.1 3.7	1.6		
TOTAL	743.4	1323	1114	1222	759.8	622	1739	1597	1244	280.8 9.06 30 3.7 557 1.95 2.25	80.5	46.3	
MEAN MAX	24.0	44.1	35.9	39.4	27.1	20.1	58.0	51.5	41.5	9.06	2.60	1.54	
MIN	1.2	162	163	11	8.7	11	222	24	22	3.7	1.6	1.1	
AC-FT	1470	2620	2210	2420	1510	1230	3450	3170	2470	557	160	92	
CFSM IN.	5.17	9.50 10.61	7.74	8.50 9.80	5.85	4.32	12.5 13.94	11.1	8.94	1.95	0.56	0.33	
							BY WATER			2.23	0.03	0.57	
MEAN										6.74	1 60	2 01	
MAX	14.2 42.0	48.0 124	38.6 137	35.3 73.2	32.4 97.8	28.6 48.9	36.9 70.7	31.6 52.9	18.2 42.8	6.74 27.8	1.62 5.22	2.81 12.2	
(WY)	1986	1996 2.07	1999	1984	1996	1993	1985	1999	1999	1983	1993	1983	
MIN (WY)	0.000 1988	2.07 1988	5.92	9.96 1985	10.9 1994	9.34 1992	16.3 1995	9.21 1992	2.03 1992	0.22 1987	0.000 1987	0.000 1987	
										WATER YEARS			
	ANNUAL TOTAL ANNUAL MEAN			7940.7 21.8			10771.8 29.5			24.6			
HIGHEST ANNUAL MEAN						29.3			37.0 1999				
LOWEST ANNUAL MEAN			163 - 13			222 3 14			15.6 1992				
HIGHEST DAILY MEAN LOWEST DAILY MEAN			163 Dec 13 1 0 Sep 24			222 Apr 14 1.1 Sep 24			850 Feb 8 1996 0.00 Aug 8 1984				
ANNUAL	ANNUAL SEVEN-DAY MINIMUM			163 Dec 13 1.0 Sep 24 1.2 Sep 18 15750 4.69			222 Apr 14 1.1 Sep 24 1.1 Sep 22 21370			0.00 Aug 8 1984 17790 5.29			
		AC-FT)		15750		213,0				17790			
	RUNOFF (C			4.69 63.66			6.36 86.36			5.29 71.89			
10 PER	CENT EXCER	EDS	63.66 49			60			71.89 54				
50 PER	CENT EXCER	EDS		16			22			14			
90 PER	CENT EXCE	SUS		1.8			1.8			0.63			

12115900 CHESTER MORSE LAKE AT CEDAR FALLS, WA

LOCATION.--Lat $47^{\circ}24'34"$, long $121^{\circ}43'22"$, in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.12, T.22 N., R.8 E., King County, Hydrologic Unit 17110012, at the overflow dike, 3.1 mi southeast of town of Cedar Falls, and at mile 37.2.

DRAINAGE AREA. -- 78.4 mi².

PERIOD OF RECORD. -- October 1977 to current year.

GAGE.--Water-stage recorder. Prior to Aug. 22, 2001, nonrecording gage at same site and datum. Datum of gage is 7.39 ft above NGVD of 1929 (levels by City of Seattle).

REMARKS.--Reservoir is formed by concrete overflow dike (wooden crib dam prior to 1989). Usable capacity, 37,186 acre-ft between gage heights 1,532 ft, minimum operation level, and 1,555 ft, spillway crest. Unused storage below gage height 1,532 ft is 38,137 acre-ft. Occasionally, elevation of downstream Cedar Lake exceeds 1,555 ft and the overflow dike is submerged. Chester Morse Lake is then controlled by masonry gravity dam at Cedar Lake. Water is used by City of Seattle for municipal water supply and power production. U.S. Geological Survey satellite telemeter at station.

COOPERATION. -- Prior to Aug. 22, 2001, gage-height record furnished by City of Seattle Water Department.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 1,568.59 ft Nov. 25, 1990; minimum observed, 1,533.24 ft Nov. 8, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 1,564.11 ft June 6; minimum, 1,545.64 ft Apr. 6.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY OBSERVATION AT 0800 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1548.93	1551.24	1550.20	1548.98	1551.27	1552.98	1547.06	1550.62	1562.82	1560.50	1557.73	1552.74
2	1548.84	1551.89	1550.07	1548.33	1550.93	1552.79	1546.80	1551.16	1563.13	1560.52	1557.53	1552.60
3	1548.73	1552.21	1549.88	1547.88	1550.59	1552.57	1546.49	1551.68	1563.42	1560.60	1557.33	1552.51
4	1548.63	1552.23	1549.69	1547.63	1550.32	1552.33	1546.12	1551.92	1563.65	1560.75	1557.13	1552.36
5	1548.42	1552.35	1549.54	1547.53	1549.96	1552.07	1545.79	1552.10	1563.86	1560.88	1556.96	1552.19
6	1548.18	1552.44	1549.39	1547.45	1549.69	1551.70	1545.67	1552.28	1564.04	1560.96	1556.85	1552.03
7	1547.91	1552.44	1549.39	1547.45	1549.69	1551.70	1545.67	1552.20	1563.94	1561.04	1556.70	1552.03
8	1547.73	1552.44	1549.30	1551.62	1549.55	1551.26	1545.97	1552.32	1563.34	1561.04	1556.70	1551.67
9	1547.73	1552.32	1549.15	1551.62	1549.46	1550.76	1546.40	1551.79	1562.64	1561.16	1556.36	1551.73
10	1547.63	1551.79			1549.34			1551.79		1561.24	1556.36	
10	1547.48	1551.79	1548.96	1554.68	1549.17	1549.79	1546.71	1551.53	1561.86	1561.29	1556.21	1551.43
11	1547.61	1551.47	1548.79	1554.79	1549.00	1549.37	1547.25	1551.38	1561.46	1561.31	1556.08	1551.27
12	1547.78	1551.10	1548.66	1554.74	1548.90	1550.09	1548.00	1551.41	1561.48	1561.30	1555.93	1551.06
13	1548.12	1550.81	1549.20	1555.00	1548.68	1550.40	1549.60	1551.62	1561.91	1561.27	1555.77	1550.84
14	1548.51	1551.57	1552.22	1554.84	1548.54	1550.45	1552.38	1552.27	1562.58	1561.19	1555.61	1550.60
15	1549.21	1553.61	1553.30	1554.27	1548.51	1550.43	1554.54	1553.00	1563.19	1561.12	1555.45	1550.37
16	1549.34	1554.68	1554.24	1553.42	1548.24	1550.39	1555.04	1553.58	1563.60	1561.01	1555.28	1550.18
17	1549.53	1555.11	1556.58	1552.48	1548.08	1550.34	1554.90	1554.09	1563.67	1560.85	1555.13	1549.99
18	1549.58	1555.12	1557.74	1551.70	1548.01	1550.31	1554.50	1554.66	1563.33	1560.65	1554.96	1549.79
19	1549.60	1554.78	1557.83	1551.26	1547.88	1550.42	1553.71	1555.22	1563.14	1560.43	1554.80	1549.56
20	1549.93	1554.48	1557.55	1550.90	1547.93	1550.81	1552.85	1555.87	1562.78	1560.22	1554.64	1549.36
21	1550 05	1554 11	1557 05	1550 65	1540 00	1550 07	1550 01	1556 50	1560 25	1550 00	1554 40	1540 15
21	1550.05	1554.11	1557.05	1550.65	1548.02	1550.87	1552.01	1556.59	1562.35	1559.98	1554.49	1549.15
22 23	1550.28 1550.74	1553.56	1556.38	1550.31	1549.22	1550.49	1551.29	1557.37	1561.95	1559.74	1554.34 1554.18	1548.92
		1553.67	1555.35	1549.90	1550.79	1549.97	1550.85	1558.18	1561.54	1559.49		1548.70
24	1551.14	1553.62	1554.48	1549.64	1551.91	1549.44	1550.55	1558.66	1561.04	1559.25	1554.02	1548.48
25	1550.77	1553.03	1553.47	1550.52	1552.57	1548.88	1550.39	1558.78	1560.64	1558.99	1553.86	1548.25
26	1550.95	1552.38	1552.50	1551.42	1552.90	1548.32	1550.26	1558.84	1560.39	1558.79	1553.70	1547.99
27	1551.03	1551.64	1551.65	1551.66	1553.09	1547.89	1550.19	1559.00	1560.22	1558.61	1553.55	1547.70
28	1551.01	1551.12	1550.94	1551.69	1553.11	1547.59	1550.13	1559.60	1560.09	1558.43	1553.39	1547.44
29	1550.83	1550.68	1550.47	1551.63		1547.55	1550.13	1560.60	1560.32	1558.27	1553.23	1547.23
30	1550.66	1550.41	1549.96	1551.57		1547.46	1550.28	1561.64	1560.53	1558.09	1553.07	1546.96
31	1550.64		1549.39	1551.48		1547.28		1562.37		1557.91	1552.91	
MAX	1551.14	1555.12	1557.83	1555.00	1553.11	1552.98	1555.04	1562.37	1564.04	1561.31		1552.74
MIN	1547.48	1550.41	1548.66	1547.45	1547.88	1547.28	1545.67	1550.62	1560.09	1557.91	1552.91	1546.96

CAL YR 2001 MAX 1563.66 MIN 1541.46 WTR YR 2002 MAX 1564.04 MIN 1545.67

lake washington basin 177

12116060 CEDAR LAKE (MASONRY POOL) NEAR CEDAR FALLS, WA

LOCATION.--Lat $47^{\circ}24^{\circ}43^{\circ}$, long $121^{\circ}45^{\circ}04^{\circ}$, in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.11, T.22 N., R.8 E., King County, Hydrologic Unit 17110012, at Masonry Dam, 1.6 mi southeast of town of Cedar Falls, and at mile 35.6.

DRAINAGE AREA. -- 78.4 mi².

PERIOD OF RECORD. -- October 1977 to current year.

GAGE.--Nonrecording gage. Datum of gage is 7.39 ft above NGVD of 1929 (levels by City of Seattle).

REMARKS.--Reservoir is formed by masonry gravity dam. Usable capacity, 40,285 acre-ft between gage heights 1,530.0 ft, normal minimum regulating pool, and 1,554.6 ft, normal maximum regulating pool. Unused storage below gage height 1,530.0 ft, 36,000 acre-ft. Water is used by City of Seattle for municipal water supply and power production.

COOPERATION. -- Gage-height record furnished by City of Seattle Water Department.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 1,568.53 ft Nov. 25, 1990; minimum not determined (occurred during period Aug. 2 to Sept. 19, 1978, while the pool was drained for maintenance).

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 1,564.00 ft June 6; minimum observed, 1,517.80 ft Oct. 18.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY OBSERVATION AT 0800 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1527.38	1550.52	1547.25	1544.71	1550.75	1553.04	1543.32	1550.25	1562.72	1560.47	1557.55	1552.65
2	1527.02	1551.65	1546.45	1544.72	1550.25	1552.89	1542.15	1551.37	1563.35	1560.47	1557.41	1552.50
3	1526.51	1552.00	1546.40	1545.12	1549.65	1552.75	1541.65	1551.33	1563.36	1560.56	1557.23	1552.34
4	1526.22	1552.00	1546.88	1545.85	1548.67	1552.47	1541.19	1551.68	1562.59	1560.67	1557.02	1552.25
5	1526.40	1552.23	1547.11	1546.35	1547.55	1552.05	1540.82	1551.87	1563.81	1560.78	1556.87	1552.10
6	1525.95	1552.35	1547.12	1546.45	1547.50	1551.66	1540.64	1552.10	1564.00	1560.84	1556.73	1551.95
7	1525.33	1552.36	1546.98	1546.75	1547.50	1550.98	1540.57	1552.05	1563.94	1560.93	1556.62	1551.85
8	1524.80	1552.24	1546.80	1550.57	1547.44	1549.92	1540.83	1551.70	1563.45	1561.07	1556.45	1551.65
9	1524.25	1552.03	1546.75	1553.82	1547.37	1547.59	1540.38	1551.36	1562.73	1561.16	1556.26	1551.50
10	1523.67	1551.60	1546.67	1554.62	1547.30	1545.84	1540.21	1551.11	1561.84	1561.07	1556.11	1551.32
11 12 13 14 15	1523.07 1522.70 1522.45 1522.43 1522.50	1551.21 1550.75 1550.37 1551.37 1553.54	1546.77 1547.07 1548.36 1550.90	1554.77 1554.66 1554.90 1554.94 1554.50	1547.14 1547.43 1547.37 1547.37	1544.70 1546.53 1547.54 1547.93 1548.43	1540.37 1540.95 1541.83 1547.70 1554.43	1551.03 1551.15 1551.35 1552.10 1552.80	1561.39 1561.40 1561.80 1562.39 1563.01	1561.29 1561.29 1561.23 1561.23	1555.99 1555.82 1555.68 1555.50 1555.40	1551.10 1550.95 1550.65 1550.50 1550.10
16	1521.30	1554.65	1554.15	1553.09	1547.10	1548.85	1554.99	1553.46	1563.33	1561.07	1555.20	1550.00
17	1519.10	1555.00	1556.55	1552.20	1547.11	1549.16	1554.90	1553.97	1563.41	1560.95	1555.00	1549.50
18	1517.80	1555.14	1557.61	1550.87	1547.02	1549.57	1554.46	1554.53	1563.09	1560.80	1554.88	1549.20
19	1517.85	1554.75	1557.72	1550.46	1547.02	1550.10	1553.40	1555.10	1562.96	1560.60	1554.70	1549.00
20	1518.05	1554.40	1557.40	1549.73	1546.87	1550.57	1552.51	1555.70	1562.85	1560.37	1554.53	1548.90
21	1517.95	1554.05	1556.99	1548.45	1546.88	1550.30	1551.00	1556.45	1562.43	1560.17	1554.38	1548.60
22	1519.50	1553.39	1556.38	1547.35	1547.50	1548.22	1548.49	1557.27	1562.08	1559.95	1554.20	1548.40
23	1524.90	1553.44	1555.35	1545.55	1549.60	1548.23	1547.21	1558.06	1561.31	1559.74	1554.10	1548.15
24	1534.55	1553.32	1554.30	1545.73	1551.70	1544.50	1547.24	1558.52	1560.83	1559.53	1553.90	1548.00
25	1546.65	1552.88	1553.15	1549.31	1552.53	1543.56	1547.65	1558.68	1560.43	1558.78	1553.76	1547.60
26 27 28 29 30 31	1549.85 1550.23 1550.30 1549.88 1549.65 1549.35	1551.95 1550.55 1549.30 1548.30 1547.80	1552.06 1550.70 1549.87 1547.90 1545.88 1544.47	1551.07 1551.40 1551.49 1551.55 1551.48 1551.40	1552.80 1552.97 1552.90 	1543.27 1543.56 1544.57 1544.73 1544.12 1543.70	1547.38 1547.21 1547.30 1548.32 1548.94	1558.70 1558.85 1559.45 1560.45 1561.51 1562.24	1560.43 1560.37 1560.23 1560.23	1558.95 1559.10 1558.60 1558.48 1558.28 1558.11	1553.60 1553.50 1553.22 1553.13 1552.98 1552.98	1547.40 1547.10 1546.98 1546.54 1546.31
MAX	1550.30	1555.14	1557.72	1554.94	1552.97	1553.04	1554.99	1562.24	1564.00	1561.29	1557.55	1552.65
MIN	1517.80	1547.80	1544.47	1544.71	1546.87	1543.27	1540.21	1550.25	1560.23	1558.11	1552.98	1546.31

CAL YR 2001 MAX 1563.35 MIN 1505.10 WTR YR 2002 MAX 1564.00 MIN 1517.80

12116100 CANYON CREEK NEAR CEDAR FALLS, WA

LOCATION.--Lat 47°25'11", long 121°45'55", in NW $\frac{1}{4}$ SEc $\frac{1}{4}$ sec.3, T.22 N., R.8 E., King County, Hydrologic Unit 17110012, Snoqualmie National Forest, on right bank 400 ft upstream from mouth, and 0.8 mi east of town of Cedar Falls.

DRAINAGE AREA.--0.19 mi².

PERIOD OF RECORD.--May 1945 to current year. Prior to October 1960 published in WSP 1932.

GAGE.--Water-stage recorder and wooden control. Elevation of gage is 1,040 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. No regulation or diversion upstream from station. Flow is mostly seepage from Chester Morse Lake.

AVERAGE DISCHARGE.--57 years (water years 1946-2002), 15.2 $\mathrm{ft^3/s}$, 10,980 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 131 ft^3/s Dec. 7, 1975, gage height, 2.22 ft ; minimum daily discharge, 0.22 ft^3/s Nov. 6-11, 17-22, 1987.

 $\hbox{\it EXTREMES FOR CURRENT YEAR.--Maximum discharge, 50 ft}^3/s \hbox{\it June 10-12; minimum discharge, 1.3 ft}^3/s \hbox{\it Oct. 27-30.}$

		DISCHA	RGE, CUBI	C FEET PER		WATER MEAN	YEAR OCTOBER VALUES	2001 TO	SEPTEME	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	4.0 3.9 3.7 3.5 3.5	1.8 2.0 2.3 2.5 2.8	13 12 12 11 11	13 13 12 11 11	8.4 8.4 8.4 8.4	6.7 6.9 6.9 7.2 7.2	6.3 6.2 6.0 5.9	6.5 6.5 6.5 6.8	20 23 26 30 35	35 35 35 34 34	28 28 28 27 26	16 16 16 15 15
6 7 8 9 10	3.3 3.0 3.0 2.8 2.7	3.1 3.4 3.8 4.0 4.4	11 10 10 10 9.9	10 10 9.9 9.4 8.8	8.4 8.4 8.3 8.0 8.0	7.2 7.4 7.6 7.6 7.6		6.9 6.9 7.2 7.2 7.2	40 44 47 48 49	34 35 35 35 35	25 25 25 24 24	15 15 15 13 13
11 12 13 14 15	2.6 2.4 2.3 2.3 2.0	4.8 5.2 5.8 7.9 7.2	9.6 9.6 10 9.9 9.6	8.8 8.8 8.8 8.8	8.0 7.6 7.6 7.3 7.2	8.3 8.1 7.8 7.6 7.6		7.3 7.6 7.6 7.7 7.9	49 49 48 48	35 35 36 36 36	23 23 23 22 22	13 13 13 13 12
16 17 18 19 20	1.9 1.8 1.7 1.6	7.2 7.6 7.8 8.7 9.3	9.9 9.8 9.6 9.9	9.0 9.2 9.3 9.6 9.6	7.2 7.2 7.1 6.9 6.9	7.3 7.2 7.2 7.3 8.1	5.0 5.0 5.1	8.0 8.0 8.0 8.2 8.5	48 49 49 49	36 35 35 35 35	21 21 20 20 19	12 12 12 12 11
21 22 23 24 25	1.5 1.4 1.4 1.4	9.8 11 12 11	12 13 15 15 16	9.6 9.6 9.4 9.3	7.1 7.2 6.9 6.9	7.2 7.2 7.2 7.2 6.9	5.7 5.9 5.9	8.8 9.2 9.7 10	49 48 47 46 45	35 34 34 33 32	19 19 19 18	11 11 11 10 10
26 27 28 29 30 31	1.4 1.3 1.3 1.4	11 11 12 13 12	16 16 16 15 15	9.3 8.8 8.7 8.4 8.4	6.5 6.5 	6.9 6.6 6.5 6.5	6.5 6.5 6.5	12 13 15 16 16	43 41 39 38 36	32 31 31 30 29 28	18 18 17 16 16	10 9.6 9.2 9.2
TOTAL MEAN MAX MIN AC-FT	69.1 2.229 4.0 1.3 137	215.4 7.180 13 1.8 427	371.8 11.99 16 9.6 737	298.7 9.635 13 8.4 592	210.2 7.507 8.4 6.5 417	224.4 7.239 8.3 6.5 445	5.720	285.7 9.216 18 6.5 567	1279 42.63 49 20 2540	1050 33.87 36 28 2080	668 21.55 28 16 1320	372.6 12.42 16 9.2 739
STATIST	CICS OF MO	ONTHLY MEA	AN DATA F	OR WATER Y	EARS 1945	- 2002	2, BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	3.024 22.6 1960 0.32 1988	7.827 67.3 1948 0.23 1988	16.48 58.6 1976 0.46 1953	15.68 51.5 1954 0.63 2001	14.86 65.6 1953 0.38 2001	12.43 47.7 1950 0.41 2001	53.8 1988 4.31	22.80 51.6 1988 3.65 1999	32.56 73.1 1946 9.80 1963	24.44 63.9 1955 5.74 1978	13.43 39.8 1955 1.55 1987	5.380 18.5 1955 0.53 1978
SUMMARY	STATIST	ICS	FOR	2001 CALEN	DAR YEAR		FOR 2002 WA	TER YEAR		WATER YEAR	RS 1945	- 2002
LOWEST HIGHEST LOWEST ANNUAL ANNUAL 10 PERC 50 PERC	MEAN ANNUAL N	EAN EAN AN MINIMUM AC-FT) EDS EDS		5210.19 14.27 59 0.30 0.30 10330 43 9.9 0.40	Jun 21 Feb 15 Feb 15		5216.5 14.29 49 1.3 1.4 10350 35 9.6 3.8	Jun 10 Oct 28 Oct 23		15.16 29.3 6.29 120 0.20 10980 35 11 1.6	Dec Nov	1950 1977 7 1975 6 1987 5 1987

12116400 CEDAR RIVER AT POWERPLANT, AT CEDAR FALLS, WA

LOCATION.--Lat $47^{\circ}25'08"$, long $121^{\circ}46'49"$, in SE $\frac{1}{4}$ sec.4, T.22 N., R.8 E., King County, Hydrologic Unit 17110012, on right bank 100 ft upstream from Seattle Municipal Powerplant at town of Cedar Falls, and at mile 33.7.

DRAINAGE AREA.--83.9 mi², includes 78.4 mi² upstream from Cedar Lake which is non-contributing except during spillage and seepage from dam.

PERIOD OF RECORD.--October 2001 to September 2002.

GAGE.--Water-stage recorder, crest-stage gage and concrete weir. Datum of gage is 900.00 ft above NGVD of 1929 (City of Seattle benchmark).

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated by Chester Morse Lake (station 12115900) and Cedar Lake (station 12116060) to supply powerplant, which discharges below gage. Entire flow of river normally diverted at Cedar Lake except for infrequent releases. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 720 ft³/s June 22, gage height, 34.44 ft; minimum discharge, 3.3 ft³/s Oct. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		DISCRAI	KGE, CUBI	C PEEL PER		Y MEAN VA		R 2001 10	SEPIEMBE	R 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e5.1	26	36	21	24	e22	20	24	e40	165	76	e20
2	4.8	29	34	21	23	e20	20	27	e42	48	75	20
3	4.4	27	30	21	24	19	19	26	e45	45	74	20
4	4.1	25	28	21	23	19	e18	24	49	43	74	19
5	3.8	26	26	20	22	19	e20	e21	58	41	66	17
6	3.6	24	28	23	22	18	28	21	117	40	51	17
7	3.5	22	26	85	24	17	33	20	513	40	50	17
8	4.4	20	25	94	25	17	29	20	513	40	50	16
9	4.9	19	28	60	24	16	27	19	590	40	39	16
10	5.0	18	26	41	22	17	36	18	610	39	27	23
11	16	17	24	33	22	32	47	e18	473	57	26	52
12	17	18	24	32	20	34	66	e18	242	84	25	75
13	25	21	74	29	19	29	93	e23	65	84	25	e81
14	32	102	75	162	18	26	160	e29	62	84	e25	e86
15	28	74	48	398	18	24	175	e27	58	84	e24	e86
16	21	51	69	533	17	23	355	e25	104	107	24	e88
17	18	40	72	426	17	21	342	e26	530	149	24	e89
18	15	33	111	125	19	20	491	e28	694	172	23	88
19	19	33	115	24	21	26	625	e26	692	170	23	88
20	21	73	150	26				e28	686	170	23	87
20	21	/3	150	∠6	21	36	614	e28	686	170	23	8 /
21	20	302	317	25	42	26	602	e37	686	170	22	87
22	21	469	448	23	79	22	449	e34	682	168	22	86
23	22	486	442	22	65	21	146	32	673	168	22	86
24	24	467	438	29	50	20	22	31	588	167	21	98
25	35	455	434	53	37	20	21	32	411	137	21	131
26	33	447	342	37	30	20	21	34	301	92	21	130
27	28	364	154	30	26	20	20	36	300	79	22	130
28	23	114	25	26	e24	20	20	51	246	79	22	130
29	20	36	24	23		20	20	60	212	78	22	130
30	19	32	22	23		20	21	e47	198	78	20	129
31	24		22	26		20		e42	196	76	e20	129
31	24		22	20		20		CTZ		70	620	
TOTAL	524.6	3870	3717	2512	778	684	4560	904	10561	2994	1059	2142
MEAN	16.9	129	120	81.0	27.8	22.1	152	29.2	352	96.6	34.2	71.4
MAX	35	486	448	533	79	36	625	60	694	172	76	131
MIN	3.5	17	22	20	17	16	18	18	40	39	20	16
AC-FT	1040	7680	7370	4980	1540	1360	9040	1790	20950	5940	2100	4250
110 11	1010	,000	, , , ,	1500	1310	1300	2010	1,00	20000	3310	2100	1250

e Estimated

12116500 CEDAR RIVER AT CEDAR FALLS, WA

LOCATION.--Lat $47^{\circ}25^{\circ}02^{\circ}$, long $121^{\circ}47^{\circ}27^{\circ}$, in SW $\frac{1}{4}$ sec.4, T.22 N., R.8 E., King County, Hydrologic Unit 17110012, Snoqualmie National Forest, on right bank 0.5 mi downstream from Seattle municipal powerplant at town of Cedar Falls, 4.0 mi downstream from Chester Morse Lake, and at mile 33.2.

DRAINAGE AREA. -- 84.2 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- April 1914 to current year.

REVISED RECORDS.--WSP 722: 1930. WSP 1286: 1934(M), drainage area. WA-96-1: 1991(M).

GAGE.--Water-stage recorder. Datum of gage is 902.1 ft above NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good except for period July 1-18, which is fair. All diversions are returned to river upstream from station. Flow regulated by Chester Morse Lake (station 12115900) and Cedar Lake (station 12116060). U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--88 years (water years 1915-2002), 321 ft³/s, 232,400 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,120 ft³/s, Nov. 24, 1990, gage height, 14.00 ft, from flood mark, from rating curve extended above 5,000 ft³/s; no flow part or all of each day Nov. 25, 1917, Aug. 18, 1923, Sept. 30 to Oct. 5, 1987

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,340 ft³/s Apr. 18, gage height, 7.83 ft; minimum discharge, 12.0 ft³/s Sept.

		DISCHAR	GE, CUBI	C FEET PER		WATER Y	EAR OCTOBER ALUES	2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	91 90 88 105 201	314 315 455 401 277	578 554 469 373 372	536 522 379 264 212	499 500 499 498 456	360 358 356 361 520	589 635 636 638 646	243 259 379 379 363	414 434 448 476 717	377 215 97 49 47	78 78 77 76 68	17 18 18 16 14
6 7 8 9 10	216 216 216 216 216 216	268 281 369 392 404	377 381 377 380 367	216 275 391 599 746	340 340 338 334 334	530 575 666 667 669	658 661 691 735 747	345 529 557 550 435	786 1190 1290 1280 1130	47 45 45 46 43	55 53 52 42 27	13 13 13 13 21
11 12 13 14 15	224 223 233 241 254	405 408 382 232 262	300 196 178 318 463	672 638 679 859 1090	301 249 250 230 205	544 456 535 498 414	759 779 805 861 865	346 266 195 159 154	803 570 376 355 349	58 86 91 96 101	25 24 23 22 22	53 74 80 84 84
16 17 18 19 20	295 277 239 232 255	412 511 709 739 779	150 263 568 783 848	1190 1070 781 676 681	200 201 204 204 203	334 258 170 82 226	1050 1030 1180 1330 1320	155 175 177 176 177	400 842 1020 1010 1010	127 154 168 168 167	22 21 21 21 21	85 86 84 84
21 22 23 24 25	256 246 188 188 183	994 1150 1150 1140 1130	1000 1140 1130 1120 1110	682 678 644 284 214	224 259 250 236 221	486 713 711 711 696	1300 1150 852 576 546	177 177 234 457 706	1010 1010 1000 915 730	167 165 163 163 137	20 20 19 18 18	83 82 82 93 126
26 27 28 29 30 31	166 316 310 308 319 332	1120 1040 807 672 574	1030 849 727 726 725 678	328 322 318 313 331 406	211 242 359 	601 485 421 443 541 541	544 466 383 330 262	710 653 507 385 299 368	614 618 560 520 494	94 82 82 81 80 79	18 20 19 19 18 17	126 126 126 126 126
TOTAL MEAN MAX MIN AC-FT	6940 223.9 332 88 13770	18092 603.1 1150 232 35890	18530 597.7 1140 150 36750	16996 548.3 1190 212 33710	8387 299.5 500 200 16640	14928 481.5 713 82 29610	23024 767.5 1330 262 45670	10692 344.9 710 154 21210	22371 745.7 1290 349 44370	3520 113.5 377 43 6980	1034 33.35 78 17 2050	2050 68.33 126 13 4070
STATIST	rics of M	ONTHLY MEA	N DATA F	OR WATER	YEARS 1914	- 2002	, BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	163.9 547 1960 34.7 1953	352.4 1780 1991 24.9 1953	527.3 2197 1918 47.7 1953	497.5 1393 1918 133 1952	425.2 1256 1982 95.0 1988	354.1 1324 1972 89.0 1941	361.7 767 2002 75.3 1995	391.9 868 1997 59.5 1992	386.6 1419 1917 46.3 1963	187.4 814 1917 24.5 1926	112.1 424 1954 20.2 2001	102.1 324 1959 28.3 1957
SUMMARY	STATIST	ICS	FOR	2001 CALEN	NDAR YEAR	1	FOR 2002 WA	TER YEAR		WATER YEAR	S 1914 -	2002
LOWEST HIGHEST LOWEST ANNUAL ANNUAL 10 PERC 50 PERC	MEAN FANNUAL M ANNUAL M FDAILY M DAILY ME	EAN EAN AN Y MINIMUM AC-FT) EDS EDS		84601 231.8 1150 13 14 167800 501 175 30	Nov 22 Sep 6 Aug 31		146564 401.5 1330 13 14 290700 860 331 46	Apr 19 Sep 6 Sep 3		320.8 567 93.0 7440 0.00 0.04 232400 694 227 61		1987

12116500 CEDAR RIVER AT CEDAR FALLS, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- March 1999 to current year.

PERIOD OF DAILY RECORD. --

WATER TEMPERATURE: March 1999 to current year.

REMARKS.--Records excellent except for period July 19 to Sept. 30, which are good.

INSTRUMENTATION. -- Temperature recorder since March, 1999.

EXTREMES FOR PERIOD OF DAILY RECORD.-WATER TEMPERATURE: Maximum, 19.5°C (rounded) Aug. 8, 9, 16, 2000; minimum, 1.2°C Feb. 12, 2001.

EXTREMES FOR CURRENT YEAR. --

WATER TEMPERATURE: Maximum, 17.7°C Sept. 13, 14 minimum, 2.0°C Feb. 3, 4, Mar. 21.

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER	-	NO	OVEMBER		DE	CEMBER			JANUARY	
1 2 3 4 5	15.1 15.1 14.7 14.6 13.9	14.5 14.2 14.2 13.9 13.3	14.8 14.6 14.4 14.2 13.6	8.1 8.1 8.1 8.0	8.0 7.9 7.8 7.9 7.8	8.0 8.0 8.0 8.0 7.9	5.1 5.1 5.0 5.0 4.8	5.0 5.0 4.9 4.8 4.6	5.1 5.1 5.0 4.9 4.7	3.0 3.2 3.3 3.5 3.6	3.0 3.0 3.1 3.3 3.4	3.0 3.1 3.2 3.4 3.5
6 7 8 9 10	13.3 13.0 12.7 12.4 12.0	13.0 12.7 12.3 12.0 11.7	13.2 12.9 12.6 12.2 11.8	7.9 7.7 7.5 7.4 7.3	7.7 7.4 7.2 7.1 7.1	7.8 7.6 7.4 7.2 7.2	4.7 4.7 4.7 4.7 4.6	4.5 4.5 4.6 4.4 4.5	4.7 4.6 4.7 4.6 4.5	4.1 4.8 4.7 4.0 3.8	3.4 4.1 4.0 3.8 3.7	3.7 4.5 4.3 3.9 3.8
11 12 13 14 15	11.7 11.3 11.3 11.0 11.0	11.2 11.1 10.9 10.7 10.5	11.4 11.2 11.1 10.9 10.7	7.3 7.3 7.7 8.5 8.2	7.1 7.1 7.2 7.7 7.6	7.2 7.2 7.3 8.2 7.9	4.6 5.2 5.6 5.3 5.1	4.5 4.6 5.1 4.3 4.2	4.6 4.7 5.5 4.8 4.4	3.9 3.8 3.7 3.7	3.7 3.7 3.5 3.4 3.3	3.8 3.7 3.7 3.5 3.4
16 17 18 19 20	10.6 10.4 10.2 9.9 9.9	10.3 10.1 9.8 9.8 9.6	10.4 10.2 10.0 9.9 9.7	7.6 7.5 7.3 7.0 7.2	7.5 7.3 7.0 6.9 6.8	7.6 7.4 7.2 7.0 6.9	5.7 5.5 4.2 3.9 3.9	5.1 4.1 3.8 3.7 3.7	5.5 4.6 4.0 3.8 3.8	3.4 3.3 3.3 3.2 3.0	3.3 3.2 3.1 3.0 2.9	3.3 3.3 3.2 3.1 3.0
21 22 23 24 25	9.7 9.5 9.3 8.5 8.3	9.5 9.3 8.5 8.2 8.1	9.6 9.5 9.1 8.4 8.2	6.9 6.8 6.7 6.5 6.4	6.8 6.7 6.5 6.3 6.2	6.9 6.8 6.6 6.4 6.3	4.0 3.9 3.8 3.6 3.4	3.8 3.7 3.6 3.4 3.1	3.8 3.8 3.7 3.5 3.2	3.0 2.9 2.8 3.5 3.7	2.9 2.7 2.6 2.8 2.9	2.9 2.8 2.7 3.1 3.4
26 27 28 29 30 31	8.6 8.4 8.3 8.2 8.2	8.1 8.2 8.0 7.9 8.0 8.0	8.4 8.3 8.1 8.1 8.1	6.3 6.1 5.5 5.1	6.2 6.1 5.4 5.1 4.9	6.3 6.3 5.7 5.3 5.0	3.1 3.0 2.9 2.9 3.0 3.0	3.0 2.8 2.8 2.8 2.8 2.9	3.0 2.9 2.8 2.9 2.9 3.0	3.1 2.6 2.5 2.6 2.4 2.4	2.6 2.3 2.3 2.3 2.2 2.2	2.9 2.4 2.5 2.5 2.3 2.3
MONTH	15.1	7.9	10.8	8.5	4.9	7.1	5.7	2.8	4.2	4.8	2.2	3.2

12116500 CEDAR RIVER AT CEDAR FALLS, WA--Continued

		TEMPE	RATURE,	WATER (DEC	G. C), WA	ATER YEAR	OCTOBER 2	001 TO S	SEPTEMBER	2002		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY	•		MARCH			APRIL			MAY	
1 2 3 4 5	2.3 2.2 2.2 2.2 2.3	2.2 2.1 2.0 2.0 2.1	2.2 2.2 2.1 2.1 2.2	2.8 2.8 3.0 3.2 3.2	2.5 2.4 2.6 2.8 3.1	2.7 2.7 2.8 3.0 3.2	4.1 4.2 4.3 4.6 4.6	3.8 3.9 4.2 4.5	3.9 4.0 4.1 4.4 4.6	7.1 7.2 7.7 7.4 7.3	6.7 6.9 7.0 7.0	6.8 7.0 7.3 7.2 7.2
6 7 8 9 10	2.4 2.4 2.6 2.6 2.7	2.2 2.1 2.1 2.2 2.4	2.3 2.3 2.4 2.4 2.5	3.2 3.1 2.9 2.8 2.8	3.1 2.8 2.7 2.5 2.6	3.1 3.0 2.8 2.6 2.7	4.6 4.6 4.8 5.0	4.3 4.3 4.4 4.7	4.5 4.5 4.6 4.8 5.0	7.2 7.1 7.1 7.0 7.2	6.9 6.7 6.6 6.8 6.9	7.0 6.9 6.8 6.9 7.1
11 12 13 14 15	2.6 2.6 2.5 2.6 3.0	2.4 2.2 2.3 2.3 2.4	2.5 2.4 2.4 2.4 2.7	3.1 3.1 3.1 3.1 3.1	2.7 2.9 2.9 3.0 2.9	2.9 3.0 3.0 3.0 3.0	5.3 5.4 5.7 5.7	5.1 5.2 5.4 5.2 4.9	5.2 5.3 5.5 5.3 5.1	7.7 8.9 8.6 8.2	6.9 7.2 7.7 7.6 7.3	7.3 8.3 8.1 7.8 7.7
16 17 18 19 20	3.0 2.9 3.1 3.2 3.3	2.6 2.6 2.8 3.0 3.1	2.8 2.8 3.0 3.1 3.2	2.9 3.0 3.0 3.2	2.7 2.8 2.6 2.7 2.2	2.8 2.9 2.7 3.0 2.8	5.0 5.1 5.3 5.3	4.7 4.8 4.9 5.0	4.9 4.9 5.1 5.1	8.7 8.7 8.2 8.7	7.4 7.7 7.7 8.0 8.1	7.9 8.0 8.0 8.3 8.3
21 22 23 24 25	3.9 4.0 3.9 3.7 3.5	3.2 3.8 3.7 3.4 2.9	3.6 4.0 3.8 3.6 3.2	2.3 2.5 2.7 3.1 3.3	2.0 2.1 2.3 2.7 3.0	2.2 2.2 2.5 2.9 3.2	5.2 5.0 4.8 5.3 5.6	5.0 4.6 4.5 4.6 5.0	5.1 4.9 4.6 5.0 5.3	8.5 8.7 9.0 9.4 9.6	8.2 8.2 8.3 8.8 9.2	8.4 8.4 8.7 9.1 9.4
26 27 28 29 30 31	3.3 3.0 3.0 	2.8 2.6 2.8 	3.0 2.8 2.9 	3.4 3.5 3.5 3.6 3.9	3.1 3.3 3.3 3.3 3.4 3.6	3.3 3.4 3.4 3.5 3.7	5.8 6.0 6.5 7.0 7.2	5.3 5.7 5.8 6.0 6.3	5.7 5.8 6.0 6.5 6.8	9.6 9.8 9.8 9.8 10.1 9.7	9.6 9.5 9.3	9.5 9.7 9.7 9.7 9.6 9.5
MONTH	4.0	2.0	2.7	3.9	2.0	2.9	7.2	3.8	5.1	10.1	6.6	8.1
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY	MAX	MIN JUNE	MEAN	MAX	MIN JULY	MEAN		MIN AUGUST	MEAN		MIN SEPTEMBE	
DAY 1 2 3 4 5	9.8 9.9 10.1 10.2 10.6		9.6 9.7 9.9 10.0	14.0 13.5 12.6		13.6 13.1 11.8 10.3 10.8		AUGUST 14.3 14.6	MEAN 15.3 15.1 15.2 15.3 15.0			
1 2 3 4	9.8 9.9 10.1 10.2	JUNE 9.3 9.5 9.7 9.9	9.6 9.7 9.9 10.0	14.0 13.5 12.6	JULY 13.4 12.5 10.0 9.7 9.4 10.0 10.6 10.6	13.6 13.1 11.8 10.3	16.4 15.8 16.2 15.8	AUGUST 14.3 14.6 14.3 14.9 14.3 14.0 14.0 13.9	15.3 15.1 15.2 15.3	15.2 15.9 16.1 15.5	14.6 14.5 13.7 12.8	14.9 15.1 14.7 13.9
1 2 3 4 5 6 7 8 9 10	9.8 9.9 10.1 10.2 10.6 10.5 10.2 10.3 10.5	JUNE 9.3 9.5 9.7 9.9 10.1 9.8 9.9 10.1 10.2 10.5 10.8 10.7 10.8	9.6 9.7 9.9 10.0 10.3 10.2 10.1 10.2 10.3 10.4 10.7 10.9 11.0 11.0	14.0 13.5 12.6 11.6 12.9 13.2 12.7 11.5 13.8 14.4 14.4 14.3 14.2 13.6 14.1	JULY 13.4 12.5 10.0 9.7 9.4 10.0 10.6 10.6 10.2 10.9 11.2 12.1 11.8	13.6 13.1 11.8 10.3 10.8 11.3 11.0 11.7 12.3 12.5 13.0 13.2 12.7 12.8	16.4 15.8 16.2 15.8 15.9 14.8 15.5 16.4 16.9 15.2	AUGUST 14.3 14.6 14.3 14.9 14.3 14.0 13.9 14.3 14.1 13.5 13.3 13.8	15.3 15.1 15.2 15.3 15.0 14.4 14.7 15.0 15.3	15.2 15.9 16.1 15.5 15.1 15.4 14.8 14.7 16.3 16.4 16.8 17.6 17.7 17.7	SEPTEMBE 14.6 14.5 13.7 12.8 12.6 13.5 12.9 13.9 13.8 14.8 16.0 16.0 16.2 16.5	14.9 15.1 14.7 13.9 13.7 13.8 13.9 14.8 15.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	9.8 9.9 10.1 10.2 10.6 10.5 10.2 10.3 10.6 11.3 11.4 11.4 11.4 12.0 12.2	JUNE 9.3 9.5 9.7 9.9 10.1 9.8 9.9 10.1 10.2 10.5 10.8 10.7 10.8	9.6 9.7 9.9 10.0 10.3 10.2 10.1 10.2 10.3 10.4	14.0 13.5 12.6 11.6 12.9 13.2 12.7 11.5 13.8 14.4 14.4 14.3 14.2 13.6 14.1	JULY 13.4 12.5 10.0 9.7 9.4 10.0 10.6 10.6 10.2 10.9 11.2 12.1 11.8	13.6 13.1 11.8 10.3 10.8 11.3 11.0 11.7 12.3 12.5 13.0 13.2 12.7 12.8	16.4 15.8 16.2 15.8 15.9 14.8 15.5 16.4 16.9 15.2	AUGUST 14.3 14.6 14.3 14.9 14.3 14.0 14.0 13.9 14.1 13.5 13.3 13.8 13.7 13.6	15.3 15.1 15.2 15.3 15.0 14.4 14.7 15.3 14.5	15.2 15.9 16.1 15.5 15.1 15.4 14.8 14.7 16.3 16.4 16.8 17.6 17.7 17.7	SEPTEMBE 14.6 14.5 13.7 12.8 12.6 13.5 12.9 13.9 13.8 14.8 16.0 16.0 16.2 16.5	14.9 15.1 14.7 13.9 13.7 13.8 13.9 14.8 15.0 15.8 16.7 16.7 16.7 16.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	9.8 9.9 10.1 10.2 10.6 10.5 10.2 10.3 11.6 11.3 11.4 11.4 12.0 12.2 12.2 12.2 12.2	JUNE 9.3 9.5 9.7 9.9 10.1 9.8 9.9 10.1 10.2 10.5 10.8 11.0 11.4 11.8 12.0 11.9	9.6 9.7 9.9 10.0 10.3 10.2 10.1 10.2 10.3 10.4 10.7 10.9 11.0 11.0	14.0 13.5 12.6 11.6 12.9 13.2 12.7 11.5 13.8 14.4 14.3 14.2 13.6 14.1 14.7 15.0 15.2	JULY 13.4 12.5 10.0 9.7 9.4 10.0 10.6 10.6 10.2 10.9 11.2 12.1 12.7 12.1 11.8 12.1 13.1 13.6 14.1 13.9	13.6 13.1 11.8 10.3 10.8 11.3 11.3 11.7 12.3 12.5 13.0 13.2 12.7 12.8 13.2 14.5 14.6	16.4 15.8 16.2 15.8 15.9 14.8 15.5 16.4 16.9 15.2 16.6 16.8 17.4 17.2 17.0 16.9 16.7	AUGUST 14.3 14.6 14.3 14.9 14.3 14.0 14.0 13.9 14.3 14.1 13.5 13.3 13.8 13.7 13.6 13.9 13.3 13.2 13.4 14.0	15.3 15.1 15.2 15.3 15.0 14.4 14.7 15.3 14.5 14.6 14.7 15.1 14.9	15.2 15.9 16.1 15.5 15.1 15.4 14.8 14.7 16.3 16.4 16.8 17.6 17.7 17.7 17.7 17.0 16.9 16.6 16.6	SEPTEMBE 14.6 14.5 13.7 12.8 12.6 13.5 12.9 13.9 13.8 14.8 16.0 16.2 16.5 16.3 15.7 15.3 15.7 15.8 15.0	14.9 15.1 14.7 13.9 13.7 13.8 13.9 14.8 15.0 15.8 16.7 16.7 16.7 16.7 16.9 16.2 15.9 16.2 15.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 25 26 27	9.8 9.9 10.1 10.2 10.6 10.5 10.2 10.3 11.0 11.3 11.4 11.4 12.0 12.2 12.2 12.2 12.4 12.6 12.9 12.8 13.1 13.8 13.8 13.8 13.8	JUNE 9.3 9.5 9.7 9.9 10.1 9.8 9.9 10.1 10.2 10.5 10.8 11.0 11.4 11.8 12.0 11.9 12.1 12.2 12.5 12.6 12.8	9.6 9.7 9.9 10.0 10.3 10.2 10.3 10.4 10.7 10.9 11.0 11.1 11.2 11.7 12.1 12.1	14.0 13.5 12.6 11.6 12.9 13.2 12.7 11.5 13.8 14.4 14.3 14.2 13.6 14.1 14.7 15.0 15.2 15.0 15.8	JULY 13.4 12.5 10.0 9.7 9.4 10.0 10.6 10.6 10.2 10.9 11.2 12.1 11.8 12.1 13.6 14.1 13.9 14.3 15.0 15.4 15.7 15.3	13.6 13.1 11.8 10.3 10.8 11.3 11.7 12.3 12.5 13.0 13.2 12.7 12.8 13.2 14.5 14.6 15.2 15.7 16.0 16.3 16.0	16.4 15.8 16.2 15.8 15.9 14.8 15.5 16.4 16.9 15.2 16.6 17.4 17.2 17.0 16.9 16.7 16.7 16.7 16.9	AUGUST 14.3 14.6 14.3 14.9 14.3 14.0 14.0 13.9 14.3 14.1 13.5 13.3 13.8 13.7 13.6 13.9 13.3 13.2 13.4 14.0 13.8 13.5 13.4 14.0	15.3 15.1 15.2 15.3 15.0 14.4 14.7 15.0 15.3 14.5 14.6 14.7 15.1 14.9 15.0 14.6 14.5 14.6 14.5 14.5	15.2 15.9 16.1 15.5 15.1 15.4 14.8 14.7 16.3 16.4 16.8 17.6 17.7 17.7 17.0 17.0 16.9 16.6 16.6 16.3 16.3 16.3 16.3	SEPTEMBE 14.6 14.5 13.7 12.8 12.6 12.6 13.5 12.9 13.9 13.8 14.8 16.0 16.0 16.2 16.5 16.3 15.7 15.3 15.8 15.0 14.5 14.7 14.9 15.0 15.3 15.3 14.9 14.9 14.5 13.9	14.9 15.1 14.7 13.9 13.7 13.8 13.9 14.8 15.0 15.8 16.7 16.7 16.9 16.7 16.6 16.2 15.6 15.3 15.5 15.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	9.8 9.9 10.1 10.2 10.6 10.5 10.3 10.5 10.6 11.3 11.4 11.4 12.0 12.2 12.4 12.6 12.9 12.8 13.1 13.4 13.8 13.8 13.9 13.9	JUNE 9.3 9.5 9.7 9.9 10.1 9.8 9.9 10.1 10.2 10.5 10.8 11.0 11.4 11.8 12.0 11.9 12.1 12.2 12.5 12.6 12.8 13.0 13.3 13.5 13.6	9.6 9.7 9.9 9.0 10.3 10.2 10.1 10.2 10.3 10.4 10.7 10.9 11.0 11.1 11.2 11.7 12.1 12.1 12.1 12.2 12.3 12.5 12.7 12.8 13.1	14.0 13.5 12.6 11.6 12.9 13.2 12.7 11.5 13.8 14.4 14.3 14.2 13.6 14.1 14.7 15.0 15.2 15.0 15.8 16.3 16.9 17.0 17.4 16.3	JULY 13.4 12.5 10.0 9.7 9.4 10.0 10.6 10.6 10.2 10.9 11.2 12.1 11.8 12.1 13.6 14.1 13.9 14.3 15.0 15.4 15.7 15.3 14.7 14.4 14.3 14.8 15.0 14.5	13.6 13.1 11.8 10.3 10.8 11.3 11.0 11.7 12.3 12.5 13.0 13.2 12.7 12.8 13.2 14.5 14.5 14.6 15.2 15.7 16.3 16.0 15.2 14.9 14.8 15.3 15.3 15.3 15.3	16.4 15.8 16.2 15.8 15.9 14.8 15.5 16.4 16.9 15.2 16.6 17.4 17.2 17.0 16.9 16.7 16.7 16.7 16.9	AUGUST 14.3 14.6 14.3 14.9 14.3 14.0 13.9 14.3 14.1 13.5 13.3 13.8 13.7 13.6 13.9 13.3 13.8 14.1 14.0 14.6 14.5 14.0 14.4 14.6 14.5 14.0	15.3 15.1 15.2 15.3 15.0 14.4 14.7 15.0 15.3 14.5 14.6 14.7 15.1 14.9 15.0 14.6 14.5 14.6	15.2 15.9 16.1 15.5 15.1 15.4 14.8 16.3 16.4 16.8 17.6 17.7 17.7 17.0 17.0 16.9 16.6 16.6 16.3 16.3 16.3 16.3 16.3	SEPTEMBE 14.6 14.5 13.7 12.8 12.6 12.6 13.5 12.9 13.9 13.8 14.8 16.0 16.0 16.2 16.5 16.3 15.7 15.8 15.0 14.5 14.7 14.9 15.0 15.3 15.3 14.9 14.9 14.5 13.9	14.9 15.1 14.7 13.9 13.7 13.8 13.9 14.8 15.0 15.8 16.7 16.9 16.7 16.6 16.2 15.3 15.6 15.3 15.6 15.8

12117000 TAYLOR CREEK NEAR SELLECK, WA

LOCATION.--Lat $47^{\circ}23^{\circ}12^{\circ}$, long $121^{\circ}50^{\circ}42^{\circ}$, in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.19, T.22 N., R.8 E., King County, Hydrologic Unit 17110012, Snoqualmie National Forest, on left bank 0.6 mi upstream from mouth, and 1.3 mi northeast of Selleck.

DRAINAGE AREA. -- 17.2 mi2.

PERIOD OF RECORD.--June to October 1945, August 1956 to current year.

Discharge Gage height (ft³/s) (ft)

REVISED RECORDS.--WSP 1932: Drainage area.

Time

GAGE.--Water-stage recorder. Elevation of gage is 940 ft above NGVD of 1929, from topographic map. June to October 1945 on right bank 350 ft downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

 $AVERAGE \ DISCHARGE. --46 \ years \ (water years 1957-2002), \ 97.4 \ ft^3/s, \ 76.93 \ in/yr, \ 70.550 \ acre-ft/yr.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,130 ft 3 /s Feb. 8, 1996, gage height, 5.53 ft from rating curve extended above 900 ft 3 /s; minimum discharge, 15 ft 3 /s Oct. 3, 4, 7-14, 1979, Oct. 28-31, Nov. 3-10, 1987.

Date

Time

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 450 $\mathrm{ft^3/s}$ and maximum (*):

Nov. 14 1029 575 3.72 Jan. 7 2215 554 3.69 Dec. 13 1700 *878 *4.09 Feb. 22 0945 508 3.62 Dec. 16 0945 596 3.75 Apr. 14 0415 859 4.07		
Minimum discharge, 21 ft ³ /s Oct. 4-7, Sep. 22-30.		
DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES		
DAY OCT NOV DEC JAN FEB MAR APR MAY JUN JUL	AUG	SEP
1 23 120 148 100 129 126 131 127 112 88	36	25
2 22 119 144 107 122 118 126 133 104 77 3 22 101 126 100 124 113 121 127 98 70	35 34	29 37
4 22 93 118 99 118 109 120 119 95 66	34 34	26 25
6 21 84 128 117 118 105 164 119 106 59 7 21 76 118 369 128 100 175 114 102 58 8 31 70 116 390 131 96 155 108 101 60 9 35 65 127 281 122 94 158 103 93 55	41 35	25 24
8 31 70 116 390 131 96 155 108 101 60 9 35 65 127 281 122 94 158 103 93 55	33	24
9 35 65 127 281 122 94 158 103 93 55 10 35 60 117 207 120 96 196 100 88 53	32 32	24 24
	32	23
10 0, 0, 101 1,, 111 010 0,0 0,0 00 1,	31	23
13 79 92 591 153 105 168 387 112 81 48 14 96 423 439 140 101 150 654 124 81 47	30 29	23 22
15 75 278 276 130 98 141 359 115 79 46	28	22
16 58 203 494 123 96 130 270 108 75 45	28	24
17 49 155 413 116 96 118 220 111 73 44 18 43 125 287 114 113 114 190 107 91 43	28 28	24 23
19 02 134 220 121 122 142 174 103 02 43	28	22
	29	24
21 57 135 168 132 270 149 152 116 70 41 22 71 211 152 118 407 131 161 127 67 40	28	22 22
23 75 256 140 113 316 122 153 118 64 39	27	21
21 57 135 168 132 270 149 152 116 70 41 22 71 211 152 118 407 131 161 127 67 40 23 75 256 140 113 316 122 153 118 64 39 24 83 182 131 202 245 122 143 110 62 38 25 123 146 124 323 191 137 136 106 60 38	26 26	21 21
		21
27 89 113 114 165 147 129 133 111 61 38	26	21
28 76 112 115 143 136 136 125 153 97 38 29 66 138 107 131 134 122 167 161 42	25 25	21 22
29 66 138 107 131 134 122 167 161 42 30 71 126 103 131 133 124 141 102 39	25	21
	25	
TOTAL 1854 4084 5779 5066 4182 4139 5782 3646 2608 1534 MEAN 59.81 136.1 186.4 163.4 149.4 133.5 192.7 117.6 86.93 49.48 MAX 123 423 591 390 407 235 654 167 161 88	925 29.84	706 23.53
MAX 123 423 591 390 407 235 654 167 161 88	41	37
MIN 21 56 103 95 96 94 120 97 58 37 AC-FT 3680 8100 11460 10050 8290 8210 11470 7230 5170 3040	25 1830	21 1400
CFSM 3.48 7.91 10.8 9.50 8.68 7.76 11.2 6.84 5.05 2.88	1.73	1.37
IN. 4.01 8.83 12.50 10.96 9.04 8.95 12.51 7.89 5.64 3.32	2.00	1.53
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 2002, BY WATER YEAR (WY)		
MEAN 47.95 113.6 152.3 167.3 151.1 125.8 123.0 101.7 75.47 48.23	31.96	33.30
MAX 132 317 291 285 337 313 193 158 171 91.3 (WY) 1960 1991 1976 1997 1996 1972 2002 1971 1964 1993	56.3 1968	128 1959
MIN 16.5 21.0 55.3 62.3 55.2 68.5 68.5 52.5 34.4 25.6 (WY) 1988 1988 2001 1988 1977 1992 1995 1992 1992 1995	19.6 1958	17.9 1998
SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEAR	KP 1956 .	- 2002
ANNUAL TOTAL 29931 40305 ANNUAL MEAN 82.00 110.4 97.3	9	
HIGHEST ANNUAL MEAN 141		1972
LOWEST ANNUAL MEAN 59.5 HIGHEST DAILY MEAN 591 Dec 13 654 Apr 14 2190	Feb 8	1977 8 1996
HIGHEST DAILY MEAN 591 Dec 13 654 Apr 14 2190 LOWEST DAILY MEAN 21 Oct 5 21 Oct 5 15 ANNUAL SEVEN-DAY MINIMUM 22 Oct 1 21 Sep 22 15 ANNUAL SEVEN-DAY MINIMUM 22 Oct 1 70000 70000 70000	Oct 3	3 1979 7 1979
ANNUAL RUNOFF (AC-FT) 59370 79940 70550		, 1010
ANNUAL RUNOFF (CFSM) 4.77 6.42 5.6 ANNUAL RUNOFF (INCHES) 64.73 87.17 76.9		
ANNUAL RUNOFF (INCHES) 64.73 87.17 76.9 10 PERCENT EXCEEDS 138 190 184 50 PERCENT EXCEEDS 68 106 78		

28

90 PERCENT EXCEEDS

78 26

12117500 CEDAR RIVER NEAR LANDSBURG, WA

LOCATION.--Lat $47^{\circ}23^{\circ}38^{\circ}$, long $121^{\circ}57^{\circ}12^{\circ}$, on west line NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.17, T.22 N., R.7 E., King County, Hydrologic Unit 17110012, on left bank 1.8 mi upstream from intake of Seattle water-supply system near Landsburg, 4.0 mi east of Maple Valley, 5.9 mi downstream from Taylor Creek, and at mile 23.4.

DRAINAGE AREA.--121 mi², excludes Walsh Lake diversion which enters Cedar River at mile 19.5, and excludes 1.9 mi² of Walsh Lake drainage in Cedar River basin which is normally diverted into Issaquah Creek.

PERIOD OF RECORD.--August 1895 to current year (prior to October 1948, flow of Rock Creek included). Monthly discharge only for some periods, published in WSP 1316. Published as "near Seattle" 1895-98, "near Maple Valley" 1902, and as "near Ravensdale" 1898-1901, 1903-12.

REVISED RECORDS.--WSP 313: 1895-98, 1902-09. WSP 1286: 1912. WSP 1316: 1896-98(M), 1902-11(M). WSP 1736: 1960. WSP 1932: 1947, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 565.9 ft above NGVD of 1929. Prior to Oct. 1, 1898, nonrecording gage at site 2.2 mi downstream at different datum. Mar. 24, 1901, to May 15, 1913, nonrecording gage at site 2 mi downstream at datum 535.84 ft NGVD of 1929 (levels by City of Seattle). Apr. 30, 1914, to Oct. 22, 1928, water-stage recorder 0.2 mi downstream at different datum.

REMARKS.--Records good. All diversions except Rock Creek returned to river upstream from station. Rock Creek, a tributary which entered naturally just upstream from station prior to 1932, is diverted during summer months to enter river at a point about 3.9 mi downstream from station. Some regulation by Chester Morse Lake (station 12115900) and Cedar Lake (station 12116060), 12.2 mi upstream. Chemical analyses July 1959 to July 1960. Water temperatures published August 1953 to September 1985. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--107 years (water years 1896-2002), 690 ft³/s, 499,900 acre-ft/yr, unadjusted, includes data published in WSP 1316.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,200 ft³/s Nov. 19, 1911, gage height, 10.0 ft, from graph based on gage readings, site and datum then in use, by computation of peak flow over dam, peak caused by failure of flashboards at Chester Morse Lake; minimum discharge observed, 83 ft³/s Sept. 19, 1898.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,240 ft³/s Apr 14, gage height, 3.84 ft; minimum discharge, 252 ft³/s Sept. 7-10.

		DISCHA	RGE, CUB	IC FEET PI	ER SECOND,			R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEG	7737		MEAN VA		M237	TINI		NIG	ann
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	318	670	1070	955	977	789	1020	650	760	779	339	258
2	315	635	1050	948	966	775	1070	656	775	598	337	262
3	314	757	925	790	970	763	1060	765	782	465	335	283
4	315	716	794	658	956	754 908	1060	763	795	386	334	261
5	407	613	775	588	925	908	1060	762	1070	374	332	258
6	422	571	799	602	794	928	1110	719	1110	362	320	257
7	422	552	793	950	811	949	1130	911	1510	357	312	253
8	444	625	781	1140	821	1050	1130	943	1630	366	307	252
9	452	637	820	1180	801	1040	1190	934	1620	351	302	252
10	446	647	792	1280	790	1050	1260	810	1500	344	285	252
11	537	640	711	1170	763	1130	1300	713	1190	345	283	267
12	491	647	627	1140	693	974	1390	634	959	373	278	295
13	534	682	1210	1130	680	1010	1550	573	724	372	278	300
14	573	1230	1200	1260	654	962	1980	550	693	368	275	307
15	545	978	1180	1490	619	876	1630	531	682	367	e275	307
16	565	924	1110	1610	609	783	1700	517	685	377	e272	310
17	545	910	1110	1540	608	690	1650	536	1130	417	e272	316
18	493	1050	1220	1260	636	603	1680	535	1360	446	e272	314
19	514	1100	1380	1170	647	566	1790	527	1350	446	e272	311
20	524	1130	1400	1200	636	810	1770	538	1350	444	e273	310
21	523	1340	1500	1200	844	960	1750	539	1340	441	270	309
22	537	1620	1630	1170	1070	1190	1660	550	1340	439	268	307
23	490	1730	1610	1130	981	1170	1370	569	1330	437	268	307
24	492	1630	1590	887	871	1170	1080	766	1260	436	265	307
25	570	1570	1580	950	772	1180	1010	1050	1090	418	265	335
26	497	1540	1500	939	723	1080	996	1060	961	367	265	335
27	615	1460	1320	851	703	957	929	1030	964	351	265	335
28	599	1240	1170	803	802	877	815	941	982	349	264	335
29	582	1160	1150	773		880	747	859	1020	353	264	345
30	592	1040	1140	783		988	679	695	918	347	262	347
31	669		1110	881		981		733		343	261	
TOTAL	15342	30044	35047	32428	22122	28843	38566	22359	32880	12618	8870	8887
MEAN	495	1001	1131	1046	790	930	1286	721	1096	407	286	296
MAX	669	1730	1630	1610	1070	1190	1980	1060	1630	779	339	347
MIN	314	552	627	588	608	566	679	517	682	343	261	252
AC-FT	30430	59590	69520	64320	43880	57210	76500	44350	65220	25030	17590	17630
STATIS	TICS OF M	ONTHLY ME	AN DATA 1	FOR WATER	YEARS 1895	- 2002,	BY WATER	YEAR (WY)				
MEAN	392	728	958	980	901	792	782	793	744	483	348	321
MAX	1015	2371	3126	2198	2009	2233	1498	1412	1795	1077	735	716
(WY)	1960	1991	1934	1918	1982	1972	1897	1897	1917	1917	1954	1959
MIN	141	141	179	369	368	360	335	306	320 1992	262	124	127
(WY)	1905	1896	1953	1988	1988	1941	1941	1915	1992	1898	1898	1898
SUMMAR	Y STATIST	ICS	FOR	2001 CAL	ENDAR YEAR	F	OR 2002 W	ATER YEAR		WATER YEA	RS 1895 -	2002
ANNUAL				193162			288006					
ANNUAL				529			789			684		
	T ANNUAL									1066		1897
	ANNUAL M			1730	37 00		1980	3 14		340	NT 1.0	1941
	T DAILY M DAILY ME			270	Nov 23 Sep 6		252	Apr 14 Sep 8		13600 83	Nov 19 Sep 19	
		Y MINIMUM		270	Sep 0		252	Sep 6		87	Sep 13	
	RUNOFF (383100	DCP I		571300	DCP 4		495200	DCP II	1000
	CENT EXCE			1000			1340			1170		
	CENT EXCE			425			763			568		
90 PER	CENT EXCE	EDS		299			305			289		

e Estimated

12117600 CEDAR RIVER BELOW DIVERSION, NEAR LANDSBURG, WA

LOCATION.--Lat $47^{\circ}22^{\circ}47^{\circ}$, long $121^{\circ}58^{\circ}56^{\circ}$, in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.24, T.22 N., R.6 E., King County, Hydrologic Unit 17110012, on right bank 0.8 mi northeast of the Issaquah-Ravensdale road bridge, 0.9 mi northwest of Landsburg, and at mile 20.4.

DRAINAGE AREA.--124 mi², excludes Walsh Lake diversion, which enters Cedar River at mile 19.5, and excludes 1.9 mi of Walsh Lake drainage in Cedar River basin, which is normally diverted into Issaquah Creek.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- December 1991 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 490 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Flow is regulated by Chester Morse Lake (station 12115900) and Cedar Lake (station 12116060) 15 mi upstream for operation of powerplant at Cedar Falls 13.1 mi upstream from station. Seattle City Water diversion 1.5 mi upstream from the gage diverted an average discharge of about 122 ft³/s during the water year. U.S. Geological Survey telemeter at station.

AVERAGE DISCHARGE.--10 years (water years 1993-2002), 538 ft³/s, 389,500 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,560 ft³/s Nov. 30, 1995, gage height, 10.32 ft, from rating curve extended above 2,000 ft³/s; maximum gage height, 10.70 ft Nov. 30, 1995, from outside high-water mark; minimum discharge, 45 ft³/s Sept. 9, 1993.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,410 ft³/s Apr. 14, gage height, 6.65 ft; minimum discharge, 117 ft³/s Aug. 8,

		DISCHA	RGE, CUBI	C FEET PE			YEAR OCTOBER VALUES	2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3	223 223 225	606 534 708	1030 1010 883	879 874 727	902 893 897	720 679 667	1100 1100	573 574 696	512 537 528	655 472 316	196 195 197	133 137 164
4 5	224 312	672 560	747 725	588 515	883 854	657 844		701 701	607 927	215 204	197 173	137 131
6 7 8 9	375 332 363 373	508 449 457 473	752 746 730 776	526 921 1170 1210	727 740 756 734	919 847 953 951	908 909 965	648 836 859 853	979 1380 1500 1490	205 212 221 216	146 126 129 159	131 131 133 132
10 11	365 497	482 474	749 665	1250 1090	722 697	954 1040	1080	737 635	1380 1070	217 219	153 146	129 136
12 13 14 15	399 425 459 421	458 461 1280 1040	573 1200 1250 1190	1020 1020 1140 1390	617 605 579 544	879 923 918 842	1420 2090	555 494 452 430	809 588 551 542	205 193 192 189	148 146 144 142	138 142 142 141
16 17 18 19	407 392 351 385	867 716 868 919	1120 1160 1260 1430	1560 1490 1210 1120	533 531 560 569	749 650 563 508	1550 1490	431 459 459 461	538 981 1220 1230	193 193 193 194	144 144 146 149	157 195 194 203
20	409	1030	1420	1160	560	721 997	1600	476	1230	192	153	207
21 22 23 24 25	414 437 418 425 511	1380 1670 1790 1620 1530	1460 1560 1520 1480 1470	1160 1120 1090 854 946	815 1110 979 811 728	1230 1210 1210 1220	1490 1170 862	475 473 478 719 1070	1220 1210 1200 1050 857	189 188 190 203 210	147 147 145 142 151	212 225 229 231 243
26 27 28 29 30 31	435 559 548 522 533 621	1470 1340 1160 1130 994	1390 1210 1060 1030 1030	927 791 742 712 719 814	775 734 822 	1120 997 917 889 957	732 623 569 571	1090 1070 918 756 511 478	754 751 804 883 793	213 213 210 215 209 199	152 156 146 134 132 136	233 228 220 229 224
TOTAL MEAN MAX MIN AC-FT	12583 406 621 223 24960	27646 922 1790 449 54840	33646 1085 1560 573 66740	30735 991 1560 515 60960	20677 738 1110 531 41010	27702 894 1230 508 54950	34583 1153 2090 569	20068 647 1090 430 39800	28121 937 1500 512 55780	7135 230 655 188 14150	4721 152 197 126 9360	5287 176 243 129 10490
STATIST	rics of M		AN DATA F	OR WATER			2, BY WATER					
MEAN MAX (WY) MIN (WY)	336 417 1996 256 1995	702 1490 1996 329 1994	943 1755 2000 346 2001	873 1736 1999 295 2001	771 1865 1996 277 2001	579 1232 1997 298 2001	1153 2002 287	527 1098 1997 237 1992	432 937 2002 196 1992	248 509 1997 107 1992	133 194 1993 96.5 1992	168 228 2000 119 1995
SUMMARY	Y STATIST	ICS	FOR	2001 CALE	NDAR YEAR		FOR 2002 WA	TER YEAR		WATER YEA	RS 1992 -	2002
LOWEST HIGHEST LOWEST ANNUAL ANNUAL 10 PERC 50 PERC	MEAN FANNUAL M ANNUAL M FDAILY M DAILY ME	EAN EAN AN Y MINIMUM AC-FT) EDS EDS		148296 406 1790 96 98 294100 885 279 153	Nov 23 Aug 16 Aug 10		252904 693 2090 126 132 501600 1240 672 153	Apr 14 Aug 7 Sep 5		538 826 294 6170 78 85 389500 1180 358 146		1997 2001 1995 1992 1995

12117600 CEDAR RIVER BELOW DIVERSION, NEAR LANDSBURG, WA

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--WATER TEMPERATURE: May 2001 to current year.

 ${\tt INSTRUMENTATION.--Temperature\ recorder\ since\ May,\ 2001.}$

REMARKS.--Records excellent.

EXTREMES FOR PERIOD OF DAILY RECORD.--WATER TEMPERATURE: Maximum, 15.5°C July 22, 2002; minimum, 4.3°C March 22, 2002.

EXTREMES FOR CURRENT YEAR.-- WATER TEMPERATURE: Maximum, 15.5°C July 22; minimum, 4.3°C March 22.

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER		NO	OVEMBER		DE	ECEMBER			JANUARY	
1 2 3 4 5	11.7 11.2 11.1 11.0 11.8	10.3 9.9 9.8 9.5 10.4	10.9 10.6 10.4 10.3	8.8 9.1 8.7 9.0 8.8	8.5 8.5 8.1 8.5 8.0	8.7 8.9 8.5 8.8	6.7 6.6 6.4 6.6 6.4	6.3 6.0 6.2 6.0	6.5 6.4 6.3 6.4 6.2	5.9 6.0 6.5 6.9 7.3	5.3 5.7 5.7 6.4 6.7	5.7 5.9 6.0 6.7 7.0
6 7 8 9 10	11.7 11.2 11.2 10.9 10.4	10.6 10.4 10.6 10.3 9.7	11.1 10.8 10.9 10.6 10.0	8.2 8.0 8.2 8.0 8.5	7.5 7.4 7.5 7.4 7.7	7.9 7.7 7.8 7.7 8.1	6.6 6.6 6.9 6.7 6.3	6.2 6.3 6.4 6.1 5.9	6.4 6.5 6.7 6.3	7.4 7.4 7.3 6.6 6.1	6.9 7.1 6.6 5.8 5.7	7.1 7.2 7.0 6.4 5.9
11 12 13 14 15	10.4 10.4 10.4 10.8 10.3	9.9 9.7 10.2 10.0 9.3	10.1 10 10.3 10.4 9.9	8.5 8.6 9.3 9.2	8.0 8.3 8.3 8.5 8.5	8.3 8.4 8.5 9.0	6.6 7.0 7.1 6.6 6.3	6.1 6.1 6.4 5.9 5.8	6.4 6.5 6.7 6.4 5.9	6.4 6.2 5.9 5.5	5.8 5.9 5.4 4.9 4.6	6.1 6.1 5.7 5.2 4.8
16 17 18 19 20	10.2 10.1 9.7 10.0 9.7	9.7 9.5 9.1 9.7 8.9	9.9 9.8 9.4 9.8 9.3	8.7 8.3 8.0 8.0	8.3 7.5 7.3 7.7 7.8	8.5 8.0 7.7 7.9 7.9	7.3 7.3 6.0 5.7 5.7	6.3 6.0 5.5 5.3 5.5	7.0 6.5 5.8 5.5 5.6	4.8 5.0 5.3 5.4 5.3	4.7 4.7 4.8 5.2 5.1	4.7 4.8 5.0 5.3 5.2
21 22 23 24 25	9.5 9.8 9.4 9.0 8.9	9.1 9.4 8.9 8.4 8.3	9.3 9.5 9.1 8.6 8.5	8.0 7.6 7.5 7.2 7.1	7.6 7.4 7.0 6.9 6.8	7.8 7.6 7.4 7.0 6.9	5.7 5.5 5.4 5.2 5.0	5.2 5.1 5.1 5.0 4.8	5.5 5.3 5.2 5.1 4.9	5.2 5.0 5.2 6.6 6.6	4.8 4.8 4.9 5.2 5.4	5.0 4.9 5.0 5.9 6.0
26 27 28 29 30 31	9.4 9.3 8.3 8.7 8.9	8.6 8.0 7.5 7.6 8.5 8.6	9.0 8.6 7.9 8.2 8.7	7.1 7.1 6.9 6.5 6.4	6.8 6.8 6.1 6.2 6.2	7.0 7.0 6.4 6.3 6.3	5.0 5.4 5.4 5.4 5.4 5.5	4.6 4.9 5.1 5.0 5.0	4.8 5.1 5.3 5.2 5.2	5.5 5.5 5.6 5.3 5.3	5.0 5.1 4.9 5.1 4.6 5.0	5.3 5.3 5.2 5.3 5.0 5.1
MONTH	11.8	7.5	9.7	9.3	6.1	7.8	7.3	4.6	5.9	7.4	4.6	5.7

LAKE WASHINGTON BASIN

12117600 CEDAR RIVER BELOW DIVERSION, NEAR LANDSBURG, WA--Continued

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DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1 2 3 4 5	5.4 5.3 5.5 5.3	4.9 4.7 4.9 4.7 4.9	5.1 4.9 5.2 4.9 5.2	5.8 6.0 6.3 6.6 6.4	5.0 4.9 5.1 5.4 5.5	5.4 5.4 5.7 6.0 5.8	6.9 6.9 7.2 7.6 6.7	5.8 5.4 5.4 5.7 6.2	6.4 6.1 6.2 6.5 6.5	9.1 8.6 9.1 8.3 8.4	8.1 8.1 7.6 7.6 7.8	8.5 8.4 8.3 8.0 8.0
6 7 8 9 10	6.0 6.1 5.8 6.1 6.2	5.4 5.4 4.7 5.3 5.7	5.7 5.8 5.4 5.7 5.9	5.5 5.6 5.0 5.2 5.3	5.0 4.8 4.6 4.7 4.9	5.3 5.1 4.8 4.9 5.1	7.0 6.7 7.5 7.0	6.4 6.2 5.8 6.2 6.4	6.6 6.4 6.5 6.6	8.2 8.3 9.2 8.6 9.5	7.2 7.0 7.0 7.3 7.5	7.7 7.6 7.9 7.9 8.3
11 12 13 14 15	5.9 6.2 6.2 6.2 6.8	5.5 5.2 5.4 5.5 5.7					7.1 7.2 7.2 7.1 6.6					
16 17 18 19 20	7.1 6.9 7.2 7.1 6.8	6.2 6.2 6.7 6.5 6.3	6.7 6.6 6.9 6.8 6.5	5.8 6.2 6.0 6.6 6.0	5.2 5.2 5.7 6.0 5.0	5.4 5.6 5.8 6.3 5.6	6.5 6.9 6.9 6.8	5.8 6.0 6.2 6.0 6.2	6.1 6.3 6.5 6.4 6.4	10.8 11.2 10.1 10.2 9.8	7.7 8.7 8.5 8.8 9.0	9.2 9.8 9.3 9.5 9.4
21 22 23 24 25	6.8 6.9 6.6 6.3 6.0	6.5 6.6 6.3 5.5					6.6 6.6 7.3 8.2 8.5					
26 27 28 29 30 31	6.2 6.4 6.1 	5.5 5.4 5.4 	5.8 5.9 5.8 	5.9 6.1 6.5 6.6 6.5	5.2 5.5 5.9 5.9 5.8 5.9	5.6 5.8 6.2 6.2 6.2	7.6 8.1 9.5 10.1 10.6	6.8 7.1 7.2 7.1 7.7	7.2 7.4 8.2 8.5 9.0	10.8 10.9 10.5 10.5 11.3	9.5 9.6 9.7 9.8 9.4 9.3	10.1 10.2 10.1 10.1 10.2
MONTH	7.2	4.7	5.9	6.6	4.3	5.6	10.6	5.4	6.8	11.4	7.0	9.1
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBE	IR.
1 2 3 4 5	12.0 11.6 11.4 10.6 11.9	JUNE 9.2 9.3 9.4 10.0 10.1	10.4 10.3 10.3 10.3	13.5 13.7 12.1 11.6 13.4	JULY 11.8 10.9 10.6 10.1 9.7	12.5 12.1 11.3 10.8 11.4	13.6 13.1 12.7 12.5 12.6	10.6 10.9 10.3 10.9	12.0 11.9 11.5 11.7	11.8 11.7 12.0 11.8 11.8	10.7 10.5 10.6 9.5 9.4	11.1 11.1 11.2 10.6 10.5
1 2 3 4 5	12.0 11.6 11.4 10.6 11.9	JUNE 9.2 9.3 9.4 10.0 10.1	10.4 10.3 10.3 10.3	13.5 13.7 12.1 11.6 13.4	JULY 11.8 10.9 10.6 10.1 9.7	12.5 12.1 11.3 10.8 11.4		10.6 10.9 10.3 10.9	12.0 11.9 11.5 11.7	11.8 11.7 12.0 11.8 11.8	10.7 10.5 10.6 9.5 9.4	11.1 11.1 11.2 10.6 10.5
1 2 3 4 5 6 7 8 9 10	12.0 11.6 11.4 10.6 11.9 11.1 10.4 12.0 11.7	JUNE 9.2 9.3 9.4 10.0 10.1 10.0 9.8 9.8 9.9 10.2 10.3 10.4	10.4 10.3 10.3 10.3 10.8 10.4 10.0 10.1 10.7	13.5 13.7 12.1 11.6 13.4 13.5 12.1 11.6 14.1	JULY 11.8 10.9 10.6 10.1 9.7 10.2 10.6 10.7 9.9 10.7	12.5 12.1 11.3 10.8 11.4 11.7 11.4 11.0 11.7 12.5	13.6 13.1 12.7 12.5 12.6	AUGUST 10.6 10.9 10.3 10.9 10.5 10.7 10.4 10.3 10.8 11.2	12.0 11.9 11.5 11.7 11.5 11.3 11.5 11.8 12.3 11.8	11.8 11.7 12.0 11.8 11.8	10.7 10.5 10.6 9.5 9.4 9.4 10.1 9.6 10.1	11.1 11.1 11.2 10.6 10.5 10.6 10.3 11.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14	12.0 11.6 11.4 10.6 11.9 11.1 10.4 12.0 11.7 12.7 13.2 13.9 12.8	JUNE 9.2 9.3 9.4 10.0 10.1 10.0 9.8 9.8 9.9 10.2 10.3 10.4 10.6 10.7 10.6	10.4 10.3 10.3 10.3 10.8 10.4 10.0 10.1 10.7 10.7	13.5 13.7 12.1 11.6 13.4 13.5 12.1 11.6 14.1 14.6 14.5 14.6	JULY 11.8 10.9 10.6 10.1 9.7 10.2 10.6 10.7 9.9 10.7 11.1 10.9 11.5 11.2 10.5	12.5 12.1 11.3 10.8 11.4 11.7 11.0 11.7 12.5 12.7 12.7 11.7	13.6 13.1 12.7 12.5 12.6 12.8 13.6 14.0 12.8 13.6 13.9 14.3	AUGUST 10.6 10.9 10.3 10.9 10.5 10.7 10.4 10.3 10.8 11.2 10.5 10.6 10.9 11.0 10.8	12.0 11.9 11.5 11.7 11.5 11.3 11.5 11.8 12.3 11.8	11.8 11.7 12.0 11.8 11.8 11.6 11.3 10.9 12.3 12.3 12.3	SEPTEMBE 10.7 10.5 10.6 9.5 9.4 9.4 10.1 9.6 10.1 10.2 10.3 10.9 11.1 11.4	11.1 11.1 11.2 10.6 10.5 10.5 10.3 11.0 11.2 11.3 11.8 12.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	12.0 11.6 11.4 10.6 11.9 11.1 10.4 12.0 11.7 12.7 13.9 12.8 12.4 11.4 12.1 12.1	JUNE 9.2 9.3 9.4 10.0 10.1 10.0 9.8 9.8 9.9 10.2 10.3 10.4 10.6 10.7 11.5 11.5 11.5 11.4	10.4 10.3 10.3 10.3 10.8 10.4 10.0 10.1 10.7 10.7 11.3 11.6 12.0 11.6 11.3	13.5 13.7 12.1 11.6 13.4 13.5 12.1 11.6 14.1 14.6 14.5 14.6 14.0 13.0 14.1 14.3 14.1	JULY 11.8 10.9 10.6 10.1 9.7 10.2 10.6 10.7 9.9 10.7 11.1 10.9 11.5 11.2 10.5 10.8 11.4 11.8 12.0 11.3	12.5 12.1 11.3 10.8 11.4 11.7 11.0 11.7 12.5 12.7 12.7 12.7 11.7 12.1	13.6 13.1 12.7 12.5 12.6 12.0 12.8 13.6 14.0 12.8 13.6 13.9 14.3 14.0 13.8 13.8	AUGUST 10.6 10.9 10.3 10.9 10.5 10.7 10.4 10.3 10.8 11.2 10.5 10.6 10.9 11.0 10.8 11.0 10.5 10.2	12.0 11.9 11.5 11.7 11.5 11.3 11.5 11.8 12.3 11.8 12.2 12.5 12.5 12.5 12.5 12.5	11.8 11.7 12.0 11.8 11.8 11.6 11.3 10.9 12.3 12.3 12.3 12.3 12.3 12.3 12.3	SEPTEMBE 10.7 10.5 10.6 9.5 9.4 9.4 10.1 10.2 10.3 10.9 11.1 11.4 11.7 11.5 11.3 10.2 11.0	11.1 11.1 11.2 10.6 10.5 10.5 10.3 11.0 11.2 11.3 11.8 12.0 12.2 12.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	12.0 11.6 11.4 10.6 11.9 11.1 10.4 12.0 11.7 12.7 13.2 12.8 12.4 11.4 12.1 12.1 12.7 13.7	JUNE 9.2 9.3 9.4 10.0 10.1 10.0 9.8 9.9 10.2 10.3 10.4 10.6 10.7 11.5 11.5 11.5 11.5 11.1 12.1 12.1 12.1	10.4 10.3 10.3 10.3 10.8 10.4 10.0 10.1 10.7 10.7 11.3 11.6 12.0 11.6 11.3 10.9 11.4 11.7 12.0 12.3	13.5 13.7 12.1 11.6 13.4 13.5 12.1 11.6 14.1 14.6 14.5 14.6 14.0 13.0 14.1 14.3 14.1 14.2 13.6 14.7	JULY 11.8 10.9 10.6 10.1 9.7 10.2 10.6 10.7 9.9 10.7 11.1 10.9 11.5 11.2 10.5 10.8 11.4 11.8 12.0 11.3 11.4 12.0 12.2 12.3 12.5	12.5 12.1 11.3 10.8 11.4 11.7 11.0 11.7 12.5 12.7 12.7 12.7 12.7 12.1 12.5 12.7 12.1 12.5 12.7 13.7 13.8	13.6 13.1 12.7 12.5 12.6 12.8 13.6 14.0 12.8 13.6 13.9 14.0 13.8 13.5 12.7 11.9	AUGUST 10.6 10.9 10.3 10.9 10.5 10.7 10.4 10.3 11.0 10.5 10.6 10.9 11.0 10.8 11.0 10.5 10.6 10.9 11.0 10.5 10.7	12.0 11.9 11.5 11.7 11.5 11.3 11.5 11.8 12.3 11.8 12.2 12.5 12.5 12.5 12.5 12.5 11.9 11.6 11.5 11.6 11.6 11.7	11.8 11.7 12.0 11.8 11.8 11.6 11.3 10.9 12.3 12.3 12.3 12.3 12.3 12.1 12.3 12.1 12.3 12.1 12.3 12.0 11.6 11.8	SEPTEMBE 10.7 10.5 10.6 9.5 9.4 9.4 10.1 10.2 10.3 10.9 11.1 11.4 11.7 11.5 11.3 10.2 10.6 9.8 10.0 10.3 10.6	11.1 11.1 11.2 10.6 10.5 10.5 10.3 11.0 11.2 11.3 11.8 12.0 12.2 12.0 11.8 11.7 11.5 11.2
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	12.0 11.6 11.4 10.6 11.9 11.1 10.4 12.0 11.7 12.7 13.2 13.9 12.4 11.4 12.1 12.1 12.1 13.7 14.0 13.3 14.1 14.5 14.5 13.2 12.9 12.8	JUNE 9.2 9.3 9.4 10.0 10.1 10.0 9.8 9.9 10.2 10.3 10.4 10.6 10.7 11.5 11.5 11.5 11.4 11.7 11.9 12.1 12.1 12.1 12.1 12.2 12.4 12.3 12.3 12.0	10.4 10.3 10.3 10.3 10.8 10.4 10.0 10.1 10.7 10.7 11.3 11.6 12.0 11.4 11.7 12.0 12.3 12.6 12.7 12.6 12.9 13.1	13.5 13.7 12.1 11.6 13.4 13.5 12.1 11.6 14.1 14.6 14.5 14.6 14.0 13.0 14.1 14.3 14.1 14.2 13.6 14.7 15.5 15.2 15.5 15.2 15.4 14.1	JULY 11.8 10.9 10.6 10.1 9.7 10.2 10.6 10.7 9.9 10.7 11.1 10.9 11.5 11.2 10.5 10.8 11.4 11.8 12.0 11.3 11.4 12.0 12.2 12.3 12.5 11.8 11.2 11.0 11.2	12.5 12.1 11.3 10.8 11.4 11.7 11.7 12.5 12.7 12.7 12.7 12.7 12.1 12.5 12.7 13.0 12.9 13.2 13.2 13.8 12.9 12.0 12.0 11.4 11.4 11.8	13.6 13.1 12.7 12.5 12.6 12.8 13.6 14.0 12.8 13.6 13.9 14.3 14.3 14.3 14.3 14.3 14.3 14.3 13.8 13.5 12.9 12.7 11.9	AUGUST 10.6 10.9 10.3 10.9 10.5 10.7 10.4 10.3 10.8 11.2 10.5 10.6 10.9 11.0 10.8 11.0 10.5 10.2 10.4 10.3 10.8 10.9 10.7 10.1 10.5 10.7 10.9 10.7 10.3 10.8 10.9 10.8	12.0 11.9 11.5 11.7 11.5 11.3 11.5 11.8 12.3 11.8 12.5 12.5 12.5 12.5 12.5 11.6 11.6 11.5 11.1 11.4 11.8 11.9 11.6 11.5	11.8 11.7 12.0 11.8 11.8 11.6 11.3 12.3 12.3 12.3 12.3 12.3 12.3 12.1 12.3 12.0 11.9 12.0 11.6 11.8 12.0 12.1 12.1 12.1 12.1 12.1 12.1 12.1	SEPTEMBE 10.7 10.5 10.6 9.5 9.4 9.4 10.1 9.6 10.1 11.2 10.3 10.9 11.1 11.4 11.7 11.5 11.3 10.2 10.6 9.8 10.0 10.3 10.6 11.0 11.1 10.8 10.7 11.1 10.8	11.1 11.1 11.2 10.6 10.5 10.5 10.6 10.3 11.0 11.2 11.3 11.8 12.0 12.2 12.0 11.8 11.7 11.5 11.2 11.5 11.2 11.5 11.2

12118400 ROCK CREEK AT STATE HIGHWAY 516, NEAR RAVENSDALE, WA

LOCATION.--Lat $47^{\circ}21'45"$, long $122^{\circ}00'35"$, in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.26, T.22 N., R.6 E., on left bank in Parshall Flume, upstream of State Hwy 516, 1.5 mi northeast of Ravensdale, King Co.

DRAINAGE AREA. -- 11.2 mi².

PERIOD OF RECORD.--June 1956 to September 1962. May 2001 to current year. Published as "State Highway 5A" 1956-62.

GAGE.--Water-stage recorder. Elevation of gage is 530 ft above NGVD of 1929, from topographic map. Prior to May, 2001, recording gage at same site at different datum.

REMARKS.--Records good, except for dischares above 40 ${\rm ft}^3/{\rm s}$ and below 5 ${\rm ft}^3/{\rm s}$, which are fair. Diversions by City of Kent upstream of gage for municipal use may effect flow.

AVERAGE DISCHARGE.--7 years (water years 1956-1962, 2002), 17.0 ft³/s, 20.58 in/yr, 12,290 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 114 ${\rm ft}^3/{\rm s}$ Dec. 16, 1959, gage height 2.89 ft datum then in use; minimum, 1.7 ${\rm ft}^3/{\rm s}$ Oct. 4, 2001.

 $\hbox{\it EXTREMES FOR CURRENT YEAR.--Maximum discharge, 43 ft}^3/s \hbox{\it Dec } 17, 18, \hbox{\it gage height 2.17 ft; minimum discharge, 1.7 ft}^3/s, \hbox{\it Oct. 4.}$

		DISCHARG	E, CUBIC	FEET PER		WATER YEA MEAN VAL	AR OCTOBER LUES	2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	2.0 2.3 2.0 1.9	4.0 3.5 3.2 3.1 3.3	19 20 20 20 21	26 25 23 22 24	35 36 35 35 33	33 32 30 30 30	28 26 25 24 23	18 17 16 16	7.5 7.3 7.2 7.0 7.0	4.2 4.1 3.9 4.1 4.1	4.8 4.5 4.7 5.3 4.6	4.2 4.2 3.8 3.2 2.9
6 7 8 9 10	2.1 2.1 2.0 2.0 2.8	3.5 3.8 4.1 4.1 3.8	20 19 20 20 19	22 24 25 25 25	33 32 33 33 33	27 25 24 23 22	23 22 21 21 21	15 14 14 14 13	6.7 6.6 6.4 6.3 6.2	4.1 3.9 4.2 6.2 5.6	4.7 4.6 4.0 3.8 4.5	3.1 3.6 4.3 4.0 3.7
11 12 13 14 15	3.1 3.2 3.2 3.2 3.3	3.6 4.1 4.4 9.3	19 19 25 33 35	25 25 24 23 23	32 32 32 30 30	23 24 26 30 28	22 22 26 33 34	13 13 12 12 12	6.1 6.0 6.2 5.8 6.0	4.9 3.8 3.8 3.4 3.5	4.2 3.9 4.6 3.9 2.9	3.6 3.3 3.4 3.6 4.3
16 17 18 19 20	3.5 3.1 3.1 3.2 3.1	7.4 6.7 6.5 6.6 6.8	38 41 42 41 40	22 21 21 22 22	29 29 28 27 25	26 26 25 26 34	34 33 32 31 30	11 11 11 10 10	6.3 5.9 6.1 6.0 5.9	3.4 3.6 4.4 3.7 3.9	3.6 3.3 3.1 3.2 3.5	4.0 3.7 3.7 3.7 3.5
21 22 23 24 25	3.1 3.1 3.0 3.2 3.4	7.9 9.0 11 12 12	40 39 37 36 36	22 22 22 23 29	27 30 33 35 e35	40 40 39 38 36	28 26 25 24 23	9.9 9.7 9.4 9.2 8.8	5.1 5.0 5.0 4.6 4.5	3.6 3.3 4.4 4.1 4.0	3.6 3.2 2.9 3.4 3.3	3.5 3.4 3.4 3.5 3.7
26 27 28 29 30 31	3.4 3.7 3.8 3.7 3.7 3.5	12 12 13 14 17	36 34 31 28 28 26	33 34 34 34 33 33	35 35 33 	35 34 33 32 30 29	22 22 21 19 18	8.5 8.3 8.3 8.2 8.0 7.8	4.4 4.6 5.1 5.3 5.0	3.6 3.7 3.8 4.8 5.8 4.6	3.3 3.6 3.4 3.3 3.8 4.1	4.0 3.9 4.0 4.1 4.0
TOTAL MEAN MAX MIN AC-FT CFSM IN.	90.7 2.93 3.8 1.9 180 0.26 0.30	222.7 7.42 17 3.1 442 0.66 0.74	902 29.1 42 19 1790 2.60 3.00	788 25.4 34 21 1560 2.27 2.62	895 32.0 36 25 1780 2.85 2.97	930 30.0 40 22 1840 2.68 3.09	759 25.3 34 18 1510 2.26 2.52	364.1 11.7 18 7.8 722 1.05 1.21	177.1 5.90 7.5 4.4 351 0.53 0.59	128.5 4.15 6.2 3.3 255 0.37 0.43	119.6 3.86 5.3 2.9 237 0.34 0.40	111.3 3.71 4.3 2.9 221 0.33 0.37
STATIST	ICS OF M	ONTHLY MEAN	DATA FO	R WATER Y	EARS 1956	- 2002,	BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	6.23 11.7 1960 2.93 2002	12.6 29.0 1960 5.18 1962	25.0 48.7 1960 7.40 1962	26.6 46.5 1959 15.0 1962	32.5 56.9 1961 11.0 1962	28.9 51.8 1961 13.2 1962	22.6 30.7 1961 13.9 1958	16.0 26.0 1961 7.64 2001	11.0 16.5 1960 5.90 2002	8.23 11.3 1956 4.15 2002	6.64 8.92 1956 2.88 2001	5.72 7.92 1959 2.10 2001
SUMMARY	STATIST	ICS			FOR 20	02 WATER	YEAR			WATER YEAR	S 1956 -	2002
LOWEST ANIUAL ANNUAL AN	MEAN ANNUAL M ANNUAL M DAILY M DAILY ME	EAN EAN AN Y MINIMUM AC-FT) CCFSM) INCHES) EDS EDS		1 1089 1 3	1.9 Oc 2.0 Oc				17.0 23.9 9.75 110 1.9 2.0 12290 1.51 20.58 34 12 5.0	Dec 16 Sep 8 Sep 23	2001	

e Estimated

12118500 ROCK CREEK NEAR MAPLE VALLEY, WA

LOCATION.--Lat $47^{\circ}22^{\circ}50$ ", long $122^{\circ}01^{\circ}10$ ", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.22, T.22 N., R.6 E., on right bank 20 ft below box culvert exit, 650 ft upstream from mouth and 2 mi southeast of Maple Valley.

DRAINAGE AREA. -- 12.6 mi².

PERIOD OF RECORD.--June 1945 to September 1973, May 2001 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 425 ft above NGVD of 1929, from topographic map. Prior to March 16, 1953, recording gage at site 50 ft upstream at datum 13.10 ft higher. March 16, 1953, to September 30, 1973, recording gage at site 100 ft upstream at datum 13.951 ft higher.

REMARKS.--No estimated daily discharges. Records good. Diversions by City of Kent upstream of gage for municipal use may effect flow.

AVERAGE DISCHARGE.--29 years (water years 1946-73, 2002), $19.9 \text{ ft}^3/\text{s}$, 14,410 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 221 ${\rm ft}^3/{\rm s}$ Mar. 6, 1972, gage height 4.06 ft datum then in use; minimum, 0.29 ${\rm ft}^3/{\rm s}$ Sept. 27, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 60 ft^3/s Dec. 18, 19, gage height 11.57 ft; minimum discharge, 1.2 ft^3/s , Oct. 5, 6.

		DISCHAR	GE, CUBIC	FEET PER		WATER YEA		R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	1.6 2.0 1.6 1.4	5.1 4.5 3.7 3.7	23 24 25 24 24	28 28 25 25 25	41 43 42 41 40	35 33 32 31 31	31 29 27 26 25	19 19 18 17	7.9 7.7 7.5 7.3 7.5	4.7 4.4 4.0 4.2 4.1	4.4 4.2 4.5 5.1 4.9	4.1 4.2 3.9 3.0 2.5
6 7 8 9 10	1.5 1.6 1.6 1.4 2.2	4.2 4.7 4.7 4.8 4.3	24 23 23 23 23	24 26 27 28 28	39 37 38 37 38	29 27 26 25 24	24 23 22 21 22	16 16 15 15	7.2 7.2 7.0 6.8 6.6	4.1 4.2 4.3 6.1 5.7	4.5 4.9 4.1 3.6 4.4	2.6 2.9 3.7 3.5 3.3
11 12 13 14 15	3.1 3.0 3.2 3.4 3.4	4.0 4.9 5.9 15	22 22 28 38 42	28 28 27 26 26	36 35 35 33 32	25 25 27 30 29	22 22 24 32 36	14 14 13 13	6.6 6.6 6.3 6.5	4.8 3.8 3.6 3.2 3.2	4.4 4.0 4.6 3.7 2.6	3.2 2.7 2.7 2.9 3.6
16 17 18 19 20	3.9 3.6 3.5 3.7 3.5	11 10 10 10	46 55 58 58 54	25 24 24 24 25	31 30 29 28 26	28 27 26 28 37	38 37 35 35 33	12 12 12 11 11	6.7 6.6 6.9 6.6 6.3	3.1 3.3 4.3 3.7 3.8	3.1 2.9 2.6 3.0 3.3	3.5 3.1 3.2 2.9 2.7
21 22 23 24 25	3.6 3.5 3.5 3.8 4.0	11 13 15 16 17	51 47 44 42 40	25 24 25 26 31	28 30 34 37 38	47 51 49 46 43	31 29 28 27 25	11 11 10 9.9 9.6	5.1 5.2 5.1 4.8 4.5	3.6 3.3 4.4 4.2 4.1	3.1 3.0 2.6 3.1 3.0	2.6 2.5 2.5 2.6 2.7
26 27 28 29 30 31	3.9 4.8 4.8 4.6 4.6 4.5	17 17 17 19 21	39 36 34 32 32 29	37 39 39 40 38 39	38 38 36 	40 39 36 35 34 32	24 24 23 21 20	9.3 9.0 9.0 9.1 8.5 8.2	4.3 4.5 5.6 5.7 5.5	3.7 3.8 3.8 4.6 6.0 4.6	3.0 3.3 3.1 3.0 3.3 3.8	2.8 2.9 2.9 3.1 3.0
TOTAL MEAN MAX MIN AC-FT CFSM IN.	96.1 3.10 4.8 1.3 191 0.25 0.28	303.4 10.1 21 3.7 602 0.80 0.90	1085 35.0 58 22 2150 2.78 3.20	884 28.5 40 24 1750 2.26 2.61	990 35.4 43 26 1960 2.81 2.92	1027 33.1 51 24 2040 2.63 3.03	816 27.2 38 20 1620 2.16 2.41	395.6 12.8 19 8.2 785 1.01 1.17	188.6 6.29 7.9 4.3 374 0.50 0.56	128.7 4.15 6.1 3.1 255 0.33 0.38	113.1 3.65 5.1 2.6 224 0.29 0.33	91.8 3.06 4.2 2.5 182 0.24 0.27
STATIST	ICS OF M	ONTHLY MEA	N DATA FO	R WATER Y	EARS 1945	- 2002,	BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	6.01 14.8 1960 1.84 1971	12.6 38.4 1960 3.31 1968	29.0 81.1 1956 4.04 1953	38.7 79.5 1956 12.3 1952	41.3 87.6 1965 11.6 1962	36.3 128 1972 13.5 1973	25.9 53.6 1950 5.28 1973	17.7 31.8 1950 4.15 1973	11.8 23.4 1948 4.28 1973	8.55 17.4 1948 3.10 1973	6.14 11.0 1948 1.46 1973	5.29 8.75 1948 1.05 1973
SUMMARY	STATIST	ICS			FOR 20	02 WATER	YEAR			WATER YEAR	RS 1945 -	2002
								1973				

12119000 CEDAR RIVER AT RENTON, WA

LOCATION.--Lat $47^{\circ}28^{\circ}58^{\circ}$, long $122^{\circ}12^{\circ}08^{\circ}$, in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.17, T.23 N., R.5 E., King County, Hydrologic Unit 17110012, on left bank 125 ft downstream from bridge on Mill Avenue at Renton, and at mile 1.6.

DRAINAGE AREA.--184 mi², includes 3.67 mi² in vicinity of Youngs Lake in Big Soos Creek basin, excludes 1.9 mi² from upper Rock Creek, Cedar River basin, normally diverted into Issaquah Creek.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1901 to July 1903 (fragmentary), September 1906 to December 1907 (monthly discharge only), August 1945 to current year.

REVISED RECORD.--WSP 1316: 1901-02. WSP 1932: Drainage area. WDR WA-75-1: 1972-74.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 15.20 ft above NGVD of 1929. Prior to Jan. 1, 1908, nonrecording gages within 1 mi of present site, at datum 10.67 ft above NGVD of 1929. Aug. 7, 1945, to Aug. 15, 1947, water-stage recorder at site 700 ft upstream at datum 20.13 ft above NGVD of 1929, and Aug. 16, 1947, to Dec. 7, 1950, at datum 19.13 ft above NGVD of 1929.

REMARKS.--Records good, except for estimated daily discharges, which are fair. Flow partly regulated by Chester Morse Lake and Masonry Dam for operation of powerplant at Cedar Falls 32.1 mi upstream from gage. An average daily discharge of about 122 ft³/s was diverted during the year at Landsburg by the City of Seattle for municipal use, computed from data furnished by Seattle Water Department. U.S. Geological Survey satellite telemeter at station. Chemical analyses July 1959 to August 1964, December 1965 to September 1971.

AVERAGE DISCHARGE.--57 years (water years 1946-2002), 667 ft³/s, 483,300 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,600 ft³/s Nov. 24, 1990, gage height, 17.13 ft from outside high-water mark; minimum daily discharge, 30 ft³/s July 1, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,620 ft³/s Apr. 14, gage height, 10.80 ft; minimum discharge, 151 ft³/s Aug. 8, 29, Sept. 10.

DISCHARGE. CUBIC FEET PER SECOND. WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		DISCHA	RGE, CUBI	C FEET FE		MEAN VA	LUES	£ 2001 10	SEFIEMDI	5R 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	257	695	1320	1050	1180	912	1130	693	629	711	226	170
2	258	582	1280	1040	1150	830	1190	693 685 770 806 814	652	577	225	172
3	259		1170	914	1130	807	1170	770	645 661	e420	224	199
4	259		1030	751	1100	788	1130	806		e270	231	177
5	311	647	971		1180 1150 1130 1100 1080			814	909	e255	215	169
6 7	393 359	556 512	994 967	670	973 972 1090 987 943	1080	954	771	1030 1300	e257 e270	197 172	168 168
8	404	469	927	1160 1460 1420	1000	1070	974	932	1470	e283	156	169
9	422	484	1010	1420	987	1070	1030	978	1470	e270	184	169
10	413	500	1000	1480	943	1070	1150	771 932 979 978 886	1410	269	185	163
11	508	487	918 804	1320 1210 1180 1240	943 912 807 778 747 691	1280 1140 1140 1120 1050	1210	769 686 642 611 568	1130	268	176	167
12	492	496	804	1210	807	1140	1210 1300 1560	686	1130 875 653	256	176	173
13	467	521	1460 1780	1180	778	1140	1560	642	653 590	239	175	174
14	504	1720	1780	1240	747	1120	2400	611		234	171	177
15	495	1530	1620	1490		1050			607	233	169	177
16	470	1230	1650	1650	676	975	1990	561	599	230	170	185
17	465	963	1690	1630	664	858	1800	579	867	236	170	223
18 19	420 432	1020 1110	1590	1380	694	742	1640	5/9	1190	239	170	223
20	466	1190	1740 1690	1300 1340	697	858 742 701 1050	1740	561 579 579 581 594	1210 1210	240 238	175 182	234 238
21	469	1490	1660	1370					1200	235	178	243
22	487	1820	1750 1700 1650	1300	1430	e1440	1660	592 598 583 751	1180	235	176	250
23	485	2000	1700	1300 1270 1140	1380	e1430	1350	583	1190	232	173	257
24	481	1810	1650	1140	1190	e1440	1040	751	1100	238	170	259
25	587	1190 1490 1820 2000 1810 1670	1630	1370	984 1430 1380 1190 1010	e1400	907	1140	917	235	176	270
26	520	1620	1580	1340	1010	1280	902	1190	766	244	180	267
27	621	1520 1410 1430	1420	1120	942 994 	1150	e850	1190 1190 1080 952 697 602	759	246	181	264
28	631	1410	1230	1020	994	1040	e730	1080	843	242	189	255
29	574	1430	1230 1190 1170	953		1010	e680	952	914	249	163	263
30	570	1300	11/0	967		1040	e690 	697	833	244	165	259
31	692			1110		1050				235	170	
TOTAL	14171	32262	41771	37305	26920	33116	38686	23859	28809	8630 278 711 230	5670	6282
MEAN	457	1075	1347	1203	961	1068	1290	770 1190	960	278	183	209
MAX	692	2000	1700	1000	1430	1440 701	2400	1190	1470 590	711	231	270
MIN AC-FT	257 28110	469 63990	804 82850	660 73990	664 53400		680 76730	561 47320		230 17120	11250	270 163
										1/120	11250	12460
STATIST						-	BY WATER					
MEAN	353	742	1071	1094	1054	867	784 1290 2002 335 1973	710	632 1757 1964 168	303 785 1955	193	227
MAX	864	2673	2845	1924	2374	2577	1290	1226	1757	785	193 582	601
(WY)	1960	1991	1976	1999	1982	1972	2002	1997	1964	1955	1954	1964
MIN	76.4	61.2	91.2	283	299	389	335	274	168	44.9	41.1	
(WY)	1953	1953	1953	1988	1988	1992	1973	1992	1958	1958	1958	1958
SUMMARY	STATISTI	CS	FOR 2	001 CALEN	DAR YEAR	FC	OR 2002 WAT	TER YEAR	Ī	WATER YEAR	S 1946 -	2002
ANNUAL				184693			297481					
ANNUAL				506			815			667		
	r annual									1016		1972
	ANNUAL M DAILY M			2000	Morr 22		2400	7mm 14		3/3	Morr 2E	2001 1000
	DAILY ME			126	Nov 23 Aug 13 Aug 11		156	Whit 14		373 8900 30 41 483300 1290	NOV 25	1962
ANNIAT.	SEVEN-DE	Y MINIMIM		127	Aug 11		168	Sen 5		41	Tiil 9	1958
ANNUAL.	RUNOFF	AY MINIMUM (AC-FT) (EDS		366300	nug 11		590100	DCP 3		483300	001 9	1000
10 PERG	CENT EXCE	EDS		1130			1470			1290		
50 PER	CENT EXCE	EDS		372			788			514		
	CENT EXCE			192			183			152		

e Estimated

12119000 CEDAR RIVER AT RENTON, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1959-71, March 1978 to current year.

PERIOD OF DAILY RECORD. --

WATER TEMPERATURE: August 1965 to February 1967, March 1978 to current year.

INSTRUMENTATION. -- Temperature recorder for period of daily record.

REMARKS.--Records excellent except Nov. 13 - Mar. 30, Apr. 17-27, May 4-20, which are good and Apr. 28 - May 3, which are fair.

EXTREMES FOR PERIOD OF DAILY RECORD.-WATER TEMPERATURE: Maximum, 24.0°C (rounded) Aug. 8, 1978; minimum, 0.0°C (rounded) Dec. 30, 1978 to Jan. 1, 1979, Jan. 29,

EXTREMES FOR CURRENT YEAR. --

WATER TEMPERATURE: Maximum 19.6°C July 23; minimum 4.5°C Feb. 2, 12, March 8.

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER	2	NO	OVEMBER		DE	ECEMBER			JANUARY	
1 2 3 4 5	13.1 12.8 12.5 12.4 12.8	11.1 10.5 10.3 10.0 9.9	12.1 11.7 11.4 11.2 11.3	9.7 10.3 9.5 9.8 9.6	9.1 9.5 8.7 9.1 8.5	9.4 9.8 9.2 9.5 9.1	7.4 7.3 6.9 7.0 6.8	6.7 6.6 6.3 6.5 6.5	7.1 6.9 6.7 6.7	6.6 6.8 6.7 7.3 7.5	5.3 6.0 5.6 6.5 6.7	6.0 6.5 6.2 6.9 7.1
6 7 8 9 10	12.5 11.7 12.4 12.1 11.0	10.9 10.7 11.3 10.8 9.9	11.6 11.2 11.6 11.4 10.4	8.6 8.7 8.8 8.6 9.0	7.8 7.4 7.1 7.2 7.3	8.2 8.0 7.9 7.9 8.1	7.2 7.3 7.3 7.3 6.7	6.5 6.6 6.8 6.5 6.3	6.8 6.9 7.1 6.8 6.5	8.0 8.1 7.9 7.4 6.6	6.9 7.7 7.3 6.4 5.9	7.3 7.9 7.7 7.1 6.2
11 12 13 14 15	11.8 11.3 11.7 12.0 11.7	10.6 10.2 10.9 10.9	11.1 10.7 11.3 11.4 11.1	9.4 9.5 9.7 10.2 10.1	8.3 9.0 9.1 9.5 9.3	8.8 9.2 9.4 9.9	7.0 7.2 7.6 7.1 6.6	6.3 6.2 7.0 6.3 6.2	6.6 6.6 7.4 6.7	7.0 6.9 6.5 5.9 5.4	6.3 6.4 5.8 5.2 4.8	6.6 6.7 6.1 5.5 5.1
16 17 18 19 20	10.9 11.1 10.5 11.2 10.6	10.3 9.8 9.5 10.3 9.6	10.6 10.5 10.0 10.7 10.1	9.5 9.0 8.5 8.8 8.9	8.9 7.7 7.1 8.1 8.5	9.2 8.5 7.9 8.5 8.7	7.7 7.6 6.5 6.2 6.3	6.6 6.2 6.0 5.8 5.9	7.3 6.8 6.2 6.0 6.1	5.2 5.4 5.6 5.8 5.9	4.6 4.9 4.8 5.5 5.5	4.9 5.1 5.2 5.7 5.7
21 22 23 24 25	10.3 10.8 10.5 9.7 9.9	9.3 10.0 9.5 9.2 9.1	9.7 10.3 10.0 9.4 9.5	8.6 8.4 8.2 7.8 7.6	8.3 8.0 7.6 7.2 7.0	8.4 8.2 8.0 7.5 7.4	6.4 6.0 5.9 5.8 5.5	5.6 5.2 5.2 5.2 4.9	6.0 5.6 5.6 5.4 5.2	5.7 5.4 5.6 6.5 6.6	5.1 4.9 5.1 5.6 5.3	5.4 5.2 5.3 6.1 6.2
26 27 28 29 30 31	10.6 10.2 9.0 9.2 9.9	9.3 8.8 7.8 7.9 9.1 9.1	9.9 9.5 8.4 8.6 9.4 9.4	7.6 7.6 7.1 7.0 7.2	7.0 7.1 6.4 6.5	7.3 7.3 6.7 6.7 6.8	5.4 5.9 6.3 6.0 5.9 6.4	4.6 5.3 5.5 5.2 5.1 5.4	5.0 5.6 5.9 5.5 6.0	5.5 5.6 5.3 5.6 5.3	4.9 4.7 4.8 4.8 4.7 5.2	5.3 5.1 5.0 5.2 5.0 5.3
MONTH	13.1	7.8	10.5	10.3	6.4	8.4	7.7	4.6	6.3	8.1	4.6	6.0

12119000 CEDAR RIVER AT RENTON, WA--Continued

		TEMPE	RATURE,	WATER (DEG	. C), WA	TER YEAR	OCTOBER 2	001 TO S	SEPTEMBER	2002		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1 2 3 4 5	6.0 5.9 6.2 5.9 5.9	5.2 4.5 5.4 4.6 5.0	5.5 5.3 5.8 5.3 5.5	6.9 6.9 7.4 7.6 7.0	4.7 4.6 4.7 5.2 5.8	5.7 5.7 5.9 6.4 6.6	8.5 8.3 9.0 9.6 8.0	6.8 5.6 5.8 6.1 6.9	7.5 6.9 7.3 7.8 7.5	11.7 10.5 11.2 9.8 11.0	9.7 9.5 8.8 8.8 8.8	10.4 10.0 9.8 9.2 9.7
6 7 8 9 10	6.5 6.5 6.2 6.6 6.7	5.7 5.9 5.3 5.3 5.6	6.0 6.2 5.7 5.9 6.2	6.0 6.2 5.8 6.1 6.2	5.2 4.9 4.5 4.8 5.4	5.6 5.4 5.2 5.4 5.8	9.3 8.4 9.8 8.6 8.8	7.4 7.2 6.3 7.3 7.5	8.1 7.8 7.9 7.9 8.1	9.7 10.0 11.3 10.5 11.5	8.1 7.8 8.0 8.4 8.4	8.9 8.9 9.5 9.4 9.7
11 12 13 14 15	6.4 6.1 6.5 6.7 7.1	5.2 4.5 4.9 5.0 4.9	5.9 5.3 5.7 5.8 5.9	6.6 6.9 6.7 6.6 6.6	5.8 5.8 5.7 5.8 5.7	6.2 6.3 6.2 6.2	9.0 8.8 9.0 9.1 8.1	7.7 8.0 8.1 7.4 7.1	8.4 8.4 8.6 8.1 7.6	12.7 13.8 12.4 11.8 12.7	8.5 9.4 10.0 9.6 9.1	10.5 11.5 10.9 10.6 10.8
16 17 18 19 20	7.7 7.2 8.1 7.8 7.7	6.0 6.2 6.8 6.6 5.9	6.7 6.8 7.4 7.3 6.7	6.0 6.9 6.2 6.6 6.4	5.2 5.0 5.4 5.8 5.4	5.6 5.8 5.8 6.3 5.7	8.0 8.4 9.3 8.3 8.6	6.9 7.0 7.3 7.3 7.3	7.4 7.7 8.1 7.7 7.9	12.9 13.7 12.0 11.7 12.1	9.0 10.6 10.4 10.3 10.6	11.0 11.9 11.1 10.9 11.3
21 22 23 24 25	7.7 7.7 7.3 6.8 6.6	6.6 7.2 6.5 5.4 4.6	7.2 7.4 6.9 6.3 5.5	7.0 6.7 7.1 6.5 7.4	4.9 4.7 5.3 5.7 5.9	5.9 5.7 6.1 6.1 6.5	8.3 8.6 9.4 10.5 11.0	7.5 7.6 7.0 6.7 7.8	7.9 7.9 8.1 8.5 9.4	11.8 11.7 13.0 13.6 12.5	10.2 9.9 10.0 9.4 10.3	11.0 10.7 11.2 11.4 11.5
26 27 28 29 30 31	6.8 6.6 6.9 	5.2 4.9 5.6 	5.8 5.7 6.1 	6.7 6.8 8.1 7.6 7.9 8.1	5.6 6.0 6.4 6.5 6.7	6.2 6.4 7.0 7.0 7.2 7.3	9.6 9.6 12.4 12.9 13.3	8.3 8.4 8.2 8.7 9.4	8.9 8.9 10.0 10.7 11.3	12.4 12.4 11.9 12.6 14.2 14.3	10.5 10.5 10.8 10.9 10.3 11.0	11.4 11.5 11.5 11.6 12.1 12.4
MONTH	8.1	4.5	6.1	8.1	4.5	6.1	13.3	5.6	8.3	14.3	7.8	10.7
DAV	MAX	MTN	MEAN	MΔY	MTN	MEZN	MΔX	MTN	MEAN	MΔY	MTN	MEZN
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN SEPTEMBE	MEAN
DAY 1 2 3 4 5	MAX 14.5 13.9 13.5 12.7 13.9	MIN JUNE 10.6 10.6 10.6 11.3 10.9	MEAN 12.4 12.2 12.0 11.9 12.2	15.2 15.5 14.8 14.7 16.6	MIN JULY 12.5 11.9 12.5 11.9 11.6	MEAN 13.7 13.6 13.5 13.2 14.1		MIN AUGUST 12.4 12.9 11.9 12.5 12.3	MEAN 14.7 14.7 13.6 14.0 13.8		MIN SEPTEMBE 13.6 13.0 12.6 11.2 11.1	
1 2 3 4	14.5 13.9 13.5 12.7	JUNE 10.6 10.6 10.6 11.3	12.4 12.2 12.0 11.9	15.2 15.5 14.8 14.7	JULY 12.5 11.9 12.5 11.9	13.7 13.6 13.5 13.2	16.5 16.7 15.1 15.4	12.4 12.9 11.9 12.5	14.7 14.7 13.6 14.0	15.4 15.2 15.0 14.6	13.6 13.0 12.6 11.2	14.3 14.2 13.7 13.1
1 2 3 4 5 6 7 8 9	14.5 13.9 13.5 12.7 13.9 12.4 11.6 11.3 13.6	JUNE 10.6 10.6 11.3 10.9 10.8 10.2 9.9 10.1 10.6 10.7 11.2 11.9 12.5 12.0	12.4 12.2 12.0 11.9 12.2 11.6 10.5 11.7 11.7 12.5 13.3 14.1 13.8 13.0	15.2 15.5 14.8 14.7 16.6 17.1 15.3 15.0 17.5 18.6 18.5 18.5 18.1 16.4 17.5	JULY 12.5 11.9 12.5 11.9 11.6 12.6 13.3 12.7 11.8 13.5 14.1 13.8 14.7 13.8	13.7 13.6 13.5 13.2 14.1 14.9 13.9 13.7 14.6	16.5 16.7 15.1 15.4 15.3 14.9 16.1 17.2 17.9 16.7	12.4 12.9 11.9 12.5 12.3 12.5 12.2 12.5 13.3 14.6 13.0 13.5 14.2 14.3 14.1	14.7 14.7 13.6 14.0 13.8 13.7 14.3 15.0 15.8 15.6	15.4 15.2 15.0 14.6 14.4 14.5 12.9 15.4 15.6 15.8 16.0 15.9 15.1	SEPTEMBE 13.6 13.0 12.6 11.2 11.1 11.2 12.2 11.1 11.7 12.3	14.3 14.2 13.7 13.1 12.9 13.0 13.3 12.2 13.6 14.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	14.5 13.9 12.7 13.6 11.6 11.3 13.6 13.0 14.5 15.6 16.5 14.3	JUNE 10.6 10.6 11.3 10.9 10.8 10.2 9.9 10.1 10.6 11.7 11.9 12.5 12.0 11.9 11.3 12.0 11.7 11.6	12.4 12.2 12.0 11.9 12.2 11.6 10.5 11.7 11.7 12.5 13.3 14.1 13.8 13.0 12.4 12.2 12.5 12.9 13.4	15.2 15.5 14.8 14.7 16.6 17.1 15.3 15.0 17.5 18.6 18.5 18.5 18.1 16.4 17.5	JULY 12.5 11.9 12.6 11.6 12.6 13.3 12.7 11.8 13.5 14.1 13.8 12.1 13.4 14.4 14.4 14.5 13.0	13.7 13.6 13.5 13.2 14.1 14.9 13.9 14.6 16.1 16.5 14.7 14.9	16.5 16.7 15.1 15.4 15.3 14.9 16.1 17.2 17.9 16.7 17.6 18.1 18.7 18.5 18.1	12.4 12.9 11.9 12.5 12.3 12.5 12.2 12.5 13.3 14.6 13.0 13.5 14.2 14.3 14.1	14.7 14.7 13.6 14.0 13.8 13.7 14.3 15.0 15.8 15.6	15.4 15.2 15.0 14.6 14.4 14.5 12.9 15.4 15.6 15.8 16.0 15.9 15.1	SEPTEMBE 13.6 13.0 12.6 11.2 11.1 11.2 12.2 11.1 11.7 12.3 12.5 12.7 13.1 13.6	14.3 14.2 13.7 13.1 12.9 13.0 13.3 12.2 13.6 14.1 14.3 14.4 14.6 14.7 14.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	14.5 13.9 13.5 12.7 13.9 12.4 11.3 13.6 13.0 14.5 15.6 16.5 15.0 14.3	JUNE 10.6 10.6 11.3 10.9 10.8 10.2 9.9 10.1 10.6 11.7 11.9 12.5 12.0 11.9 11.3 12.0 11.7 11.6	12.4 12.2 12.0 11.9 12.2 11.6 10.5 11.7 11.7 12.5 13.3 14.1 13.8 13.0	15.2 15.5 14.8 14.7 16.6 17.1 15.3 15.0 17.5 18.6 18.5 18.1 16.4 17.5 18.3 17.7 17.2 18.2	JULY 12.5 11.9 12.6 11.6 12.6 13.3 12.7 11.8 13.5 14.1 13.8 12.1 13.4 14.4 14.4 14.5 13.0	13.7 13.6 13.5 13.2 14.1 14.9 13.9 13.7 14.6 16.1 16.5 16.3 14.7 14.9	16.5 16.7 15.1 15.4 15.3 14.9 16.1 17.2 17.9 16.7 17.6 18.1 18.7 18.5 18.1	12.4 12.9 11.9 12.5 12.3 12.5 12.2 12.5 13.3 14.6 13.0 13.5 14.2 14.3 14.1 14.4 13.3 13.1 13.5	14.7 14.7 13.6 14.0 13.8 13.7 14.3 15.0 15.8 15.6 16.6 16.3 16.3 15.5 15.1 14.1 14.1 14.0 14.3 15.2 15.6	15.4 15.2 15.0 14.6 14.4 14.5 12.9 15.4 15.6 15.8 16.0 15.9 15.1 14.6 14.4 13.8 13.5 13.7	SEPTEMBE 13.6 13.0 12.6 11.2 11.1 11.2 12.2 11.1 11.7 12.3 12.5 12.7 12.7 13.1 13.6 13.1 12.5 11.0 12.0 11.3	14.3 14.2 13.7 13.1 12.9 13.0 13.3 12.2 13.6 14.1 14.3 14.4 14.6 14.7 14.1 13.8 13.5 12.5 12.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	14.5 13.9 12.4 11.6 11.3 13.6 13.0 14.5 15.6 16.5 14.3 13.1 12.9 13.1 14.4 15.5 15.5 15.5 15.5 15.5 15.5 15	JUNE 10.6 10.6 10.6 11.3 10.9 10.8 10.2 9.9 10.1 10.6 11.7 11.2 11.9 12.5 12.0 11.9 11.3 12.0 11.7 11.6 12.1 12.3 12.6 12.5 13.0 13.2 12.9	12.4 12.2 12.0 11.9 12.2 11.6 10.5 11.7 11.7 12.5 13.3 14.1 13.8 13.0 12.4 12.2 12.5 12.9 13.4	15.2 15.5 14.8 14.7 16.6 17.1 15.3 15.0 17.5 18.6 18.5 18.5 18.1 16.4 17.5	JULY 12.5 11.9 11.6 12.6 13.3 12.7 11.8 13.5 14.1 13.8 12.1 13.4 14.4 14.4 14.5 14.6 13.0 13.7 14.6 15.0 14.6	13.7 13.6 13.5 13.2 14.1 14.9 13.9 14.6 16.1 16.5 14.7 14.9	16.5 16.7 15.1 15.4 15.3 14.9 16.1 17.2 17.9 16.7 17.6 18.1 18.7 18.5 18.1	12.4 12.9 11.9 12.5 12.3 12.5 12.2 12.5 13.3 14.6 13.0 13.5 14.2 14.3 14.1 14.4 13.3 13.1 13.5	14.7 14.7 13.6 14.0 13.8 13.7 14.3 15.0 15.8 15.6 16.6 16.3 16.3 15.5 15.1 14.1 14.1 14.0 14.3 15.2 15.6	15.4 15.2 15.0 14.6 14.4 14.5 12.9 15.4 15.6 15.8 16.0 15.9 15.1 14.6 14.4 13.8 13.5 13.7	SEPTEMBE 13.6 13.0 12.6 11.2 11.1 11.2 12.2 11.1 11.7 12.3 12.5 12.7 12.7 13.1 13.6 13.1 12.5 11.0 12.0 11.3 10.0 10.4 10.7 11.3 11.3 11.4 11.3 10.9 11.8 10.9	14.3 14.2 13.7 13.1 12.9 13.0 13.3 12.2 13.6 14.1 14.3 14.4 14.6 14.7 14.1 13.8 13.5 12.5 12.5 12.6 11.7 12.1 12.3 12.6 12.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	14.5 13.9 12.4 11.6 11.3 13.6 13.0 14.5 15.6 15.0 14.3 13.1 12.9 13.1 14.4 15.4 15.9 16.5 15.5 15.5 15.5 15.5 15.5 15.5 15.5	JUNE 10.6 10.6 11.3 10.9 10.8 10.2 9.9 10.1 10.6 11.7 11.2 11.9 12.5 12.0 11.9 11.3 12.6 12.1 12.3 12.6 12.6 12.5 13.0 13.2 12.9 12.9 12.6	12.4 12.2 12.0 11.9 12.2 11.6 10.8 10.5 11.7 11.7 12.5 13.3 14.1 13.8 13.0 12.4 12.2 12.5 12.5 13.4 13.9 13.9 13.7 14.1 14.4 14.8 14.0 13.4 13.4 13.3	15.2 15.5 14.8 14.7 16.6 17.1 15.3 17.5 18.6 18.5 18.5 18.7 17.7 17.2 18.3 17.7 17.2 18.2	JULY 12.5 11.9 12.6 13.3 12.7 11.8 13.5 14.1 13.8 12.1 13.4 14.4 14.5 13.0 13.7 14.6 15.0 14.6 15.2 15.0 14.6 13.8 13.1 13.8 12.7 13.8	13.7 13.6 13.5 13.2 14.1 14.9 13.9 14.6 16.1 16.5 14.7 14.9 16.0 16.4 16.2 15.7 15.6 16.3 17.2 17.3 17.2 17.3 17.3 17.3 17.3 17.3 17.3 17.3 17.3	16.5 16.7 15.1 15.4 15.3 14.9 16.1 17.2 17.9 16.7 17.6 18.1 18.5 18.1 18.0 17.2 16.7 15.3 14.7 15.3 14.7 15.3 16.4 17.1 17.2 16.2	12.4 12.9 11.9 11.9 12.5 12.3 12.5 12.2 12.5 13.3 14.6 13.0 13.5 14.2 14.3 14.1 14.4 13.3 13.1 12.8 13.5 12.9 12.1 13.6 14.1	14.7 14.7 13.6 14.0 13.8 13.7 14.3 15.0 15.8 15.6 16.6 16.3 16.3 16.3 15.5 15.1 14.1	15.4 15.2 15.0 14.6 14.4 14.5 12.9 15.4 15.6 15.8 16.0 15.9 15.1 14.6 14.4 13.5 13.7 13.1 14.0 13.7 13.4 14.0	SEPTEMBE 13.6 13.0 12.6 11.2 11.1 11.2 12.2 11.1 11.7 12.3 12.5 12.7 13.1 13.6 13.1 12.5 11.0 12.0 11.3 10.0 11.3 11.3 11.4 11.3 10.9 11.8 10.9	14.3 14.2 13.7 13.1 12.9 13.0 13.3 12.2 13.6 14.1 14.3 14.4 14.6 14.7 14.1 13.8 13.5 12.5 12.5 12.6 11.7 12.1 12.3 12.6 12.7

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12120000 MERCER CREEK NEAR BELLEVUE, WA

LOCATION.--Lat $47^{\circ}36^{\circ}11^{\circ}$, long $122^{\circ}10^{\circ}47^{\circ}$, in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.4, T.24 N., R.5 E., King County, Hydrologic Unit 17110012, on left bank 40 ft upstream from Burlington Northern Railroad trestle, 1.2 mi southeast of Bellevue, and 2.0 mi upstream from mouth.

DRAINAGE AREA. -- 12.0 mi2.

Date

Time

HIGHEST DAILY MEAN
LOWEST DAILY MEAN
ANNUAL SEVEN-DAY MINIMUM
ANNUAL RUNOFF (AC-FT)
ANNUAL RUNOFF (CFSM)
ANNUAL RUNOFF (INCHES)

10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS

PERIOD OF RECORD. -- June to October 1945, June 1955 to current year.

REVISED RECORDS.--WSP 1446: Drainage area. WDR WA-83-1: 1977-79(P).

GAGE.--Water-stage recorder. Datum of gage is 17.11 ft above NGVD of 1929 (levels by Municipality of Metropolitan Seattle engineers). Prior to June 5, 1959, at site 600 ft downstream at different datums.

REMARKS.--No estimated daily discharges. Records good except for the period Oct. 10 to Nov. 15, which is fair. Natural flow affected by urbanization and construction of flood-control catchments.

AVERAGE DISCHARGE.--47 years (water years 1956-2002), 22.6 ${\rm ft}^3/{\rm s}$, 25.62 ${\rm in/yr}$, 16,390 ${\rm acre-ft/yr}$.

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 832 ft 3 /s Jan. 18, 1986, gage height, 6.50 ft; maximum gage height, 8.68 ft Mar. 6, 1972, caused by backwater from plugged culvert; minimum discharge, 1.9 ft 3 /s Aug. 6, 1958.

Time

Date

Discharge Gage height (ft³/s) (ft)

14.6 412 2.5

2.8

1.89

47 14 6.7

Jul 23 1958

EXTREMES FOR CURRENT YEAr.--Peak discharges greater than base discharge of 250 $\mathrm{ft^3/s}$ and maximum (*):

Nov 14 Nov 22 Dec 13 Dec 16	1500 1500 1900 1715	*54 26 39 29	52 97	*4.97 3.25 4.07 3.36	Feb Feb Apr	22	0345 1045 0330	272 312 272	2	3.21 3.50 3.21		
Minimum disc	charge,	4.0 ft^3/s ,	Aug. 9,	12-15.								
		DISCHAF	RGE, CUBI	C FEET PER		WATER YE MEAN VA	AR OCTOBER LUES	2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	6.2 6.1 6.3 7.1 5.8	16 20 12 26 38	95 86 63 49 37	28 50 18 14 16	24 17 20 14 29	15 14 14 13 14	13 12 11 11	10 11 11 9.7 9.7	8.0 7.5 7.5 8.0 8.3	14 8.2 7.6 7.6 9.4	5.8 5.8 5.9 5.8	5.7 7.8 12 6.7 6.6
6 7 8 9 10	6.0 6.5 20 12 13	14 11 9.6 9.2 8.7	39 20 18 23 35	50 163 115 35 23	49 41 116 28 30	13 12 27 23 32	12 21 12 26 50	12 12 9.7 9.3 9.1	16 13 11 8.6 7.8	6.8 13 55 11 8.6	6.0 6.0 5.8 5.6 5.5	6.3 6.1 6.2 6.3 5.9
11 12 13 14 15	24 12 22 10 8.0	8.7 30 84 387 117	25 26 174 90 58	24 53 31 18 15	32 16 15 14 13	116 60 38 25 36	21 22 72 118 37	8.7 8.2 13 13 9.1	7.7 7.3 7.0 6.9 6.9	7.2 7.0 7.0	5.5 5.3 5.2 5.3 5.4	5.8 5.9 5.8 5.6 5.8
16 17 18 19 20	55 44 12 22 11	52 25 16 88 77	201 120 54 39 26	15 14 19 77 27	13 15 16 41 16	37 22 23 30 72	34 20 14 13	8.3 16 9.2 8.9 18	7.0 7.4 10 9.2 7.3	6.8 6.6 6.6	5.6 5.5 5.5 6.5	7.7 7.2 6.3 6.2 7.0
21 22 23 24 25	25 14 11 18 68	54 149 91 32 23	20 16 15 14 13	17 15 14 27 116	135 204 93 49 26	28 19 16 15 15	12 14 12 11	10 12 10 8.3 8.2	6.8 6.7 6.6 6.6 6.4	5.8 5.8 5.7 6.1	6.4 6.2 6.1 6.0 6.1	6.0 5.7 5.0 5.2 5.6
26 27 28 29 30 31	22 121 25 15 22 46	19 15 96 118 82	13 13 18 13 12 21	44 30 27 18 42 42	20 17 24 	13 16 17 15 14 12	19 34 13 12 11	8.4 8.5 15 31 10 8.5	6.4 7.8 24 32 9.7	6.5 6.7 6.8 7.2 7.6 6.5	6.5 6.2 5.9 5.8 5.6 5.8	5.4 6.2 6.0 38 11
TOTAL MEAN MAX MIN AC-FT CFSM IN.	696.0 22.5 121 5.8 1380 1.87 2.16	1728.2 57.6 387 8.7 3430 4.80 5.36	1446 46.6 201 12 2870 3.89 4.48	1197 38.6 163 14 2370 3.22 3.71	1127 40.2 204 13 2240 3.35 3.49	816 26.3 116 12 1620 2.19 2.53	692 23.1 118 11 1370 1.92 2.15	345.8 11.2 31 8.2 686 0.93 1.07	285.4 9.51 32 6.4 566 0.79 0.88	9.05 55	180.4 5.82 6.5 5.2 358 0.48 0.56	227.0 7.57 38 5.0 450 0.63 0.70
STATIST	rics of I	MONTHLY MEA	N DATA F	OR WATER Y	EARS 1945	- 2002,	BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	16.6 44.4 1982 7.47 1988	32.3 60.9 2000 11.0 1977	40.0 70.7 1997 16.5 1977	39.9 74.1 1997 15.9 1977	34.9 61.1 1996 10.2 1993	30.1 67.5 1972 15.4 1965	22.1 39.9 1991 12.7 1962	14.7 27.2 1996 8.45 1958	12.5 23.8 1985 5.34 1958	8.94 16.5 1997 3.22 1958	8.59 18.7 1976 3.25 1945	10.9 22.3 1978 5.05 1955
SUMMARY	Y STATIS	rics	FOR	2001 CALEN	DAR YEAR	F	OR 2002 WA	TER YEAR		WATER YEAR	RS 1945 -	2002
LOWEST HIGHEST		MEAN MEAN		8035.8 22.0 387 4.7	Nov 14 Aug 11		9021.4 24.7 387 5.0	Nov 14 Sep 23		22.6 36.8 14.6 412 2.5		

4.7 4.9

1.83

48 12 5.8

Aug 11 Aug 7

5.0 5.4 17890

2.06 27.97

54 13 5.9 Sep 23 Aug 9

12120600 ISSAQUAH CREEK NEAR HOBART, WA

LOCATION.--Lat $47^{\circ}27^{\circ}27^{\circ}$, long $122^{\circ}00^{\circ}14^{\circ}$, in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.26, T.23 N., R.6 E., King County, Hydrologic Unit 17110012, on left bank 20 ft downstream from highway bridge, 2.9 mi northwest of Hobart, and 10.2 mi upstream from mouth, 1.6 mi northwest of Issaquah, and at mile 33.1 (continuation of Sammamish River).

DRAINAGE AREA.--17.6 mi².

PERIOD OF RECORD. -- October 1986 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 300 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good except for period Oct. 4-7, which is poor. No known regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--16 years (water years 1987-2002), 48.2 ft³/s, 37.19 in/yr, 34,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,360 ft³/s Nov. 24, 1990, gage height, 9.90 ft; minimum discharge, 5.3 ft³/s, Sept. 17-20, 1992.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

 $\hbox{\tt EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 280 ft}^3/s \ \hbox{and maximum (*):}$

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 14	1400	*1,190	*8.78	Dec. 16	1215	411	6.64
Nov. 22	2100	319	6.28	Apr. 14	0330	430	6.71
Dec. 13	1700	590	7.24	-			

Minimum discharge, 7.9 ft³/s Sept. 26-29.

		DISCHAR	GE, CUBI	C FEET PER		WATER YE MEAN VA	AR OCTOBER LUES	2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	50	180	42	105	65	50	38	28	24	12	10
2	11	51	160	48	93	60	47	37	26	20	11	11
3 4	11 12	43 39	131 114	42 40	91 84	56 53	44 42	35 33	25 25	19 18	11 12	15 12
5	11	51	106	39	84	53	40	36	32	17	12	11
6	9.2	41	120	45	88	50	42	35	28	16	12	1.0
7	10	34	106	122	95	48	39	36	27	17	11	10
8	17	30	97	131	121	47	38	34	29	21	11	10
9 10	17 15	26 24	123 111	93 75	102 91	46 45	42 73	33 31	27 24	17 15	11 11	10 9.9
11	22	22	101	66	83	103	87	29	23	14	11	9.7
12	18	23	96	65	74	88	79	28	22	14	11	9.5
13	26	54	368	58	67	79	157	29	20	13	11	9.3
14	24	636	277	53	61	74	315	31	20	13	11	9.2
15	18	320	191	49	57	79	171	28	19	13	10	9.5
16 17	19 22	184 118	331 251	47 46	54 53	77 70	131 109	27 28	19 19	12 12	10 10	11 10
18	17	86	164	47	60	67	90	26	21	12	10	9.5
19	26	95	137	68	61	99	78	25	22	12	10	9.4
20	25	97	103	88	56	204	70	30	19	12	12	9.7
21	24	98	83	90	128	129	64	28	18	12	11	9.0
22 23	32 27	179 198	73 65	72 63	183 163	99 84	63 59	33 32	17 16	11 11	11 10	8.7 8.7
24	27	128	60	91	139	77	53	28	16	11	10	8.7
25	60	101	55	209	105	73	48	26	16	12	11	8.6
26	42	86	50	151	89	66	47	25	15	12	11	8.4
27 28	54 47	76 104	48 48	112 91	78 72	61 58	52 46	24 31	16 31	13 12	10 9.9	8.3 8.2
28 29	35	176	48	79		56 56	46	55	47	14	9.9	12
30	34	174	42	91		54	40	36	26	13	9.9	9.2
31	56		43	119		50		31		12	9.9	
TOTAL	780.2	3344	3879	2432	2537	2270	2258	978	693	444	333.6	295.5
MEAN	25.2	111	125	78.5	90.6	73.2	75.3	31.5	23.1	14.3	10.8	9.85
MAX MIN	60 9.2	636 22	368 42	209 39	183 53	204 45	315 38	55 24	47 15	24 11	12 9.9	15 8.2
AC-FT	1550	6630	7690	4820	5030	4500	4480	1940	1370	881	662	586
CFSM	1.43	6.33	7.11	4.46	5.15	4.16	4.28	1.79	1.31	0.81	0.61	0.56
IN.	1.65	7.07	8.20	5.14	5.36	4.80	4.77	2.07	1.46	0.94	0.71	0.62
STATIS	TICS OF MO	ONTHLY MEA	N DATA F	OR WATER Y	EARS 1987	- 2002,	BY WATER	YEAR (WY)				
MEAN	20.2	80.8	82.8	83.7	75.4	70.6	54.9	35.6	32.1	20.3	12.4	11.2
MAX	41.2	245	156	140	159	137	98.4	58.3	69.3	59.1	18.2	18.1
(WY) MIN	1998 8.55	1991 12.6	1999 28.1	1997 39.2	1996 25.5	1997 35.6	1991 31.9	1996 21.5	1990 14.2	1997 10.4	1993 8.94	1997 8.53
(WY)	1988	1988	2001	2001	1993	1992	1998	1992	1992	1995	1994	1992
SUMMAR	Y STATIST	ICS	FOR :	2001 CALENI	DAR YEAR	F	OR 2002 WA	TER YEAR		WATER YEAR	S 1987 -	2002
ANNUAL	ΤΩΤΔΙ.			16534.3			20244.3					
ANNUAL	MEAN			45.3			55.5			48.2		
	T ANNUAL N									80.9		1991
	ANNUAL ME T DAILY ME			636	Nov 14		636	Nov 14		28.0 1000	Feb 8	1994
	DAILY MEA			8 8	Sep 24		8.2	Sep 28		5.4		
ANNUAL	SEVEN-DAY	MINIMUM AC-FT)		9.3			0.5	Sep 22		5.7	Sep 16	
ANNUAL	RUNOFF (A	AC-FT)		9.3 32800			40150			34900		
	RUNOFF (C			2.57 34.95			3.15 42.79			2.74 37.19		
10 PER	CENT EXCE	EDS		96			118			103		
	CENT EXCE			30			38			31		
90 PER	CENT EXCE	SUS		11			10			10		

12121600 ISSAQUAH CREEK NEAR MOUTH, NEAR ISSAQUAH, WA

LOCATION.--Lat $47^{\circ}33^{\circ}09^{\circ}$, long $122^{\circ}02^{\circ}48^{\circ}$, in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.21, T.24 N., R.6 E., King County, Hydrologic Unit 17110012, on right bank 30 ft downstream from S.E. 56th Street bridge, 0.7 mi downstream from North Fork, 1.2 mi upstream from mouth, 1.6 mi northwest of Issaquah, and at mile 24.1 (continuation of Sammamish River).

DRAINAGE AREA.--56.6 \min^2 , includes 1.9 \min^2 of Cedar River drainage from upper Rock Creek which normally is diverted into

PERIOD OF RECORD.--September 1963 to current year.

247

1380

e205

e175

e160 e150

e140

e135

938

142

62.7

1.11

25

28

TOTAL

MEAN

MIN

AC-FT

CFSM IN.

REVISED RECORDS.--WDR WA-77-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 35.99 ft above NGVD of 1929.

REMARKS.--Records good, except for estimated daily discharges, which are fair. Washington State Department of Fish and Wildlife operated a fish trap at the gaging site July 16 to September 9, 2002. Many minor diversions for irrigation and domestic use upstream from station. Chemical analyses November 1964 to September 1971, October 1973 to September 1974. Water temperatures September 1970 to September 1971. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--39 years (water years 1964-2002), $133 \text{ ft}^3/\text{s}$, 31.88 in/yr, 96,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,200 ft³/s Jan. 9, 1990, gage height, 13.50 ft; minimum discharge, 10 ft³/s Aug. 12, 1984, Sept. 29, 1994.

SEP

e23

e27

e34 e26 e23

e22

e22

e22

19

21 21

20

17

21.4 34 17

0.38

64 113

57.2 113

e29

e29 e30

e32

e31

34.9

e21

e22

e22 e21

e20

e19

e19

23.3 29 19

0.41

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

Date	Time	Disch (ft ³		Gage height (ft)	Date	<u>.</u>	Time	Discha (ft³/		ge height (ft)	
Nov. 14	1745	*2 (080	*11.50	.Tan	. 25	1030	0.0	19	7.91	
Dec. 13		1,5				. 14		98		7.85	
Dec. 16	1400			8.36	ADI.	. 14	0313	50		7.05	
Dec. 10	1400	1,1	120	0.50							
Minimum disch	arge, 13	ft ³ /s Se	ept. 17.								
		DISCHAF	RGE, CUB	IC FEET PER		WATER YEA MEAN VAI		2001 TO	SEPTEMBE	R 2002	
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
1	20	139	497	e135	325	176	146	107	72	66	e29
2	20	133	469	e145	283	160	133	104	66	53	e27
3	20	117	382	e130	268	148	122	100	63	47	e26
4	20	107	335	120	240	136	117	95	61	44	e26
5	19	142	287	118	e239	142	111	97	75	42	e27
-											
6	19	114	317	140	e273	131	113	96	90	39	e26
7	21	97	260	411	e323	120	105	101	74	40	e26
8	31	87	e241	447	e469	114	100	94	73	52	e26
9	36	78	e285	303	e358	109	112	87	69	43	e25
10	30	71	e272	253	e309	108	176	85	62	38	e25
11	47	65	e238	212	e275	287	232	82	59	34	e25
12	35	69	e239	e190	e237	283	215	79	54	32	e26
13	49	128	908	e165	e210	260	417	79	50	31	e24
14	48	1380	932	e150	e184	222	822	85	e48	29	e22
15	42	824	571	e140	e171	235	502	76	e48	29	e22
16	53	413	938	-125	-157	228	399	72	e48	-00	-01
				e135	e157					e28	e21
17 18	70 46	247 162	846 557	127	e155	203 185	320 259	74 69	e48	e29	e21
18	46 59	190	467	134 267	e164	259	259		e51	e29	e22
					e174			67	e55	e29	e22
20	64	214	367	309	159	582	194	77	47	e29	e22
21	61	212	300	309	368	390	177	72	43	e29	e23
22	76	386	260	236	574	292	172	80	39	e27	e22
23	70	595	227	201	522	243	160	81	37	e27	e21
23	70	333	227	201		243	100	31	3,	227	

323

200

574

4.97

171

582

132

822

76 135

80

84.1

1.49

287

810

4.53

STATIST	rics of Mo	ONTHLY MEAN	DATA I	FOR WATER	YEARS 1964	- 2002,	BY WATER	YEAR (WY)				
MEAN	54.2	162	248	271	228	196	152	94.6	77.8	46.3	32.2	36.3
MAX	151	440	520	472	546	420	280	166	179	116	56.4	85.5
(WY)	1976	1991	1976	1964	1982	1972	1991	1996	1964	1997	1976	1978
MIN	19.6	24.6	74.9	106	70.8	86.2	81.5	56.0	29.8	25.2	16.6	19.1
(WY)	1988	1980	2001	2001	1993	1992	1977	1992	1992	1995	1994	1987
SUMMARY	Y STATIST	ICS	FOR	2001 CAL	ENDAR YEAR	F	OR 2002 W	ATER YEAR		WATER YEARS	1964	- 2002
ANNUAL	TOTAL			42475			56853					

ANNUAL TOTAL	42475		56853			
ANNUAL MEAN	116		156		133	
HIGHEST ANNUAL MEAN					197	1972
LOWEST ANNUAL MEAN					72.6	2001
HIGHEST DAILY MEAN	1380	Nov 14	1380	Nov 14	2350	Nov 24 1986
LOWEST DAILY MEAN	19	Sep 21	17	Sep 27	13	Aug 28 1994
ANNUAL SEVEN-DAY MINIMUM	20	Sep 30	19	Sep 22	14	Aug 27 1994
ANNUAL RUNOFF (AC-FT)	84250	-	112800	-	96200	_
ANNUAL RUNOFF (CFSM)	2.06	5	2.75	5	2.35	
ANNUAL RUNOFF (INCHES)	27.92	2	37.3	7	31.88	
10 PERCENT EXCEEDS	240		353		279	
50 PERCENT EXCEEDS	76		104		87	
90 PERCENT EXCEEDS	22		22		27	

e Estimated

12122000 SAMMAMISH LAKE NEAR REDMOND, WA

LOCATION.--Lat $47^{\circ}34^{\circ}47^{\circ}$, long $122^{\circ}06^{\circ}38^{\circ}$, in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.12, T.24 N., R.5 E., King County, Hydrologic Unit 17110012, on west shore 5.6 mi above lake outlet, and 6.5 mi south of Redmond.

DRAINAGE AREA.--99.6 \min^2 , includes 1.9 \min^2 of Cedar River drainage from upper Rock Creek, which normally is diverted into Issaquah Creek.

PERIOD OF RECORD.--January 1939 to current year.

REVISED RECORDS.--WSP 1446: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Prior to June 22, 1942, nonrecording gage at different site at datum 25.04 ft higher. June 22, 1942, to Aug. 22, 1951, nonrecording gage at different site at datum 25.04 ft higher and Aug. 23, 1951, to Apr. 29, 1965, at datum 24.04 ft higher, April 29, 1965, to Sept. 30, 1996, recording gage at present site at datum 24.04 ft higher.

REMARKS.--Minor regulation on tributaries. Many small diversions from tributaries for irrigation and domestic use.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 33.44 ft, present datum, Feb. 12, 1951; minimum observed, 25.13 ft Aug. 25-27, 1951.

EXTREMES OUTSIDE PERIOD OF RECORD.--An elevation of 34.87 ft, present datum, was observed on Dec. 22, 1933, from information provided by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 29.42 ft Dec. 18; minimum, 25.76 ft Sept. 26, 28, 29.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DATH MEAN VALUED												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2	26.12 26.12	26.72 26.73	28.55 28.66	27.66 27.63	27.97 27.94	27.84 27.75	27.31 27.26	27.09 27.04	26.51 26.50	26.40 26.39	26.13 26.12	25.88 25.87
3	26.12	26.73	28.70	27.53	27.94	27.75	27.26	27.04	26.48	26.39	26.12	25.89
4	26.12	26.72	28.70	27.50	27.86	27.59	27.16	26.95	26.47	26.36	26.10	25.89
5	26.11	26.75	28.65	27.43	27.81	27.52	27.11	26.90	26.45	26.36	26.08	25.87
6	26.10	26.75	28.60	27.39	27.81	27.44	27.06	26.87	26.48	26.35	26.07	25.86
7	26.09	26.73	28.55	27.54	27.85	27.37	27.04	26.84	26.48	26.35	26.07	25.85
8	26.10 26.11	26.71 26.68	28.48 28.41	27.76 27.82	27.98 28.00	27.33 27.27	27.00 26.98	26.81 26.78	26.47 26.46	26.40 26.39	26.06 26.06	25.84 25.84
9 10	26.11	26.68	28.41	27.82	28.00	27.27	26.98	26.78	26.45	26.39	26.06	25.84
11	26.15	26.64	28.32	27.79	27.98	27.32	27.07	26.72	26.44	26.37	26.05	25.84
12	26.15	26.64	28.28	27.77	27.91	27.44	27.11	26.69	26.44	26.36	26.05	25.84
13 14	26.18 26.20	26.68 27.19	28.37 28.78	27.77 27.72	27.85 27.77	27.51 27.52	27.20 27.55	26.66 26.66	26.44 26.41	26.34 26.32	26.04 26.04	25.83 25.83
15	26.20	27.19	28.78	27.72	27.77	27.52	27.55	26.66	26.41	26.32	26.04	25.83
13	20.20	27.07	20.00	27.05	27.70	27.55	27.74	20.04	20.40	20.31	20.03	25.62
16	26.23	28.04	29.07	27.59	27.62	27.54	27.83	26.61	26.38	26.29	26.02	25.82
17	26.31	28.05	29.36	27.52	27.56	27.54	27.85	26.60	26.37	26.28	26.01	25.82
18	26.31	28.04	29.38	27.47	27.50	27.51	27.81	26.58	26.37	26.26	25.99	25.81
19	26.32	28.04	29.33	27.52	27.49	27.50	27.76	26.56	26.38	26.26	25.98	25.80
20	26.33	28.08	29.21	27.55	27.46	27.67	27.69	26.56	26.38	26.24	25.98	25.80
21	26.35	28.13	29.07	27.58	27.53	27.76	27.62	26.56	26.37	26.23	25.96	25.79
22	26.36	28.21	28.90	27.58	27.79	27.77	27.55	26.54	26.36	26.22	25.96	25.78
23	26.36	28.42	28.74	27.55	27.98	27.74	27.50	26.54	26.34	26.22	25.95	25.78
24	26.37	28.46	28.58	27.54	28.04	27.70	27.43	26.53	26.34	26.20	25.94	25.78
25	26.45	28.42	28.43	27.78	28.05	27.66	27.37	26.51	26.33	26.19	25.93	25.77
26	26.49	28.36	28.31	28.00	28.04	27.60	27.31	26.50	26.32	26.17	25.93	25.77
27	26.61	28.30	28.20	28.03	27.99	27.55	27.29	26.49	26.31	26.16	25.92	25.77
28	26.65	28.24	28.06	28.03	27.92	27.50	27.25	26.50	26.33	26.15	25.92	25.77
29	26.66	28.34	27.94	27.99		27.46	27.20	26.54	26.38	26.15	25.91	25.80
30 31	26.66 26.71	28.45	27.84 27.76	27.96 27.96		27.41 27.36	27.15	26.54 26.53	26.39	26.15 26.14	25.90 25.89	25.80
21	20./1		21.76	27.96		∠1.36		∠0.53		∠0.14	25.89	
MEAN	26.30	27.53	28.60	27.69	27.83	27.54	27.35	26.68	26.41	26.28	26.01	25.82
MAX	26.71	28.46	29.38	28.03	28.05	27.84	27.85	27.09	26.51	26.40	26.13	25.89
MIN	26.09	26.64	27.76	27.39	27.46	27.24	26.98	26.49	26.31	26.14	25.89	25.77

CAL YR 2001 MEAN 26.75 MAX 29.38 MIN 26.09 WTR YR 2002 MEAN 27.00 MAX 29.38 MIN 25.77

12125200 SAMMAMISH RIVER NEAR WOODINVILLE, WA

LOCATION.--Lat $47^{\circ}42^{\circ}15^{\circ}$, long $122^{\circ}08^{\circ}29^{\circ}$, in SW $\frac{1}{4}$ sec.26, T.26 N., R.5 E., King County, Hydrologic Unit 17110012, on right bank 3.9 mi upstream from Bear Creek, 3.6 mi southeast of Woodinville, and at mile 10.8.

DRAINAGE AREA.--159 mi^2 , includes 1.9 mi^2 of Cedar River drainage from upper Rock Creek which is normally diverted into Issaquah Creek.

PERIOD OF RECORD.--January 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (Corps of Engineers bench mark). Prior to July 7, 1970, auxiliary water-stage recorder 2 mi downstream from base gage at same datum.

REMARKS.--No estimated daily discharges. Records good. Some regulation at Sammamish Lake. Many small diversions for irrigation and domestic use. Water temperatures August 1965 to February 1967.

AVERAGE DISCHARGE.--37 years (water years 1966-2002), 311 ft³/s, 26.55 in/yr, 225,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,870 ${\rm ft}^3/{\rm s}$ Jan. 1, 1997, elevation, 26.93 ft; minimum daily discharge, 25 ${\rm ft}^3/{\rm s}$ Aug. 2, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,670 ft³/s Dec. 17, elevation, 23.13 ft; minimum discharge, 50 ft³/s Aug. 16.

		DISCHAF	RGE, CUBI	C FEET PER		WATER YI MEAN VA	EAR OCTOBER ALUES	2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	227	1010	476	724	618	435	334	182	195	66	70
2	86	221	1020	506	678	577	416	320	180	166	62	74
3	82	203	924	461	649	542	397	308	176	153	59	84
4	75	204	857	430	605	512	381	289	177	145	61	79
5	72	237	812	410	591	489	368	278	181	144	58	76
6	71	211	756	431	622	465	360	286	189	136	58	73
7	68	194	668	644	664	444	369	275	195	141	61	74
8	88	179	610	837	854	438	342	260	199	215	57	74
9	78	165	578	714	754	424	349	245	199	174	56	72
10	76	152	579	645	731	436	402	233	198	157	55	71
11	147	142	567	601	749	559	392	222	187	142	57	70
12	105	158	545	603	676	566	398	212	180	132	68	69
13	97	235	772	577	624	569	460	211	175	126	65	69
14	85	832	1020	538	576	553	684	222	170	120	61	69
15	77	904	969	505	538	599	676	207	165	112	58	69
16	123	745	1230	477	505	598	755	195	161	107	55	73
17	154	617	1600	453	481	574	696	205	157	105	55	71
18	112	527	1440	441	466	549	644	189	173	99	56	69
19	117	576	1310	545	488	555	599	183	185	97	56	68
20	114	646	1170	530	459	654	559	199	181	96	64	69
21	122	657	1060	512	641	649	525	192	175	92	63	67
22	123	822	960	490	982	630	499	197	166	90	62	68
23	111	1180	867	469	938	598	477	186	158	88	62	64
24	112	986	790	467	894	569	443	174	147	85	67	60
25	221	795	723	730	808	545	417	163	143	81	68	59
26 27 28 29 30 31	193 341 280 234 224 260	670 572 691 915 929	667 620 587 545 508 491	731 706 682 639 677 725	740 683 668 	520 504 508 508 482 456	408 423 390 365 349	158 154 171 206 194 187	146 144 170 202 176	79 77 73 71 71 68	65 65 64 65 65	56 57 60 106 74
TOTAL MEAN MAX MIN AC-FT CFSM IN.	4139	15592	26255	17652	18788	16690	13978	6855	5237	3637	1899	2114
	134	520	847	569	671	538	466	221	175	117	61.3	70.5
	341	1180	1600	837	982	654	755	334	202	215	68	106
	68	142	491	410	459	424	342	154	143	68	55	56
	8210	30930	52080	35010	37270	33100	27730	13600	10390	7210	3770	4190
	0.84	3.27	5.33	3.58	4.22	3.39	2.93	1.39	1.10	0.74	0.39	0.44
	0.97	3.65	6.14	4.13	4.40	3.90	3.27	1.60	1.23	0.85	0.44	0.49
STATIST	CICS OF M	ONTHLY MEA	AN DATA F	OR WATER Y	EARS 1965	- 2002	, BY WATER	YEAR (WY)				
MEAN	120	318	587	627	552	483	360	237	187	112	72.7	85.9
MAX	338	681	1078	1318	1066	1214	675	421	373	258	124	189
(WY)	1982	1976	1976	1997	1982	1972	1991	1996	1993	1997	1976	1978
MIN	49.8	70.1	186	246	200	222	199	150	84.7	59.8	33.1	43.0
(WY)	1988	1988	1977	1993	1977	2001	1992	1994	1992	1994	1994	1994
	STATIST	ICS	FOR	2001 CALEN	IDAR YEAR	Ι	FOR 2002 WA	TER YEAR		WATER YEARS	1965 -	- 2002
LOWEST HIGHEST LOWEST ANNUAL ANNUAL ANNUAL ANNUAL 10 PERC 50 PERC	MEAN 'ANNUAL ! ANNUAL M 'DAILY M DAILY ME	EAN EAN AN Y MINIMUM AC-FT) CFSM) INCHES) EDS EDS		104879 287 1600 53 57 208000 1.81 24.54 613 241 86			132836 364 1600 55 57 263500 2.29 31.08 742 234 68			311 482 179 2830 25 29 225100 1.95 26.55 678 224	Jan 2 Aug 2 Aug 16	1977

12128000 THORNTON CREEK NEAR SEATTLE, WA

LOCATION.--Lat $47^{\circ}41^{\circ}45^{\circ}$, long $122^{\circ}16^{\circ}30^{\circ}$, in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.34, T.26 N., R.4 E., King County, Hydrologic Unit 17110012, on left bank, at highway crossing, 1.5 mi north of Seattle city limits, and at mile 0.25.

DRAINAGE AREA.--12.1 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1945 to September 1946, May 1961 to September 1968, March 1996 to current year.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Elevation of gage is 40 ft above NGVD of 1929, from topographic map. June 1945 to September 1946 at datum 0.09 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are fair. Intermittent regulation and diversions. Natural flow affected by urbanization and flood-control catchments.

AVERAGE DISCHARGE.--14 years (water years 1946, 1962-68, 1997-2002), 12.0 ft³/s, 13.52 in/yr, 8,720 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 423 $\rm ft^3/s$ Dec. 31, 1996, gage height, 5.26 ft; minimum daily discharge, 0.39 $\rm ft^3/s$ Sept. 22, 1999.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 81 ${\rm ft}^3/{\rm s}$ Nov. 14, gage height, 2.47 ft, maximum gage height, 3.01 ft May 13, result of temporary fishtrap on weir; minimum discharge, 2.4 ${\rm ft}^3/{\rm s}$ Sept. 25.

		DISCHAF	RGE, CUBIO	C FEET PER		WATER YE Y MEAN VA	AR OCTOBER LUES	2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	3.8 3.7 3.6 3.5 3.4	6.1 8.3 5.2 11 6.9	35 25 26 26 26	14 17 11 9.2 14	14 11 13 9.9	9.3 8.9 8.6 8.5 8.8	7.7 7.6 7.5 6.9 7.4	7.0 7.4 8.2 7.3 7.1	5.4 5.3 5.2 5.1 4.7	11 5.5 5.0 5.1 4.7	3.9 3.6 3.7 3.7 3.4	3.7 3.7 4.7 3.9 3.4
6 7 8 9 10	3.4 3.4 5.0 4.7 5.5	5.2 4.6 4.6 4.5 4.5	23 16 14 19 28	21 42 36 22 16	23 23 26 15 17	8.2 8.1 9.3 9.3	7.4 12 7.7 14 17	e8.9 e8.6 e6.2 e6.8 e6.6	9.9 7.9 6.1 5.3 5.1	4.4 7.9 18 6.9 5.5	3.4 3.6 3.5 3.4 3.5	4.4 3.5 3.7 4.3 3.6
11 12 13 14 15	8.9 5.7 5.2 3.9 4.5	4.5 11 31 63 30	19 18 39 24 27	15 19 12 10 9.6	16 12 11 9.8 9.4	31 22 14 12 16	9.3 8.2 20 24 15	e6.3 e6.0 e9.4 e9.4 e6.6	5.0 4.9 4.6 4.6 4.7	4.6 4.6 4.1 4.1	3.4 3.2 3.3 3.3 3.2	3.2 3.8 3.7 3.5 3.2
16 17 18 19 20	15 8.9 5.3 7.2 4.8	18 11 8.6 29 28	53 29 24 17 15	9.4 8.9 14 22 14	10 10 10 16 9.6	19 13 14 14 17	17 13 10 8.6 8.1	6.0 11 6.7 6.5	4.7 4.8 5.3 4.9 4.3	3.8	3.1 3.1 3.2 3.4 4.0	4.8 4.6 3.8 3.7 3.8
21 22 23 24 25	13 8.1 4.9 12 21	25 43 23 15 13	12 10 9.4 9.1 8.8	10 9.0 9.0 17 32	40 40 25 16 12	9.8 9.2 9.2 8.9	7.8 7.6 7.3 7.1 7.3	6.9 6.7 6.2 5.9	4.3 4.2 4.3 4.1 4.0	3.9 3.7 4.1 3.7 3.7	4.2 3.6 3.2 3.4 3.6	3.3 3.7 3.7 4.0 3.3
26 27 28 29 30 31	15 42 8.2 5.9 14 19	11 9.9 30 33 28	8.6 8.5 9.6 8.1 7.9	19 18 19 14 23 20	11 10 11 	8.1 8.0 13 9.6 8.7 8.0	12 16 8.5 7.7 7.2	5.8 5.6 7.4 11 5.9 5.5	3.8 4.1 13 11 6.6	4.0 3.7 4.3 4.6 4.4 4.2	3.7 3.7 3.6 3.6 3.8 3.6	3.5 3.3 3.0 9.3 4.1
TOTAL MEAN MAX MIN AC-FT CFSM IN.	272.5 8.79 42 3.4 541 0.73 0.84	17.5 63	19 5	526.1 17.0 42 8.9 1040 1.40 1.62	442.7 15.8 40 9.4 878 1.31 1.36	373.5 12.0 31 8.0 741 1.00 1.15	10.6 24	226.8 7.32 12 5.5 450 0.60 0.70	167.2 5.57 13 3.8 332 0.46 0.51	159.0 5.13 18 3.7 315 0.42 0.49	108.9 3.51 4.2 3.1 216 0.29 0.33	118.2 3.94 9.3 3.0 234 0.33 0.36
STATIST	TICS OF M	ONTHLY MEA	AN DATA FO	OR WATER Y	EARS 194	5 - 2002,	BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	10.1 18.0 1946 7.36 1999	15.5 29.8 1946 7.96 1968	18.0 30.7 1946 9.78 2001	19.6 36.2 1946 11.8 2001	17.6 45.0 1946 8.42 2001	16.1 34.4 1946 10.2 1965	12.3 25.8 1946 8.64 2000	9.11 13.8 1946 6.63 2001	7.90 15.1 1964 3.62 1997	5.97 10.1 1946 3.26 1996	5.71 10.1 1945 1.79 1999	7.35 17.3 1945 1.27 1999
	STATIST:	ICS	FOR 2	2001 CALEN	DAR YEAR	F	OR 2002 WA	TER YEAR		WATER YEAR	3 1945 -	2002
LOWEST HIGHEST LOWEST ANNUAL ANNUAL ANNUAL 10 PERC 50 PERC	MEAN CANNUAL M ANNUAL M CDAILY M DAILY ME	EAN EAN AN Y MINIMUM AC-FT) CFSM) INCHES) EDS		63 2.2 2.8 6890 0.79 10.68 20 6.1 3.4	Nov 14 Sep 3 Aug 8		3843.7 10.5 63 3.0 3.2 7620 0.87 11.82 23 8.0 3.6	Aug 12		12.0 23.0 8.11 129 0.39 0.52 8720 1.00 13.52 24 9.3 4.4	Dec 31 Sep 22	1999

e Estimated

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WATER-QUALITY RECORDS

PERIOD OF RECORD. -- March 1996 to current year.

PERIOD OF DAILY RECORD. --

SPECIFIC CONDUCTANCE: March 1996 to September 1998.

WATER TEMPERATURE: March 1996 to curent year. DISSOLVED OXYGEN: March to September 1996.

INSTRUMENTATION.--Water-quality monitor since March 1996. Electronic data logger with fifteen-minute recording interval.

REMARKS.--Records excellent. Unpublished dissolved oxygen data for portions of the 1997 water year are available in the files of the Washington District office.

EXTREMES FOR PERIOD OF DAILY RECORD.-SPECIFIC CONDUCTANCE: Maximum recorded, 330 microsiemens Aug. 13, 1996, but may have been higher during periods of missing record; minimum recorded, 46 microsiemens Mar. 18, 1997, but may have been lower during periods of missing record.
WATER TEMPERATURE: Maximum recorded, 23.0°C (rounded) July 27, 1998; minimum recorded, 0.0°C (rounded) Dec. 29, 1996.
DISSOLVED OXYGEN: Maximum recorded, 12.7 mg/L Mar. 20, 1996, but may have been higher during periods of missing record; minimum recorded, 5.0 mg/L Apr. 7, 1996, but may have been lower during periods of missing record.

EXTREMES FOR CURRENT YEAR .--

WATER TEMPERATURE: Maximum, 21.1°C July 22; minimum, 4.5°C Dec. 25.

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER	2	N	OVEMBER		DE	ECEMBER			JANUARY	
1 2 3 4 5	13.9 13.1 12.8 12.8 12.4	11.6 10.8 10.8 10.4 9.7	12.8 12.1 11.9 11.7 11.2	11.3 11.5 11.6 11.7	10.7 10.7 10.4 11.0 9.6	11.0 11.3 10.9 11.3 10.3	8.4 8.0 8.0 7.5 7.4	7.5 7.5 7.3 6.8 6.8	8.0 7.8 7.8 7.2 7.1	7.5 8.1 7.9 8.4 8.3	6.1 7.3 6.8 7.6 7.6	6.8 7.7 7.4 7.9 7.9
6 7 8 9 10	12.9 11.9 12.9 12.6 11.7	11.2 11.0 11.7 11.4 10.4	12.0 11.5 12.3 12.0 11.0	9.6 9.2 9.2 8.9 9.4	8.7 7.9 7.3 7.5 7.5	9.2 8.6 8.3 8.2 8.4	7.9 8.4 8.7 8.4 7.5	7.0 7.7 8.3 7.3 6.9	7.5 8.1 8.5 7.7 7.2	9.6 10.9 10.5 9.5 8.8	7.5 9.6 9.5 8.6 8.3	8.2 10.4 9.9 9.1 8.5
11 12 13 14 15	11.7 12.1 12.2 12.7 12.5	6.7 10.7 11.6 11.5 11.1	9.9 11.1 11.9 12.0 11.6	10.2 10.9 11.4 12.3 12.1	9.0 10.2 10.8 11.1 11.4	9.6 10.5 11.0 11.7 11.8	7.8 7.7 8.6 8.4 7.5	6.9 6.8 7.7 7.3 7.0	7.3 7.2 8.2 7.9 7.3	9.2 9.1 8.5 7.5 7.2	8.4 8.5 7.4 6.4 6.0	8.7 8.7 7.9 7.1 6.6
16 17 18 19 20	12.0 11.2 11.2 12.5 11.6	10.8 9.8 9.8 11.2 10.1	11.6 10.5 10.4 11.9 10.7	11.4 10.6 9.5 10.5	10.6 8.9 7.8 9.2 10.3	11.1 9.9 8.7 9.8 10.5	8.9 8.8 7.7 7.7	7.3 7.4 7.2 7.3 7.1	8.4 7.8 7.4 7.4 7.3	7.1 7.4 7.2 6.9 7.5	6.8 6.7 6.6 6.4 6.8	6.9 7.0 6.8 6.7 7.1
21 22 23 24 25	11.2 12.1 11.4 10.8 11.2	10.4 11.1 10.4 10.0 10.2	10.7 11.4 10.8 10.3 10.7	10.4 10.2 9.9 9.5 9.4	10.1 9.1 9.1 8.9 9.0	10.3 9.6 9.5 9.2 9.2	7.7 7.5 7.3 6.1 5.7	6.6 5.9 5.8 4.9 4.5	7.2 6.7 6.4 5.5 5.2	6.9 7.2 7.3 7.8 7.4	6.5 6.3 6.1 7.3 6.2	6.7 6.5 7.6 6.7
26 27 28 29 30 31	11.8 10.6 9.5 10.0 11.7 11.5	10.6 9.4 8.7 8.4 10.0 10.5	11.0 9.9 9.2 9.2 10.7 10.9	9.3 8.9 8.4 8.0	8.8 8.4 6.1 6.9 7.3	9.0 8.7 7.1 7.6 7.7	5.8 7.4 7.8 7.4 6.7 7.9	4.6 5.8 6.7 6.1 5.7 6.6	5.2 6.6 7.3 6.7 6.3 7.2	6.5 5.8 5.6 5.6 5.8 6.5	5.8 5.4 4.9 4.9 5.1 5.8	6.1 5.6 5.3 5.2 5.4 6.2
MONTH	13.9	6.7	11.1	12.3	6.1	9.7	8.9	4.5	7.2	10.9	4.9	7.3

12128000 THORNTON CREEK NEAR SEATTLE, WA--Continued

		TEMPE	KAIUKE,	WATER (DEC	J. C), W	AIEK IEAK	OCTOBER 2	.001 10 8	DEFIENDER	2002		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1 2 3 4 5	7.6 7.6 8.1 7.3 7.2	6.5 5.9 6.7 5.6 5.9	7.0 6.9 7.6 6.5 6.6	7.6 7.8 8.3 8.7	5.1 5.0 5.1 5.8 7.0	6.3 6.7 7.3 7.6	11.0 10.4 11.5 12.7 10.8	8.6 6.8 6.6 7.5 8.7	9.9 8.6 9.0 10.0 9.9	11 2	10.7 10.3 9.4 9.6 9.3	11.2 10.7 10.9 10.2 9.9
6 7 8 9 10	7.5 7.6 7.5 7.7 7.8	6.9 6.4 6.2 6.5 6.3	7.2 7.1 6.8 7.1 6.9	7.0 6.2 6.5 7.8 8.1	5.5 4.8 4.9 5.8 7.0	6.1 5.5 5.7 6.8 7.5		9.4 8.1 9.7	10.4 10.3 10.2 10.8 11.1	10.5 10.5 12.1 11.5 12.5	8.7 8.1 8.3 9.0 8.5	9.5 9.3 10.1 10.2 10.5
11 12 13 14 15	7.2 6.9 7.3 7.5 8.0	6.1 5.0 5.3 5.7 5.4	6.7 6.0 6.4 6.7 6.6	9.1 8.3 8.2 8.2 7.7	7.5 7.3 7.2 7.2 6.9	8.3 7.8 7.7 7.7 7.4	12.1 12.2 12.9 12.6 10.4	10.9 11.1	11.2 11.5 12.1 11.2 9.8	14.1 15.4 13.7 12.7	9.2 10.2 11.8 11.0 9.3	11.5 12.7 12.2 11.8 11.1
16 17 18 19 20	8.2 8.4 9.0 8.9 9.2	6.4 7.1 7.8 7.8 7.5	7.2 7.8 8.4 8.4 8.2	6.9 7.2 6.4 7.2 6.7	5.8 5.0 5.8 6.4 5.7	6.3 6.0 6.1 6.8 6.1	10.1 10.9 11.8 11.0	8.8 9.0 8.9 8.9 9.2	9.4 9.8 10.1 9.9 10.3	13.7 13.9 13.0 12.4 13.5	9.3 11.7 11.0 11.2 11.8	11.5 12.7 11.9 11.8 12.7
21 22 23 24 25	9.7 9.8 9.4 7.9 7.5	7.4 9.4 7.9 6.3 5.3	8.7 9.6 8.4 7.3 6.4	8.5 9.2 10.5 10.1 10.7	5.5 5.9 7.1 7.9 8.6	6.8 7.5 8.6 9.0 9.4	10.6 10.3 11.6 12.2 12.4	9.5 8.3 7.5	10.0 10 9.8 9.8 10.4	12.8 13.1 14.3 15.0 14.9	11.6 11.4 11.5 10.5 12.3	12.2 12.3 12.8 12.7 13.5
26 27 28 29 30 31	7.9 7.1 7.9 	6.2 5.2 6.2 	6.8 6.2 6.9 	9.0 8.8 9.3 9.7 10.8 11.8	7.9 7.2 8.1 8.2 8.8	8.5 8.1 8.7 8.9 9.6 10.1			10.4 10.6 10.9 11.5 12.1	15.1 15.1 15.8 16.3 15.8	12.7 12.7 13.4 13.9 12.6 12.1	13.8 14.0 14.2 14.7 14.0
MONTH	9.8	5.0	7.2	11.8	4.8	7.5	14.6	6.6	10.4	16.3	8.1	11.9
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY	MAX	MIN JUNE	MEAN	MAX	MIN JULY	MEAN		MIN AUGUST	MEAN		MIN SEPTEMBE	
DAY 1 2 3 4 5	MAX 15.9 15.0 15.2 15.3 16.9		13.8 13.5 13.6 14.2 14.9	16.9 16.7 15.9 15.5 16.8		MEAN 16.1 14.8 14.6 14.4 14.7		AUGUST	MEAN 15.1 15.3 14.9 15.5 16.5		SEPTEMBE	
1 2 3 4	15.9 15.0 15.2 15.3	JUNE 11.9 12.1 11.9 13.4 13.4 12.8 12.0	13.8 13.5 13.6 14.2	16.9 16.7 15.9 15.5	JULY 14.8 13.2 13.6 13.3	16.1 14.8 14.6 14.4	16.9 16.8 15.9 17.2	AUGUST 13.2 14.1 13.8 14.3 15.7	15.1 15.3 14.9 15.5	17.4 17.1 16.7 16.3	16.6 15.9 15.4 14.2	16.9 16.5 16.1 15.2
1 2 3 4 5 6 7 8 9 10	15.9 15.0 15.2 15.3 16.9 15.9 13.7 16.1 16.1	JUNE 11.9 12.1 11.9 13.4 13.4 13.4 12.8 12.0 10.9 11.4 13.0 13.6 14.6	13.8 13.5 13.6 14.2 14.9 14.0 12.7 11.7 13.6 14.3	16.9 16.7 15.9 15.5 16.8 17.5 17.9 16.9	JULY 14.8 13.2 13.6 13.3 12.9 13.3 14.8 15.8 16.7 15.8	16.1 14.8 14.6 14.4 14.7 15.3 15.7 16.3 16.6 17.8	16.9 16.8 15.9 17.2 17.8 16.8 17.8 18.4 19.3 19.3	AUGUST 13.2 14.1 13.8 14.3 15.7 15.8 15.0 14.8 15.8 17.1 16.7 16.6	15.1 15.3 14.9 15.5 16.5 16.2 16.2 16.2	17.4 17.1 16.7 16.3 16.2 15.7 15.6 15.1 16.4 16.7	SEPTEMBE 16.6 15.9 15.4 14.2 13.3 13.5 13.9 13.6 13.7	16.9 16.5 16.1 15.2 14.7 14.6 14.6 14.4 15.0 15.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	15.9 15.0 15.2 15.3 16.9 15.9 13.7 12.7 16.1 16.1 17.2 18.4 19.4	JUNE 11.9 12.1 11.9 13.4 13.4 12.8 12.0 10.0 11.4 13.0 13.6 14.6 15.1 14.1 13.4 13.3 13.3	13.8 13.5 13.6 14.2 14.9 14.0 12.7 11.7 13.6 14.3	16.9 16.7 15.9 15.5 16.8 17.5 17.9 16.9 18.7 20.0 19.9 20.4 19.1 17.9 19.1	JULY 14.8 13.2 13.6 13.3 12.9 13.3 14.8 15.8 16.7 15.8 16.7 16.5 16.4 15.2 15.8 17.0 17.5	16.1 14.8 14.6 14.4 14.7 15.3 15.7 16.3 16.6 17.8 18.2 18.3 17.7	16.9 16.8 15.9 17.2 17.8 16.8 17.8 19.3 19.3 19.3	13.2 14.1 13.8 14.3 15.7 15.8 15.0 14.8 17.1 16.7 16.6 17.2 17.6 17.2	15.1 15.3 14.9 15.5 16.5 16.2 16.2 16.5 17.4 18.1 18.1 18.2 18.8	17.4 17.1 16.7 16.3 16.2 15.7 15.6 15.1 16.4 16.7 17.5 17.5 16.9 16.9	SEPTEMBE 16.6 15.9 15.4 14.2 13.3 13.5 13.9 13.6 13.7 13.7 14.2 14.9 14.6 14.3 15.1 15.8 14.1 12.2	16.9 16.5 16.1 15.2 14.7 14.6 14.6 14.4 15.0 15.1 15.7 16.1 15.9 15.6 15.6
1 2 3 4 5 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20	15.9 15.0 15.2 15.3 16.9 15.9 13.7 16.1 16.1 17.2 18.4 17.5 16.0	JUNE 11.9 12.1 11.9 13.4 13.4 12.8 12.0 10.0 11.4 13.0 13.6 14.6 15.1 14.1 13.4 13.3 12.8 13.7 14.4 14.3 14.0	13.8 13.5 13.6 14.2 14.9 14.0 12.7 11.7 13.6 14.3 14.9 16.9 16.2 14.9	16.9 16.7 15.9 15.5 16.8 17.5 17.9 18.7 20.0 19.9 20.4 19.1 17.9 19.1	JULY 14.8 13.2 13.6 13.3 12.9 13.3 14.8 15.8 14.7 15.8 16.7 16.5 16.5 16.4 15.2 15.8 17.0 17.5 16.3 16.5 17.3 17.5 16.3	16.1 14.8 14.6 14.4 14.7 15.3 15.7 16.6 17.8 18.2 18.3 17.7 17.0 17.0 17.0	16.9 16.8 15.9 17.2 17.8 16.8 17.8 19.3 19.3 19.7 20.0 20.6 20.6 20.4 20.1 19.5 18.8 17.5	13.2 14.1 13.8 14.3 15.7 15.8 15.0 14.8 15.8 17.1 16.7 16.6 17.2 17.6 17.5 17.4 16.3 16.3 16.3 16.0 15.9	15.1 15.3 14.9 15.5 16.5 16.2 16.2 16.5 17.4 18.1 18.1 18.2 18.8 19.0 18.9	17.4 17.1 16.7 16.3 16.2 15.7 15.6 15.1 16.4 16.7 17.5 17.5 16.9 16.0 16.9 14.6 15.1	SEPTEMBE 16.6 15.9 15.4 14.2 13.3 13.5 13.9 13.6 13.7 13.7 14.2 14.9 14.6 14.3 15.1 15.8 14.1 12.2 13.0 12.4	16.9 16.5 16.1 15.2 14.7 14.6 14.6 14.4 15.0 15.1 15.7 16.1 15.9 15.6 16.3 15.4 13.5 14.0 13.5
1 2 3 4 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	15.9 15.0 15.2 15.3 16.9 15.9 13.7 16.1 16.1 17.2 18.4 17.5 16.0 15.2 15.0 15.1 16.2 17.4	11.9 12.1 11.9 13.4 13.4 12.8 12.0 11.4 13.0 13.0 13.6 14.6 15.1 14.1 13.3 12.8 13.3 12.8 13.7 14.4 13.3 12.8 13.7 14.1 15.1 15.1 15.1 15.1 15.1 15.1	13.8 13.5 13.6 14.2 14.9 14.0 12.7 11.7 13.6 14.3 14.9 16.9 16.2 14.9 14.2 14.0 14.5 15.0	16.9 16.7 15.9 15.5 16.8 17.5 17.9 18.7 20.0 19.9 20.4 19.1 17.9 19.1 19.6 19.8 19.8 19.0 20.0	JULY 14.8 13.2 13.6 13.3 12.9 13.3 14.8 15.8 14.7 15.8 16.7 16.5 16.5 16.5 16.5 16.5 17.3 17.5 17.5 16.3	16.1 14.8 14.6 14.4 14.7 15.3 15.7 16.6 17.8 18.2 18.3 17.7 17.0 17.0 17.0 17.6 18.2 18.5 18.2 18.5 18.2	16.9 16.8 15.9 17.2 17.8 16.8 17.8 19.3 19.3 19.7 20.6 20.6 20.6 20.4 20.1 19.5 18.8 17.5 16.8	13.2 14.1 13.8 14.3 15.7 15.8 15.8 17.1 16.7 16.6 17.2 17.6 17.5 17.4 16.3 16.3 16.0 15.9 15.5 14.6 15.3 16.0 15.9	15.1 15.3 14.9 15.5 16.5 16.2 16.2 16.5 17.4 18.1 18.2 18.8 19.0 18.9 18.6 17.9 17.4 16.7 16.3	17.4 17.1 16.7 16.3 16.2 15.7 15.6 15.1 16.4 16.7 17.5 17.5 16.9 16.0 16.9 14.6 15.1	SEPTEMBE 16.6 15.9 15.4 14.2 13.3 13.5 13.9 13.6 13.7 13.7 14.2 14.9 14.6 14.3 15.1 15.8 14.1 12.2 13.0 12.4 11.3 12.5 12.8 13.2 12.5 12.5 12.5	16.9 16.5 16.1 15.2 14.7 14.6 14.6 14.4 15.0 15.1 15.7 16.1 15.9 15.6 15.6 16.3 15.4 13.5 14.0 13.5 14.0 13.5
1 2 3 4 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	15.9 15.0 15.2 15.3 16.9 15.9 13.7 16.1 16.1 17.2 18.4 19.4 17.5 16.0 15.2 15.0 15.1 17.4 18.3 17.9 17.4 18.8 19.3 17.7 18.8	11.9 12.1 11.9 13.4 13.4 12.8 12.0 10.0 11.4 13.0 13.6 14.6 15.1 14.1 13.4 13.3 12.8 13.7 14.4 14.3 14.0 14.1 15.1 16.1 15.1 15.1 15.1 15.1 15.1 15	13.8 13.5 13.6 14.2 14.9 14.0 12.7 11.7 13.6 14.3 14.9 16.2 14.2 14.2 14.5 15.0 15.5 16.1 15.5 16.1 15.5 16.3	16.9 16.7 15.9 15.5 16.8 17.5 17.9 18.7 20.0 19.9 20.4 19.1 17.9 19.1 19.6 19.8 19.8 19.0 20.0	JULY 14.8 13.2 13.6 13.3 12.9 13.3 14.8 15.8 14.7 15.8 16.7 16.5 16.5 16.4 15.2 15.8 17.0 17.5 16.3 16.5 17.3 17.5 16.3 16.5 17.3 17.5 16.3	16.1 14.8 14.6 14.4 14.7 15.3 15.7 16.3 16.6 17.8 18.2 18.3 17.7 17.0 17.0 17.6 18.2 18.5 18.2 18.5 18.2 18.1 19.2 18.4 17.2 16.4 16.8 15.8 15.8	16.9 16.8 15.9 17.2 17.8 16.8 17.8 19.3 19.3 19.7 20.0 20.6 20.6 20.4 20.1 19.5 18.8 17.9 17.9 17.6 18.9 19.5 19.3 18.4 18.5	13.2 14.1 13.8 14.3 15.7 15.8 15.0 14.8 15.8 17.1 16.7 16.6 17.5 17.4 16.3 16.3 16.3 16.3 16.0 15.9	15.1 15.3 14.9 15.5 16.5 16.2 16.2 16.5 17.4 18.1 18.2 18.8 19.0 18.9 17.9 17.4 16.3 16.7 16.3 16.2 17.0 17.6 17.2	17.4 17.1 16.7 16.3 16.2 15.7 15.6 15.1 16.4 16.7 17.5 17.5 16.9 16.0 16.9 15.9 14.6 15.1 14.5 14.5 15.1 14.5 15.1 14.5	SEPTEMBE 16.6 15.9 15.4 14.2 13.3 13.5 13.9 13.7 14.2 14.9 14.6 14.3 15.1 15.8 14.1 12.2 13.0 12.4 11.3 12.5 12.8 13.2 12.5 12.5 12.5 12.5 12.5 12.5	16.9 16.5 16.1 15.2 14.7 14.6 14.6 14.6 15.0 15.1 15.7 16.1 15.9 15.6 15.6 16.3 15.4 13.5 14.0 13.5 14.0 13.5 14.0 13.5
1 2 3 4 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	15.9 15.2 15.3 16.9 15.7 12.7 16.1 16.1 17.2 18.4 19.5 16.0 15.2 17.4 18.3 17.9 17.4 17.5 18.3 17.7 18.7 17.6 19.3 17.7	11.9 12.1 11.9 13.4 13.4 12.8 12.0 10.0 11.4 13.0 13.6 14.6 15.1 14.1 13.4 13.3 12.8 13.7 14.4 14.3 14.0 14.1 15.1 16.1 15.1 15.1 15.1 15.1 15.1 15	13.8 13.5 13.6 14.2 14.9 14.0 12.7 11.7 13.6 14.3 14.9 16.9 16.2 14.9 14.2 14.0 15.0 15.9 16.1 15.5 15.7 16.3 17.0 16.8 16.7 15.6	16.9 16.7 15.9 15.5 16.8 17.5 17.9 18.7 20.0 19.9 20.4 19.1 17.9 19.1 19.6 19.8 19.0 20.0 20.4 21.1 20.8 20.2 18.5	JULY 14.8 13.2 13.6 13.3 12.9 13.3 14.8 15.8 14.7 15.8 16.7 16.5 16.5 16.4 15.2 15.8 17.0 17.5 16.3 16.5 17.3 17.5 16.3 16.5 17.3 17.5 16.3	16.1 14.8 14.6 14.4 14.7 15.3 15.7 16.6 17.8 18.2 18.3 17.7 17.0 17.0 17.0 17.0 17.0 17.0 17.0	16.9 16.8 15.9 17.2 17.8 16.8 17.8 19.3 19.3 19.7 20.0 20.6 20.6 20.4 20.1 19.5 18.8 17.9 17.9 17.6 18.9 19.5 19.3 18.4 18.5	13.2 14.1 13.8 14.3 15.7 15.8 15.8 17.1 16.7 16.6 17.2 17.6 17.5 17.4 16.3 16.3 16.3 16.0 15.9 15.5 14.6 15.5 14.6 15.8 17.1	15.1 15.3 14.9 15.5 16.5 16.2 16.2 16.5 17.4 18.1 18.1 18.9 17.9 17.4 16.7 16.3 16.2 16.1 17.0 17.6 17.2	17.4 17.1 16.7 16.3 16.2 15.7 15.6 15.1 16.4 16.7 17.5 17.5 17.5 16.9 14.6 15.1 14.5 14.5 15.1 14.5 15.1 14.5	SEPTEMBE 16.6 15.9 15.4 14.2 13.3 13.5 13.9 13.6 13.7 14.2 14.9 14.6 14.3 15.1 15.8 14.1 12.2 13.0 12.4 11.3 12.5 12.5 12.5 12.5 12.5	16.9 16.5 16.1 15.2 14.7 14.6 14.6 14.6 15.0 15.1 15.7 16.1 15.9 15.6 16.3 15.4 13.5 14.0 13.5 12.8 13.7 14.0 13.5 14.3 13.8

12128000 THORNTON CREEK NEAR SEATTLE, WA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
OCT 10 NOV	1050	5.3	763	10.2	91	7.8	236	8.1	10.3	83	100	0	6.89
15	0920	28	757	9.8	91	7.7	139	13.4	11.7	39	48	0	4.85
DEC 12	0940	11	766	11.5	94	7.7	187	5.9	7.1	65	80	0	5.99
JAN 10 FEB	0940	15	772	11.3	95	7.8	181	6.6	8.3	62	75	0	6.08
11	1010	15	780	12.1	95	7.6	157	6.3	6.2	55	67	0	4.85
MAR 11	1010	32	756	11.4	97	7.3	72		7.9	24	29	0	2.67
APR 10	1050	15	773	11.1	98	7.8	137	13.5	10.7	52	63	0	3.88
MAY 14	1040	9.5	771	10.6	95	7.9	202	9.9	11.1	75	91	0	5.12
JUN 12	1010	4.7	766	10.6	105	8.1	237	21.0	15.0	88	106	0	7.24
JUL 09	0920	7.5	772	9.2	90	7.9	167	16.7	14.8	63	77	0	4.81
AUG 06 SEP	0930	3.5	769	9.4	94	8.0	248	14.7	15.7	92	111	0	6.86
11	1430	3.2	764	9.3	95	8.0	245	24.5	16.5	89	107	0	6.78
Date	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)
OCT	DIS- SOLVED (MG/L AS SO4) (00945)	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665)	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L)	CHLOR, WATER FLTRD REC (UG/L)	CHLOR, WATER, DISS, REC, (UG/L)	BHC DIS- SOLVED (UG/L)	ZINE, WATER, DISS, REC (UG/L)
OCT 10 NOV	DIS- SOLVED (MG/L AS SO4) (00945)	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665)	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	CHLOR, WATER FLTRD REC (UG/L) (49260)	CHLOR, WATER, DISS, REC, (UG/L) (46342)	BHC DIS- SOLVED (UG/L) (34253)	ZINE, WATER, DISS, REC (UG/L) (39632)
OCT 10 NOV 15 DEC	DIS- SOLVED (MG/L AS SO4) (00945) 16.6	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.11	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665) .126	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002	CHLOR, WATER FLIRD REC (UG/L) (49260)	CHLOR, WATER, DISS, REC, (UG/L) (46342)	BHC DIS- SOLVED (UG/L) (34253)	ZINE, WATER, DISS, REC (UG/L) (39632)
OCT 10 NOV 15 DEC 12 JAN	DIS- SOLVED (MG/L AS SO4) (00945) 16.6 13.1 15.5	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) .07 <.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .42 .69	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.11 1.23	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .008 .010	GEN, TOTAL (MG/L AS N) (00600) 1.5 1.9	PHOS- PHATIS DIS- SOLVED (MG/L AS P) (00671) .05	PHORUS TOTAL (MG/L AS P) (00665) .126 .098	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002	CHLOR, WATER FLTR REC (UG/L) (49260)	CHLOR, WATER, DISS, REC, (UG/L) (46342)	BHC DIS- SOLVED (UG/L) (34253)	ZINE, WATER, DISS, REC (UG/L) (39632)
OCT 10 NOV 15 DEC 12 JAN 10 FEB	DIS- SOLVED (MG/L AS SO4) (00945) 16.6 13.1 15.5	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) .07 <.04 .04 E.03	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .42 .69 .29	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.11 1.23 1.25	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .008 .010 .010	GEN, TOTAL (MG/L AS N) (00600) 1.5 1.9	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .05 E.01	PHORUS TOTAL (MG/L AS P) (00665) .126 .098 .053	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002 <.006	CHLOR, WATER FLITED REC (UG/L) (49260) <.004 <.006	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002 <.004	BHC DIS- SOLVED (UG/L) (34253) <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.007
OCT 10 NOV 15 DEC 12 JAN 10 FEB 11	DIS- SOLVED (MG/L AS SO4) (00945) 16.6 13.1 15.5 14.9	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) .07 <.04 .04 E.03	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .42 .69 .29 .36 .30	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.11 1.23 1.25 1.41 1.00	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .008 .010 .010 .009	GEN, TOTAL (MG/L AS N) (00600) 1.5 1.9 1.5	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .05 E.01 .02 .02	PHORUS TOTAL (MG/L AS P) (00665) .126 .098 .053 .053	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002 <.006	CHLOR, WATER FLTRD REC (UG/L) (49260) <.004 <.006	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002 <.004	BHC DIS- SOLVED (UG/L) (34253) <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.007 <.007
OCT	DIS- SOLVED (MG/L AS SO4) (00945) 16.6 13.1 15.5 14.9 11.8 4.6	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) .07 <.04 .04 E.03 E.04 .06	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .42 .69 .29 .36 .30 .64	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.11 1.23 1.25 1.41 1.00 .43	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .008 .010 .010 .009 .011	GEN, TOTAL (MG/L AS N) (00600) 1.5 1.9 1.5 1.8	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .05 E.01 .02 .02	PHORUS TOTAL (MG/L AS P) (00665) .126 .098 .053 .053 .049	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002 <.006	CHLOR, WATER FLIRD REC (UG/L) (49260) <.004 <.006	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002 <.004 <.004	BHC DIS- SOLVED (UG/L) (34253) <.005 <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.007 <.007
OCT 10 NOV 15 DEC 12 JAN 10 FEB 11 MAR 11 APR 10 MAY	DIS- SOLVED (MG/L AS SO4) (00945) 16.6 13.1 15.5 14.9 11.8 4.6 9.8	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) .07 <.04 .04 E.03 E.04 .06 E.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .42 .69 .29 .36 .30 .64 .27	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.11 1.23 1.25 1.41 1.00 .43 .69	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .008 .010 .010 .009 .011 .011 <.008	GEN, TOTAL (MG/L AS N) (00600) 1.5 1.9 1.5 1.8 1.3	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .05 E.01 .02 .02 .02 .02	PHORUS TOTAL (MG/L AS P) (00665) .126 .098 .053 .053 .049 .156 .023	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002 <.006 <.006	CHLOR, WATER FLITED REC (UG/L) (49260) <.004 <.006 <.006	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002 <.004 <.004	BHC DIS- SOLVED (UG/L) (34253) <.005 <.005 <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.007 <.007 <.007
OCT 10 NOV 15 DEC 12 JAN 10 FEB 11 MAR 11 APR 10 MAY 14	DIS- SOLVED (MG/L AS SO4) (00945) 16.6 13.1 15.5 14.9 11.8 4.6 9.8 14.3	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) .07 <.04 .04 E.03 E.04 .06 E.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .42 .69 .29 .36 .30 .64 .27	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.11 1.23 1.25 1.41 1.00 .43 .69 .95	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .008 .010 .010 .009 .011 .011 <.008	GEN, TOTAL (MG/L AS N) (00600) 1.5 1.9 1.5 1.8 1.3 1.1	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .05 E.01 .02 .02 .02 E.02 .05 E.02	PHORUS TOTAL (MG/L AS P) (00665) .126 .098 .053 .053 .049 .156 .023 .080	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002 <.006 <.006 <.006 <.006	CHLOR, WATER FLITRD REC (UG/L) (49260) <.004 <.006 <.006 <.006	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002 <.004 <.004 <.004	BHC DIS- SOLVED (UG/L) (34253) <.005 <.005 <.005 <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.007 <.007 <.007 <.007
OCT 10 NOV 15 DEC 12 JAN 10 FEB 11 MAR 11 APR 10 MAY 14	DIS- SOLVED (MG/L AS SO4) (00945) 16.6 13.1 15.5 14.9 11.8 4.6 9.8	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) .07 <.04 .04 E.03 E.04 .06 E.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .42 .69 .29 .36 .30 .64 .27	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.11 1.23 1.25 1.41 1.00 .43 .69	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .008 .010 .010 .009 .011 .011 <.008	GEN, TOTAL (MG/L AS N) (00600) 1.5 1.9 1.5 1.8 1.3	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .05 E.01 .02 .02 .02 .02	PHORUS TOTAL (MG/L AS P) (00665) .126 .098 .053 .053 .049 .156 .023	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002 <.006 <.006	CHLOR, WATER FLITED REC (UG/L) (49260) <.004 <.006 <.006	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002 <.004 <.004	BHC DIS- SOLVED (UG/L) (34253) <.005 <.005 <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.007 <.007 <.007 <.007
OCT 10 NOV 15 DEC 12 JAN 10 FEB 11 MAR 11 APR 10 MAY 14 JUN 12	DIS- SOLVED (MG/L AS SO4) (00945) 16.6 13.1 15.5 14.9 11.8 4.6 9.8 14.3	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) .07 <.04 .04 E.03 E.04 .06 E.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .42 .69 .29 .36 .30 .64 .27	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.11 1.23 1.25 1.41 1.00 .43 .69 .95	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .008 .010 .010 .009 .011 .011 <.008	GEN, TOTAL (MG/L AS N) (00600) 1.5 1.9 1.5 1.8 1.3 1.1	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .05 E.01 .02 .02 .02 E.02 .05 E.02	PHORUS TOTAL (MG/L AS P) (00665) .126 .098 .053 .053 .049 .156 .023 .080	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002 <.006 <.006 <.006 <.006	CHLOR, WATER FLITRD REC (UG/L) (49260) <.004 <.006 <.006 <.006	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002 <.004 <.004 <.004	BHC DIS- SOLVED (UG/L) (34253) <.005 <.005 <.005 <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.007 <.007 <.007 <.007
OCT 10 NOV 15 DEC 12 JAN 10 FEB 11 MAR 11 APR 10 APR 10 MAY 14 JUN 12 JUL 09	DIS- SOLVED (MG/L AS SO4) (00945) 16.6 13.1 15.5 14.9 11.8 4.6 9.8 14.3	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) .07 <.04 .04 E.03 E.04 .06 E.04 E.03 <.04	GEN, AM- MONIA + MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .42 .69 .29 .36 .30 .64 .27 .52	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.11 1.23 1.25 1.41 1.00 .43 .69 .95 1.14	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .008 .010 .010 .009 .011 .011 <.008 .009 E.005	GEN, TOTAL (MG/L AS N) (00600) 1.5 1.9 1.5 1.8 1.3 1.1	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .05 E.01 .02 .02 .02 E.02 .05 E.02	PHORUS TOTAL (MG/L AS P) (00665) .126 .098 .053 .053 .049 .156 .023 .080	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) < .002 < .006 < .006 < .006 < .006 < .006 < .006	CHLOR, WATER FLIRD REC (UG/L) (49260) <.004 <.006 <.006 <.006 <.006	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002 <.004 <.004 <.004 <.004	BHC DIS- DIS- SOLVED (UG/L) (34253) <.005 <.005 <.005 <.005 <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.007 <.007 <.007 <.007

12128000 THORNTON CREEK NEAR SEATTLE, WA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)
OCT 10													
NOV 15	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	.005	<.005	<.02	<.002	<.009
DEC 12													
JAN 10	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	.008	<.005	<.02	<.002	<.009
FEB 11													
MAR 11	<.010	<.002	E.483	<.020	<.005	<.018	<.003	<.006	.029	<.005	<.02	<.002	<.009
APR 10	<.010	<.002	E.054	<.020	<.005	<.018	<.003	<.006	.013	<.005	<.02	<.002	<.009
MAY 14	<.010	<.002	E.064	<.020	<.005	<.018	<.003	<.006	.011	<.005	<.02	<.002	<.009
JUN 12	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
JUL 09	<.010	<.002	E.018	<.020	<.005	<.018	<.003	<.006	.007	<.005	<.02	<.002	<.009
AUG 06	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
SEP 11	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
Date	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS REC (UG/L) (04095)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	P,P' DDE DISSOLV (UG/L) (34653)	PARA- THION, DIS- SOLVED (UG/L) (39542)
OCT	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	WATER DISS REC (UG/L) (04095)	DIS- SOLVED (UG/L) (39341)	URON WATER FLTRD 0.7 U GF, REC (UG/L)	THION, DIS- SOLVED (UG/L)	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	PARA- THION WAT FLT 0.7 U GF, REC (UG/L)	LACHLOR WATER DISSOLV (UG/L)	BUZIN SENCOR WATER DISSOLV (UG/L)	INATE WATER FLTRD 0.7 U GF, REC (UG/L)	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L)	DDE DISSOLV (UG/L) (34653)	THION, DIS- SOLVED (UG/L) (39542)
OCT 10 NOV	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	WATER DISS REC (UG/L) (04095)	DIS- SOLVED (UG/L) (39341)	URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	THION, DIS- SOLVED (UG/L) (39532)	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	LACHLOR WATER DISSOLV (UG/L) (39415)	BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	DDE DISSOLV (UG/L) (34653)	THION, DIS- SOLVED (UG/L) (39542)
OCT 10 NOV 15 DEC	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	WATER DISS REC (UG/L) (04095)	DIS- SOLVED (UG/L) (39341)	URON WATER FLTRD 0.7 U GF, REC (UG/L)	THION, DIS- SOLVED (UG/L) (39532)	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	PARA- THION WAT FLT 0.7 U GF, REC (UG/L)	LACHLOR WATER DISSOLV (UG/L) (39415)	BUZIN SENCOR WATER DISSOLV (UG/L)	INATE WATER FLTRD 0.7 U GF, REC (UG/L)	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	DDE DISSOLV (UG/L) (34653)	THION, DIS- SOLVED (UG/L) (39542)
OCT 10 NOV 15 DEC 12 JAN	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005	WATER DISS REC (UG/L) (04095)	DIS- SOLVED (UG/L) (39341) <.004	URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666) <.035	THION, DIS- SOLVED (UG/L) (39532)	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	LACHLOR WATER DISSOLV (UG/L) (39415)	BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	DDE DISSOLV (UG/L) (34653) <.003	THION, DIS- SOLVED (UG/L) (39542)
OCT 10 NOV 15 DEC 12 JAN 10	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005	WATER DISS REC (UG/L) (04095) <.003	DIS- SOLVED (UG/L) (39341) <.004 <.004	URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666) <.035 <.035	THION, DIS- SOLVED (UG/L) (39532) <.027 <.027	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007	DDE DISSOLV (UG/L) (34653) <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.010
OCT 10 NOV 15 DEC 12 JAN 10 FEB 11	PROP WATER FLITRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005	WATER DISS REC (UG/L) (04095) <.003 <.003	DIS- SOLVED (UG/L) (39341) <.004 <.004	URON WATER FILTED 0.7 U GF, REC (UG/L) (82666) <.035 <.035	THION, DIS- SOLVED (UG/L) (39532) <.027 <.027	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007	DDE DISSOLV (UG/L) (34653) <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.010
OCT	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005	WATER DISS REC (UG/L) (04095) <.003 <.003	DIS- SOLVED (UG/L) (39341) <.004 <.004	URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666) <.035 <.035	THION, DIS- SOLVED (UG/L) (39532) <.027 <.027 <.027	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007	DDE DISSOLV (UG/L) (34653) <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.010 <.010
OCT 10 NOV 15 DEC 12 JAN 10 FEB 11 MAR 11 APR 10	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005	WATER DISS REC (UG/L) (04095) <.003 <.003 <.003 <.003	DIS- SOLVED (UG/L) (39341) <.004 <.004 <.004	URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666) <.035 <.035 <.035 <.035	THION, DIS- SOLVED (UG/L) (39532) <.027 <.027 <.027 <.027	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050 <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006 <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007	DDE DISSOLV (UG/L) (34653) <.003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.010 <.010 <.010
OCT 10 NOV 15 DEC 12 JAN 10 FEB 11 MAR 11 APR 10 MAY 14 JUN	PROP WATER FLITRD 0.7 U GF, REC (UG/L) (82672) < .005 < .005 < .005 < .005 < .005 < .005	WATER DISS REC (UG/L) (04095) <.003 <.003 <.003 <.003 <.003	DIS- SOLVED (UG/L) (39341) <.004 <.004 <.004 <.004	URON WATER FILTED 0.7 U GF, REC (UG/L) (82666) <.035 <.035 <.035 <.035 <.035	THION, DIS- SOLVED (UG/L) (39532) <.027 <.027 <.027 <.027 <.027	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050 <.050 <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006 <.006 <.006 <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 .014 <.007	DDE DISSOLV (UG/L) (34653) <.003 <.003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.010 <.010 <.010 <.010
OCT 10 NOV 15 DEC 12 JAN 10 FEB 11 MAR 11 APR 10 APR 10 MAY 14 JUN 12 JUL	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005 <.005 <.005	WATER DISS REC (UG/L) (04095) <.003 <.003 <.003 <.003 <.003	DIS- SOLVED (UG/L) (39341) <.004 <.004 <.004 <.004 <.004	URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666) <.035 <.035 <.035 <.035 <.035 <.035	THION, DIS- SOLVED (UG/L) (39532) <.027 <.027 <.027 <.027 <.027 <.027	AZIN-PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050 <.050 <.050 <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006 <.006 <.006 <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006 <.006	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 .014 <.007 <.007	DDE DISSOLV (UG/L) (34653) <.003 <.003 <.003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.010 <.010 <.010 <.010 <.010
OCT	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) < .005 < .005 < .005 < .005 < .005 < .005 < .005	WATER DISS REC (UG/L) (04095) <.003 <.003 <.003 <.003 <.003 <.003	DIS- SOLVED (UG/L) (39341) <.004 <.004 <.004 <.004 <.004	URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666) <.035 <.035 <.035 <.035 <.035 <.035 <.035	THION, DIS- SOLVED (UG/L) (39532) <.027 <.027 <.027 <.027 <.027 <.027 <.027 <.027	AZIN-PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050 <.050 <.050 <.050 <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006 <.006 <.006 <.006 <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006 <.006 <.006	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007 <.007 <.007	DDE DISSOLV (UG/L) (34653) <.003 <.003 <.003 <.003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.010 <.010 <.010 <.010 <.010 <.010
OCT 10 NOV 15 DEC 12 JAN 10 FEB 11 MAR 11 APR 10 APR 14 JUN 12 JUN 12 JUL 09	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005 <.005 <.005	WATER DISS REC (UG/L) (04095) <.003 <.003 <.003 <.003 <.003	DIS- SOLVED (UG/L) (39341) <.004 <.004 <.004 <.004 <.004	URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666) <.035 <.035 <.035 <.035 <.035 <.035	THION, DIS- SOLVED (UG/L) (39532) <.027 <.027 <.027 <.027 <.027 <.027	AZIN-PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050 <.050 <.050 <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006 <.006 <.006 <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006 <.006	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 .014 <.007 <.007	DDE DISSOLV (UG/L) (34653) <.003 <.003 <.003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.010 <.010 <.010 <.010 <.010

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12128000 THORNTON CREEK NEAR SEATTLE, WA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002													
Date	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)
OCT 10													
NOV 15	<.002	<.010	<.006	<.011	.02	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02
DEC 12													
JAN 10 FEB	<.004	<.022	<.006	<.011	.02	<.004	<.010	<.011	<.02	<.010	<.02	<.034	<.02
11 MAR													
11 APR	<.004	<.022	<.006	<.011	.02	<.004	<.010	<.011	<.02	.022	<.02	<.034	<.02
10 MAY	<.004	<.022	<.006	<.011	.03	<.004	<.010	<.011	<.02	.018	<.02	<.034	<.02
14 JUN	<.004	<.022	<.006	<.011	.04	<.004	<.010	<.011	<.02	.012	<.02	<.034	<.02
12 JUL	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02
09 AUG	<.004	<.022	<.006	<.011	.06	<.004	<.010	<.011	<.02	.017	<.02	<.034	<.02
06 SEP	<.004	<.022	<.006	<.011	E.01	<.004	<.010	<.011	<.02	<.010	<.02	<.034	<.02
11	<.004	<.022	<.006	<.011	E.01	<.004	<.010	<.011	<.02	E.004	<.02	<.034	<.02
			Date	TER- BUTHY AZII WATH DISS REC (UG/I (0402	TL- BENC NE, WAT ER, FLT S, 0.7 GF, L) (UG/	ARB LAT ER WAT RD FLT U 0.7 REC GF, L) (UG/	ER ALI RD WAT U 0.7 REC GF, L) (UG/	JR- IN SEC FLT MEN U SUS REC PEN (L) (MG	IT, CHAR 3- SU IDED PEN 3/L) (T/D	T, S- GE, IS- DED AY)			
			OCT 10 NOV					- 15	.2	1			
			15 DEC	U	<.0	05 <.0	02 <.0	009 22	1.7				
			12 JAN					13	.3	9			
			10 FEB	U	<.0	05 <.0	02 <.0	009 9	.0 .3	6			
			11 MAR					10	.4	1			
			11 APR	U	<.0	05 <.0	.02	108	9.3				
			10 MAY		<.0	05 <.0	02 <.0	009 15	.6	1			
			14 JUN		<.0	05 <.0	02 <.0	009 27	.6	9			
			12 JUL		- <.0				5.0 .0				
			09 AUG						5.0 .1				
			06 SEP										
			11		- <.0	05 <.0	02 <.0	109 7	'.0 .0	6			
Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TUR-BID-ITY FIELD WATER UNFLTRD (NTU) (61028)	OXYGEN, DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI- PHYTON BIOMASS ASH FREE DRY G/SQ M (49954)	BIOMASS CHLORO- PHYLL RATIO PERI- PHYTON (UNITS) (70950)	CLOSTR- IDIUM PERFRIN MCP MF, WATER (COL/ 100 ML) (90915)
MAR 11	1010	32	28	11.4	7.3	72	7.9	6.35					E400
AUG 27	1100	4.1					16.3		380	391.3	14.200	791	

12128000 THORNTON CREEK NEAR SEATTLE, WA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

	COLI- PHAGE,	COLI- PHAGE,		CHLOR-A PERI-	
Date	E. COLI C13, 1-AGAR (PLAOUE	E. COLI F-AMP, 1-AGAR, (PLAOUE	E COLI, MTEC MF WATER (COL/	PHYTON CHROMO- GRAPHIC FLUOROM	IRON, DIS- SOLVED (UG/L
	100 ML) (90903)	100 ML) (90904)	100 ML) (31633)	(MG/M2) (70957)	AS FE) (01046)
MAR 11 AUG	94	5	E770		85
27				18.0	



Figure 29. Location of surface-water and water-quality stations in the Snohomish and Stillaguamish River Basins.

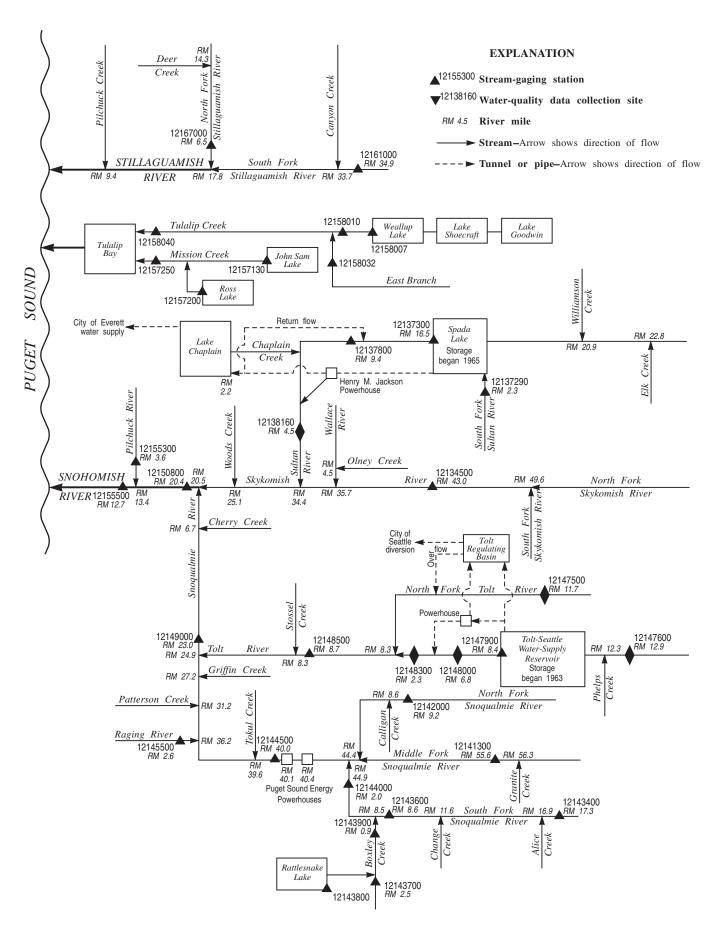


Figure 30. Schematic diagram showing surface-water and water-quality stations in the Snohomish and Stillaguamish River Basins.

12134500 SKYKOMISH RIVER NEAR GOLD BAR, WA

LOCATION.--Lat $47^{\circ}50'15"$, long $121^{\circ}39'56"$, in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.9, T.27 N., R.9 E., Snohomish County, Hydrologic Unit 17110009, on right bank 2.0 mi southeast of Gold Bar, 7.3 mi upstream from Wallace River, and at mile 43.0.

DRAINAGE AREA. -- 535 mi².

PERIOD OF RECORD.--September 1928 to current year.

REVISED RECORDS.--WSP 1316: 1932-35(M), 1944(M).

Time

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 209.26 ft above NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good. No regulation. Several small diversions upstream from station. Chemical analyses July 1959 to September 1970, October 1977 to June 1980. U.S. Geological Survey satellite telemeter at station.

Time

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 102,000 ft³/s Nov. 24, 1990, gage height, 22.49 ft, from rating curve extended above 53,000 ft³/s; minimum discharge, 298 ft³/s Oct. 30, 1987; minimum gage height, 2.73 ft Dec. 1, 1936.

Date

 ${\tt EXTREMES \ FOR \ CURRENT \ YEAR.--Peak \ discharges \ greater \ than \ base \ discharge \ of \ 19,000 \ ft^3/s \ and \ maximum \ (*):} }$

Discharge Gage height (ft³/s) (ft)

Date	Time	(IT	- / S)	(IL)	Date	8	Time	(It-/	S)	(IT)		
Nov. 14 Dec. 17 Jan. 08	1530 0245 0130	29	,600 ,500 ,100	14.36 13.63 *16.37	Apr	. 22 . 14 e 29	1630 0800 0900	34,8 35,8 20,8	300	14.57 14.74 11.82		
Minimum dis	charge,	403 ft ³ /s	Oct. 6-7									
		DISCHA	RGE, CUB	IC FEET P	ER SECOND, DAIL	WATER Y Y MEAN V		ER 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	495	9450	3700	1800 2050	2130	3460 3080	3340	7520	10700 10600	8440	2030	814 833
2	474 453	7990 6240	4920 3740	2140	1990 1980	2830	3460 3150	8430 8080	10700	7310 6760	1870 1710	1190
4	438	4930	3170	2180	1920	2680	3180	6530	10900	6390	1630	1020
5	423	5030	2810	2120	1840	2710	3820	5850	12200	6040	1680	865
6	413	4080	2930	2730	1940	2530	5170	5300	13300	6020	2100	778
7	412	3390	3200	30900	2510	2360	6980	4520	9880	6730	1850	724
8	499	2940	2870	34400	2610	2230	5660	3970	8110	8430	1640	705
9 10	818 994	2620 2380	3210 2800	16700 9570	2420 2270	2110 2160	5040 6900	3700 3470	6910 7760	6540 7080	1550 1530	706 683
					2270							
11	4360	2210	2480	6960	2440	5220	8070	3610	9770	7830	1530	661
12	3510	2160	2400	7090	2130	6830	12600	4350	12100	7440	1460	647
13 14	6650 6030	2830 26100	9250 11900	6860 5340	1950 1790	5220 4410	18200 28500	6590 7490	14900 16400	6930 6420	1420 1400	639 626
15	4060	19800	6650	4410	1680	3850	14400	6700	15500	5490	1370	614
16	2720	12400	15600	3780	1670	3390	9720	6040	13500	5020	1280	776
17 18	2520 2080	8130 6010	20100 9330	3300 2980	1650 1790	2960 2700	7480 6130	6940 7710	10600 11700	4950 4690	1230 1150	1140 891
19	5150	5420	6460	2940	2120	2770	5380	7470	10300	4400	1090	758
20	4940	7130	4960	3090	2370	2780	5050	10000	9190	3890	1040	751
0.1	2450	7570	43.50	2000	F1.60	0460	4550	0550	10000	2500	1000	500
21 22	3450 6920	7570 7070	4150 3480	3000 2710	7160 27300	2460 2340	4760 4660	9750 9620	10600 11900	3720 3720	1030 995	700 644
23	11300	8730	3020	2530	18900	2340	4850	8480	11500	3690	964	608
24	7580	6370	2670	4960	10900	2380	4280	7660	9830	3620	962	582
25	7500	4940	2470	7560	7310	2450	4010	7940	9930	3430	966	562
26	6870	4220	2240	4870	5650	2630	4000	8710	11600	3210	944	551
27	6500	3750	2130	3530	4660	2880	3940	9720	11800	2810	924	549
28	4990	3430	2210	2880	3980	3500	3940	14600	11000	2510	909	534
29	3880	3470	2090	2490		3510	4470	17800	17200	2580	897	570
30	3610	3210	1980	2320		3270	5530	14700	10200	2520	873	876
31	9420		1990	2350		3210		12500		2310	841	
TOTAL	119459	194000	150910	190540	127060	97240	206670	245750	340580	160920	40865	21997
MEAN	3854	6467	4868	6146	4538	3137	6889	7927	11350	5191	1318	733.2
MAX	11300	26100	20100	34400	27300	6830	28500	17800	17200	8440	2100	1190
MIN	412	2160	1980	1800	1650	2110	3150	3470	6910	2310	841	534
AC-FT CFSM	236900 7.20	384800 12.1	299300 9.10	377900 11.5	252000 8.48	192900 5.86	409900 12.9	487400 14.8	675500 21.2	319200 9.70	81060 2.46	43630 1.37
IN.	8.31	13.49	10.49	13.25	8.83	6.76	14.37	17.09	23.68	11.19	2.84	1.53
STATIS	TICS OF I	MONTHLY ME	AN DATA	FOR WATER	YEARS 192	9 - 2002	, BY WATER	R YEAR (WY	7)			
MEAN	2745	4812	4821	4095	3653	3226	4467	6746	6746	3555	1372	1333
MAX	6658	16370	14490	11030	8940	9565	7553	10860	13610	8413	3606	4942
(WY)	1934	1991	1934	1953	1996	1972	1959	1972	1974	1974	1964	1959
MIN (WY)	346 1988	534 1937	1231 1986	945 1937	791 1929	1469 1955	1908 1975	3425 1941	1955 1992	971 1941	589 1992	465 1998
(WI)	1300	1937	1300	1937	1323	1933	1973	1941	1992	1941	1332	1990
	RY STATIS	TICS			ENDAR YEAR		FOR 2002 V	VATER YEAR	2	WATER YEA	RS 1929 -	2002
ANNUAL ANNUAL	TOTAL			1248889 3422			1895991 5194			3962		
	. MEAN TANNUAL	MEAN		3422			5194			3962 5884		1972
	' ANNUAL I									2210		1941
	T DAILY			26100	Nov 14		34400	Jan 8	3	88400	Nov 24	
	DAILY M			412	Oct 7		412	Oct 7		303	Oct 29	1987
		AY MINIMUM		444	Oct 1		444	Oct 1	L	310	Oct 25	1987
	RUNOFF RUNOFF	(AC-FT)		2477000	10		3761000 9.7	71		2871000 7.4	1	
	RUNOFF			6.4 86.8	24		131.8			100.6		
	CENT EXC			7090			10800			8220	_	
50 PER	CENT EXC	EEDS		2480			3610			2810		
	CENT EXC			734			875			862		

12137290 SOUTH FORK SULTAN RIVER NEAR SULTAN, WA

LOCATION.--Lat $47^{\circ}56^{\circ}51^{\circ}$, long $121^{\circ}37^{\circ}32^{\circ}$, in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.3, T.28 N., R.9 E., Snohomish County, Hydrologic Unit 17110009, on left bank, 0.3 mi downstream from bridge, 14 mi northeast of Sultan, and 2 mi upstream from mouth.

DRAINAGE AREA. -- 11.6 mi2.

PERIOD OF RECORD. -- October 1991 to current year.

Time

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,450.53 ft above NGVD of 1929.

REMARKS.--Records fair except flows below 15 ft^3/s and above 2,500 ft^3/s , Nov. 16-29, and estimated discharges, which are poor. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--11 years (water years 1992-2002), 123 $\mathrm{ft^3/s}$, 144.22 in/yr, 89,200 acre-ft/yr.

Discharge Gage height (ft³/s) (ft)

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 24, 1990, reached a stage of 13.6 ft, from floodmark, discharge, 7,000 ${\rm ft}^3/{\rm s}$ (revised), from slope-area measurement of peak flow.

Date Time

Discharge Gage height (ft³/s) (ft)

 $\hbox{\it EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,750 ft}^3/s \ \ \hbox{\it Dec. 29, 1998, gage height, 12.55 ft; minimum discharge, 4.66}$ ft^3/s Oct. 9, 1991.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft^3/s and maximum (*):

	1. 7		L15 200		1,700 2,730	10.95 *11.63	Apı	14	0300	1,3	380	10.68		
Min	imum d	discharge	e, 14	ft ³ /s C	Oct. 6, Aug	j. 31, Sep.	1, 2,	14-16,	27-29.					
				DISCHA	ARGE, CUBIC	FEET PER		WATER LY MEAN		BER 2001 TO) SEPTEME	BER 2002		
	DAY	00	CT	NOV	DEC	JAN	FEB	MAF	R APR	MAY	JUN	JUL	AUG	SEP
	1		20	209	124	62	36	64		246	269	184	37	15
	2		L9	261 135	123	124 103	34	57		268	272	151	34 30	41
	3 4		L7 L6	135	72 61	96	36 34	53 51		268 177	267 276	137 125	30 34	52 28
	5		L6	146	53	85	33	52		158	459	129	43	21
	6	1	L5	91	63	198	43	46	243	122	382	141	63	18
	7		L5	71	60	1270	52	42		99	235	164	42	20
	8	4	13	60	68	929	43	39		87	208	242	35	19
	9		39	52	69	375	38	37		83	180	148	32	20
	10	14	11	46	57	196	40	39	381	83	230	194	32	18
	11	27	70	43	48	146	39	159	9 457	92	278	170	30	16
	12	26		52	68	228	35	131		162	341	154	28	16
	13	20		131	599	152	33	e100		269	416	146	28 27	15 14
	14 15	36 13		e975 e500	360 167	109 87	31 31	e75 e60		314 213	379 305	116 96	25	14
	16		93	e310	677	74	35	e50		176	251	99	23	73
	17 18	10	35	179 126	538 207	63 57	38 55	e45 e42		285 255	196 314	100 93	22 21	40 27
	19	40		132	134	53	88	e42		e225	200	82	20	23
	20	17		245	104	54	69	e40		e300	206	72	19	27
	21	23	3.9	245	80	50	377	e37	7 96	e280	261	75	18	20
	22	43		248	67	44	1750	e37		e390	260	82	18	18
	23	45		251	57	42	606	e40		e300	221	80	18	17
	24	23		146	55	191	262	e45		e250	192	73	18	16
	25	35	06	102	50	158	156	e55	5 92	e270	214	65	18	15
	26	27		87	47	79	112	63		e290	255	56	17	15
	27	27		79	47	60	89	67		e320	230	47	16	14
	28 29	14 10		70 72	76 64	50 44	74	73 69		e660 691	359 673	44 50	16 16	14 23
	30	16		63	56	42		67		389	212	57	16	60
	31	30			62	40		64		307		43	15	
	TOTA	AL 543	3.0	5260	4313	5261	4269	1841	6765	8029	8541	3415	811	729
	MEAI			175	139	170	152	59.4		259	285	110	26.2	24.3
	MAX	45		975	677	1270	1750	159	898	691	673	242	63	73
	MIN		L5	43	47	40	31	37		83	180	43	15	14
	AC-1			10430 15.1	8550 12.0	10440 14.6	8470 13.1	3650 5.12		15930 22.3	16940 24.5	6770 9.50	1610 2.26	1450 2.09
	IN.	17.4		16.87	13.83	16.87	13.69	5.90		25.75	27.39	10.95	2.60	2.34
	STA	TISTICS (OF MOI	NTHLY ME	EAN DATA FO	OR WATER Y	EARS 199	92 - 200)2, BY WATE	ER YEAR (W	<i>(</i>)			
	MEAI	N 12	21	182	157	167	124	114	147	174	146	72.2	29.1	45.5
	MAX			394	274	254	255	224		274	285	157	65.3	114
	(WY)			1996	2000	1997	1996	1997		1997	2002	1999	1995	1997
	MIN (WY)	17. 199		60.1 1994	64.6 1993	65.5 2000	41.2 2001	43.8 1992		90.4 1992	34.6 1992	27.9 1992	9.57 1998	7.83 1998
		MARY STAT		CS	FOR 2	2001 CALENI	DAR YEAF	₹		WATER YEAR	₹	WATER YEAR	RS 1992 -	2002
		UAL TOTAI UAL MEAN	_			37949 104			54664 150			123		
		HEST ANNU	JAT. M	EAN		104			150			176		1997
		EST ANNUA										81.2		2001
		HEST DAII				975	Nov 14		1750	Feb 22		2190	Feb 8	
		EST DAILY			ı, a	12	Sep 23		14	Sep 14		5.2		
		UAL SEVEN UAL RUNOE			*1	13 75270	Sep 19	7	16 108400	Sep 22	4	5.5 89200	Oct 9	1991
		UAL RUNOI				8.96			12.	.9		10.6		
	ANN	UAL RUNOE	FF (II	NCHES)		121.70			175.			144.22	2	
	10 1	PERCENT E	EXCEE	DS		233			314			262		

8.96 121.70 233

69 20

12.9 175.30 314

85 20 10.6 144.22 262 78

10 PERCENT EXCEEDS
50 PERCENT EXCEEDS
90 PERCENT EXCEEDS

e Estimated

12137300 SPADA LAKE NEAR STARTUP, WA

LOCATION.--Lat 47°58'28", long 121°41'10", in NW $\frac{1}{4}$ sec.29, T.29 N., R.9 E., Snohomish County, Hydrologic Unit 17110009, on right bank at Culmback Dam on Sultan River, 1.7 mi downstream from South Fork, 7.8 mi north of Startup, and at mile 16.5.

DRAINAGE AREA. -- 68.3 mi².

PERIOD OF RECORD.--April 1965 to current year.

REVISED RECORDS. -- WDR WA-79-1: 1975-76 (M). WA-95-1: 1994.

GAGE.--Nonrecording gage. Datum of gage is NGVD of 1929 (levels by Snohomish County P.U.D. No. 1).

REMARKS.--Reservoir is formed by earthfill dam originally completed to elevation 1,408 ft in 1965. Storage began April 5, 1965 for water supply for the City of Everett. During 1983 the dam was raised to elevation 1,470 ft with storage beginning November 1983. Capacity was increased to 153,260 acre-feet at elevation 1,450 ft, crest of spillway. Normal operating pool is between elevations 1,420 ft and 1,450 ft. Figures given herein represent total contents. Spada Lake is used to provide water for the City of Everett, and since June 1, 1984, power generation for Snohomish County Public Utility District No. 1.

COOPERATION.--Elevation at 1200 and 2400 hours and capacity table furnished by Snohomish County Public Utility District No. 1.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 164,599 acre-ft Nov. 23, 1990, elevation, 1,455.8 ft; minimum contents observed since reservoir was first filled, 4,250 acre-ft Sept. 30, 1967, elevation, 1,301.28 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 149,979 acre-ft Jun. 29-30 elevation, 1,448.2 ft; minimum contents observed, 87,500 acre-ft Mar. 25-26, elevation, 1,409.8 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,418.0	99,333	-27,871
Oct. 31	1,428.3	115,331	+15,998
Nov. 30	1,420.7	103,330	-12,001
Dec. 31	1,423.6	107,909	+4,579
CAL YR 2001			+19,566
Jan. 31	1,426.8	112,962	+5,053
Feb. 28	1,435.3	127,034	+14,072
Mar. 31	1,411.4	89,789	-37,245
Apr. 30	1,429.6	117,383	+27,594
May 31	1,446.3	146,515	+29,132
June 30	1,448.2	149,979	+3,464
July 31	1,439.4	134,010	-15,969
Aug. 31	1,428.0	114,857	-19,153
Sept. 30	1,415.8	96,152	-18,705
WTR YR 2002.			-3.181

12137800 SULTAN RIVER BELOW DIVERSION DAM, NEAR SULTAN, WA

LOCATION.--Lat $47^{\circ}57^{\circ}34^{\circ}$, long $121^{\circ}47^{\circ}46^{\circ}$, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.32, T.29 N., R.8 E., Snohomish County, Hydrologic Unit 17110009, on right bank 50 ft upstream from City of Everett diversion dam on Sultan River, 6.8 mi north of Sultan, and at mile 9.4.

DRAINAGE AREA. -- 77.1 mi².

PERIOD OF RECORD. -- May 1983 to current year.

GAGE.--Water-stage recorder and square notch sharp-crested weir in gate of dam. Datum of gage is 600.00 ft above NGVD of 1929 (City of Everett). Prior to Oct. 1, 1989, recording gage at site 350 ft downstream at different datum, Mar. 16 to Sept. 21, 1993, Jan. 7-10, 1994, Feb. 18 to Sept. 21, 1995, Dec. 3-7, 1995, Mar. 14 to Sept. 3, 1996, Mar. 13 to June 24, 1997, recording gage at site 1,200 ft downstream, at different datum.

REMARKS.--No estimated daily discharges. Records fair. Flow regulated at Spada Lake (station 12137300) since Apr. 5, 1965, unadjusted for storage. Since May 1984, water is diverted at Spada Lake through a 10-ft diameter pipeline for power generation at the Jackson Project, and for municipal water supply at Lake Chaplain. Since July 1984, undetermined flows are returned to river at diversion dam by pipeline from Lake Chaplain for maintenance of instream flow requirements. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--19 years (water years 1984-2002), 211 ft³/s, 152,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,000 ft³/s Nov. 24, 1990, gage height, 63.79 ft, from rating curve extended above 3,200 ft³/s; minimum recorded discharge, 23 ft³/s Oct. 30, 1988, result of regulation, but may have been lower Dec. 13, 14, 2001; minimum daily, 35 ft³/s Aug. 23-25, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,370 ${\rm ft}^3/{\rm s}$ Dec. 13, gage height, 56.68 ft; minimum daily discharge, 97 ${\rm ft}^3/{\rm s}$ July 17-18.

		DISCHARGE	E, CUB	IC FEET PE		WATER YE MEAN V		R 2001 TO S	SEPTEMB	SER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	164	127	258	98	155	177	175	175	175	99	98	98
2	164	135	237	101	155	173	175	175	175	98	98	99
3	163	115	157	98	155	171	175	175	175	98	98	98
4	163	120	136	98	155	174	175	175	175	98	98	98
5	164	156	126	98	155	175	175	175	175	98	98	98
6 7	164 164	109 99	181 181	112 372	164 162	175 175	175 175	175 175	175 175	98 98	98 98	99 98
8	164	99	215	382	155	175	175	175	175	98	98	98
9	164	99	274	186	155	175	175	175	175	98	98	98
10	164	99	167	119	155	175	184	175	175	98	98	98
11	163	99	142	98	155	175	187	175	175	98	98	98
12	164	99	173	156	155	175	305	175	175	98	98	98
13	163	100	654	116	155	175	257	175	175	98	98	98
14	191	406	497	98	155	175	299	177	175	98	98	98
15	163	305	229	98	155	175	179	175	175	98	98	144
16	163	212	369	155	155	175	194	175	128	98	98	149
17	163	155	310	155	156	175	176	175	98	97	98	151
18	163	124	170	155	157	175	175	175	98	97	98	151
19	370	122	155	155	170	175	175	175	98	99	98	152
20	215	147	127	184	156	175	175	175	98	232	98	152
21	202	157	108	156	279	175	175	175	98	224	98	152
22	300	182	101	155	822	175	175	175	98	207	98	162
23	284	277	99	155	304	175	175	175	98	207	98	162
24	279	162	100	293	173	175	175	175	98	207	98	162
25	353	133	100	442	152	175	175	175	98	208	98	162
26	205	143	99	179	152	175	175	175	98	196	98	162
27	198	140	98	155	152	175	175	175	98	116	98	162
28	164	131	99	155	152	219	175	175	98	98	98	162
29	162	256	98	155		175	175	175	132	98	98	162
30	167	210	98	155		175	175	175	98	98	98	162
31	170		98	155		175		175		98	98	
TOTAL	6040	4718	5856	5189	5321	5464	5631	5427	4159	3851	3038	3883
MEAN	195	157	189	167	190	176	188	175	139	124	98.0	129
MAX	370	406	654	442	822	219	305	177	175	232	98	162
MIN	162	99	98	98	152	171	175	175	98	97	98	98
AC-FT	11980	9360 1	11620	10290	10550	10840	11170	10760	8250	7640	6030	7700
STATIST	CICS OF MC	NTHLY MEAN	DATA 1	FOR WATER	YEARS 1983	- 2002,	, BY WATER	YEAR (WY)				
MEAN	230	412	179	224	234	239	226	247	187	167	120	169
MAX	726	1606	306	898	715	610	484	675	652	983	162	448
(WY)	1986	1996	1996	1984	1984	1984	1984	1984	1983	1983	1985	1983
MIN	159	91.9	93.8	117	163	176	179	175	118	104	60.6	129
(WY)	1988	1988	1988	1988	2001	2002	1987	2002	1996	2001	1983	2002
SUMMARY	STATISTI	CS	FOR	2001 CALE	ENDAR YEAR	I	FOR 2002 W	ATER YEAR		WATER YEA	ARS 1983 -	2002
ANNUAL	TOTAL			58259			58577					
ANNUAL	MEAN			160			160			211		
	'ANNUAL M									433		1984
	ANNUAL ME							_		144		1988
	DAILY ME			654	Dec 13		822	Feb 22		16600	Nov 24	
	DAILY MEA			98	Dec 27		97	Jul 17		35	Aug 23	
	SEVEN-DAY			99	Dec 25		98	Jul 12		42	Aug 5	1983
	RUNOFF (A ENT EXCER			115600 195			116200 207			152700 250		
	ENT EXCEE			162			162			175		
	ENT EXCEE			100			98			112		
		-					20					

12138160 SULTAN RIVER BELOW POWERPLANT NEAR SULTAN, WA

LOCATION.--Lat $47^{\circ}54^{\circ}27^{\circ}$, long $121^{\circ}48^{\circ}51^{\circ}$, in SW $\frac{1}{4}$ sec.17, T.28 N., R.8 E., Snohomish County, Hydrologic Unit 17110009, on left bank, just downstream from Henry M. Jackson powerplant, 3.2 mi north of Sultan, and at mile 4.5.

DRAINAGE AREA. -- 94.2 mi2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- October 1983 to current year.

GAGE.--Water-stage recorder. Datum of gage is 267.0 ft above NGVD of 1929 (levels by Snohomish County Public Utility District). Prior to Oct. 1, 1991, at site on right bank, 100 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated at Spada Lake (station 12137300) since April 5, 1965; unadjusted for storage. Since May 1984, water is diverted from Spada Lake through a 14 ft diameter, 4 mile long tunnel and a 10 ft diameter, 4 mi long pipeline for power production and returned to the river upstream from the station, at the powerplant. Since July 1984, an undetermined flow was returned to river at upstream diversion dam by pipeline from Lake Chaplain for instream flow requirement. Some flows diverted into Lake Chaplain from municipal use by City of Everett. U.S. Geological survey satellite telemeter at station.

AVERAGE DISCHARGE.--19 years (water years 1984-2002), 751 ft³/s, 544,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,300 ${\rm ft}^3/{\rm s}$ Nov. 24, 1990, gage height, 15.03 ft, from rating curve extended above 4,500 ${\rm ft}^3/{\rm s}$; minimum discharge, 124 ${\rm ft}^3/{\rm s}$ July 14, 15, 1995.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,000 ft³/s Feb. 22, gage height, 8.53 ft; minimum discharge, 188 ft³/s July 19.

		DISCHAR	GE, CUE	BIC FEET PI	ER SECOND, DAILY	WATER MEAN		ER 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	490	1140	1730	441	1560	1480	459	660	1070	1460	284	269
2	490	1560	1730	446	1480	1440		885	1070	1460	283	272
3	490	1530	1620	355	1420	1430		972	1170	1450	282	270
4	490	1530	1360	272	1360	1360	423	860	1400	1450	282	270
5	489	1490	1190	269	1310	1300	518	871	1590	1450	280	270
6	489	1420	1060	281	1290	1300	622	927	1490	1460	276	270
7	486	1390	941	1100	1270	1480	627	908	1450	1450	276	270
8	490	1370	943	1910	867	1500	733	904	1450	1480	276	269
9	487	1280	1090	1680	612	1480		893	1450	1470	276	271
10	489	1240	876	1550	592	1490	841	798	1450	1270	275	297
11	513	1240	753	1470	606	1420	835	675	1380	954	276	311
12	451	1210	761	1550	578	1300		674	1320	806	275	311
13	410	1180	1530	1580	561	1250		926	1300	806	275	312
14	462	1810	1480	1530	551	1230	1150	1620	1260	804	275	312
15	439	1970	980	1510	527	1200	1490	1430	1250	798	275	355
16	436	1760	1160	1520	513	1170	1740	1520	1210	790	274	368
17	438	1610	1740	1500	516	1540	1710	1160	1150	790	274	370
18	434	1550	1770	1500	540	1540	1630	895	1140	637	273	366
19	990	1500	1700	1560	633	1510	1590	883	1140	350	274	366
20	953	1590	1570	1670	698	1480	1580	855	1140	252	273	360
21	867	1600	1280	1650	823	1260	1570	743	1220	245	273	354
22	1040	1620	1120	1600	2100	1280		528	1450	226	274	365
23	1230	1820	1110	1590	1940	1290		434	1450	221	273	349
24	1630	1640	974	1760	1680	1280		417	1320	218	272	331
25	1970	1570	801	2090	1580	993	1150	410	1220	216	271	331
26	1730	1580	796	1680	1540	612	871	408	1120	223	271	330
27	1710	1540	794	1600	1530	457		406	871	461	272	330
28	1660	1520	693	1580	1520	581		446	773	430	272	332
29	1620	1700	573	1540		531		945	1280	374	272	331
30	1610	1680	568	1550		498		1480	1460	318	270	347
31	1330		490	1590		479		1210		296	271	
TOTAL	26813	45640	35183	41924	30197	37161		26743	38044	24615	8525	9559
MEAN	865	1521	1135	1352	1078	1199		863	1268	794	275	319
MAX	1970	1970	1770 490	2090	2100	1540		1620	1590 773	1480	284	370 269
MIN AC-FT	410 53180	1140 90530	69790	269 83160	513 59900	457 73710	423 62040	406 53040	75460	216 48820	270 16910	18960
STATIS'	TICS OF M	MONTHLY MEA	N DATA	FOR WATER	YEARS 1984	- 200	2, BY WATE	R YEAR (WY)				
MEAN	634	1356	1063	1035	882	746	750	801	723	434	268	341
MAX	1630	3080	1787	1766	1586	1223		1257	1314	925	833	635
(WY)	1998	1991	1996	1999	1996	1997	1988	1984	1999	1997	1999	1995
MIN	227	246	261	396	310	335	276	305	256	198	167	203
(WY)	1984	1988	1986	2001	1985	2001	1992	1995	1992	1987	1985	1985
SUMMAR	Y STATIST	rics	FOR 2001 CALENDAR YEAR				FOR 2002 1	WATER YEAR		WATER YE	ARS 1984 -	2002
ANNUAL	TOTAL			225034			355683					
ANNUAL				617			974			751		
HIGHES'	HIGHEST ANNUAL MEAN									1065		1997
	LOWEST ANNUAL MEAN									464		2001
	HIGHEST DAILY MEAN			1970	Oct 25		2100	Feb 22		20100	Nov 24	
	LOWEST DAILY MEAN ANNUAL SEVEN-DAY MINIMUM			188 204	Aug 13		216 229	Jul 25		157 157	Aug 24	
				204	Aug 8			Jul 20		10,	Aug 23	1985
	ANNUAL RUNOFF (AC-FT) 10 PERCENT EXCEEDS			446400			705500			544200		
	CENT EXCE			1530 401			1600 962			1560 524		
JU PER	90 PERCENT EXCEEDS 293 275 212											

12138160 SULTAN RIVER BELOW POWERPLANT, NEAR SULTAN, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--WATER TEMPERATURE: June 1984 to current year.

INSTRUMENTATION. -- Temperature recorder since June 1984.

REMARKS. -- Record poor.

EXTREMES FOR PERIOD OF DAILY RECORD.-WATER TEMPERATURE: Maximum, 17.5°C (rounded) Sept. 5-7, 1986; minimum, 1.0°C (rounded) Feb. 2-5, 1989.

EXTREMES FOR CURRENT YEAR.-- WATER TEMPERATURE: Maximum, 14.2°C Oct. 4; minimum, 1.7°C Jan. 28.

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER	!	NC	VEMBER		DE	CEMBER			JANUARY	
1 2 3 4 5	13.9 13.9 13.9 14.2 14.0	13.6 13.5 13.5 13.7	13.7 13.7 13.7 13.8 13.8	8.5 8.4 8.4 8.2 8.0	8.0 8.0 8.1 7.9 7.6	8.2 8.2 8.2 8.1 7.8	5.7 5.7 5.6 5.2 4.9	5.6 5.5 5.1 4.8 4.5	5.6 5.6 5.4 5.0 4.7	3.1 3.4 3.8 3.9 3.8	2.8 3.1 3.2 3.7 3.6	3.0 3.2 3.5 3.8 3.6
6 7 8 9 10	13.8 13.7 13.6 13.3 13.2	13.5 13.4 13.0 12.9 12.5	13.6 13.6 13.4 13.1 12.9	8.0 7.8 7.8 7.7 7.6	7.6 7.6 7.6 7.3 7.3	7.8 7.6 7.7 7.5 7.5	4.7 4.8 4.9 4.8 4.4	4.5 4.5 4.7 4.4 4.1	4.6 4.7 4.8 4.5 4.2	4.0 4.9 5.0 3.9 3.5	3.7 3.9 3.8 3.5 3.2	3.8 4.4 4.3 3.7 3.4
11 12 13 14 15	12.6 11.7 11.3 10.9 10.7	11.3 11.3 10.5 10.0	11.8 11.6 10.8 10.4 10.3	7.7 7.7 7.7 8.3 8.1	7.4 7.5 7.5 7.6 7.8	7.6 7.6 7.6 7.9 8.0	4.3 4.8 4.9 4.1	4.2 4.1 4.1 4.1 4.0	4.3 4.2 4.4 4.4	3.4 3.8 3.7 3.5 3.4	3.2 3.3 3.4 3.3 3.1	3.3 3.5 3.5 3.4 3.3
16 17 18 19 20	10.9 10.3 10.3 10.2 10.1	10.3 9.9 10.0 9.3 9.8	10.6 10.1 10.1 9.7	7.8 7.6 7.1 7.0 7.1	7.5 7.0 6.8 6.8 7.0	7.6 7.3 6.9 6.9 7.0	4.8 4.8 3.8 3.7 3.6	4.0 3.6 3.6 3.5 3.5	4.5 3.9 3.7 3.6 3.6	3.3 3.3 3.2 3.2 3.2	3.1 3.1 3.0 3.0 3.0	3.2 3.2 3.1 3.1 3.1
21 22 23 24 25	10.0 9.7 9.3 9.1 9.1	9.7 9.2 8.8 8.7 8.7	9.8 9.4 9.0 8.9 8.8	7.2 7.0 6.8 6.6 6.4	6.9 6.8 6.5 6.4 6.3	7.0 6.9 6.7 6.5 6.4	3.7 3.6 3.3 3.0 2.7	3.5 3.1 3.0 2.7 2.6	3.6 3.4 3.1 2.8 2.7	3.4 3.1 3.1 3.1 3.1	3.0 2.5 2.9 2.1 2.8	3.3 2.9 3.0 2.9 2.9
26 27 28 29 30 31	9.3 9.0 8.7 8.6 8.9	8.9 8.6 8.5 8.4 8.5	9.2 8.7 8.6 8.5 8.7	6.4 6.3 6.2 5.8 5.7	6.2 6.1 5.7 5.5 5.6	6.3 6.2 5.9 5.6 5.6	2.7 2.6 3.0 3.0 2.9 3.1	2.6 2.4 2.5 2.7 2.6 2.7	2.6 2.5 2.8 2.8 2.7 2.9	2.8 2.5 2.3 2.4 2.4 2.2	2.5 1.9 1.7 2.2 1.8 1.9	2.7 2.2 1.9 2.3 2.1 2.1
MONTH	14.2	8.0	10.9	8.5	5.5	7.2	5.7	2.4	3.9	5.0	1.7	3.2

SNOHOMISH RIVER BASIN

12138160 SULTAN RIVER BELOW POWERPLANT, NEAR SULTAN, WA--Continued

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		11111111	unioni,	WAIER (DEC	3. C/ , M2	IIII IIII	COCTOBER	2001 10	JEI IEIDEK	2002		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1 2 3 4 5	2.3 2.4 2.5 2.4 2.4	2.1 2.1 2.3 2.3 2.3	2.2 2.2 2.4 2.4 2.4	3.5 3.2 3.2 3.4 3.6	3.1 2.9 2.8 3.0 3.3	3.2 3.1 3.1 3.2 3.5	5.2 4.9 4.8 5.2 4.9	4.4 4.1 3.8 4.0 4.1	4.8 4.5 4.4 4.6 4.4	6.5 5.9 6.5 6.4 5.6	5.8 5.4 5.1 5.6 5.2	6.3 5.7 5.4 6.0 5.4
6 7 8 9 10	2.7 2.8 2.8 3.1 3.2	2.4 2.6 2.4 2.6 2.8	2.5 2.7 2.6 2.9 3.0	3.5 3.4 3.3 3.2 3.1	3.2 3.1 3.1 2.8 3.0	3.4 3.3 3.2 3.0 3.0	4.7 4.8 4.7 4.6 4.8	4.0 4.5 4.0 4.1 4.2	4.5 4.7 4.4 4.4	5.4 5.9 6.3 6.2	4.9 5.2 5.7 5.8 5.5	5.2 5.4 6.0 6.0 5.9
11 12 13 14 15	2.9 2.9 3.0 3.1 3.1	2.5 2.4 2.5 2.8 2.7	2.7 2.7 2.8 2.9 2.9	3.4 3.5 3.4 3.3	3.0 3.3 3.2 3.0 2.9	3.1 3.4 3.3 3.2 3.0	4.9 5.1 5.5 5.7 4.9	4.5 4.8 4.9 4.8 4.6	4.7 4.9 5.2 5.3 4.7	6.6 7.8 7.6 7.2 6.8	5.3 6.3 5.6 5.9 6.1	5.9 6.9 6.4 6.5 6.5
16 17 18 19 20	3.5 3.8 4.2 4.3 4.2	2.8 3.4 3.8 4.0 3.8	3.0 3.6 4.0 4.2 4.0	3.3 3.2 3.1 3.1 3.0	3.0 3.0 3.0 2.7 2.6	3.1 3.1 3.0 2.9 2.8	4.8 5.0 5.2 5.2	4.5 4.6 4.8 4.9	4.6 4.8 4.9 5.0	7.9 7.8 7.7 7.1 7.4	6.6 7.1 6.9 6.6 6.6	7.2 7.4 7.2 6.9 7.0
21 22 23 24 25		3.7 4.3 4.5 4.1 3.4		3.1 3.1 3.4 3.3 3.7			5.0 5.0 5.0 5.3			7.3 8.2 8.0 8.7 8.3		7.0 7.6 7.6 7.7 7.9
26 27 28 29 30 31	3.5 3.2 3.5 	3.1 3.0 3.2 	3.2 3.1 3.3 	4.3 4.4 4.5 4.5 4.8 4.7	3.4 4.1 4.0 4.3 4.3	3.8 4.2 4.3 4.4 4.5	5.2 5.1 5.4 6.0 6.8	5.0 4.9 4.7 5.2 5.7	5.1 5.0 5.0 5.6 6.3	8.0 8.4 9.4 8.8 8.6 8.9	7.5 7.2 8.0 6.7 7.0 7.7	7.7 7.8 8.8 7.9 7.7 8.2
MONTH	5.0	2.1	3.2	4.8	2.5	3.4	6.8	3.8	4.9	9.4	4.9	6.8
DAY	MAX	MTN	MEAN	MAX	MTN	MEAN	MAX	MTN	MEAN	MAX	MTN	MEAN
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX		MEAN	MAX		MEAN
1 2 3 4 5	8.4 8.5 8.2 7.9 8.0	MIN JUNE 7.9 7.6 7.2 6.9 7.0			JULY			AUGUST 8.4 8.4 8.6	9.3 9.1 8.9	11.8 11.5 11.8	10.7 10.6 10.6	11.2 11.1 11.2 11.1
1 2 3 4 5	8.4 8.5 8.2 7.9 8.0	JUNE	8.1 7.9 7.7 7.4 7.6	8.6 9.0 9.3 9.0 8.8	JULY	8.3 8.4 8.3 8.3	9.8 9.6 9.3 9.6 9.8	8.4 8.4 8.6 8.2	9.3 9.1 8.9 9.0 9.1	11.8 11.5 11.8	10.7 10.6 10.6 10.6 10.6	11.2 11.1 11.2 11.1 11.2
1 2 3 4 5 6 7 8 9 10	8.4 8.5 8.2 7.9 8.0	JUNE 7.9 7.6 7.2 6.9 7.0 7.2 6.8 6.8 7.4 7.5	8.1 7.9 7.7 7.4 7.6 8.0 7.8 7.5 7.6 7.9	8.6 9.0 9.3 9.0 8.8 9.2 9.0 9.2 9.0	JULY 8.1 6.8 7.4 7.9 8.0 7.8 7.8 7.9 7.7 8	8.3 8.4 8.3 8.3 8.4 8.3 8.6 8.5	9.8 9.6 9.3 9.6 9.8 9.7 9.5 10.1 10.4 10.2	8.4 8.4 8.6 8.2 8.7 8.8 8.5 8.6 9.2 9.3	9.3 9.1 8.9 9.0 9.1 9.1 9.1 9.8 9.8	11.8 11.5 11.8 11.7	10.7 10.6 10.6 10.6 10.6 10.9 10.9 11.2 11.5	11.2 11.1 11.2 11.1 11.2 11.2 11.4 11.3 11.7 11.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14	8.4 8.5 8.2 7.9 8.0 9.5 8.9 8.0 8.3	JUNE 7.9 7.6 7.2 6.9 7.0 7.2 6.8 7.4 7.5 7.6 7.8 7.9	8.1 7.9 7.7 7.4 7.6 8.0 7.8 7.5 7.6 7.9 8.0 7.8	8.6 9.0 9.3 9.0 8.8 9.2 9.0 9.2 9.0 9.0	JULY 8.1 6.8 7.4 7.9 8.0 7.8 7.8 7.8 7.7 7.8 8.0 7.4 7.5	8.3 8.4 8.3 8.3 8.4 8.3 8.5 8.7 8.6 8.7 8.6 8.5	9.8 9.6 9.3 9.6 9.8 9.7 9.5 10.1 10.4 10.2	8.4 8.4 8.6 8.2 8.7 8.8 8.5 9.2 9.3 9.1 9.3 9.6	9.3 9.1 8.9 9.0 9.1 9.1 9.1 9.8 9.8 10 10.2 10.3 10.5	11.8 11.5 11.8 11.7 11.7 11.6 11.9 12.2 12.2 12.2	SEPTEMBE 10.7 10.6 10.6 10.6 10.9 10.9 11.2 11.5 11.7 11.9 12.1	11.2 11.1 11.2 11.1 11.2 11.1 11.2 11.3 11.7 11.8 12.1 12.2 12.3 12.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	8.4 8.5 8.2 7.9 8.0 9.5 8.9 8.0 8.3 8.9 8.2 8.4 9.1	JUNE 7.9 7.6 7.2 6.9 7.0 7.2 6.8 7.4 7.5 7.6 7.8 7.9 7.4 7.2 7.4 7.2	8.1 7.9 7.7 7.4 7.6 8.0 7.8 7.6 7.9 8.0 7.8 8.0 8.0 7.8 7.7 8.0 7.8	8.6 9.0 9.3 9.0 8.8 9.2 9.0 9.0 9.0 9.2 9.4 9.1 9.2 8.9	JULY 8.1 6.8 7.4 7.9 8.0 7.8 7.8 7.7 7.8 8.0 7.4 7.7 8.6 9.5	8.3 8.3 8.4 8.3 8.3 8.6 8.3 8.5 8.7 8.6 8.3 8.5 8.7 8.6 8.3 8.9	9.8 9.6 9.3 9.6 9.8 9.7 9.5 10.1 10.4 10.2 10.7 11.0 10.9 11.2 11.3	8.4 8.4 8.6 8.2 8.7 8.8 8.5 9.2 9.3 9.1 9.3 9.6 9.5 9.5 9.5	9.3 9.1 8.9 9.0 9.1 9.1 9.1 9.4 9.8 9.8 10 10.2 10.3 10.5 10.5	11.8 11.5 11.8 11.7 11.7 11.6 11.9 11.5 12.2 12.2 12.4 12.5 12.6 12.8 12.9	SEPTEMBE 10.7 10.6 10.6 10.6 10.5 10.9 11.2 11.5 11.7 11.9 12.1 12.3 12.1 12.1 12.1	11.2 11.1 11.2 11.1 11.2 11.2 11.3 11.7 11.8 12.1 12.2 12.3 12.5 12.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	8.4 8.5 7.9 8.0 9.5 8.9 8.0 8.3 8.9 8.2 8.5 8.4 9.1 8.9 8.2 8.8 9.1	JUNE 7.9 7.6 7.2 6.9 7.0 7.2 6.8 7.4 7.5 7.6 7.8 7.9 7.4 7.2 7.4 7.2 7.6 7.3 7.5 7.7	8.1 7.9 7.7 7.4 7.6 8.0 7.8 7.6 7.9 8.0 7.8 8.0 8.0 7.8 7.7 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	8.6 9.0 9.3 9.0 8.8 9.2 9.0 9.0 9.0 9.2 9.4 9.1 9.2 8.9 9.6 10.1 10.9 10.7	JULY 8.1 6.8 7.4 7.9 8.0 7.8 7.8 7.7 7.8 8.0 7.4 7.8 7.5 7.8 7.5 7.8 8.6 9.5 9.8 8.0 8.6 9.0 8.9	8.3 8.4 8.3 8.4 8.3 8.6 8.3 8.5 8.7 8.6 8.3 8.5 9.9 10.5 10.3	9.8 9.6 9.3 9.6 9.8 9.7 9.5 10.1 10.4 10.2 10.7 11.0 11.2 11.3 11.4 11.2 11.2 10.8 10.9	8.4 8.4 8.6 8.2 8.7 8.8 8.5 9.2 9.3 9.1 9.3 9.6 9.5 9.5 9.5 9.7 9.4	9.3 9.1 8.9 9.0 9.1 9.1 9.4 9.8 9.8 10 10.2 10.3 10.5 10.5 10.5 10.5 10.5 10.7 11.0	11.8 11.5 11.8 11.7 11.7 11.6 11.9 11.5 12.2 12.2 12.4 12.5 12.6 12.8 12.9 12.8 12.9 13.1 13.2	SEPTEMBE 10.7 10.6 10.6 10.6 10.9 10.9 11.2 11.5 11.7 11.9 12.1 12.3 12.1 12.1 12.1 12.5 12.4 11.9 12.3 12.6	11.2 11.1 11.2 11.1 11.2 11.2 11.3 11.7 11.8 12.1 12.2 12.3 12.5 12.6 12.5 12.7 12.7 12.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	8.4 8.5 8.2 7.9 8.0 9.5 8.9 8.0 8.3 8.9 8.2 8.4 9.1 8.9 8.2 8.8 8.4 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1	JUNE 7.9 7.6 7.2 6.9 7.0 7.2 6.8 7.4 7.5 7.6 7.8 7.9 7.4 7.2 7.4 7.2 7.6 7.5 7.7 7.6 8.1 7.7 7.8 8.0 7.9	8.1 7.9 7.4 7.6 8.0 7.8 7.5 7.6 7.9 8.0 7.8 8.0 7.8 8.0 7.8 8.0 8.0 7.8 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8	8.6 9.0 9.3 9.0 8.8 9.2 9.0 9.0 9.0 9.2 9.4 9.1 9.2 8.9 9.6 10.1 10.9 10.7 10.5 10.6 10.8 10.8	JULY 8.1 6.8 7.4 7.9 8.0 7.8 7.8 7.7 7.8 8.0 7.4 7.5 7.8 7.3 7.7 8.6 9.5 9.8 8.0 8.6 9.0 8.7 8.1 7.8 8.1 7.8 8.3	8.3 8.4 8.3 8.4 8.3 8.6 8.3 8.5 8.7 8.6 8.3 8.3 8.5 9.5 9.6 9.8 9.8 9.8 9.3 8.7 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.8	9.8 9.6 9.3 9.6 9.8 9.7 9.5 10.1 10.4 10.2 10.7 11.0 11.2 11.3 11.4 11.2 11.3 11.4 11.5 11.5 11.5 11.5	8.4 8.4 8.6 8.2 8.7 8.8 8.5 9.3 9.1 9.3 9.6 9.5 9.5 9.5 9.5 9.7 9.7 9.7 10.2 10.3	9.3 9.1 8.9 9.0 9.1 9.1 9.4 9.8 9.8 10 10.2 10.3 10.5 10.5 10.5 10.5 10.5 10.7 11.0 10.9 10.9 11.3 11.0 10.9 11.3 11.0	11.8 11.5 11.7 11.7 11.7 11.6 11.9 12.2 12.2 12.4 12.5 12.6 12.8 12.9 12.8 12.6 12.9 13.1 13.2 13.0 13.2 13.4 13.6 13.5 13.6 13.5 13.8	SEPTEMBE 10.7 10.6 10.6 10.6 10.9 11.2 11.5 11.7 11.9 12.1 12.3 12.1 12.1 12.1 12.1 12.1 12.7 12.9 12.9 12.9 12.8	11.2 11.1 11.2 11.1 11.2 11.3 11.7 11.8 12.1 12.2 12.3 12.5 12.6 12.5 12.7 12.7 12.7 12.7 12.7 12.3 13.1

12141300 MIDDLE FORK SNOQUALMIE RIVER NEAR TANNER, WA

LOCATION.--Lat $47^{\circ}29^{\circ}10^{\circ}$, long $121^{\circ}38^{\circ}48^{\circ}$, in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.10, T.23 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.7 mi downstream from Granite Creek, 6.4 mi east of North Bend, and at mile 55.6.

DRAINAGE AREA. -- 154 mi2.

Date

PERIOD OF RECORD.--February 1961 to current year.

Time

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 780 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair. No regulation or diversion upstream from station. Water temperatures June 1979 to September 1980. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--41 years (water years 1962-2002), 1,236 ${\rm ft}^3/{\rm s}$, 109.08 ${\rm in/yr}$, 895,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,200 ft³/s Dec. 2, 1977, gage height, 14.93 ft; maximum gage height, 14.97 ft Nov. 24, 1990; minimum discharge, 91 ft³/s Oct. 29-31, 1987, gage height, 0.61 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 23, 1959, reached a stage of 18.7 ft from floodmarks, discharge, 49,000 ft³/s by slope-area measurement at site 6 mi downstream.

Date Time

Discharge (ft³/s)

Gage height (ft)

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,000 ft^3/s and maximum (*):

Discharge Gage height (ft³/s) (ft)

Nov. 14 Dec. 17	1230 0115		100 980	10.42 8.85	Jan. Apr.		0015 0545	13,0 *14,2		10.38 *10.76		
Minimum dis	charge, :	124 ft ³ /s O	ct. 6,7.									
		DISCHAR	GE, CUBI	IC FEET PE	R SECOND, DAILY	WATER YE MEAN VA	EAR OCTOBE ALUES	ER 2001 TC	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	153	2820	1240	e540	677	805	1020	2050	2770	2060	535	222
2	147 142	2590 1880	1530 1090	717 775	624 634	714 655	1000 894	2220 1910	2720 2700	1830 1680	493 449	235 370
4	137	1450	954	743	609	632	951	1510	2800	1580	427	294
5	130	1620	844	672	575	681	1240	1400	3420	1460	434	234
6	127	1240	996	1150	630	629	1810	1250	3790	1490	548	209
7	126	1000	1110	9080	871	565	2700	1070	2530	1750	476	196
8	175	843	956	9160	1010	530	1750	946	1900	2350	406	194
9	267	733	1120	4340	884	504	1560	890	1610	1670	388	199
10	355	650	897	2350	757	535	2370	846	1930	1860	405	193
11	1860	599	777	1740	791	2440	2670	885	2600	2090	418	191
12	1340	599	765	2310	649	2200	4600	1220	3340	1910	378	189
13	2870	1060	4670	2060	568	1480	6330	1980	4150	1770	366	187
14	2270	10000	4190	1430	513	1200	10100	2400	4520	1600	372	182
15	1420	5670	1950	1150	491	1060	4260	1880	3890	1370	373	178
16	984	3670	5770	988	508	920	2770	1590	3220	1220	338	237
17	1050	2200	5480	856	518	782	1990	1920	2450	1240	323	388
18	783	1540	2410	779	706	698	1580	2080	3640	1190	293	273
19 20	2730	1440 1850	1660 1300	1050 1180	847 867	819 955	1380 1280	2060 2900	3040 2480	1150 1020	277 284	220 222
20	2030	1850	1300	1180	867	955	1280	2900	2480	1020	284	222
21	1430	2340	1080	1060	2880	774	1180	2760	2960	970	289	205
22	2740	2480	930	849	6010	703	1240	2910	3210	988	272	187
23 24	3650 2870	3370 1830	802 717	755 1640	4270 2790	706 727	1280 1100	2390 2100	2960 2440	993 975	260 259	175 169
25	3230	1340	653	2280	1750	812	1040	2220	2550	940	261	165
26 27	2600 2140	1190 1090	598 558	1290 947	1330 1090	841 899	1070 1040	2510 2910	3140 3090	899 767	258 249	163 162
28	1540	1020	598	768	940	1390	1010	4850	3160	676	249	157
29	1180	1140	595	668		1220	1150	5370	5630	717	243	184
30	1230	1020	546	652		1120	1510	4010	2740	680	241	231
31	3260		552	708		1030		3270		617	231	
TOTAL	44966	60274	47338	54687	34789	29026	63875	68307	91380	41512	10789	6411
MEAN	1451	2009	1527	1764	1242	936.3	2129	2203	3046	1339	348.0	213.7
MAX	3650	10000	5770	9160		2440	10100	5370	5630	2350	548	388
MIN	126	599	546	540	491	504	894	846	1610	617	231	157
AC-FT	89190	119600	93890	108500	69000	57570	126700	135500	181300	82340	21400	12720
CFSM TN.	9.42 10.86	13.0 14.56	9.92 11.43	11.5 13.21	8.07 8.40	6.08 7.01	13.8 15.43	14.3 16.50	19.8 22.07	8.70 10.03	2.26 2.61	1.39 1.55
III.	10.00	14.50	11.43	13.21	0.40	7.01	13.43	10.50	22.07	10.03	2.01	1.55
STATIS	TICS OF 1	MONTHLY MEA	N DATA E	FOR WATER	YEARS 1961	- 2002,	BY WATER	R YEAR (WY)			
MEAN	863.2	1643	1616	1534	1314	1038	1341	1812	1834	980.3	416.7	483.8
MAX	1978	4534	3997	3070	2941	2836	2231	3060	4012	2370	1218	1241
(WY)	1991	1996	1976	1984	1982	1972	1989	1972	1974	1974	1964	1968
MIN (WY)	105 1988	298 1980	441 1986	427 1979	387 1969	549 1962	601 1967	996 1992	553 1992	411 1987	170 1994	135 1998
(WY)	1988	1980	1986	1979	1363	1962	1967	1992	1992	1987	1994	1998
SUMMAR	Y STATIS	TICS	FOR	2001 CALE	NDAR YEAR	F	FOR 2002 V	WATER YEAR		WATER YEA	RS 1961 -	2002
ANNUAL				372185			553354					
ANNUAL				1020			1516			1236		
	T ANNUAL									1832		1972
	1 LAUNNAL 1 YAILAG T			10000	Nov 14		10100	Apr 14		774 23100	Nov 24	2001
	DAILY M			126	Oct 7		10100	Oct 7			Oct 29	
		AY MINIMUM		126 137	Oct 1		137	Oct 1		91 92	Oct 24	
ANNUAL	RUNOFF	(AC-FT)		738200			1098000			895700		
ANNUAL	RUNOFF	(CFSM)		6.6			9.8			8.0		
	RUNOFF			89.9	0		133.6	57		109.0	8	
	CENT EXC			2150			3110			2440		
	CENT EXC			740 213			1060 242			874 276		
90 PER	CEINI EACI	כעמים		213			242			2/6		

e Estimated

12142000 NORTH FORK SNOQUALMIE RIVER NEAR SNOQUALMIE FALLS, WA

LOCATION.--Lat $47^{\circ}36^{\circ}54^{\circ}$, long $121^{\circ}42^{\circ}44^{\circ}$, in NW $\frac{1}{4}$ sec.31, T.25 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.6 mi upstream from Calligan Creek, 7.0 mi northeast of town of Snoqualmie Falls, and at mile 9.2.

DRAINAGE AREA. -- 64.0 mi2.

PERIOD OF RECORD.--August 1929 to October 1949, water years 1950-60 (annual maximum), February 1961 to current year.

REVISED RECORDS.--WSP 1346: 1930-31(M), 1932, 1935, 1936-37(M), 1938, 1939-42(M), 1944, 1945-46(P), 1947, 1948(P), 1949(M). WSP 1736: 1932-34(M), 1935, 1938(M), 1943-45(M), 1947(M), drainage area. WSP 1932: 1950-54(M), 1956-57(M), 1959(M).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,130 ft above NGVD of 1929, from topographic map. Prior to Oct. 19, 1949, water-stage recorder, and October 1949 to February 1961, crest-stage gage, at site 1,500 ft downstream at different datum.

EMARKS.--Records good. No regulation or diversion upstream from station. Daily water temperatures June 1979 to August 1980. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--61 years (water years 1930-49, 1962-2002), 502 ft³/s, 106.64 in/yr, 363,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,800 ft³/s Feb. 26, 1932, gage height, 17.5 ft, site and datum then in use, from rating curve extended above 2,200 ft³/s on basis of slope-area measurement at gage height 16.47 ft; minimum discharge observed, 30 ft³/s Sept. 17-19, 1929.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 $\mathrm{ft^3/s}$ and maximum (*):

Date	Time	(ft ³ /s)	(ft)	Date	Time	(ft ³ /s)	(ft)
Nov. 14 Dec. 17 Jan. 8	1300 0145 0030	*6,240 4,270 5,500	*8.84 7.59 8.40	Feb. 22 Apr. 14	1230 0545	4,990 5,790	8.08 8.57
Minimum disc	harge, 51	ft ³ /s Sept. 15	5, 16.				
		DISCHARGE, C	JBIC FEET PER	SECOND, WATE DAILY MEA	R YEAR OCTOBER N VALUES	2001 TO SEP	TEMBER 2002
DAY	OCT	NOV DE	C JAN	FEB M	AR APR	MAY	JUN JUL
-	0.1	1000 01		000 0	F0 F10	014	

		DISCHA	ROD, CODI	C IDDI ID		MEAN V	ALUES	2001 10	ODI TEND	DIC 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81	1060	618	e325	288	370	512 504 431 444 613	914	1080 1070 1030 1080 1490	799 680 624 558 533	153	54
2	73	1160	858	480	268	330	504	958	1070	680	141	66
3	69	755	517	510	269	304	431	871	1030	624	130	172
4	66	564	417	444	265	292	444	660	1080	558	126	104
5												85
6 7	59	496	371	628	268	291	881	528	1640	572	195 180 142 127 120	77 73
8	56 64	335	392	4320 3680	352 372	263	768	448	810	64 / 855	180	73
9	142	290	481	1740	343	235	717	381	690	570	127	71
10	166	260	388	959	326	242	1330	363	840	572 647 855 570 656	120	68
										675 620 587 506 412		62
12	699	242	322	1000	309	1080	2460	563	1270	620	108	59
13	1470	379	2390	910	277	641	2970	948	1530	587	103	55
14 15	879	4560	1910	633	253	500	4030	1170	1540	506	99	53 52
16 17	384	1430	2650	434	246	382	1090	689	1080	381	90	89 240
18	308	040 597	1020	3/0	220	297	697	954	1220	301 357	92	131
19	1570	621	715	382	432	315	605	859	1030	339	78	106
20	979	941	558	395	436	331	1090 842 687 605 565	1130	854	293	90 86 82 78 78	101
21	638	1050	467	367	1740	300	520	1120	1060	278 281 273 255 236	80	91 82 76 72 68
22	1350	1070	403	323	3970	290	567	1250	1110	281	75	82
23	1190	1330	351	295	2130	296	619	1050	1000	273	72	76
24	952	809	316	559	1270	310	513	923	825	255	68	72
												00
26	1300	499	269	562	604	384	482	1060	1070	217	65	64
27 28	1080	442	254	416	494	395	470	1220	1010	200	63	61 57
29	537	511	323	343	427	572	440	2420	2500	198	50	83
30	532	460	299	295		553	679	1600	1020	191	56	120
31	1340		313	306		510		1280		217 200 178 198 191 176	55	
TOTAL	20510	25325	21751	23874	17586	12826	29032	29487	34268	13528	3105	2566
MEAN	661.6	844.2	701.6	770.1	628.1	413.7	967.7	951.2	1142	436.4	100.2	85.53
YAX	1680	4560	2650	4320	3970	1090	4030	2420	2500	855	195	240
MIN	56	241	254	295	239	235	431	363	690	176	55	52
AC-FT	40680	50230	43140	47350	34880	25440	57580	58490	67970	26830	6160	5090
IN.	11.92	14.72	12.64	13.88	10.22	7.46	16.87	17.14	19.92	13528 436.4 855 176 26830 6.82 7.86	1.80	1.34
							, BY WATER					
MEAN	393.3	680.5	713.0	646.6	526.8	472.1	592.0	718.9	641.3	306.3 733 1972 70.3 1940	131.8	206.2
MAX	906	1894	1856	1310	1295	1250	968	1248	1338	733	439	574
(WY)	1935	1991	1934	1934	1982	1972	2002	1936	1974	1972	1964	1941
MIN	38.3	85.4	209	124	201	225	279	327	145	70.3	45.0	44.2
(WY)	1988	1937	1986	1937	1938	1992	1975	1992	1934	1940	1930	1938
SUMMAR	Y STATIST	ICS	FOR :	2001 CALE	NDAR YEAR	I	FOR 2002 W	ATER YEAR		WATER YEA	RS 1930 -	2002
ANNUAL	TOTAL			163575			233858					
ANNUAL	MEAN	MEAN		448.2			640.7			502.3		1072
HIGHES	ANNUAL N	INEVIN								736		1972
HTGHES'	T DATLY M	IEAN		4560	Nov 14		4560	Nov 14		9580	Oct. 25	1934
LOWEST	DAILY ME	AN		56	Oct 7		52	Sep 15		31	Sep 16	1998
ANNUAL	SEVEN-DA	MUMINIM Y		60	Sep 19		59	Aug 26		32	Sep 11	1998
ANNUAL	RUNOFF (AC-FT)		324500	-		463900	-		363900	-	
ANNUAL	RUNOFF (CFSM)		7.0	0		10.0			7.8	5	
ANNUAL	RUNOFF (INCHES)		95.0	8		135.93	3		106.6	4	
TO PER	CEMI EXCE	EDS		915			1280			1010		
OU DED	CENT EXCE	ברובי פעבי		334			44∠ 78			356		
JU FER	CTIAI DVCE	טעעוו		24			70			502.3 736 335 9580 31 32 363900 7.8 106.6 1010 356 93		

e Estimated

12143400 SOUTH FORK SNOQUALMIE RIVER ABOVE ALICE CREEK, NEAR GARCIA, WA

LOCATION.--Lat $47^{\circ}24^{\circ}55^{\circ}$, long $121^{\circ}35^{\circ}10^{\circ}$, in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.6, T.22 N., R.10 E. King County, Hydrologic Unit 17110010, Snoqualmie National Forest, on left bank, 50 ft downstream from bridge, 0.4 mi upstream from Alice Creek, 1.5 mi southeast of Garcia, 11 mi southeast of North Bend, and at mile 17.3.

DRAINAGE AREA. -- 41.6 mi2.

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

REVISED RECORDS.--WDR WA-80-1: 1978.

GAGE.--Water-stage recorder. Datum of gage is 1,437.67 ft above Washington Highway Department datum. Oct. 1, 1960 to Sept. 30, 1987, recording gage at same site at datum 10.00 ft higher.

REMARKS.--Records good. No regulation or diversion upstream from station. Chemical analyses October to November 1971. Water temperatures May 1979 to September 1980. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--42 years (water years 1961-2002), 302 $\mathrm{ft^3/s}$, 98.63 $\mathrm{in/yr}$, 218,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,450 $\mathrm{ft^3/s}$ Nov. 23, 1986, gage height, 8.33 ft, datum then in use; minimum discharge, 19 $\mathrm{ft^3/s}$ Oct. 30, 31, 1987.

AUG

95 90

82

SEP

45 47

62

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in November and December 1959 reached stages of 14.7 ft and 13.4 ft respectively, from floodmarks, discharges not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft^3/s and maximum (*):

Date	Time	Discha (ft ³ /		age height (ft)	Date	è	Time	Discha (ft ³ /		Gage height (ft)
Nov. 14	0700	2,6		14.34	May		0430	1,5		13.22
Dec. 17	0030	1,7		13.46	Jun		2115	1,5		13.16
Jan. 08	0015	2,5	590	14.29	Jun	. 29	0700	1,5	560	13.21
Apr, 14	0514	*3,2	210	*14.85						
Minimum disc	harge, 30					WATER YE Y MEAN VA	AR OCTOBER	2001 TO	SEPTEM	BER 2002
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
1	33	768	260	e117	158	217	264	692	921	494
2	33	638	271	143	145	e196	263	736	924	
3	33	468	217	132	140	180	240	588	922	
4	32	375	193	135	131	175	256	478	938	
5	32									
5	32	418	175	125	122	187	324	450	1060	362
6	32	310	197	196	129	168	480	393	1040	367

4 5	32 32	375 418	193 175	135 125	131 122	175 187	256 324	478 450	938 1060	400 362	82 83	50 45
6	32	310	197	196	129	168	480	393	1040	367	93	42
7	32	248	206	1640	159	152	656	342	753	411	82	41
8	50	211	186	2000	161	140	485	309	596	483	76	41
9	68	188	201	1140	150	132	457	292	543	348	74	43
10	95	169	173	683	142	138	668	283	700	392	74	41
11	309	153	155	514	140	565	745	314	861	410	73	40
12	269	148	146	598	122	577	1220	429	1020	368	70	38
13	529	309	900	510	112	407	1740	655	1220	332	69	38
14	594	2120	895	385	105	323	2300	705	1240	294	67	37
15	301	1170	474	313	102	274	1040	614	1070	252	64	37
16	197	787	1210	269	101	236	681	566	896	233	61	49
17	211	526	1180	234	100	205	498	680	732	226	60	59
18	156	390	626	214	120	185	396	719	1050	211	58	45
19	422	363	446	222	139	189	343	728	905	195	57	40
20	369	428	348	257	143	218	323	956	780	174	58	42
21	297	566	285	234	484	177	299	856	852	168	58	38
22	592	648	242	198	1180	161	318	900	881	164	57	35
23	786	701	212	182	1020	155	308	782	782	160	55	33
24	513	467	191	428	733	155	268	728	677	153	53	32
25	584	357	173	624	468	169	260	788	693	147	53	32
26	520	305	158	360	354	182	272	889	792	135	52	31
27	445	267	147	261	290	186	290	998	722	117	50	
28	324	248	146	212	249	256	311	1450	710		49	31
29	250	235	133	183		260	381	1450	1170		48	
30	272	210	124	175		258	508	1170	618	107	47	42
31	827		122	176		249		1040		99	46	
TOTAL	9207	14191	10392	12860	7399	7072	16594	21980	26068	8301	2036	1223
MEAN	297	473	335	415	264	228	553	709	869	268	65.7	40.8
MAX	827	2120	1210	2000	1180	577	2300	1450	1240	494	95	62
MIN	32	148	122	117	100	132	553 2300 240	283	543	494 99	46	
AC-FT	18260	28150	20610	25510	14680	14030	32910	43600			4040	2430
CFSM	7.14	11.4	8.06	9.97		5.48	13.3	17.0	20.9		1.58	0.98
IN.	8.23	12.69	9.29	11.50	6.62	6.32	14.84	19.66	23.31	7.42	1.82	1.09
STATIS	TICS OF M	ONTHLY ME	AN DATA F	OR WATER	YEARS 1961	- 2002,	, BY WATER	R YEAR (WY)				
MEAN	179	388	378	352	320	272	390	541	458	193	71.4	86.6
MAX	420	1271	1115	743	764	715	660	858	1208		212	234
(WY)	1998	1991	1976	1984	1982	1972	1990	1997	1974		1964	1968
MIN	21.2	61.3	77.7	87.7	77.0	125	171	259	95.6	64.1	34.5	26.0
(WY)	1988	1988	1986	1979	1969	1962	1967	1992	1992	1977	1987	1998
SUMMAR	Y STATIST	CICS	FOR	2001 CALE	ENDAR YEAR	I	FOR 2002 V	NATER YEAR		WATER YEARS	1961 -	2002
ANNUAL	TOTAL			91392			137323					
ANNUAL	MEAN			250			376			302		
HIGHES'	T ANNUAL	MEAN								430		1972
	ANNUAL M									189		2001
	r DAILY M	IEAN		2120	Nov 14		2300	Apr 14		6950	Nov 24	1990
LOWEST	DATLY ME	AN		31	Sep 23		31	Sep 26		19	Oct 30	1987
ANNUAL	SEVEN-DA	Y MINIMUM AC-FT) CFSM)	1	32	Sep 19		32	Sep 22		20	Oct 24	1987
ANNUAT	RUNOFF (AC-FT)		181300			272400			218800		
ANNUAL	RUNOFF (CFSM)		6.0)2		9.0	04		7.26		
ANNUAT.	RUNOFF (INCHES)		81.7	73		122.8	Apr 14 Sep 26 Sep 22		189 6950 19 20 218800 7.26 98.63		
	יייעים יייעיםי	PDC		E72	-		001			CE1		

e Estimated

10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS

12143600 SOUTH FORK SNOQUALMIE RIVER AT EDGEWICK, WA

LOCATION.--Lat $47^{\circ}27'10"$, long $121^{\circ}43'00"$, in NE $\frac{1}{4}$, NE $\frac{1}{4}$, sec.25, T.23 N., R.8 E., King County, Hydrologic Unit 17110010, on left bank at upstream side of highway bridge in Edgewick, 3 mi downstream from Change Creek, and at mile 8.6.

DRAINAGE AREA. -- 65.9 mi².

PERIOD OF RECORD.--July to October 1962, March 1963 to September 1965, October 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 571.24 ft above NGVD of 1929. Prior to August 3, 1983, gage at site 45 ft downstream at datum 5.90 ft higher.

REMARKS.--No estimated daily discharges. Records good. Minor regulation at Twin Falls and Weeks hydroelectric project, upstream from station. No diversions.

AUG

SEP

 $AVERAGE \ DISCHARGE.--21 \ years \ (water \ years \ 1964-65, \ 1984-2002), \ 442 \ \text{ft}^3/\text{s}, \ 91.08 \ \text{in/yr}, \ 320,000 \ \text{acre-ft/yr}.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ${\rm ft}^3/{\rm s}$ Nov. 24, 1990, gage height, 13.85 ft; minimum discharge, 23 ${\rm ft}^3/{\rm s}$ Sept. 28, 2001.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,150 ft^3/s and maximum (*):

Date	Time	Discha (ft ³ /		Gage height (ft)	Date	9	Time	Discha (ft ³ /s		ge height (ft)
Nov. 14	0900	3,8	340	11.00	Jan	. 08	0145	4,0	20	11.10
Dec. 13	2230	2.2	280	10.00	Apr	. 14	0545	*5.4	60 *	11.81
Dec. 17	0130	2,5	590	10.23	-					
Minimum dis	charge, 46	ft ³ /s Oct	. 1.							
		DISCHARO	GE, CUI	BIC FEET PER		WATER Y Y MEAN V	YEAR OCTOBER VALUES	2001 TO	SEPTEMBE	ER 2002
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
1	53	986	426	185	259	316	385	833	1140	632
2	52	821	453	215	240	284	386	914	1130	566
3	51	617	350	209	239	262	347	735	1130	526
4	51	485	307	211	221	250	357	590	1140	493
5	49	529	280	200	210	270	442	550	1300	448

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	986	426	185	259	316	385	833	1140	632	146	75
2	52	986 821 617 485 529	453	215	240	284	386	914 735 590 550	1130		133	77
3	52	617	350	209	239	262	247	725	1130		126	96
4	51	405	350 307	211	221	250	257	733	1140	402	124	83
5	51	485	280	200		270	357	590	1300	493	124	76
5	49	529	280	200	210	270	442	550	1300		126	/6
6	49	416	299	280	218	245	638	483	1310	447 487 586 428 460	136	73
7	49	341	309	2260	273	223	904	422	968	487	125	72
8	61	295	286	2970	274	207	685	372	767	586	116	71
9	84	263	311	1650	251	196	628	347	677	428	113	73
10	88	341 295 263 236	275	969	236	208	937	422 372 347 329	677 833	460	112	71
11	362	215 207	247 239 1410 1470 742	719 805	233	802	1040	353 470	1030	486 447 406 363 318	110	69 67
12	270	207	239		206	881	1680	470	1220	447	110	
13	707	309	1410	728	189	608	2390	781	14/0	406	103	66
14	709	2910	1470	553	177	478	3680	845 740	1520	363	101	65
15	413	1630	742	450	172	802 881 608 478 405	1040 1680 2390 3680 1680	740	1300		98	64
16	266 279 213 482	1120	1760 1790 939 659	389	169	351	1110	661	1090	293	94	73
17	279	732	1790	340	166	304	827	782	886	287	92	90
18	213	732 540	939	311	190	278	660	855	1250	269	90	75
19	482	505	659	332	225	304	570	842	1130	254	89	
20	489	505 569	513	389 340 311 332 382	169 166 190 225 230	377	1110 827 660 570 533	1140	933	293 287 269 254 228	91	71
21	364	774	422	358	740	293	489	1020	1010	222	91	68
22	652	951	361	301	1750	262	516	1080	1040	216	88	65
23	995	1110	315	274	1450	250	515	946	953	208	86	63
24	651	692	286	597	1070	250	447	862	803	200	85	62
25	776	516	422 361 315 286 263	1050	686	267	489 516 515 447 425	924	812	191	84	61
26	705	425	242	E04	E16						0.4	60
27	705 586 439 344 337	201	272	413	420	201	422	1170	919	100	0.7	61
28	430	301	227	413	420	202	433	1170	074	100	02	60
28	439	360	223	332	364	364	411	1810	837	158	80	
29	344	359	206	288		394	4//	1890	1530	155	79	64
30	33/	435 381 360 359 319	242 227 223 206 194 193	2//		386	606	1510	827	153	//	68
31	955		193	287		3/1		1310		183 166 158 155 153	76	
TOTAL	11589	19623	15997	18929	11374	10649	24642	26616	31829	10424	3147	2109
MEAN	373.8	654.1	516.0	610.6	406.2	343.5	821.4	858.6	1061	336.3	101.5	70.30
MAX	995	2910 207	1790	2970	1750	881	3680	1890	1530	632	146	96
MIN	49	207	193	185	166	196	347	329	677	148	76	60
AC-FT	22990		31730	37550	22560	21120	48880	52790	63130	20680	6240	4180
CFSM	5.67	9.93	7.83	9 27	6 16	5 21	12 5	13 0	16 1	5 10	1 54	1 07
IN.	6.54	11.08	9.03	10.69	6.42	6.01	13.91	15.02	17.97	336.3 632 148 20680 5.10 5.88	1.78	1.19
STATIST	TICS OF M	ONTHLY ME	AN DATA F	OR WATER	YEARS 1962	- 2002	, BY WATER	YEAR (WY)				
MEAN	278.2	687.4	500.6	545.5	490.4	429.0	610.4	710.8	566.5	236.3 653 1964 99.4 1992	104.6	109.1
MAX	610	1792	986	1137	1149	829	921	1196	1254	653	282	283
(WY)	1986	1792 1991	2000	1984	1996	1997	1989	1997	1964	1964	1964	1964
MIN	44.1	99.2	138	180	179	255	357	321	132	99 4	62.8	50.9
(WY)	1988	1988	1986	1985	2001	1985	1986	1992	1992	1992	1987	1998
(**1)	1500	1500	1500	1505	2001	1505	1500	1002	1002	1332	1507	1000
SUMMAR	Y STATIST	ICS	FOR	2001 CALE	NDAR YEAR	:	FOR 2002 W	ATER YEAR		WATER YEA	RS 1962 -	2002
ANNUAL	ΤΩΤΔΤ.			129477			186928					
ANNUAL	MEAN			354.7			512.1			441.8 614 276 9520 42 42 320000 6.7 91.0 912 310 76	1	
HIGHES'	T ANNUAL	MEAN								614		1997
LOWEST	ANNUAL M	EAN								276		2001
HIGHEST	T DAILY M	EAN		2910	Nov 14		3680	Apr 14		9520	Nov 24	1990
LOWEST	DAILY ME	AN		49	Sep 24		49	Oct 5		42	Oct 21	1987
ANNUAT	SEVEN-DA	Y MINIMIM		51	Oct 1		51	Oct 1		42	Oct 21	1987
ANNITAT.	RUNOFF (AC-FT)		256800	1		370800	1		320000	21	
AMMITAT	BINOEE (CESM)		230000	8		7 7	7		520000	0.	
VIVILIVI	DIMOPP (TMCUEC)		72 ^	٥		105 5	, 2		0.7		
TIMONT	VOMOLL (TINCUED)		705	2		1110	4		91.U		
TO PER	CDM DACE	בטכ בחת		700			711U			217		
OO PER	CENI EXCE	EDG		259			358			310		
90 PER	CEMI EXCE	EDS		65			77			./6		

12143700 BOXLEY CREEK NEAR CEDAR FALLS, WA

LOCATION.--Lat $47^{\circ}25^{\circ}58$ ", long $121^{\circ}45^{\circ}04$ ", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.35, T.23 N., R.8 E., King County, Hydrologic Unit 17110012, on left bank 1.7 mi northeast of town of Cedar Falls, and 2.5 mi upstream from mouth.

DRAINAGE AREA.--1.57 mi².

PERIOD OF RECORD.--August 1945 to current year. Prior to October 1960 published in WSP 1932.

GAGE.--Water-stage recorder. Elevation of gage is 1,220 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station. Flow is mostly seepage from Chester Morse Lake.

AVERAGE DISCHARGE.--57 years (water years 1946-2002), 23.8 ft^3/s , 17,270 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 189 ${\rm ft}^3/{\rm s}$ Dec. 19, 1977, gage height, 2.88 ft, maximum gage height, 3.47 ft Nov. 30, Dec. 1, 1990; no flow at times during water years 1967, 1968, and 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 68 ft³/s June 22-25, gage height, 3.23 ft; minimum discharge, 1.6 ft³/s Nov. 5-12.

		DISCHARG	E, CUBIC	FEET PER		WATER YI MEAN V	EAR OCTOBER ALUES	2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	9.6 9.3 8.8 8.3	2.0 1.9 1.7 1.7	13 14 14 14 14	22 22 21 21 21	13 13 13 13 13	9.6 9.6 9.3 9.2 9.2	e9.6 e9.4 e9.4 e9.2 e9.2	7.6 7.9 7.9 8.0 8.3	14 15 17 19 22	56 54 54 53 53	47 46 45 44 43	25 24 24 24 23
6 7 8 9 10	7.8 7.4 7.1 6.6 6.5	1.6 1.6 1.6 1.6	15 15 15 15 15	20 20 19 18 17	13 13 13 13	9.2 9.2 9.6 9.6	e9.0 e8.8 e8.8 8.8	8.5 8.8 8.8 8.8	26 29 35 43 49	51 51 51 51 51	42 41 40 39 39	22 22 22 22 21
11 12 13 14 15	6.3 5.8 5.4 5.1 4.9	1.6 1.7 2.0 2.9 3.2	15 15 16 16 15	16 15 15 14 14	12 12 12 12 12	10 10 10 10	8.6 8.4 8.8 9.6 9.4	8.9 9.1 9.3 9.5 9.6	54 57 60 60	51 52 53 53 53	38 37 35 34 33	21 21 21 20 20
16 17 18 19 20	4.6 4.2 3.9 3.8 3.7	3.4 3.5 3.7 4.0 4.5	15 15 15 15 15	14 13 13 13	11 11 11 11	11 11 11 11 11	9.0 8.5 8.3 7.9 7.7	9.6 9.6 9.6 9.6	60 61 63 65 65	54 54 54 54 54	33 32 31 31 30	20 20 20 19
21 22 23 24 25	3.4 3.4 3.4 3.2 3.0	5.0 6.3 7.4 7.9 8.3	15 15 15 17 18	13 13 13 14 14	11 11 11 11	11 11 11 11 10	7.6 7.6 7.6 7.6 7.6	10 10 11 11	66 68 68 68	54 54 54 53 53	30 29 29 29 29	19 19 18 17
26 27 28 29 30 31	2.9 2.7 2.4 2.1 2.0 2.0	9.0 9.7 9.3 11 11	19 21 21 21 22 22	14 14 13 13 13	10 9.6 9.6 	10 10 10 e9.8 e9.6 e9.6	7.6 7.6 7.6 7.6 7.6	11 11 12 12 13	65 64 62 60 58	53 51 50 50 49 47	28 28 27 26 26 25	17 17 16 16 16
TOTAL MEAN MAX MIN AC-FT	157.6 5.084 9.6 2.0 313		502 16.19 22 13 996	489 15.77 22 13 970	328.2 11.72 13 9.6 651	312.7 10.09 11 9.2 620	253.2 8.440 9.6 7.6 502	304.2 9.813 14 7.6 603	1519 50.63 68 14 3010	1625 52.42 56 47 3220	1065 34.35 47 25 2110	602 20.07 25 16 1190
STATIST	CICS OF MC	ONTHLY MEAN	DATA FO	R WATER Y	EARS 1945	- 2002	, BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	4.125 34.5 1960 0.088 1988	7.950 78.4 1948 0.008 1988	23.39 94.5 1991 0.11 1988	25.70 79.1 1950 0.48 1953	26.09 103 1953 0.34 2001	20.99 79.5 1950 0.16 2001	18.04 68.3 1950 1.21 1962	31.50 82.2 1993 3.37 1999	49.40 129 1946 7.58 1963	43.06 93.0 1993 11.0 1978	25.34 74.8 1955 2.18 1992	10.31 40.3 1955 0.29 1987
SUMMARY	STATISTI	ICS	FOR 2	001 CALEN	DAR YEAR]	FOR 2002 WA	TER YEAR		WATER YEAR	RS 1945 -	2002
LOWEST HIGHEST LOWEST ANNUAL ANNUAL 10 PERC 50 PERC	MEAN ANNUAL ME DAILY ME DAILY ME	EAN EAN AN MINIMUM AC-FT) EDS EDS			Jun 28 Mar 11 Mar 8		7290.3 19.97 68 1.6 1.6 14460 53 13 4.8	Jun 22 Nov 6 Nov 5		23.84 51.9 6.75 177 0.00 0.00 17270 60 16 1.3	Dec 1 Oct 31	1966

e Estimated

12143800 RATTLESNAKE LAKE AT CEDAR FALLS, WA

LOCATION.--Lat $47^{\circ}25'39"$, long $121^{\circ}46'29"$, in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.34, T.23 N., R.8 E., King County, Hydrologic Unit 17110012, on southeast shore, and 0.6 mi northeast of town of Cedar Falls.

DRAINAGE AREA. -- 1.86 mi².

PERIOD OF RECORD.--November to December 1945 (fragmentary), January 1953 to current year. Extremes prior to October 1960 published in WSP 1932 and daily gage heights are available in files of the U.S. Geological Survey.

GAGE.--Nonrecording gage. Datum of gage is 7.25 ft above NGVD of 1929 (levels by City of Seattle).

REMARKS.--No diversions. Inflow is mostly seepage from Chester Morse Lake. Most outflow from lake is seepage; however, when the lake level exceeds 906 ft gage height, surface-water discharge flows through Rattlesnake Ditch toward Boxley Creek.

COOPERATION. -- Gage readings furnished by City of Seattle Water Department.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 911.80 ft Nov. 25, 26, 1959; minimum observed, 852.80 ft Jan. 9, 1953, but may have been less during Dec. 13, 1965, to Jan. 3, 1966, and Nov. 10 to Dec. 23, 1970, when water was below gage.

EXTREMES FOR CURRENT YEAR. -- Maximum gage height observed, 905.44 ft Jan. 28; minimum, 888.70 ft Nov. 13.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY OBSERVATION AT 0800 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	899.46 899.22 899.03 898.77 898.55	892.38 892.10 891.82 891.52 891.30	895.16 895.64 896.09 896.48 896.86	904.47 904.50 904.52 904.52 904.50	905.38 905.36 905.31 905.27 905.18	903.73 903.56 903.40 903.22 903.06	901.66 901.55 901.46 901.32 901.20	900.26 900.00 899.76 899.49 899.31	896.70 896.71 896.78 896.84 896.97	903.88 904.00 904.08 904.16 904.18	903.58 903.55 903.49 903.46 903.45	901.44 901.38 901.20 901.28 901.18
6 7 8 9 10	898.30 898.15 897.95 897.79	891.00 890.66 890.30 890.08 889.63	897.22 897.56 897.88 898.20 898.48	904.42 904.52 904.64 904.76 904.86	905.18 905.15 905.15 905.15 905.00	902.90 902.73 902.52 902.32 902.20	901.13 901.06 901.00 900.80 900.68	899.12 898.98 898.79 898.62 898.50	897.08 897.24 897.47 897.79 898.10	904.19 904.18 904.19 904.16 904.12	903.46 903.42 903.38 903.33 903.30	901.09 900.90 900.90 900.80 900.71
11 12 13 14 15	897.40 897.13 896.96 896.78 896.48	889.32 889.04 888.70 888.80 888.90	898.78 899.04 899.46 900.05 900.68	904.92 904.95 905.08 905.14 905.08	904.94 904.85 904.75 904.66 904.46	902.14 902.16 902.08 902.01 902.01	900.67 900.65 900.68 900.94 901.41	898.35 898.20 898.04 897.94 897.80	898.48 898.79 899.15 899.39 899.67	904.08 904.03 903.98 903.94 903.90	903.21 903.13 903.06 902.98 902.87	900.60 900.54 900.44 900.36 900.28
16 17 18 19 20	896.30 896.14 895.87 895.62 895.36	889.26 889.55 889.80 890.00 890.30	901.30 901.86 902.35 902.70 903.15	905.02 905.02 904.98 905.02 905.00	904.42 904.19 904.06 903.90 903.74	901.95 901.88 901.79 901.72 901.84	901.79 902.04 902.15 902.18 902.18	897.66 897.52 897.37 897.22	899.91 900.21 900.46 900.86 901.18	903.87 903.83 903.81 903.78 903.77	902.58 902.75 902.65 902.55 902.49	900.23 900.18 900.10 900.04 899.98
21 22 23 24 25	895.14 894.90 894.80 894.36 894.14	890.54 890.82 891.34 891.77 892.32	903.40 903.56 903.78 903.80 904.05	905.01 904.98 904.96 904.96 905.08	903.66 903.66 903.72 903.88 903.92	901.80 901.92 902.14 902.18 902.18	902.14 902.08 902.05 901.89 901.69	897.00 896.87 896.79 896.67	901.49 901.76 902.08 902.34 902.58	903.76 903.75 903.74 903.72 903.70	902.40 902.32 902.24 902.16 902.07	899.86 899.80 899.70 899.64 899.55
26 27 28 29 30 31	893.87 893.66 893.46 893.18 892.90 892.70	892.84 893.28 893.65 894.26 894.68	904.16 904.20 904.39 904.40 904.46 904.47	905.21 905.38 905.44 905.42 905.42	904.03 903.92 903.84 	902.14 902.10 902.03 901.95 901.86 901.76	901.47 901.28 901.16 900.77 900.62	896.54 896.52 896.59 896.66 896.67	902.84 903.00 903.26 903.43 903.69	903.69 903.68 903.68 903.65 903.65 903.61	901.99 901.92 901.82 901.72 901.64 901.56	899.45 899.38 899.30 899.27 899.25
MAX MIN	899.46 892.70	894.68 888.70	904.47 895.16	905.44 904.42	905.38 903.66	903.73 901.72	902.18 900.62	900.26 896.52	903.69 896.70	904.19 903.61	903.58 901.56	901.44 899.25

CAL YR 2001 MAX 906.74 MIN 861.05 WTR YR 2002 MAX 905.44 MIN 888.70

12143900 BOXLEY CREEK NEAR EDGEWICK, WA

LOCATION.--Lat 47°26'56", long 121°43'50", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.25, T.23 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 4.0 mi southeast of North Bend, and at mile 0.9.

DRAINAGE AREA. -- 3.64 mi².

PERIOD OF RECORD. -- August 1981 to current year.

REVISED RECORDS.--WDR WA-90-1: 1982 (M), 1988 (M).

GAGE.--Water-stage recorder. Elevation of gage is 650 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. Many small diversions for domestic use upstream from station. No regulation; flow is mostly seepage from Chester Morse Lake. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--21 years (water years 1982-2002), $41.3~{\rm ft}^3/{\rm s}$, 29,930 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 256 $\rm ft^3/s$ Dec. 3, 1995, gage height, 5.20 ft; minimum discharge, 8.3 $\rm ft^3/s$ Nov. 10, 1986.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 99 ft³/s June 29, gage height, 4.60 ft; minimum discharge, 16 ft³/s Nov. 8-12.

		DISCHAR	GE, CUBIC	C FEET PE	R SECOND, W DAILY	ATER YE MEAN VA		2001 TO S	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	27 27 26 26 26	20 21 19 19 20	27 27 27 26 27	42 42 41 40 40	41 39 40 38 38	33 33 33 34 34	31 31 31 32 32	29 29 29 29 30	28 28 27 27 31	69 68 67 66 65	65 64 64 63 62	41 41 41 37 36
6 7 8 9 10	26 27 26 26 26	18 17 17 17 17	29 26 27 27 27	41 44 45 44 42	39 42 44 41 40	34 33 33 33 34	32 32 32 32 31	30 30 29 28 28	43 44 48 60 66	65 66 65 65	60 56 54 53 52	35 34 33 33 31
11 12 13 14 15	26 26 25 25 26	16 17 19 26 25	27 28 41 39 40	41 41 36 32 30	37 35 33 32 33	41 34 33 32 32	30 31 33 46 36	28 28 28 29 28	68 70 71 71 71	65 66 65 66	51 52 51 51 51	30 29 28 28 28
16 17 18 19 20	25 25 23 24 23	23 21 21 21 21	40 39 41 40 38	29 29 32 36 40	34 34 34 34 35	32 32 32 42 49	30 30 30 31 32	28 28 28 28 28	72 73 76 77 78	66 66 67 67 66	49 47 46 46 46	29 29 29 28 29
21 22 23 24 25	24 24 23 24 23	21 24 26 26 26	37 36 36 37 38	37 34 34 42 46	41 46 48 43 37	43 37 33 33 32	32 32 32 32 32	28 28 28 28 28	79 80 80 80 79	65 66 65 65	46 46 46 46 46	29 29 29 29 29
26 27 28 29 30 31	23 23 21 20 21 22	26 26 25 25 25	40 40 41 41 42 43	47 44 41 38 40 44	34 33 33 	32 32 31 31 31 31	30 30 30 29 29	28 29 29 28 29 28	76 75 78 78 71	64 63 64 64 64	46 45 45 45 43 42	28 28 28 29 29
TOTAL MEAN MAX MIN AC-FT	759 24.5 27 20 1510	645 21.5 26 16 1280	1074 34.6 43 26 2130	1214 39.2 47 29 2410	1058 37.8 48 32 2100	1059 34.2 49 31 2100	951 31.7 46 29 1890	883 28.5 30 28 1750	1905 63.5 80 27 3780	2032 65.5 69 63 4030	1579 50.9 65 42 3130	936 31.2 41 28 1860
STATIST	ICS OF MO	NTHLY MEA	N DATA FO	OR WATER Y	YEARS 1982	- 2002,	BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	20.4 33.9 1991 11.0 1988	24.5 62.4 1991 11.9 1988	36.8 121 1991 12.9 1988	38.2 65.0 1991 11.4 1988	44.2 93.1 1996 15.0 1988	42.4 114 1982 13.0 2001	41.9 85.7 1988 13.6 2001	53.9 113 1988 20.9 1999	65.9 106 1993 29.8 1992	59.3 108 1993 22.9 1992	40.9 76.9 1993 16.4 1992	27.4 42.0 1997 12.2 1987
SUMMARY	STATISTI	CS	FOR 2	001 CALE	NDAR YEAR	F	OR 2002 WA	TER YEAR		WATER YEARS	3 1982	- 2002
LOWEST I HIGHEST LOWEST I ANNUAL I ANNUAL I 10 PERC 50 PERC		CAN CAN IN MINIMUM C-FT) CDS		13675 37.5 111 11 11 27120 87 27 12	Jun 20 Mar 23 Apr 13		14095 38.6 80 16 17 27960 65 33 25	Jun 22 Nov 11 Nov 6		41.3 66.6 28.1 247 8.6 10 29930 74 35	Dec 4 Nov 10 Jan 2	

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12144000 SOUTH FORK SNOQUALMIE RIVER AT NORTH BEND, WA

LOCATION.--Lat $47^{\circ}29^{\circ}35^{\circ}$, long $121^{\circ}47^{\circ}20^{\circ}$, in SW $\frac{1}{4}$ NE $\frac{1}{2}$ sec.9, T.23 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank on upstream side of Bendigo Street crossing at North Bend, and at mile 2.0.

DRAINAGE AREA. -- 81.7 mi2.

PERIOD OF RECORD.--July 1907 to September 1926, February 1929 to September 1938, June 1945 to April 1950, October 1960 to August 1974, February 1984 to current year. Monthly and yearly discharge only for water years 1908, 1910 and 1913, published in WSP 1316.

REVISED RECORDS.--WSP 1316: 1918-19(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 423.01 ft above NGVD of 1929 (February 1984 through September 1996 incorrectly published as 439.33 ft). Prior to April 11, 1950, nonrecording gage or water-stage recorder at several sites within 0.5 mi upstream from present site at various datums. October 1, 1960 to March 10, 1965, at site 0.46 mi upstream at datum 1.86 ft lower. March 10, 1965 to August 31, 1974, at site 0.46 mi upstream at datum 6.86 ft lower.

REMARKS.--No estimated daily discharges. Records good. City of North Bend diverts about 0.8 ft³/s daily from Clough Creek for municipal use. Minor regulation at Twin Falls and Weeks Falls projects upstream from station.

AVERAGE DISCHARGE.--63 years (water years 1908-26, 1930-38, 1946-49, 1961-73, 1985-2002), 551 ft³/s, 91.57 in/yr, 398,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge recorded, 10,900 $\rm ft^3/s$ Nov. 24, 1990, gage height, 19.09 $\rm ft$, from rating curve extended above 3,900 $\rm ft^3/s$; minimum discharge, 63 $\rm ft^3/s$ Oct. 22, 1925.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 22, 1959, reached a stage of 14.49 ft, site and datum then in use, from floodmarks, discharge, 13,000 ft^3/s , slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,200 ${\rm ft}^3/{\rm s}$ and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov 14	1030	4,420	12.99	Feb 22	1515	2,360	10.94
Dec 13	1745	2,600	11.20	Apr 14	0645	*5,750	*14.32
Dec 17	0245	3,010	11.63	May 29	1045	2,220	10.67
Jan 08	0315	4 470	13 04	-			

Minimum discharge, 92 ft³/s Oct. 5-8.

	DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101	1160	597	314	466	489 443 415 398 418	534	982	1350	855	263	155
2	99	995	656	342	432	443	534 537 492 493 577	1080	1340	771	247	160
3	98	784	535	338	427	415	492	911	1340	720	240	184
4	97	625	481	336	404	398	493	752	1350	680	236	163
5	93	669	444	323				711	1490	626	237	156
6 7	93 93	545 457	470 476 444 480 435	383 2390 3440 1920	392	392	762 1050 848 775 1090	646	1550 1220	615 653	246 236	152 148
8	106	401	444	3440	480	345	848	514	1010	763	224	147
9	128	363	480	1920	435	330	775	487	895	592	218	147
10	134	331	435	1210	392 456 480 435 414	341	1090	462	1040	611	215	144
11	398	304	401	932	411 379	920	1210	480	1250	647	212	142
12	320	295	389	997 944 748 632	379	1110	1810	480 578 928 1010 910	1430	610	211	141
13	816	372	1650	944	355	813	2580 4320 2050	928	1660	563	202	139
14 15	802 523	3250 1890	1840 1040	632	337 323	673 596	4320	1010	1750 1540	518 470	197 193	138 137
16 17	354 361	1370 937	2040 2190	560 503	318 313	531 475	1430 1110	814 926	1340 1130	436 429	189 185	145 163
18	293	703	1250	472	339	438	914		1450	412	182	147
19	533	647	941	513	378	510	797	1020 999	1380	398	180	141
20	606	699	758	588	386	640	744	1280	1170	369	182	141
21	445	931	639	571	892	503	685	1190	1230	360	181	138
22	704	1100	555	494	1950	451	704	1250	1270	351	177	135
23 24	1170 805	1370 909	494 449	452 809	1690	427	706	1120 1030	1200 1040	341 332	171 169	133 131
25	928	697	418	1440	1690 1340 927	418 426	624 590	1080	1030	322	168	130
26	871	598	394	929 686 568 501	732	437	607	1200	1130	313	167	129
27	739	528	374	686	620	437	607 595 559 618 741	1330	1120	295	165	129
28	574	508	370	568	550	516	559	2030	1060	284	162	128
29	461	553	347	501		562	618	2110	1750	280	159	132
30	433	495	JJ1	-100		543	741	1730	1090	276	158	133
31	1060		329	512				1530		267	157	
TOTAL	14238	24486	22217	25335	16537	15887	30552	31666	38605	15159	6129	4308
MEAN	459	816	717	817	591	512	1018	1021	1287	489	198	144
MAX	93	3250 295	2190 329	3440 314		1110 330					263 157	184 128
MIN AC-FT			44070		32800			46Z 62010	76570	30070	12160	128
CFSM	5.62		8.77	10.0	7.23	6.27	12.5	12.5	15 8	5 99	2 42	1 76
IN.	6.48	11.15	10.12	11.54	7.53	7.23	13.91	14.42	17.58	30070 5.99 6.90	2.79	1.96
STATIS'	TICS OF M	ONTHLY ME	AN DATA F	OR WATER	YEARS 1907	- 2002	, BY WATER	R YEAR (WY)				
MEAN	333	649	702	711	628	596	703	857	749	359	172	172
MAX	843	2164	2267	1579	1398 1996	1516	1171	1313	1763	940	405	172 421
(WY)	1934	1991	1934	1934	1996	1972	1932	1997	1974	1974	1964	1933
MIN	76.5	2164 1991 92.4 1930	213	218	178 1922	190	352	354	210	100	84.8	76.8
(WY)	1988	1930	1931	1937	1922	1922	1967	1915	1992	1926	1910	1910
SUMMAR	Y STATIST	CICS	FOR	2001 CALE	NDAR YEAR		FOR 2002 W	NATER YEAR		WATER YEARS	3 1907 -	2002
ANNUAL				174102			245119					
ANNUAL				477			672			551		1000
HIGHES	T ANNUAL	MEAN								809	Nov 24	1972
HIGHES!	MINDALL P.	IEAN		3250	Nov. 14		4320	Anr 14		10100	Nov 24	1915
LOWEST	DAILY ME	ZAN		93	Oct 5		93	Oct 5		65	Oct 22	1925
ANNUAL	SEVEN-DA	Y MINIMUM		96	Oct 1		96	Oct 1		66	Oct 17	1925
ANNUAL	RUNOFF (AC-FT)		345300			486200			398900		
ANNUAL	RUNOFF (CFSM)		5.8	4		8.2	22		6.74		
ANNUAL	KUNOFF (INCHES)		79.2	7		111.6	1		91.57		
TO PER	CENT EXCE	EUS POTE		940			1340			1020		
90 PER	CENT EXCE	EDS		137			157			809 334 10100 65 66 398900 6.74 91.57 1050 438 132		
JO ELIK	CALL DACE			131			137			132		

12144500 SNOQUALMIE RIVER NEAR SNOQUALMIE, WA

LOCATION.--Lat $47^{\circ}32^{\circ}43^{\circ}$, long $121^{\circ}50^{\circ}26^{\circ}$, in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.19, T.24 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 0.3 mi downstream from Snoqualmie Falls, 0.4 mi upstream from Tokul Creek, 1.5 mi northwest of Snoqualmie, and at mile 40.0.

DRAINAGE AREA. -- 375 mi2.

PERIOD OF RECORD.--May 1898 to July 1899; August to September 1899 (monthly discharge only); January to July 1900, September 1902 to July 1904; August to September 1904 (monthly discharge only); October 1904 to September 1905 and November to December 1906 (gage heights only); August 1907 to May 1926 (monthly discharge only); June 1926 to September 1927; October 1927 to September 1932 (monthly discharge only); August 1958 to current year. Published as "near Snoqualmie Falls" 1904-06.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 120 ft above NGVD of 1929, from river-profile map. Prior to Nov. 3, 1902, and Nov. 1 to Dec. 31, 1906, nonrecording gages upstream and downstream from Snoqualmie Falls at different datum. Nov. 3, 1902, to Sept. 30, 1905, nonrecording gage at site 4 mi upstream and 300 ft downstream from South Fork, at different datum. Prior to Sept. 9, 1999, at site on opposite bank, at same datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Medium and low flows affected by powerplant 0.1 mi upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--72 years (water years 1899, 1903-04, 1908-32, 1959-2002), 2,602 ft²/s, 94.23 in/yr, 1,885,000 acre-ft/yr, includes monthly discharge figures, see PERIOD OF RECORD.

44 years (water years (1959-2002), 2,701 ft²/s, 97.85 in/yr, 1,956,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,800 ft³/s Nov. 24, 1990, gage height, 21.55 ft, from inside high-water mark; minimum discharge, 9.7 ft³/s Aug. 14, 27, 1958, gage height, -0.53 ft; minimum daily discharge, 88 ft³/s Aug. 8, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 23,800 ft³/s Apr. 14, gage height, 14.49 ft; minimum discharge, less than 100 ft³/s Aug. 13, gage height 1.16 ft.

DISCHARGE CURIC FEET PER SECOND WATER YEAR OCTORER 2001 TO SEPTEMBER 2002

		DISCH	ARGE, CUE	IC FEET PI	ER SECOND, DAIL	WATER Y Y MEAN V		R 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	410	-5270	2000	1500	1040	21.60	2450	4220		4120	1000	400
1 2	410	e5370 4970	3080	1580	1940	2160 1960	2450	4220	5550	4130	1000	489 501
3	373	3930	2970	2070	1770	1810	2230	4230	5310	3350	940	787
4	357	2920	2550	1940	1720	1720	2220	3470	5410	3110	889	668
5	410 387 373 357 343	3290	2320	1580 1830 2070 1940 1780	1620	1800	2720	3130	6400	4130 3660 3350 3110 2900	1090 1000 940 889 909	559
		2590	2370	2090	1670	1720					1100	513
7	328	2070	2640	14200	2080	1560	5260	2560	5370	3200	1070	486
8	362	1750	2280	17800	2350	1470	3970	2270	4180	4110	927	475
9	575	1520	2650	9600	2180	1400	3420	2140	3590	3160	864	481
10	333 328 362 575 589	1380	2280	5420	1670 2080 2350 2180 1930	1430	5050	2040	3950	2880 3200 4110 3160 3220	849	468
11	3160	1280	2060	4050 4540 4680 3420 2820	2030	4180	5930	2070	4960	3600 3370 3140 2890 2490	865	453
12	2200 5470 4040 2940	1250	1930	4540	1770	5310	9020	2510	5980	3370	812	439
13	5470	e1980	8170	4680	1600	3590	11600	4070	7270	3140	e777	436
14	4040	e16200	9910	3420	1470	2960	19400	4920	8020	2890	763	423
15	2940	11900	4990	2820	1390	2610						411
16	1890	7890	10300	2470 2190	1390 1380	2340	6340	3550	5950	2220 2230 2140 2070 1870	711	458
17	2000 1520 4440	4900	12400	2190	1380	2080	4790	3990	4710	2230	683	853
18	1520	3580 3210 4040	6010	2010	1670 1920	1890	3890	4500	6170	2140	649	660
19	4440	3210	4320	2440		2060	3390	4250	5870	2070	618	549
20	4420				2090	2610						540
21	2730	4890	2910	2610 2180 1960 3090 5490	4880	2180	2910	5390	5230	1760 1760 1750 1710 1630	633	514
22	e4540	5110	2540	2180	12200	1960	2980	5800	5650	1760	604	456
23	e6120	7250	2250	1960	9430	1890	3130	5090	5370	1750	580	443
24 25	e4900 e5890	4530 3400	2050	3090	4200	1880 1970	2770	4490	4460	1/10	5/2	426 412
25	63630											
26	e5240	2930	1740	3650	3330	2050	2590	5040	5240	1580	565	400
27	e4440	2630	1640	2720	2790	2110	2560	5590	5360	1420	550	393
28 29	e3340 e2470	2550	1720	2250	2450	2720	2420	10200	0000	1280	532	383 415
30	e2200	2740	1580	1900		2630	3170	8080	5530	1290	516	505
31	e5490		1580	3650 2720 2250 1980 1920 2050		2510		6550		1580 1420 1280 1300 1290 1200	509	
TOTAL	83497	124950										14996
MEAN	2693	4165	2616	119490 3855 17800 1580	2016	71390	138250	141030	169900	76420 2465 4130 1200	7/2 5	499.9
MAX	6120	16200	12400	17800	12200	5310	19400	10300	9980	4130	1100	853
MIN	328	1250						2040	3590	1200	509	383
AC-FT	165600	247800	222400	237000	161900	141600	274200	279700	337000	151600	45710	29740
	7.18	11.1	9.64	10.3	7.77	6.14	12.3	12.1	15.1	151600 6.57 7.58	1.98	29740 1.33 1.49
IN.	8.28	12.40	11.12	11.85	8.10	7.08	13.71	13.99	16.85	7.58	2.29	1.49
STATIS	TICS OF	MONTHLY M	EAN DATA	FOR WATER	YEARS 195	9 - 2002	, BY WATER	YEAR (WY)			
MEAN	1846	3635	3693	3547	3053 6676 1982 1215 1969	2511	3060	3779	3538	1855	859.6	1079
MAX	3931	10100	8886	6414	6676	6735	4696	6055	7568	4393	2263	3937
(WY)	1960	1991	1976	1984	1982	1972	1989	1972	3538 7568 1974	1974	1964	1959
MIN	348	716	1211	1162	1215	1367	1478	1895	1077	815	451	342
(WY)	1988	1980	2001	1979	1969	1962	1967	1992	1992	1987	1998	1998
SUMMARY	STATIST	ICS	FOR	2001 CALE	NDAR YEAR	F	OR 2002 WA	TER YEAR		WATER YEARS	1959 -	2002
ANNUAL	TOTAL			827733			1156700					
ANNUAL	MEAN	MEAN MEAN		2268			3169			2701		
HIGHES	T ANNUAL	MEAN								3939		1972
LOWEST	ANNUAL	MEAN								1739		2001
HIGHES	T. DAILY M	MEAN		16200	Nov 14		19400	Apr 14		54700	Nov 2	1 1990
TOMEST	DAILI M	ΣΥ ΜΤΝΙΤΜΙΠ ΣΥΜΤΝΙΤΜΙΠ	м	3∠8 355	Oct 7		3∠8 355	Oct 7		274	Aug	3 1991 3 1991
ANNUAL	RUNOFF	(AC-FT)	ra .	1642000	000 2		2294000	000 2		1956000	OCL .	J 1331
ANNUAL	RUNOFF	(CFSM)		6.0	05		8.4	:5		7.20		
ANNUAL	RUNOFF	(INCHES)		82.	11		114.7	4		97.85		
10 PER	CENT EXC	EEDS		4530			5880			5050		
50 PER	CENT EXC	EEDS		1810			2490			2090		
90 PER	CENT EXC	EEDS		520			545			2701 3939 1739 54700 88 274 1956000 7.20 97.85 5050 2090 637		

e Estimated

12145500 RAGING RIVER NEAR FALL CITY, WA

LOCATION.--Lat 47°32'24", long 121°54'28", on west line sec.27, T.24 N., R.7 E., King County, Hydrologic Unit 17110010, on right bank at highway bridge 2.0 mi southwest of Fall City, and 2.6 mi upstream from mouth.

DRAINAGE AREA. -- 30.6 mi2.

Date

PERIOD OF RECORD.--July 1945 to September 1950, water years 1951, and 1953-63 (annual maximum), December 1963 to June 1973, October 1973 to April 1974, October 1974 to current year.

REVISED RECORDS.--WSP 1316: Drainage area.

Time

GAGE.--Water-stage recorder. Elevation of gage is 250 ft above NGVD of 1929, from topographic map. Prior to Oct. 1, 1950, water-stage recorder on left bank at present site and datum. August 1951 and January 1953 to February 1963, crest-stage gage only on left bank at present site and datum.

REMARKS.--Records good. Some small diversions for irrigation and domestic use upstream from station. No regulation. U.S. Geological Survey satellite telemeter at station.

Date

AVERAGE DISCHARGE.--41 years (water years 1946-50, 1965-72, 1975-2002), 132 ft³/s, 58.70 in/yr, 95,770 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $6.220 \text{ ft}^3/\text{s}$ Nov. 24, 1990, gage height, 6.56 ft; maximum gage height, 6.75 ft Feb. 9, 1951; minimum daily discharge, $4.4 \text{ ft}^3/\text{s}$ Aug. 21, 1967.

Discharge Gage height

(ft³/s)

Time

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ${\rm ft}^3/{\rm s}$ and maximum (*):

Discharge Gage height (ft³/s) (ft)

Date	Time	(ft ³	/s)	(ft)	Date		Time	(ft³/s)		(ft)		
Nov. 14 Dec. 13 Dec. 16	1345 1615 1100	1,	350 860 330	*5.41 5.00 4.54	Jan. Apr.		0800 0345	1,74		4.97 4.69		
Minimum disc	harge, 12	$2 \text{ ft}^3/\text{s se}$	veral day	s in Aug.	and Sept							
		DISCHAR	GE, CUBIC	FEET PER			YEAR OCTOBER VALUES	2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	225	522	65	223	118		71	77	76	16	12
2	17	214	498	86	188	102 92		71	68	60	16	13
3 4	17 16	171 145	337 280	75 74	197 175	92 83		70 65	60 56	51 46	15 16	e31 16
5	15	196	242	67	179	94		79	73	41	17	14
6	15	147	324	92	202	85	120	79	95	37	16	13
7	15	120	276	499	242	75	111	85	76	36	16	13
8	28	100	252	609	316	69		82	75	44	15	13
9 10	32 29	87 75	315 255	351 234	248 218	65 71		74 68	68 59	36 32	15 14	13 13
11 12	76 50	65	219	180	202	335		62 58	54	28 27	15 14	13 13
13	88	65 136	218 1280	187 172	157 130	322 291		61	49 43	26	14	12
14	89	1480	791	139	112	252		81	39	24	13	12
15	70	777	455	121	102	240	586	66	38	24	13	12
16	76	449	1030	109	97	215	441	60	36	23	13	14
17	109	280	746	104	95	168	319	65	35	22	13	17
18	72	201	439	109	132	145		59	42	21	13	13
19 20	124 125	205 218	344 249	260 389	154 140	299 606		55 60	54 38	21 21	13 14	13 13
20	123	210	249	303	140	606	154	60	30	21	14	13
21 22	112 183	253	194 156	359 224	445 695	297 218		59 69	34	19 19	14 13	13
23	157	435 552	129	170	545	189		72	31 29	18	13	13 12
24	186	308	112	463	410	172		61	29	18	13	12
25	341	219	99	1200	272	176	98	56	27	18	13	12
26	219	185	89	526	203	155	92	52	27	18	13	12
27	223	153	80	295	162	146	100	51	26	19	13	12
28	188	210	83	208	138	159		76	65	18	13	12
29 30	137 129	558 501	73 67	162 173		179 161		181 114	170 83	20 19	12 12	19 15
31	231		69	247		138		90		18	12	
TOTAL	3187	8730	10223	7949	6379	5717	6634	2252	1656	900	432	415
MEAN	103	291	330	256	228	184		72.6	55.2	29.0	13.9	13.8
MAX	341	1480	1280	1200	695	606		181	170	76	17	31
MIN	15	65	67	65	95	65		51	26	18	12	12
AC-FT	6320	17320	20280	15770	12650	11340		4470	3280	1790	857	823
CFSM IN.	3.36 3.87	9.51 10.61	10.8 12.43	8.38 9.66	7.45 7.75	6.03 6.95		2.37	1.80	0.95 1.09	0.46	0.45
STATIST	ICS OF MC	ONTHLY MEA	IN DATA FO	R WATER Y	EARS 1945	- 200	2, BY WATER	YEAR (WY)				
MEAN	71.6	218	259	265	226	183		88.0	65.3	32.4	19.1	31.4
MAX	266	602	472	458	476	389		168	158	106	51.2	96.7
(WY) MIN	1948 7.77	1991 23.7	1976 102	1971 94.7	1972 53.7	1950 58.4		1997 38.0	1964 19.0	1997 13.2	1976 7.04	1964 9.71
(WY)	1988	1988	2001	1985	1977	1992		1947	1992	1967	1967	1987
SUMMARY	STATIST	ICS .	FOR 2	001 CALEN	DAR YEAR		FOR 2002 WA	TER YEAR		WATER YEARS	3 1945	- 2002
	moma r											
ANNUAL ANNUAL				45149 124			54474 149			132		
	'ANNUAL N	MEAN		124			145			206		1972
LOWEST	ANNUAL ME	EAN								77.8		1977
	DAILY ME			1480	Nov 14		1480	Nov 14		3340	Nov 2	1 1990
	DAILY MEA			14 15	Aug 20		12 12	Aug 29		4.4 4.9	Aug 2	1967
	RUNOFF (A	MINIMUM		89550	Sep 12		108000	Sep 22		4.9 95770	Aug I	5 1967
	RUNOFF (4.04			4.88			4.32		
ANNUAL	RUNOFF (INCHES)		54.89			66.22			58.70		
10 DEDC	TENT EXCER	פחק		252			336			297		

e Estimated

10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS

12147500 NORTH FORK TOLT RIVER NEAR CARNATION, WA

LOCATION.--Lat $47^{\circ}42^{\circ}45^{\circ}$, long 121 $^{\circ}47^{\circ}15^{\circ}$, in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.28, T.26 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 2.9 mi upstream from confluence with South Fork, 7.4 mi northeast of Carnation, and at mile 11.7.

DRAINAGE AREA. -- 39.9 mi².

TOTAL MEAN

MAX

MTN

CFSM

MEAN

MAX (WY)

MIN

(WY)

IN.

388.6

9.74

11.23

258 1

38.5

SUMMARY STATISTICS

HIGHEST ANNUAL MEAN

LOWEST ANNUAL MEAN

HIGHEST DAILY MEAN LOWEST DAILY MEAN

10 PERCENT EXCEEDS

50 PERCENT EXCEEDS 90 PERCENT EXCEEDS

ANNUAL SEVEN-DAY MINIMUM

ANNUAL RUNOFF (AC-FT)
ANNUAL RUNOFF (CFSM)
ANNUAL RUNOFF (INCHES)

ANNUAL TOTAL

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- October 1952 to December 1963, November 1967 to current year.

REVISED RECORDS.--WSP 1566: 1957. WSP 1932: Drainage area.

540.7

13.6

15.12

489 6

69.0

593.0

14.9

17.14

533 9

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953

549.3

15.88

526 3

FOR 2001 CALENDAR YEAR

8.03

13.8

GAGE.--Water-stage recorder. Elevation of gage is 600 ft above NGVD of 1929, from river-profile map.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--45 years (water years 1953-63, 1969-2002), 356 ft³/s, 121.29 in/yr, 258,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,560 ft³/s Dec. 15, 1959, gage height, 13.15 ft, from rating curve extended above 2,800 ft³/s; minimum discharge, 31 ft³/s Sept. 22, 23, 1986.

AUG

2.19

2.53

114 1

48.7

WATER YEARS 1953 - 2002

522.4

13.1

14.61

346 9

5.48

6.32

197 8

80.1

8.93 121.29

218.8

SEP

67.90

1.70

1.90

152 7

49.6

Dec 15 1959 Sep 22 1986

Sep 16 1986

 $\hbox{\it EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft^3/s and maximum (*): } \\$

Date	Time	Discha: (ft ³ /s		age height (ft)	Date		Time	Discharge (ft ³ /s)		e height ft)
Nov. 14	1300	*4,3	60	*9.84	Jan.	7	2300	3,600		9.21
Dec. 13	1015	3,3	20	8.96	Feb.	22	1100	3,920		9.48
Dec. 16	1045	3,3	50	8.98	Apr.	14	0345	3,230		8.87
Minimum dis	charge, 46							2001 TO SE	PTEMBER	R 2002
					DAILY	MEAN VA	LUES			
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
1	69	523	522	320	271	316	404	556	536	481
2	66	645	599	465	259	296	380	584	534	347
3	63	410	401	393	270	281	340	591	522	309
4	62	351	348	371	260	273	354	437	538	279
5	61	455	321	322	251	293	421	398	857	276
6	59	325	341	528	280	266	580	364	768	271
7	F.0	200	240	2040	270	240	600	225	400	222

503.4

12.6

13.14

448 7

Nov 14 Sep 25

Sep 19

334.5

8.38

9.67

369 4

- 2002,

655.8

18.34

16.4

BY WATER

431 6

10.5 142.25

FOR 2002 WATER YEAR

566.1

16.36

423 0

Nov 14 Sep 28 Sep 22

YEAR (WY)

12147500 NORTH FORK TOLT RIVER NEAR CARNATION, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--WATER TEMPERATURE: February 1995 to current year.

INSTRUMENTATION. -- Temperature recorder since February 1995.

REMARKS.--Record good except for May 25 to Sept. 30, which is fair.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 16.0°C (rounded) July 18, 19, 1995, July 26-28, 1998; minimum, 2.0°C (rounded) Dec. 29, 1996. EXTREMES FOR CURRENT YEAR. --

WATER TEMPERATURE: Maximum, 14.9°C July 24, minimum, 2.4°C Feb. 21.

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER		NC	VEMBER		DE	CEMBER			JANUARY	
1 2 3 4 5	10.3 10.1 10.0 9.5 9.5	8.6 8.3 8.2 7.8 7.5	9.5 9.2 9.0 8.7 8.5	7.2 7.7 7.8 7.7 7.4	6.9 7.0 6.8 7.1 6.4	7.1 7.3 7.2 7.4 6.9	5.7 5.6 5.4 5.3 5.2	5.4 4.9 4.7 5.0 4.5	5.6 5.3 5.1 5.1 4.9	5.9 6.0 5.8 5.7 5.9	4.8 5.1 5.0 5.3 5.2	5.4 5.6 5.4 5.5 5.6
6 7 8 9 10	9.3 8.9 9.2 9.6 8.9	8.2 7.9 8.6 8.3 7.7	8.7 8.4 8.8 8.8	6.8 6.8 7.2 7.0 7.5	5.9 5.9 5.5 5.8 6.0	6.3 6.2 6.2 6.4 6.7	5.5 5.7 5.9 5.2 5.4	5.0 5.0 5.1 4.7 4.6	5.2 5.3 5.6 4.9 5.0	6.0 5.7 5.5 5.5 5.7	5.5 4.8 5.0 5.1 5.0	5.8 5.2 5.2 5.3 5.4
11 12 13 14 15	8.8 8.6 8.5 9.2 9.3	8.0 7.9 8.1 8.1 7.4	8.3 8.1 8.3 8.5	7.8 7.9 7.9 8.2 8.3	6.7 7.3 7.5 7.7 7.6	7.2 7.6 7.7 8.0 8.0	5.7 5.5 5.1 4.9 5.2	4.8 4.8 3.7 3.2 4.5	5.2 5.2 4.3 4.2 4.9	6.4 5.9 5.4 5.0 4.9	5.5 4.6 4.5 4.6 4.3	5.9 5.4 4.9 4.8 4.6
16 17 18 19 20	8.5 8.3 7.9 8.4 8.1	7.6 7.2 7.0 7.7 6.9	8.1 7.7 7.5 8.0 7.6	7.7 7.3 7.0 7.6 7.5	7.3 6.2 5.9 6.7 7.1	7.6 6.9 6.4 7.2 7.3	5.1 4.8 4.9 5.1 5.5	4.2 3.6 4.3 4.5 4.9	4.7 4.3 4.6 4.8 5.2	4.8 4.9 5.0 4.7 5.0	4.3 4.3 4.1 3.5 4.0	4.7 4.6 4.8 4.1 4.6
21 22 23 24 25	7.9 7.9 7.6 6.9 7.1	7.4 7.5 6.8 6.1 6.4	7.6 7.7 7.3 6.6 6.7	7.3 6.9 6.4 6.4	6.8 6.3 5.3 5.7 5.8	7.1 6.8 5.9 6.0 5.9	5.8 5.6 5.6 5.4 5.3	5.0 4.8 4.8 4.6 4.5	5.4 5.2 5.1 5.0 4.9	4.9 4.5 4.8 4.8 4.1	4.4 3.6 4.0 3.3 3.5	4.7 4.1 4.4 3.9 3.7
26 27 28 29 30 31	8.0 7.5 6.8 7.2 7.7 7.4	6.6 6.3 5.5 5.8 6.9 6.7	7.3 6.8 6.2 6.5 7.3 7.0	6.1 6.0 5.6 5.6	5.7 5.5 4.8 4.2 4.8	5.9 5.8 5.3 5.0 5.2	5.3 6.1 5.8 5.7 5.5	4.5 5.1 4.8 4.7 4.7	4.9 5.6 5.5 5.1 5.5	4.4 4.3 4.4 4.5 4.1 4.4	3.4 3.8 3.5 3.9 3.0 4.0	4.0 4.1 4.0 4.2 3.7 4.3
MONTH	10.3	5.5	7.9	8.3	4.2	6.7	6.1	3.2	5.1	6.4	3.0	4.8

12147500 NORTH FORK TOLT RIVER NEAR CARNATION, WA--Continued

		TEMPE	KAIUKE,	WATER (DEC	э. C), WA	AALI AALA	OCTOBER 2	2001 10 2	DEFIEMDER	2002		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1 2	5.0 5.2	4.3	4.7	5.6 5.8	4 0	4.6 4.6	6.5 6.6 7.5 7.9 5.6	4.6	5.5 5.1	8.5 6.5	5 3	6.6 5.9
3 4		4.6	4.7 5.0 4.7 4.8	6.1	4.0	4.9	7.5	4.2	5.5	6.6 5.9	4.5	5.4 5.5
5	5.1	4.4	4.8	6.1 6.6 5.6	4.4	5.2	5.6	4.6	5.2	5.9	3.9	5.4
6	5.2	4.8	5.0	4 9	4 4	4.6	5.4	4.6	5.1	5.7	3.7	4.8
7 8	5.1 4.6	4.0 2.9	4.6 3.9	4.8 4.7	3.5 2.8	4.6 4.4 3.9	5.4 5.6 7.4	4.1 4.1	4.7 5.4	6.5 8.0	4.5 4.9	5.3 6.2
9 10	5.4 5.6	4.3	5.0 4.6 3.9 4.8 4.9	4.8 4.7 5.6 5.4	4.1	4.7 5.0	5.9	4.6 4.3	5.4 4.7	7.3 8.3	5.1 5.5	6.1 6.7
11												7.2
12	5.2	3.8 3.8 4.1	4.4 4.4 4.7 4.9 4.9	4.9 4.4 4.6 4.5 4.5	3.7		5.5 4.9	4.0 4.0 4.4 3.5	4.5	9.8 9.9 6.8 6.6 8.0	5.8	7.5
13 14	5.4 5.6	4.1 4.4	4.7 4.9	4.6 4.5	4.0 3.5	4.3 4.2	4.9 4.8 4.7	4.4 3.5	4.6 4.0	6.8 6.6	5.5 4.9	6.0 5.5
15	5.9	4.3	4.9	4.5	3.2	3.8	4.8		4.4	8.0	4.5	6.0
16 17	6.0 5.7	4.5 4.9	5.2	4.9 4.9 4.3	3.7	4.3	5.6 6.4 6.8 6.8	4.0	4.6 5.3	9.3 8.1	5.0 6.0	6.9 6.8
18	5.6	4.7	5.1	4.3	3.8	4.1	6.8	5.0	5.7	7.7	5.4	6.3
19 20	5.2 5.7	4.7 4.5	5.2 5.3 5.1 5.0 5.0	4.6	2.8	4.0 3.8	6.8	4.8 5.6	5.7 6.0	8.1 6.8	5.8 5.9	6.7 6.3
21	5.2	2.4	4.0	5.9	4.0	4.7	6.2	5.7	5.9	7.0	5.7	6.1
22 23	4.1 4.5	2.4 3.3 4.0	3.7 4.3	6.1 6.2	4.1	4.9 5.2	6.2 5.9 6.9	4.3	5.6 5.1	7.0 6.2 7.7	5.3 5.4	5.8 6.3
24 25	4.7	3.4	4.0 3.7 4.3 4.0 4.0	5.9 6.1 6.2 5.5 6.4	4.8	5.1 5.5	7.8 7.8	4.2	5.8 6.2	9.2 8.0	5.2 6.1	6.9
26 27		3.9 3.9	4.4	5.3	4.5 4.1	4.9 4.7	6.5	5.2 5.5	5.9 6.0	7.9 8.5	6.0	7.0 7.1
28 29	5.7	4.4	4.9	4.7 5.1	4.0	4.2 4.5	8.8 9.3	5.5 5.1	6.8 6.9	7.0 6.7	5.7 5.8	6.5 6.3
30 31				5.9 5.8	4.5 4.7	5.0 5.2	6.5 6.5 8.8 9.3 9.4	5.5	7.1	9.2 8.7	5.9 6.2	7.2 7.3
MONTH	6.0	2.4	4.6	6.6		4.6	9.4	3.5	5.4	9.9	3.7	6.3
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY	MAX	MIN JUNE	MEAN	MAX	MIN JULY	MEAN		MIN AUGUST	MEAN		MIN SEPTEMBE	
DAY 1			MEAN		JULY		12.7	AUGUST	MEAN			
1 2	10.1 10.1	JUNE 6.2 6.3	7.8 7.9	10.0 11.6	JULY 8.1 7.7	8.9	12.7	AUGUST	10.9 10.6	12.0 10.8	SEPTEMBE	10.7 10.4
1 2 3 4	10.1 10.1	JUNE 6.2 6.3	7.8 7.9 7.8 7.5	10.0 11.6 10.1 9.9	JULY 8.1 7.7	8.9	12.7	AUGUST	10.9 10.6 10.2 10.2	12.0 10.8	SEPTEMBE	10.7 10.4 10.7
1 2 3 4 5	10.1 10.1 9.4 8.0 8.6	JUNE 6.2 6.3 6.4 7.0 6.7	7.8 7.9 7.8 7.5 7.4	10.0 11.6 10.1 9.9 12.2	JULY 8.1 7.7 8.4 8.2 7.8	8.9 9.3 9.1 8.9 9.6	12.7 11.6 11.8 11.0 11.4	9.2 9.5 8.8 9.5 9.2	10.9 10.6 10.2 10.2	12.0 10.8 11.7 11.4 11.2	10.3 9.9 10.2 8.7 8.5	10.7 10.4 10.7 10 9.9
1 2 3 4 5	10.1 10.1 9.4 8.0 8.6	JUNE 6.2 6.3 6.4 7.0 6.7	7.8 7.9 7.8 7.5 7.4	10.0 11.6 10.1 9.9 12.2	JULY 8.1 7.7 8.4 8.2 7.8	8.9 9.3 9.1 8.9 9.6	12.7 11.6 11.8 11.0 11.4	9.2 9.5 8.8 9.5 9.2	10.9 10.6 10.2 10.2 10.2	12.0 10.8 11.7 11.4 11.2	SEPTEMBE 10.3 9.9 10.2 8.7 8.5	10.7 10.4 10.7 10 9.9 9.7 9.7
1 2 3 4 5	10.1 10.1 9.4 8.0 8.6	JUNE 6.2 6.3 6.4 7.0 6.7	7.8 7.9 7.8 7.5 7.4	10.0 11.6 10.1 9.9 12.2	JULY 8.1 7.7 8.4 8.2 7.8	8.9 9.3 9.1 8.9 9.6	12.7 11.6 11.8 11.0 11.4	9.2 9.5 8.8 9.5 9.2	10.9 10.6 10.2 10.2	12.0 10.8 11.7 11.4 11.2	SEPTEMBE 10.3 9.9 10.2 8.7 8.5	10.7 10.4 10.7 10 9.9 9.7 9.7
1 2 3 4 5	10.1 10.1 9.4 8.0 8.6	JUNE 6.2 6.3 6.4 7.0 6.7	7.8 7.9 7.8 7.5 7.4	10.0 11.6 10.1 9.9	JULY 8.1 7.7 8.4 8.2 7.8	8.9 9.3 9.1 8.9 9.6	12.7 11.6 11.8 11.0 11.4	9.2 9.5 8.8 9.5 9.2	10.9 10.6 10.2 10.2 10.2 10.2	12.0 10.8 11.7 11.4 11.2	10.3 9.9 10.2 8.7 8.5	10.7 10.4 10.7 10 9.9 9.7 9.7
1 2 3 4 5 6 7 8 9 10	10.1 10.1 9.4 8.0 8.6 7.8 7.5 7.2 10.6 10.7	JUNE 6.2 6.3 6.4 7.0 6.7 6.1 5.8 6.1 6.3 6.9 6.8	7.8 7.9 7.8 7.5 7.4 6.8 6.5 6.6 8.0 8.3	10.0 11.6 10.1 9.9 12.2 12.4 11.1 10.1 13.1 14.1	JULY 8.1 7.7 8.4 8.2 7.8 8.4 9.1 9.3 8.4 9.3	8.9 9.3 9.1 8.9 9.6 10.1 10.0 9.7 10.3 11.3	12.7 11.6 11.8 11.0 11.4 10.8 11.9 12.9 13.4 12.4	9.2 9.5 8.8 9.5 9.2 9.4 8.9 8.8 9.4 10.2	10.9 10.6 10.2 10.2 10.2 10.2 10.1 11.0 11.2 11.3	12.0 10.8 11.7 11.4 11.2 10.8 10.7 10.2 11.7	10.3 9.9 10.2 8.7 8.5 8.4 9.1 8.8 9.3 9.4	10.7 10.4 10.7 10 9.9 9.7 9.7 9.6 10.3 10.6
1 2 3 4 5 6 7 8 9 10	10.1 10.1 9.4 8.0 8.6 7.8 7.5 7.2 10.6 10.7	JUNE 6.2 6.3 6.4 7.0 6.7 6.1 5.8 6.1 6.3 6.9 6.8 7.2 7.6	7.8 7.9 7.8 7.5 7.4 6.8 6.5 6.6 8.0 8.3 8.7 9.0 9.3	10.0 11.6 10.1 9.9 12.2 12.4 11.1 10.1 13.1 14.1 14.1	JULY 8.1 7.7 8.4 8.2 7.8 8.4 9.1 9.3 8.4 9.3 9.9 10.6	8.9 9.3 9.1 8.9 9.6 10.1 10.0 9.7 10.3 11.3	12.7 11.6 11.8 11.0 11.4 10.8 11.9 12.9 13.4 12.4	9.2 9.5 8.8 9.5 9.2 9.4 8.9 8.9 10.2	10.9 10.6 10.2 10.2 10.2 10.2 10.1 11.0 11.2 11.3 11.5	12.0 10.8 11.7 11.4 11.2 10.8 10.7 10.2 11.7 11.7	SEPTEMBE 10.3 9.9 10.2 8.7 8.5 8.4 9.1 8.8 9.3 9.4 9.3	10.7 10.4 10.7 10 9.9 9.7 9.6 10.3 10.6 10.8
1 2 3 4 5 6 7 8 9 10	10.1 10.1 9.4 8.0 8.6 7.8 7.5 10.6 10.7	JUNE 6.2 6.3 6.4 7.0 6.7 6.1 5.8 6.1 6.3 6.9 6.8 7.2	7.8 7.9 7.5 7.4 6.8 6.5 6.6 8.0 8.3 8.7 9.0 9.3 8.9	10.0 11.6 10.1 9.9 12.2 12.4 11.1 10.1 13.1 14.1 14.2 13.2	JULY 8.1 7.7 8.4 8.2 7.8 8.4 9.1 9.3 8.4 9.3 9.9 9.9 10.6 10.2	8.9 9.3 9.1 8.9 9.6 10.1 10.0 9.7 10.3 11.3	12.7 11.6 11.8 11.0 11.4 10.8 11.9 12.9 13.4 12.4 13.3 13.6 13.9 13.6	9.2 9.5 8.8 9.5 9.2 9.4 8.9 8.8 9.4 10.2	10.9 10.6 10.2 10.2 10.2 10.2 10.1 10.6 11.2 11.2	12.0 10.8 11.7 11.4 11.2 10.8 10.7 10.2 11.7 11.7	SEPTEMBE 10.3 9.9 10.2 8.7 8.5 8.4 9.1 8.8 9.3 9.4 9.3 9.6 9.6	10.7 10.4 10.7 10 9.9 9.7 9.7 9.6 10.3 10.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	10.1 10.1 9.4 8.0 8.6 7.5 7.2 10.6 10.7 11.2 11.7 11.7 10.8 11.1	JUNE 6.2 6.3 6.4 7.0 6.7 6.1 5.8 6.1 6.3 6.9 6.8 7.6 7.6	7.8 7.9 7.5 7.4 6.8 6.5 6.6 8.0 8.3 8.7 9.0 9.3 8.9	10.0 11.6 10.1 9.9 12.2 12.4 11.1 10.1 13.1 14.1 14.2 13.2	JULY 8.1 7.7 8.4 8.2 7.8 8.4 9.1 9.3 8.4 9.3 9.9 9.9 10.6 10.2	8.9 9.3 9.1 8.9 9.6 10.1 10.0 9.7 10.3 11.3	12.7 11.6 11.8 11.0 11.4 10.8 11.9 12.9 13.4 12.4 13.3 13.6 13.9 13.6	9.2 9.5 8.8 9.5 9.2 9.4 8.9 8.9 10.2 9.6 9.7 10.1 10.1	10.9 10.6 10.2 10.2 10.2 10.1 10.6 11.2 11.3 11.5 11.5 11.9 11.8	12.0 10.8 11.7 11.4 11.2 10.8 10.7 11.7 11.7 11.7 11.8 11.8 11.7 11.6	SEPTEMBE 10.3 9.9 10.2 8.7 8.5 8.4 9.1 8.8 9.3 9.4 9.3 9.6 9.6	10.7 10.4 10.7 10 9.9 9.7 9.7 9.6 10.3 10.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	10.1 10.1 9.4 8.0 8.6 7.8 7.5 7.2 10.6 10.7 11.2 11.7 10.8 11.1	JUNE 6.2 6.3 6.4 7.0 6.7 6.1 5.8 6.1 6.3 6.9 6.8 7.2 7.6 7.6 7.8	7.8 7.9 7.5 7.4 6.8 6.5 6.6 8.0 8.3 8.7 9.0 9.3 8.9	10.0 11.6 10.1 9.9 12.2 12.4 11.1 10.1 13.1 14.1 14.2 13.2	JULY 8.1 7.7 8.4 8.2 7.8 8.4 9.1 9.3 8.4 9.3 9.9 9.9 10.6 10.2	8.9 9.3 9.1 8.9 9.6 10.1 10.0 9.7 10.3 11.3	12.7 11.6 11.8 11.0 11.4 10.8 11.9 12.9 13.4 12.4 13.3 13.6 13.9 13.6	9.2 9.5 8.8 9.5 9.2 9.4 8.9 8.9 10.2 9.6 9.7 10.1 10.1	10.9 10.6 10.2 10.2 10.2 10.1 10.6 11.2 11.3 11.5 11.5 11.9 11.8	12.0 10.8 11.7 11.4 11.2 10.8 10.7 11.7 11.7 11.7 11.8 11.8 11.7 11.6	SEPTEMBE 10.3 9.9 10.2 8.7 8.5 8.4 9.1 8.8 9.3 9.4 9.3 9.6 9.6 9.7 9.9	10.7 10.4 10.7 10 9.9 9.7 9.7 9.6 10.3 10.6 10.8 10.8 10.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	10.1 10.1 9.4 8.0 8.6 7.8 7.5 7.2 10.6 10.7 11.2 11.7 10.8 11.1	JUNE 6.2 6.3 6.4 7.0 6.7 6.1 5.8 6.1 6.3 6.9 6.8 7.2 7.6 7.6 7.8	7.8 7.9 7.5 7.4 6.8 6.5 6.6 8.0 8.3 8.7 9.0 9.3 8.9	10.0 11.6 10.1 9.9 12.2 12.4 11.1 10.1 13.1 14.1 14.2 13.2	JULY 8.1 7.7 8.4 8.2 7.8 8.4 9.1 9.3 8.4 9.3 9.9 9.9 10.6 10.2	8.9 9.3 9.1 8.9 9.6 10.1 10.0 9.7 10.3 11.3	12.7 11.6 11.8 11.0 11.4 10.8 11.9 12.9 13.4 12.4 13.3 13.6 13.9 13.6	9.2 9.5 8.8 9.5 9.2 9.4 8.9 8.9 10.2 9.6 9.7 10.1 10.1	10.9 10.6 10.2 10.2 10.2 10.1 10.6 11.2 11.3 11.5 11.5 11.9 11.8	12.0 10.8 11.7 11.4 11.2 10.8 10.7 11.7 11.7 11.7 11.8 11.8 11.7 11.6	SEPTEMBE 10.3 9.9 10.2 8.7 8.5 8.4 9.1 8.8 9.3 9.4 9.3 9.6 9.6 9.7 9.9	10.7 10.4 10.7 10 9.9 9.7 9.6 10.3 10.6 10.8 10.8 10.5 10.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	10.1 10.1 9.4 8.0 8.6 7.8 7.2 10.6 10.7 11.2 11.7 10.8 11.1 8.9 8.9 8.1 9.4 12.0	JUNE 6.2 6.3 6.4 7.0 6.7 6.1 5.8 6.1 6.3 6.9 6.8 7.2 7.6 7.5 7.6 7.8 7.6 7.1 7.1	7.8 7.9 7.5 7.4 6.8 6.5 6.6 8.0 8.3 8.7 9.0 9.3 8.9 8.9 8.2 7.8 8.2 7.8 8.2 7.8 8.2 7.8 8.2 7.8 7.8	10.0 11.6 10.1 9.9 12.2 12.4 11.1 10.1 13.1 14.1 14.2 13.2 12.7 13.7 14.1 14.3 14.3 14.3 14.3	JULY 8.1 7.7 8.4 8.2 7.8 8.4 9.1 9.3 8.4 9.3 9.9 9.9 10.6 10.2 9.3 9.6 10.0 10.4 10.6 9.5	8.9 9.3 9.1 8.9 9.6 10.1 10.0 9.7 10.3 11.7 11.7 11.7 11.2 11.6 11.9 11.7 11.3	12.7 11.6 11.8 11.0 11.4 10.8 11.9 12.9 13.4 12.4 13.3 13.6 13.5 13.5 13.5	AUGUST 9.2 9.5 8.8 9.5 9.2 9.4 8.9 8.8 9.4 10.2 9.6 9.7 10.1 9.9 9.8 9.3 9.5 9.9	10.9 10.6 10.2 10.2 10.2 9.9 10.1 10.6 11.2 11.3 11.5 11.9 11.8 11.6	12.0 10.8 11.7 11.4 11.2 10.8 10.7 10.2 11.7 11.7 11.8 11.7 11.6 11.4 11.6 11.1	SEPTEMBE 10.3 9.9 10.2 8.7 8.5 8.4 9.1 8.8 9.3 9.4 9.3 9.6 9.7 9.9 10.0 8.8 9.9 8.7	10.7 10.4 10.7 10 9.9 9.7 9.6 10.3 10.6 10.8 10.8 10.5 10.5 10.7 9.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	10.1 10.1 10.4 8.0 8.6 7.8 7.5 7.2 10.6 10.7 11.2 11.7 11.7 11.7 11.8 11.1 8.9 8.1 9.2 12.0	JUNE 6.2 6.3 6.4 7.0 6.7 6.1 5.8 6.1 6.3 6.9 6.8 7.2 7.6 7.5 7.6 7.8 7.6 7.1 7.1	7.8 7.9 7.5 7.4 6.8 6.5 6.6 8.0 8.3 8.7 9.0 9.3 8.9 8.9 8.2 7.8 8.2 7.8 8.2 7.8 8.2 7.8 8.2 7.8 7.8	10.0 11.6 10.1 9.9 12.2 12.4 11.1 10.1 13.1 14.1 14.2 13.2 12.7 13.7	JULY 8.1 7.7 8.4 8.2 7.8 8.4 9.1 9.3 8.4 9.3 9.9 9.9 10.6 10.2 9.3 9.6 10.0 10.4 10.6 9.5	8.9 9.3 9.1 8.9 9.6 10.1 10.0 9.7 10.3 11.7 11.7 11.7 11.2 11.2 11.6 11.9 11.7 11.3 11.5	12.7 11.6 11.8 11.0 11.4 10.8 11.9 12.9 13.4 12.4 13.3 13.6 13.5 13.5 13.5	AUGUST 9.2 9.5 8.8 9.5 9.2 9.4 8.9 8.8 9.4 10.2 9.6 9.7 10.1 9.9 9.8 9.3 9.5 9.9	10.9 10.6 10.2 10.2 10.2 9.9 10.1 10.6 11.2 11.3 11.5 11.9 11.8 11.6	12.0 10.8 11.7 11.4 11.2 10.8 10.7 10.2 11.7 11.7 11.8 11.7 11.6 11.4 11.6 11.1	SEPTEMBE 10.3 9.9 10.2 8.7 8.5 8.4 9.1 8.8 9.3 9.4 9.3 9.6 9.7 9.9 10.0 8.8 9.9 8.7	10.7 10.4 10.7 10 9.9 9.7 9.6 10.3 10.6 10.8 10.8 10.5 10.5 10.7 9.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	10.1 10.1 10.4 8.0 8.6 7.8 7.5 7.2 10.6 10.7 11.2 11.7 11.7 11.7 11.8 11.1 8.9 8.1 9.2 12.0	JUNE 6.2 6.3 6.4 7.0 6.7 6.1 5.8 6.1 6.3 6.9 6.8 7.2 7.6 7.5 7.6 7.8 7.6 7.1 7.1	7.8 7.9 7.5 7.4 6.8 6.5 6.6 8.0 8.3 8.7 9.0 9.3 8.9 8.9 8.2 7.8 8.2 7.8 8.2 7.8 8.2 7.8 8.2 7.8 7.8	10.0 11.6 10.1 9.9 12.2 12.4 11.1 10.1 13.1 14.1 14.2 13.2 12.7 13.7 14.3 13.6 13.6 12.3 14.1	JULY 8.1 7.7 8.4 8.2 7.8 8.4 9.1 9.3 8.4 9.3 9.9 9.9 10.6 10.2 9.3 9.6 10.0 10.4 10.6 9.5	8.9 9.3 9.1 8.9 9.6 10.1 10.0 9.7 10.3 11.7 11.7 11.7 11.2 11.6 11.9 11.7 11.3 11.5	12.7 11.6 11.8 11.0 11.4 10.8 11.9 12.9 13.4 12.4 13.3 13.6 13.5 13.5 13.5	AUGUST 9.2 9.5 8.8 9.5 9.2 9.4 8.9 8.8 9.4 10.2 9.6 9.7 10.1 9.9 9.8 9.3 9.5 9.9	10.9 10.6 10.2 10.2 10.2 9.9 10.1 10.6 11.2 11.3 11.5 11.9 11.8 11.6	12.0 10.8 11.7 11.4 11.2 10.8 10.7 10.2 11.7 11.7 11.8 11.7 11.6 11.4 11.6 11.1	SEPTEMBE 10.3 9.9 10.2 8.7 8.5 8.4 9.1 8.8 9.3 9.4 9.3 9.6 9.7 9.9 10.0 8.8 9.9 8.7	10.7 10.4 10.7 10 9.9 9.7 9.6 10.3 10.6 10.8 10.8 10.5 10.5 10.7 9.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	10.1 10.1 9.4 8.0 8.6 7.8 7.2 10.6 10.7 11.2 11.7 10.8 11.1 8.9 8.1 9.4 12.0 12.4 12.3 11.1	JUNE 6.2 6.3 6.4 7.0 6.7 6.1 5.8 6.1 6.3 6.9 6.8 7.2 7.6 7.5 7.6 7.8 7.6 7.1 7.1	7.8 7.9 7.5 7.4 6.8 6.5 6.6 8.0 8.3 8.7 9.0 9.3 8.9	10.0 11.6 10.1 9.9 12.2 12.4 11.1 10.1 13.1 14.1 14.2 13.2 12.7 13.7 14.1 14.3 14.3 14.4 14.4 14.5 14.5 14.9 13.2	JULY 8.1 7.7 8.4 8.2 7.8 8.4 9.1 9.3 8.4 9.3 9.9 9.9 10.6 10.2 9.3 9.6 10.0 10.4 10.6 9.5 9.8 10.3 10.6 10.7	8.9 9.3 9.1 8.9 9.6 10.1 10.0 9.7 10.3 11.7 11.7 11.7 11.2 11.2 11.6 11.9 11.7 11.3 11.5	12.7 11.6 11.8 11.0 11.4 10.8 11.9 12.9 13.4 12.4 13.3 13.6 13.5 13.9 12.7 12.4 12.2	AUGUST 9.2 9.5 8.8 9.5 9.2 9.4 8.9 8.9 9.4 10.2 9.6 9.7 10.1 10.1 9.9 9.8 9.3 9.5 9.9 9.6 9.5 9.7 10.0 10.1	10.9 10.6 10.2 10.2 10.2 10.1 10.6 11.2 11.3 11.5 11.9 11.8 11.6 11.4 11.0 11.0 10.5	12.0 10.8 11.7 11.4 11.2 10.8 10.7 10.2 11.7 11.7 11.8 11.7 11.6 11.4 11.6 11.1	SEPTEMBE 10.3 9.9 10.2 8.7 8.5 8.4 9.1 8.8 9.3 9.4 9.3 9.6 9.6 9.7 9.9 10.0 8.8 9.9 8.7	10.7 10.4 10.7 10 9.9 9.7 9.6 10.3 10.6 10.8 10.8 10.5 10.5 10.7 9.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	10.1 10.1 9.4 8.0 8.6 7.8 7.2 10.6 10.7 11.2 11.7 10.8 11.1 8.9 8.9 8.1 9.4 12.0 12.4 12.3 11.1 12.3 13.0	JUNE 6.2 6.3 6.4 7.0 6.7 6.1 5.8 6.1 6.3 6.9 6.8 7.2 7.6 7.5 7.6 7.8 7.6 7.1 7.1 7.8 8.1 8.3 8.5 9.0	7.8 7.9 7.5 7.4 6.8 6.5 6.6 8.0 8.3 8.7 9.0 9.3 8.9 8.9 8.2 7.8 8.9 9.2 9.8 9.9 9.6 10.4	10.0 11.6 10.1 9.9 12.2 12.4 11.1 10.1 13.1 14.1 14.2 13.2 12.7 13.7 14.3 13.6 12.3 14.1 14.4 14.7 14.5 14.9 13.2	JULY 8.1 7.7 8.4 8.2 7.8 8.4 9.1 9.3 8.4 9.3 9.9 9.9 10.6 10.2 9.3 9.6 10.0 10.4 10.6 9.5 9.8 10.3 10.6 10.7 10.8	8.9 9.3 9.1 8.9 9.6 10.1 10.0 9.7 10.3 11.7 11.7 11.7 11.2 11.6 11.9 11.7 11.3 11.5 11.8 12.2 12.4 12.6 11.7 11.7	12.7 11.6 11.8 11.0 11.4 10.8 11.9 12.9 13.4 12.4 13.3 13.6 13.5 13.9 12.7 12.4 12.2	AUGUST 9.2 9.5 8.8 9.5 9.2 9.4 8.9 8.9 9.4 10.2 9.6 9.7 10.1 10.1 9.9 9.8 9.3 9.5 9.9 9.6 9.5 9.7 10.0 10.1	10.9 10.6 10.2 10.2 10.2 10.1 10.6 11.2 11.3 11.5 11.9 11.8 11.6 11.4 11.0 11.0 10.5	12.0 10.8 11.7 11.4 11.2 10.8 10.7 11.7 11.7 11.7 11.8 11.8 11.7 11.6 11.4 11.1 10.9 10.5 10.3 10.4 10.5	SEPTEMBE 10.3 9.9 10.2 8.7 8.5 8.4 9.1 8.8 9.3 9.4 9.3 9.6 9.7 9.9 9.9 10.0 8.8 9.9 8.7 7.9 8.4 8.9 9.2	10.7 10.7 10.7 10 9.9 9.7 9.6 10.3 10.6 10.8 10.8 10.5 10.5 10.7 9.9 10.3 9.7 9.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	10.1 10.1 10.1 9.4 8.0 8.6 7.8 7.5 7.5 7.10.7 11.7 11.7 11.7 11.7 12.1 12.3 11.1 12.3 11.1 12.3 11.1 12.3 13.0	JUNE 6.2 6.3 6.4 7.0 6.7 6.1 5.8 6.1 6.3 6.9 6.8 7.2 7.5 7.6 7.4 7.1 7.8 8.1 8.6 8.3 8.5 9.0	7.8 7.9 7.5 7.4 6.8 6.5 6.6 8.0 8.3 8.7 9.0 9.3 8.9 8.2 7.8 8.0 9.2 9.8 9.9 9.6 10.4	10.0 11.6 10.1 9.9 12.2 12.4 11.1 10.1 13.1 14.1 14.2 13.2 12.7 13.7 14.1 14.3 13.6 12.3 14.1 14.4 14.5 14.9 13.2	JULY 8.1 7.7 8.4 8.2 7.8 8.4 9.1 9.3 9.9 9.9 10.6 10.2 9.3 9.6 10.0 10.4 10.6 9.5 9.8 10.3 10.6 10.7 10.8	8.9 9.3 9.1 8.9 9.6 10.1 10.0 9.7 10.3 11.7 11.7 11.7 11.2 11.2 11.6 11.9 11.7 11.3 11.5 11.8 12.2 12.4 12.6 11.7 11.7	12.7 11.6 11.8 11.0 11.4 10.8 11.9 12.9 13.4 12.4 13.3 13.6 13.5 13.9 12.7 12.4 12.2	AUGUST 9.2 9.5 8.8 9.5 9.2 9.4 8.9 8.9 9.4 10.2 9.6 9.7 10.1 10.1 9.9 9.8 9.3 9.5 9.9 9.6 9.5 9.7 10.0 10.1	10.9 10.6 10.2 10.2 10.2 10.1 10.6 11.2 11.3 11.5 11.9 11.8 11.6 11.4 11.0 11.0 10.5	12.0 10.8 11.7 11.4 11.2 10.8 10.7 11.7 11.7 11.7 11.6 11.8 11.8 11.8 11.8 11.9 10.9 10.5 10.3 10.4 10.5 10.5 10.5 10.5	SEPTEMBE 10.3 9.9 10.2 8.7 8.5 8.4 9.1 8.8 9.3 9.4 9.3 9.6 9.6 9.7 9.9 9.9 10.0 8.8 9.9 7.9 9.9 10.0 8.8 9.9 8.7 8.8 8.9	10.7 10.4 10.7 10 9.9 9.7 9.7 9.6 10.8 10.8 10.8 10.5 10.7 9.9 10.3 9.9 10.9 10.9 10.9 10.7 9.9 10.3 9.7 9.7 9.7 9.7 9.7 9.7 9.7 9.7 9.7 9.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	10.1 10.1 10.1 9.4 8.0 8.6 7.8 7.5 7.5 7.1 10.7 11.7 11.7 10.8 11.1 8.9 8.9 8.1 12.0 12.4 12.3 11.1 12.3 11.1 12.3 11.1 12.3 11.1 12.3 13.0 10.6 10.6 10.6 10.6 10.6 10.6 10.6 10	JUNE 6.2 6.3 6.4 7.0 6.7 6.1 5.8 6.1 6.3 6.9 6.8 7.2 7.6 7.5 7.6 7.8 7.6 7.1 7.1 8.6 8.3 8.5 9.0 9.2 8.7 8.3 8.0	7.8 7.9 7.5 7.4 6.8 6.5 6.6 8.0 8.3 8.7 9.0 9.3 8.9 8.2 7.8 8.2 7.8 9.9 9.6 10 10.4 10.6 9.1 8.6	10.0 11.6 10.1 9.9 12.2 12.4 11.1 10.1 13.1 14.1 14.2 13.2 12.7 13.7 14.1 14.3 12.3 14.1 14.4 14.7 14.5 12.3 12.3 14.1	JULY 8.1 7.7 8.4 8.2 7.8 8.4 9.1 9.3 8.4 9.3 9.9 9.9 10.6 10.2 9.3 9.6 10.0 10.4 10.6 9.5 9.8 10.3 10.6 10.7 10.8 10.6 10.1 9.8 10.0 10.1	8.9 9.3 9.1 8.9 9.6 10.1 10.0 9.7 10.3 11.7 11.7 11.7 11.2 11.2 11.6 11.9 11.7 11.3 11.7 11.0 10.9 10.4 10.7 10.7 10.7 10.8	12.7 11.6 11.8 11.0 11.4 10.8 11.9 12.9 13.4 12.4 13.3 13.6 13.5 13.5 12.9 12.7 12.9 12.7 12.9 12.7 12.9 12.7 12.9 12.7 12.9 12.9 12.9 12.9 12.9 12.9 12.9 12.9	AUGUST 9.2 9.5 8.8 9.5 9.2 9.4 8.9 8.8 9.4 10.2 9.6 9.7 10.1 10.1 9.9 9.8 9.3 9.5 9.7 10.0 10.1 10.1 10.1 10.1 10.1 10.1 10	10.9 10.6 10.2 10.2 10.2 10.1 10.6 11.2 11.3 11.5 11.6 11.6 11.4 11.0 10.5 10.2 10.8 11.3 11.3 11.3	12.0 10.8 11.7 11.4 11.2 10.8 10.7 11.7 11.7 11.7 11.6 11.4 11.6 11.1 10.9 10.5 10.3 10.4 10.5 10.5 10.5 10.3 10.4 10.5 10.5	SEPTEMBE 10.3 9.9 10.2 8.7 8.5 8.4 9.1 8.8 9.3 9.4 9.3 9.6 9.6 9.7 9.9 9.9 10.0 8.8 9.9 8.7 7.9 8.4 8.7 8.8 8.9 9.2 8.7 8.6 9.1 8.7	10.7 10.4 10.7 10 9.9 9.7 9.7 9.6 10.3 10.6 10.8 10.8 10.5 10.5 10.7 9.9 9.7 9.7 9.7 9.7 9.7 9.7 9.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	10.1 10.1 9.4 8.0 8.6 7.8 7.2 10.6 10.7 11.2 11.7 10.8 11.1 8.9 8.9 8.1 9.4 12.0 12.4 12.3 11.1 12.3 11.1 12.3 13.0	JUNE 6.2 6.3 6.4 7.0 6.7 6.1 5.8 6.1 6.3 6.9 6.8 7.2 7.6 7.8 7.6 7.8 7.6 7.1 7.8 8.1 8.3 8.5 9.0 9.2 8.7 8.3 8.0	7.8 7.9 7.5 7.4 6.8 6.5 6.6 8.0 8.3 8.7 9.0 9.3 8.9 8.9 8.2 7.8 8.0 9.2 9.8 9.9 9.6 10.4 10.6 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.8	10.0 11.6 10.1 9.9 12.2 12.4 11.1 10.1 13.1 14.1 14.2 13.2 12.7 13.7 14.3 13.6 12.3 14.1 14.4 14.7 14.5 14.9 13.2	JULY 8.1 7.7 8.4 8.2 7.8 8.4 9.1 9.3 8.4 9.3 9.9 9.9 10.6 10.2 9.3 9.6 10.0 10.4 10.6 9.5 9.8 10.3 10.6 10.7 10.8 10.6 10.1 9.8 10.0 10.0 9.7	8.9 9.3 9.1 8.9 9.6 10.1 10.0 9.7 10.3 11.7 11.7 11.2 11.6 11.9 11.7 11.3 11.5 11.8 12.2 12.6 11.7 11.0 10.0 11.7 11.3 11.7 11.3 11.7 11.3 11.7 11.3 11.7 11.3 11.7 11.3 11.7 11.3 11.7 11.3 11.7 11.3 11.7 11.3 11.7 11.3 11.7 11.3 11.7 11.3 11.7 11.3 11.5	12.7 11.6 11.8 11.0 11.4 10.8 11.9 12.9 13.4 12.4 13.3 13.6 13.5 13.5 12.9 12.7 12.4 12.2 10.9 12.7 12.4 12.2	AUGUST 9.2 9.5 8.8 9.5 9.2 9.4 8.9 8.9 8.9 10.2 9.6 9.7 10.1 10.1 9.9 9.8 9.3 9.5 9.9 9.6 9.5 9.7 10.0 10.1 10.1 9.3 10.0 10.2 10.1 9.4	10.9 10.6 10.2 10.2 10.2 10.1 10.6 11.2 11.3 11.5 11.6 11.4 11.0 11.0 11.0 11.0 10.5	12.0 10.8 11.7 11.4 11.2 10.8 10.7 11.7 11.7 11.7 11.8 11.8 11.7 11.6 11.4 11.1 10.9 10.5 10.3 10.4 10.5 10.5 10.3 10.4	SEPTEMBE 10.3 9.9 10.2 8.7 8.5 8.4 9.1 8.8 9.3 9.4 9.3 9.6 9.7 9.9 9.9 10.0 8.8 9.9 8.7 7.9 8.4 8.7 8.8 8.9 9.2 8.7 8.6 9.1 8.7	10.7 10.4 10.7 10 9.9 9.7 9.6 10.3 10.6 10.8 10.8 10.5 10.5 10.5 10.5 10.7 9.9 10.3 9.6 9.1 9.4 9.6 9.7 9.7 9.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	10.1 10.1 10.1 9.4 8.0 8.6 7.8 7.5 7.5 7.1 10.7 11.7 11.7 10.8 11.1 8.9 8.9 8.1 12.0 12.4 12.3 11.1 12.3 11.1 12.3 11.1 12.3 11.1 12.3 13.0 10.6 10.6 10.6 10.6 10.6 10.6 10.6 10	JUNE 6.2 6.3 6.4 7.0 6.7 6.1 5.8 6.1 6.3 6.9 6.8 7.2 7.6 7.5 7.6 7.8 7.6 7.1 7.1 8.6 8.3 8.5 9.0 9.2 8.7 8.3 8.0	7.8 7.9 7.5 7.4 6.8 6.5 6.6 8.0 8.3 8.7 9.0 9.3 8.9 8.2 7.8 8.2 7.8 9.9 9.6 10 10.4 10.6 9.1 8.6	10.0 11.6 10.1 9.9 12.2 12.4 11.1 10.1 13.1 14.1 14.2 13.2 12.7 13.7 14.3 13.6 12.3 14.1 14.4 14.7 14.5 14.9 13.2	JULY 8.1 7.7 8.4 8.2 7.8 8.4 9.1 9.3 8.4 9.3 9.9 9.9 10.6 10.2 9.3 9.6 10.0 10.4 10.6 9.5 9.8 10.3 10.6 10.7 10.8 10.6 10.1 9.8 10.0 10.1	8.9 9.3 9.1 8.9 9.6 10.1 10.0 9.7 10.3 11.7 11.7 11.7 11.2 11.2 11.6 11.9 11.7 11.3 11.7 11.0 10.9 10.4 10.7 10.7 10.7 10.8	12.7 11.6 11.8 11.0 11.4 10.8 11.9 12.9 13.4 12.4 13.3 13.6 13.5 13.5 12.9 12.7 12.4 12.2 10.9 12.7 12.4 12.2	AUGUST 9.2 9.5 8.8 9.5 9.2 9.4 8.9 8.8 9.4 10.2 9.6 9.7 10.1 10.1 9.9 9.8 9.3 9.5 9.7 10.0 10.1 10.1 10.1 10.1 10.1 10.1 10	10.9 10.6 10.2 10.2 10.2 10.1 10.6 11.2 11.3 11.5 11.6 11.6 11.4 11.0 10.5 10.2 10.8 11.3 11.3 11.3	12.0 10.8 11.7 11.4 11.2 10.8 10.7 11.7 11.7 11.7 11.8 11.8 11.7 11.6 11.4 11.1 10.9 10.5 10.3 10.4 10.5 10.5 10.3 10.4	SEPTEMBE 10.3 9.9 10.2 8.7 8.5 8.4 9.1 8.8 9.3 9.4 9.3 9.6 9.6 9.7 9.9 9.9 10.0 8.8 9.9 8.7 7.9 8.4 8.7 8.8 8.9 9.2 8.7 8.6 9.1 8.7	10.7 10.4 10.7 10 9.9 9.7 9.7 9.6 10.3 10.6 10.8 10.8 10.5 10.5 10.7 9.9 10.3 9.9 10.7 9.9 10.3 10.7 9.9

12147600 SOUTH FORK TOLT RIVER NEAR INDEX, WA

LOCATION.--Lat $47^{\circ}42^{\circ}25^{\circ}$, long $121^{\circ}35^{\circ}56^{\circ}$, in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.25, T.26 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.6 mi upstream from Phelps Creek, 8.1 mi south of Index, and at mile 12.9.

DRAINAGE AREA. -- 5.34 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1959 to December 1963, November 1967 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,850 ft above NGVD of 1929, from topographic map. Prior to Oct. 1, 1961, at datum 0.85 ft higher. Oct. 1, 1961 to Sept. 30, 1992, at datum 1.00 ft higher.

REMARKS.--No estimated daily discharges. Records fair except for those above 900 ft³/s and below 15 ft³/s, which are poor. No regulation or diversion upstream from station. A portion of flow is within the gravel streambed and is unmeasurable. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--37 years (water years 1961-63, 1969-2002), 54.8 ft³/s, 139.49 in/yr, 39,720 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,240 ft³/s Dec. 15, 1999; gage height 4.54 ft Possible result from debris dam break up; maximum gage height, 8.13 ft, present datum, Dec. 14, 1959; minimum discharge, 2.2 ft³/s Oct. 9, 10, 1989, Sept. 9, 10, 1997, Sept. 14-17, 1998.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 550 ft^3/s and maximum (*):

Date		Time	Discharge (ft ³ /s)	Gage height (ft)	Date		Time	Discharge (ft ³ /s)	Gage height (ft)
Nov.	14	0930	924	3.58	Feb.	22	1000	*1,210	*3.84
Dec.	13	0830	799	3.44	Apr.	12	0600	615	3.19
Dec.	16	0930	833	3.48	Apr.	14	0400	825	3.46
Jan.	07	2200	1,190	3.83	Jun.	29	0545	718	3.33

Minimum discharge, 4.6 ft³/s Oct. 5-7.

REVISIONS.--The peak discharges greater than base discharge and annual maximum (*) reported for water years 1999 and 2000 have been revised as shown in the following table. They supersede figures published in WDR WA-99-1 and WDR WA-00-1.

Water Year	1999						
Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 13	1600	914	3.56	Dec. 29	1415	1,390	3.99
Nov. 20	1930	1,060	3.71	Jan. 10	1245	651	3.24
Nov. 25	2145	672	3.27	Jan. 14	1345	*1,550	*4.11
Dec. 27	2130	982	3.63				
Water Year	2000						
Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 8 Dec. 12	0730 0115	1,080 629	3.73 3.21	Dec. 15	1445	(a) *2,240	*4.54

(a) Possible result from debris dam breakup.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	142	43	21	17	23	39	95	99	96	15	5.1
2	5.6	129	57	36	15	20	39	105	101	69	13	8.7
3	5.2	68	29	35	16	19	32	107	98	59	12	22
4	5.0	52	23	37	14	19	38	68	105	50	11	11
5	4.7	72	20	31	13	23	58	56	200	48	12	7.5
5	4.7	72	20	31	13	23	36	50	200	40	12	7.5
6	4.6	44	30	76	17	19	111	45	169	53	19	6.3
7	4.7	32	29	801	24	17	129	36	89	63	17	6.6
8	7.7	25	29	553	19	16	68	32	72	87	13	7.0
9	19	21	32	183	17	15	83	31	64	57	12	7.0
10	58	19	22	77	17	16	168	30	83	67	11	6.4
11	166	17	18	58	17	222	192	33	107	65	11	5.7
12	136	17	33	96	15	113	448	59	140	58	11	5.5
13	144	65	548	68	13	55	529	96	182	55	9.9	5.4
14	153	694	208	44	12	37	497	129	175	44	9.8	5.0
15	65	250	68	34	13	30	127	85	132	34	9.2	4.9
13	0.5	230	00	34	13	30	127	65	132	34	3.2	4.5
16	40	129	621	28	14	25	78	69	103	33	8.6	36
17	38	66	306	24	15	21	57	97	82	34	7.8	25
18	34	43	81	22	24	19	46	94	157	33	7.3	12
19	248	43	52	22	36	19	40	86	103	32	6.9	9.4
20	97	67	38	25	30	18	39	115	86	27	7.7	9.6
21	88	98	31	21	415	16	38	109	111	26	7.2	7.9
22	200	124	25	18	806	16	63	161	112	28	6.7	6.8
23	131	98	22	18	255	16	65	109	94	27	6.5	6.3
24	91	57	20	104	100	17	47	87	78	26	6.5	5.8
25	208	39	18	103	56	21	41	91	87	23	6.5	5.6
23	200	33		103	50			7-	0,	23	0.5	3.0
26	119	34	16	35	39	23	40	103	106	21	6.4	5.5
27	94	30	15	24	31	25	38	123	99	19	5.9	5.3
28	58	26	26	19	27	42	37	285	152	16	5.8	5.0
29	40	30	25	17		34	50	357	368	26	5.8	9.5
30	57	25	20	16		36	73	171	94	23	5.6	13
31	173		21	21		33		120		19	5.3	
TOTAL	2500.5	2556	2526	2667	2087	1025	3310	3184	3648	1318	292.4	276.8
MEAN	80.66	85.20	81.48	86.03	74.54	33.06	110.3	102.7	121.6	42.52	9.432	9.227
MAX	248	694	621	801	806	222	529	357	368	96	19	36
MIN	4.6	17	15	16	12	15	32	30	64	16	5.3	4.9
AC-FT	4960	5070	5010	5290	4140	2030	6570	6320	7240	2610	580	549
CFSM	15.1	16.0	15.3	16.1	14.0	6.19	20.7	19.2	22.8	7.96	1.77	1.73
IN.						7.14	23.06			9.18	2.04	1.73
TIN.	17.42	17.81	17.60	18.58	14.54	/.±4	23.06	22.18	25.41	9.18	∠.∪4	1.93

12147600 SOUTH FORK TOLT RIVER NEAR INDEX, WA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2002, BY WATER YEAR (WY)

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	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	44.45	79.20	75.16	71.75	62.22	46.30	64.51	80.46	68.76	31.86	13.77	24.27
MAX	107	181	165	154	150	93.4	116	140	160	81.3	37.4	56.9
(WY)	1986	1991	1976	1990	1982	1972	1988	1972	1974	1974	1975	1969
MIN	6.24	14.0	20.0	19.8	9.41	18.6	28.6	26.0	13.1	13.3	3.89	3.56
(WY)	1988	1980	1986	1981	1969	1962	1975	1992	1992	1961	1998	1998
SUMMAR	RY STATIS	TICS	FOR	2001 CALEN	NDAR YEAR	F	OR 2002	WATER YE	AR	WATER YEARS	1960	- 2002
ANNUAL	TOTAL			17333.8			25390.	.7				
ANNUAL	MEAN			47.49	9		69.	.56		54.82		
HIGHES	ST ANNUAL	MEAN								77.8		1972
LOWEST	r annual i	MEAN								34.3		2001
HIGHES	ST DAILY I	MEAN		694	Nov 14		806	Feb	22	1160	Nov 2	3 1986
LOWEST	C DAILY M	EAN		4.5	Sep 23		4.	.6 Oct	6	2.2	Sep	9 1997
ANNUAL	SEVEN-D	MUMINIM YA		4.6	Sep 19		5.	.1 Oct	1	2.2	Sep 1	1 1998
	RUNOFF	(AC-FT)		34380			50360			39720		
ANNUAL	RUNOFF	(CFSM)		8.89	€		13.	. 0		10.3		
ANNUAL	RUNOFF	(INCHES)		120.75	5		176.	. 88		139.49		
10 PER	RCENT EXC	EEDS		97			143			115		
	RCENT EXC			28			34			33		
90 PER	RCENT EXC	EEDS		6.7			7.	.1		7.9		

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WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--WATER TEMPERATURE: October 1994 to current year.

INSTRUMENTATION. -- Temperature recorder since October 1994.

REMARKS. -- Records good.

EXTREMES FOR PERIOD OF RECORD.-WATER TEMPERATURE: Maximum, 18.0°C (rounded) July 27-29, 1998; minimum recorded, 0.0°C at times during most winter periods.

EXTREMES FOR CURRENT YEAR.-WATER TEMPERATURE: Maximum, 15.0°C July 24; minimum, 0.0°C Jan. 20, 30, Feb. 8, Mar. 8, 18-20; minimum may also have occurred during period of missing record Jan. 31-Feb. 4.

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER		NC	VEMBER		DE	CEMBER			JANUARY	
1 2 3 4 5	10.7 9.8 9.3 9.4 9.1	9.3 8.5 8.1 8.3 8.0	9.9 9.2 8.7 8.7	5.6 6.2 6.1 6.2 5.8	5.4 5.6 5.4 5.5 4.7	5.5 5.9 5.7 5.9 5.3	3.2 3.6 3.3 2.7 2.5	2.4 3.0 2.5 2.1 1.7	2.9 3.3 3.0 2.5 2.2	2.7 3.0 3.3 3.1 3.1	2.0 2.6 2.8 2.7 2.7	2.4 2.8 3.0 2.9 2.9
6 7 8 9 10	8.7 8.3 8.5 8.5 7.9	7.7 7.3 7.9 7.5 7.1	8.1 7.8 8.1 8.0 7.4	5.0 4.7 5.2 5.1 6.1	4.4 4.2 4.1 4.4 4.8	4.7 4.5 4.6 4.7 5.5	2.5 3.0 3.5 3.1 2.8	1.3 2.5 2.1 2.3 2.2	1.9 2.9 3.1 2.9 2.6	3.7 3.7 3.5 3.4 3.5	2.9 2.9 3.1 3.1 3.2	3.2 3.3 3.4 3.3 3.3
11 12 13 14 15	7.5 7.5 7.4 7.9 7.7	7.0 6.8 7.0 7.0 6.9	7.1 7.1 7.2 7.4 7.3	6.1 6.3 6.2 6.9	5.4 5.8 5.8 6.1 6.2	5.7 6.0 6.0 6.7 6.6	2.8 2.7 3.0 2.7 2.4	2.2 2.2 1.5 1.4 1.8	2.6 2.4 2.2 2.2 2.2	4.0 3.5 3.1 2.6 2.5	3.3 1.9 2.3 2.2 1.8	3.7 2.9 2.7 2.4 2.2
16 17 18 19 20	7.5 7.1 6.8 7.2 6.9	6.7 6.2 6.0 6.7 6.0	7.2 6.7 6.5 7.0 6.5	6.3 5.8 5.2 5.5 5.7	5.8 4.8 4.5 4.8 5.4	6.1 5.2 4.8 5.2 5.6	3.0 2.8 2.1 2.2 2.6	2.2 2.1 1.0 1.2 2.0	2.6 2.5 1.8 2.0 2.3	2.3 2.1 2.3 1.5	1.5 1.5 0.7 0.3	2.0 1.8 1.9 0.8 1.1
21 22 23 24 25	6.7 6.8 6.3 5.6 5.6	6.2 6.3 5.4 4.7 5.2	6.4 6.5 5.8 5.2 5.4	5.6 5.2 4.3 4.4 4.1	5.2 4.0 2.7 3.9 3.4	5.4 4.9 3.8 4.1 3.9	2.9 2.3 2.1 1.8 1.5	2.3 1.8 1.7 1.4	2.5 2.0 1.9 1.6 1.3	1.9 1.5 1.3 1.9 2.3	1.3 0.1 0.7 1.1	1.7 0.8 1.0 1.4 1.9
26 27 28 29 30 31	6.3 5.9 4.8 5.3 5.9	5.5 4.6 4.2 4.2 5.2 5.2	5.9 5.2 4.5 4.8 5.5 5.4	3.9 4.0 3.4 2.6 2.8	3.4 3.4 0.6 1.5 2.3	3.7 3.7 1.8 2.1 2.6	1.5 2.1 2.2 2.3 2.2 2.7	0.9 1.4 1.1 1.5 1.9 2.0	1.3 1.7 1.8 1.9 2.0 2.3	1.9 1.4 1.2 1.1	1.3 1.1 0.7 0.5 0.0	1.6 1.3 0.9 0.9
MONTH	10.7	4.2	6.9	6.9	0.6	4.9	3.6	0.9	2.3	4.0	0.0	2.2

12147600 SOUTH FORK TOLT RIVER NEAR INDEX, WA--Continued

DAY	MAX		MEAN	MAX							MIN	MEAN
DAI		MIN FEBRUARY		MAX		MEAN	MAX	APRIL	MEAN	MAX	MAY	MEAN
1				2 4	0.8	1 4	3 7		2.6	6 1		4.3
2				2.4 2.2 2.5 3.0	0.9	1.5	3.7	1.6	2.4	6.1 3.8 3.8 3.2	2.6	3.5
4 5	2.0	1.4	1.7	2.5 3.0 2.4	1.4	2.1	3.7 3.7 4.5 4.7 3.1	2.0	2.6 2.4 2.7 3.0 2.7	3.2 3.1	2.7	2.9
7	2.5	1.6 0.8 0.0 1.6	2.0	1.8 1.2 0.4 1.6 1.5	0.1	1.5 0.9 0.2 1.0	2.7 2.9 4.4 3.2 3.1	1.9	2.5 2.4 3.0 2.8 2.6	3.0 3.4 4.9 4.5 5.9	1.8	2.4
8 9	1.7	0.0 1.6 1.1	2.0	1.6	0.4	1.0	3.2	2.4	2.8	4.5	2.4	3.3
10	2.0		1.,			1.2						
	1.9 2.0	0.4 1.1 1.1 1.5 1.8	1.4 1.5 1.6 1.8 2.1	1.7 1.9 2.1 2.1	1.2	1.5	3.3 2.8 3.1 3.0 2.4	2.3	2.8 2.5 2.9 2.1 2.0	7.2 7.0 4.2 4.1 5.3	2.8 3.8 3.3 3.0 2.6	4.6 5.0
13 14	2.1	1.1 1.5	1.6 1.8	2.1 2.1	1.2 0.8	1.5 1.5	3.1 3.0	2.6 1.8	2.9 2.1	4.2 4.1	3.3 3.0	3.7 3.4
15												
16 17	2.9	1.8 2.1	2.3 2.4 2.5 2.5 2.4	1.9 1.6 1.1 0.9	1.0	1.3 1.1 0.7 0.3	3.1 3.5 4.0 4.9 3.6	1.5 1.9	2.1	6.6 5.8	2.8 3.6 3.2 3.5 3.4	4.5
18 19	3.0 2.7	2.2 2.3 2.1	2.5	1.1	0.0	0.7	4.0	2.4	3.0	4.6	3.2	3.9 4.3
20												3.9
21 22	2.4	0.9 1.4 1.9 1.0	1.8	1.5 2.7 3.0 2.1 3.3	0.1	0.8	3.3 3.2 4.1 5.0 5.0	2.8	3.0	4.0 3.8 5.3 6.4 5.2	3.3 3.3 3.2 3.0 3.7	3.5 3.5
2.2	2.5	1.9	2.4	3.0	1.3	2.0	4.1	1.4	3.0 2.7 2.6 3.2 3.6	5.3	3.2	3.9
24 25	2.2	0.7	1.0	3.3	1.8	2.3	5.0	2.4	3.6	5.2	3.7	4.5 4.3
26	1.8	0.7 1.0 1.4	1.2 1.5	2.6	0.8	2.0	4.0	2.7	3.3	5.0 5.7 4.5 4.4 6.1 5.9	3.7	4.3
27 28	2.1	1.0	1.9	2.4	1.4	1.6	3.8 6.4	2.9	3.3 4.1	4.5	3.7	4.4
29 30				2.6 2.4 2.2 2.4 3.5	1.7 2.0	2.1 2.5	4.0 3.8 6.4 6.6	2.8 3.1	4.4 4.5	4.4 6.1	3.8 3.5	4.1 4.6
31				2.8	2.1	2.4				5.9	3.8	4.7
MONTH	3.0	0.0	1.9	3.5	0.0	1.5	6.6	1.4	2.9	7.2	0.7	3.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			MIN SEPTEMBE	
DAY 1		JUNE			JULY			AUGUST		11.9 11.7	SEPTEMBE 11.3 10.9	11.6 11.3
DAY 1 2 3	7.2 7.4 6.7	JUNE 3.7 3.8 3.8	5.2 5.3 5.2	7.9 9.5 7.8	JULY 6.3 5.9 7.0	6.9 7.4 7.3	12.6 11.5 11.7	AUGUST 9.1 9.8 8.7	10.8 10.6 10.2	11.9 11.7	SEPTEMBE 11.3 10.9	11.6 11.3
DAY 1 2	7.2 7.4 6.7 5.4 5.5	JUNE 3.7 3.8 3.8 4.4 4.2	5.2 5.3 5.2 4.8 4.8	7.9 9.5 7.8 7.7 9.9	JULY 6.3 5.9 7.0 6.5 6.1	6.9 7.4 7.3 7.0 7.8	12.6 11.5 11.7 11.0 10.6	9.1 9.8 8.7 9.7 9.2	10.8 10.6 10.2 10.2 9.9	11.9 11.7 11.5 10.5	11.3 10.9 9.7 8.6 8.3	11.6 11.3 10.7 9.5 9.3
DAY 1 2 3 4 5	7.2 7.4 6.7 5.4 5.5	JUNE 3.7 3.8 3.8 4.4 4.2	5.2 5.3 5.2 4.8 4.8	7.9 9.5 7.8 7.7 9.9	JULY 6.3 5.9 7.0 6.5 6.1	6.9 7.4 7.3 7.0 7.8	12.6 11.5 11.7 11.0 10.6	9.1 9.8 8.7 9.7 9.2	10.8 10.6 10.2 10.2 9.9	11.9 11.7 11.5 10.5	11.3 10.9 9.7 8.6 8.3	11.6 11.3 10.7 9.5 9.3
DAY 1 2 3 4 5 6 7 8	7.2 7.4 6.7 5.4 5.5 4.9 4.5 4.5	JUNE 3.7 3.8 3.8 4.4 4.2	5.2 5.3 5.2 4.8 4.8	7.9 9.5 7.8 7.7 9.9	JULY 6.3 5.9 7.0 6.5 6.1	6.9 7.4 7.3 7.0 7.8	12.6 11.5 11.7 11.0 10.6	9.1 9.8 8.7 9.7 9.2	10.8 10.6 10.2 10.2 9.9	11.9 11.7 11.5 10.5	11.3 10.9 9.7 8.6 8.3	11.6 11.3 10.7 9.5 9.3
DAY 1 2 3 4 5	7.2 7.4 6.7 5.4 5.5 4.9 4.5 4.5	JUNE 3.7 3.8 3.8 4.4 4.2	5.2 5.3 5.2	7.9 9.5 7.8 7.7 9.9	JULY 6.3 5.9 7.0 6.5 6.1	6.9 7.4 7.3 7.0 7.8	12.6 11.5 11.7 11.0 10.6	9.1 9.8 8.7 9.7 9.2	10.8 10.6 10.2 10.2 9.9	11.9 11.7 11.5 10.5	11.3 10.9 9.7 8.6 8.3	11.6 11.3 10.7 9.5 9.3
DAY 1 2 3 4 5 6 7 8 9 10	7.2 7.4 6.7 5.4 5.5 4.9 4.5 7.8 8.2	JUNE 3.7 3.8 3.8 4.4 4.2 3.7 3.3 3.5 3.9 4.5	5.2 5.3 5.2 4.8 4.8 4.2 3.9 4.0 5.6 6.0	7.9 9.5 7.8 7.7 9.9 10.6 10.0 8.9 11.2 12.3	JULY 6.3 5.9 7.0 6.5 6.1 7.0 7.9 7.5 7.1 8.8	6.9 7.4 7.3 7.0 7.8 8.6 8.8 8.0 9.0	12.6 11.5 11.7 11.0 10.6 9.7 11.0 12.6 13.5 13.1	9.1 9.8 8.7 9.7 9.2 9.1 8.4 8.6 9.1 10.7	10.8 10.6 10.2 10.2 9.9 9.4 9.5 10.3 11.1 11.6	11.9 11.7 11.5 10.5 10.6 10.7 9.9 9.9 11.4 12.0	SEPTEMBE 11.3 10.9 9.7 8.6 8.3 8.1 8.9 9.4 9.5	11.6 11.3 10.7 9.5 9.3 9.2 9.3 9.3 10.1 10.6
DAY 1 2 3 4 5 6 7 8 9 10 11 12 13	7.2 7.4 6.7 5.5 4.5 4.5 7.8 8.5 8.5 8.5	JUNE 3.7 3.8 3.8 4.4 4.2 3.7 3.3 3.5 4.5 4.5	5.2 5.3 5.2 4.8 4.8 4.2 3.9 4.0 5.6 6.0	7.9 9.5 7.8 7.7 9.9 10.6 10.0 8.9 11.2 12.3	JULY 6.3 5.9 7.0 6.5 6.1 7.0 7.9 7.5 7.1 8.8 8.8 9.0 10.0	6.9 7.4 7.3 7.0 7.8 8.6 8.8 8.0 9.0 10.4 10.4 10.7 10.9	12.6 11.5 11.7 11.0 10.6 9.7 11.0 12.6 13.5 13.1	9.1 9.8 8.7 9.7 9.2 9.1 8.4 8.6 9.1 10.7 9.9 10.2	10.8 10.6 10.2 10.2 9.9 9.4 9.5 10.3 11.1 11.6	11.9 11.7 11.5 10.5 10.6 10.7 9.9 9.9 11.4 12.0	11.3 10.9 9.7 8.6 8.3 8.1 8.9 8.6 9.4 9.5 9.5	11.6 11.3 10.7 9.5 9.3 9.2 9.3 9.3 10.1 10.6 10.8 11.1
DAY 1 2 3 4 5 6 7 8 9 10 11 12	7.2 7.4 6.7 5.4 5.5 4.9 4.5 7.8 8.2 8.5	JUNE 3.7 3.8 4.4 4.2 3.7 3.3 3.5 4.5 4.5	5.2 5.3 5.2 4.8 4.8 4.2 3.9 4.0 5.6 6.0	7.9 9.5 7.8 7.7 9.9 10.6 10.0 8.9 11.2 12.3	JULY 6.3 5.9 7.0 6.5 6.1 7.0 7.9 7.5 7.1 8.8	6.9 7.4 7.3 7.0 7.8 8.6 8.8 8.0 9.0 10.4	12.6 11.5 11.7 11.0 10.6 9.7 11.0 12.6 13.5 13.1	9.1 9.8 8.7 9.7 9.2 9.1 8.4 8.6 9.1 10.7	10.8 10.6 10.2 10.2 9.9 9.4 9.5 10.3 11.1 11.6	11.9 11.7 11.5 10.5 10.6 10.7 9.9 9.9 11.4 12.0	\$\$\text{SEPTEMBE}\$\$11.3\$\$10.9\$\$9.7\$\$8.6\$\$8.3\$\$8.1\$\$8.9\$\$8.6\$\$9.4\$\$9.5\$\$9.8\$\$10.0\$\$\$10.0\$\$\$\$	11.6 11.3 10.7 9.5 9.3 9.2 9.3 9.3 10.1 10.6
DAY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	7.2 7.4 6.7 5.4 5.5 4.5 7.8 8.2 8.5 8.5 8.5 8.6 6.1	JUNE 3.7 3.8 4.4 4.2 3.7 3.3 3.5 3.9 4.5 4.8 5.3 5.1	5.2 5.3 5.2 4.8 4.8 4.2 3.9 4.0 5.6 6.0 6.1 6.3 6.5 5.8	7.9 9.5 7.8 7.7 9.9 10.6 10.0 8.9 11.2 12.3 12.4 12.7 12.3 11.7 12.6	JULY 6.3 5.9 7.0 6.5 6.1 7.0 7.9 7.5 7.1 8.8 8.8 9.0 10.0 9.5 8.6	6.9 7.4 7.3 7.0 7.8 8.6 8.8 8.0 9.0 10.4 10.7 10.9 10.3 10.4	12.6 11.5 11.7 11.0 10.6 9.7 11.0 12.6 13.5 13.1 13.7 14.2 14.9 14.6 14.4	9.1 9.8 8.7 9.2 9.1 8.4 8.6 9.1 10.7 9.9 10.2 10.9	10.8 10.6 10.2 10.2 9.9 9.4 9.5 10.3 11.1 11.6 11.5 11.9 12.6 12.5 12.4	11.9 11.7 11.5 10.5 10.6 10.7 9.9 9.9 11.4 12.0 12.2 12.4 12.3 12.5 11.6	11.3 10.9 9.7 8.6 8.3 8.1 8.9 9.5 9.8 10.0 10.1 10.3 10.8	11.6 11.3 10.7 9.5 9.3 9.2 9.3 10.1 10.6
DAY 1 2 3 4 5 5 6 7 8 9 10 11 12 13 14 15	7.2 7.4 6.7 5.5 4.5 4.5 7.8 8.2 8.5 8.5 8.4 8.6	JUNE 3.7 3.8 4.4 4.2 3.7 3.3 3.5 4.5 4.5 4.5 5.3 5.1 5.2	5.2 5.3 5.2 4.8 4.8 4.2 3.9 4.0 5.6 6.0 6.1 6.3 6.5 6.4 6.5	7.9 9.5 7.8 7.7 9.9 10.6 10.0 8.9 11.2 12.3 12.4 12.7 12.3 11.7	JULY 6.3 5.9 7.0 6.5 6.1 7.0 7.9 7.5 7.1 8.8 8.8 9.0 10.0 9.5 8.6	6.9 7.4 7.3 7.0 7.8 8.6 8.8 8.0 9.0 10.4 10.4 10.7 10.9 10.3	12.6 11.5 11.7 11.0 10.6 9.7 11.0 12.6 13.5 13.1 13.7 14.2 14.9 14.6 14.4	9.1 9.8 8.7 9.2 9.1 8.4 8.6 9.1 10.7 9.9 10.2 10.9 11.0	10.8 10.6 10.2 10.2 9.9 9.4 9.5 10.3 11.1 11.6 11.5 11.9 12.6 12.5	11.9 11.7 11.5 10.6 10.7 9.9 9.9 11.4 12.0 12.2 12.4 12.3 12.5 11.6	11.3 10.9 9.7 8.6 8.3 8.1 8.9 8.6 9.4 9.5 9.8 10.0 10.1 10.3 10.8	11.6 11.3 10.7 9.5 9.3 9.3 10.1 10.6 10.8 11.1 11.1 11.3
DAY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	7.2 7.4 6.7 5.4 5.5 4.5 4.5 4.5 8.2 8.5 8.5 8.4 8.6 6.1 6.7	JUNE 3.7 3.8 4.4 4.2 3.7 3.3 3.5 3.9 4.5 4.5 4.8 5.1 5.2 5.5 5.4 5.1	5.2 5.3 5.2 4.8 4.8 4.2 3.9 4.0 6.0 6.1 6.3 6.5 6.5 5.8	7.9 9.5 7.8 7.7 9.9 10.6 10.0 8.9 11.2 12.3 12.4 12.7 12.3 11.7 12.6	JULY 6.3 5.9 7.0 6.5 6.1 7.0 7.9 7.5 7.1 8.8 8.8 9.0 10.0 9.5 8.6 9.2 9.7 10.3 10.2	6.9 7.4 7.3 7.0 7.8 8.6 8.8 8.0 9.0 10.4 10.7 10.9 10.3 10.4 11.0 11.3 11.5 10.9	12.6 11.5 11.7 11.0 10.6 9.7 11.0 12.6 13.5 13.1 13.7 14.2 14.9 14.6 14.4	9.1 9.8 8.7 9.2 9.1 8.4 8.6 9.1 10.7 9.9 10.2 11.0 10.7 10.7	10.8 10.6 10.2 10.2 9.9 9.4 9.5 10.3 11.1 11.6 11.5 11.9 12.6 12.5 12.4	11.9 11.7 11.5 10.5 10.6 10.7 9.9 9.9 11.4 12.0 12.2 12.4 12.3 12.5 11.6	11.3 10.9 9.7 8.6 8.3 8.1 8.9 8.6 9.4 9.5 9.8 10.0 10.1 10.3 10.8	11.6 11.3 10.7 9.5 9.3 9.2 9.3 10.1 10.6 10.8 11.1 11.1 11.3 9.5
DAY 1 2 3 4 5 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	7.2 7.4 6.7 5.5 4.9 4.5 4.5 4.5 8.2 8.5 8.5 8.4 6.1 6.7 9.4	JUNE 3.7 3.8 4.4 4.2 3.7 3.3 3.5 4.5 4.5 4.5 5.1 5.2 5.5 5.4 5.1 5.0 5.3	5.2 5.3 5.2 4.8 4.8 4.2 3.9 4.0 6.0 6.1 6.5 6.4 5.5 6.4 5.5 7.7	7.9 9.5 7.8 7.7 9.9 10.6 10.0 8.9 11.2 12.3 12.4 12.7 12.3 11.7 12.6 13.2 13.3 13.3 11.4 13.5	JULY 6.3 5.9 7.0 6.5 6.1 7.0 7.9 7.5 7.1 8.8 8.8 9.0 10.0 9.5 8.6 9.2 9.7 10.3 10.2 9.2	6.9 7.4 7.3 7.0 7.8 8.6 8.8 8.0 9.0 10.4 10.7 10.9 10.3 11.0 11.3 11.5 10.9 11.1	12.6 11.5 11.7 11.0 10.6 9.7 11.0 12.6 13.5 13.1 13.7 14.2 14.9 14.6 14.4	9.1 9.8 8.7 9.7 9.2 9.1 8.4 8.6 9.1 10.7 9.9 10.2 10.9 11.0,7 10.7	10.8 10.6 10.2 10.2 9.9 9.4 9.5 10.3 11.1 11.6 11.5 11.9 12.6 12.5 12.4 12.4 12.4 12.0 11.7 11.8	11.9 11.7 11.5 10.5 10.6 10.7 9.9 9.9 11.4 12.0 12.2 12.4 12.3 12.5 11.6	11.3 10.9 9.7 8.6 8.3 8.1 8.9 8.6 9.4 9.5 9.8 10.0 10.1 10.3 10.8 9.6 8.8 7.9 9.3	11.6 11.3 10.7 9.5 9.3 9.2 9.3 9.3 10.1 10.6 10.8 11.1 11.3 11.1 10.3 9.5 9.8
DAY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	7.2 7.4 6.7 5.5 4.5 7.8 8.2 8.5 8.5 8.5 8.6 6.1 6.7 6.0 9.9	JUNE 3.7 3.8 4.4 4.2 3.7 3.3 3.5 3.9 4.5 4.8 5.3 5.1 5.2 5.5 5.4 5.0 5.3 5.8 5.9	5.2 5.3 5.2 4.8 4.8 4.2 3.9 4.0 6.0 6.1 6.3 6.5 6.4 6.5 5.7 7.0 7.5	7.9 9.5 7.8 7.7 9.9 10.6 10.0 8.9 11.2 12.3 12.4 12.7 12.3 11.7 12.6 13.2 13.3 13.3 13.3 13.4 13.5	JULY 6.3 5.9 7.0 6.5 6.1 7.0 7.9 7.5 7.1 8.8 8.8 9.0 10.0 9.5 8.6 9.2 9.7 10.3 10.2 9.2	6.9 7.4 7.3 7.0 7.8 8.6 8.8 8.0 9.0 10.4 10.7 10.9 10.3 11.5 10.9 11.1	12.6 11.5 11.7 11.0 10.6 9.7 11.0 12.6 13.5 13.1 13.7 14.2 14.9 14.6 14.4 14.3 13.9 13.5 13.1	9.1 9.8 8.7 9.7 9.2 9.1 8.4 8.6 9.1 10.7 9.9 10.2 10.9 11.0 10.7	10.8 10.6 10.2 10.2 9.9 9.4 9.5 10.3 11.1 11.6 11.5 11.9 12.6 12.5 12.4 12.4 12.0 11.7 11.8 11.2	11.9 11.7 11.5 10.5 10.6 10.7 9.9 9.1.4 12.0 12.2 12.4 12.3 12.5 11.6 10.8 10.2 10.2 10.3 10.0	SEPTEMBE 11.3 10.9 9.7 8.6 8.3 8.1 8.9 8.6 9.4 9.5 9.8 10.0 10.1 10.3 10.8 9.6 8.8 7.9 9.3 8.2 7.5 8.2	11.6 11.3 10.7 9.5 9.3 9.2 9.3 10.1 10.6 10.8 11.1 11.1 11.3 11.1 10.3 9.5 9.1 8.5 9.0
DAY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	7.2 7.4 6.7 5.4 5.5 4.5 7.8 8.2 8.5 8.5 8.5 8.6 6.7 6.7 9.4 9.9 9.9 9.9 7.9 9.7	JUNE 3.7 3.8 4.4 4.2 3.7 3.3 3.5 3.9 4.5 4.5 4.5 5.1 5.2 5.5 5.1 5.0 5.3 5.8 6.4	5.2 5.3 5.2 4.8 4.8 4.2 3.9 4.0 5.6 6.0 6.1 6.5 5.7 7.0 7.5 7.7 7.1	7.9 9.5 7.8 7.7 9.9 10.6 10.0 8.9 11.2 12.3 12.4 12.7 12.6 13.2 13.3 11.7 12.6 13.2 13.3 11.4 13.5	JULY 6.3 5.9 7.0 6.5 6.1 7.0 7.9 7.5 7.1 8.8 8.8 9.0 10.0 9.5 8.6 9.2 9.7 10.3 10.2 9.2 9.8 10.7 11.1	6.9 7.4 7.3 7.0 7.8 8.6 8.8 8.0 9.0 10.4 10.7 10.9 10.3 10.4 11.0 11.3 11.5 11.5 12.3 12.5 12.8	12.6 11.5 11.7 11.0 10.6 9.7 11.0 12.6 13.5 13.1 13.7 14.2 14.9 14.6 14.4 14.3 13.9 13.5 13.1	9.1 9.8 8.7 9.2 9.1 8.4 8.6 9.1 10.7 9.9 10.9 11.0 10.7 10.9 10.7 10.7 10.7 10.7 10.7	10.8 10.6 10.2 10.2 9.9 9.4 9.5 10.3 11.1 11.6 11.5 11.9 12.6 12.5 12.4 12.0 11.7 11.8 11.2	11.9 11.7 11.5 10.5 10.6 10.7 9.9 9.9 11.4 12.0 12.2 12.4 12.3 12.5 11.6 10.8 10.2 10.3 10.0 9.8 10.1	SEPTEMBE 11.3 10.9 9.7 8.6 8.3 8.1 8.9 8.6 9.4 9.5 9.8 10.0 10.1 10.3 10.8 9.6 8.8 7.9 9.3 8.2 7.5 8.2 8.3 8.4	11.6 11.3 10.7 9.5 9.3 9.2 9.3 10.1 10.6 10.8 11.1 11.3 11.1 10.3 9.5 9.8 9.1
DAY 1 2 3 4 5 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	7.2 7.4 6.7 5.4 5.5 4.5 4.5 4.5 8.5 8.5 8.5 8.6 6.1 6.7 6.0 6.7 9.9 9.9 9.7 10.7	JUNE 3.7 3.8 4.4 4.2 3.7 3.3 3.5 4.5 4.5 4.5 5.1 5.2 5.4 5.1 5.0 5.3 5.8 6.5 6.4 6.5	5.2 5.3 5.2 4.8 4.8 4.2 3.9 4.0 6.0 6.1 6.3 6.5 6.4 6.5 5.5 7.7 7.1 7.7 7.1 7.9 8.4	7.9 9.5 7.8 7.7 9.9 10.6 10.0 8.9 11.2 12.3 12.4 12.7 12.3 11.7 12.6 13.2 13.3 13.3 13.3 14.0 14.6 14.5 15.0 14.6	JULY 6.3 5.9 7.0 6.5 6.1 7.0 7.9 7.5 7.1 8.8 8.8 9.0 10.0 9.5 8.6 9.2 9.7 10.3 10.2 9.2 9.8 10.7 11.1 11.2	6.9 7.4 7.3 7.0 7.8 8.6 8.8 8.0 10.4 10.7 10.9 10.3 10.4 11.0 11.3 11.5 10.9 11.1 11.7 12.3 12.5 12.8 12.7	12.6 11.5 11.7 11.0 10.6 9.7 11.0 12.6 13.5 13.1 13.7 14.2 14.9 14.6 14.4 14.3 13.9 13.5 13.3 12.1	9.1 9.8 8.7 9.7 9.2 9.1 8.4 8.6 9.1 10.7 9.9 11.0 10.7 10.9 10.7 10.1 10.4 10.7	10.8 10.6 10.2 10.2 9.9 9.4 9.5 10.3 11.1 11.6 11.5 11.9 12.6 12.5 12.4 12.4 12.0 11.7 11.8 11.2	11.9 11.7 11.5 10.5 10.6 10.7 9.9 9.9 11.4 12.0 12.2 12.4 12.3 10.6 10.8 10.2 10.2 10.3 10.0	11.3 10.9 9.7 8.6 8.3 8.1 8.9 8.6 9.4 9.5 9.8 10.0 10.1 10.3 10.8 9.6 8.8 7.9 9.3 8.2 8.3	11.6 11.3 10.7 9.5 9.3 9.2 9.3 10.1 10.6 10.8 11.1 11.1 11.3 11.1 10.3 9.5 9.8 9.1
DAY 1 2 3 4 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	7.2 7.4 6.7 5.5 4.5 7.8 8.2 8.5 8.5 8.5 8.6 6.1 6.7 6.0 9.9 7.9 9.9 7.9 7.0 7	JUNE 3.7 3.8 4.4 4.2 3.7 3.3 3.5 4.5 4.5 4.8 5.1 5.2 5.4 5.1 5.3 5.9 6.5 6.5 7.3	5.2 5.3 5.2 4.8 4.8 4.2 3.9 4.0 6.0 6.1 6.3 6.5 5.5 7.7 7.7 7.1 7.7 7.7 7.7 7.7 7.7 7.7 7.7	7.9 9.5 7.8 7.7 9.9 10.6 10.0 8.9 11.2 12.3 12.4 12.7 12.3 11.7 12.6 13.2 13.3 11.4 13.5 14.6 14.5 15.0 14.6	JULY 6.3 5.9 7.0 6.5 6.1 7.0 7.9 7.5 7.1 8.8 8.8 9.0 10.0 9.5 8.6 9.2 9.7 10.3 10.2 9.2 9.8 10.7 11.1 11.2 11.4	6.9 7.4 7.3 7.0 7.8 8.6 8.8 8.0 9.0 10.4 10.7 10.9 10.3 10.4 11.0 11.3 11.5 10.9 11.1 11.7 12.3 12.5 12.8 12.7	12.6 11.5 11.7 11.0 10.6 9.7 11.0 12.6 13.5 13.1 13.7 14.2 14.9 14.6 14.4 14.3 13.9 13.5 13.3 12.1	9.1 9.8 8.7 9.7 9.2 9.1 8.4 8.6 9.1 10.7 9.9 10.2 10.9 11.0 10.7 10.1 10.4 10.7	10.8 10.6 10.2 10.2 9.9 9.4 9.5 10.3 11.1 11.6 11.5 11.9 12.6 12.5 12.4 12.0 11.7 11.8 11.2	11.9 11.7 11.5 10.5 10.6 10.7 9.9 9.1.4 12.0 12.2 12.4 12.3 12.5 11.6 10.8 10.2 10.2 10.3 10.0	SEPTEMBE 11.3 10.9 9.7 8.6 8.3 8.1 8.9 8.6 9.4 9.5 9.8 10.0 10.1 10.3 10.8 7.9 9.6 8.8 7.9 9.3 8.2 7.5 8.2 8.3 8.4 8.5	11.6 11.3 10.7 9.5 9.3 9.2 9.3 10.1 10.6 10.8 11.1 11.3 11.1 10.3 9.5
DAY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	7.2 7.4 6.7 5.4 5.5 4.9 4.5 7.8 8.2 8.5 8.5 8.5 8.6 6.1 6.7 9.4 9.9 9.9 9.7 10.7	JUNE 3.7 3.8 4.4 4.2 3.7 3.35 3.9 4.5 4.5 4.5 5.1 5.2 5.54 5.1 5.0 5.3 5.8 6.4 6.5 7.3 6.4 6.4	5.2 5.3 5.3 4.8 4.2 3.9 4.6 6.0 6.1 6.5 5.6 6.4 6.5 5.7 7.0 7.5 7.7 7.7 7.1 9.8 8.4 8.7 7.9 9.6 8.7 9.6 8.7 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6	7.9 9.5 7.8 7.7 9.9 10.6 10.0 8.9 11.2 12.3 12.4 12.7 12.6 13.2 13.3 11.7 12.6 13.2 13.3 11.4 13.5	JULY 6.3 5.9 7.0 6.5 6.1 7.0 7.9 7.5 7.1 8.8 8.8 9.0 10.0 9.5 8.6 9.2 9.7 10.3 10.2 9.2 9.8 10.7 11.1 11.2 11.4 11.0 10.7 10.1 10.4	6.9 7.4 7.3 7.0 7.8 8.6 8.8 8.0 9.0 10.4 10.7 10.9 10.3 10.4 11.0 11.5 10.9 11.1 11.7 12.3 12.5 12.8 12.7	12.6 11.5 11.7 11.0 10.6 9.7 11.0 12.6 13.5 13.1 13.7 14.2 14.9 14.6 14.4 14.3 13.9 13.3 12.1 10.9 13.3 12.5 13.9 13.9 13.6	9.1 9.8 8.7 9.2 9.1 8.4 8.6 9.1 10.7 9.9 10.9 11.0 10.7 10.9 11.0.1 10.4 10.7	10.8 10.6 10.2 10.2 9.9 9.4 9.5 10.3 11.1 11.6 11.5 12.6 12.5 12.4 12.0 11.7 11.8 11.2 10.6 11.4 12.1 12.4 11.8	11.9 11.7 11.5 10.5 10.6 10.7 9.9 9.9 11.4 12.0 12.2 12.4 12.3 12.5 11.6 10.8 10.2 10.3 10.0 9.8 10.1 10.2 10.3 10.3 9.9 9.9	SEPTEMBE 11.3 10.9 9.7 8.6 8.3 8.1 8.9 8.6 9.4 9.5 9.8 10.0 10.1 10.3 10.8 9.6 8.8 7.9 9.3 8.2 7.5 8.2 8.3 8.4 8.5	11.6 11.3 10.7 9.5 9.3 9.2 9.3 10.1 10.6 10.8 11.1 11.3 11.1 10.3 9.5 9.1 9.2 9.3 9.1 9.8
DAY 1 2 3 4 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	7.2 7.4 6.7 5.4 5.5 4.5 4.5 4.5 8.2 8.5 8.5 8.4 8.6 6.1 6.7 6.0 6.7 9.9 9.9 9.7 10.7	JUNE 3.7 3.8 4.4 4.2 3.7 3.3 3.5 4.5 4.5 4.8 5.1 5.2 5.4 5.1 5.0 5.8 5.9 6.5 6.4 6.5 7.3 7.4 6.6	5.2 5.3 5.2 4.8 4.2 3.9 4.0 6.0 6.1 6.3 6.5 5.5 7.7 7.7 7.7 7.1 7.9 8.4 8.7 7.2	7.9 9.5 7.8 7.7 9.9 10.6 10.0 8.9 11.2 12.3 12.4 12.7 12.3 11.7 12.6 13.2 13.3 13.3 11.4 13.5 14.0 14.6 14.5 15.0 14.6	JULY 6.3 5.9 7.0 6.5 6.1 7.0 7.9 7.5 7.1 8.8 8.8 9.0 10.0 9.5 8.6 9.2 9.7 10.3 10.2 9.2 11.4 11.0 10.7 10.1	6.9 7.4 7.3 7.0 7.8 8.6 8.8 8.0 9.0 10.4 10.7 10.9 10.3 11.5 11.5 12.8 12.7 11.6 11.2 10.6	12.6 11.5 11.7 11.0 10.6 9.7 11.0 12.6 13.5 13.1 13.7 14.2 14.9 14.6 14.4 14.3 13.9 13.5 13.3 12.1	9.1 9.8 8.7 9.7 9.2 9.1 8.4 8.6 9.1 10.7 9.9 10.2 10.9 10.7 10.1 10.4 10.7 10.1 10.4 10.7	10.8 10.6 10.2 10.2 9.9 9.4 9.5 10.3 11.1 11.6 11.5 11.9 12.6 12.5 12.4 12.4 12.0 11.7 11.8 11.2	11.9 11.7 11.5 10.5 10.6 10.7 9.9 9.11.4 12.0 12.2 12.4 12.3 12.5 11.6 10.8 10.2 10.2 10.3 10.0 9.8 10.1 10.2 10.3	11.3 10.9 9.7 8.6 8.3 8.1 8.9 8.6 9.4 9.5 9.8 10.0 10.1 10.3 10.8 9.6 8.8 7.9 9.3 8.2 7.5 8.2 8.3 8.4 8.5 8.8 8.1 8.8 8.8 8.8	11.6 11.3 10.7 9.5 9.3 9.2 9.3 10.1 10.6 10.8 11.1 11.1 11.3 11.1 10.3 9.5 9.1 8.5 9.1 8.5 9.3 9.3
DAY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	7.2 7.4 6.7 5.5 4.9 4.5 7.8 8.2 8.5 8.5 8.5 8.6 6.1 6.7 6.0 9.9 9.9 7.9 7.9 10.7	JUNE 3.7 3.8 4.4 4.2 3.7 3.3 5.9 4.5 4.8 5.1 5.2 5.4 5.1 5.3 5.9 6.4 6.5 7.4 6.6 6.4 6.3	5.2 5.3 5.3 4.8 4.2 3.9 4.6 6.0 6.1 6.3 6.5 5.8 6.0 5.5 7.7 7.7 7.1 9.8 8.7 7.2 8.4 8.7 7.2 8.6 6.6	7.9 9.5 7.8 7.7 9.9 10.6 10.0 8.9 11.2 12.3 11.7 12.6 13.2 13.3 11.4 13.5 14.6 14.6 14.5 15.0 14.6	JULY 6.3 5.9 7.0 6.5 6.1 7.0 7.9 7.5 7.1 8.8 8.8 9.0 10.0 9.5 8.6 9.2 9.7 10.3 10.2 9.2 9.8 10.7 11.1 11.2 11.4 11.0 10.7 10.1 10.4 10.3	6.9 7.4 7.3 7.0 7.8 8.6 8.8 8.0 9.0 10.4 10.7 10.9 10.3 10.4 11.0 11.3 11.5 12.3 12.5 12.8 12.7 11.6 11.2 10.6 10.8 10.6	12.6 11.5 11.7 11.0 10.6 9.7 11.0 12.6 13.5 13.1 13.7 14.2 14.9 14.6 14.4 14.3 13.9 13.5 13.3 12.1 10.9 13.3 12.5 13.3 12.1	9.1 9.8 8.7 9.7 9.2 9.1 8.4 8.6 9.1 10.7 9.9 10.2 10.9 11.0 10.7 10.1 10.4 10.7 10.3 10.2 11.4 11.0 11.2 11.4	10.8 10.6 10.2 10.2 9.9 9.4 9.5 10.3 11.1 11.6 11.5 11.9 12.6 12.5 12.4 12.0 11.7 11.8 11.2	11.9 11.7 11.5 10.5 10.6 10.7 9.9 9.1.4 12.0 12.2 12.4 12.3 12.5 11.6 10.8 10.2 10.2 10.3 10.0 9.8 10.1 10.2 10.3 10.3 9.8 10.1 10.2 10.3 10.3 10.3 10.3 10.3 10.3 10.3 10.3	SEPTEMBE 11.3 10.9 9.7 8.6 8.3 8.1 8.9 8.6 9.4 9.5 9.8 10.0 10.1 10.3 10.8 9.6 8.8 7.9 9.3 8.2 7.5 8.2 8.3 8.4 8.5 8.8 8.1 8.1 8.1 8.1 7.3	11.6 11.3 10.7 9.5 9.3 9.2 9.3 10.1 10.6 10.8 11.1 11.3 11.1 10.3 9.5 9.8 9.1 8.5 9.0 9.1 9.2 9.3 10.1 11.3 11.1

12147900 SOUTH FORK TOLT RESERVOIR NEAR CARNATION, WA

LOCATION.--Lat $47^{\circ}41^{\circ}38^{\circ}$, long $121^{\circ}47^{\circ}10^{\circ}$, in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.32, T.26 N., R.9 E., King County, Hydrologic Unit 17110010, on top and near the center of the dam, 11.4 mi northeast of Carnation, and at mile 8.4.

DRAINAGE AREA.--18.8 mi².

PERIOD OF RECORD. -- October 1991 to current year.

REVISED RECORDS. -- WA-98-1: 1997.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (Seattle Water Department benchmark).

REMARKS.--Reservoir is formed by earthfill dam, with a concrete glory hole spillway, completed in 1962. Water used for municipal water supply by Seattle Water Department. Usable capacity, 15,600 acre-ft between elevations 1,749 ft (minimum pool) and 1,765 ft (maximum normal pool). Top of dam is at 1,775 ft with top of spillway at 1,757 ft. Flood control between elevations 1,749 and 1,757 ft. U.S. Geological Survey satellite telemeter at station.

COOPERATION. -- Capacity table furnished by Seattle Water Department.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 59,500 acre-ft July 9, 1997, elevation, 1,766.53 ft; minimum contents, 25,980 acre-ft Nov. 4, 1991, elevation, 1,728.72ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 58,410 acre-ft June 29, elevation, 1,765.49 ft; minimum contents, 33,520 acre-ft Oct. 10, elevation, 1,738.84.

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

1,690	8,100	1,730	26,800	1,760	52,900
1,700	11,300	1,740	34,400	1,765	57,900
1,710	15,400	1,750	43,200	1,780	73,600
1.720	20.400				

RESERVOIR ELEVATION SURFACE WATER (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY OBSERVATION AT 2400 HOURS

1 1740, 95 1746, 46 1755, 19 1757, 10 1755, 41 1759, 07 1749, 98 1758, 92 1763, 44 1764, 99 1759, 33 1750, 19 3 1740, 44 1746, 99 1755, 35 1756, 68 1754, 75 1758, 17 1749, 79 1758, 95 1763, 34 1764, 97 1759, 33 1750, 19 3 1740, 44 1746, 99 1755, 35 1756, 68 1754, 75 1758, 17 1749, 55 1758, 89 1763, 34 1764, 67 1759, 07 1749, 98 4 1740, 20 1747, 108 1755, 29 1756, 34 1754, 35 1757, 10 1749, 59 1758, 83 1747, 20 1755, 29 1756, 34 1754, 30 1757, 10 1749, 59 1758, 80 1747, 25 1758, 89 1749, 42 1754, 30 1754, 30 1754, 30 1757, 10 1749, 59 1758, 70 1764, 30 1764, 30 1758, 80 1747, 31 1755, 44 1760, 50 1754, 60 1756, 33 1750, 67 1757, 94 1764, 28 1763, 98 1757, 84 1748, 75 1749, 42 174	DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
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(†) 39800 48020 50460 48770 52400 43350 51820 56280 58220 52780 43900 36000													
	MIN	1738.96	1746.46	1755.19	1755.74	1753.39	1750.15	1749.50	1756.79	1763.41	1759.88	1750.72	1741.82
	(†)	39800		50460	48770		43350	51820	56280		52780		36000
(†) +4340 +8220 +2440 -1690 +3630 -9050 +8470 +4460 +1940 -5440 -8880 -7900	(‡)	+4340	+8220	+2440	-1690	+3630	-9050	+8470	+4460	+1940	-5440	-8880	-7900

CAL YR 2001 MEAN 1751.26 MAX 1762.56 MIN 1738.96 AC-FT‡ +13690 WTR YR 2002 MEAN 1755.23 MAX 1765.48 MIN 1738.96 AC-FT‡ +540

[†] Contents, in acre-feet, at 2400, on last day of month.

[†] Change in contents, in acre-feet.

12148000 SOUTH FORK TOLT RIVER NEAR CARNATION, WA

LOCATION.--Lat $47^{\circ}41'22''$, long $121^{\circ}42'44''$, in SW $\frac{1}{4}$ sec.31, T.26 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.1 mi upstream from private road bridge, 1.6 mi downstream from South Fork Tolt Reservoir, 9.8 mi northeast of Carnation, and at mile 6.8.

DRAINAGE AREA. -- 19.7 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1952 to December 1963, June 1969 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,300 ft above NGVD of 1929, from river-profile map.

REMARKS.--No estimated daily discharges. Records good. Regulation by South Fork Tolt Reservoir since September 1963. During the current water year the Seattle Water Department diverted an average daily discharge of about 89 ft³/s upstream from the station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--11 years (water years 1953-63), 198 ft^3/s , 143,300 acre-ft/yr (unregulated). 33 years (water years 1970-2002), 104 ft^3/s , 75,610 acre-ft/yr (regulated).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,500 ft³/s Dec. 15, 1959, gage height, 7.45 ft, from rating curve extended above 2,700 ft³/s; maximum gage height, 7.62 ft Nov. 20, 1958, backwater from debris; minimum discharge, 8.4 ft³/s Sept. 12, 1963, minimum gage height, 0.81 ft Aug. 23-27, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 310 ft³/s Dec. 20-22, gage height, 3.18 ft; minimum discharge, 59 ft³/s Oct. 4-6,

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

12148000 SOUTH FORK TOLT RIVER NEAR CARNATION, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--WATER TEMPERATURE: October 1994 to current year.

INSTRUMENTATION. -- Temperature recorder since October 1994.

REMARKS.--Record excellent except for period of Nov. 4 to Jan. 4, which is good.

EXTREMES FOR PERIOD OF RECORD.-WATER TEMPERATURE: Maximum recorded, 14.5°C (rounded) Oct. 8, 1994; minimum, 1.0°C (rounded) Feb. 3, 1996, Dec. 29, 1996. Jan. 27, 1997.

EXTREMES FOR CURRENT YEAR. --

WATER TEMPERATURE: Maximum, 13.7°C Oct. 5; minimum, 2.3°C Feb. 8.

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER		NO	VEMBER		DE	CEMBER			JANUARY	
1 2 3 4 5	12.6 12.5 12.3 13.1 13.7	11.5 11.4 11.4 11.3 12.3	12.0 11.9 11.9 12.2 12.9	9.1 9.1 9.0 8.8 8.3	8.9 8.5 8.3 8.2 7.7	9.0 8.9 8.6 8.5 8.0	6.4 6.3 6.0 5.8 5.8	5.9 5.7 5.5 5.7 5.3	6.2 6.1 5.8 5.7 5.6	3.5 3.9 4.6 4.7 4.6	3.2 3.4 3.9 4.3 4.3	3.4 3.6 4.3 4.4 4.5
6 7 8 9 10	13.4 13.2 13.1 13.2 12.7	12.3 12.4 12.5 12.4 12.1	12.7 12.7 12.7 12.7 12.7	8.2 8.1 8.5 8.4 8.7	7.7 7.6 7.6 7.7 7.9	7.9 7.8 7.9 8.0 8.3	5.9 5.9 6.1 5.6 5.6	5.3 5.6 5.3 5.2 5.2	5.6 5.7 5.8 5.4 5.4	5.5 5.7 5.5 5.0 5.1	4.4 5.4 5.0 4.7 4.7	4.8 5.5 5.2 4.9
11 12 13 14 15	12.5 12.1 11.7 11.9 12.3	11.7 11.2 11.2 11.2 11.1	12.1 11.8 11.5 11.6	8.5 8.6 8.5 8.7 8.5	8.0 8.2 8.2 8.4 8.0	8.2 8.4 8.3 8.6 8.3	5.6 5.8 5.9 5.5	5.1 5.1 5.1 3.9 5.0	5.4 5.5 5.6 4.9 5.2	5.4 5.0 4.9 4.6 4.0	4.8 4.2 4.3 3.8 3.7	5.1 4.8 4.6 4.2 3.8
16 17 18 19 20	11.8 11.4 11.2 10.9 10.5	11.0 10.7 10.6 10.2 9.8	11.5 11.0 10.9 10.6 10.2	8.2 7.8 7.8 8.0 8.0	7.8 7.2 7.2 7.4 7.6	8.0 7.6 7.4 7.8 7.8	5.9 5.6 4.6 4.6 4.8	5.5 4.4 4.2 4.1 4.3	5.7 4.9 4.5 4.5	3.9 3.9 4.0 4.1 4.3	3.7 3.7 3.6 3.4 3.7	3.9 3.8 3.9 3.9 4.1
21 22 23 24 25	10.3 10.4 10.0 9.7 9.5	9.9 9.9 9.5 9.0 8.8	10.1 10.1 9.8 9.3 9.1	7.9 7.5 7.2 7.1 7.0	7.5 6.8 6.2 6.7 6.7	7.7 7.3 6.8 6.9 6.8	4.5 4.3 4.1 3.9 3.8	4.2 4.1 3.9 3.7 3.6	4.4 4.2 4.1 3.8 3.7	4.1 3.9 3.9 4.3 4.4	3.7 3.5 3.6 3.9 3.2	3.9 3.8 3.8 4.1 4.0
26 27 28 29 30 31	10.1 9.4 8.9 9.3 9.4 9.3	9.1 8.4 8.1 8.5 9.0 8.8	9.6 8.8 8.5 8.9 9.2 9.0	6.9 6.9 6.4 6.1 6.3	6.7 6.4 5.3 5.4 5.9	6.8 6.6 5.9 5.9 6.1	3.6 3.8 3.6 3.5 3.5	3.4 3.4 3.3 3.3 3.3	3.5 3.5 3.5 3.4 3.4	4.1 4.0 3.9 4.0 4.1 4.1	3.5 3.5 3.3 3.5 3.1 3.6	3.9 3.8 3.6 3.7 3.6 3.9
MONTH	13.7	8.1	10.9	9.1	5.3	7.7	6.4	3.2	4.8	5.7	3.1	4.2

12148000 SOUTH FORK TOLT RIVER NEAR CARNATION, WA--Continued

		TEMPE	RATURE,	WATER (DEG	i. C), W.	YER YEAR	OCTOBER 2	2001 10 8	EPIEMBEK	2002		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1 2	4.5	3.9	4.1	4.0 4.0 4.2 4.3	3.4 3.4 3.5 3.5	3.6	5.4 5.6 6.1 6.5	4.2	4.8	7.5 6.4	5.8 5.6	6.4 6.1
3	4.2	3.7	3.9	4.2	3.4	3.7	6.1	4.2	4.9	6.8	5.6	6.1
4 5	4.3	3.6 3.6	3.8 3.8	4.3	3.5	3.8	5.3	4.4	5.2	6.2 6.4	5.7 4.8	5.9 5.8
6	4.1	3.7	3.9				5.6 5.8	5.1	5.3	6.6	4.8	5.7
7 8	4.3 3.9	2.7	3.9 3.4	4.4	3.3	4.0	5.8 6.7	5.1 4.8 4.6	5.2 5.4	6.5 7.5	5.3 5.5	5.9 6.3
9 10	4.3	3.7	3.9 3.9	4.4 4.4 4.7 4.4	3.9 3.3 2.8 3.8 4.0	4.2	6.0 6.1	5.2 5.3	5.5 5.6	6.9 7.5	5.6	6.2 6.4
11									5.7	8.6		6.8
12	1 1	3.3	3.5 3.6 3.7 3.8 4.0	4.6	4.2 4.1 4.1 3.5 3.7	4.3	6.3 6.1 6.2 6.1 5.7	5.7	5.8	9.3 6.8	6.1	7.3
13 14	4.2	3.3	3.7	4.6 4.8 4.4 4.3	4.1 3.5	4.3	6.2 6.1	5.7 5.0	5.3	6.8 7.6	6.3 6.2 5.8	6.5 6.7
15	4.6								5.5	7.7	5.8	6.6
16 17	4.7 4.5	3.8 4.0	4.2 4.2 4.3	4.6 4.5	3.7 3.6	4.0 3.9 3.9 3.8 3.7	6.1 6.4 6.8	5.1 5.4	5.5 5.8 5.9	8.6 8.5	C F	7.0 7.1
18 19	4.7 4.5	4.1 4.1	4.3	4.1	3.5 3.4	3.9	6.8 6.2	5.6 5.4	5.9 5.8	7.7	6.5	6.9 7.1
20	4.6	3.6	4.3 4.1	4.1	3.3	3.7	6.2	5.7	5.9	7.3	6.5 6.6	7.0
21	5.1	4.2	4.7	4.6	3.3	3.8	6.0 5.9 6.7 7.3	5.7	5.8	7.4	6.6	6.8
22 23	5.0 4.7	4.7 4.0	4.7 4.9 4.6 4.0	4.8 5.0	3.7	4.1 4.2	5.9 6.7	5.0 4.8	5.8 5.7 5.6	7.4	6.6 6.6	6.9 7.0
24 25	4.7 4.5	3.2 3.6	4.0 3.9	4.6 4.8 5.0 4.3 5.1	3.3 3.7 3.8 4.0 4.0	4.1 4.4	7.3 7.2	5.1 5.4	5.9 6.1	8.9 7.9	6.4 6.8	7.3 7.3
26	4.0			4.5			6.6	5.5	5.9			7.4
27 28		3.3	3.6 3.4 3.5	4.6 4.5	3.1	4.2 4.1 4.2	6.1 7.9		5.9 6.5	7.9 8.4 8.2 7.9	7.0	7.5 7.4
29					4.1	4.4	8.2	5.7				7.5
30 31				5.2 5.1	4.3 4.4	4.4 4.6 4.6	8.3	5.8	6.6 	8.4 8.5	7.0	7.6 7.6
MONTH	5.1	2.3	4.0	5.2	2.8	4.1	8.3	4.0	5.6	9.3	4.8	6.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY	MAX	MIN JUNE	MEAN	MAX	MIN JULY	MEAN		MIN AUGUST	MEAN	MAX	MIN SEPTEMBE	
1	9.2	JUNE 7.0	7.8	11.2	JULY 9 4	10 6		AUGUST		11.2	SEPTEMBE	10.8
1 2	9.2 9.3	JUNE 7.0 7.1	7.8 7.8	11.2 10.7	JULY 9 4	10 6	 10.4	AUGUST	 9.6	11.2 11.3	10.5 10.5	10.8 10.9
1 2 3 4	9.2 9.3 8.8 8.3	JUNE 7.0 7.1 7.3 7.6	7.8 7.8	11.2 10.7	JULY 9 4	10 6	 10.4	AUGUST	 9.6	11.2 11.3 11.4 11.5	10.5 10.5 10.5 10.3	10.8 10.9 10.7 10.6
1 2 3 4 5	9.2 9.3 8.8 8.3 8.9	JUNE 7.0 7.1 7.3 7.6 7.6	7.8 7.8 7.9 7.9 8.0	11.2 10.7 9.1 9.3 10.8	JULY 9.4 8.6 8.3 8.3 8.0	10.6 9.3 8.7 8.7 9.1	10.4 10.7 10.2 10.2	AUGUST 9.0 8.9 9.2 9.2	9.6 9.6 9.5 9.6	11.2 11.3 11.4 11.5	10.5 10.5 10.3 10.0 10.0	10.8 10.9 10.7 10.6 10.7
1 2 3 4 5	9.2 9.3 8.8 8.3 8.9	JUNE 7.0 7.1 7.3 7.6 7.6 7.7	7.8 7.8 7.9 7.9 8.0	11.2 10.7 9.1 9.3 10.8	JULY 9.4 8.6 8.3 8.3 8.0	10.6 9.3 8.7 8.7 9.1	10.4 10.7 10.2 10.2	AUGUST 9.0 8.9 9.2 9.2 9.2	9.6 9.6 9.5 9.6	11.2 11.3 11.4 11.5	SEPTEMBE 10.5 10.5 10.3 10.0 10.0	10.8 10.9 10.7 10.6 10.7
1 2 3 4 5 6 7 8 9	9.2 9.3 8.8 8.3 8.9 8.3 7.8 7.8	JUNE 7.0 7.1 7.3 7.6 7.6 7.7	7.8 7.8 7.9 7.9 8.0	11.2 10.7 9.1 9.3 10.8	JULY 9.4 8.6 8.3 8.3 8.0	10.6 9.3 8.7 8.7 9.1	10.4 10.7 10.2 10.2	AUGUST 9.0 8.9 9.2 9.2 9.2	9.6 9.6 9.5 9.6 9.4 9.7 9.9	11.2 11.3 11.4 11.5 11.7 11.7 11.3 11.2 12.1	SEPTEMBE 10.5 10.5 10.3 10.0 10.0 9.9 10.3 10.3 10.7	10.8 10.9 10.7 10.6 10.7 10.7 10.8 11.3
1 2 3 4 5 6 7 8 9	9.2 9.3 8.8 8.3 8.9 8.3 7.8 7.8 9.8	JUNE 7.0 7.1 7.3 7.6 7.6 7.2 7.0 7.1 7.3 7.6	7.8 7.9 7.9 8.0 7.6 7.3 7.4 8.2 8.3	11.2 10.7 9.1 9.3 10.8 10.7 10.3 9.6 11.2	JULY 9.4 8.6 8.3 8.3 8.0 8.4 8.8 8.8	10.6 9.3 8.7 9.1 9.3 9.3 9.1 9.5 9.9	10.4 10.7 10.2 10.2 9.7 10.8 11.3 11.6	AUGUST 9.0 8.9 9.2 9.2 9.2 9.2 9.7	9.6 9.6 9.5 9.6 9.4 9.7 9.9 10.1	11.2 11.3 11.4 11.5 11.7 11.7 11.3 11.2 12.1	10.5 10.5 10.5 10.3 10.0 10.0 9.9 10.3 10.3 10.7	10.8 10.9 10.7 10.6 10.7 10.7 10.7 10.8 11.3
1 2 3 4 5 6 7 8 9	9.2 9.3 8.8 8.3 8.9 8.3 7.8 7.8 9.8	JUNE 7.0 7.1 7.3 7.6 7.6 7.2 7.0 7.1 7.3 7.6	7.8 7.8 7.9 7.9 8.0	11.2 10.7 9.1 9.3 10.8 10.7 10.3 9.6 11.2	JULY 9.4 8.6 8.3 8.0 8.4 8.8 8.5 8.9 9.0	10.6 9.3 8.7 8.7 9.1	10.4 10.7 10.2 10.2 10.2 9.7 10.8 11.3 11.6 11.0	AUGUST 9.0 8.9 9.2 9.2 9.2 9.1 9.2 9.3 9.7 9.5	9.6 9.6 9.5 9.6 9.4 9.7 9.9 10.1 10.1	11.2 11.3 11.4 11.5 11.7 11.7 11.3 11.2 12.1 12.2	SEPTEMBE 10.5 10.5 10.3 10.0 10.0 9.9 10.3 10.7 10.7	10.8 10.9 10.7 10.6 10.7 10.7 10.8 11.3
1 2 3 4 5 6 7 8 9 10	9.2 9.3 8.8 8.3 8.9 8.3 7.8 7.8 9.8 9.7	JUNE 7.0 7.1 7.3 7.6 7.6 7.6 7.1 7.3 7.6 7.1 7.3 7.6 7.1 8.0 8.3	7.8 7.8 7.9 8.0 7.6 7.3 7.4 8.2 8.3 8.7 9.1	11.2 10.7 9.1 9.3 10.8 10.7 10.3 9.6 11.2 11.5	JULY 9.4 8.6 8.3 8.0 8.4 8.8 8.5 8.9 9.0	10.6 9.3 8.7 8.7 9.1 9.3 9.3 9.1 9.5 9.9	10.4 10.7 10.2 10.2 10.2 9.7 10.8 11.3 11.6 11.0	AUGUST 9.0 8.9 9.2 9.2 9.2 9.1 9.2 9.3 9.7 9.5	9.6 9.6 9.5 9.6 9.4 9.7 9.9 10.1 10.1	11.2 11.3 11.4 11.5 11.7 11.7 11.3 11.2 12.1 12.2	SEPTEMBE 10.5 10.5 10.3 10.0 10.0 9.9 10.3 10.3 10.7 10.7	10.8 10.9 10.7 10.6 10.7 10.7 10.8 11.3 11.3 11.4 11.6
1 2 3 4 5 6 7 8 9 10	9.2 9.3 8.8 8.3 7.8 9.8 9.7	JUNE 7.0 7.1 7.3 7.6 7.6 7.2 7.0 7.1 7.3 7.6 7.7 8.0 8.3 8.2 8.1	7.8 7.9 7.9 8.0 7.6 7.3 8.2 8.3 8.7 9.1 9.0 8.6	11.2 10.7 9.1 9.3 10.8 10.7 10.3 9.6 11.2 11.5	JULY 9.4 8.6 8.3 8.3 8.0 8.4 8.8 8.5 8.9 9.0 8.9 9.3 8.8 8.6	10.6 9.3 8.7 9.1 9.3 9.1 9.5 9.9 9.8 9.8 9.8 9.3 9.6	10.4 10.7 10.2 10.2 10.8 9.7 10.8 11.3 11.6 11.0	AUGUST 9.0 8.9 9.2 9.2 9.2 9.1 9.2 9.3 9.7 9.5 9.5	9.6 9.6 9.5 9.6 9.4 9.7 9.9 10.1 10.1	11.2 11.3 11.4 11.5 11.7 11.7 11.3 11.2 12.1 12.2	SEPTEMBE 10.5 10.5 10.3 10.0 10.0 9.9 10.3 10.7 10.7 10.7 10.9 11.1	10.8 10.9 10.7 10.6 10.7 10.7 10.7 11.3 11.3
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	9.2 9.3 8.8 8.3 7.8 9.7 10.4 10.0 10.3 9.7	JUNE 7.0 7.1 7.3 7.6 7.6 7.2 7.0 7.1 7.3 7.6 7.7 8.0 8.3 8.2 8.1	7.8 7.8 7.9 7.9 8.0 7.6 7.3 7.4 8.2 8.3 8.7 9.1 9.3 8.6	11.2 10.7 9.1 9.3 10.8 10.7 10.3 9.6 11.2 11.5 11.4 11.5 10.8 10.3 11.2	JULY 9.4 8.6 8.3 8.3 8.0 8.4 8.8 8.5 8.9 9.0 8.9 9.3 8.8 8.6	10.6 9.3 8.7 9.1 9.3 9.1 9.5 9.9 9.8 9.8 9.8 9.3 9.6	10.4 10.7 10.2 10.2 10.8 11.3 11.6 11.0 11.4 11.6 11.9 11.8 11.8	AUGUST 9.0 8.9 9.2 9.2 9.2 9.1 9.2 9.3 9.7 9.5 9.5 9.6 9.5	9.6 9.5 9.6 9.7 9.9 10.1 10.1 10.2 10.3 10.5 10.4	11.2 11.3 11.4 11.5 11.7 11.7 11.3 11.2 12.1 12.2 12.3 12.5 12.5 12.5 11.9	SEPTEMBE 10.5 10.5 10.3 10.0 10.0 9.9 10.3 10.7 10.7 10.7 11.9 11.1 11.2	10.8 10.9 10.7 10.6 10.7 10.7 10.7 10.8 11.3 11.3 11.4 11.6 11.6 11.6 11.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	9.2 9.3 8.8 8.3 7.8 7.8 9.7 10.4 10.8 11.0 10.3 9.7	JUNE 7.0 7.1 7.3 7.6 7.6 7.2 7.0 7.1 7.3 7.6 7.7 8.0 8.3 8.2 8.1	7.8 7.8 7.9 7.9 8.0 7.6 7.3 7.4 8.2 8.3 8.7 9.1 9.3 8.6	11.2 10.7 9.3 10.8 10.7 10.3 9.6 11.2 11.5 11.4 11.5 10.8	JULY 9.4 8.6 8.3 8.3 8.0 8.4 8.8 8.5 8.9 9.0 8.9 9.3 8.8 8.6	10.6 9.3 8.7 9.1 9.3 9.1 9.5 9.9 9.8 9.8 9.8 9.3 9.6	10.4 10.7 10.2 10.2 10.2 9.7 10.8 11.3 11.6 11.0 11.4 11.6 11.9 11.8	AUGUST 9.0 8.9 9.2 9.2 9.1 9.2 9.3 9.7 9.5 9.8 9.7 9.6	9.6 9.5 9.6 9.7 9.9 10.1 10.1 10.2 10.3 10.5 10.4	11.2 11.3 11.4 11.5 11.7 11.7 11.3 11.2 12.1 12.2 12.3 12.5 12.5 12.5 11.9	SEPTEMBE 10.5 10.5 10.3 10.0 10.0 9.9 10.3 10.7 10.7 10.7 11.2 11.2	10.8 10.9 10.7 10.6 10.7 10.7 10.8 11.3 11.4 11.6 11.6 11.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	9.2 9.3 8.8 8.3 7.8 7.8 9.7 10.4 10.8 11.0 10.3 9.7	JUNE 7.0 7.1 7.3 7.6 7.6 7.2 7.0 7.1 7.3 7.6 7.7 8.0 8.3 8.2 8.1	7.8 7.9 7.9 8.0 7.6 7.3 8.2 8.3 8.7 9.1 9.0 8.6	11.2 10.7 9.3 10.8 10.7 10.3 9.6 11.2 11.5 11.4 11.5 10.8	JULY 9.4 8.6 8.3 8.3 8.0 8.4 8.8 8.5 8.9 9.0 8.9 9.3 8.8 8.6	10.6 9.3 8.7 9.1 9.3 9.1 9.5 9.9 9.8 9.8 9.8 9.3 9.6	10.4 10.7 10.2 10.2 10.8 11.3 11.6 11.0 11.4 11.6 11.9 11.8 11.8	AUGUST 9.0 8.9 9.2 9.2 9.1 9.2 9.3 9.7 9.5 9.8 9.7 9.6	9.6 9.5 9.6 9.7 9.9 10.1 10.1 10.2 10.3 10.5 10.4	11.2 11.3 11.4 11.5 11.7 11.7 11.3 11.2 12.1 12.2 12.3 12.5 12.5 12.5 11.9	SEPTEMBE 10.5 10.5 10.3 10.0 10.0 9.9 10.3 10.7 10.7 10.7 11.9 11.2 11.2 11.2 11.0 10.8 11.3	10.8 10.9 10.7 10.6 10.7 10.7 10.8 11.3 11.4 11.6 11.6 11.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	9.2 9.3 8.8 8.3 7.8 7.8 9.7 10.4 10.8 11.0 10.3 9.7 8.6 8.8 8.7 9.2 10.7	JUNE 7.0 7.1 7.3 7.6 7.6 7.2 7.0 7.1 7.3 7.6 7.7 8.0 8.3 8.2 8.1 8.2 8.0 8.0 7.8	7.8 7.9 7.9 8.0 7.6 7.3 8.2 8.3 8.7 9.1 9.0 8.6 8.3 8.4 8.4 8.9	11.2 10.7 9.1 9.3 10.8 10.7 10.3 9.6 11.2 11.5 10.8 10.3 11.2 11.4 11.4 10.6 10.1	JULY 9.4 8.6 8.3 8.3 8.0 8.4 8.8 8.5 8.9 9.0 8.9 9.3 8.8 8.6 8.8 8.9 9.1 9.1 8.8	10.6 9.3 8.7 8.7 9.1 9.3 9.3 9.5 9.9 9.8 9.8 9.3 9.6 9.7	10.4 10.7 10.2 10.2 10.2 9.7 10.8 11.3 11.6 11.0 11.4 11.6 11.9 11.8 11.8 11.7 11.6 11.6 11.5	AUGUST 9.0 8.9 9.2 9.2 9.1 9.2 9.3 9.7 9.5 9.8 9.7 9.6 9.5 9.7 10.0	9.6 9.5 9.6 9.7 9.9 10.1 10.1 10.2 10.3 10.5 10.5 10.4 10.4 10.3 10.4	11.2 11.3 11.4 11.5 11.7 11.7 11.3 11.2 12.1 12.2 12.3 12.5 12.5 11.9	SEPTEMBE 10.5 10.5 10.3 10.0 10.0 9.9 10.3 10.7 10.7 10.7 11.1 11.2 11.2 11.2 11.0 10.8 11.3 10.7	10.8 10.9 10.7 10.6 10.7 10.7 10.8 11.3 11.3 11.4 11.6 11.6 11.5 11.5 11.4 11.4
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	9.2 9.3 8.8 8.3 7.8 7.8 9.7 10.4 10.8 11.0 10.3 9.7 8.6 8.8 8.7 10.7 11.0 10.9	JUNE 7.0 7.1 7.3 7.6 7.6 7.2 7.0 7.1 7.3 7.6 7.7 8.0 8.3 8.2 8.1 8.2 8.0 8.0 7.8	7.8 7.9 7.9 8.0 7.6 7.3 8.2 8.3 8.7 9.1 9.0 8.6 8.3 8.4 8.4 8.9	11.2 10.7 9.1 9.3 10.8 10.7 10.3 9.6 11.2 11.5 10.8 10.3 11.2 11.4 11.4 10.6 10.1	JULY 9.4 8.6 8.3 8.3 8.0 8.4 8.8 8.5 8.9 9.0 8.9 9.3 8.8 8.6 8.8 8.9 9.1 9.1 8.8	10.6 9.3 8.7 9.1 9.3 9.5 9.9 9.8 9.8 9.8 9.3 9.6 9.7 9.5 9.7	10.4 10.7 10.2 10.2 10.2 9.7 10.8 11.3 11.6 11.0 11.4 11.6 11.9 11.8 11.8 11.8	AUGUST 9.0 8.9 9.2 9.2 9.1 9.2 9.3 9.7 9.5 9.5 9.8 9.7 9.6 9.5 9.7 10.0	9.6 9.6 9.5 9.6 9.7 9.9 10.1 10.1 10.2 10.3 10.5 10.4 10.4 10.4 10.3 10.2	11.2 11.3 11.4 11.5 11.7 11.7 11.3 11.2 12.1 12.2 12.3 12.5 12.5 12.5 12.5 11.9	SEPTEMBE 10.5 10.5 10.3 10.0 10.0 9.9 10.3 10.7 10.7 11.2 11.2 11.2 11.2 11.3 10.7	10.8 10.9 10.7 10.6 10.7 10.7 10.7 10.8 11.3 11.4 11.6 11.6 11.5 11.5 11.4 11.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	9.2 9.3 8.8 8.3 7.8 9.8 9.7 10.4 10.8 11.0 10.3 9.7 8.6 8.8 8.7 9.2 10.7 11.0 10.9 10.9 10.9 10.9	JUNE 7.0 7.1 7.3 7.6 7.6 7.2 7.0 7.1 7.3 7.6 7.7 8.0 8.3 8.2 8.1 8.2 8.0 8.0 7.8 8.2 8.3 8.2 8.3	7.8 7.9 7.9 8.0 7.6 7.3 8.2 8.3 8.7 9.1 9.0 8.6 8.3 8.4 8.2 8.9 9.2 9.2 8.8	11.2 10.7 9.1 9.3 10.8 10.7 10.3 9.6 11.2 11.5 11.4 11.5 10.8 10.3 11.2 11.4 11.4 11.4 11.4 11.4 11.4	JULY 9.4 8.6 8.3 8.3 8.0 8.4 8.8 8.5 8.9 9.0 8.9 9.1 8.8 8.9 9.1 8.8 8.9 9.2 9.3 9.3 9.3	10.6 9.3 8.7 9.1 9.3 9.5 9.9 9.8 9.8 9.8 9.3 9.6 9.7 9.5 9.7	10.4 10.7 10.2 10.2 10.2 9.7 10.8 11.3 11.6 11.0 11.4 11.6 11.9 11.8 11.8 11.8	AUGUST 9.0 8.9 9.2 9.2 9.1 9.2 9.3 9.7 9.5 9.5 9.8 9.7 9.6 9.5 9.7 10.0	9.6 9.6 9.5 9.6 9.7 9.9 10.1 10.1 10.2 10.3 10.5 10.4 10.4 10.4 10.3 10.2	11.2 11.3 11.4 11.5 11.7 11.3 11.2 12.1 12.2 12.3 12.5 12.5 12.5 11.9 11.9 12.2 12.1 12.2 12.1 12.2	SEPTEMBE 10.5 10.3 10.0 10.0 9.9 10.3 10.7 10.7 11.2 11.2 11.2 11.0 10.8 11.3 10.7 11.3 11.4 11.5	10.8 10.9 10.7 10.6 10.7 10.7 10.8 11.3 11.3 11.4 11.6 11.6 11.5 11.5 11.5 11.5 11.5 11.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	9.2 9.3 8.8 8.3 7.8 7.8 9.7 10.4 10.8 11.0 10.3 9.7 8.6 8.8 8.7 9.2 10.7 11.0 10.9 9.4 10.6 11.0	JUNE 7.0 7.1 7.3 7.6 7.6 7.2 7.0 7.1 7.3 7.6 7.7 8.0 8.3 8.2 8.1 8.2 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	7.8 7.8 7.9 8.0 7.6 7.3 7.4 8.3 8.7 9.1 9.3 9.0 8.4 8.2 8.4 8.2 8.4 9.2 9.2 8.8 9.1 9.3	11.2 10.7 9.1 9.3 10.8 10.7 10.3 9.6 11.2 11.5 11.4 11.5 10.8 10.3 11.2 11.4 11.4 11.4 11.5 11.4	JULY 9.4 8.6 8.3 8.3 8.0 8.4 8.8 8.5 8.9 9.0 8.9 9.3 8.8 8.6 8.8 9.1 9.1 9.1 9.1 9.3 9.3 9.3	10.6 9.3 8.7 9.1 9.3 9.3 9.1 9.5 9.9 9.8 9.8 9.3 9.6 9.7 9.6 9.5 9.7	10.4 10.7 10.2 10.2 9.7 10.8 11.3 11.6 11.0 11.4 11.6 11.9 11.8 11.8 11.7 11.6 11.5 10.5	AUGUST 9.0 8.9 9.2 9.2 9.2 9.1 9.5 9.7 9.5 9.7 9.6 9.5 9.7 10.0 9.9 10.0 110.2 10.3	9.6 9.6 9.5 9.6 9.7 9.9 10.1 10.1 10.2 10.3 10.5 10.4 10.4 10.3 10.4 10.2 10.2	11.2 11.3 11.4 11.5 11.7 11.7 11.3 11.2 12.1 12.2 12.5 12.5 12.5 12.5 12.5	SEPTEMBE 10.5 10.5 10.3 10.0 10.0 9.9 10.3 10.7 10.7 11.1 11.2 11.2 11.2 11.2 11.0 10.8 11.3 10.7	10.8 10.9 10.7 10.6 10.7 10.7 10.8 11.3 11.3 11.4 11.6 11.6 11.5 11.5 11.5 11.5 11.5 11.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 25 26 27	9.2 9.3 8.8 8.3 7.8 9.8 9.7 10.4 10.8 11.0 10.3 9.7 8.6 8.8,7 9.2 10.7 11.0 10.9 11.0 10.6 11.0	JUNE 7.0 7.1 7.3 7.6 7.6 7.2 7.0 7.1 7.3 7.6 7.7 8.0 8.3 8.2 8.1 8.2 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	7.8 7.8 7.9 7.9 8.0 7.6 7.3 7.4 8.2 8.3 8.7 9.1 9.3 8.4 8.2 8.4 8.2 8.4 8.9 9.2 8.8 9.2 9.2 8.8 9.3 9.3 9.3 9.3 9.3 9.3 9.3 9.3 9.3 9.3	11.2 10.7 9.1 9.3 10.8 10.7 10.3 9.6 11.2 11.5 11.4 11.5 10.3 11.2 11.4 11.4 11.5 11.7 11.3	JULY 9.4 8.6 8.3 8.3 8.0 8.4 8.8 8.5 8.9 9.0 8.9 9.1 9.1 8.8 8.9 9.2 9.3 9.3	10.6 9.3 8.7 8.7 9.1 9.3 9.3 9.1 9.5 9.9 9.8 9.8 9.3 9.6 9.7 9.6 9.5 9.7	10.4 10.7 10.2 10.2 10.2 9.7 10.8 11.3 11.6 11.0 11.4 11.6 11.9 11.8 11.8 11.7 11.6 11.5 10.5	AUGUST 9.0 8.9 9.2 9.2 9.2 9.1 9.5 9.5 9.7 9.6 9.5 9.7 10.0 9.9 10.0 110.2 10.3	9.6 9.6 9.5 9.6 9.7 9.9 10.1 10.1 10.2 10.3 10.5 10.4 10.4 10.4 10.2 10.2 10.8 10.8 10.8	11.2 11.3 11.4 11.5 11.7 11.7 11.3 12.2 12.3 12.5 12.5 12.5 12.5 12.5 12.5 12.5 12.2 12.3 12.5 12.5 12.5 12.5 12.5 12.9	SEPTEMBE 10.5 10.5 10.3 10.0 10.0 9.9 10.3 10.7 10.7 11.9 11.1 11.2 11.2 11.2 11.2 11.3 11.7 10.7 11.3 11.4 11.5 11.7	10.8 10.9 10.7 10.6 10.7 10.7 10.7 10.8 11.3 11.4 11.6 11.6 11.5 11.5 11.5 11.4 11.7 11.5 11.4 11.7 11.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	9.2 9.3 8.8 8.3 7.8 9.8 9.7 10.4 10.8 11.0 10.3 9.7 11.0 10.9 11.0 10.6 11.0 10.6 11.0	JUNE 7.0 7.1 7.3 7.6 7.6 7.2 7.0 7.1 7.3 7.6 7.7 8.0 8.3 8.2 8.1 8.2 8.0 8.0 8.0 8.0 8.0 8.3 8.2 8.1 8.2 8.3 8.7 8.7 8.5 8.9	7.8 7.9 7.9 8.0 7.6 7.3 8.2 8.3 8.7 9.1 9.0 8.6 8.3 8.4 8.9 9.2 8.8 9.1 9.3 9.3 9.5 9.8 8.0	11.2 10.7 9.1 9.3 10.8 10.7 10.3 9.6 11.2 11.5 11.4 11.5 10.8 10.3 11.2 11.4 11.4 11.4 11.5 11.7	JULY 9.4 8.6 8.3 8.3 8.0 8.4 8.8 8.5 8.9 9.0 8.9 9.1 8.8 8.9 9.1 8.8 8.9 9.2 9.3 9.3 9.3	10.6 9.3 8.7 9.1 9.3 9.1 9.5 9.9 9.8 9.8 9.8 9.3 9.6 9.7 9.9 10.1 10.2	10.4 10.7 10.2 10.2 10.2 9.7 11.3 11.6 11.0 11.4 11.6 11.9 11.8 11.8 11.7 11.6 11.5 10.5	AUGUST 9.0 8.9 9.2 9.2 9.1 9.2 9.3 9.7 9.5 9.5 9.7 10.0 9.9 10.0 10.1 10.2 10.3 10.3 10.1 10.4 10.5	9.6 9.6 9.5 9.6 9.7 9.9 10.1 10.2 10.3 10.5 10.4 10.4 10.2 10.2 10.6 10.8 10.8 10.5 10.6	11.2 11.3 11.4 11.5 11.7 11.7 11.3 11.2 12.1 12.2 12.3 12.5 12.5 12.5 12.5 12.5 12.5 12.5 12.5	SEPTEMBE 10.5 10.3 10.0 10.0 9.9 10.3 10.7 10.7 10.7 11.2 11.2 11.2 11.2 11.0 10.8 11.3 10.7 11.3 11.4 11.5 11.7	10.8 10.9 10.7 10.6 10.7 10.7 10.7 10.8 11.3 11.3 11.4 11.6 11.6 11.5 11.5 11.5 11.5 11.5 11.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	9.2 9.3 8.8 8.3 7.8 9.8 9.7 10.4 10.8 11.0 10.3 9.7 11.0 10.9 11.0 10.6 11.0 10.6 11.0	JUNE 7.0 7.1 7.3 7.6 7.6 7.2 7.0 7.1 7.3 7.6 7.7 8.0 8.3 8.2 8.1 8.2 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	7.8 7.8 7.9 8.0 7.6 7.3 7.4 8.3 8.7 9.1 9.3 9.0 8.6 8.3 8.4 8.2 8.4 9.2 8.8 9.2 9.2 8.8 9.3 9.3 9.3 9.3 9.3 9.3 9.3 9.3 9.3 9.3	11.2 10.7 9.1 9.3 10.8 10.7 10.3 9.6 11.2 11.5 11.4 11.5 10.8 10.3 11.2 11.4 11.4 11.5 11.4 11.4 11.5	JULY 9.4 8.6 8.3 8.3 8.0 8.4 8.8 8.5 8.9 9.0 8.9 9.3 8.8 8.6 8.8 8.9 9.1 9.1 9.1 8.8	10.6 9.3 8.7 8.7 9.1 9.3 9.3 9.1 9.5 9.9 9.8 9.8 9.3 9.6 9.7 9.6 9.5 9.7	10.4 10.7 10.2 10.2 10.2 9.7 10.8 11.3 11.6 11.0 11.4 11.6 11.9 11.8 11.8 11.7 11.6 11.5 10.5	AUGUST 9.0 8.9 9.2 9.2 9.1 9.2 9.3 9.7 9.5 9.5 9.7 9.6 9.5 9.7 10.0 9.9 10.0 10.1 10.2 10.3 10.3 10.4 10.5 10.2	9.6 9.6 9.5 9.6 9.7 9.9 10.1 10.1 10.2 10.3 10.5 10.4 10.4 10.3 10.4 10.2 10.2 10.8 10.8 10.8	11.2 11.3 11.4 11.5 11.7 11.7 11.3 11.2 12.1 12.2 12.5 12.5 12.5 12.5 12.5	SEPTEMBE 10.5 10.5 10.3 10.0 10.0 9.9 10.3 10.7 10.7 10.9 11.1 11.2 11.2 11.2 11.0 10.8 11.3 10.7 10.7 11.3 11.4 11.5 11.7 11.9 11.5 11.9 10.7 11.1	10.8 10.9 10.7 10.6 10.7 10.7 10.7 10.8 11.3 11.4 11.6 11.6 11.5 11.5 11.5 11.4 11.7 11.5 11.4 11.7 11.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30 31	9.2 9.3 8.8 8.3 7.8 9.8 9.7 10.4 10.8 11.0 10.3 9.7 11.0 10.9 9.4 11.0 10.9 9.4 11.0 10.9	JUNE 7.0 7.1 7.3 7.6 7.6 7.2 7.0 7.1 7.3 7.6 7.7 8.0 8.3 8.2 8.1 8.2 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	7.8 7.8 7.9 7.9 8.0 7.6 7.3 7.4 8.2 8.3 8.7 9.1 9.0 8.6 8.3 8.4 8.2 8.4 8.9 9.2 8.8 9.1 9.2 8.8 9.1 9.3 9.3 9.3 9.3 9.3 9.3 9.3 9.3 9.3 9.3	11.2 10.7 9.1 9.3 10.8 10.7 10.3 9.6 11.2 11.5 11.4 11.5 11.4 11.4 11.5 11.7 11.3 11.7	JULY 9.4 8.6 8.3 8.3 8.0 8.4 8.8 8.5 8.9 9.0 8.9 9.1 8.8 8.9 9.1 9.1 8.8	10.6 9.3 8.7 9.1 9.3 9.3 9.1 9.5 9.9 9.8 9.8 9.3 9.6 9.7 9.8 9.6 9.7 9.7	10.4 10.7 10.2 10.2 10.2 9.7 10.8 11.3 11.6 11.0 11.4 11.6 11.9 11.8 11.8 11.7 11.6 11.5 10.5 10.7 11.9 12.0 11.8 10.8	AUGUST 9.0 8.9 9.2 9.2 9.1 9.2 9.3 9.7 9.5 9.5 9.7 10.0 9.9 10.0 10.1 10.2 10.3 10.3 10.1 10.4 10.5 10.2 10.3	9.6 9.6 9.5 9.4 9.7 9.9 10.1 10.2 10.3 10.5 10.4 10.4 10.3 10.2 10.6 10.8 10.8 10.5 10.9 11.1 10.9	11.2 11.3 11.4 11.5 11.7 11.7 11.3 12.2 12.3 12.5 12.5 12.5 12.5 12.5 12.5 12.5 12.5	SEPTEMBE 10.5 10.3 10.0 10.0 9.9 10.3 10.7 10.7 10.9 11.1 11.2 11.2 11.2 11.0 10.8 11.3 10.7 11.3 11.4 11.5 11.7 11.9 11.5 11.7	10.8 10.9 10.7 10.6 10.7 10.7 10.8 11.3 11.3 11.4 11.6 11.6 11.5 11.5 11.5 11.5 11.5 11.5

12148300 SOUTH FORK TOLT RIVER BELOW REGULATING BASIN, NEAR CARNATION, WA

LOCATION.--Lat $47^{\circ}41^{\circ}49^{\circ}$, long $121^{\circ}47^{\circ}10^{\circ}$, in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.33, T.26 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 2.3 mi upstream from mouth and 6.5 mi northeast of Carnation.

DRAINAGE AREA.--29.6 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1982 to current year. Published as "South Fork Tolt River below regulating pond, near Carnation" March 1982 through September 1983.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 670 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good, except estimated daily discharges, which are fair. Flow regulated by South Fork Tolt Reservoir 6.1 mi upstream. During the current water year the Seattle Water Department diverted an average daily discharge of 89 ft³/s. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--20 years (water years 1983-2002), 148 ft³/s, 107,500 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge not determined, Nov. 24, 1990; maximum daily discharge, 3,700 $\rm ft^3/s$ Nov. 24, 1990; minimum discharge, 36 $\rm ft^3/s$ on many days during July and August, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 586 $\mathrm{ft^3/s}$ Nov. 14, gage height, 5.18 ft ; minimum discharge, 65 $\mathrm{ft^3/s}$ Oct. 5,

		DISCHA	RGE, CUB	IC FEET PI		WATER Y MEAN V		ER 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	104	162	260	283	348	302	272	242	272	74	73
2	67	112	161	262	275	341	243	274	236	236	74	77
3 4	67 66	105 107	145 137	212 198	279 e275	335 388	225 124	278 273	231 229	231 229	73 73	76 72
5	66	113	129	198	246	388 414	124	273 271	254	192	73	72 68
6	67	100	133	203	127	301	123	274	266	154	74	68
7	68	93	131	286	e148	299	139	269	269	151	73	68
8 9	69 69	88 86	134	340	e142	305 304	126 129	263 261	266	131 81	73	68
10	70	83	145 135	293 266	133 132	278	159	261	257 252	78	73 74	68 68
10												
11	79	81	129	253	137	325	173	259	248	77	74	68
12	76	81	127	263	127	322	199	257	246	76	73	70
13	83	88	278	267	121	319	241	168	248	75	73	69
14 15	88 82	375 265	288 217	315 469	116 112	317 321	285 224	126 117	247 243	75 74	73 72	69 70
15	02	200	21/	409	112	321	224	11/	243	74	12	70
16	81	205	286	464	110	315	213	110	240	73	72	72
17	81	162	304	457	110	306	191	118	237	73	72	71
18	79	139	354	414	120	303	171	114	245	74	72	70
19 20	155 129	133 130	313 298	386 385	122 130	313 322	158 149	111 115	207 167	74 73	72 72	70 70
20	129	130	298	385	130	322	149	115	167	/3	12	70
21	112	128	434	374	177	311	142	117	167	72	72	70
22	108	157	443	369	271	310	141	125	167	72	72	69
23	100	273	429	364	229	307	142	123	167	71	73	69
24 25	116 162	190 157	393 282	361 369	194 164	306 307	173 286	116 113	148 82	71 71	74 73	69 69
25	102	157		309	104			113				69
26	136	140	277	331	241	305	282	112	82	71	73	68
27	137	126	271	304	287	306	279	115	83	72	73	69
28	121	125	276	286	322	324	274	167	125	72	73	68
29 30	111 108	152 149	267 262	275 276		319 323	272 270	252 272	285 334	72 73	74 74	75 74
31	112		263	288		311	270	255		73	74	
			=		=400			====				
TOTAL	2932	4247	7603	9786	5130	9905	5957 199	5958	6470	3289	2264	2105
MEAN MAX	94.6 162	142 375	245 443	316 469	183 322	320 414	302	192 278	216 334	106 272	73.0 74	70.2 77
MIN	66	81	127	196	110	278	122	110	82	71	72	68
AC-FT	5820	8420	15080	19410	10180	19650	11820	11820	12830	6520	4490	4180
								R YEAR (WY)				
MEAN	85.5	212	225	270	176	155	146	166	131	81.2	62.4	67.7
MAX	147	597	598	579	389	320	380	307	241	187	77.6	112
(WY) MIN	1986 41.2	1991 43.5	2000 70.2	1984 66.3	1996 83.8	2002 73.2	1989 73.1	1984 68.0	1990 53.7	1997 41.9	1993 38.5	1983 42.4
(WY)	1988	1988	1988	1988	2001	1992	1992	1992	1992	1982	1982	1987
SUMMARY	STATIST	ICS	FOR	2001 CAL	ENDAR YEAR		FOR 2002 I	WATER YEAR		WATER YEAR	RS 1982 -	2002
ANNUAL	TOTA I			37966			65646					
ANNUAL				3/966			180			148		
	'ANNUAL N	MEAN		104			100			225		1997
	ANNUAL ME									84.7		1994
	DAILY ME			443	Dec 22		469	Jan 15		3700	Nov 24	
	DAILY MEA			66	Oct 4		66	Oct 4		36	Jul 27	
		Y MINIMUM		67	Sep 29		67	Oct 1		36	Aug 6	1982
	RUNOFF (A			75310			130200			107500		
	ENT EXCER			147 82			315 142			323 89		
	ENT EXCE			70			71			63		
50 1 DICC				. 0								

e Estimated

12148300 SOUTH FORK TOLT RIVER BELOW REGULATING BASIN, NEAR CARNATION, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--WATER TEMPERATURE: October 1994 to current year.

INSTRUMENTATION. -- Temperature recorder since October 1994.

REMARKS.--Records good except June 9 to Sept. 30, which are fair.

EXTREMES FOR PERIOD OF RECORD.-WATER TEMPERATURE: Maximum recorded, 16.0°C (rounded) Aug. 11, 1995; minimum, 0.5°C, (rounded) Feb. 3, 1996, Dec. 29, 1996.

EXTREMES FOR CURRENT YEAR.-- WATER TEMPERATURE: Maximum, 14.0°C July 10; minimum, 2.4°C Feb. 8.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER	!	NC	VEMBER		DE	CEMBER			JANUARY	
1 2 3 4 5	12.3 12.0 11.7 12.0 12.7	10.3 9.9 9.9 9.6 10.8	11.3 10.9 10.8 10.7 11.7	8.9 9.2 9.1 8.9 8.4	8.6 8.2 7.9 8.3 7.2	8.7 8.8 8.3 8.6 7.9	6.6 6.4 5.8 5.7 5.6	6.0 5.8 5.2 5.4 5.0	6.3 6.1 5.5 5.6 5.3	4.5 4.7 4.2 4.2 4.2	3.9 3.7 3.7 4.0 3.9	4.2 4.2 4.0 4.1 4.1
6 7 8 9 10	12.3 12.0 11.9 11.9	10.6 10.3 11.3 11.0 10.3	11.4 11.2 11.6 11.4 10.9	7.8 7.7 8.3 8.0 8.9	6.7 6.7 6.8 6.6 6.9	7.2 7.2 7.5 7.3 7.9	6.1 6.2 6.6 6.0 5.7	5.3 5.7 6.0 5.2 5.0	5.7 5.9 6.3 5.5 5.4	4.9 5.7 5.7 5.0 4.7	4.0 4.9 4.9 4.5 4.4	4.3 5.4 5.2 4.8 4.5
11 12 13 14 15	11.3 11.2 11.1 11.3 11.5	10.4 10.3 10.3 10.3 9.2	10.8 10.7 10.6 10.9 10.4	8.9 8.9 8.9 9.2 9.1	8.0 8.3 8.5 8.6 8.3	8.4 8.6 8.6 9.0 8.8	5.8 6.2 6.4 6.1 5.9	5.0 4.9 5.8 4.5 4.9	5.5 5.5 6.2 5.2 5.3	5.0 4.8 4.5 4.3 4.0	4.4 4.3 4.1 3.9 3.7	4.7 4.7 4.3 4.0 3.9
16 17 18 19 20	11.0 10.5 10.2 10.2 9.4	9.8 9.4 9.0 9.4 8.1	10.6 9.9 9.6 9.9 8.9	8.5 8.0 7.8 8.2 8.4	8.0 6.7 6.6 7.3 7.8	8.3 7.6 7.1 7.9 8.1	6.6 6.4 5.0 5.3	5.9 4.7 4.6 4.5 4.8	6.3 5.4 4.8 4.8 5.0	4.0 4.0 4.0 4.0	3.7 3.6 3.8 3.4 3.7	3.9 3.8 3.9 3.8 4.1
21 22 23 24 25	9.5 9.7 9.3 8.5 9.0	8.9 9.3 8.5 8.1 8.1	9.1 9.5 9.0 8.3 8.4	8.2 7.7 7.3 7.1 6.9	7.7 7.1 6.6 6.5 6.5	7.9 7.5 7.0 6.8 6.6	5.1 4.8 4.6 4.4 4.3	4.5 4.4 4.3 4.1 3.9	4.8 4.6 4.5 4.3 4.1	4.1 3.7 3.9 4.1 4.0	3.7 3.5 3.5 3.8 3.2	3.9 3.6 3.6 4.0 3.8
26 27 28 29 30 31	9.8 9.1 8.1 8.8 9.1 9.1	8.5 7.7 6.8 7.4 8.4 8.4	9.1 8.3 7.5 8.1 8.8 8.7	6.9 6.2 6.2 6.3	6.6 6.2 5.0 5.2 5.6	6.7 6.5 5.6 5.7 5.9	4.2 4.5 4.8 4.5 4.3 4.5	3.7 4.0 3.9 3.9 3.8 3.8	3.9 4.2 4.3 4.1 4.0	3.6 3.4 3.3 3.4 3.3	3.3 3.0 2.8 3.0 2.6 3.3	3.4 3.2 3.1 3.2 3.0 3.4
MONTH	12.7	6.8	10.0	9.2	5.0	7.6	6.6	3.7	5.1	5.7	2.6	4.0

SNOHOMISH RIVER BASIN

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		IBMEE	RAIURE,	WATER (DEG	J. C), WE	MAGI AGI	OCTOBER 2	001 10 8	HE TEMBER	. 2002		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1 2	3.7 3.5	3.3 3.1	3.5 3.3	4.0 4.0	3.1 3.0 3.1 3.3 3.4	3.4	4.8 5.3 5.9	4.1	4.4	6.8 6.0	5.5 5.6	6.1 5.8
3	3.6	3.1	3.3	4.2	3.1	3.6	5.9	3.7	4.7	6.5	5.3	5.7
5	4.5	3.0	3.4	4.1 3.8	3.3	3.6	8.2 6.3	4.6 5.2	6.2 5.9	5.9 5.8		5.6 5.5
6	5.0	4.5	4.8	3.5			6.8	5.9	6.2	5.9		5.3
7 8	5.2 4.3	3.8 2.4	4.8 4.7 3.6	3.6 3.6	3.0 2.8	3.3 3.2	7.0 8.1	5.9 5.5 4.8	6.1 6.2	5.9 6.7	5.0 5.2	5.5 5.9
9 10	5.1 5.5	4.0	4.4	3 7	3.1 3.4	3.4 3.3 3.2 3.4 3.6	7.0 7.3	5.9 6.1	6.4 6.6	6.3 6.8	5.4 5.5	5.8 6.1
11		2 9	3 8							7.5		6.4
12 13	4.7	3.2	3.9 4.2 4.4 4.6	4.0	3.6 3.6 3.6 3.3	3.8	7.4 7.1 7.2 7.0	6.6	6.8	8.7	5.8	6.9
14	5.0	3.8	4.4	4.0 4.0 3.7 3.7	3.3	3.6	7.0	5.4	5.9	8.7 7.3 8.5	6.8	7.4
15	5.6						0.1	3.4	5.7	9.0		7.3
16 17	5.8 5.5	4.4 4.6	5.0 5.0 5.3	3.8 3.6	3.3	3.4 3.3 3.3 3.2 3.0	6.6 7.3	5.2 5.6 5.9	5.8 6.2	10.3 10.0 8.9	5.7 7.2	7.9 8.4
18 19	5.9 5.8	4.9 5.1	5.3 5.4	3.4 3.5	3.1	3.3	7.4 6.9	5.9 5.3	6.5 6.2	8.9 9.2	7.0 7.2	7.9 8.1
20		4.3	5.4 5.0	3.2	2.8	3.0	6.8	6.2	6.4		7.6	8.0
21 22	6.2 6.1	4.6 5.7	5.6	3.6 3.9	2.6 2.8 3.1	3.0	6.7	6.2 5.5	6.4 6.3	8.3	7.2	7.6
23	5.7	4.9	5.5	4.0	3.1	3.5	6.7 6.5 7.4 8.6	4.7	6.4 6.3 5.9	9.3	7.1	7.6 8.0
24 25	5.0 4.8	3.5 3.5	5.6 5.9 5.5 4.3 4.0	3.9 4.0 3.7 4.2	3.3 3.5	3.0 3.3 3.5 3.5 3.8	8.6 6.6	4.7 5.0	6.0 5.8	8.3 8.2 9.3 10.6 9.6	6.3 7.6	8.3 8.5
26	4.8		3.9	3.8			6.0	5.1				8.5
27 28	4.3	3.3	3.7 3.8	3.8 4.2	3.1 3.7	3.5 3.5 3.9	5.7 7.0	5.3 5.4	5.5 5.5 6.0	9.5 10.1 9.4 8.5	7.8 8.1	8.7 8.7
29 30				4.2 4.6 4.6	3.7	4.0 4.2 4.2	7.5 7.3	5.2	6.2	8.5	7.6	8.1
31				4.6	4.0	4.2	7.3			8.6	7.3	7.8
MONTH				4.6	2.6	3.5	8.6	3.6	6.0	10.6	4.8	7.2
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY	MAX	MIN JUNE	MEAN	MAX	MIN JULY	MEAN		MIN AUGUST	MEAN		MIN SEPTEMBE	
1	9.0	JUNE 7.0	7.9	10.1	JULY	9.6	12.4	AUGUST	10.6	11.8	SEPTEMBE	ER 11.4
1 2 3	9.0 9.0 8.8	JUNE 7.0 7.2 7.2	7.9 8.0	10.1 9.9	JULY	9.6	12.4 11.7	AUGUST 9.1 9.5	10.6 10.5	11.8 11.8	SEPTEMBE 11.0 10.9	11.4 11.4 11.2
1 2	9.0 9.0	JUNE 7.0 7.2	7.9 8.0	10.1 9.9	JULY	9.6 9.1	12.4	AUGUST 9.1 9.5	10.6 10.5	11.8 11.8 12.0 11.9	SEPTEMBE	11.4 11.4 11.2 10.6
1 2 3 4	9.0 9.0 8.8 8.2	JUNE 7.0 7.2 7.2 7.7 7.8	7.9 8.0 8.0 7.9 8.3	10.1 9.9 9.1 9.1 10.5	JULY 9.2 8.5 8.5 8.5 8.5	9.6 9.1 8.8 8.7 9.2	12.4 11.7 11.7 11.1 11.6	9.1 9.5 8.8 9.8 9.6	10.6 10.5 10.2 10.3 10.4	11.8 11.8 12.0 11.9	11.0 10.9 10.6 9.3 9.2	11.4 11.4 11.2 10.6 10.5
1 2 3 4 5	9.0 9.0 8.8 8.2 9.1 8.2 7.7	JUNE 7.0 7.2 7.2 7.7 7.8 7.5 7.0	7.9 8.0 8.0 7.9 8.3 7.8 7.4	10.1 9.9 9.1 9.1 10.5	JULY 9.2 8.5 8.5 8.5 8.5	9.6 9.1 8.8 8.7 9.2	12.4 11.7 11.7 11.1 11.6	9.1 9.5 8.8 9.8 9.6	10.6 10.5 10.2 10.3 10.4	11.8 11.8 12.0 11.9 11.9	SEPTEMBE 11.0 10.9 10.6 9.3 9.2 9.2	11.4 11.4 11.2 10.6 10.5
1 2 3 4 5 6 7 8 9	9.0 9.0 8.8 8.2 9.1 8.2 7.7 7.7 9.3	JUNE 7.0 7.2 7.2 7.7 7.8 7.5 7.0	7.9 8.0 8.0 7.9 8.3 7.8 7.4	10.1 9.9 9.1 9.1 10.5	JULY 9.2 8.5 8.5 8.5 8.5	9.6 9.1 8.8 8.7 9.2	12.4 11.7 11.7 11.1 11.6	9.1 9.5 8.8 9.8 9.6	10.6 10.5 10.2 10.3 10.4	11.8 11.8 12.0 11.9 11.9	11.0 10.9 10.6 9.3 9.2 9.2 10.1 9.9 10.8	11.4 11.4 11.2 10.6 10.5 10.5 10.7 10.8 11.6
1 2 3 4 5 6 7 8 9	9.0 9.0 8.8 8.2 9.1 8.2 7.7 7.7 9.3 9.0	JUNE 7.0 7.2 7.2 7.7 7.8 7.5 7.0 7.2 7.7	7.9 8.0 8.0 7.9 8.3 7.8 7.4 7.4 8.1 8.3	10.1 9.9 9.1 10.5 10.6 10.1 10.8 13.2 14.0	JULY 9.2 8.5 8.5 8.5 8.3 8.6 9.0 9.3 8.9	9.6 9.1 8.8 8.7 9.2 9.5 9.5 9.8 10.8 11.7	12.4 11.7 11.7 11.1 11.6 10.4 11.8 12.6 13.1	9.1 9.5 8.8 9.8 9.6 9.7 9.2 9.1 9.7	10.6 10.5 10.2 10.3 10.4 10.1 10.7 11.2	11.8 11.8 12.0 11.9 11.9 12.0 11.6 11.5 12.8	11.0 10.9 10.6 9.3 9.2 9.2 10.1 9.9 10.8 10.5	11.4 11.4 11.2 10.6 10.5 10.5 10.7 10.8 11.6
1 2 3 4 5 6 7 8 9 10	9.0 9.0 8.8 8.2 9.1 8.2 7.7 7.7 9.3 9.0	JUNE 7.0 7.2 7.2 7.7 7.8 7.5 7.0 7.2 7.7 7.8	7.9 8.0 8.0 7.9 8.3 7.8 7.4 8.1 8.3	10.1 9.9 9.1 10.5 10.6 10.1 10.8 13.2 14.0	JULY 9.2 8.5 8.5 8.3 8.6 9.0 9.3 8.9 9.9	9.6 9.1 8.8 8.7 9.2 9.5 9.5 9.8 10.8 11.7	12.4 11.7 11.7 11.1 11.6 10.4 11.8 12.6 13.1 11.8	9.1 9.5 8.8 9.6 9.7 9.2 9.1 9.7 10.5	10.6 10.5 10.2 10.3 10.4 10.1 10.4 10.7 11.2 11.1	11.8 11.8 12.0 11.9 11.9 12.0 11.6 11.5 12.8 12.8	SEPTEMBE 11.0 10.9 10.6 9.3 9.2 9.2 10.1 9.9 10.8 10.5	11.4 11.4 11.2 10.6 10.5 10.5 10.7 10.8 11.6 11.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14	9.0 9.0 8.8 8.2 9.1 8.2 7.7 7.7 9.3 9.0	JUNE 7.0 7.2 7.2 7.7 7.8 7.5 7.0 7.2 7.7 7.8 0 8.4 8.4	7.9 8.0 8.0 7.9 8.3 7.4 7.4 8.1 8.3	10.1 9.9 9.1 9.1 10.5 10.6 10.1 10.8 13.2 14.0 13.7 13.7 12.7	JULY 9.2 8.5 8.5 8.3 8.6 9.0 9.3 8.9 9.9 10.1 9.8 10.5 10.0	9.6 9.1 8.8 8.7 9.2 9.5 9.5 9.8 10.8 11.7 11.5 11.5	12.4 11.7 11.7 11.1 11.6 10.4 11.8 12.6 13.1 11.8	9.1 9.5 8.8 9.6 9.7 9.2 9.1 9.7 10.5 9.8 9.9	10.6 10.5 10.2 10.3 10.4 10.1 10.4 10.7 11.2 11.1	11.8 11.8 12.0 11.9 11.9 12.0 11.6 11.5 12.8 12.8 12.8	SEPTEMBE 11.0 10.9 10.6 9.3 9.2 9.2 10.1 9.9 10.8 10.5 10.5 10.8 10.7 10.9	11.4 11.4 11.2 10.6 10.5 10.5 10.7 10.8 11.6 11.6
1 2 3 4 5 6 7 8 9 10	9.0 9.0 8.8 8.2 9.1 8.2 7.7 7.7 9.0 9.6 10.0 10.3	JUNE 7.0 7.2 7.2 7.7 7.8 7.5 7.0 7.2 7.7 7.7 8.0 8.4 8.4 8.2	7.9 8.0 7.9 8.3 7.8 7.4 7.4 8.1 8.3 8.6 8.9 9.2 9.2 8.6	10.1 9.9 9.1 9.1 10.5 10.6 10.1 10.8 13.2 14.0 13.7 12.7 11.6 13.2	JULY 9.2 8.5 8.5 8.5 8.3 8.6 9.0 9.3 8.9 9.9 10.1 9.8 10.5 10.0 9.1	9.6 9.1 8.8 8.7 9.2 9.5 9.5 9.8 10.8 11.7 11.5 11.5 10.8	12.4 11.7 11.7 11.1 11.6 10.4 11.8 12.6 13.1 11.8 13.0 13.2 13.6 13.4	9.1 9.5 8.8 9.8 9.6 9.7 9.2 9.1 9.7 10.5 9.8 9.9 10.2 10.3	10.6 10.5 10.2 10.3 10.4 10.1 10.7 11.2 11.1 11.2 11.3 11.7 11.6 11.4	11.8 11.8 12.0 11.9 11.9 12.0 11.6 11.5 12.8 12.8 12.8 12.9	SEPTEMBE 11.0 10.9 10.6 9.3 9.2 9.2 10.1 9.9 10.8 10.5 10.5 10.8 10.7 10.9	11.4 11.4 11.2 10.6 10.5 10.5 10.7 10.8 11.6 11.6 11.7 11.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	9.0 9.0 8.8 8.2 9.1 8.2 7.7 7.7 9.3 9.0 10.3 9.6 9.1 8.6	JUNE 7.0 7.2 7.7 7.8 7.5 7.0 7.2 7.7 7.7 8.0 8.4 8.4 8.2	7.9 8.0 7.9 8.3 7.8 7.4 7.4 8.1 8.3 8.6 8.9 9.2 9.2 8.6	10.1 9.9 9.1 9.1 10.5 10.6 10.1 10.8 13.2 14.0 13.7 12.7 11.6 13.2	JULY 9.2 8.5 8.5 8.5 8.3 8.6 9.0 9.3 8.9 9.9 10.1 9.8 10.5 10.0 9.1	9.6 9.1 8.8 8.7 9.2 9.5 9.5 9.8 10.8 11.7 11.5 11.5 10.8	12.4 11.7 11.7 11.1 11.6 10.4 11.8 12.6 13.1 11.8	9.1 9.5 8.8 9.6 9.7 9.2 9.1 9.7 10.5 9.8 9.9 10.2	10.6 10.5 10.2 10.3 10.4 10.1 10.7 11.2 11.1 11.2 11.3 11.7 11.6 11.4	11.8 11.8 12.0 11.9 11.9 12.0 11.6 11.5 12.8 12.8 12.8 12.9 13.1 13.1 13.1 12.3	SEPTEMBE 11.0 10.9 10.6 9.3 9.2 10.1 9.9 10.8 10.5 10.5 10.8 10.7 10.9 11.4	11.4 11.4 11.2 10.6 10.5 10.5 10.7 10.8 11.6 11.6 11.7 11.9 11.9 11.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	9.0 9.0 8.8 8.2 9.1 8.2 7.7 7.7 9.3 9.0 10.0 10.3 9.6 9.1 8.6 8.7	JUNE 7.0 7.2 7.2 7.7 7.8 7.5 7.0 7.2 7.7 7.7 8.0 8.4 8.4 8.4 8.2 8.2	7.9 8.0 7.9 8.3 7.8 7.4 7.4 8.1 8.3 8.6 8.9 9.2 9.2 8.6	10.1 9.9 9.1 9.1 10.5 10.6 10.1 10.8 13.2 14.0 13.7 12.7 11.6 13.2	JULY 9.2 8.5 8.5 8.5 8.3 8.6 9.0 9.3 8.9 9.9 10.1 9.8 10.5 10.0 9.1	9.6 9.1 8.8 8.7 9.2 9.5 9.5 9.8 10.8 11.7 11.5 11.5 10.8	12.4 11.7 11.7 11.1 11.6 10.4 11.8 12.6 13.1 11.8	9.1 9.5 8.8 9.6 9.7 9.2 9.1 9.7 10.5 9.8 9.9 10.2	10.6 10.5 10.2 10.3 10.4 10.1 10.7 11.2 11.1 11.2 11.3 11.7 11.6 11.4	11.8 11.8 12.0 11.9 11.9 12.0 11.6 11.5 12.8 12.8 12.9 13.1 13.1 12.3 12.2	SEPTEMBE 11.0 10.9 10.6 9.3 9.2 10.1 9.9 10.8 10.5 10.5 10.5 10.9 11.4 11.4 10.9 9.8	11.4 11.4 11.2 10.6 10.5 10.5 10.7 10.8 11.6 11.7 11.9 11.9 12.0 11.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	9.0 9.0 8.8 8.2 9.1 8.2 7.7 7.7 9.3 9.0 10.0 10.3 9.6 9.1 8.6 8.7	JUNE 7.0 7.2 7.7 7.8 7.5 7.0 7.2 7.7 7.7 8.0 8.4 8.4 8.2	7.9 8.0 7.9 8.3 7.8 7.4 7.4 8.1 8.3 8.6 8.9 9.2 9.2 8.6	10.1 9.9 9.1 9.1 10.5 10.6 10.1 10.8 13.2 14.0 13.7 13.7 12.7	JULY 9.2 8.5 8.5 8.5 8.3 8.6 9.0 9.3 8.9 9.9 10.1 9.8 10.5 10.0 9.1	9.6 9.1 8.8 8.7 9.2 9.5 9.5 9.8 10.8 11.7 11.5 11.5 10.8	12.4 11.7 11.7 11.1 11.6 10.4 11.8 12.6 13.1 11.8 13.0 13.2 13.6 13.4 13.2	9.1 9.5 8.8 9.6 9.7 9.2 9.1 9.7 10.5 9.8 9.9 10.2	10.6 10.5 10.2 10.3 10.4 10.1 10.7 11.2 11.1 11.2 11.3 11.7 11.6 11.4	11.8 11.8 12.0 11.9 11.9 12.0 11.6 11.5 12.8 12.8 12.8 12.9 13.1 13.1 13.1 12.3	SEPTEMBE 11.0 10.9 10.6 9.3 9.2 9.2 10.1 9.9 10.8 10.5 10.5 10.5 10.9 11.4	11.4 11.2 10.6 10.5 10.5 10.7 10.8 11.6 11.6 11.7 11.9 11.9 11.9 11.9 11.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	9.0 9.0 8.8 8.2 9.1 8.2 7.7 7.7 9.3 9.0 10.3 9.6 9.1 8.6 8.7 8.6 9.3 10.6	JUNE 7.0 7.2 7.2 7.7 7.8 7.5 7.0 7.2 7.7 7.7 8.0 8.4 8.4 8.2 8.1 8.2 8.1 8.0	7.9 8.0 7.9 8.3 7.8 7.4 8.1 8.3 8.6 8.9 9.0 8.6 8.4 8.3 8.6 9.1	10.1 9.9 9.1 9.1 10.5 10.6 10.1 10.8 13.2 14.0 13.7 13.7 11.6 13.2 14.0 13.2 14.0	JULY 9.2 8.5 8.5 8.5 8.3 8.6 9.0 9.3 8.9 9.9 10.1 9.8 10.5 10.0 9.1 9.4 9.9 10.1 10.2 9.3	9.6 9.1 8.8 8.7 9.2 9.5 9.5 9.8 10.8 11.7 11.5 11.5 10.8 10.9	12.4 11.7 11.7 11.1 11.6 10.4 11.8 12.6 13.1 11.8 13.0 13.2 13.6 13.4 13.2 13.2 13.1 12.9 12.7 12.7 12.6 11.3	9.1 9.8 8.8 9.6 9.7 9.2 9.1 9.7 10.5 9.8 9.9 10.2 10.3 10.0 10.2 9.9 9.5 9.8	10.6 10.5 10.2 10.3 10.4 10.1 10.7 11.2 11.3 11.7 11.6 11.4 11.3 11.0 11.1 10.8	11.8 11.8 11.9 11.9 11.9 12.0 11.6 11.5 12.8 12.8 12.8 12.9 13.1 13.1 12.3 12.3 12.2 12.3 12.4 12.0	SEPTEMBE 11.0 10.9 10.6 9.3 9.2 9.2 10.1 9.9 10.8 10.5 10.5 10.5 10.9 11.4 10.9 9.8 11.4 10.1	11.4 11.2 11.2 10.6 10.5 10.5 10.7 10.8 11.6 11.6 11.7 11.9 11.9 11.9 11.9 11.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	9.0 9.0 8.8 8.2 9.1 8.2 7.7 7.7 9.3 9.0 10.0 10.3 9.6 10.0 10.3 9.1 8.6 9.1 8.6 9.1	JUNE 7.0 7.2 7.2 7.7 7.8 7.5 7.0 7.2 7.7 7.7 8.0 8.4 8.4 8.2 8.1 8.2 8.1 8.0	7.9 8.0 7.9 8.3 7.8 7.4 8.1 8.3 8.6 8.9 9.0 8.6 8.4 8.3 8.6 9.1	10.1 9.9 9.1 10.5 10.6 10.1 10.8 13.2 14.0 13.7 12.7 11.6 13.2 13.4 11.7 13.3 13.6 13.8 13.8	JULY 9.2 8.5 8.5 8.5 8.3 8.6 9.0 9.3 8.9 9.9 10.1 9.8 10.5 10.0 9.1 9.4 9.9 10.1 10.2 9.3	9.6 9.1 8.8 8.7 9.2 9.5 9.5 9.8 10.8 11.7 11.5 11.5 11.5 11.5 11.5 11.4 11.1	12.4 11.7 11.7 11.1 11.6 10.4 11.8 12.6 13.1 11.8 13.0 13.2 13.6 13.4 13.2 13.4 13.2	9.1 9.5 8.8 9.6 9.7 9.2 9.1 10.5 9.8 9.9 10.5 10.3 10.0 10.2 9.9 9.5 9.8 9.9	10.6 10.5 10.2 10.3 10.4 10.1 10.4 10.7 11.2 11.1 11.2 11.3 11.7 11.6 11.4 11.3 11.0 11.1 10.8	11.8 11.8 11.8 12.0 11.9 11.9 12.0 11.6 11.5 12.8 12.8 12.9 13.1 13.1 12.3 12.3 12.3 12.3 12.4 12.0	SEPTEMBE 11.0 10.9 10.6 9.3 9.2 9.2 10.1 9.9 10.8 10.5 10.5 10.5 10.8 10.7 10.9 11.4 11.4 10.9 9.8 11.4 10.1	11.4 11.4 11.2 10.6 10.5 10.5 10.7 10.8 11.6 11.6 11.7 11.9 11.9 11.9 11.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	9.0 9.0 8.8 8.2 9.1 8.2 7.7 7.7 9.3 9.0 10.0 10.3 9.6 10.0 10.3 9.1 8.6 9.1 8.6 9.1	JUNE 7.0 7.2 7.2 7.7 7.8 7.5 7.0 7.2 7.7 7.7 8.0 8.4 8.4 8.2 8.1 8.2 8.1 8.0	7.9 8.0 7.9 8.3 7.8 7.4 7.4 8.1 8.3 8.6 8.9 9.2 9.2 8.6	10.1 9.9 9.1 10.5 10.6 10.1 10.8 13.2 14.0 13.7 12.7 11.6 13.2 13.4 13.5 12.4 11.7 13.3	JULY 9.2 8.5 8.5 8.5 8.3 8.6 9.0 9.3 8.9 9.9 10.1 9.8 10.5 10.0 9.1 9.4 9.9 10.1 10.2 9.3	9.6 9.1 8.8 8.7 9.2 9.5 9.5 9.8 10.8 11.7 11.5 10.8 10.9 11.2 11.4 11.1 10.8 11.1	12.4 11.7 11.7 11.1 11.6 10.4 11.8 12.6 13.1 11.8 13.0 13.2 13.6 13.4 13.2 13.1 12.9	9.1 9.5 8.8 9.6 9.7 9.2 9.1 10.5 9.8 9.9 10.5 10.3 10.0 10.2 9.9 9.5 9.8 9.9	10.6 10.5 10.2 10.3 10.4 10.1 10.7 11.2 11.3 11.7 11.6 11.4 11.3 11.0 11.1 10.8	11.8 11.8 11.8 12.0 11.9 11.9 12.0 11.6 11.5 12.8 12.8 12.8 12.3 12.3 12.3 12.3 12.3	SEPTEMBE 11.0 10.9 10.6 9.3 9.2 9.2 10.1 9.9 10.8 10.5 10.5 10.5 10.9 11.4 10.9 9.8 11.4 10.1 9.4 10.0 10.4 10.7	11.4 11.4 11.2 10.6 10.5 10.5 10.7 10.8 11.6 11.6 11.7 11.9 11.9 11.9 11.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	9.0 9.0 8.8 8.2 9.1 8.2 7.7 7.7 7.7 9.3 9.0 10.0 10.3 9.6 9.1 8.6 9.1 8.6 9.3 10.6 10.8 10.7 9.8 11.3 13.4	JUNE 7.0 7.2 7.7 7.8 7.5 7.0 7.2 7.7 7.7 8.0 8.4 8.4 8.2 8.1 8.2 8.1 8.0 8.4 8.5 9.1	7.9 8.0 7.9 8.3 7.8 7.4 8.1 8.3 8.6 8.9 9.0 8.6 8.4 8.3 8.6 9.1 9.4 9.2 9.6 11.0	10.1 9.9 9.1 9.1 10.5 10.6 10.1 10.8 13.2 14.0 13.7 12.7 11.6 13.2 13.4 11.7 13.3 13.6 13.8 13.9 11.9	JULY 9.2 8.5 8.5 8.5 8.3 8.6 9.0 9.3 8.9 9.9 10.1 9.8 10.5 10.0 9.1 9.4 9.9 10.1 10.2 9.3 10.3 10.2 10.3	9.6 9.1 8.8 8.7 9.2 9.5 9.5 9.8 10.8 11.7 11.5 10.8 10.9 11.2 11.4 11.1 10.8 11.1	12.4 11.7 11.7 11.1 11.6 10.4 11.8 12.6 13.1 11.8 13.0 13.2 13.6 13.4 13.2 13.1 12.9 12.7 12.6 11.3	9.1 9.5 8.8 9.8 9.6 9.7 9.2 10.5 9.8 9.9 10.2 10.3 10.0 10.2 9.9 9.5 9.8 10.5	10.6 10.5 10.2 10.3 10.4 10.1 10.7 11.2 11.1 11.2 11.3 11.7 11.6 11.4 11.3 11.0 11.1 10.8	11.8 11.8 12.0 11.9 11.9 12.0 11.6 11.5 12.8 12.8 12.8 12.3 12.3 12.3 12.3 12.4 12.0	SEPTEMBE 11.0 10.9 10.6 9.3 9.2 9.2 10.1 9.9 10.8 10.5 10.5 10.8 10.7 10.9 11.4 11.4 10.9 9.8 11.4 10.1	11.4 11.2 10.6 10.5 10.5 10.7 10.8 11.6 11.6 11.7 11.9 11.9 11.9 12.0 11.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 25 27	9.0 9.0 9.8 8.8 8.2 9.1 8.2 7.7 7.7 9.3 9.0 10.0 10.3 9.6 9.1 8.6 8.7 8.6 8.7 8.9 3 10.6	JUNE 7.0 7.2 7.7 7.8 7.5 7.0 7.2 7.7 8.0 8.4 8.2 8.1 8.2 8.1 8.2 8.1 8.0 8.4 8.9 9.9	7.9 8.0 7.9 8.3 7.8 7.4 7.4 8.1 8.3 8.6 8.9 9.2 9.0 8.6 8.3 8.3 8.3 8.3 9.1 9.2 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1	10.1 9.9 9.1 9.1 10.5 10.6 10.1 10.8 13.2 14.0 13.7 12.7 11.6 13.2 13.4 13.5 12.4 11.7 13.3	JULY 9.2 8.5 8.5 8.5 8.3 8.6 9.0 9.3 8.9 9.9 10.1 9.8 10.5 10.0 9.1 9.4 9.9 10.1 10.2 9.3 9.5 10.1 10.3 10.2 10.3	9.6 9.1 8.8 8.7 9.2 9.5 9.5 9.8 10.8 11.7 11.5 10.8 10.9 11.2 11.4 11.1 10.8 11.1 11.7 11.8 11.7	12.4 11.7 11.7 11.1 11.6 10.4 11.8 12.6 13.1 11.8 13.0 13.2 13.6 13.4 13.2 13.1 12.9 12.7 12.7 12.6 11.3	9.1 9.5 8.8 9.6 9.7 9.2 9.1 9.7 10.5 9.8 9.9 10.2 10.3 10.0 10.2 9.9 9.5 10.3 10.0	10.6 10.5 10.2 10.3 10.4 10.1 10.7 11.2 11.1 11.2 11.3 11.7 11.6 11.4 11.4 11.1 10.8 10.9 11.1 11.6 11.7	11.8 11.8 11.8 12.0 11.9 11.9 12.0 11.6 12.8 12.8 12.8 12.3 12.3 12.3 12.3 12.3 12.3 12.3 12.3	SEPTEMBE 11.0 10.9 10.6 9.3 9.2 9.2 10.1 9.9 10.8 10.5 10.5 10.8 10.7 10.9 11.4 11.4 10.9 9.8 11.4 10.1	11.4 11.2 10.6 10.5 10.5 10.7 10.8 11.6 11.6 11.7 11.9 11.9 11.9 12.0 11.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29	9.0 9.0 8.8 8.2 9.1 8.2 7.7 7.7 9.3 9.0 10.3 9.6 9.1 8.6 8.7 8.9 3.1 10.6 10.8 10.8 10.9 10.8 10.9 10.8 10.9 10.8 10.9 10.8	JUNE 7.0 7.2 7.7 7.8 7.5 7.0 7.2 7.7 7.7 8.0 8.4 8.2 8.1 8.0 8.4 8.6 8.5 9.1 9.8 9.9 9.1 9.3	7.9 8.0 7.9 8.3 7.8 7.4 8.1 8.3 8.6 8.9 9.0 8.6 8.4 8.3 8.6 9.1 9.5 9.6 11.0 11.3 10.4 9.8	10.1 9.9 9.1 9.1 10.5 10.6 10.1 10.8 13.2 14.0 13.7 13.7 11.6 13.2 13.4 13.5 12.4 11.7 13.3 13.6 13.8 13.9 11.9	JULY 9.2 8.5 8.5 8.3 8.6 9.0 9.3 8.9 9.9 10.1 9.4 9.9 10.1 10.2 9.3 9.5 10.1 10.2 10.3 10.2 10.3	9.6 9.1 8.8 8.7 9.2 9.5 9.8 10.8 11.7 11.7 11.5 10.8 10.9 11.2 11.4 11.1 10.8 11.1 11.4 11.7 11.7 11.6 10.9	12.4 11.7 11.7 11.1 11.6 10.4 11.8 12.6 13.1 11.8 13.0 13.2 13.6 13.4 13.2 13.1 12.9 12.6 11.3 11.5 12.7 12.6 11.3	9.1 9.5 8.8 9.8 9.6 9.7 9.2 10.5 9.8 9.9 10.2 10.3 10.0 10.2 9.9 9.5 9.8 10.5 10.4 10.3 10.5 10.5	10.6 10.5 10.2 10.3 10.4 10.1 11.0 11.2 11.1 11.2 11.3 11.7 11.6 11.4 11.3 11.0 11.1 10.8 10.9 11.4 11.6 11.7 11.1	11.8 11.8 11.9 11.9 11.9 12.0 11.6 11.5 12.8 12.8 12.8 12.9 13.1 13.1 12.3 12.2 12.3 12.4 12.0 12.1 12.5 12.8 12.9	SEPTEMBE 11.0 10.9 10.6 9.3 9.2 9.2 10.1 9.9 10.8 10.5 10.5 10.5 10.9 11.4 11.4 10.9 9.8 11.4 10.1 9.4 10.1 10.6 10.7 10.8 11.7 10.8	11.4 11.2 10.6 10.5 10.5 10.5 10.7 10.8 11.6 11.6 11.7 11.9 11.9 11.9 11.5 11.1 11.8 11.5 11.1 11.8 11.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	9.0 9.0 9.8 8.8 8.2 9.1 8.2 7.7 7.7 9.3 9.0 10.0 10.3 9.6 9.1 8.6 8.7 8.6 8.7 8.9 3 10.6	JUNE 7.0 7.2 7.7 7.8 7.5 7.0 7.2 7.7 8.0 8.4 8.2 8.1 8.2 8.1 8.2 8.1 8.0 8.4 8.9 9.9	7.9 8.0 7.9 8.3 7.8 7.4 7.4 8.1 8.3 8.6 8.9 9.2 9.0 8.6 8.4 8.3 8.3 8.6 9.1 9.2 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1	10.1 9.9 9.1 10.5 10.6 10.1 10.8 13.2 14.0 13.7 12.7 11.6 13.2 13.4 11.7 13.5 12.4 11.7 13.3 13.6 13.8 13.5 13.9 11.9	JULY 9.2 8.5 8.5 8.5 8.3 8.6 9.0 9.3 8.9 9.9 10.1 9.4 9.9 10.1 10.2 9.3 9.5 10.1 10.3 10.2 10.3	9.6 9.1 8.8 8.7 9.2 9.5 9.5 9.8 10.8 11.7 11.5 10.8 10.9 11.2 11.4 11.1 11.7 11.7 11.9 10.9	12.4 11.7 11.7 11.1 11.6 10.4 11.8 12.6 13.1 11.8 13.0 13.2 13.6 13.2 13.4 13.2 13.4 13.2 13.1 12.9 12.7 12.6 11.3	9.1 9.5 8.8 9.6 9.7 9.2 9.1 9.7 10.5 9.8 9.9 10.2 10.3 10.0 10.2 9.9 9.5 10.3 10.0 10.2 10.5	10.6 10.5 10.2 10.3 10.4 10.1 10.7 11.2 11.1 11.2 11.3 11.7 11.6 11.4 11.4 11.1 10.8 10.9 11.1 11.6 11.7	11.8 11.8 11.8 12.0 11.9 11.9 12.0 11.6 11.5 12.8 12.8 12.3 12.3 12.3 12.3 12.3 12.3 12.3 12.3	SEPTEMBE 11.0 10.9 10.6 9.3 9.2 9.2 10.1 9.9 10.8 10.5 10.5 10.8 10.7 10.9 11.4 11.4 10.9 9.8 11.4 10.1	11.4 11.2 10.6 10.5 10.5 10.7 10.8 11.6 11.6 11.7 11.9 11.9 11.9 12.0 11.7

12148500 TOLT RIVER NEAR CARNATION, WA

LOCATION.--Lat $47^{\circ}41'45"$, long $121^{\circ}49'22"$, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.31, T.26 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 500 ft downstream from the forks, 0.4 mi upstream from Stossel Creek, 5.5 mi northeast of Carnation, and at mile 8.7.

DRAINAGE AREA. -- 81.4 mi2.

PERIOD OF RECORD.--August 1928 to January 1932, September 1937 to current year. Prior to October 1951, published as "near Tolt." REVISED RECORDS.--WSP 1286: 1929 (M), 1930, 1938 (M), 1939, 1943 (M), 1945 (M), 1951 (M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 348 ft above NGVD of 1929 (river-profile survey). Prior to Oct. 31, 1928, nonrecording gage, and Oct. 31, 1928, to Jan. 3, 1932, water-stage recorder at site 350 ft upstream at datum 7.1 ft higher (river-profile survey). Sept. 1 to Oct. 6, 1937, nonrecording gage at present site at datum 1.64 ft higher.

REMARKS.--No estimated daily discharges. Records good. Some regulation by South Fork Reservoir, capacity, 57,830 acre-ft, and by Seattle City Light hydroelectric project, upstream from station. During the current water year City of Seattle Water Department diverted an average daily discharge of about 89 ft³/s upstream from station for municipal use. Chemical analyses July 1960 to September 1970. U.S. Geological Survey satellite telemeter at station.

 $AVERAGE \ DISCHARGE. --68 \ years \ (water \ years \ 1929-31, \ 1938-2002) \, , \ 577 \ ft^3/s, \ 418,300 \ acre-ft/yr.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,400 ${\rm ft}^3/{\rm s}$ Dec. 15, 1959, gage height, 13.04 ${\rm ft}$; minimum discharge, 53 ${\rm ft}^3/{\rm s}$ Sept. 22, 23, 1951, gage height, 3.84 ${\rm ft}$.

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

Date		Time	Discharge (ft ³ /s)	Gage height (ft)	Date		Time	Discharge (ft ³ /s)	Gage height (ft)
Nov.	14	1345	*5,340	*9.24	Jan.	07	2345	4,090	8.67
Dec.	13	1145	3,670	8.45	Feb.	21	1745	3,840	8.54
Dec.	16	1130	3,580	8.40	Feb.	22	1015	4,460	8.85
Jan.	07	0800	3,750	8.49	Apr.	14	0430	3,670	8.45

Minimum discharge, 126 ft³/s Sept. 27-95.

	<u> </u>		-									
		DISCHA	RGE, CUB	IC FEET PE	ER SECOND,	WATER Y		R 2001 TO	SEPTEME	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
DAI	001	1404	DEC	OPIN	FEB	Piral	AFK	PERI	UUN	001	AUG	SEF
1	142	671	799	610	648	704	785	882	849	766	200	146
2	138	797	881	764	619	670	705	909	839	602	195	154
3	136	564	619	650	632	645	642	929	819	555	190	210
4	134	499	535	611	618	673	583	760	831	519	189	167
5	133	619	512	569	587	716	620	718	1160	488	189	150
6	133	480	530	737	527	600	782	694	1110	446	201	143
7	134	419	529	3050	638	583	935	647	809	449	203	141
8	146	379	550	2540	612	583	669	622	743	558	188	140
9	167	349	629	1360	589	581	703	608	704	391	183	140
10	199	327	522	928	587	572	1260	599	756	383	181	139
11	677	309	508	789	593	1230	1340	607	819	368	179	136
12	451	309	525	1030	574	1030	1940	706	904	342	176	136
13	567	408	2690	912	523	812	2250	803	987	327	174	135
14	790	3570	1810	784	472	743	2430	1010	951	309	173	132
15	414	1710	1070	844	444	726	1250	711	834	285	171	132
16	312	1120	2740	798	436	696	1110	590	753	273	168	195
17	338	729	2090	763	439	648	929	803	674	270	165	213
18	274	563	1210	718	563	617	800	748	888	269	163	161
19	1370	588	984	743	608	642	723	669	705	258	162	147
20	695	756	855	751	578	678	674	834	608	244	162	146
21	512	758	891	724	1880	635	635	757	670	237	161	142
22	845	900	853	693	3360	628	695	1070	665	238	157	136
23	677	1480	799	662	1670	620	764	834	618	235	157	133
24	690	912	743	1070	1100	622	675	710	548	229	155	131
25	1330	664	630	1390	815	643	735	721	484	223	155	128
26	894	569	603	921	758	656	723	748	521	220	153	128
27	846	516	585	756	737	673	702	805	498	216	153	127
28	614	507	675	676	716	968	674	1390	719	207	151	126
29	506	694	642	627		886	705	1650	1520	216	150	157
30	517	648	589	622		865	791	1120	760	219	148	165
31	860		612	663		791		948		212	147	
TOTAL	15641	22814	28210	28755	22323	22136	28229	25602	23746	10554	5299	4436
MEAN	505	760	910	928	797	714	941	826	792	340	171	148
MAX	1370	3570	2740	3050	3360	1230	2430	1650	1520	766	203	213
MIN	133	309	508	569	436	572	583	590	484	207	147	126
AC-FT	31020	45250	55950	57040	44280	43910	55990	50780	47100	20930	10510	8800
STATIS	TTCS OF N	ME.V. HITMON	ו מידימרו ואם	קקייע מריק	YEARS 1928	= 2002	BV WATED	VEAR (WV)				
MEAN	441	785	886	852	737	604	669	682	555	299	181	244
MAX	933	1965	1897	2058	1634	1472	1275	1208	1204	802	485	954
(WY)	1960	1996	1976	1953	1982	1972	1959	1948	1964	1955	1964	1959
MIN	79.5	123	305	246	163	267	289	310	205	120	74.9	72.9
(WY)	1988	1953	1986	1929	1929	1992	1941	1992	1992	1958	1958	1940
SUMMARY	Y STATIST	CICS	FOR	2001 CALE	ENDAR YEAR		FOR 2002 W	ATER YEAR		WATER YEA	ARS 1928 -	2002
ANNUAL	TOTAL			169331			237745					
ANNUAL				464			651			577		
	T ANNUAL	MEAN								922		1959
	ANNUAL M									365		1994
	T DAILY M			3570	Nov 14		3570	Nov 14		11400	Feb 9	
	DAILY ME			133	Oct 5		126	Sep 28		53	Sep 22	
		Y MINIMUM		136	Oct 1		130	Sep 22		56	Sep 17	
	RUNOFF (335900			471600	-		418300	-	
	CENT EXCE			783			1050			1110		
	CENT EXCE			386			627			448		
	CENT EXCE			160			154			142		

12149000 SNOQUALMIE RIVER NEAR CARNATION, WA

LOCATION.--Lat $47^{\circ}39^{\circ}58^{\circ}$, long $121^{\circ}55^{\circ}27^{\circ}$, in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.9, T.25 N., R.7 E., King County, Hydrologic Unit 17110010, on left bank 40 ft downstream from highway bridge, 1.3 mi northwest of Carnation, 1.9 mi downstream from Tolt River, and at mile 23.0.

DRAINAGE AREA. -- 603 mi2.

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for October 1928 to February 1929, published in WSP 870. Prior to October 1951, published as "near Tolt."

REVISED RECORDS.--WSP 1316: 1932-33(M). WSP 1446: 1934(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Prior to Dec. 20, 1933, nonrecording gage on old bridge, 100 ft upstream and Dec. 20, 1933, to Sept. 30, 1939, water-stage recorder at present site, at datum 42.96 ft higher.

REMARKS.--Records good. During the current water year, Seattle Water Department diverted an average daily discharge of 89 ft³/s upstream from station from South Fork Tolt River for municipal use. Several small diversions for irrigation and domestic use upstream from station. Low flow diverted for operation of powerplant at Snoqualmie Falls but returned to river upstream from station. Some pondage at Snoqualmie Falls and some diurnal fluctuation caused by powerplant. Chemical analyses October 1966 to June 1969. Water temperatures October 1966 to June 1969. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--73 years (water years 1930-2002), 3,738 ft^3/s , 84.23 in/yr, 2,708,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,200 ft³/s Nov. 24, 1990, gage height, 60.70 ft, from inside high-water mark; minimum discharge, 239 ft³/s Aug. 21, 1945, but may have been less sometime during period of faulty intake action Sept. 13 or 14, 1949; minimum daily discharge, 341 ft³/s Sept. 15, 1973.

Date	Time	(ft ³ /s)	(ft)	Date	Time	(ft ³ /s)	(ft)
Nov. 15 Dec. 14 Dec. 17	0530 0830 1130	*26,000 17,100 19,900	*56.05 53.10 54.22	Jan. 08 Feb. 22 Apr. 14	1830 2130 2200	23,300 17,100 24,900	55.41 53.09 55.82
Minimum d	ischarge, 535	ft ³ /s Oct. 5	5-8.				
		DISCHARGE,	CUBIC FEET PER	SECOND, WATE DAILY MEA	ER YEAR OCTOBER AN VALUES	2001 TO SEPT	EMBER 2002
5311	0.077	D	77.7				

		DIDCH	MOD, COD.	IC IDDI II	DAIL	Y MEAN V		DDR 2001 10) DEL TEME	DIC ZOUZ		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	654	6940	5190	2610	3710	3420	3660	5020	6730	5190	1530	771
2	612	6280	6300	2870	3470	3120	3660	5630	6400	4480	1450	762
3	593	5290	5120	3150	3360	2890	3300	5390	6290	4010	1390	1060
4	570	3990	4350	2950	3320	2770	3110	4450	6320	3710	1310	1060
5		6280 5290 3990 4380	3960		3710 3470 3360 3320 3150						1300	872
6	535	3760	3870	2900	3120	2750	4280	3810 3440 3100 2920 2810	8890	3350	1400	800
7	535	3140	4170	13000	3680	2550	6340	3440	6820	3590	1500	751
8	538	2740	3690	21800	4340	2460	5200	3100	5230	4580	1340	739
9	635	2470	4190	16600	4160	2390	4300	2920	4500	3820	1240	740
												727
11	3370	2120	3440	5850	3630	4890	7940	2790 3100 4600 5850 5220	5700	3960	1210	716
12	2860	2040	3190	5840	3240	7870	10600	3100	6750	3/80	1170	695
13 14	4010	2300	15500	4000	2950	4460	13100	4600	0120	3490	1090 1110	694 685
15	2060	22200	15500	4980	2/30	4460	20900	5850	9130	3280	1090	667
16	2630	13100	12500	3960	2510	3770	9580	4250 4580 5350 4940 6090	7020	2570	1050	719 1120 1060
17	2770	/510	T8./00	3550	2460	3390	7000	4580	5610	2530	1010	1120
18	2300	5320	10400	3250	2/30	3080	5600	5350	6570	2460	964	1060
19 20	6000	4520	7140	3980	3050	4610	4770	6000	7200	2370	927	862 811
21	3690	6430	4870	4430	5760	4000	4050	6270 6930 6260 5360 5330	5820	2100	938	793
22	5170	6720	4290	3790	14700	3510	4010	6930	6380	2080	916	740
23	7150	11100	3810	3370	14100	3270	4280	6260	6180	2080	883	706
24	6200	7850	3460	4340	9640	3140	3860	5360	5150	2040	866	682
												656
26	7260	4600	2910	6350	4980	3170	3570	5740 6310 9640 11800 10100 8010	5620	1930	849	648
27	6060	4030	2750	4610	4260	3230	3570	6310	6020	1830	838	624
28	4800	3870	2750	3890	3830	3850	3380	9640	6040	1670	815	624
29	3680	4760	2820	3400		4270	3460	11800	10800	1680	803	677
30	3180	4870	2610	3320		3980	3950	10100	7430	1710	795	784
TOTAL	106421	180330	175130	173400	128740	111760	183330	169050	197250	90050	33539	23245
MEAN	3433	6011	5649	5594	4598	3605	6111	5453	6575	2905	1082	775
MAX	7500	22200	18700	21800	14700	7870	20900	5453 11800 2790	10800	5190	1530	1120
MIN	535	2040	2570	2610	2460	2390	3110	2790	4500	1630	77/8	624
		357700	347400	343900	255400	221700	363600	335300	391200	178600	66520	46110
IN.	6.57	9.97	9.37	9.28	7.62	5.98	10.1	9.04 10.43	10.9	4.82	1.79	1.28
										5.56	2.07	1.43
STATIS	STICS OF I	MONTHLY ME					•	ER YEAR (W)				
MEAN	2564	4896	5519	5089	4410	3804	4335	5006 7847 1936 2434 1992	4506	2335	1104	1359
MAX	5811	12850	14530	11140	9743	9979	6797	7847	8983	5629	2992	5128
(WY)	5811 1948	1991	1934	1953	1982	1932	1932	1936	1974	1955	1964	1959
MIN	407	619	1934 1694 1986	1291	1860	1933	2230	2434	1362	840	492	484
(WY)	1988	1953	1986	1937	1973	1941	1941	1992	1992	1940	1930	1998
SUMMAR	RY STATIS	rics	FOR	2001 CAL	ENDAR YEAR		FOR 2002	WATER YEAR	2	WATER YEA	ARS 1929 -	2002
ANNUAL	TOTAL			1147491			1572245					
ANNUAL	MEAN			3144			4308			3738		
HIGHES	ST ANNUAL	MEAN								5439		1972
LOWEST	ANNUAL I	MEAN MEAN		22200	Norr 15		22200	Morr 10		2314	Morr 20	1941
TOMECT	ו זבו באברונ	ALEWIN		22200 524	NOV 15		22200	Ogt 4		2/1	NOV 25	1973
ANNITAT	SEVEN-D	AA WLNIMIIM	Л	552	Sep 23		563	Oct 3	,	359	Sep 13	1973
ANNUAL	RUNOFF	(AC-FT)	•	2276000	DCP 13		3119000	000 2	•	2708000	DCP II	. 10,0
ANNUAL	RUNOFF	(CFSM)		5.2	21		7.	.14		6.2	20	
ANNUAL	RUNOFF	(INCHES)		70.7	79		96.	. 99		84.2	23	
10 PER	CENT EXC	EEDS		5990			7500			7000		
50 PER	CENT EXC	EEDS		2640			3690			2970		
90 PER	RCENT EXC	EEDS		758			808	Nov 15 Oct 6 Oct 2		839		

e Estimated

12150800 SNOHOMISH RIVER NEAR MONROE, WA

LOCATION.--Lat $47^{\circ}49^{\circ}52^{\circ}$, long $122^{\circ}02^{\circ}50^{\circ}$, in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.16, T.27 N., R.6 E., Snohomish County, Hydrologic Unit 17110011, on left bank 150 ft upstream from State Highway 522 bridge, 0.1 mi downstream from confluence of Snoqualmie and Skykomish Rivers, 3.6 mi southwest of Monroe, and 6.0 mi south of Snohomish.

DRAINAGE AREA. -- 1.537 mi2.

PERIOD OF RECORD.--February 1963 to current year. Water years 1932, 1934, 1951, 1960, 1962-63 (annual maximum stage only) published in WSP 1932. Approximate annual maximum stages for water years 1921, 1949-50, 1952-59, and 1961 are on file in Washington office.

GAGE.--Water-stage recorder. Datum of gage is 13.25 ft above NGVD of 1929. Prior to February 1963, crest-stage gage only at site about 800 ft downstream and Feb. 8, 1963, to May 27, 1964, water-stage recorder at site 100 ft upstream, at NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good. Some regulation by powerplant at Snoqualmie Falls, 40 mi upstream, and by Spada Lake, 30 mi upstream. Minor diversions for irrigation returned to river upstream from gage. During the current water year, City of Seattle Water Department diverted an average daily discharge of about 89 ft³/s upstream from station from South Fork Tolt River for municipal use and the City of Everett diverted an undetermined amount of discharge upstream from the station from Sultan River for municipal use. Chemical analyses December 1974 to January 1976, July 1979 to September 1986. Unpublished records of water temperature and suspended-sediment concentration are available in the Tacoma office of the U.S. Geological Survey. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--39 years (water years 1964-2002), 9,621 ft^3/s , 85.05 $\mathrm{in/yr}$, 6,970,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 35.8 ft Feb. 10, 1951, datum then in use (discharge not determined); maximum discharge since February 1963, 150,000 ft³/s Nov. 25, 1990, gage height, 25.30 ft, from rating curve extended above 80,000 ft³/s; minimum discharge, 763 ft³/s Oct. 30, 31, 1987, gage height, 0.51 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of December 1921 reached a discharge of approximately 180,000 ft³/s. Floods in November or December 1897 and November 1906 are believed to be higher.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 33,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 15	0100	51,100	13.65	Jan. 08	1030	*59,300	*15.33
Dec. 14	1000	35,700	10.36	Feb. 23	0030	51,500	13.73
Dec. 17	0830	48,800	13.18	Apr. 14	1430	51,100	13.65

Minimum discharge, 1,570 ft3/s Sept. 28, 29.

			-									
		DISCHA	RGE, CUB	IC FEET PE			YEAR OCTOBER VALUES	2001 TO) SEPTEMBE	R 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2080	19200	14200	5930	9840	10400	9170	13600	20100	17000	4080	2030
2	1980	17400	16800	6380	9140	9400		15800	19000	14800	3810	2010
3	1910	15600	14600	6950	8690	8700		16400	19000	13400	3610	2470
4	1850	12400	12300	6550	8500	8180		13900	19200	12600	3430	2730
5	1790	12400	11000	6230	7960	8030	8710	12200	20900	12100	3430	2340
6 7	1750 1740	11300 9600	10400 10800	6270 32400	7970 9220	7880 7460		12100 10800	24600 20700	11600 12200	3750 3890	2100 1970
8	1820	8430	9850	55900	10600	7280		9710		14900	3530	1900
9	2290	7520	10900	42000	9990	6920		9010		13600	3330	1870
10	2590	6790	10000	27200	8850	6990		8520	14600	12500	3230	1870
11	7310	6300	9080	19600	9290	10200		8220	17100	13400	3220	1860
12	7910	5990	8360	17300	8390	18200	23500	8860	19800	12900	3160	1820
13	13000	6560	18500	18500	7480	14400	30800	12200	23500	12100	3040	1790
14	12600	30900	33500	15000	6770	12500		16100	26500	11500	2990	1760
15	11100	45300	23600	12700	6190	11700	38100	15600	25800	10200	2940	1750
16	7370	35200	26800	11200	5880 5740 6180 7140 8080	10800	28200	13400	23000	9160	2870	1810
17	6830	24200	44500	10200	5740	10100		13600	18900	8910	2750	2600
18	5860	17800	30500	9400	6180	9260	17600	15300	19000	8540	2650	2680
19	9770	14700	21400	10000	7140	9120	14900	14600	20300	7910	2550	2290
20	15200	16800	30500 21400 16700			11300	13500	17000	17000 17600 19900 19900 17400 16600	7090	2470	2140
21	10100	18200	13700	11700 10400 9590	10900	10500	12500	18200	17600	6600	2460	2090
22	13100	18100	11600	10400	38900	9270	12500 12000 12800 11900	18500	19900	6440	2420	1960
23	19800	25100	10200	9590	43000	8700	12800	17500	19900	6380	2350	1850
24	17900	21600	9160	11400	28300	8370	11900	15300	17400	6280	2310	1740
25	18500	16500	8100	20100	20100	8700 8370 8200	10700	14900	16600	5990	2290	1680
26	18900	13800	7460	17600	15600	7910	10100 9950 9660 9920 11000	15800	18100 19400 18300 27200 23000	5740	2280	1640
27	16900	12100	6970	13100	13200	8080	9950	17100	19400	5450	2240	1610
28	14700	11400	6830	11000	11600	9360	9660	23300	18300	4910	2200	1590
29	11700	13100	6780	9620		10800	9920	30000	27200	4720	2160	1650
30	10100	13900	6280	9050		9940	11000	28900	23000	4690	2120	2030
31	15800		5990	9550		9510		23700		4500	2090	
TOTAL	284250	488190	446860	463920	343500	299460	472310	480120	598000	298110	89650	59630
MEAN	9169	16270	14410	14970	12270	9660	15740	15490	19930	9616	2892	1988
MAX	19800	45300	44500	55900	43000	18200	46100	30000	27200	17000	4080	2730
MIN	1740						8050	8220		4500	2090	1590
AC-FT	563800	968300					936800					118300
CFSM	5.97		9.38	9.74	7.98	6.28		10.1	13.0			1.29
IN.	6.88	11.82	10.82	11.23	8.31	7.25		11.62	14.47	7.22	1.88	1.44
פדדמדדפ	TTCS OF	MONTHIV ME	מידמת ואמ	FOR WATER	VFADS 196	3 = 200	2, BY WATER	VEND (W	v)			
MEAN	6097	12500	13460	12970	11120	9289		13200	12760	7006	3074	3386
MAX	13340	34800	29580	22000	24300	25700	16050	20450	24730	15290	7885	7646
(WY)	1996	1991	1976	1984	1982	1972	1989	1972	1974	1964	1964	1978
MIN	894	2624	3966	4401	4606	4859	5340	7743	1974 4070 1992	2683	1413	1133
(WY)	1988	1988	1986	1979	1973	1985	1975	1992	1992	1987	1987	1987
SUMMAR	Y STATIS	TICS	FOR	2001 CALE	NDAR YEAR		1989 5340 1975 FOR 2002 WA	TER YEAR	R 1	WATER YEA	RS 1963 -	2002
ANNUAL	TOTAL	MEAN		2994880			4324000					
ANNUAL	MEAN			8205			11850			9621		
HIGHES	T ANNUAL	MEAN								13670		1972
LOWEST	ANNUAL	MEAN								6308		2001
HIGHES	T DAILY	MEAN		45300	Nov 15		55900	Jan 8	3	132000	Nov 25 Oct 30	1990
LOWEST	DAILY M	EAN		1670	Sep 25		1590	Sep 28	8	777	Oct 30	1987
ANNUAL	SEVEN-D	AY MINIMUM		1750	Sep 19		1680	Sep 23	3	796	Oct 25	1987
ANNUAL	RUNOFF	(AC-FT)		5940000			8577000			5970000		
ANNUAL	RUNOFF	(CFSM)		5.3	4		7.71			6.2	26	
ANNUAL	RUNOFF	(INCHES)		72.4	9		104.65	;		85.0)5	
10 PER	CENT EXC	EEDS		16600			21100			18300		
50 PER	CENT EXC	EEDS		6780			10200			7670		
90 PER	CENT EXC	EEDS		2140			55900 1590 1680 8577000 7.71 104.65 21100 10200 2220			2300		

12155300 PILCHUCK RIVER NEAR SNOHOMISH, WA

LOCATION.--Lat 47°56'06", long 122°04'19", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.8, T.28 N., R.6 E., Snohomish County, Hydrologic Unit 17110011, on right bank, 1.8 mi northeast of Snohomish, and at mile 3.6.

DRAINAGE AREA. -- 127 mi2.

PERIOD OF RECORD. -- May 1992 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 30.00 ft above NGVD of 1929.

REMARKS.--Records good except for estimated daily discharges, which are fair. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--10 years (water years 1993-2002), 490 $\mathrm{ft^3/s}$, 52.44 $\mathrm{in/yr}$, 355,100 acre-ft/yr.

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,480 Dec. 16, 1999, gage height, 19.16 ft; minimum discharge, 45 ft 3 /s Aug.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 24, 1990, reached a stage of 18.75 ft, from high-water mark at former bridge, discharge, 7,100 ft 3 /s (from slope-area measurement of peak flow).

Time

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,600 ft^3/s and maximum (*):

Nov. 14 Dec. 14 Dec. 17	2130 0815 0600	4,	630 240 910	13.19 15.40 14.96	Jan. Jan. Feb.	25	0515 1130 2045	2,7 2,8 *4,4	70	13.29 13.45 *15.71		
Minimum dail	ly discha	rge, 48 ft	3/s Sept	. 15, 28,	29.							
		DISCHAF	RGE, CUBI	C FEET PER		WATER YE MEAN VA	EAR OCTOBER	R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e88	704	1740	516	977	546	834	375	336	266	89	52
2	86 e77	670 526	1720 1190	568 562	889 842	495 454	768 640	365 470	316 300	214 194	84 82	54 80
4	e74	417	983	494	822	425	587	361	287	178	80	74
5	69	705	947	475	734	416	611	475	525	175	85	61
6	e67	481	1010	505	910	401	668	853	568	171	88	56
7 8	e70 70	373 315	1060 882	1770 2350	1200 1230	373 360	778 616	747 597	361 338	179 368	83 79	56 63
9	95	274	1460	1460	1090	351	549	517	338	304	75	59
10	91	244	1090	912	929	405	1000	466	309	232	73	56
11	e113	224	960	714	1070	747	1050	423	308	212	72	54
12 13	e226 461	222 263	884 2510	801 847	879 755	990 868	1580 1360	405 456	312 335	187 171	69 73	55 51
14	622	1520	3550	657	662	993	1730	658	347	157	70	50
15	394	2130	2060	563	596	1060	1010	578	292	145	66	52
16	255	1480	2590	509	578	1060	1100	414	259	137	63	53
17 18	266 214	948 705	3080 1860	471 443	571 793	899 751	998 809	478 516	225 258	131 127	62 61	98 75
18	999	645	1430	699	883	850	669	404	258	121	61	62
20	780	942	1170	1100	900	1300	581	455	211	114	60	61
21	416	1050	987	1250	998	1070	518	458	227	109	60	61
22	1030	972	855 755	1060	3270	961 871	493	438	241	107	60 59	57 54
23 24	1220 848	1680 1130	679	929 1490	2340 1460	802	574 477	439 363	225 193	107 104	59 59	54 52
25	1420	842	616	2240	1040	818	412	351	187	100	56	51
26	981	842	567	1570	820	805	384	374	202		57	55
27	1180	740	527	1100 874	692	908	367	366	205		56	53 49
28 29	930 610	768 1600	526 541	874 725	618	1220 1090	335 318	691 785	279 817	94 97	55 58	49 57
30	466	1740	480	693		896	333	529	368	97	55	72
31	718		485	863		785		398		97	53	
TOTAL	14936	25152		29210	28548	23970	22149	15205	9421	4891	2103	1783
MEAN MAX	482 1420	838 2130	1264 3550	942 2350	1020 3270	773 1300	738 1730	490 853	314 817		67.8 89	59.4 98
MIN	67	222	480	443	571	351	318	351	187	94		49
AC-FT	29630	49890	77740	57940		47540	43930	30160	18690	9700	4170	3540
CFSM TN.	3.79 4.37	6.60 7.37	9.96 11.48	7.42 8.56	8.03 8.36	6.09 7.02	5.81 6.49	3.86 4.45	2.47	1.24	0.53 0.62	0.47
		ONTHLY MEA							2.70	1.13	0.02	0.52
MEAN	344	679	943	854	718	682	541	427	282	185	101	114
MAX	697	1140	1467	1532	1110	1084	738	597	543	378	209	244
(WY) MTN	1996 116	1996 179	2000 379	1997 434	1996 264	1997 418	2002 375	1999 208	1999 118	1997 105	1995 57.8	1997 52.8
(WY)	1993	1994	2001	2001	1993	1993	1995	1994	1992	1995	1994	1998
SUMMARY	STATIST	ics	FOR	2001 CALEN	NDAR YEAR	F	OR 2002 W	ATER YEAR		WATER YEAR	S 1992 -	2002
ANNUAL	ΤΩΤΔΙ.			167569			216562					
ANNUAL				459			593			490		
	r annual									721		1997 2001
HIGHEST	ANNUAL M	IEAN		3550	Dec 14		3550	Dec 14		314 5050	Jan 1	
LOWEST	DAILY ME	AN		56	Sep 25		49	Sep 28		45 47	Sep 1	1994
		Y MINIMUM AC-FT)		58 332400	Sep 19		53 429600	Sep 10		47 355100	Aug 27	1994
ANNUAL	RUNOFF (CFSM)		3.61	L		4.6	7		3.86		
ANNUAL	RUNOFF (INCHES)		49.08			63.43	3		52.44		
	CENT EXCE			980 310			1180 475			1040 342		
	CENT EXCE			73			61			74		

90 PERCENT EXCEEDS

e Estimated

12155500 SNOHOMISH RIVER AT SNOHOMISH, WA

LOCATION.--Lat $47^{\circ}54'45"$, long $122^{\circ}06'30"$, in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.13, T.28 N., R.5 E., at right bank pier of bridge on State Highway 9 in Snohomish.

DRAINAGE AREA.--1,714 mi².

PERIOD OF RECORD.--February 1941 to September 1966 (high-water discharges only). High-water elevations prior to 1932 and high-water profiles on flood peaks since that time are available at the Seattle office of Corps of Engineers. October 1998 to current year (stage only).

REVISED RECORDS.--WDR WA-00-1: 1999 (m).

GAGE.--Water-stage recorder. Datum of gage is 9.86 ft below NGVD of 1929. Prior to February 3, 1960, at site half a mile upstream at datum 0.14 ft lower (corrected).

REMARKS.--Large diurnal fluctuation because of tides. Some regulation by powerplants above station. Minor diversions for irrigation returned to river above gage. A slight amount of storage in Lake Chaplain by the City of Everett.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height 30.12 ft, Feb. 10, 1951, site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 35 ft at former site in 1906, from flood profile furnished by Corps of Engineers.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Maximum gage height recorded 27.01 ft, Jan. 8. Minimum unknown.

	DAILY MEAN VALUES													
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	11.11	15.46	15.80	13.27	13.21	12.99	12.71	13.63	15.57	14.32	11.35	10.81		
2	10.99	14.96	16.07	13.41	12.88	12.60	12.46	14.19	14.95	13.60	11.28	10.88		
3	10.97	14.52	15.12	12.99	12.62	12.37	12.16	14.21	14.88	13.16	11.44	11.04		
4	11.05	13.71	14.46	12.45	12.37	12.42	11.97	13.26	14.86	12.91	11.41	11.19		
5	11.30	13.46	13.91	12.35	12.57	12.58	12.23	12.88	15.51	12.94	11.40	11.30		
6	11.29	13.24	13.41	12.52	12.78	12.54	12.70	12.89	16.80	13.00	11.55	11.46		
7	11.16	12.41	12.91	18.71	13.46	12.32	14.00	12.50	15.68	13.36	11.60	11.50		
8	11.10	12.01	12.90	25.86	13.73	12.15	13.62	12.21	14.45	14.02	11.53	11.35		
9	10.83	11.79	12.91	23.17	13.19	12.33	13.16	12.13	13.90	13.89	11.53	11.27		
10	11.09	11.73	12.97	18.77	13.24	12.76	13.90	12.00	13.95	13.69	11.59	11.34		
11	11.38	11.94	12.91	16.22	12.80	13.74	15.13	12.08	14.70	13.99	11.49	11.37		
12	11.90	12.26	12.88	15.70	12.65	15.57	16.60	12.31	15.48	13.85	11.34	11.28		
13	13.04	12.82	15.99	15.64	12.47	14.50	18.98	13.16	16.59	13.58	11.34	11.17		
14	13.27	18.27	21.02	14.67	11.98	13.65	23.23	14.26	17.67	13.20	11.53	11.12		
15	13.20	23.72	17.98	13.76	11.98	13.58	21.86	14.26	17.47	12.79	11.58	11.05		
16	12.49	21.26	18.40	13.29	11.98	13.35	18.95	13.61	16.54	12.49	11.46	11.07		
17	12.12	17.82	23.55	12.74	12.04	12.94	16.47	13.50	15.18	12.36	11.40	11.25		
18	12.08	15.67	20.27	12.39	12.08	12.48	14.86	14.03	15.00	12.41	11.26	11.06		
19	12.68	14.83	16.96	12.55	12.54	12.43	13.77	13.75	15.54	12.40	11.43	11.21		
20	14.34	15.29	15.30	13.23	12.25	12.90	13.30	14.40	14.60	12.32	11.34	11.04		
21	13.09	15.72	14.02	13.35	13.09	12.66	13.03	14.85	14.88	12.25	11.28	10.93		
22	13.50	15.77	13.31	12.89	21.04	12.52	13.01	14.97	15.71	12.43	11.35	10.98		
23	15.34	17.44	12.62	12.49	23.44	12.45	13.19	14.85	15.81	12.56	11.28	11.10		
24	14.81	16.74	12.38	13.51	19.04	12.37	12.92	14.36	15.15	12.48	11.25	11.25		
25	14.76	14.90	12.24	16.46	16.15	12.48	12.90	14.42	14.85	12.25	11.08	11.15		
26 27 28 29 30 31	15.15 14.43 13.71 12.91 12.94 14.46	13.72 13.27 13.98 14.94 15.11	12.40 12.83 13.03 13.20 13.17 13.12	15.91 14.63 13.98 13.49 13.23 13.31	14.75 13.99 13.48 	12.72 12.74 13.09 13.32 12.95	13.03 13.21 13.04 12.99 13.18	14.73 15.15 16.71 18.80 18.72 16.91	15.22 15.63 15.22 17.64 16.72	12.16 11.87 11.53 11.37 11.41 11.25	10.89 10.95 11.11 11.15 10.94 10.88	11.25 11.22 11.25 11.20 10.90		
MEAN	12.66	14.96	14.78	14.74	13.85	12.91	14.42	14.18	15.54	12.77	11.32	11.17		
MAX	15.34	23.72	23.55	25.86	23.44	15.57	23.23	18.80	17.67	14.32	11.60	11.50		
MIN	10.83	11.73	12.24	12.35	11.98	12.15	11.97	12.00	13.90	11.25	10.88	10.81		

WTR YR 2002 MEAN 13.60 MAX 25.86 MIN 10.81

12157130 JOHN SAM LAKE NEAR TULALIP, WA

LOCATION.--Lat 48°06'42", long 122°14'50", in NE $\frac{1}{4}$ Sec.1, T.30 N., R.4 E., Snohomish County, Hydrologic Unit 17110019, Tulalip Indian Reservation, 3.6 mi northeast of Tulalip, WA

DRAINAGE AREA. -- Undetermined.

MIN

PERIOD OF RECORD.--October 2000 to current year.

GAGE.--Nonrecording gage. Elevation of gage is 505.0 ft above NGVD of 1929, from precision Global Positioning System (GPS).

REMARKS.--Lake elevation controlled by concrete pipe culvert, at lake outlet.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 6.44 ft Dec. 20, 2001; minimum gage height observed, 4.57 ft Sept. 12, 2002.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 6.44 ft Dec. 20; minimum gage height observed, 4.57 ft, Sept. 12.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY INSTANTANEOUS VALUES DAY NOV AUG SEP OCT DEC JAN JUL ------2 ---___ ___ ---------___ ------------------------4 ------___ 6 --8 ------10 ___ ---11 12 ___ ___ ---___ ------___ ___ ---___ ___ 4.57 13 ------------------------------------14 15 ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ 16 17 ___ ---------------___ ------------___ ------------------------------------18 20 _ _ _ ___ 6.44 ---___ 6.19 ------------___ _ _ _ 21 5.94 22 _ _ _ ___ ------------------___ _ _ _ ---------------------23 ---5.32 ---6.18 6.07 25 _ _ _ ___ ---_ _ _ _ _ _ ---5.60 ---___ _ _ _ 26 ---6.05 ---___ 27 _ _ _ ------------------___ ------------------------------5.96 28 ---------29 ___ ---___ ------___ ___ ---___ 30 ___ 5.41 ------------5.89 ------31 MEAN ---------___ ------------------------MAX

TULALIP AND MISSION CREEK BASINS

12157200 ROSS LAKE NEAR MARYSVILLE, WA

LOCATION.--Lat 48°05'26", long 122°13'35", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.13 T.30 N., R.4 E., Snohomish County, Hydrologic Unit 17110019, Tulalip Indian Reservation, 3.3 mi northeast of Tulalip, WA

DRAINAGE AREA. -- Undetermined.

PERIOD OF RECORD.--October 2000 to current year.

GAGE.--Nonrecording gage. Elevation of gage is 304.8 ft above NGVD of 1929, from precision Global Positioning System (GPS).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 77.47 ft Dec. 18, 2001; minimum gage height observed, 75.46 ft, Jan. 29, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 77.47 ft Dec. 18; minimum gage height observed, 75.73 ft, Sept. 10.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY INSTANTANEOUS VALUES DAY OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP 2 --___ ---------___ ---___ 5 ---------------------------------___ --8 ------------------------------10 ------------------75.73 11 ---------12 ---------------------------13 ___ ---------------___ ------___ ------15 ------------------------------------___ ___ ___ 16 ___ ___ ___ ___ ___ ___ ___ ___ ___ ---------------------------17 ---77.14 18 77.47 19 ___ ---20 76.84 21 ---------------___ ------------___ ------------------------77.16 ------2.2 77.06 24 _ _ _ ------------------76.50 ------___ ------25 ------------------------------26 ---------77 05 ---------------___ _ _ _ 27 ---76.67 ------------------------------28 ------___ ---------29 ---------------_ _ _ ------76.34 ---76.77 ------30 31 ------MEAN ---------------------MAX MIN

12157250 MISSION CREEK NEAR TULALIP, WA

LOCATION.--Lat 48°03'31", long 122°15'58", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.26, T.30 N., R.4 E., Snohomish County, Hydrologic Unit 17110019, on left bank 100 ft upstream from highway crossing, 0.25 mi above mouth, and 0.9 mi east of Tulalip.

DRAINAGE AREA.--7.92 mi².

PERIOD OF RECORD.--October 1974 to September 1977, November 2000 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 20.3 ft below NGVD of 1929, from precision Global Positioning System (GPS). Oct. 1974 to Sept. 1977, water-stage recorder, at site downstream from highway crossing, at different datum.

REMARKS.--Records fair, except estimated daily discharges, which are poor. Some natural regulation in lakes and beaver ponds. Chemical analysis Nov. 1974 to March 1977, water temperatures Oct. 1974 to March 1977.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 85 ${\rm ft}^3/{\rm s}$ Jan. 19, 1977, gage height, 4.11 ft, from rating curve extended above 20 ${\rm ft}^3/{\rm s}$ datum then in use, probably result of release of water from beaver ponds; minimum, 0.12 ${\rm ft}^3/{\rm s}$ June 29, 1977, probably result of beaver activity upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 67 ft³/s Dec. 17; gage height 57.60 ft; minimum discharge, 0.75 ft³/s, Aug. 17, 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

	DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1 2 3 4 5	1.8 1.8 1.6 1.5	5.4 4.3 3.6 3.4 3.5	19 16 14 13	7.0 9.0 7.6 6.4 5.9	20 17 15 15 14	6.7 6.7 6.4 6.3 5.7	8.7 8.1 7.3 6.9 6.4	4.3 4.2 4.3 4.1 6.5	3.0 3.1 2.8 2.7 3.1	2.1 1.6 1.4 1.7	1.2 1.2 1.1 1.2	e1.4 e1.5 e1.5 e1.5 e1.4	
6 7 8 9 10	1.5 1.4 1.6 1.6	3.4 3.1 2.9 2.8 2.7	11 9.4 8.7 10 12	7.3 11 13 9.3 7.5	14 14 18 15 13	5.3 5.8 6.7 7.4	6.3 6.4 6.1 6.4 9.2	9.0 6.9 5.5 4.7 4.4	4.2 4.2 3.0 2.6 2.4	1.6 1.5 4.7 5.2 3.0	1.8 1.7 1.4 1.3	e1.4 e1.3 e1.2 e1.2	
11 12 13 14 15	1.9 2.1 2.1 2.9 2.9	2.7 3.0 3.7 11 16	14 13 19 26 21	6.8 7.4 7.1 6.2 5.7	14 12 10 9.8 9.2	8.1 8.7 7.5 15	8.8 7.5 7.3 8.4 7.9	3.8 3.6 3.7 5.4 5.1	2.2 2.1 1.9 1.6 1.4	2.2 1.9 1.5 1.4	1.1 1.1 1.1 0.99 0.96	e1.2 1.2 1.2 1.2 1.0	
16 17 18 19 20	3.0 3.7 3.1 4.9 4.6	10 6.8 5.3 8.8	24 49 30 21 16	5.5 5.6 5.8 17 20	8.5 8.3 8.7 9.7	17 13 11 15 31	12 13 10 8.8 7.8	4.3 4.2 4.0 3.8 4.3	1.5 1.7 2.4 2.9 2.4	1.4 1.5 1.4 1.4	0.89 0.90 0.92 0.99 1.1	1.2 1.6 1.5 1.3	
21 22 23 24 25	4.4 5.5 5.2 4.1 8.4	10 12 17 10 7.5	14 12 10 9.1 8.3	15 14 14 12 17	11 9.7 9.6 9.6 8.2	23 19 17 14 13	7.1 6.9 7.3 6.8 6.1	4.7 3.9 3.6 3.4 3.4	2.0 1.7 1.6 1.5	1.4 1.3 1.3 1.3	1.3 1.4 1.3 1.3	1.3 1.3 1.2 1.2	
26 27 28 29 30 31	7.6 15 11 6.8 4.7 5.8	6.3 5.4 11 24 22	7.6 7.2 7.4 6.9 6.2 6.6	15 13 14 12 14 20	7.4 7.0 7.0 	11 9.9 11 10 9.2 8.4	5.9 6.3 5.7 5.1 4.6	3.5 3.6 3.7 3.8 4.2 3.7	1.3 1.2 1.6 4.1 3.3	1.3 1.4 1.4 1.5 1.5	1.6 e1.5 e1.4 e1.4 e1.3	1.2 1.2 1.1 1.6 2.4	
TOTAL MEAN MAX MIN AC-FT CFSM IN.	125.7 4.05 15 1.4 249 0.51 0.59	240.6 8.02 24 2.7 477 1.01 1.13	452.4 14.6 49 6.2 897 1.84 2.12	331.1 10.7 20 5.5 657 1.35 1.56	324.7 11.6 20 7.0 644 1.46 1.53	352.1 11.4 31 5.3 698 1.43 1.65	225.1 7.50 13 4.6 446 0.95 1.06	137.6 4.44 9.0 3.4 273 0.56 0.65	70.9 2.36 4.2 1.2 141 0.30 0.33	55.0 1.77 5.2 1.2 109 0.22 0.26	38.85 1.25 1.8 0.89 77 0.16 0.18	39.9 1.33 2.4 1.0 79 0.17 0.19	

e Estimated

12158007 WEALLUP LAKE NEAR TULALIP, WA

LOCATION.--Lat 48°06'44", long 122°18'01", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.4, T.30 N., R.4 E., Snohomish County, Hydrologic Unit 17110019, Tulalip Indian Reservation, 3.1 mi north of Tulalip, WA

DRAINAGE AREA. -- Undetermined.

PERIOD OF RECORD. -- November 2000 to current year.

GAGE.--Nonrecording gage. Elevation of gage is 203.8 ft above NGVD of 1929, from precision Global Positioning System (GPS).

REMARKS.--Lake elevation is controlled by concrete spillway and is subject to beaver activity.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 14.14 ft Dec. 20, 2001; minimum gage height observed, 10.85 ft, Sept. 12, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 14.14 ft, Dec. 20; minimum gage height observed, 10.85 ft, Sept. 12.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY INSTANTANEOUS VALUES DAY NOV AUG SEP OCT DEC JAN JUN JUL ------2 ---___ ___ ---------___ ---------------------------4 ------___ 6 ---8 ---------10 ___ ------11 12 ___ ___ ---___ ------___ ___ ---___ ---10.85 13 ------------------------------------14 15 ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ 16 17 ___ ---------------___ --18 13.64 20 _ _ _ ___ 14.14 ---___ ---___ ------___ _ _ _ 21 12.90 22 _ _ _ ___ ---------------------_ _ _ ------------------23 ------11.58 ---13.84 13.28 25 _ _ _ ___ ---_ _ _ _ _ _ ---11.88 ---___ _ _ _ 26 ------27 ---------13 62 ---------------_ _ _ ------------------------------28 13.18 ---------29 ---------------___ ___ ---___ 30 ---12.07 ------------12.56 ------31 MEAN ------___ ---------------------------MAX MIN ---------------------

12158010 TULALIP CREEK ABOVE EAST BRANCH NEAR TULALIP, WA

LOCATION.--Lat $48^{\circ}05^{\circ}52^{\circ}$, long $122^{\circ}17^{\circ}13^{\circ}$, in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.10, T.30 N., R.4 E., Snohomish County Hydrologic Unit 17110019, Tulalip Indian Reservation, on left bank wing wall upstream side of diversion dam, 1.9 mi north of Tulalip and 2.0 mi above mouth.

DRAINAGE AREA. -- 9.74 mi².

PERIOD OF RECORD. -- November 2000 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2.8 ft below NGVD of 1929, from precision Global Positioning System (GPS).

REMARKS.--Records fair except for discharges below 10 ${\rm ft}^3/{\rm s}$ and estimated daily discharges, which are poor. Some natural regulation in lakes and beaver ponds in basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 61 ${\rm ft}^3/{\rm s}$ Dec. 16, 2001, gage height 123.91; minimum discharge, 2.6 ${\rm ft}^3/{\rm s}$ many day in Nov. 2001 and July and Aug. 2002.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 61 ${\rm ft}^3/{\rm s}$ Dec. 16, gage height 123.91 ft; minimum discharge, 2.6 ${\rm ft}^3/{\rm s}$ many days in Nov., Jul. and Aug.

,		DISCHAR	GE, CUBIC	FEET PER		WATER YE MEAN VA	AR OCTOBER	2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	4.6 4.6 4.6 4.7 4.4	4.2 4.0 3.7 3.4 3.5	19 17 16 19 20	12 13 12 12	19 19 18 17	12 10 9.6 9.0 9.0	15 14 14 13 13	8.7 8.5 9.0 8.9 9.7	5.8 6.0 5.6 5.5 5.8	4.3 4.4 4.3 4.7	3.4 3.5 3.5 3.7 4.3	e3.4 e3.5 e3.5 e3.4
6 7 8 9 10	4.5 4.6 4.5 4.6 4.9	3.5 3.5 3.6 3.7 3.2	19 17 17 17 18	13 14 14 13	18 19 20 18 18	8.7 8.8 9.4 9.6	13 13 12 13 14	9.5 9.0 8.6 8.4 8.2	5.5 5.2 5.2 5.1 5.1	4.1 4.7 6.4 4.2 3.9	3.8 3.7 3.6 3.5 3.6	e3.5 e3.3 e3.5 e3.5 e3.5
11 12 13 14 15	4.8 5.2 5.6 6.1 5.1	3.1 3.8 5.1 10 6.9	19 24 28 28 26	12 12 12 12 11	17 17 16 15 14	9.9 9.9 10 15 13	14 11 10 15 10	7.9 7.7 8.0 8.2 7.5	5.0 4.9 4.7 4.8 4.7	3.7 3.6 3.7 3.8 3.6	3.5 3.5 3.4 3.4 3.5	e3.5 e3.5 e3.5 e3.5 e3.6
16 17 18 19 20	5.9 5.6 5.6 6.8 5.6	5.3 4.6 4.5 7.6 7.8	33 43 32 30 33	11 11 11 16 15	14 14 14 15	14 13 13 17 24	12 11 11 11 11	7.4 8.1 7.4 7.3 8.4	4.7 4.8 5.7 4.9 4.7	3.5 3.5 3.6 3.5 3.6	3.5 3.6 3.9 4.0 4.0	e4.1 e4.8 e4.1 e4.2 e4.3
21 22 23 24 25	6.5 6.2 8.0 13 12	7.2 11 12 10 9.8	29 25 23 21 19	19 18 17 16 19	14 14 15 14 13	23 22 20 18 17	10 9.9 9.5 9.2 9.1	7.8 7.1 6.7 6.7 6.7	4.6 4.2 4.3 4.3	3.5 3.3 3.1 3.1 3.4	4.0 3.7 3.5 3.5 e3.7	e4.0 e3.9 e3.8 e3.9 e4.1
26 27 28 29 30 31	6.7 9.2 4.5 4.3 4.4 5.9	9.4 8.6 12 18 17	17 13 11 10 11 12	17 17 17 17 17 19	13 13 12 	17 15 17 16 15	9.0 9.1 9.3 9.5 9.2	6.9 7.6 6.7 6.5 6.2 5.9	4.1 4.3 4.9 4.9	3.5 3.5 3.7 3.6 3.5 3.4	e3.8 e3.6 e3.6 e3.6 e3.6 e3.5	e3.9 e4.5 e3.9 e4.5 e5.1
TOTAL MEAN MAX MIN AC-FT CFSM IN.	183.0 5.90 13 4.3 363 0.61 0.70	210.0 7.00 18 3.1 417 0.72 0.80	666 21.5 43 10 1320 2.21 2.54	444 14.3 19 11 881 1.47	441 15.8 20 12 875 1.62 1.68	428.9 13.8 24 8.7 851 1.42 1.64	343.8 11.5 15 9.0 682 1.18 1.31	241.2 7.78 9.7 5.9 478 0.80 0.92	148.0 4.93 6.0 4.1 294 0.51 0.57	119.1 3.84 6.4 3.1 236 0.39 0.45	113.0 3.65 4.3 3.4 224 0.37 0.43	115.2 3.84 5.1 3.3 228 0.39 0.44
STATIST	rics of M	ONTHLY MEA	N DATA FO	R WATER Y	EARS 2001	- 2002,	BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	5.90 5.90 2002 5.90 2002	7.00 7.00 2002 7.00 2002	13.0 21.5 2002 4.43 2001	10.1 14.3 2002 5.97 2001	11.3 15.8 2002 6.78 2001	10.8 13.8 2002 7.83 2001	10.6 11.5 2002 9.66 2001	6.77 7.78 2002 5.75 2001	5.42 5.91 2001 4.93 2002	4.21 4.58 2001 3.84 2002	4.14 4.63 2001 3.65 2002	4.17 4.50 2001 3.84 2002
SUMMARY	Y STATIST	ICS	FOR 2	001 CALEN	DAR YEAR	F	OR 2002 W	ATER YEAR		WATER YEAR	RS 2001 -	2002
SUMMARY STATISTICS ANNUAL TOTAL ANNUAL MEAN HIGHEST ANNUAL MEAN HOWEST ANNUAL MEAN HOWEST DAILY MEAN HOWEST DAILY MEAN ANNUAL SEVEN-DAY MINIMUM ANNUAL RUNOFF (AC-FT) ANNUAL RUNOFF (CFSM) ANNUAL RUNOFF (INCHES) 10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS						3453.2 9.46 43 3.1 3.3 6850 0.97 13.19 18 7.7 3.5	Dec 17 Nov 11 Jul 21		9.46 9.46 9.46 43 3.1 3.3 6850 0.97 13.20 18 7.7 3.5	Dec 17 Nov 11 Jul 21	2001 2001	

e Estimated

12158032 EAST BRANCH TULALIP CREEK NEAR TULALIP, WA

LOCATION.--Lat 48°05'35", long 122°16'44", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.15, T.30 N., R.4 E., Snohomish County, Hydrologic Unit 17110019, Tulalip Indian Reservation, on left wing wall at diversion dam headworks pool, 200 ft upstream from highway crossing, 1.9 miles north of Tulalip and 0.6 mi above mouth.

DRAINAGE AREA. -- 1.75 mi².

PERIOD OF RECORD.--September 1960, October 1974 to August 1977 and November 2000 to May 2002 (discharge measurements). May 2002 to September 2002.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage 9.74 ft below NGVD of 1929, from precision Global Positioning System (GPS).

REMARKS.--Records poor. Some natural regulation from beaver ponds in basin. Minor diversions for domestic use.

EXTREMES FOR PERIOD MAY TO SEPTEMBER.--Maximum discharge, 5.6 ${\rm ft}^3/{\rm s}$ July 8, gage height 139.92 ft; minimum discharge, 1.0 ${\rm ft}^3/{\rm s}$ Aug. 15, 16, 20, Sept. 11-13.

DISCHA	RGE, CUBIC	FEET PER			SEPTEMBER 2002
DAY	MAY	JUN	JUL	AUG	SEP
1		2.3	2.3	e2.6	1.8
2		2.2	2.2	e2.7	1.9
3		2.2	2.2	e2.8	2.1
4		2.4	2.4	2.9	2.1
5		2.6	2.3	3.1	2.2
6		2.4	2.3	2.9	2.2
7		2.4	2.9	2.7	2.2
8		2.4	3.9	2.7	2.2
9		2.3	2.8	2.6	2.1
10		2.3	2.5	2.5	2.2
11		2.2	2.6	2.3	2.0
12		2.3	2.5	2.2	2.0
13		2.2	2.6	2.2	2.1
14		2.1	2.5	2.1	2.5
15		2.1	2.5	2.0	2.7
16		2.3	2.6	1.9	
17		2.3	2.7	1.9	
18		2.8	2.6	1.9	2.6
19		2.3	e2.6	1.9	
20		2.2	e2.6	1.6	2.8
21		2.2	e2.6	1.5	2.9
22		2.2	e2.5	1.6	3.0
23	e2.2	2.2	e2.4	1.9	3.3
24	2.2	2.3	e2.3	2.1	3.3
25	2.2	2.2	e2.4	2.1	3.5
26	2.4	2.1	e2.5	2.0	3.5
27	2.3	2.1	e2.5	2.1	2.6
28	2.4	2.4	e2.6	2.1	2.4
29	2.4	2.5	e2.6	1.8	2.8
30	2.3	2.3	e2.5	1.7	3.2
31	2.3		e2.5	1.8	
TOTAL		68.8	79.0	68.2	76.0
MEAN		2.29	2.55	2.20	2.53
MAX		2.8	3.9	3.1	3.5
MIN		2.1	2.2	1.5	1.8
AC-FT		136	157	135	151

e Estimated

249

12158040 TULALIP CREEK NEAR TULALIP, WA

LOCATION.--Lat $48^{\circ}04^{\circ}07^{\circ}$, long $122^{\circ}17^{\circ}10^{\circ}$, in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.22, T.30 N., R.4 E., Snohomish County, Hydrologic Unit 17110019, Tulalip Indian Reservation, on left bank 200 ft upstream from highway crossing, 0.15 mi east of Tulalip and 0.30 mi above mouth

DRAINAGE AREA. -- 15.4 mi2.

PERIOD OF RECORD.--October 1974 to September 1977, November 2000 to current year. Published as "at Tulalip" 1974-77.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 43.6 ft above NGVD of 1929, from precision Global Positioning System (GPS). October 1974 to September 1977, water-stage recorder, at site 600 ft upstream from highway crossing, at different datum.

REMARKS.--Records good except for estimated daily discharges, and discharges below 15 ft³/s, and above 80 ft³/s, which are fair. Some regulation at outlet of Lake Shoecraft, drainage area 6.12 mi², and natural regulation in lakes and ponds in basin. Minor diversions above station for domestic use from East Branch Tulalip Creek. Tulalip Fish Hatchery diverts entire flow at times from East Branch Tulalip Creek, above East Branch for use in hatchery. Water is returned to creek above station. Chemical Analysis November 1974 to March 1977, water temperature October 1974 to March 1977.

AVERAGE DISCHARGE.--4 years (water years 1975-77, 2002), 13.0 ${\rm ft}^3/{\rm s}$, 11.51 ${\rm in/yr}$, 9,450 ${\rm acre-ft/yr}$.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 136 ft³/s Dec. 17, 2001, gage height, 97.81 ft; minimum discharge, 2.0 ft³/s Aug. 12, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 136 $\mathrm{ft^3/s}$ Dec. 17, 2001, gage height 97.81 ft; minimum discharge, 4.4 $\mathrm{ft^3/s}$ June 2, 3, 6, Sept. 1, 2002.

		DISCHAF	RGE, CUBIC	C FEET PER		WATER YE MEAN VA	AR OCTOBER	2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	6.5 6.4 6.4 6.3 6.1	9.1 8.2 8.0 8.1	34 27 24 26 28	e23 e27 e25 e22 e21	35 32 31 29 28	18 17 16 16 15	21 19 19 18 18	14 14 14 14 16	9.4 9.2 8.9 9.1 9.6	6.9 7.0 6.7 8.3 7.5	6.3 6.2 6.3 6.4 8.2	5.4 5.6 5.7 5.5 5.4
6 7 8 9 10	6.1 6.4 6.2 6.2 7.0	7.5 6.9 6.8 6.6 6.4	27 23 23 26 27	e23 e30 e33 e25 e21	30 32 37 31 29	14 14 16 16 19	18 18 17 19 23	16 15 14 14 13	10 8.1 7.8 7.7 7.3	6.9 7.8 15 10 8.2	7.1 7.0 6.6 6.3 5.8	5.5 e5.2 e5.4 e5.4
11 12 13 14 15	7.1 7.2 8.0 11 8.8	6.5 7.1 8.1 24 29	29 33 42 52 36	e18 e18 e17 e17 e17	31 28 26 24 23	19 17 16 33 27	22 18 17 26 21	13 12 13 15 13	7.3 6.8 6.4 6.3 6.4	7.3 7.2 7.0 7.0 7.1	5.6 5.6 5.6 5.2 5.4	e5.4 5.6 5.5 5.6 5.8
16 17 18 19 20	11 11 9.3 15	15 12 12 17 23	51 99 55 44 e37	e16 e15 e16 e35 e42	23 23 24 25 25	29 24 22 28 48	24 22 20 19 19	12 13 13 12 14	6.4 6.4 9.6 7.2 6.8	6.9 7.0 7.1 6.6 6.2	5.4 5.5 5.6 5.9 6.0	6.8 8.0 6.7 6.8 6.5
21 22 23 24 25	14 15 14 15 21	19 23 29 20 18	e32 e29 e28 e27 e26	e37 e34 e31 30 38	24 23 23 23 21	35 32 28 27 24	18 18 17 16 16	13 12 11 11 11	6.3 6.0 5.9 6.0 6.1	6.2 5.8 5.8 5.8	6.1 6.0 5.8 5.6 5.9	5.9 5.7 5.5 5.7 6.1
26 27 28 29 30 31	13 28 14 11 11	18 15 26 49 34	e24 e22 e20 e20 e20 e21	34 32 33 30 34 37	20 19 19 	22 21 22 22 20 20	16 16 16 15 15	12 12 11 11 10 9.8	5.8 6.0 7.5 8.5 6.9	6.5 6.4 6.5 6.8 6.7 6.4	6.0 5.7 5.7 5.6 5.6	5.8 6.8 5.8 6.8 7.7
TOTAL MEAN MAX MIN AC-FT CFSM IN.	334.0 10.8 28 6.1 662 0.70 0.81	483.3 16.1 49 6.4 959 1.05 1.17	1012 32.6 99 20 2010 2.12 2.44	831 26.8 42 15 1650 1.74 2.01	738 26.4 37 19 1460 1.71 1.78	697 22.5 48 14 1380 1.46 1.68	561 18.7 26 15 1110 1.21 1.36	397.8 12.8 16 9.8 789 0.83 0.96	221.7 7.39 10 5.8 440 0.48 0.54	222.7 7.18 15 5.8 442 0.47 0.54	185.6 5.99 8.2 5.2 368 0.39 0.45	179.0 5.97 8.0 5.2 355 0.39 0.43
STATIST	rics of M	ONTHLY MEA	N DATA FO	OR WATER Y	EARS 1975	- 2002,	BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	8.76 10.8 2002 5.69 1975	12.0 16.1 2002 8.60 1977	19.1 32.6 2002 9.05 1977	18.6 26.8 2002 8.06 1977	17.9 26.4 2002 7.63 1977	18.4 23.3 1975 12.7 1977	17.0 27.0 1976 10.5 1977	10.9 12.8 2002 8.84 1976	8.33 10.5 2001 7.39 2002	6.38 7.18 2002 5.84 1976	7.04 9.18 1976 5.99 2002	6.55 7.27 1977 5.97 2002
SUMMARY	STATIST	rics	FOR 2	2001 CALENI	DAR YEAR	F	OR 2002 WA	TER YEAR		WATER YEARS	3 1975 -	2002
LOWEST HIGHEST LOWEST ANNUAL ANNUAL ANNUAL ANNUAL 10 PERC 50 PERC	MEAN FANNUAL ANNUAL M FDAILY M DAILY ME	MEAN MEAN MAN MINIMUM AC-FT) CFSM) INCHES) MEDS MEDS		99 5.4 5.5 9380 0.84 11.43 23 11 5.8	Dec 17 Aug 10 Aug 9		5863.1 16.1 99 5.2 5.4 11630 1.04 14.16 30 14 5.8			13.0 16.1 8.75 99 3.7 4.1 9450 0.85 11.51 26 9.4 5.8	Dec 17 Aug 12 Aug 12	1977

e Estimated

250 STILLAGUAMISH RIVER BASIN

12161000 SOUTH FORK STILLAGUAMISH RIVER NEAR GRANITE FALLS, WA

LOCATION.--Lat $48^{\circ}06'13"$, long $121^{\circ}56'37"$, in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.8, T.30 N., R.7 E., Snohomish County, Hydrologic Unit 17110008, on right bank 0.3 mi upstream from county road bridge, 1.2 mi upstream from Canyon Creek, 1.6 mi northeast of Granite Falls, and at mile 34.9.

DRAINAGE AREA. -- 119 mi².

PERIOD OF RECORD.--December 1902 to July 1903 (gage heights only), July 1928 to September 1980, Nov. 1999 to current year (gage heights only). Published as "at Robe" 1902-03. Chemical analyses July 1959 to September 1966, October 1973 to September 1974.

REVISED RECORDS.--WSP 902: 1939. WSP 1286: 1929-31(M), 1932, 1935, 1937(M), 1939(P), 1940-41(M), 1943(P), 1947(P), WSP 1736: 1932-35(M), 1944(M), 1946-48(M), 1951(M), 1957(M). WSP 1932: 1938(P), 1945(P), 1950(P), 1956(P), 1959(P).

GAGE.--Water-stage recorder. Elevation of gage is 310 ft above NGVD of 1929, from river-profile map. Prior to Aug. 21, 1928, nonrecording gage at site 8 mi upstream at different datum. Aug. 31 to Sept. 30, 1928, nonrecording gage at present site and datum

REMARKS.--Some small diversion for domestic use above station. No regulation. U.S. Geological Survey satellite telemeter and National Weather Service radio telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 19.7 ft Feb. 26, 1932, from graph based on gage readings; minimum gage height, 2.99 ft Aug. 19-21, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum gage height 16.26 ft Feb. 22; minimum gage height, 3.34 ft Oct. 6.

			GAGE HEI	GHT, FEET	, WATER Y	EAR OCTOB Y MEAN VA		O SEPTEMBI	ER 2002			
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4	3.54 3.48 3.43 3.40	7.51 6.76 5.81 5.52	6.33 6.40 5.37 5.08	 	4.77 4.67 4.89 4.94	4.81 4.68 4.58 4.52	5.36 5.23 5.01 5.00	5.85 5.94 6.07 5.53	5.96 5.92 5.94 5.98	5.57 5.28 5.16 5.09	4.04 3.96 3.90 3.86	3.69 3.75 4.42 3.97
5	3.36	6.03	4.90		4.77	4.61	5.28	5.72	6.81	5.07	3.96	3.77
6 7 8 9 10	3.35 3.38 3.53 3.85 3.83	5.27 4.93 4.71 4.55 4.41	5.23 5.30 5.22 5.74 5.09	 11.89 7.82 6.17	5.29 5.72 5.31 5.10 4.94	4.52 4.42 4.37 4.32 4.47	6.14 6.55 5.73 5.62 6.75	5.51 5.20 5.01 4.95 4.93	6.67 5.84 5.70 5.44 5.63	5.02 5.18 5.91 5.33 5.26	4.06 4.04 3.91 3.86 3.86	3.66 3.62 3.60 3.59 3.57
11 12 13 14 15	5.64 5.61 6.06 6.29 5.27	4.32 4.34 4.78 10.80 9.01	4.85 4.88 8.70 8.50 6.18	5.59 6.20 5.91 5.34 5.04	5.02 4.77 4.63 4.52 4.44	6.61 6.46 5.81 5.49 5.24	7.00 9.20 8.97 9.89 7.10	4.94 5.19 5.88 6.40 5.81	5.90 6.23 6.52 6.53 6.26	5.37 5.27 5.21 5.06 4.84	3.86 3.83 3.83 3.86 3.85	3.55 3.54 3.54 3.52 3.52
16 17 18 19 20	4.81 4.85 4.55 6.43 5.56	7.11 5.94 5.34 5.33 6.68	10.38 9.61 6.48 5.75 5.34	4.85 4.70 4.59 4.72 5.01	4.49 4.59 5.11 5.69 5.58	5.05 4.79 4.65 4.82 4.79	6.42 5.94 5.57 5.37 5.25	5.43 6.07 6.03 5.76 6.16	5.99 5.60 5.93 5.64 5.40	4.75 4.78 4.75 4.68 4.53	3.81 3.80 3.81 3.82 3.79	4.10 4.50 3.95 3.76 3.85
21 22 23 24 25	5.12 7.33 8.13 6.62 7.18	6.90 6.43 6.93 5.74 5.28	5.08 4.89 4.73 	4.71	7.57 14.36 9.27 6.92 5.95	4.62 4.68 4.69 4.76 4.84	5.16 5.20 5.35 5.06 4.94	6.01 5.85 5.68 5.53 5.74	5.70 5.88 5.79 5.52 5.50	4.49 4.52 4.54 4.53 4.47	3.77 3.74 3.73 3.75 3.77	3.75 3.64 3.56 3.52 3.49
26 27 28 29 30 31	6.34 6.76 5.77 5.22 5.16 7.71	5.16 5.06 4.99 5.99 5.47	 	5.47 4.98 4.72 4.70 4.65 4.88	5.49 5.22 5.03 	4.95 5.19 5.42 5.18 5.06 5.00	4.93 4.89 4.89 5.03 5.36	5.98 6.14 7.49 8.19 6.83 6.28	5.75 5.84 6.38 8.70 6.19	4.41 4.27 4.16 4.15 4.23 4.20	3.78 3.75 3.73 3.74 3.73 3.72	3.46 3.46 3.44 3.49 3.94
MEAN MAX MIN	5.21 8.13 3.35	5.90 10.80 4.32	6.09 10.38 4.73	5.63 11.89 4.59	5.68 14.36 4.44	4.95 6.61 4.32	5.94 9.89 4.89	5.87 8.19 4.93	6.04 8.70 5.40	4.84 5.91 4.15	3.84 4.06 3.72	3.71 4.50 3.44

STILLAGUAMISH RIVER BASIN 251

12167000 NORTH FORK STILLAGUAMISH RIVER NEAR ARLINGTON, WA

LOCATION.--(Revised) Lat 48°15'42", long 122°02'47", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.16, T.32 N., R.6 E., Snohomish County, Hydrologic Unit 17110008, on right bank 5.7 mi northeast of Arlington, 7.8 mi downstream from Deer Creek, and at mile 6.5.

DRAINAGE AREA. -- 262 mi².

PERIOD OF RECORD. -- July 1928 to current year.

REVISED RECORDS.--WSP 1286: 1938-39. WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 89.34 ft above NGVD of 1929.

REMARKS.--Records good below 2,500 ft³/s and fair to poor above 2,500 ft³/s. Estimated discharges are fair. No regulation. Small diversions for domestic use. National Weather Service radio telemeter and U.S. Geological Survey satellite telemeter at station. Chemical analyses November 1961 to September 1971, October 1973 to September 1974.

AVERAGE DISCHARGE.--74 years (water years 1929-2002), 1,897 ft³/s, 98.38 in/yr, 1,374,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,700 ft³/s Nov. 24, 1990, gage height, 15.20 ft; minimum discharge, 117 ft^3/s Sept. 23, 1938.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 13,000 ft^3/s and maximum (*):

BATTELINED FOR C	Olddivi II			Gage height		be diben	arge or .			Gage height		
Date	Time	(ft		(ft)	Date	Э	Time	(ft ³ /	s)	(ft)		
Nov. 14 Dec. 14 Dec. 17	2145 0245 0215	16	,500 ,100 ,600	11.13 10.44 12.43	Feb	. 08 . 22 . 14	0415 1345 0630	*33,	500	14.07 *14.62 11.47		
Minimum dis	charge, 2	221 ft ³ /s (Oct. 6.									
		DISCHA	RGE, CUE	IC FEET PER		WATER Y		BER 2001 TO	SEPTEME	3ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	296	4730	3460	1370	1460	1980	3030		2290	1920	482	287
2	277 260	3480 2430	4070 2460	2490 2560	1350 1620	1820 1700	2460 2080	2590 2270	2300 2290	1560 1370	457 437	302 391
4	245	2070	2100	2220	1830	1620	2010	1900	2280	1260	e426	355
5	231	2640	1870	1900	1550	1600	2240	2020	3000	1150	e470	306
6	228	1810	2180	2320	2120	1500	3290	1930	3150	1090	e520	282
7 8	230 254	1450 1230	2340	18200	2490	1430	4240 2750	1650	2140 1880	1150	e516 474	268
9	254 305	1230	2380 3300	20400 7610	2160 1900	1370 1330	2750	1470 1380	1770	1760 1390	474	262 260
10	330	957	2240	3950	1720	1360	4440	1330	2000	1230	430	254
11	1030	883	1850	2930	1770	3200	3850	1340	2150	1240	422	248
12	1520	877	1730	3780	1520	3760	6970		2420	1170	411	246
13	1720	1200	8090	3650	1360	2820	8250	2260	2680	1110	403	240
14 15	2190 1310	13400 10300	10600 4380	2620 2180	1230 1140	2650 2370	13100 5380	2700 2170	2720 2470	1030 911	400 394	235 234
15	1310	10300	4300	2160	1140	2370	3360	2170	2470	911	394	234
16	960	5790	11100	1920	1160	2160	3920	1820	2180	841	379	681
17 18	1060 907	3520 2520	12800 4990	1730 1590	1210 1620	1880 1740	3110 2570	2410 2320	1820 2350	823 798	364 350	924 455
19	3120	2420	3420	1640	1880	1870	2280	2110	1850	764	340	370
20	1980	3770	2660	1840	2120	1870	2120	2510	1630	707	332	453
21	1430	4190	2220	2070	5870	1670	2000	2410	1810	666	327	358
22	4980	3790	1940	1780	30100	1710	2210		1910	659	320	314
23 24	7740	4760	1710	1670 4490	13200	1780 1890	2260 1880	2010 1900	1820	660 655	314	288
25	4520 4990	3040 2320	1560 1430	5950	5580 3670	2000	1710	2090	1620 1550	630	314 315	270 258
26 27	3450 4750	2000 1770	1330 1250	2860 2100	2920 2470	2050 2190	1660 1570	2320 2490	1690 1740	616 576	312 303	247 246
28	2800	1690	1430	1730	2200	2530	1590	3830	2170	548	301	235
29	1930	2990	1520	1510		2250	1660	4520	6340	548	299	251
30 31	1710 5730	2530	1340 1320	1390 1550		2120 2060	1960	3210 2620	2580	537 515	294 289	553
TOTAL	62483	95637	105070	114000	99220	62280	99070		68600	29884	11839	10073
MEAN MAX	2016 7740	3188 13400	3389 12800	3677 20400	3544 30100	2009 3760	3302 13100		2287 6340	964 1920	382 520	336 924
MIN	228	877	1250	1370	1140	1330	1570		1550	515	289	234
AC-FT CFSM	123900	189700	208400		196800	123500	196500	138400	136100	59270	23480	19980
IN.	7.69 8.87	12.2 13.58	12.9 14.92	14.0 16.19	13.5 14.09	7.67 8.84	12.6 14.07	8.59 9.91	8.73 9.74	3.68 4.24	1.46	1.28
STATIS	STICS OF N	MONTHLY ME	AN DATA	FOR WATER Y	EARS 192	8 - 2002	, BY WATI	ER YEAR (WY)			
MEAN	1518	2761	3059	2789	2462	2130	2218	2177	1671	878	462	673
MAX	3832	8008 1991	6177 1980	5852 1953	5632	5814	4040 1959	4371 1997	3348 1974	2165 1972	1049	2418 1959
(WY) MIN	1968 171	223	871	484	1982 467	1972 898	812		510	290	1964 166	140
(WY)	1988	1937	1986	1937	1929	1992	1941		1992	1940	1938	1938
SUMMAR	Y STATIST	rics	FOR	2001 CALEN	DAR YEAR		FOR 2002	WATER YEAR		WATER YEAR	RS 1928 -	2002
	TOTAL			591849			827946					
ANNUAL				1622			2268			1897 2883		1997
	T ANNUAL ANNUAL N									2883 1123		1997
HIGHES	T DAILY N	MEAN		13400	Nov 14		30100			34200	Nov 24	1990
	DAILY ME			228	Oct 6		228	Oct 6		123	Sep 23	
		AY MINIMUM (AC-FT)		246 1174000	Oct 2		245 1642000	Sep 9		128 1374000	Sep 17	1938
ANNUAL	RUNOFF	(CFSM)		6.19				.66		7.24	l.	
ANNUAL	RUNOFF	(INCHES)		84.03			117			98.38		
	CENT EXCE			3340 1230			4000 1810			3720 1380		

1810

1380

344

50 PERCENT EXCEEDS

90 PERCENT EXCEEDS

1230

e Estimated

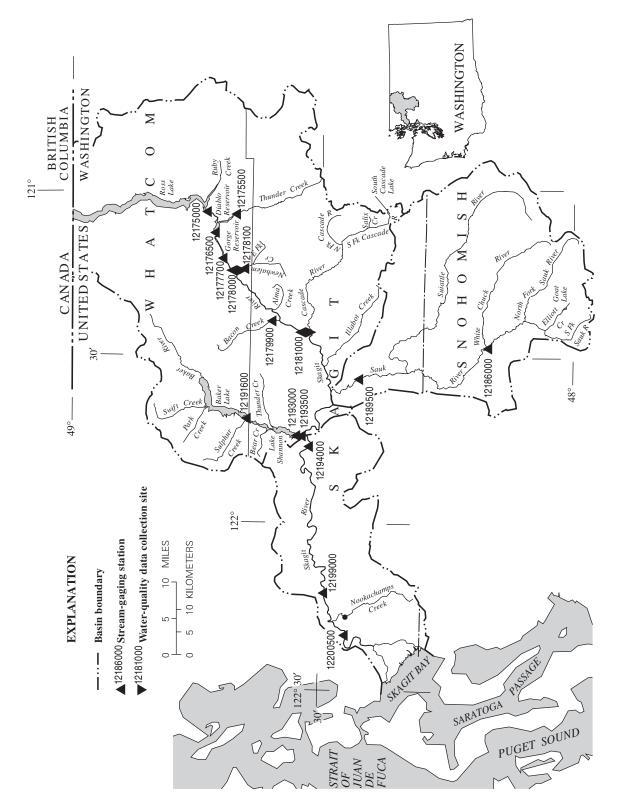


Figure 31. Location of surface-water and water-quality stations in the Skagit River Basin.

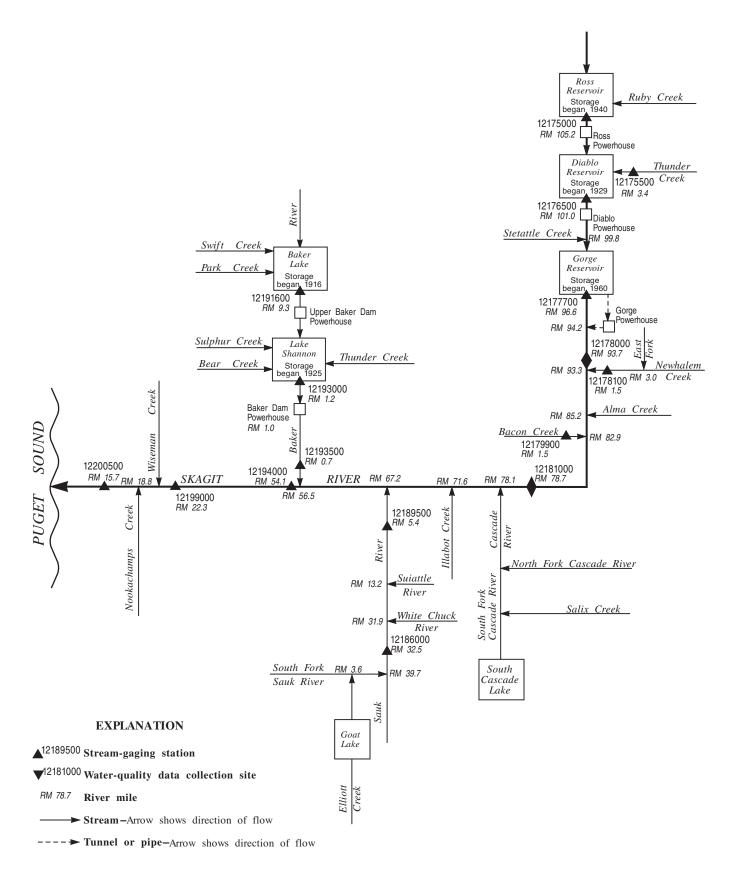


Figure 32. Schematic diagram showing surface-water and water-quality stations in the Skagit River Basin.

12175000 ROSS RESERVOIR NEAR NEWHALEM, WA (International gaging station)

LOCATION.--Lat $48^{\circ}43^{\circ}58^{\circ}$, long $121^{\circ}04^{\circ}02^{\circ}$, in SE $\frac{1}{4}$ sec.35, T.38 N., R.13 E., Whatcom County, Hydrologic Unit 17110005, Ross Lake National Recreation Area, at Ross Dam on Skagit River, 1.0 mi downstream from Ruby Creek, 9.1 mi northeast of Newhalem, and at mile 105.2.

DRAINAGE AREA.--999 mi^2 , of which 400 mi^2 is in Canada.

PERIOD OF RECORD.--March 1940 to current year (monthend elevations and contents only prior to October 1946). Prior to October 1945, published as "Ruby Reservoir near Newhalem."

REVISED RECORDS. -- WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is City of Seattle Ross Dam datum; 1.79 ft above NGVD of 1929, U.S. Coast and Geodetic Survey datum; and 0.88 ft above NGVD of 1929, Geodetic Survey of Canada 1959 datum (by water level transfer of elevation from the international boundary). Prior to Sept. 24, 1940, nonrecording gage on west shore at site upstream from Ross Dam at same datum. June 29, 1943i, to Apr. 29, 1948, nonrecording gage on right bank at site 500 ft upstream from dam at present datum.

REMARKS.--Reservoir is formed by concrete-arch dam completed to elevation 1,615 ft in 1949, storage began Mar. 11, 1940. Starting about July 1, 1967, taintor gates were extended to elevation 1,602.50 ft. Usable storage, 1,052,300 acre-ft between elevations 1,475 ft, lower limit of operation, and 1,602.5 ft, top of taintor gates. An additional 95,000 acre-ft of storage may be obtained during major floods by surcharge of the reservoir to a maximum elevation of 1,610.5 ft. Dead storage below elevation 1,250 ft, 1,175 acre-ft. Water used by City of Seattle for power development. Figures given herein represent total contents. U.S. Geological Survey satellite telemeter at station.

COOPERATION.--Capacity table furnished by City of Seattle. This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,443,460 acre-ft July 20, 1981, elevation, 1,603.23 ft; minimum contents observed since dam was completed in 1949, 51,760 acre-ft Apr. 5, 1952, elevation, 1,348.50 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,433,917 acre-ft July. 31, elevation, 1,602.43 ft; minimum contents, 536,755 acre-ft Apr. 11, elevation, 1,504.61 ft.

Capacity table (elevation, in feet, and total contents, in acre-feet) (Based on 25-foot contour intervals furnished by city of Seattle in 1943)

1,490	454,480	1,550	888,320
1,500	509,240	1,575	1,130,200
1.525	678,950	1,603	1,440,700

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	1576.95	1571.38 1571.41 1571.30 1571.41 1571.29	1578.07	1574.59 1574.21 1573.54 1572.54 1571.59	1563.18 1562.15 1560.98 1559.88 1558.73	1544.12 1542.87 1542.08 1540.92 1539.90	1510.49 1509.67 1508.79 1507.95 1507.10	1515.35 1516.15 1517.39 1518.32 1519.00	1543.93 1546.24 1548.93 1551.47 1554.25	1599.18 1599.16 1599.42 1599.66 1599.65	1602.25 1602.24 1602.17 1602.24 1602.11	1601.13 1601.13 1601.05 1600.94 1600.80
6 7 8 9 10	1575.78 1575.44	1571.02 1570.92 1570.73 1570.55 1570.44	1577.13 1576.78	1571.00 1573.08 1576.76 1578.21 1578.80	1557.69 1556.87 1556.21 1555.30 1554.26	1538.61 1537.49 1536.23 1535.05 1533.90	1505.98	1518.71 1518.36 1517.84 1517.65 1516.78	1557.07 1558.89 1559.91 1560.87 1562.04	1599.73 1600.02 1601.08 1601.63 1602.10	1602.04 1602.03 1602.01 1601.96 1602.00	1600.47 1600.45 1600.30 1600.15 1599.99
11 12 13 14 15	1574.33 1574.16	1570.32 1570.05 1570.07 1571.51 1573.66	1575.98 1575.43 1575.28 1575.39 1575.13			1533.26 1532.27 1531.30 1530.05 1528.99		1515.93 1515.23 1514.94 1515.45 1515.72	1563.58 1565.59 1568.20 1571.43 1574.70	1602.19 1601.97 1601.63 1601.47	1602.02 1602.03 1601.98 1601.96 1601.91	1599.65 1599.38 1599.08 1598.91 1598.83
16 17 18 19 20	1573.18		1576.17 1576.37	1576.39	1549.03 1548.12 1547.17 1546.20 1545.31	1527.96 1526.87 1525.58 1524.78 1523.45	1516.65 1517.06	1515.87 1516.04 1516.46 1517.34 1518.64	1577.59 1579.86 1581.82 1583.00 1583.91	1601.35 1601.46 1601.80 1601.94 1602.02	1601.63	1598.75 1598.70 1598.62 1598.50 1598.45
21 22 23 24 25	1572.28	1578.49 1578.96 1579.29 1579.50 1579.61	1576.42 1576.29 1576.15	1573.25 1572.45 1571.61 1570.88 1570.09		1521.12		1522.45	1585.11 1586.65 1588.32 1589.75 1591.03	1602.03 1601.96 1602.04 1602.22 1602.30	1601.43 1601.29 1601.24 1601.24	
26 27 28 29 30 31	1571.81 1571.73 1571.47		1575.50 1575.31 1575.18 1574.91	1569.28 1568.23 1567.26 1566.25 1565.27 1564.29	1544.83	1515.02 1513.45	1515.81 1515.39	1526.93 1528.39 1531.22 1534.98 1538.54 1541.53	1592.74 1594.63 1596.38 1598.20 1599.08	1602.20 1602.08 1601.94	1601.49 1601.42 1601.37 1601.33 1601.33	1597.84 1597.57 1597.50 1597.39 1597.29
MAX MIN (†) (‡)	1577.81 1571.21 1092468 -70722	1579.61 1570.05 1171670 +79202	1578.88 1574.69 1126976 -44694	1578.89 1564.29 1022042 -104934	1563.18 1544.83 842628 -179414	1544.12 1511.66 582218 -260410	1517.44 1504.67 606077 +23859	1541.53 1514.94 814028 +207951	1599.08 1543.93 1394628 +580600	1602.36 1599.16 1431894 +37266	1602.25 1601.18 1419124 -12770	1601.13 1597.29 1373935 -45189

CAL YR 2001 MAX 1591.01 MIN 1527.56 AC-FT‡ +170540 WTR YR 2002 MAX 1602.36 MIN 1504.67 AC-FT‡ +210745

[†] Contents, in acre-feet, at 2400, on last day of month.

[†] Change in contents, in acre-feet.

12175500 THUNDER CREEK NEAR NEWHALEM, WA

LOCATION.--Lat 48°40'22", long 121°04'18", in SE ½ sec.23, T.37 N., R.13 E., (unsurveyed), Whatcom County, Hydrologic Unit 17110005, Ross Lake National Recreation Area, on right bank 0.4 mi upstream from high-water line of Diablo Reservoir, 9.0 mi east of Newhalem, and at mile 3.4.

DRAINAGE AREA. -- 105 mi2.

Time

1715 0030

Date Nov. 15 Jan. 08

PERIOD OF RECORD.--October 1930 to current year. Published as "above Colonial Creek, near Marblemount" 1930-31.

REVISED RECORDS.--WSP 1012: 1943. WSP 1286: 1931(M), 1932, 1933(M), 1935(M), 1938-39(M), 1941-42(M), 1944-46(M), 1950(M), 1952 (annual runoff in acre-ft). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,220 ft above NGVD of 1929, from river-profile map.

REMARKS.--Records good except for discharges above 1,300 ft³/s, which are fair. No regulation or diversion upstream from station. Large diurnal fluctuations caused by snowmelt during summer months. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--72 years (water years 1931-2002), 618 $\mathrm{ft^3/s}$, 80.01 $\mathrm{in/yr}$, 447,900 acre-ft/yr.

Discharge Gage height (ft³/s) (ft)

7.68 *9.70

3,270 *5,760

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,500 ft³/s Dec. 26, 1980, gage height, 14.5 ft, from rating curve extended above 3,500 ft³/s; minimum discharge not determined, probably less than 50 ft³/s during period of ice effect or no gage-height record in February 1936.

May 29 0900 June 29 0945

Time

Discharge Gage height (ft³/s) (ft)

7.34 8.85

2,540 4,140

EXTREMES OUTSIDE PERIOD OF RECORD.--Records for floods, prior to establishment of station, are given in WSP 1527.

Date

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,400 $\mathrm{ft^3/s}$ and maximum (*):

ouii. oo	0050	5,70	o	5.70	ounc	23	0343	- 7	110	0.05		
Minimum disc	charge, 12											
		DISCHARGE	, CUBIC	FEET PER		WATER YE MEAN VA	AR OCTOBER LUES	2001 TO	SEPTEMBE	R 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	372	402	267	167 169 166 162 159	169	297 274 261 247 241	186	717	1450	1600 1300	1010	1110
2	331	385	270	169	164	274	188	858	1470	1300	883	1070
3	288	348	244	166	161	261	186	758	1600	1180	758	1120
4	259	315	229	162	155	247	192	634	1630	1140	758 719	735
5	231	383	219	102	155	247	218	551	1910	1180 1140 1010	719 682	571
5	231	303	219	159	134	241	210	221	1910	1010	002	5/1
6	217	314	215	170	151	226	277	475	1000	1020	702	476
7		314	213	1/9	151	220		4/5	1900	1030	703	442
	194	270	212	2540	150	212	322	418	1270	1370	660	
8	191	245	219	3410	148	205	313	376	963	2080	706	386
9	181	229	216	1450	143	198	307	348	813	1640	836	415
10	197	218	215 212 219 216 202	179 2540 3410 1450 908	143	226 212 205 198 190	336	329	932	1030 1370 2080 1640 1860	1040	504
11	251	217 248	193 185 225 316 275	684 598 520 444	142	235 257	373	335	1300	2400 2300	1020	567
12	236	248	185	598	135	257	498	396	1720	2300	986	636
13	398	394	225	520	134	240	894	579	2090	2200	1140	626
14	278	2300	316	444	131	227	1870	665	2520	2340	1320	617
15	228	2820	275	389	128	214	1220	601	2540			607
16	223	1660	504	349	128	206	898	585	2340	1830 1900	1110 870	770
17	236	940	881	319	128	192	745	704	1850	1900	870	725
18	195	661	554	293	128	184	623	769	1750	1850	781	495
19	274	673	420	274	135	181	534	755	1430	1780	763	573
20	252	858	352	265	138	174	499	1050	1370	1580	727	609
20	232	030	332	205	130	1/4	433	1050	1370	1300	121	609
21	207	658	311	265	261	169	491	1240	1640	1/00	739	437
22	293	536	278 249		1960	164	471	1050	1960	1490 1600		411
	381	330	2/0	243	1410	164	443	0.5.5	1980	1000	022	
23		459	249	230	1410	164	443	855	1980	1860	985	448
24	305		229	260	790 557	164 164 163 167	407	794	1830	1980	1190	436
25	264	361	220	325	557	167	381	834	1870	1600 1860 1980 1990	1200	387
0.5	0.65	221	015	0.43	450	1.00	264	0.40	0250	7.000	1000	250
26	265	331	215	243	450	1/6	364	949	2370	1900	1090	350
27	454	308	202	211	381	178	356	1080	2650	1590	1060	331
28	330	292	190	195	332	178	355	1580	2540	1450	1200	318
29	270	292	184	180		176	387	2350	3530	1550	1210	369
30	266	274	178	179		175	510	2050	2250	1580	1130	313
31	525		172	243 211 195 180 179 175		178		1700		1900 1590 1450 1550 1580 1270	1020	
TOTAL	8592	17788 593 2820 217	8626	15953 515 3410 159 31640	9006	6349 205 297 163 12590	14844 495 1870 186 29440 4.71 5.26	26385	55468	52590	29670	16854
MEAN	277	593	278	515	322	205	495	851	1849	1696	957	562
MAX	525	2820	881	3410	1960	297	1870	2350	3530	2400	1320	1120
MIN	181	217	172	159	128	163	186	329	813	1010	660	313
AC-FT	17040	35280 1	7110	21640	17960	12500	29440	52220	110000	104200	50050	33430
CFSM	2.64		7110	4.90	17000	1 05	4 71	0 11	17 6	16.0	0 10	22420
IN.			2.65	5.65	3.00	1.95	4.71	0.11	10.6	10.2	3.12	5.33
IN.	3.04	6.30	3.06	5.65	3.19	2.25	5.26	9.35	19.65	18.63	10.51	5.97
STATIS		NTHLY MEAN			EARS 1931	- 2002,	BY WATER	YEAR (WY)			
MEAN	441	404 1652 1996 110 1936	315	259	233	217	384 1057 1934 172 1975	886	1319	1326	990	620
MAX	917	1652	1023	842	683	663	1057	1601	2072	1935	1502	906
(WY)	1934	1996	1981	1984	1991	1972	1934	1993	1948	1975	1999	1997
MIN	200	110	95 2	78 4	57 3	91 1	172	432	837	784	704	367
(WY)	1978	1936	1931	1979	1936	1956	1975	1977	1981	1993	1993	1985
	Y STATISTI			001 CALENI			'OR 2002 WA'					
ANNUAL ANNUAL HIGHEST	MEAN	IEAN AN AN IN MINIMUM AC-FT) AFSM) NCHES) EDS		192767 528			262125 718			618 863 452		1934 1944
HIGHEG	T DATLY ME	AN.		2820	Nov 15		3530 128 130 519900	Jun 29		452 8950 50 52 447900	Dec 26	1980
TUMPOT	TOTIL ME	N		79	Mar 4		128	Feb 15		50	Feb 7	1936
TOMPOT	DUTTI NEW	MINITMIN		90	Pob 20		120	Pob 10		50	reb 1	1026
AMMUMAL	DIMORE /*	C ELL)		202400	1.6D 78		130	ren 12		447000	ren 15	1230
AMMUAL	NUMBER (A	IC-I(I)		JUZ4UU			212200			5.8	0	
ANNUAL	RUNUFF (C	PSM) NCHES) DS DS		5.03			6.84					
ANNUAL	KUNUFF (I	NCHES)		68.29			92.87			80.0	L	
10 PER	CENT EXCEE	ing.		1170			1840			1360		
50 PER	CENT EXCEE	DS		352			411			421		
90 PER	CENT EXCEE	:DS		107			177			135		

12176500 DIABLO RESERVOIR NEAR NEHALEM, WA

- LOCATION.--Lat $48^{\circ}42^{\circ}56^{\circ}$, long $121^{\circ}07^{\circ}52^{\circ}$, in SE $\frac{1}{4}$ sec.5, T.37 N., R.13 E. (unsurveyed), Whatcom County, Hydrologic Unit 17110005, Ross Lake National Recreation Area, at Diablo Dam on Skagit River, 1.2 mi downstream from Thunder Creek, 6.0 mi northeast of Newhalem, and at mile 101.0.
- DRAINAGE AREA.--1,125 mi², includes 400 mi² in Canada.
- PERIOD OF RECORD.--October 1929 to current year. October 1929 to September 1938, monthly change in reservoir contents published with records for Skagit River at Newhalem.
- GAGE.--Water-stage recorder. Datum of gage is City of Seattle datum. Prior to Oct. 1, 1964, at datum 0.28 ft higher.
- REMARKS.--Reservoir is formed by concrete-arch dam, completed in 1930; storage began in October 1929. Usable storage, 8,820 acre-ft between elevations 1,195 ft, normal lower limit of operation, and 1,205 ft, top of taintor gates. Dead storage, below elevation 1,040 ft, 12,900 acre-ft. Crest of spillway is at elevation 1,187 ft. Water used by City of Seattle for power development at Diablo and Gorge powerplants. Capacity table furnished by City of Seattle. Figures given herein represent total contents. U.S. Geological Survey satellite telemeter at station.
- EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 90,600 acre-ft July 14, 1933, elevation, 1,206.5 ft; minimum contents not determined.
- EXTREMES FOR CURRENT YEAR.--Maximum contents, 88,820 acre-ft Mar. 18, July 12, elevation, 1,204.84 ft; minimum contents, 81,686 acre-ft Aug. 20, elevation, 1,196.71 ft.

MONTHEND GAGE HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1203.46	87,752	==
Oct. 31	1202.86	87,036	-536
Nov. 30	1200.86	85,270	-1,766
Dec. 31	1202.41	86,636	+1,366
CAL YR 2001			+644
Jan. 31	1202.37	86,600	-36
Feb. 28	1203.24	87,374	+774
Mar. 31	1201.31	85,666	-1,708
Apr. 30	1202.25	86,494	+828
May 31	1199.61	84,177	-2,317
June 30	1203.85	87,923	+3,746
July 31	1202.96	87,125	-798
Aug. 31	1202.55	86,760	-365
Sept. 30	1201.62	85,939	-821
WTR YR 2002			-1,633

12177700 GORGE RESERVOIR NEAR NEWHALEM, WA

LOCATION.--Lat $48^{\circ}41^{\circ}53^{\circ}$, long $121^{\circ}12^{\circ}25^{\circ}$, in NW $\frac{1}{4}$ sec.14, T.37 N., R.12 E., Whatcom County, Hydrologic Unit 17110005, Ross Lake National Recreation Area, at Gorge Dam on Skagit River, 2.4 mi upstream from Gorge powerplant at Newhalem, and at mile 96.6.

DRAINAGE AREA.--1,159 mi², includes 400 mi² in Canada.

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

GAGE.--Water-stage recorder; prior to Apr. 1, 1962, reference point on Gorge Dam or water-stage indicator in powerhouse. Datum of gage is 0.00 ft City of Seattle Gorge High Dam datum, and 1.792 ft below NGVD of 1929 (Corps of Engineers' benchmark).

REMARKS.--Reservoir is formed by concrete-arch and gravity dam, completed Dec. 27, 1960; storage began June 27, 1960. Usable storage, 2,115 acre-ft between elevations 865 ft, normal lower limit of operation, and 875 ft, top of gates. Lowest outlet at elevation 760 ft. No dead storage. Crest of spillway is at elevation 825 ft. Water used by City of Seattle for power development at Gorge powerplant. Capacity table furnished by City of Seattle. Figures given herein represent total contents.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 9,761 acre-ft June 1, 1982, elevation, 880.01 ft; minimum observed contents since normal low operating level was reached in December 1960, 172 acre-ft Aug. 13, 1997, elevation, 781.75 ft (City of Seattle).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 9,190 acre-ft Jan. 8, elevation, 877.83 ft; minimum recorded contents, 4,193 acre-ft Mar. 28, elevation, 849.36 ft.

MONTHEND GAGE HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	869.68	7,281	==
Oct. 31	871.12	7,592	+311
Nov. 30	871.11	7,589	-3
Dec. 31	870.65	7,489	-100
CAL YR 2001			-226
Jan. 31	870.33	7,420	-69
Feb. 28	872.50	7,900	+480
Mar. 31	867.91	6,917	-983
Apr. 30	871.49	7,673	+756
May 31	870.49	7,454	-219
June 30	872.89	7,989	+535
July 31	874.18	8,290	+301
Aug. 31	873.09	8,035	-255
Sept. 30	871.70	7,720	-315
WTR YR 2002	==		+439

12178000 SKAGIT RIVER AT NEWHALEM, WA

LOCATION.--Lat 48°40'19", long 121°14'48", in SW \(^1\)/4 SE \(^1\)/4 sec.21, T.37 N., R.12 E., Whatcom County, Hydrologic Unit 17110005, Ross Lake National Recreation Area, on right bank 0.4 mi upstream from Newhalem Creek, 0.5 mi downstream from City of Seattle powerplant at Newhalem, 10.8 mi upstream from Bacon Creek, and at mile 93.7.

DRAINAGE AREA. -- 1,175 mi², of which 400 mi² is in Canada.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1908 to May 1914, October 1920 to current year. June 1914 to September 1920 (monthly discharge only), in State Water-Supply Bulletin 6. Published as "near Marblemount" 1908-14, 1920-31.

REVISED RECORDS.--WSP 512: 1909-14. WSP 1012: 1929. WSP 1316: 1914(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 401.5 ft above NGVD of 1929 (river-profile survey). Prior to May 24, 1914, nonrecording gages at site 0.5 mi upstream at datum 91 ft higher. Nov. 15, 1920, to June 4, 1923, nonrecording gage at site about 500 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Water is diverted 2.9 mi upstream from station and is returned to river at City of Seattle powerplant 0.5 mi upstream from station. Flow regulated by Gorge powerplant since August 1924 and by Ross Reservoir (station 12175000) since March 1940, Diablo Reservoir (station 12176500) since October 1929, and Gorge Reservoir (station 12177700) since June 1960, having a combined total capacity of 1,533,000 acre-ft. U.S. Geological Survey satellite telemeter at station. Chemical analyses October 1973 to September 1974.

AVERAGE DISCHARGE.--94 years (water years 1909-2002), 4,411 ${\rm ft}^3/{\rm s}$, 3,196,000 acre-ft/yr, adjusted. 42 years (water years 1961-2002), 4,467 ${\rm ft}^3/{\rm s}$, 3,236,000 acre-ft/yr, regulated.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 63,500 ft³/s Nov. 29, 1909, gage height, 22.0 ft from floodmark, site and datum then in use; minimum discharge, 54 ft³/s Nov. 1, 1943, gage height, 78.15 ft; minimum daily discharge, 136 ft³/s Aug. 24. 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1815 reached a stage of approximately 20.5 ft, discharge about 115,000 $\rm ft^3/s$. Records for other floods, prior to establishment of station, are given in WSP 1527.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, $14,700 \text{ ft}^3/\text{s}$ July 12, gage height, 87.53 ft; minimum discharge, $1,630 \text{ ft}^3/\text{s}$ Oct 1, gage height, 81.62 ft, result of regulation; minimum daily discharge, $1,760 \text{ ft}^3/\text{s}$ Oct. 7, Sept. 29-30.

		DISCH	ARGE, CUBI	C FEET PI		, WATER Y LY MEAN V	EAR OCTOBI ALUES	ER 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2980	2840	3060	2700	7120	6940	5030	6440	3560	11200	4150	3300
2	2930	3030	3330	2630	7020	6910	4980	6600	3740	10400	4620	4100
3	2610	2380	3560	5760	6990	6940	4950	4450	4030	8300	3960	3580
4	2330	2030	3620	5900	7010	6940	4980	3840	4460	7310	3510	3300
5	2390	3290	3910	6260	6950	6900	4980	3920	4700	7310	3420	2960
6	1780	3260	3010	5930	6970	6960	4970	6320	4710	7380	3460	2570
7	1760	2150	3320	7050	6090	7160	4930	6600	5260	7320	3300	2000
8	3000	3080	2880	9460	5620	6870	5090	6450	4420	7290	3120	2680
9	2590	2220	3910	6020	5660	7090	5070	4800	4650	7200	3670	2990
10	2780	2480	3970	6090	5620	7020	5410	6900	4640	7110	3660	3150
11	2810	1870	3720	6270	5560	6970	4710	6920	6070	12600	3310	3180
12	2690	2780	4150	6290	5490	7010	3030	6780	6000	14400	3990	3190
13	2370	3080	4070	6310	5570	6980	3170	6810	6390	14300	4050	3140
14	1800	5510	3700	6190	5570	6970	4810	6860	6420	12900	4350	2870
15	2620	6050	3730	7100	5520	6510	4170	7000	6400	11700	3960	2710
16	1990	3780	3480	7040	5470	6460	3170	6600	6920	9880	3580	3090
17	2300	2220	4140	6990	5560	6400	3200	6650	6680	7880	3560	2900
18	2260	1900	3710	6940	5620	6450	3310	6440	6910	7110	3460	2490
19	2180	1880	3070	6960	5590	6510	4800	6060	6780	7440	3830	2060
20	2220	2980	2860	6920	5800	6490	5040	6580	7540	7370	3370	1820
21	2000	2800	2360	6940	5490	6450	5120	6510	7870	7380	3000	1830
22	2620	2510	2690	6920	7410	5680	5150	6260	7930	7390	2740	1830
23	3120	2500	2500	7120	6750	5480	4760	6140	7960	7210	2710	1870
24	3020	2300	2700	7160	5610	5520	4870	5820	7820	7290	2930	1880
25	2940	2030	2440	6970	6490	5550	5740	5410	7950	7170	3150	1870
26	3030	3280	3130	7130	6970	6060	6060	5610	8110	7380	3240	1880
27	2990	3280	3020	7140	6940	6650	5960	5430	8170	7300	3220	2790
28	2930	3440	2400	7000	6860	6190	5920	5510	8200	7250	3770	1770
29	3090	3480	2400	7020		5690	5840	5750	8770	6920	3630	1760
30	3050	3330	2350	7020		5520	5830	5640	9870	4510	3050	1760
31	3030		2450	7090		5040		4990		3530	2610	
TOTAL	80210	87760	99640	202320	173320	200310	145050	186090	192930	259730	108380	77320
MEAN	2587	2925	3214	6526	6190	6462	4835	6003	6431	8378	3496	2577
MAX	3120	6050	4150	9460	7410	7160	6060	7000	9870	14400	4620	4100
MIN	1760	1870	2350	2630	5470	5040	3030	3840	3560	3530	2610	1760
AC-FT	159100	174100	197600	401300	343800	397300	287700	369100	382700	515200	215000	153400
MEAN† CFSM†	1433 1.22	4228 3.60	2507 2.13	4818 4.10	2982 2.54	2182 1.86	5263 4.48	9341 7.94	16270 13.85	8976 7.64	3278 2.79	1800 1.53
IN.†	1.41	4.01	2.13	4.10	2.54	2.14	5.00	9.17	15.44	8.81	3.22	1.53
AC-FT†		251500	2.46 154200	296300	165600	134200	313100	574500	967600	552000	201600	107100
AC-FIT	00120	231300	134200	∠30300	T02000	134200	212100	3/4500	901000	352000	Z01000	T0/T00

CAL YR 2001 TOTAL 958750 MEAN 2627 MAX 6050 MIN 1600 AC-FT 1902000 MEAN† 2863 CFSM† 2.44 IN.† 33.08 AC-FT† 2073000 WTR YR 2002 TOTAL 1813060 MEAN 4967 MAX 14400 MIN 1760 AC-FT 3596000 MEAN† 5256 CFSM† 4.47 IN.† 60.73 AC-FT† 3806000

[†] Adjusted for change in contents in Ross, Diablo and Gorge Reservoirs.

12178000 SKAGIT RIVER AT NEWHALEM, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--WATER TEMPERATURE: January 1999 to current year.

INSTRUMENTATION.--Water-temperature sensor interfaced with a data collection platform for satellite telemetry.

REMARKS.--Records good except those from July 29 to September 5, which are fair, and those from September 6 to September 30, which are poor.

EXTREMES FOR PERIOD OF RECORD. --

WATER TEMPERATURE: Maximum, 11.9°C July 10, 2001; minimum, 2.2°C Feb. 21, 2002.

EXTREMES FOR CURRENT YEAR. --

WATER TEMPERATURE: Maximum recorded, 10.9°C Aug. 27, 28; minimum recorded, 2.2°C Feb. 21.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER	1	NC	VEMBER		DE	CEMBER			JANUARY	
1 2 3 4 5	10.7 10.7 10.7 10.6 10.5	10.5 10.4 10.4 10.4	10.6 10.5 10.5 10.5	9.0 8.9 9.0 8.9 8.8	8.8 8.8 8.8 8.7	8.9 8.9 8.9 8.9	7.3 7.3 7.1 7.1	7.1 7.1 7.0 6.9 6.9	7.2 7.2 7.0 7.0	5.4 5.5 5.7 5.7	5.3 5.4 5.5 5.5 5.6	5.4 5.4 5.6 5.6 5.7
6 7 8 9 10	10.4 10.4 10.4 10.5 10.3	10.3 10.3 10.3 10.3	10.4 10.4 10.4 10.4 10.2	8.8 8.8 8.8 8.8	8.6 8.7 8.6 8.5 8.6	8.7 8.8 8.7 8.7	7.1 7.0 7.0 7.0 6.9	6.9 6.8 6.8 6.7	7.0 6.9 6.9 6.9	5.8 5.6 5.2 5.3 5.4	5.5 4.7 4.5 5.2 5.2	5.7 5.2 4.8 5.2 5.3
11 12 13 14 15	10.2 10.2 10.0 10.1 10.0	10.1 10.0 9.9 9.9 9.8	10.1 10.1 10 9.9 9.9	8.8 8.9 9.0 8.7 8.1	8.6 8.8 8.7 7.7 7.7	8.7 8.8 8.9 8.3 7.8	6.9 6.8 6.8 6.6 6.3	6.8 6.5 6.3 6.2	6.8 6.8 6.7 6.5	5.4 5.4 5.2 5.0 5.1	5.2 5.1 4.9 5.0 4.9	5.3 5.0 5.0 5.0
16 17 18 19 20	10.1 10.0 9.9 9.8 9.8	9.9 9.8 9.7 9.6 9.7	10.0 9.9 9.8 9.7 9.8	8.1 8.0 7.9 7.7 7.6	7.9 7.9 7.6 7.5 7.5	7.9 7.9 7.8 7.6 7.5	6.3 6.1 6.0 6.0	6.0 5.7 5.7 5.9 5.9	6.1 5.9 5.8 6.0	5.0 5.0 5.0 5.0	4.9 4.9 4.8 4.8	5.0 5.0 4.9 4.9
21 22 23 24 25	9.8 9.7 9.5 9.3 9.4	9.7 9.5 9.3 9.1 9.2	9.8 9.6 9.4 9.2 9.3	7.6 7.6 7.6 7.4 7.4	7.5 7.5 7.4 7.3 7.3	7.6 7.6 7.6 7.4 7.3	6.0 6.0 5.9 5.7 5.5	5.9 5.9 5.7 5.5 5.3	6.0 5.9 5.8 5.6 5.4	5.0 4.9 4.8 4.7 4.7	4.8 4.7 4.6 4.5 4.4	4.9 4.8 4.7 4.6 4.5
26 27 28 29 30 31	9.4 9.3 9.1 9.2 9.3 9.2	9.3 9.1 8.8 8.8 9.1 9.0	9.4 9.2 8.9 9.0 9.2 9.2	7.5 7.5 7.4 7.4 7.3	7.4 7.4 7.3 7.2 7.1	7.4 7.5 7.4 7.3 7.2	5.4 5.4 5.5 5.5 5.5	5.3 5.4 5.4 5.3 5.3	5.3 5.5 5.5 5.4 5.4	4.6 4.5 4.4 4.4	4.5 4.4 4.2 4.2 4.2 4.2	4.5 4.3 4.3 4.3
MONTH	10.7	8.8	9.9	9.0	7.1	8.1	7.3	5.3	6.3	5.8	4.2	5.0

12178000 SKAGIT RIVER AT NEWHALEM, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		TEMPE	KAIUKE,	WATER (DEG	. C), W.F.	IIII IIIII	OCTOBER 2	001 10 2	DE TEMBER	2002		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1			4.3	3.9 3.8	3.6	3.7	4.0		3.8	6.4		6.2
2 3		4.2	4.3 4.3	3.8	3.6	3.7 3.7	3.9 4.1	3.8	3.8 3.9	6.4 5.7	5.6 5.5	5.9 5.6
4 5	4.4	4.3 4.2	4.3	3.9 4.0	3.7	3.8 3.8	4.2 4.4	3.9 4 1	4.0 4.3	6.0 5.8	5.7 5.6	5.8 5.7
6 7	4.4 4.4	4.2	4.3 4.3 4.3	3 6	3.4	3.6 3.5 3.5	4.4 4.2	4 1	4.2 4.2	6.1	5.7 5.6	5.9 5.8
8 9	4.4	4.2 4.2	4.3	3.6 3.7	3.4 3.4	3.5 3.6	4.3	4.2	1 3	6.1 6.1	5.4 5.8	5.8 6.0
10	4.4		4.3	3.7	3.5	3.6	4.4	4.3	4.4	6.5	5.7	6.1
11	4.3	4.2	4.2	3.7	3.5	3.6	4.5	4.3	4.4	6.8	5.9	6.3
12 13	4.2	4.0	4.2 4.1 4.1	3.7	3.5 3.5	3.6 3.7	4.5 4.5	4.3	4.4	6.8 6.9 7.0	6.2	6.5 6.8
14	4.2	4.1	4.2	3.7 3.8 3.8 3.8	3.6	3.7	4.4	3.4	3.9	6.8 7.2	6.3	6.5
15	4.2	4.0			3.6	3.7	4.1	3.4	3.8			6.8
16 17		4.1 4.1	4.1	3.8 3.7	3.6 3.4	3.7 3.5 3.5	4.6 5.0	4.0 4.5	4.4 4.7	7.3 7.3	6.4 6.7	6.8 7.0
18	4.3		4.2		3.5	3.5	5.2	4.8	5.0	7.3	6.9	7.1
19 20	4.2 4.2	4.1 4.1	4.2 4.2	3.5 3.4	3.4	3.5 3.2	5.4 5.4		5.2 5.1	7.5 7.6	7.0 7.2	7.2 7.4
21	4.2	2.2	3.9	3.4 3.5 3.6 3.6 3.8	3 2	3.3	5.3	4.8	5.1	7.4	7.1	7.3
22	3.6	3.3	3.9 3.5 3.8 3.6	3.5	3.3	3.3 3.4 3.4	5.0	4.8	4.9	7.5	7.3	7.4
23 24	3.9 3.8	3.6 3.5	3.8 3.6	3.6 3.6	3.4 3.4	3.4 3.5	5.0 5.2	4.8 5.0	4.9 5.1	7.7	7.1 7.3	7.4 7.5
25	3.6	3.4	3.5	3.8	3.5	3.6	5.5	5.2	5.3	7.8	7.3	7.6
26	3.8	3.5 3.6	3.6	3.8	3.5	3.7	5.5	5.1	5.3	7.8	7.4	7.5
27 28	3.8 3.9	3.6 3.7	3.7 3.8	3.7 3.8	3.5 3.5	3.6 3.6	5.5 5.8	5.1 5.3	5.3 5.6	7.8 7.9	7.6 7.5	7.7 7.7
29 30				3.7	3.5	3.6 3.7	6.0 6.2	5.5 5.8	5.7 6.0	7.6 7.9 9.5	7.3 7.4	7.5 7.6
31				3.9	3.7	3.8				9.5	7.6	7.8
MONTH	4.4	2.2	4.1	4.0	3.0	3.6	6.2	3.4	4.7	9.5	5.4	6.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY	MAX	MIN JUNE	MEAN	MAX	MIN JULY	MEAN		MIN AUGUST	MEAN		MIN SEPTEMBE	
1	8.7	JUNE 7.8	8.2	8.5	JULY 8.2	8.4	9.8	AUGUST	9.7	10.7	SEPTEMBE	IR 10.6
1 2 3		JUNE	8.2 8.0 8.1	8.5 8.8	JULY 8.2 8.0	8.4 8.4	9.8 9.7	AUGUST 9.4 9.4		10.7 10.6	SEPTEMBE	IR.
1 2 3 4	8.7 8.2 8.3 8.1	JUNE 7.8 7.7 7.9 7.9	8.2 8.0 8.1 8.0	8.5 8.8 8.7 8.4	JULY 8.2 8.0 8.1 8.0	8.4 8.4 8.3 8.2	9.8 9.7	AUGUST 9.4 9.4	9.7 9.6 9.5 9.6	10.7 10.6 10.6 10.6	10.5 10.4 10.3 10.2	10.6 10.5 10.4 10.4
1 2 3 4 5	8.7 8.2 8.3 8.1 8.1	JUNE 7.8 7.7 7.9 7.9 7.7	8.2 8.0 8.1 8.0 8.0	8.5 8.8 8.7 8.4 8.7	JULY 8.2 8.0 8.1 8.0 8.1	8.4 8.4 8.3 8.2 8.4	9.8 9.7 9.6 9.7 9.7	9.4 9.4 9.4 9.4 9.5 9.4	9.7 9.6 9.5 9.6 9.5	10.7 10.6 10.6 10.6 10.5	10.5 10.4 10.3 10.2 10.0	10.6 10.5 10.4 10.4 10.3
1 2 3 4 5	8.7 8.2 8.3 8.1 8.1 7.8 7.9	JUNE 7.8 7.7 7.9 7.9 7.7 7.7	8.2 8.0 8.1 8.0 8.0	8.5 8.8 8.7 8.4 8.7	JULY 8.2 8.0 8.1 8.0 8.1 8.2 8.5	8.4 8.4 8.3 8.2 8.4	9.8 9.7 9.6 9.7 9.7 9.7	9.4 9.4 9.4 9.5 9.4	9.7 9.6 9.5 9.6 9.5	10.7 10.6 10.6 10.6 10.5	SEPTEMBE 10.5 10.4 10.3 10.2 10.0	10.6 10.5 10.4 10.4 10.3
1 2 3 4 5	8.7 8.2 8.3 8.1 8.1 7.8 7.9 7.9	JUNE 7.8 7.7 7.9 7.9 7.7 7.7 7.7	8.2 8.0 8.1 8.0 8.0 7.7 7.8 7.8	8.5 8.8 8.7 8.4 8.7	JULY 8.2 8.0 8.1 8.0 8.1 8.2 8.5	8.4 8.4 8.3 8.2 8.4 8.6 8.7 8.5	9.8 9.7 9.6 9.7 9.7 9.7	9.4 9.4 9.4 9.5 9.4	9.7 9.6 9.5 9.6 9.5 9.6 9.7	10.7 10.6 10.6 10.6 10.5	SEPTEMBE 10.5 10.4 10.3 10.2 10.0	10.6 10.5 10.4 10.4 10.3 10.2 10.0
1 2 3 4 5	8.7 8.2 8.3 8.1 8.1 7.8 7.9	JUNE 7.8 7.7 7.9 7.9 7.7 7.7	8.2 8.0 8.1 8.0 8.0	8.5 8.8 8.7 8.4 8.7	JULY 8.2 8.0 8.1 8.0 8.1 8.2 8.5	8.4 8.4 8.3 8.2 8.4	9.8 9.7 9.6 9.7 9.7	9.4 9.4 9.4 9.5 9.4	9.7 9.6 9.5 9.6 9.5	10.7 10.6 10.6 10.6 10.5	10.5 10.4 10.3 10.2 10.0	10.6 10.5 10.4 10.4 10.3
1 2 3 4 5 6 7 8 9 10	8.7 8.2 8.3 8.1 8.1 7.8 7.9 7.9 8.3 8.2	JUNE 7.8 7.7 7.9 7.9 7.7 7.7 7.7 7.7 7.8 7.9 7.9 8.0	8.2 8.0 8.1 8.0 8.0 7.7 7.8 7.8 8.1 8.1	8.5 8.8 8.7 8.4 8.7 9.0 9.0 9.8	JULY 8.2 8.0 8.1 8.0 8.1 8.2 8.5 8.3 8.2 8.7	8.4 8.4 8.3 8.2 8.4 8.6 8.7 8.5 8.9	9.8 9.7 9.6 9.7 9.7 9.7 9.8 9.9 10.0	9.4 9.4 9.4 9.5 9.4 9.6 9.6 9.8	9.7 9.6 9.5 9.6 9.5 9.6 9.7 9.8 9.9	10.7 10.6 10.6 10.6 10.5 10.4 10.2 10.1 10.2	SEPTEMBE 10.5 10.4 10.3 10.2 10.0 9.9 9.9 9.9 9.9 9.9 9.9	10.6 10.5 10.4 10.4 10.3 10.2 10.0 10.0 10.1
1 2 3 4 5 6 7 8 9 10	8.7 8.2 8.3 8.1 8.1 7.8 7.9 8.3 8.2	JUNE 7.8 7.7 7.9 7.7 7.7 7.7 7.7 7.8 7.9 7.9 8.0 8.2	8.2 8.0 8.1 8.0 8.0 7.7 7.8 7.8 8.1 8.1	8.5 8.8 8.7 8.4 8.7 9.0 9.0 8.8 9.0 9.8	B . 2 8 . 0 8 . 1 8 . 0 8 . 1 8 . 2 8 . 5 8 . 3 8 . 2 8 . 7	8.4 8.4 8.3 8.2 8.4 8.6 8.7 8.5 8.9 9.1	9.8 9.7 9.6 9.7 9.7 9.7 9.8 9.9 9.9 10.0	9.4 9.4 9.4 9.5 9.4 9.5 9.4 9.6 9.8	9.7 9.6 9.5 9.6 9.5 9.6 9.7 9.8 9.9	10.7 10.6 10.6 10.5 10.4 10.2 10.2 10.1 10.2	10.5 10.4 10.3 10.2 10.0 9.9 9.9 9.9 9.9 9.9 9.9	10.6 10.5 10.4 10.3 10.2 10.0 10.0 10.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14	8.7 8.2 8.3 8.1 8.1 7.8 7.9 8.3 8.2 8.6 8.4 8.5	JUNE 7.8 7.7 7.9 7.9 7.7 7.7 7.7 7.8 7.9 7.9 8.0 8.2 8.1 8.1	8.2 8.0 8.1 8.0 8.0 7.7 7.8 8.1 8.1 8.1 8.3	8.5 8.8 8.7 8.4 8.7 9.0 9.8 9.8 9.5 9.5 9.5 9.5	B.2 8.0 8.1 8.0 8.1 8.2 8.5 8.3 8.2 8.7	8.4 8.4 8.3 8.2 8.4 8.6 8.7 8.6 8.9 9.1 9.2 9.1	9.8 9.7 9.6 9.7 9.7 9.7 9.8 9.9 10.0	AUGUST 9.4 9.4 9.5 9.4 9.5 9.4 9.6 9.8 9.8 9.8 9.8 9.8	9.7 9.6 9.5 9.6 9.5 9.6 9.7 9.8 9.9	10.7 10.6 10.6 10.6 10.5 10.4 10.2 10.1 10.2 10.3 10.2 10.3 10.2	10.5 10.4 10.3 10.2 10.0 9.9 9.9 9.9 9.9 9.9 9.9 9.9 9.9	10.6 10.5 10.4 10.4 10.3 10.2 10.0 10.0 10.1 10.1 10.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	8.7 8.2 8.3 8.1 8.1 7.8 7.9 7.9 8.3 8.2 8.6 8.4 8.5 8.6	JUNE 7.8 7.7 7.9 7.7 7.7 7.7 7.7 7.8 7.9 7.9 8.0 8.1 8.1 8.1	8.2 8.0 8.1 8.0 8.0 7.7 7.8 7.8 8.1 8.1 8.3 8.4 8.3 8.3	8.5 8.8 8.7 8.7 9.0 9.0 8.8 9.0 9.8 9.5 9.5 9.5	B . 2 8 . 0 8 . 1 8 . 0 8 . 1 8 . 2 8 . 5 8 . 3 8 . 2 8 . 7 8 . 8 8 . 6 8 . 7 8 . 9	8.4 8.4 8.3 8.2 8.4 8.6 8.7 8.5 8.6 8.9 9.1 9.2 9.1 9.0 9.2	9.8 9.7 9.6 9.7 9.7 9.7 9.8 9.9 9.9 10.0	9.4 9.4 9.5 9.5 9.4 9.6 9.6 9.8 9.8 9.8 9.8	9.7 9.6 9.5 9.6 9.5 9.6 9.7 9.8 9.9 10.0 10.1 10.0	10.7 10.6 10.6 10.5 10.4 10.2 10.2 10.1 10.2 10.3 10.2 10.2 10.2	10.5 10.4 10.3 10.2 10.0 9.9 9.9 9.9 9.9 9.9 9.9 9.9 9.9 9.9	10.6 10.5 10.4 10.3 10.2 10.0 10.0 10.1 10.1 10.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	8.7 8.2 8.3 8.1 8.1 7.8 7.9 7.9 8.3 8.2 8.6 8.6 8.6 8.6 8.6 8.6	JUNE 7.8 7.7 7.9 7.9 7.7 7.7 7.7 7.8 7.9 7.9 8.0 8.2 8.1 8.1 8.1	8.2 8.0 8.1 8.0 8.0 7.7 7.8 8.1 8.1 8.3 8.4 8.3 8.4	8.5 8.8 8.7 8.7 9.0 9.0 8.8 9.0 9.8 9.5 9.5 9.5 9.5	### STATE ### S	8.4 8.4 8.3 8.2 8.4 8.6 8.7 8.6 8.9 9.1 9.2 9.1 9.2	9.8 9.7 9.6 9.7 9.7 9.7 9.8 9.9 10.0 10.2 10.3 10.2 10.3	AUGUST 9.4 9.4 9.4 9.5 9.4 9.6 9.8 9.8 9.8 9.8 9.8 9.8 9.9 10.0	9.7 9.6 9.5 9.6 9.5 9.6 9.7 9.8 9.9 10.0 10.1 10.0 10.1	10.7 10.6 10.6 10.5 10.4 10.2 10.2 10.1 10.2 10.3 10.2 10.2 10.2 10.1	10.5 10.4 10.3 10.2 10.0 9.9 9.9 9.9 9.9 9.9 9.9 9.9 9.9 9.9	10.6 10.5 10.4 10.3 10.2 10.0 10.0 10.1 10.1 10.1 10.1 10.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	8.7 8.2 8.3 8.1 8.1 7.8 7.9 7.9 8.3 8.2 8.6 8.6 8.6 8.6 8.6 8.6	JUNE 7.8 7.7 7.9 7.9 7.7 7.7 7.7 7.8 7.9 7.9 8.0 8.2 8.1 8.1 8.1	8.2 8.0 8.1 8.0 8.0 7.7 7.8 8.1 8.1 8.3 8.4 8.3 8.4	8.5 8.8 8.7 8.7 9.0 9.0 8.8 9.0 9.8 9.5 9.5 9.5 9.5	### STATE ### S	8.4 8.4 8.3 8.2 8.4 8.6 8.7 8.6 8.9 9.1 9.2 9.1 9.2	9.8 9.7 9.6 9.7 9.7 9.7 9.8 9.9 10.0 10.2 10.3 10.2 10.3	9.4 9.4 9.4 9.5 9.4 9.6 9.4 9.6 9.8 9.8 9.8 9.8 9.8 9.8 9.8	9.7 9.6 9.5 9.6 9.5 9.6 9.7 9.8 9.9 10.0 10.1 10.0 10.1 10.2	10.7 10.6 10.6 10.6 10.5 10.4 10.2 10.2 10.1 10.2 10.3 10.2 10.2 10.1	10.5 10.4 10.3 10.2 10.0 9.9 9.9 9.9 9.9 9.9 9.9 9.9 9.9 9.9	10.6 10.5 10.4 10.3 10.2 10.0 10.0 10.1 10.1 10.1 10.1 10.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	8.7 8.2 8.3 8.1 8.1 7.8 7.9 7.9 8.3 8.2 8.6 8.6 8.6 8.6 8.6 8.5	JUNE 7.8 7.7 7.9 7.9 7.7 7.7 7.7 7.8 7.9 7.9 8.0 8.2 8.1 8.1 8.1	8.2 8.0 8.1 8.0 8.0 7.7 7.8 7.8 8.1 8.1 8.3 8.4 8.3 8.4	8.5 8.8 8.7 8.7 9.0 9.0 8.8 9.0 9.8 9.5 9.5 9.5 9.5	### STATE ### S	8.4 8.4 8.3 8.2 8.4 8.6 8.7 8.5 8.6 8.9 9.1 9.2 9.1 9.0 9.2	9.8 9.7 9.6 9.7 9.7 9.7 9.8 9.9 10.0 10.2 10.3 10.2 10.3	9.4 9.4 9.4 9.5 9.4 9.6 9.4 9.6 9.8 9.8 9.8 9.8 9.8 9.8 9.8	9.7 9.6 9.5 9.6 9.5 9.6 9.7 9.8 9.9 10.0 10.1 10.0	10.7 10.6 10.6 10.6 10.5 10.4 10.2 10.2 10.1 10.2 10.3 10.2 10.2 10.1	10.5 10.4 10.3 10.2 10.0 9.9 9.9 9.9 9.9 9.9 9.9 9.9 9.8 9.9 9.8 9.8	10.6 10.5 10.4 10.3 10.2 10.0 10.0 10.1 10.1 10.1 10.1 10.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	8.7 8.2 8.3 8.1 7.8 7.9 8.3 8.2 8.6 8.6 8.5 8.5 8.5	JUNE 7.8 7.7 7.9 7.9 7.7 7.7 7.7 7.8 7.9 7.9 8.0 8.2 8.1 8.1 8.1 8.2 8.2 8.2 8.0 8.2	8.2 8.0 8.1 8.0 8.0 7.7 7.8 8.1 8.1 8.3 8.4 8.3 8.4 8.3 8.3 8.4 8.3 8.5	8.5 8.8 8.7 8.4 8.7 9.0 9.0 8.8 9.0 9.8 9.5 9.5 9.5 9.7 9.8 9.7	B.2 8.0 8.1 8.0 8.1 8.2 8.5 8.3 8.2 8.7 8.8 8.6 8.7 8.9 9.1 9.1	8.4 8.4 8.3 8.2 8.4 8.6 8.7 8.5 8.6 8.9 9.1 9.1 9.0 9.2 9.4 9.3 9.4	9.8 9.7 9.6 9.7 9.7 9.7 9.8 9.9 10.0 10.2 10.3 10.2 10.3	9.4 9.4 9.4 9.5 9.4 9.5 9.6 9.8 9.8 9.8 9.8 9.8 9.9 10.0	9.7 9.6 9.5 9.6 9.5 9.6 9.7 9.8 9.9 10.0 10.1 10.2	10.7 10.6 10.6 10.6 10.5 10.4 10.2 10.1 10.2 10.3 10.2 10.2 10.2 10.2 10.2 10.2	SEPTEMBE 10.5 10.4 10.3 10.2 10.0 9.9 9.9 9.9 9.9 9.9 9.9 9.8 9.9 9.8 9.9 9.8 10.0 10.0 10.0 10.0	10.6 10.5 10.4 10.4 10.3 10.2 10.0 10.0 10.1 10.1 10.1 10.1 10.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	8.7 8.2 8.3 8.1 7.8 7.9 7.9 8.3 8.2 8.6 8.6 8.5 8.5 8.5 8.5 8.7	JUNE 7.8 7.7 7.9 7.9 7.7 7.7 7.7 7.8 7.9 7.9 8.0 8.2 8.1 8.1 8.1 8.2 8.2 8.2 8.0 8.2	8.2 8.0 8.1 8.0 8.0 7.7 7.8 8.1 8.1 8.3 8.4 8.3 8.4 8.3 8.3 8.4 8.3 8.5	8.5 8.8 8.7 8.4 8.7 9.0 9.0 8.8 9.5 9.5 9.5 9.5 9.7 9.8 9.7 9.9	JULY 8.2 8.0 8.1 8.0 8.1 8.2 8.5 8.3 8.7 8.8 8.6 8.7 8.9 9.1 9.1 9.1 9.3	8.4 8.4 8.3 8.2 8.4 8.6 8.7 8.6 8.9 9.1 9.2 9.1 9.2 9.4 9.3 9.4 9.3 9.4 9.3 9.4 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6	9.8 9.7 9.6 9.7 9.7 9.7 9.8 9.9 10.0 10.2 10.3 10.2 10.1 10.1 10.2	9.4 9.4 9.4 9.5 9.4 9.5 9.6 9.8 9.8 9.8 9.8 9.8 9.9 10.0	9.7 9.6 9.5 9.6 9.5 9.6 9.7 9.8 9.9 10.0 10.1 10.2	10.7 10.6 10.6 10.6 10.5 10.4 10.2 10.1 10.2 10.3 10.2 10.2 10.2 10.2 10.2 10.2	SEPTEMBE 10.5 10.4 10.3 10.2 10.0 9.9 9.9 9.9 9.9 9.9 9.9 9.8 9.9 9.8 9.9 9.8 10.0 10.0 10.0 10.0	10.6 10.5 10.4 10.4 10.3 10.2 10.0 10.0 10.1 10.1 10.1 10.1 10.1
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	8.7 8.2 8.3 8.1 7.8 7.9 7.9 8.3 8.2 8.6 8.6 8.5 8.5 8.5 8.5 8.7	JUNE 7.8 7.7 7.9 7.9 7.7 7.7 7.7 7.7 7.9 8.0 8.2 8.1 8.1 8.1 8.2 8.2 8.2 8.3 8.3 8.3 8.3 8.3 8.3	8.2 8.0 8.1 8.0 8.0 7.7 7.8 8.1 8.1 8.3 8.3 8.4 8.3 8.3 8.4 8.5 8.5 8.7	8.5 8.8 8.7 8.4 8.7 9.0 8.8 9.0 9.8 9.5 9.5 9.5 9.5 9.7 9.7 9.8 9.7	B.2 8.0 8.1 8.2 8.5 8.2 8.7 8.8 8.6 8.7 8.9 9.1 9.1 9.1 9.1 9.1 9.3 9.3 9.3	8.4 8.4 8.3 8.2 8.4 8.6 8.7 8.6 8.9 9.1 9.1 9.0 9.2 9.4 9.3 9.4 9.5 9.4 9.5 9.4 9.6	9.8 9.7 9.6 9.7 9.7 9.7 9.8 9.9 10.0 10.2 10.3 10.2 10.1 10.1 10.2	9.4 9.4 9.4 9.5 9.4 9.5 9.6 9.8 9.8 9.8 9.8 9.9 10.0 9.9 10.0	9.7 9.6 9.5 9.6 9.5 9.6 9.7 9.8 9.9 10.0 10.1 10.2 10.2 10.0 10 10 10 10.1	10.7 10.6 10.6 10.6 10.5 10.4 10.2 10.1 10.2 10.3 10.2 10.2 10.2 10.2 10.2 10.2 10.3 10.2 10.3 10.2	SEPTEMBE 10.5 10.4 10.3 10.2 10.0 9.9 9.9 9.9 9.9 9.9 9.8 9.8 10.0 10.0 10.0 10.0 9.9 9.8 9.8 9.8 9.8	10.6 10.5 10.4 10.4 10.3 10.2 10.0 10.0 10.1 10.1 10.1 10.1 10.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	8.7 8.2 8.1 7.9 8.3 8.2 8.6 8.6 8.5 8.5 8.5 8.7 8.7 8.7 8.7 8.8 9.0	JUNE 7.8 7.7 7.9 7.7 7.7 7.7 7.8 7.9 7.9 8.0 8.2 8.1 8.1 8.1 8.2 8.2 8.2 8.3 8.3 8.6	8.2 8.0 8.1 8.0 8.0 7.7 7.8 8.1 8.1 8.3 8.4 8.3 8.3 8.4 8.3 8.5 8.5 8.5 8.7	8.5 8.8 8.7 8.4 8.7 9.0 9.8 9.5 9.5 9.5 9.5 9.7 9.8 9.7 9.6 9.7 9.8	## STATE ## STA	8.4 8.4 8.3 8.2 8.6 8.7 8.6 8.9 9.1 9.2 9.2 9.5 9.4 9.5 9.4 9.5 9.4 9.6	9.8 9.7 9.6 9.7 9.7 9.7 9.8 9.9 9.9 10.0 10.2 10.3 10.5 10.2 10.1 10.1 10.1 10.1 10.6 10.6	9.4 9.4 9.4 9.5 9.4 9.5 9.6 9.8 9.8 9.8 9.8 9.9 10.0 9.9 10.0	9.7 9.6 9.5 9.6 9.5 9.6 9.7 9.8 9.9 10.0 10.1 10.2 10.2 10.0 10 10 10 10.1	10.7 10.6 10.6 10.6 10.5 10.4 10.2 10.1 10.2 10.3 10.2 10.2 10.2 10.2 10.2 10.2 10.3 10.2 10.3 10.2	SEPTEMBE 10.5 10.4 10.3 10.2 10.0 9.9 9.9 9.9 9.9 9.9 9.8 9.8 10.0 10.0 10.0 10.0 9.9 9.8 9.8 9.8 9.8	10.6 10.5 10.4 10.4 10.3 10.2 10.0 10.0 10.1 10.1 10.1 10.1 10.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	8.7 8.2 8.3 8.1 7.8 7.9 7.9 8.3 8.6 8.6 8.5 8.5 8.5 8.5 8.7 8.7 8.7 8.9 9.9 8.9 8.9	JUNE 7.8 7.7 7.9 7.7 7.7 7.7 7.8 7.9 7.9 8.0 8.2 8.1 8.1 8.1 8.2 8.2 8.2 8.3 8.3 8.6	8.2 8.0 8.1 8.0 8.0 7.7 7.8 8.1 8.1 8.3 8.4 8.3 8.4 8.3 8.4 8.3 8.5 8.5 8.5 8.5 8.7	8.5 8.8 8.7 8.4 8.7 9.0 8.8 9.8 9.5 9.5 9.5 9.7 9.8 9.7 9.8 9.7 9.8 9.7 9.8	## STATE ## STA	8.4 8.4 8.3 8.2 8.6 8.7 8.6 8.9 9.1 9.2 9.2 9.5 9.4 9.5 9.4 9.5 9.4 9.6	9.8 9.7 9.6 9.7 9.7 9.7 9.8 9.9 9.9 10.0 10.2 10.3 10.2 10.3 10.2 10.1 10.1 10.1 10.5 10.6 10.6	9.4 9.4 9.4 9.5 9.4 9.5 9.6 9.8 9.8 9.8 9.8 9.9 10.0 9.9 10.0	9.7 9.6 9.5 9.6 9.5 9.6 9.7 9.8 9.9 10.0 10.1 10.2 10.2 10.0 10 10 10 10.1	10.7 10.6 10.6 10.6 10.5 10.4 10.2 10.1 10.2 10.3 10.2 10.2 10.2 10.2 10.2 10.2 10.3 10.2 10.3 10.2	SEPTEMBE 10.5 10.4 10.3 10.2 10.0 9.9 9.9 9.9 9.9 9.9 9.8 9.8 10.0 10.0 10.0 10.0 9.9 9.8 9.8 9.8 9.8	10.6 10.5 10.4 10.4 10.3 10.2 10.0 10.0 10.1 10.1 10.1 10.1 10.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 25 26 27	8.7 8.2 8.3 8.1 7.8 7.9 8.3 8.6 8.6 8.5 8.6 8.5 8.5 8.7 8.7 8.8 9.0 8.9 8.7 8.7	JUNE 7.8 7.7 7.9 7.7 7.7 7.7 7.8 7.9 7.9 8.0 8.2 8.1 8.1 8.1 8.2 8.2 8.2 8.3 8.3 8.6	8.2 8.0 8.1 8.0 8.0 7.7 7.8 8.1 8.1 8.3 8.4 8.3 8.4 8.3 8.4 8.3 8.5 8.5 8.5 8.7 8.7 8.7 8.7 8.7	8.5 8.8 8.7 8.4 9.0 8.8 9.6 9.5 9.5 9.7 9.8 9.7 9.8 9.7 9.8 9.9 9.8	## STATE ## STA	8.4 8.4 8.3 8.2 8.6 8.7 8.6 8.9 9.1 9.2 9.2 9.5 9.4 9.5 9.4 9.5 9.4 9.6	9.8 9.7 9.6 9.7 9.7 9.7 9.7 9.9 9.9 10.0 10.2 10.3 10.2 10.3 10.5 10.2 10.1 10.2 10.1 10.6 10.6 10.6 10.9 10.9 10.8	9.4 9.4 9.4 9.5 9.4 9.5 9.6 9.8 9.8 9.8 9.8 9.9 10.0 10.1 10.2 10.2 10.2 10.2 10.3	9.7 9.6 9.5 9.6 9.5 9.6 9.7 9.8 9.9 10.0 10.1 10.2 10.2 10.0 10 10 10 10 10 10 10 10 10 1	10.7 10.6 10.6 10.6 10.5 10.4 10.2 10.1 10.2 10.3 10.2 10.2 10.2 10.2 10.2 10.2 10.3 10.2 10.3 10.2	SEPTEMBE 10.5 10.4 10.3 10.2 10.0 9.9 9.9 9.9 9.9 9.9 9.9 9.8 9.9 9.8 9.9 9.8 10.0 10.0 10.0 10.0	10.6 10.5 10.4 10.4 10.3 10.2 10.0 10.0 10.1 10.1 10.1 10.1 10.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	8.7 8.2 8.1 7.9 8.3 8.2 8.6 8.6 8.5 8.5 8.5 8.7 8.7 8.7 8.8 9.0 8.9 8.7 8.7	JUNE 7.8 7.7 7.9 7.9 7.7 7.7 7.7 7.8 7.9 7.9 8.0 8.2 8.1 8.1 8.1 8.2 8.2 8.3 8.2 8.3 8.3 8.6 8.5 8.3 8.6 8.5 8.3 8.6	8.2 8.0 8.1 8.0 8.0 7.7 7.8 8.1 8.1 8.3 8.4 8.3 8.4 8.3 8.4 8.3 8.5 8.5 8.5 8.5 8.7	8.5 8.8 8.7 9.0 8.8 9.8 9.5 9.5 9.5 9.7 9.7 9.8 9.7 9.8 9.7 9.8 9.9 9.8	## STATE ## STA	8.4 8.4 8.3 8.2 8.4 8.6 8.7 8.6 8.9 9.1 9.1 9.0 9.2 9.4 9.3 9.4 9.5 9.4 9.5 9.4 9.6	9.8 9.7 9.6 9.7 9.7 9.7 9.7 9.8 9.9 9.9 10.0 10.2 10.3 10.5 10.2 10.1 10.1 10.1 10.1 10.1 10.2 10.3 10.5 10.6 10.6 10.6 10.6	9.4 9.4 9.4 9.5 9.4 9.5 9.6 9.8 9.8 9.8 9.8 9.9 10.0 10.1 10.2 10.2 10.2 10.2 10.3	9.7 9.6 9.5 9.6 9.5 9.6 9.7 9.8 9.9 10.0 10.1 10.2 10.2 10.0 10 10 10 10.1	10.7 10.6 10.6 10.6 10.5 10.4 10.2 10.1 10.2 10.3 10.2 10.2 10.2 10.2 10.2 10.2 10.3 10.2 10.3 10.2 10.3 10.3 10.3 10.3	SEPTEMBE 10.5 10.4 10.3 10.2 10.0 9.9 9.9 9.9 9.9 9.9 9.8 9.8 9.8 10.0 10.0 10.0 10.0 9.9 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.9	10.6 10.5 10.4 10.4 10.3 10.2 10.0 10.0 10.1 10.1 10.1 10.1 10.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	8.7 8.2 8.3 8.1 7.8 7.9 8.3 8.6 8.6 8.5 8.6 8.5 8.5 8.7 8.7 8.8 9.0 8.9 8.7 8.7	JUNE 7.8 7.7 7.9 7.7 7.7 7.7 7.8 7.9 7.9 8.0 8.2 8.1 8.1 8.1 8.2 8.2 8.2 8.3 8.3 8.2 8.3 8.2 8.3 8.2 8.3 8.3 8.2 8.3 8.1	8.2 8.0 8.1 8.0 8.0 7.7 7.8 8.1 8.1 8.3 8.4 8.3 8.4 8.3 8.4 8.3 8.5 8.5 8.5 8.7 8.7 8.7 8.7 8.7	8.5 8.8 8.7 8.4 9.0 8.8 9.6 9.5 9.5 9.7 9.8 9.7 9.8 9.7 9.8 9.9 9.8	## STATE	8.4 8.4 8.3 8.2 8.6 8.7 8.6 8.9 9.1 9.2 9.2 9.5 9.4 9.5 9.4 9.5 9.4 9.6	9.8 9.7 9.6 9.7 9.7 9.7 9.8 9.9 9.9 10.0 10.2 10.3 10.5 10.2 10.1 10.1 10.1 10.5 10.6 10.6 10.6 10.9 10.8 10.8 10.8	9.4 9.4 9.4 9.5 9.6 9.8 9.8 9.8 9.8 9.9 10.0 9.9 10.1 10.1 10.2 10.3 10.4 10.4 10.5 10.5 10.5	9.7 9.6 9.5 9.6 9.5 9.6 9.7 9.8 9.9 10.0 10.1 10.2 10.2 10.0 10 10 10 10 10 10 10 10 10 1	10.7 10.6 10.6 10.6 10.5 10.4 10.2 10.1 10.2 10.3 10.2 10.2 10.2 10.2 10.2 10.3 10.2 10.3 10.2 10.3 10.4	SEPTEMBE 10.5 10.4 10.3 10.2 10.0 9.9 9.9 9.9 9.9 9.9 9.8 9.8 9.8 10.0 10.0 10.0 10.0 9.9 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.	10.6 10.5 10.4 10.4 10.3 10.2 10.0 10.0 10.1 10.1 10.1 10.1 10.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	8.7 8.2 8.1 7.9 8.3 8.2 8.6 8.6 8.5 8.5 8.7 8.7 8.7 8.8 9.0 8.9 8.7 8.6	JUNE 7.8 7.7 7.9 7.9 7.7 7.7 7.7 7.8 7.9 7.9 8.0 8.2 8.1 8.1 8.1 8.2 8.2 8.3 8.3 8.2 8.3 8.6 8.5 8.3 8.6 8.5 8.3 8.6 8.5 8.3	8.2 8.0 8.1 8.0 7.7 7.8 8.1 8.1 8.3 8.4 8.3 8.3 8.4 8.3 8.5 8.5 8.5 8.5 8.7 8.7 8.7 8.7 8.7	8.5 8.8 8.7 8.4 8.7 9.0 9.8 9.0 9.8 9.5 9.5 9.5 9.3 9.7 9.8 9.7 9.8 9.8 9.7 9.8 9.8 9.7	## STATE	8.4 8.3 8.2 8.6 8.7 8.6 8.9 9.1 9.0 9.2 9.4 9.5 9.4 9.5 9.4 9.5 9.5 9.5 9.5 9.5 9.5 9.5 9.5 9.5 9.5	9.8 9.7 9.6 9.7 9.7 9.7 9.8 9.9 9.9 10.0 10.2 10.3 10.5 10.2 10.1 10.1 10.1 10.5 10.6 10.6 10.6 10.9 10.8 10.8 10.8	9.4 9.4 9.4 9.5 9.4 9.5 9.6 9.8 9.8 9.8 9.8 9.9 10.0 10.1 10.2 10.3 10.4 10.4 10.5 10.5 10.5	9.7 9.6 9.5 9.6 9.5 9.6 9.7 9.8 9.9 10.0 10.1 10.2 10.2 10.3 10.1 10.2 10.3 10.4 10.5 10.4 10.5 10.6 10.6 10.6	10.7 10.6 10.6 10.6 10.5 10.4 10.2 10.1 10.2 10.3 10.2 10.2 10.2 10.2 10.2 10.3 10.2 10.3 10.2 10.3 10.4	SEPTEMBE 10.5 10.4 10.3 10.2 10.0 9.9 9.9 9.9 9.9 9.9 9.8 9.8 9.8 10.0 10.0 10.0 10.0 9.9 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.	10.6 10.5 10.4 10.4 10.3 10.2 10.0 10.0 10.1 10.1 10.1 10.1 10.1

12178100 NEWHALEM CREEK NEAR NEWHALEM, WA

LOCATION.--Lat 48°39'22", long 121°14'14", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.28, T.37 N., R.12 E., Whatcom County, Hydrologic Unit 17110005, North Cascades National Park, on left bank 1.2 mi south of Newhalem, 1.5 mi downstream from East Fork, and at mile 1.5.

DRAINAGE AREA. -- 27.9 mi2.

PERIOD OF RECORD. -- January 1961 to current year.

REVISED RECORDS. -- WDR WA-84-1: 1983.

Time

GAGE.--Water-stage recorder. Elevation of gage is 1,080 ft above NGVD of 1929, by barometer. Prior to October 1981, at datum 0.96 ft lower.

REMARKS.--Records good. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--41 years (water years 1961-2002), 176 ft^3/s , 85.54 $\mathrm{in/yr}$, 127,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,430 ft³/s Dec. 26, 1980, gage height, 9.14 ft present datum, from floodmarks, from rating curve extended above 5,570 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 20 ft³/s Feb. 1, 1963, gage height, 1.07 ft.

Time

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 750 $\mathrm{ft^3/s}$ and maximum (*):

Discharge Gage height (ft³/s) (ft)

Date	111111111111111111111111111111111111111	(IL,	(8)	(IL)	Date		TIME	(IL)	8)	(IL)		
Nov. 14 Nov. 15 Dec. 16 Jan. 07 Feb. 22	1445 1515 2345 2145 0715	1,	740 300 781 580 370	5.43 4.88 4.04 *6.26 4.97	Apr. May June June	29 05	0330 0915 2115 0530		883	4.95 4.20 4.23 4.58		
Minimum disc	charge, 33	ft ³ /s Oct	5-8.									
		DISCHAR	GE, CUBI	C FEET PER		VATER YE MEAN VA		R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	275	103	73	55	110	94	290	406	362	164	94
2	38 36	268 213	106 95	93 101	53 54	98 91	91 86	311 250	448 477	305 291	149 127	102 110
4	35	181	90	96	52	88	93	205	470	282	124	81
5	33	209	85	92	51	91	126	182	608	262	136	68
6 7	34 33	156 126	84 79	180 1690	53 54	80 75	192 222	158 138	576 340	294 394	166 139	61 58
8	43	110	91	1270	53	70	175	124	259	566	138	56
9 10	42 68	99 94	94 85	544 335	50 52	66 64	161 201	115 109	238 323	395 473	148 162	55 54
11	91	97	80	253	53	127	219	114	452	552	154	55
12	96	122	77	248	50	146	358	153	588	516	148	55
13 14	142 120	262 1420	132 213	220 183	48 46	111 96	590 952	230 243	697 753	476 454	161 164	55 54
15	92	1030	140	157	46	87	440	206	723	367	161	54
16	92	518	395	137	49	80	301	195	606	371	137	101
17 18	100 82	302 219	455 230	120 108	49 53	72 68	242 211	250 253	452 514	381 364	113 103	97 65
19 20	195	276 378	171	101 96	67	66 61	197	263	383 378	335 290	98 94	77
	142		141		71		191	388				75
21 22	112 226	292 234	123 111	89 83	312 1170	60 62	186 183	383 326	489 584	297 315	89 91	58 52
23 24	e350 e220	203	101 94	78 79	610 309	71 79	172 153	269	540 481	336	99	50
25	e185	171 150	88	76	216	87	141	249 279	521	336 322	109 110	48 46
26	e210	134	84	71	178	95	135	326	642	284	100	44
27 28	339 200	122 115	80 81	66 62	149 126	91 86	135 144	387 611	630 690	232 217	97 100	42 41
29	151	110	80	60		80	168	768	881	248	98	50
30 31	164 356	102	77 75	58 58		77 79	227	580 473	479	246 195	95 89	54
TOTAL	4067	7988	3940	6877	4129	2614	6786	8828	15628	10758	3863	1912
MEAN	131	266	127	222	147	84.3	226	285	521	347	125	63.7
MAX MIN	356 33	1420 94	455 75	1690 58	1170 46	146 60	952 86	768 109	881 238	566 195	166 89	110 41
AC-FT CFSM	8070	15840	7810	13640	8190	5180	13460 8.11	17510	31000	21340 12.4	7660 4.47	3790 2.28
IN.	4.70 5.42	9.54 10.65	4.56 5.25	7.95 9.17	5.29 5.51	3.02 3.49	9.05	10.2 11.77	18.7 20.84	14.34	5.15	2.55
STATIST	rics of Mc	NTHLY MEA	N DATA F	OR WATER Y	EARS 1961	- 2002,	BY WATER	YEAR (WY)			
MEAN MAX	125 351	186 589	164 552	135 340	124 313	109 290	150 267	280 448	364 594	265 476	123 277	88.3 192
(WY)	1968	1996	1981	1984	1991	1972	1989	1972	1974	1972	1999	1978
MIN (WY)	28.2 1988	43.4 1980	44.7 1979	29.2 1979	39.9 1969	48.7 1962	68.7 1975	145 1977	211 1992	110 1977	53.6 1998	32.2 1998
, ,												
	/ STATISTI	.CS	FOR .	2001 CALEN	DAR IEAR	r		ATER YEAR		WATER YEAR	2 1361 -	2002
ANNUAL ANNUAL				51039 140			77390 212			176		
HIGHEST	r annual M									244		1991
HIGHEST	ANNUAL ME DAILY ME	AN		1420	Nov 14		1690	Jan 7		114 5300	Dec 26	
	DAILY MEA SEVEN-DAY			33 36	Oct 5 Oct 1		33 36	Oct 5 Oct 1		20 22	Feb 1 Jan 13	
ANNUAL	RUNOFF (A	C-FT)		101200			153500			127200		
	RUNOFF (CRUNOFF (I			5.01 68.05			7.6 103.1			6.30 85.54		
	CENT EXCEE			275 94			474 136			369 118		
	CENT EXCEE			42			54			51		

e Estimated

12179900 BACON CREEK BELOW OAKES CREEK NEAR MARBLEMOUNT, WA

LOCATION.--Lat 48°36'17", long 121°23'54", in SE $\frac{1}{4}$ sec.17, T.36 N., R.11 E., Skagit County, Hydrologic Unit 17110005, Mt. Baker Snoqualmie National Forest, on left bank 1.25 mile downstream from Oakes Creek, 5.5 miles northeast of Marblemount, and at mile 1.5.

DRAINAGE AREA. -- 49.7 mi².

PERIOD OF RECORD.--August 1943 to September 1950, October 1998 to current year. Published as Bacon Creek near Marblemount (station 12180000) 1942-1950.

GAGE.--Water-stage recorder. Elevation of gage is 410 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those above 500 ft^3/s , which are fair. No regulation or diversion upstream from station. Summer flows augmented by glacial melt. U.S. Geological Survey satellite telemeter at station.

 $A VERAGE \ DISCHARGE. --11 \ years \ (water years \ 1944-50, \ 1999-2002), \ 427 \ ft^3/s, \ 116.69 \ in/yr, \ 309,200 \ acre-ft/yr.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,100 ft^3/s Nov. 26, 1949, gage height, 7.13 ft at site and datum then in use, on basis of outside high-water mark on pier and by a slope-area determination; minimum discharge, 74 ft^3/s Oct. 18, 1945 at site then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft^3/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 14	2200	4,820	9.06	Feb. 22	0630	3,530	8.15
Nov. 15	1415	3,920	8.44	Apr. 14	0315	3,370	8.02
Nov. 20	0545	1,740	6.44	May 29	0530	1,880	6.60
Dec. 17	0015	1,660	6.33	Jun. 14	2215	1,720	6.42
Jan. 07	2030	*7,850	*10.74	Jun. 29	0315	3,300	7.96

	_											
		DISCHARG	E, CUBI	C FEET PER		WATER Y MEAN V	EAR OCTOBER	2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111	666	363	178	186	312	314	803	931	815	330	201
2	108	623	437	260	179	281	314 295	803	965	648	300	260
3	108	499	351	315	180	261	273	640	965	548 598	266	275
		499 507						505	996	598 584		
4	100		308	296	178	245	282				264	211
5	96	604	274	272	175	241	342	450	1240	533	330	175
6	94	423	263	559	204	223	495	387	1120	594	370	153
7	92	348	248	4590	235	208	578	336	738	735	307	140
8	100	302	276	3290	228	197	446	303	568	1010	288	131
9	110	271	290	1410	210	188	422	281	537	751	286	133
10	138	255	255	919	207	187	651	271	757	877	297	130
11	189	267	233	692	207	392	650	291	973	996	294	135
12	234	353	226	680	195	476	1000	407	1200	971	289	136
13	301	634	421	594	185	366	1500	626	1410	908	303	138
14	290	3000	635	491	177	317	2300	623	1520	810	309	137
15	244	2800	433	421	172	284	1160	497	1420	690	308	138
16	255	1470	1000	373	174	259	818	471	1220	697	288	254
17	285	857	1080	334	173	235	651	677	968	705	252	258
18	243	603	630	304	183	220	552	649	1250	671	227	186
19	374	764	477	286	220	211	510	645	910	622	214	196
20	317	1300	389	276	235	196	495	910	867	550	203	195
21	268	968	333	260	931	187	484	839	1050	554	192	159
22	436	727	292	243	2770	186	497	739	1200	581	194	139
23	711	646	262	232	1520	196	460	645	1090	616	205	128
24	543	517	239	265	914	209	401	619	973	624	225	124
25	486	435	222	312	638	229	370	697	1030	607	235	119
26	514	379	206	266	502	251	355	760	1220	552	224	115
27	781	342	196	243	416	260	355	898	1190	459	215	111
28	496	318	197	226	356	263	386	1360	1460	420	219	106
29	387	316	193	211		254	448	1670	2260	507	220	118
30	447	296	186	202		257	632	1330	1130	472	214	142
31	893		181	194		265		1100		393	204	
TOTAL	9748		11096	19194	11950	7856	18122	21250	33170	20550	8072	4843
MEAN	314	716	358	619	427	253	604	685	1106	663	260	161
MAX	893	3000	1080	4590	2770	476	2300	1670	2260	1010	370	275
MIN	92	255	181	178	172	186	273	271	537	393	192	106
AC-FT	19340		22010	38070	23700	15580	35940	42150	65790	40760	16010	9610
CFSM	6.33	14.4	7.20	12.5	8.59	5.10	12.2	13.8	22.2	13.3	5.24	3.25
IN.	7.30	16.09	8.31	14.37	8.94	5.88	13.56	15.91	24.83	15.38	6.04	3.62
STATIST	rics of M	ONTHLY MEAN	DATA F	OR WATER Y	EARS 1943	- 2002	, BY WATER	YEAR (WY)				
MEAN	338	431	364	320	287	283	398	712	824	579	323	241
MAX	574	954	511	619	432	445	604	1030	1267	917	644	350
(WY)	1948	1950	1950	2002	1947	1950	2002	1949	1950	1950	1999	1948
MIN	181	166	172	113	160	177	260	527	518	233	150	146
(WY)	1999	2001	1949	1949	2001	1948	1945	1944	2001	1944	1944	1943
SUMMARY	Y STATIST	ics	FOR	2001 CALEN	DAR YEAR		FOR 2002 WA	TER YEAR		WATER YEAR	S 1943 -	2002
ANNUAL	TOTAL			128163			187341					
ANNUAL				351			513			427		
	r ANNUAL	MEAN		331			515			578		1950
	ANNUAL M									290		1944
	r DAILY M			3000	Nov 14		4590	Jan 7		6200	Nov 27	
	DAILY ME			92	Oct 7		92	Oct 7		74	Oct 18	
		Y MINIMUM		99	Oct 2		99	Oct 2			Oct 12	
	RUNOFF (99 254200 7 07	000 2		371600	200 2		309200	JJC 12	
		CFSM)		7.07			10.3			8.59		
	RUNOFF (95.93			140.22			116.69		
	CENT EXCE			613			1000			823		
	CENT EXCE			267			334			318		
	CENT EXCE			135			178			142		
JU PERC	EACE	טעעו		133			1/0			142		

12181000 SKAGIT RIVER AT MARBLEMOUNT, WA

LOCATION.--Lat 48°32'02", long 121°25'43", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.7, T.35 N., R.11 E., Skagit County, Hydrologic Unit 17110005, on right bank 0.5 mi north of Marblemount, 0.6 mi upstream from Cascade River, and at mile 78.7.

DRAINAGE AREA.--1,381 mi^2 , of which 400 mi^2 is in Canada.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- September 1943 to July 1944, October 1946 to September 1951, May 1976 to current year.

REVISED RECORDS.--WDR WA-76-1: Drainage area. WDR WA-90-1: 1983, 1976-87 (M).

GAGE.--Water-stage recorder. Datum of gage is 305.1 ft above NGVD of 1929 (river-profile survey).

REMARKS.--Records good. All diversions returned to river upstream from gage. Flow regulated by Ross Reservoir (station 12175000), Diablo Reservoir (station 12176500), and Gorge Reservoir (station 12177700) since 1960. U.S. Geological Survey satellite telemeter at station.

 $AVERAGE \ \ DISCHARGE. --31 \ \ years \ \ (water \ years \ 1947-51, \ 1977-2002), \ 6,068 \ \ \text{ft}^3/s, \ 4,396,000 \ \ \text{acre-ft/yr}, \ \ unadjusted.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62,300 ft³/s Nov. 29, 1995, gage height, 13.73 ft, from rating curve extended above 30,000 ft³/s; minimum discharge, 620 ft³/s Mar. 6, 1944, gage height, 0.55 ft; minimum daily discharge, 1,190 ft³/s Feb. 25, 1944.

 $\hbox{\it EXTREMES FOR CURRENT YEAR.--Maximum discharge, 33,000 ft}^3/s \hbox{\it Jan. 7, gage height, 9.55 ft; minimum discharge, 1,650 ft}^3/s \hbox{\it Oct. 7.} \\$

		DISCHA	ARGE, CUE	IC FEET PE		WATER Y		ER 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3060	5560	4190	3070	7710	8620	6620	9440	7270	14400	5630	4200
2	3210	5380	4530	3150	7570	8470	6480	9800	7530	13300	6180	5270
3	2890	4510	4640	6240	7560	8390	6360	7420	8050	11100	5390	5050
4 5	2560 2530	3860 5460	4520 4760	6730 6840	7570 7500	8340 8280	6410 6650	6060 5890	8360 9620	9930 9720	4830 4890	4380 3860
6	1840	4860	3960	7480	7590	8230	7140	7880	9400	9940	5050	3450
7	1760	e3740	4050	21400	6980	8480	7490	8180	8390	10400	4760	2610
8 9	3100	4110	3820	22800	6250	7990	7120	8260	6990	11600	4480	3230
10	2930 3150	3370 3330	4800 4810	11600 9390	6280 6240	8260 8180	7010 7950	6020 8290	6970 7670	10500 10400	4940 5170	3690 3910
11	3520	2870	4650	8660	6240	8810	7600	8380	9640	15900	4750	3970
12	3600	3760	4820	8960	6050	9250	6960	8580	10800	17700	5310	4010
13	3480 2780	5160 16000	5610	8630 7840	6110 6060	8770 8650	8810 13800	9340 9470	11700 12200	17600 16000	5570 5890	3990 3670
14 15	3380	16500	e5250	7840 8630	6040	8040	9060	9180	11900		5600	3470
15		16500	e5250	0030	6040	8040	9060	9100	11900	14700	3600	
16	2770	9400	e5100	8340	5960	7920	6690	8710	11700	13000	4990	4240
17	3180	5360	e6250	8190	6020	7660	6060	9260	10400	11100	4840	4200
18	3080	4070	6160	8040	6150	7760	5720	9160	11500	10000	4620	3420
19	3640	4220	5050	7990	6270	7750	6960	8650	10300	10200	4970	2890
20	3440	7030	4330	7940	6530	7680	7290	10100	10700	9850	4530	2670
21	2860	6060	3530	7880	8430	7600	7280	9990	11800	9870	4050	2480
22	4350	4980	3670	7780	18700	6920	7330	9280	12400	10000	3780	2390
23	6070	4670	3340	7970	13700	6670	6830	8830	12100	9940	3710	2390
24	5240	4010	3420	e8000	9700	6750	6720	8330	11600	10000	4030	2400
25	4940	3400	3100	e7800	9310	6820	7370	8160	11800	9830	4350	2370
26	4920	4410	3640	8030	9390	7400	7780	8710	12700	9850	4370	2360
27	6460	4500	3630	7970	9020	7960	7660	8800	12700	9400	4320	3340
28	4940	4440	2930	7780	8700	7720	7620	10600	13300	9220	4870	2270
29	4590	4460	2880	7720		6990	7800	12100	16600	9330	4910	2250
30 31	4710 6470	4290	2750 2830	7670 7710		6970 6420	8260	10800 9460	13900	6830 5430	4130 3650	2330
	115450	163770	132270	268230	219630	243750	222830	273130	319990	347040	148560	100760
MEAN	3724	5459	4267	8653	7844	7863	7428	8811	10670	11190	4792	3359
MAX MTN	6470 1760	16500 2870	6250 2750	22800 3070	18700 5960	9250 6420	13800 5720	12100 5890	16600 6970	17700 5430	6180 3650	5270 2250
AC-FT	229000	324800	262400	532000	435600	483500	442000	541800	634700	688400	294700	199900
										000400	234700	199900
STATIS	TICS OF	MONTHLY MI	EAN DATA	FOR WATER	YEARS 194	3 - 2002	2, BY WATE	R YEAR (W	Z)			
MEAN	4199	6588	6216	6618	6773	5908	5642	6518	7518	7768	4937	3885
MAX	7258	22270	12120	8719	13830	9415	9534	10690	13590	14730	9214	5240
(WY)	1948	1991	1996	1980	1991	1997	1951	1997	1997	1950	1999	1978
MIN	2071	1864	2609	2450	2115	2222	3035	3680	3492	2891	2884	2144
(WY)	1978	1944	1944	1944	1944	1948	2001	1977	2001	1977	1977	1977
SUMMAR	Y STATIS	TICS	FOR	2001 CALE	NDAR YEAR	2	FOR 2002	WATER YEAR	2	WATER YE	ARS 1943 -	2002
ANNUAL	TOTAL			1382470			2553490					
ANNUAL	MEAN			3788			6996			6068		
	T ANNUAL									9617		1991
	' ANNUAL I			4.550.5				_		3710		2001
	T DAILY			16500	Nov 15		22800	Jan 8		50000	Nov 10	
	DAILY M		Mr.	1760 2250	Oct 7		1760 2390	Oct '		1190 1520	Feb 25 Feb 20	
		AY MINIMUN (AC-FT)		2742000	Sep 17		2390 5065000	Sep 20	J	4396000	reb 20	1944
	CENT EXC			4940			10800			9220		
	CENT EXC			3490			6820			5460		
	CENT EXC			2750			3250			3210		

e Estimated

12181000 SKAGIT RIVER AT MARBLEMOUNT, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--WATER TEMPERATURE: March 1986 to current year.

INSTRUMENTATION.--Water-temperature sensor interfaced directly with a data collection platform for satellite telemetry. REMARKS. -- Records excellent.

EXTREMES FOR PERIOD OF DAILY RECORD.-WATER TEMPERATURE: Maximum, 15.0°C (rounded) Aug. 13, 1998; minimum, 0.5°C (rounded) Dec. 27, 1996.

EXTREMES FOR CURRENT YEAR.-- WATER TEMPERATURE: Maximum, 13.1°C Aug. 23, 24, 27; minimum, 2.3°C Feb. 21, 22.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER	-	NC	VEMBER		DE	CEMBER			JANUARY	
1 2 3 4 5	11.8 11.7 11.6 11.5 11.3	10.0 10.0 9.8 9.7 9.3	10.9 10.8 10.7 10.5	8.2 8.5 8.5 8.2	7.6 7.8 7.6 7.7 7.5	7.9 8.1 8.1 7.9 7.8	6.8 6.9 6.8 6.6	6.4 6.4 6.5 6.1 6.3	6.6 6.6 6.4 6.5	5.8 5.9 5.9 5.9	5.1 5.4 5.4 5.6 5.6	5.4 5.6 5.6 5.7 5.8
6 7 8 9 10	10.9 10.3 11.0 10.9 10.2	9.3 9.6 10.1 10.0 9.5	10.0 10 10.5 10.4 9.8	8.2 8.0 8.3 8.4 8.5	7.2 7.2 7.1 7.2 7.4	7.7 7.6 7.7 7.8 8.0	6.7 6.9 6.6 6.8 6.7	5.7 6.3 6.4 6.2 6.2	6.2 6.5 6.5 6.5	5.8 4.7 5.6 5.6	4.7 4.0 5.2 5.3	5.7 4.2 5.4 5.4
11 12 13 14 15	10.4 9.9 10.0 10.1 10.3	9.4 9.2 9.1 9.0 8.7	9.8 9.6 9.5 9.5	8.6 8.8 8.7 7.6 7.7	7.9 8.4 7.6 6.9 7.3	8.3 8.6 8.4 7.2 7.5	6.9 6.5 6.4 6.0	6.4 6.2 5.8 5.7	6.6 6.3 6.1 5.8	5.7 5.7 5.4 5.3 5.2	5.4 5.3 5.2 4.9 4.8	5.6 5.5 5.3 5.1 5.0
16 17 18 19 20	9.7 9.6 9.5 9.1 9.5	9.3 8.9 8.9 8.6 8.6	9.5 9.3 9.2 8.9 9.1	7.8 7.6 7.2 7.4 7.3	7.4 6.9 6.6 6.9 7.0	7.6 7.4 6.9 7.2 7.2	5.8 5.7 5.5 5.9 6.0	4.6 4.7 5.2 5.3 5.6	5.1 5.2 5.4 5.6 5.8	5.2 5.2 5.1 5.1 5.0	5.0 5.0 4.8 4.8 4.5	5.0 5.0 5.0 4.9 4.8
21 22 23 24 25	9.1 8.8 8.2 8.2 8.6	8.7 8.2 7.6 7.7 7.9	8.9 8.6 7.9 7.9	7.3 7.4 7.4 7.0 7.0	7.0 7.1 6.9 6.4 6.6	7.2 7.2 7.1 6.7 6.8	6.1 5.9 5.7 5.5 5.4	5.7 5.4 5.3 5.1 5.0	5.9 5.7 5.5 5.3 5.1	5.2 4.9 4.8 4.6	4.7 4.4 4.3 4.3	4.9 4.7 4.6 4.4
26 27 28 29 30 31	8.7 8.2 8.1 8.6 8.8	8.0 7.2 7.4 7.3 8.1 7.2	8.4 7.7 7.8 8.0 8.5 7.7	7.4 7.2 7.0 6.8 6.9	6.7 7.0 6.4 6.2 6.3	7.0 7.1 6.7 6.6 6.7	5.3 5.6 6.1 5.8 5.5	4.8 5.0 5.3 5.2 5.1 5.1	5.0 5.3 5.7 5.5 5.3	4.9 4.8 4.4 4.4 4.4	4.5 4.4 4.1 4.1 4.1 4.2	4.7 4.6 4.2 4.2 4.3
MONTH	11.8	7.2	9.3	8.8	6.2	7.5	6.9	4.6	5.9	5.9	4.0	5.0

SKAGIT RIVER BASIN

12181000 SKAGIT RIVER AT MARBLEMOUNT, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

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				WAIER (DEC								
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY						APRIL			MAY	
1 2	4.6	4.3 4.3 4.2 4.2	4.4	4.4 4.5 4.6 4.4	3.6	3.9	5.3	4.0	4.5 4.3 4.5 4.7 4.6	7.4 6.1 6.1 6.2 5.8	5.4 5.4	6.3 5.7
3 4	4.6	4.3 4.2 4.2	4.4	4.6	3.6	4.0	5.7	3.8	4.5	6.1	5.1	5.5
5	4.6	4.2	4.4	4.4	3.7	4.0	5.9	4.0	4.7	5.8	5.3	5.7 5.5
												5.6
7 8	4.7 4.6	4.2	4.4	3.9 3.7	3.1	3.4	5.2 5.7	4.2	4.6 4.7	6.3 6.5	5.4 5.4	5.8 5.9
9 10	4.7 4.6	4.2 4.2 4.3 4.2 4.2	4.4	3.7 3.9 3.7 4.0 3.9	3.3	3.6	5.0	4.4	4.7	6.3 6.3 6.5 7.0 7.2	5.4	6.1 6.3
11 12	4.8 4.5	4.0 3.8 3.9 4.0 3.9	4.4	3.8 4.0 4.4 4.2 4.3	3.4	3.6	5.2 5.1 4.6 4.3 4.7	4.5	4.8 4.7	7.6 7.9 6.8 7.1 7.7	6.2	6.6 6.9
13 14	4.5 4.7	3.9 4.0	4.1 4.2	4.4 4.2	3.6 3.8	3.9 3.9	4.6 4.3	4.3	4.5 3.7	6.8 7.1	6.2 5.8	6.5 6.3
15									4.2	7.7	5.8	6.6
16	4.4	3.9 4.2 4.2 4.2 4.1	4.1	4.3 4.3 3.6 3.6 3.1	3.4	3.9	5.7	4.2	4.8 5.2 5.7 5.6	8.0	6.1	6.9
17 18	4.6	4.2	4.3	4.3 3.6	3.2	3.6	6.4	4.5	5.2	7.8	6.3	7.0 6.7
19 20	4.8 4.5 4.9	4.2 4.1	4.3	3.6 3.1	3.0 2.8	3.4 2.9	6.7 6.6	4.8 5.2	5.6 5.6	8.0 7.8 7.1 7.6 6.9	6.5 6.4	7.0 6.7
22	4.2 3.7 4.0 4.0	2.3	3.8 3.1 3.9 3.7 3.5	4.1 4.5 4.5 4.3 5.3	3.3	3.8	5.6 5.5 5.9 6.3 6.5	4.7	5.1	7.0 7.1 7.9 8.3 7.3	6.4	6.7
23 24	4.0	3.7	3.9	4.5	3.4	3.9	6.3	4.6	5.1 5.3	8.3	6.4	7.0 7.2
26 27	4.5 4.1	3.5 3.6 3.8	3.9 3.9 4.1	4.2 4.2 4.2 4.2 4.8 4.7	3.8	3.9 3.9 3.9 4.0	6.0 7.0 7.2 7.2 7.7	5.1 5.3	5.5 5.9 6.0 6.1 6.4	7.5 8.1 7.4 6.8 8.1 7.9	6.5	7.0 7.2
28	4.6	3.8	4.1	4.2	3.7	3.9	7.2	5.4	6.0	7.4	6.3	6.8
29 30				4.2	3.8	4.0	7.2	5.3	6.1	8.1	6.0	6.4 7.0
31				4.7	4.1	4.3				7.9	6.4	7.1
MONTH	4.9	2.3	4.2	5.3	2.8	3.8	7.7	3.3	5.0	8.3	5.1	6.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY	MAX	MIN JUNE	MEAN	MAX	MIN	MEAN		MIN AUGUST	MEAN		MIN SEPTEMBE	
1		JUNE			JULY			AUGUST			SEPTEMBE	IR 11.2
1 2	9.3 9.3	JUNE			JULY 7.7 7.5 8.0	8.1 8.3 8.4		AUGUST			10.9 10.6 10.3	11.2 10.8 10.8
1 2 3 4	9.3 9.3 8.7 7.7	JUNE 6.4 6.5 6.5 6.7	7.6 7.7 7.6 7.2	8.6 9.2 9.1	JULY 7.7 7.5 8.0	8.1 8.3 8.4		AUGUST			10.9 10.6 10.3	11.2 10.8 10.8
1 2 3 4 5	9.3 9.3 8.7 7.7 7.6	JUNE 6.4 6.5 6.5 6.7 6.3	7.6 7.7 7.6 7.2 7.0	8.6 9.2 9.1 8.6 9.4	JULY 7.7 7.5 8.0 7.8 7.6	8.1 8.3 8.4 8.1 8.4	11.1 10.5 10.8 11.0	9.2 9.4 9.0 9.4 9.3	10.1 9.9 9.8 10.0 10.0	11.9 11.0 11.6 11.8 12.0	10.9 10.6 10.3 9.8 9.8	11.2 10.8 10.8 10.7 10.7
1 2 3 4 5	9.3 9.3 8.7 7.7 7.6	JUNE 6.4 6.5 6.5 6.7 6.3	7.6 7.7 7.6 7.2 7.0	8.6 9.2 9.1 8.6 9.4	JULY 7.7 7.5 8.0 7.8 7.6	8.1 8.3 8.4 8.1 8.4	11.1 10.5 10.8 11.0	9.2 9.4 9.0 9.4 9.3	10.1 9.9 9.8 10.0 10.0	11.9 11.0 11.6 11.8 12.0	10.9 10.6 10.3 9.8 9.8	11.2 10.8 10.8 10.7 10.7
1 2 3 4 5	9.3 9.3 8.7 7.7 7.6 7.4 7.6 8.0	JUNE 6.4 6.5 6.5 6.7 6.3	7.6 7.7 7.6 7.2 7.0	8.6 9.2 9.1 8.6 9.4	JULY 7.7 7.5 8.0 7.8 7.6	8.1 8.3 8.4 8.1 8.4	11.1 10.5 10.8 11.0	9.2 9.4 9.0 9.4 9.3	10.1 9.9 9.8 10.0 10.0	11.9 11.0 11.6 11.8 12.0	10.9 10.6 10.3 9.8 9.8 9.8 9.8	11.2 10.8 10.8 10.7 10.7
1 2 3 4 5 6 7 8 9	9.3 9.3 8.7 7.7 7.6 7.4 7.6 8.0 9.3 9.5	JUNE 6.4 6.5 6.5 6.7 6.3	7.6 7.7 7.6 7.2	8.6 9.2 9.1 8.6 9.4	JULY 7.7 7.5 8.0 7.8 7.6	8.1 8.3 8.4 8.1 8.4	11.1 10.5 10.8 11.0	9.2 9.4 9.0 9.4 9.3	10.1 9.9 9.8 10.0 10.0	11.9 11.0 11.6 11.8 12.0	10.9 10.6 10.3 9.8 9.8	11.2 10.8 10.8 10.7 10.7
1 2 3 4 5 6 7 8 9	9.3 9.3 8.7 7.7 7.6 7.4 7.6 8.0 9.3 9.5	JUNE 6.4 6.5 6.5 6.7 6.3 5.9 6.3 6.6 6.9 7.0	7.6 7.7 7.6 7.2 7.0 6.6 6.9 7.2 8.0 8.1	8.6 9.2 9.1 8.6 9.4 9.8 9.1 8.8 9.9	JULY 7.7 7.5 8.0 7.8 7.6 8.0 8.1 7.7 8.5	8.1 8.3 8.4 8.1 8.4 8.8 8.8 8.4 8.7 9.4	11.1 10.5 10.8 11.0 11.0 11.0 11.8 12.1 11.9	9.2 9.4 9.0 9.4 9.3 9.5 9.4 9.6 9.7	10.1 9.9 9.8 10.0 10.0 10.4 10.6 10.5	11.9 11.0 11.6 11.8 12.0 11.3 11.0 11.7	10.9 10.6 10.3 9.8 9.8 9.8 9.8 9.7	11.2 10.8 10.8 10.7 10.7 10.7 10.5 10.3 10.7 10.8
1 2 3 4 5 6 7 8 9 10	9.3 9.3 8.7 7.7 7.6 7.4 7.6 8.0 9.3 9.5 9.4	JUNE 6.4 6.5 6.5 6.7 6.3 5.9 6.3 6.6 6.9 7.0 7.2 7.1	7.6 7.7 7.6 7.2 7.0 6.6 6.9 7.2 8.0 8.1 8.1 8.1	8.6 9.2 9.1 8.6 9.4 9.8 9.1 8.8 9.9 10.6	JULY 7.7 7.5 8.0 7.8 7.6 8.0 8.4 8.1 7.7 8.5 8.7 8.7	8.1 8.3 8.4 8.1 8.4 8.8 8.8 8.7 9.4	11.1 10.5 10.8 11.0 11.0 11.8 12.1 11.9 12.3 12.3	9.2 9.4 9.0 9.4 9.3 9.5 9.6 9.7 10.1	10.1 9.9 9.8 10.0 10.0 10.4 10.6 10.5 10.9	11.9 11.0 11.6 11.8 12.0 12.0 11.3 11.0 11.7 12.1	10.9 10.6 10.3 9.8 9.8 9.8 9.7 10.0 9.9	11.2 10.8 10.8 10.7 10.7 10.7 10.5 10.3 10.7 10.8
1 2 3 4 5 6 7 8 9 10	9.3 9.3 8.7 7.7 7.6 7.4 7.6 8.0 9.3 9.5	JUNE 6.4 6.5 6.7 6.3 5.9 6.3 6.6 6.9 7.0 7.0	7.6 7.7 7.6 7.2 7.0 6.6 6.9 7.2 8.0 8.1	8.6 9.2 9.1 8.6 9.4 9.8 9.1 8.8 9.9 10.6	JULY 7.7 7.5 8.0 7.8 7.6 8.0 8.4 8.1 7.7 8.5 8.7	8.1 8.3 8.4 8.1 8.4 8.8 8.8 9.4	11.1 10.5 10.8 11.0 11.0 11.0 11.8 12.1 11.9 12.3	9.2 9.4 9.0 9.3 9.5 9.4 9.6 9.7	10.1 9.9 9.8 10.0 10.0 10.4 10.6 10.5 10.9	11.9 11.0 11.6 11.8 12.0 11.3 11.0 11.7 12.1	10.9 10.6 10.3 9.8 9.8 9.8 9.7 10.0 9.9	11.2 10.8 10.8 10.7 10.7 10.7 10.5 10.3 10.7 10.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	9.3 9.3 8.7 7.7 7.6 7.4 7.6 8.0 9.3 9.5 9.4 9.4 9.4	JUNE 6.4 6.5 6.7 6.3 5.9 6.3 6.6 6.9 7.0 7.2 7.1 7.1 7.3	7.6 7.7 7.6 7.2 7.0 6.6 6.9 7.2 8.1 8.1 8.1 8.0 8.1	8.6 9.2 9.1 8.6 9.4 9.8 9.1 8.8 9.9 10.6 10.4 10.0 10.1	JULY 7.7 7.5 8.0 7.8 7.6 8.0 8.4 8.1 7.7 8.5 8.7 8.7 8.8 8.8	8.1 8.3 8.4 8.1 8.4 8.8 8.4 9.5 9.5 9.4 9.5	11.1 10.5 10.8 11.0 11.0 11.8 12.1 11.9 12.3 12.4 12.4 12.4 12.3	9.2 9.4 9.0 9.4 9.3 9.5 9.4 9.6 9.7 10.1 9.9 9.9	10.1 9.9 9.8 10.0 10.0 10.4 10.6 10.5 10.9 11.0 11.0 11.2	11.9 11.0 11.6 11.8 12.0 12.0 11.3 11.0 11.7 12.1 12.1 12.1 12.1 12.0 12.0	10.9 10.6 10.3 9.8 9.8 9.8 9.7 10.0 9.9 9.9	11.2 10.8 10.8 10.7 10.7 10.7 10.5 10.3 10.7 10.8 10.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	9.3 9.3 8.7 7.7 7.6 7.4 7.6 8.0 9.3 9.5 9.4 9.4 9.4 8.4 8.4	JUNE 6.4 6.5 6.7 6.3 5.9 6.3 6.9 7.0 7.2 7.1 7.1 7.3 7.4	7.6 7.7 7.6 7.2 7.0 6.6 6.9 7.2 8.0 8.1 8.1 8.0 7.9 7.8	8.6 9.2 9.1 8.6 9.4 9.8 9.1 8.8 9.9 10.6 10.4 10.0 10.1 10.1	JULY 7.7 7.5 8.0 7.8 7.6 8.0 8.4 8.1 7.7 8.5 8.7 8.7 8.8 8.8 8.9 9.3	8.1 8.3 8.4 8.1 8.4 8.8 8.8 8.7 9.4 9.5 9.4 9.5 9.4 9.5	11.1 10.5 10.8 11.0 11.0 11.8 12.1 11.9 12.3 12.4 12.4 12.4 12.3 12.6	9.2 9.4 9.0 9.4 9.3 9.5 9.4 9.7 10.1 9.9 9.9 10.1 10.2 10.3	10.1 9.9 9.8 10.0 10.0 10.4 10.6 10.5 10.9 11.0 11.0 11.2	11.9 11.0 11.6 11.8 12.0 12.0 11.3 11.0 11.7 12.1 12.1 12.1 12.0 12.0 11.1	SEPTEMBE 10.9 10.6 10.3 9.8 9.8 9.8 9.8 9.9 9.9 10.0 10.2 9.9	11.2 10.8 10.7 10.7 10.7 10.5 10.3 10.7 10.8 10.8 10.8 10.9 10.8 10.8 10.4
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	9.3 9.3 9.7 7.7 7.6 7.4 7.6 9.3 9.5 9.4 9.4 9.4 9.4 8.1 7.7, 8.7	JUNE 6.4 6.5 6.7 6.3 5.9 6.3 6.9 7.0 7.2 7.1 7.3 7.4 7.4 7.2 7.2	7.6 7.7 7.6 7.2 7.0 6.6 6.9 7.2 8.0 8.1 8.1 8.0 7.9 7.8	8.6 9.2 9.1 8.6 9.4 9.8 9.1 8.8 9.9 10.6 10.4 10.0 10.1 10.4	JULY 7.7 7.5 8.0 7.8 7.6 8.0 8.4 8.1 7.7 8.5 8.7 8.7 8.7 8.9 9.3 9.4	8.1 8.4 8.1 8.4 8.8 8.8 8.7 9.4 9.5 9.5 9.4 9.5 9.5	11.1 10.5 10.8 11.0 11.0 11.0 11.8 12.1 11.9 12.3 12.4 12.4 12.3 12.6	9.2 9.4 9.0 9.4 9.3 9.5 9.4 9.6 9.7 10.1 9.9 9.9 10.1 10.2 10.3	10.1 9.9 9.8 10.0 10.0 10.4 10.6 10.5 10.9 11.0 11.0 11.2 11.1 10.7 10.7	11.9 11.0 11.6 11.8 12.0 12.0 11.3 11.0 11.7 12.1 12.1 12.1 12.0 12.0 11.1	SEPTEMBE 10.9 10.6 10.3 9.8 9.8 9.8 9.8 9.9 9.7 10.0 9.9 9.9 9.9 10.0 10.2 9.9 9.7 9.9	11.2 10.8 10.7 10.7 10.7 10.3 10.7 10.8 10.9 10.8 10.9 10.8 10.4 10.5 10.4 10.3
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	9.3 9.3 8.7 7.7 7.6 7.4 7.6 8.0 9.3 9.5 9.4 9.4 9.4 9.4 8.1 7.7	JUNE 6.4 6.5 6.7 6.3 5.9 6.3 6.6 6.9 7.0 7.0 7.1 7.1 7.3 7.4 7.4 7.2	7.6 7.7 7.6 7.2 7.0 6.6 6.9 7.2 8.0 8.1 8.1 8.0 8.1 8.0 7.9 7.8 7.4	8.6 9.2 9.1 8.6 9.4 9.8 9.1 8.8 9.9 10.6 10.4 10.0 10.1 10.4	JULY 7.7 7.5 8.0 7.8 7.6 8.0 8.4 8.1 7.7 8.5 8.7 8.7 8.8 8.9 9.3 9.4	8.1 8.3 8.4 8.1 8.4 8.8 8.4 9.4 9.5 9.5 9.4 9.5 9.5 9.4	11.1 10.5 10.8 11.0 11.0 11.8 12.1 11.9 12.3 12.4 12.4 12.3 12.6	9.2 9.4 9.0 9.4 9.3 9.5 9.4 9.7 10.1 9.9 10.1 10.2 10.3	10.1 9.9 9.8 10.0 10.0 10.4 10.6 10.5 10.9 11.0 11.0 11.2 11.1 10.7	11.9 11.0 11.6 11.8 12.0 12.0 11.3 11.0 11.7 12.1 12.1 12.1 12.0 12.0 11.1	SEPTEMBE 10.9 10.6 10.3 9.8 9.8 9.8 9.7 10.0 9.9 9.9 9.9 9.9 10.0 10.2 9.9 9.7	11.2 10.8 10.8 10.7 10.7 10.7 10.5 10.3 10.7 10.8 10.8 10.9 10.8 10.4 10.4
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	9.3 9.3 9.7 7.7 7.6 7.4 7.6 8.0 9.3 9.5 9.4 9.4 9.4 9.4 8.1 7.7, 8.9 9.4	JUNE 6.4 6.5 6.7 6.3 5.9 6.3 6.9 7.0 7.0 7.1 7.1 7.3 7.4 7.4 7.2 7.4 7.6	7.6 7.7 7.6 7.2 7.0 6.6 6.9 7.2 8.0 8.1 8.1 8.0 7.9 7.8 7.8 8.3	8.6 9.2 9.1 8.6 9.4 9.8 9.1 8.8 9.9 10.6 10.4 10.0 10.1 10.4 10.9 10.9 11.1	JULY 7.7 7.5 8.0 7.8 7.6 8.0 8.4 8.1 7.7 8.5 8.7 8.7 8.7 8.9 9.3 9.4 9.1 9.4	8.1 8.4 8.1 8.4 8.8 8.8 8.7 9.4 9.5 9.5 9.4 9.5 9.5 9.9	11.1 10.5 10.8 11.0 11.0 11.8 12.1 11.9 12.3 12.3 12.4 12.4 11.8 12.6	9.2 9.4 9.0 9.4 9.3 9.5 9.4 9.6 9.7 10.1 9.9 9.9 10.1 10.2 10.3 10.1 9.8 9.7 10.1	10.1 9.9 9.8 10.0 10.0 10.4 10.6 10.5 10.9 11.0 11.0 11.0 11.2 11.1 10.7 10.6 10.6	11.9 11.0 11.6 11.8 12.0 12.0 11.3 11.0 11.7 12.1 12.1 12.1 12.0 12.0 11.1 10.9 11.0 11.1 10.6 11.2	SEPTEMBE 10.9 10.6 10.3 9.8 9.8 9.8 9.8 9.9 9.9 10.0 10.2 9.9 9.7 9.9 9.9 10.0	11.2 10.8 10.7 10.7 10.7 10.3 10.7 10.8 10.8 10.9 10.8 10.9 10.8 10.4 10.5 10.4 10.3 10.3
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	9.3 9.3 8.7 7.7 7.6 7.4 7.6 8.0 9.5 9.4 9.4 9.4 9.4 9.4 9.4 9.4 9.5 9.6 9.8 9.9 9.9	JUNE 6.4 6.5 6.7 6.3 5.9 6.3 6.6 6.9 7.0 7.0 7.1 7.1 7.3 7.4 7.4 7.6 7.7 7.7	7.6 7.7 7.6 7.2 7.0 6.6 6.9 7.2 8.0 8.1 8.1 8.0 8.1 8.0 8.1 8.0 8.1 8.0 8.1 8.0 8.1 8.0 8.1 8.0 8.1 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	8.6 9.2 9.1 8.6 9.4 9.8 9.1 8.8 9.9 10.6 10.4 10.0 10.1 10.4 10.9 11.1 10.3 11.0	JULY 7.7 7.5 8.0 7.8 7.6 8.0 8.4 8.1 7.7 8.5 8.7 8.7 8.9 9.4 9.1 9.4 9.5 9.5	8.1 8.3 8.4 8.1 8.4 8.8 8.4 8.7 9.4 9.5 9.4 9.5 9.4 9.5 9.9 10.2 10.2 10.3 10.3	11.1 10.5 10.8 11.0 11.0 11.8 12.1 11.9 12.3 12.4 12.4 12.4 11.8 12.6 11.9 11.3	9.2 9.4 9.0 9.4 9.3 9.5 9.4 9.6 9.7 10.1 10.2 10.3 10.1 10.3 10.1 10.3 10.1	10.1 9.9 9.8 10.0 10.0 10.4 10.6 10.5 10.9 11.0 11.0 11.2 11.1 10.7 10.6 10.6 10.6	11.9 11.0 11.6 11.8 12.0 11.3 11.0 11.7 12.1 12.1 12.1 12.0 11.1 10.9 11.0 11.1 10.6 11.2	SEPTEMBE 10.9 10.6 10.3 9.8 9.8 9.8 9.8 9.9 9.9 9.9 9.9 9.9 9.9	11.2 10.8 10.8 10.7 10.7 10.7 10.5 10.3 10.7 10.8 10.8 10.8 10.9 10.8 10.4 10.5 10.4 10.3 10.3
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	9.3 9.3 9.7 7.7 7.6 8.0 9.5 9.4 9.4 9.4 8.4 17.7 8.5 9.8 9.9 9.3 9.3 9.0 0 9.3 9.3	JUNE 6.4 6.5 6.7 6.3 5.9 6.3 6.9 7.0 7.2 7.1 7.1 7.3 7.4 7.2 7.7 7.7 7.7 7.8 8.1 8.2 7.7	7.6 7.7 7.6 7.2 7.0 6.6 6.9 7.2 8.1 8.1 8.0 7.9 7.8 7.4 7.8 8.3 8.5 8.6 8.4 8.6 8.8 8.5 8.5 8.5	8.6 9.2 9.1 8.6 9.4 9.8 9.1 8.8 9.9 10.6 10.4 10.0 10.1 10.3 11.0 11.1 11.2 11.6 11.5 11.6	JULY 7.7 7.5 8.0 7.8 7.6 8.0 8.4 8.1 7.7 8.5 8.7 8.7 8.9 9.3 9.4 9.1 9.4 9.1 9.4 9.5 9.7 9.8	8.1 8.3 8.4 8.1 8.8 8.8 8.4 9.5 9.4 9.5 9.4 9.5 9.5 9.4 9.5 10.0 10.2 9.9 9.9	11.1 10.5 10.8 11.0 11.0 11.8 12.1 11.9 12.3 12.4 12.4 12.4 12.4 12.3 12.6 11.8 12.0 11.9 11.3 12.1 12.1 12.1 12.1 12.1 12.1 12.1	9.2 9.4 9.0 9.4 9.3 9.5 9.4 9.6 9.7 10.1 10.2 10.3 10.1 9.8 9.7 9.8 10.0 10.1 10.2 10.3 10.1 10.3	10.1 9.9 9.8 10.0 10.0 10.4 10.6 10.5 10.9 11.0 11.2 11.1 10.7 10.6 10.6 10.6 11.3 11.4 11.6 11.3	11.9 11.0 11.6 11.8 12.0 12.0 11.3 11.0 11.7 12.1 12.1 12.1 12.0 11.1 10.6 11.1 10.6 11.1 11.2 11.2 11.3 11.5 11.6	SEPTEMBE 10.9 10.6 10.3 9.8 9.8 9.8 9.8 9.9 9.9 9.9 9.9 9.9 9.9	11.2 10.8 10.7 10.7 10.7 10.5 10.3 10.7 10.8 10.9 10.8 10.9 10.8 10.9 10.3 10.3 10.3 10.3 10.3
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	9.3 9.3 9.7 7.7 7.6 7.4 7.6 8.0 9.5 9.4 9.4 9.4 8.1 7.7 8.6 9.9 9.6 10.0 9.7 8.9 10.0 9.7 8.1 10.0 9.7 8.1 10.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0	JUNE 6.4 6.5 6.7 6.3 5.9 6.3 6.9 7.0 7.2 7.1 7.3 7.4 7.4 7.2 7.7 7.7 7.8 8.1 8.2 7.7 7.5 7.4	7.6 7.7 7.6 7.2 7.0 6.6 6.9 7.2 8.1 8.1 8.1 8.1 8.1 8.3 8.3 8.4 8.3 8.5 8.6 8.8 8.5 8.7 7.8	8.6 9.2 9.1 8.6 9.4 9.8 9.1 8.8 9.9 10.6 10.4 10.0 10.1 10.4 10.9 11.1 11.2 11.6 11.5 11.6	JULY 7.7 7.5 8.0 7.8 7.6 8.0 8.4 8.1 7.7 8.5 8.7 8.7 8.7 8.9 9.3 9.4 9.1 9.4 9.5 9.5 9.7 9.8 9.9 9.7 9.5 9.6 9.5	8.1 8.4 8.1 8.8 8.8 8.4 8.7 9.4 9.5 9.5 9.4 9.5 9.5 9.1 10.0 10.2 9.9 9.9	11.1 10.5 10.8 11.0 11.0 11.8 12.1 11.9 12.3 12.4 12.4 12.4 12.3 12.6 11.8 12.0 11.9 11.3	9.2 9.4 9.0 9.4 9.3 9.5 9.4 9.6 9.7 10.1 9.9 9.9 10.1 10.2 10.3 10.1 9.8 9.7 10.1 10.2 10.3 10.1 10.3 10.0 10.1 10.3 10.1 10.3 10.5 10.7 10.7 10.6 10.7 10.6 10.7 10.7 10.6 10.7 10.6 10.7 10.7 10.6 10.7 10.7 10.6 10.7 10.6 10.7 10.7 10.7 10.6 10.7 10.7 10.6 10.7 10.7 10.6 10.7 10.7 10.6 10.7 10.6 10.7 10.7 10.6 10.7 10.7 10.6 10.7 10.6 10.7 10.7 10.6 10.7 10.7 10.6 10.7 10.7 10.6 10.7 10.7 10.7 10.6 10.7 10.7 10.7 10.6 10.7 10.7 10.7 10.7 10.6 10.7 10.6 10.7 10.7 10.7 10.6 10.7 10.7 10.7 10.6 10.7 1	10.1 9.9 9.8 10.0 10.0 10.4 10.5 10.9 11.0 11.0 11.0 11.0 11.1 10.7 10.6 10.6 10.7 11.1 10.7 11.3 11.4 11.6 11.3	11.9 11.0 11.6 11.8 12.0 11.3 11.0 11.7 12.1 12.1 12.0 12.0 11.1 10.9 11.0 11.1 10.6 11.2 11.2 11.3 11.5 11.5	SEPTEMBE 10.9 10.6 10.3 9.8 9.8 9.8 9.8 9.9 9.7 10.0 9.9 9.9 9.9 9.9 9.9 9.9 9.9 10.0 10.2 9.9 9.7 9.9 9.9 10.0 10.2 9.9 9.7 9.6 9.6 9.4 9.6 9.4 9.6 9.4 9.6	11.2 10.8 10.7 10.7 10.7 10.5 10.3 10.7 10.8 10.8 10.9 10.8 10.4 10.5 10.4 10.3 10.3 10.3 10.5 10.4 10.5 10.4 10.5 10.3 10.3
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	9.3 9.3 9.7 7.7 7.6 7.4 7.60 9.3 9.5 9.4 9.4 9.4 8.4 7.7 8.5 9.6 9.3 9.6 10.0 9.7 8.9 8.9 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10	JUNE 6.4 6.5 6.7 6.3 5.9 6.3 6.9 7.0 7.0 7.1 7.1 7.3 7.4 7.4 7.2 7.4 7.7 7.7 7.8 8.1 8.2 7.7 7.5 7.4	7.6 7.7 7.6 7.2 7.0 6.6 6.9 7.2 8.0 8.1 8.1 8.0 7.9 7.8 8.3 8.5 8.6 8.8 8.8 8.5 8.7 7.8	8.6 9.2 9.1 8.6 9.4 9.8 9.1 10.4 10.4 10.0 10.1 10.4 10.9 11.1 11.2 11.5 11.6 11.5 11.6	JULY 7.7 7.5 8.0 7.8 7.6 8.0 8.4 8.1 7.7 8.5 8.7 8.7 8.7 8.9 9.3 9.4 9.1 9.4 9.5 9.5 9.7 9.8 9.9 9.7 9.8	8.1 8.4 8.1 8.8 8.8 8.4 8.7 9.4 9.5 9.5 9.4 9.5 9.9 10.2 9.9 9.9 10.3 10.5 10.6	11.1 10.5 10.8 11.0 11.0 11.8 12.1 11.9 12.3 12.4 12.4 12.3 12.6 12.4 11.8 12.3 12.6 12.3 12.6 12.4 11.8 12.3 12.6	9.2 9.4 9.0 9.4 9.3 9.5 9.4 9.6 9.7 10.1 9.9 9.9 10.1 10.2 10.3 10.1 9.8 9.7 10.1 10.2 10.3	10.1 9.9 9.8 10.0 10.0 10.4 10.5 10.9 11.0 11.0 11.2 11.1 10.7 10.6 10.6 10.7 11.0 11.3 11.4 11.6 11.3 11.4 11.5 11.5 11.5	11.9 11.0 11.6 11.8 12.0 12.0 11.3 11.0 11.7 12.1 12.1 12.0 11.1 10.9 11.0 11.1 10.6 11.2 11.2 11.3 11.5 11.6 11.5	SEPTEMBE 10.9 10.6 10.3 9.8 9.8 9.8 9.8 9.9 9.9 9.9 9.9 10.0 10.2 9.9 9.9 9.9 10.0 10.2 9.9 9.9 9.9 10.0 10.2 9.9 9.9 10.0 10.2 9.9 9.9 10.0 10.2 9.9 9.9 10.0 10.2 9.9 9.9 10.0 10.2 9.9 9.9 10.0 10.2 9.9 9.9 10.0 10.2 9.9 9.9 10.0 10.2 9.9 9.9 10.0 10.2 9.9 9.9 10.0 10.2 9.9 9.9 10.0 10.2 9.9 9.9 10.0 10.2 9.9 9.9 9.9 10.0 10.2 9.9 9.9 9.9 9.9 9.9 9.9 9.9 9.9 9.9 9	11.2 10.8 10.7 10.7 10.7 10.3 10.7 10.8 10.8 10.9 10.8 10.9 10.8 10.4 10.5 10.3 10.3 10.3 10.3 10.3 10.3 10.3 10.3

12186000 SAUK RIVER ABOVE WHITE CHUCK RIVER, NEAR DARRINGTON, WA

LOCATION.--Lat $48^{\circ}10^{\circ}08^{\circ}$, long $121^{\circ}28^{\circ}10^{\circ}$, on north line NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.23, T.31 N., R.10 E., Snohomish County, Hydrologic Unit 17110006, Mount Baker National Forest, on right bank 0.6 mi upstream from White Chuck River, 8.4 mi southeast of Darrington, and at mile 32.5.

DRAINAGE AREA.--152 mi².

PERIOD OF RECORD.--August to November 1910 (fragmentary gage heights only), October 1917 to September 1922, August 1928 to current year. Monthly discharge only for April and May 1921, published in WSP 1316.

REVISED RECORDS.--WSP 752: 1932. WSP 1286: 1918(M), 1920(M), 1921, 1922(M), 1932(M), 1934(M), 1946-47(M), 1949.

GAGE.--Water-stage recorder. Elevation of gage is 930 ft above NGVD of 1929, from river-profile map. Prior to Nov. 18, 1910, nonrecording gage 0.5 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--78 years (water years 1918-20, 1922, 1929-2002), 1,128 ft³/s, 100.81 in/yr, 817,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,100 ft 3 /s Dec. 26, 1980, gage height, 16.03 ft, from rating curve extended above 15,000 ft 3 /s; minimum discharge, 94 ft 3 /s Oct. 27-31, 1987.

 $\hbox{\it EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,500 ft}^3/s \ \hbox{\it and maximum (*):}$

Date	Time	(ft ³ /s)	(ft)	Date		Time	(ft ³ /		(ft)
Nov. 14 Dec. 17 Jan. 07	2245 0130 2315	9,610 6,840 *13,500	8.07 7.03 *9.34	Apr. May June	29	0715 1145 0730	5,	390 220 350	7.61 6.34 6.83
Feb. 22	1345	9,250	7.94	oune	23	0730	0,	350	0.03
Minimum disc	charge, 12	7 ft ³ /s Oct. 7	, 8.						
		DISCHARGE, C	UBIC FEET PER		WATER Y MEAN V		2001 TO	SEPTEMBE	R 2002
DAY	OCT	NOV DE	C JAN	FEB	MAR	APR	MAY	JUN	JUL
1	167	1950 92	2 449	485	865	593	1640	2810	2350

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	167	1950	922	449	485	865	593	1640	2810	2350	761	374
2	159	1620	1130	543	454	769	592	1930	2800	2020	696	375
3	151	1280	832	586	467	698	559	1790	2950	1880	609	559
4	144	1050	717	575	457	656	574	1480	3020	1840	583	392
5	136	1100	638	538	438	650	681	1360	3350	1730	592	320
6	132	899	645	807	472	594	901	1200	3520	1700	667	280
7	128	765	630	9420	569	556	901 1100	1070	2640	2040	592	256
8	148	672	628	9600	540	528	948	963	2130	2860	553	245
9	177	605	682	4500	484	495	882	912	1800	2190	577	242
10	199	556	585	2630	477	493		859	2000	2390	642	241
11	612	528	E20	1000	508	1050	1270	960	2580	2790	645	252
		546	520	1000	306	1050 1190 972 824	2470	000	3380	2650	605	252
12	526	546	514	1820	444	1190	2470	9/3				
13	9/1	765	1500	1570	413	972	3 /80	1450	4220	2450	611	265
14	875	7260	2090	1280	386	824	6750	1600	4780	2370	633	259
15	526 971 875 672	6370	1220	1890 1820 1570 1280 1090	371	721	1370 2470 3780 6750 3640	1460	4690	1970	613	260
16	512	3620	3440	958	375	648	2380	1370	4180	1830	556	311
17	510	2210	4510	852	380	583	1840	1640	3270	1830	514	426
18	432	1580	2140	773	399	543		1810	3220	1740	464	307
19	510 432 817	1570	1450	738	526				2710	1650	434	261
20	808	2300	1140	756	584	508	1330 1220	2410	2490	1460	425	283
21	599	2230	952	714	1950	468	1150 1090	2480	2910	1420	403	244
22	1180	1900	824	660	7810	471	1090	2200	3450	1470	389	219
23	2110	1770	723	615	5120	493	1070	1940	3460	1510	404	207
24	1320	1400	652	1090	2710	513	957	1810	3030	1540	440	200
25	1190	1160	597	1460	1790	528	901	1900	3020	1510	457	194
26	1100	1040	553	954	1370	EEO	970	2150	3570	1390	438	191
27	1310	929	553		1150	559 590 620 591 555 551	0/9	2130	3720	1150	412	194
28	1310	849	520	732	1150	590	052	2430	3500	1010	421	
28	987 780	849	538	625	991	620	863	3600				182
29	780	832	516	556		591	940	4830	5420	1000	431	190
30	004	757	484	519		555	1160	3950	3200	994 891	418	259
31	2480		462	527		551	879 852 863 940 1160	3300		891	389	
TOTAL	22136	50113	32762	49827	32120	19813	44102	59157	97820	55625	16374	8244
MEAN	714	1670	1057	1607	1147	639	1470	1908	3261	1794	528	275
MAX	2480	7260	4510	9600	7810	1190	6750	4830	5420	2860	761	559
MIN	128	528	462	449	371	468	559	859	1800	2860 891	389	182
AC-FT	43910	99400	64980				87480	117300		110300	32480	16350
CFSM	4.70	11.0	6.95			4.20		12.6				
IN.	5.42	12.26	8.02	12.19		4.85	10.79	14.48	23.94	11.8 13.61	4.01	2.02
STATIST	rics of M	IONTHLY ME	AN DATA F	OR WATER !	YEARS 1918	- 2002	, BY WATER	YEAR (WY	?)			
MEAN	805	1205	1235	1014	903	771	1080	1882	2186	1409	598	482
MAX	2174	4117	3512	2584	2369	2442	1991	2965	3648	2875	1393	1504
(WY)	1968	1991	1918			1972	1934	1949	1974	1954	1954	
MIN	119				167	293		1119	895	396	215	
(WY)	1988	1937	347 1986	1979	1929	1955	1975	1977	1941	1941	1941	1942
SUMMARY	Y STATIST	TCS	FOR	∠001 CALE	NUAR YEAR		FOR 2002 W.	ATER YEAR	t .	WATER YEAR	KS 1918 -	2002
ANNUAL	TOTAL			293022			488093					
ANNUAL				803			1337			1128		
HIGHEST	r annual	MEAN								1557		1950
LOWEST	ANNUAL M	IEAN								631		2001
HIGHEST	T DAILY M	IEAN		7260	Nov 14		9600	Jan 8	3	27000	Dec 26	1980
LOWEST	DAILY ME	AN		128	Oct 7		128	Oct 7	,	94	Oct 28	1987
ANNUAT.	SEVEN-DA	Y MINIMIM	ī	143	Oct. 2		143	Oct. 2		96	Oct. 24	1987
Z NINITIZ T	DIMORE /	AC-FT)	•	581200	000 2		968100	000 2	•	817000	OCC 24	100
Z NINITIZ T	DINOEE (CESM)		5 20	R		200100	n		7 4	2	
THUNOPLE	DIMOPP (TNCUEC)		71 7	1		110 4	5		100.0	1	
MINIMONE	VOINOLL (TIACUED)		1550	_		117.4	J		100.8	1	
TO PERC	CENT BACE	מממו פחידוי		T000			2980			∠34U 010		
DO PERO	CENT EXCE	בחם פתים		7260 128 143 581200 5.28 71.7: 1550 592 219			852			631 27000 94 96 817000 7.4: 100.8 2340 812		
90 PER	CENT EXCE	EUS		219			373			295		

12189500 SAUK RIVER NEAR SAUK, WA

LOCATION.--Lat $48^{\circ}25^{\circ}29^{\circ}$, long $121^{\circ}34^{\circ}02^{\circ}$, in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.19, T.34 N., R.10 E., Skagit County, Hydrologic Unit 17110006, on left bank, 4.4 mi southeast of Rockport, 7.6 mi southeast of Sauk, 7.8 mi downstream from Suiattle River, and at mile 5.4. DRAINAGE AREA. -- 714 mi2.

PERIOD OF RECORD.--August to October 1910 (fragmentary gage heights), March 1911 to August 1912, July 1928 to current year. Published as "near Suiattle Crossing, near Sauk" 1910-12.

REVISED RECORDS.--WSP 1286: 1929, 1937, 1939.

Time

Date

GAGE.--Water-stage recorder. Datum of gage is 266 ft above NGVD of 1929 (from river-profile survey). Prior to Aug. 4, 1912, nonrecording gages at several sites 1.0 mi downstream to 5.0 mi upstream from present site at various datums. July 24, 1928, to Sept. 16, 1929, nonrecording gage at present site and datum. U.S. Geological Survey satellite telemeter at station.

REMARKS. -- Records good. No regulation. Small diversion for millpond at Darrington and for domestic use.

AVERAGE DISCHARGE.--74 years (water years 1929-2002), 4,352 ft³/s, 82.81 in/yr, 3,153,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 98,600 ft³/s Dec. 26, 1980, gage height, 18.24 ft, from rating extended above 50,000 ft³/s; minimum discharge, 572 ft³/s Dec. 5, 1929, but may have been less during period of ice effect Jan. 10-27, 1930.

Time

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 16,000 ft^3/s and maximum (*):

Date

Discharge Gage height (ft³/s) (ft)

		,	, -,	(/				,	, -,	(/		
Nov. 14 Dec. 17 Jan. 08 Feb. 22	1900 0300 0300 1500	26 *48	,400 ,500 ,400 ,600	11.48 10.28 *13.32 12.07	Apr. May June	29	0900 1215 1000	16,	400 200 100	10.11 8.42 9.37		
Minimum dis												
		DISCHA	RGE, CUB	IC FEET PI	ER SECOND, DAILY	WATER Y		ER 2001 TO) SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	988	6820	3690	2200	2320	3560	2790	5150	9260	8810	3530	2060
2	962	5330	4750	2720	2210	3230	2780	6050	e9200	7550	3220	2010
3	904	4380	3560	2900	2230	2980	2610	5550	e9950	7020	2860	2460
4	882	3640	3140	2740	2270	2820	2610	4650	e10000	6870	2720	1970
5	839	3940	2860	2540	2170	2790	2940	4350	10700	6210	2670	1660
6	820	3310	2830	3040	2340	2600	3710	3950	11800	6070	2810	1500
7	794	2860	2950	29500	2780	2470	4380	3530	8820	7310	2640	1440
8	795	2570	2860	36600	2660	2370	3660	3240	7240	10700	2520	1380
9	908	2380	3310	16700	2470	2250	3410	3110	6170	8700	2610	1330
10	916	2230	2830	9730	2360	2230	4390	2950	6580	8850	2900	1350
11	2050	2160	2570	7120	2510	4470	4970	2940	8260	10700	3020	1420
12	1870	2200	2440	6900	2280	5210	8370	3280	10700	10400	2810	1430
13	3270	2880	5900	6340	2150	4050	11100	4590	13300	9820	2830	1470
14	2930	22500	9320	5100	2020	3500	20400	5170	e15000	9730	2990	1430
15	2480	22200	5300	4370	1940	3110	11300	4700	e14900	8180	3040	1450
16	1930	12900	12300	3900	1950	2840	7800	4360	e13500	7330	2780	1480
17	2040	7900	17900	3520	1950	2600	6310	5160	e10900	7490	2550	1830
18	1770	5730	8340	3240	2020	2460	5210	5690	e10800	7170	2320	1470
19	2850	5250	5920	3110	2420	2450	4630	5510	9240	6920	2200	1330
20	3140	7700	4710	3130	2760	2440	4290	7430	8300	6070	2130	1520
21	2300	7740	4000	3140	8130	2290	4060	7970	9630	5760	2040	1330
22	3980	6550	3530	2880	33100	2300	3860	7160	11500	6040	2050	1220
23	7120	6620	3160	2730	20500	2390	3780	6450	11800	6280	2110	1200
24	4900	5220	2890	4050	10800	2480	3420	5890	10500	6440	2260	1180
25	4410	4350	2710	6460	7210	2550	3230	6150	10300	6230	2350	1150
26	4110	3830	2560	4270	5570	2670	3140	7030	12200	5970	2210	1120
27	5180	3470	2440	3340	4620	2740	3040	7730	13400	5140	2150	1120
28	3970	3240	2490	2890	4030	2780	3050	11100	12200	4500	2220	1060
29	3120	3370	2470	2620		2690	3260	15100	18200	4750	2250	1070
30	2910	3190	2320	2480		2560	3850	12700	11700	4590	2200	1250
31	7510		2250	2460		2550		10900		4170	2080	
TOTAL	82648	176460	138300	192720	139770	88430	152350	189540	326050	221770	79070	43690
MEAN	2666	5882	4461	6217	4992	2853	5078	6114	10870	7154	2551	1456
MAX	7510	22500	17900	36600	33100	5210	20400	15100	18200	10700	3530	2460
MIN	794	2160	2250	2200	1940	2230	2610	2940	6170	4170	2040	1060
AC-FT	163900	350000	274300	382300		175400	302200	376000	646700	439900	156800	86660
CFSM	3.73	8.24	6.25	8.71	6.99	4.00	7.11	8.56	15.2	10.0	3.57	2.04
IN.	4.31	9.19	7.21	10.04	7.28	4.61	7.94	9.88	16.99	11.55	4.12	2.28
STATIS	STICS OF I	MONTHLY MEA	AN DATA	FOR WATER	YEARS 1929	- 2002	, BY WATE	R YEAR (W)	7)			
MEAN	2857	4456	4665	4147	3801	3252	3997	6503	7925	5691	2825	2087
MAX	6770	14690	11580	8615	9062	9443	7375	10570	13520	10610	5529	4941
(WY)	1968	1996	1934	1974	1951	1972	1934	1949	1974	1972	1974	1959
MIN	751	724	1457	1199	793	1523	2039	4061	3715	2515	1625	1089
(WY)	1988	1930	1953	1979	1929	1955	1975	1977	1941	1941	1994	1942
SUMMAR	RY STATIS	TICS	FOR	2001 CAL	ENDAR YEAR	I	FOR 2002 I	WATER YEAR	ર	WATER YEA	ARS 1929 -	2002
ANNUAL	TOTAL			1190378			1830798					
ANNUAL				3261			5016			4352		
	T ANNUAL									6048		1972
	ANNUAL I			00			2000	_		2662		2001
	T DAILY I			22500	Nov 14		36600	Jan 8		69900	Nov 24	1990
	DAILY M	EAN AY MINIMUM		794 849	Oct 7 Oct 3		794 849	Oct 7		578 604	Dec 4 Nov 29	
	RUNOFF			2361000	000		3631000	000	,	3153000	INOV 29	1262
	RUNOFF			4.5	57		7.0	03		6.1	.0	
	RUNOFF			62.0			95.			82.8		
10 PEF	CENT EXC	EEDS		5940			10600			8340		
50 PER	CENT EXC	EEDS		2480			3240			3340		
90 PEF	CENT EXC	EEDS		1230			1810			1530		

e Estimated

12191600 BAKER LAKE AT UPPER BAKER DAM NEAR CONCRETE, WA

LOCATION.--Lat 48°38'58", long 121°41'22", in SW $\frac{1}{4}$ sec.31, T.37 N., R.9 E., Whatcom County, Hydrologic Unit 17110005, at upper Baker Dam on Baker River near center of dam, 0.3 mi upstream from Sulphur Creek, 8.0 mi north of Concrete, and at mile 9.3.

DRAINAGE AREA.--215 mi².

PERIOD OF RECORD. -- July 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929.

REMARKS.--Reservoir is formed by concrete gravity dam, completed in June 1959; storage began July 9, 1959. Usable storage, 220,630 acre-ft between elevations 655 ft, minimum operating pool, and 724 ft, normal full pool. Dead storage below elevation 655 ft, 64,840 acre-ft. Crest of spillway is at elevation 694 ft. Water used by Puget Sound Energy for power generation. Capacity table furnished by Puget Sound Energy. Figures given herein represent total contents. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 287,930 acre-ft July 12, 1972, elevation, 724.49 ft; minimum contents since normal operating level was reached in August 1960, 102,621 acre-ft May 8, 1977, elevation, 674.81 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 281,750 acre-ft July 12, elevation, 723.25 ft; minimum contents, 105,555 acre-ft Mar. 8, elevation, 676.01 ft.

MONTHEND GAGE HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	719.65	264,231	==
Oct. 31	714.07	238,303	-25,928
Nov. 30	701.95	187,455	-50,848
Dec. 31	696.17	166,076	-21,379
CAL YR 2001			+16,802
Jan. 31	691.12	148,913	-17,163
Feb. 28	684.91	129,681	-19,232
Mar. 31	682.99	124,132	-5,549
Apr. 30	684.63	128,864	+4,732
May 31	706.11	203,997	+75,133
June 30	721.23	271,844	+67,847
July 31	721.13	271,357	-487
Aug. 31	719.24	262,274	-9,083
Sept. 30	709.23	217,055	-45,219
WTR YR 2002			-47,176

12193000 LAKE SHANNON AT CONCRETE, WA

LOCATION.--Lat 48°32'53", long 121°44'22", in SW $\frac{1}{4}$ sec.2, T.35 N., R.8 E., Skagit County, Hydrologic Unit 17110005, at Baker Dam on Baker River near left bank, 0.7 mi north of Concrete, and at mile 1.2.

DRAINAGE AREA. -- 297 mi2.

PERIOD OF RECORD. -- November 1925 to current year.

GAGE.--Water-stage recorder; prior to Nov. 11, 1959, water-stage indicator in powerplant. Datum of gage is NGVD of 1929. Prior to March 1959, at datum 1.72 ft lower. Period August 31, 1961, to September 30, 1991, at datum 0.15 ft higher.

REMARKS.--Reservoir is formed by concrete-arch and gravity dam, completed in June 1927; storage began in November 1925. Usable storage, 142,400 acre-ft between elevations 355 ft, minimum operating pool, and 438.6 ft, normal full pool. Dead storage unknown. Spillway crest is at elevation 424.9 ft. Water used by Puget Sound Energy for power generation. Capacity table furnished by Puget Sound Energy. Prior to Nov. 11, 1959, gage-height record furnished by Puget Sound Energy from powerplant log. Figures given herein represent contents above elevation 341.7 ft, center line of outlet tunnel. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 161,470 acre-ft Sept. 17, 1968, elevation, 439.50 ft; minimum contents since October 1953, 28,260 acre-ft Mar. 6, 1969, elevation, 363.7 ft, not determined prior to October 1953 because of incomplete records.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 157,852 acre-ft Nov. 18, elevation, 437.87 ft; minimum contents, 54,490 acre-ft Sept. 27, 29, elevation, 381.91 ft.

MONTHEND GAGE HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	425.19	131,294	
Oct. 31		155,962	+24,668
Nov. 30	436.19	154,174	-1,788
Dec. 31	427.95	136,831	-17,343
CAL YR 2001			+84,705
Jan. 31	424.45	129,830	-7,001
Feb. 28	431.80	144,789	+14,959
Mar. 31	422.23	125,476	-19,313
Apr. 30	424.01	128,961	+3,485
May 31	413.26	108,566	-20,395
June 30	437.17	156,314	+47,748
July 31		136,973	-19,341
Aug. 31		95,613	-41,360
Sept. 30		56,010	-39,603
WTR YR 2002			-75,284

12193500 BAKER RIVER AT CONCRETE, WA

LOCATION.--Lat $48^{\circ}32^{\circ}24^{\circ}$, long $121^{\circ}44^{\circ}31^{\circ}$, in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.11, T.35 N., R.8 E., Skagit County, Hydrologic Unit 17110005, on left bank at upstream side of fish barrier, 0.2 mi northeast of Concrete, 0.3 mi downstream from Baker River powerplant, and at mile 0.7.

DRAINAGE AREA. -- 297 mi².

PERIOD OF RECORD. -- September 1910 to March 1915, September 1943 to current year.

REVISED RECORDS.--WSP 1286: 1911-13(M), 1945-46, drainage area.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Prior to Mar. 5, 1915, nonrecording gage at site 0.2 mi downstream at different datum. Sept. 1, 1943, to Jan. 22, 1958, water-stage recorder at site 700 ft upstream at datum 172.6 ft above NGVD of 1929 (from river-profile survey). Jan. 23 to June 11, 1958, powerplant record. Supplementary water-stage recorder on left bank about 40 ft downstream from fish barrier and on tailrace of powerhouse at same datum.

REMARKS.--No estimated daily discharges. Records good except those below 200 ft³/s, which are poor. Flows on occasion may be affected by backwater from Skagit River during high flows. All diversions returned to river upstream from gage; at times, power generation is shut down for maintenance at Baker River or the fish-barrier dam causing the stage to drop below the control. Water is released through a valve-controlled pipe to the fish ladder located on the left bank just downstream from the gage and control. Flow regulated by Baker Lake (station 12191600) since July 1959 and Shannon Lake (station 12193000) since November 1925. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--63 years (water years 1911-14, 1944-2002), 2,660 ft³/s, 121.63 in/yr, 1,927,000 acre-ft/yr, adjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,600 ft³/s Nov. 19, 1962, elevation, 186.6 ft, computation of peak flow over dam; minimum daily discharge, 30 ft³/s Mar. 21-26, 1973, Apr. 26-28, May 7-9, 11, 1983, Apr. 20, 24-28, 1986.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19,800 ${\rm ft}^3/{\rm s}$ June 29, elevation, 181.59 ft; minimum daily discharge,74 ${\rm ft}^3/{\rm s}$, Sept. 30.

		DISCH	ARGE, CUBI	IC FEET PI		, WATER Y LY MEAN V	EAR OCTOB	ER 2001 T	O SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
DAI	001	INOV	DEC	UAN	FED	MAIN	AFK	MAI	UOIN	001	AUG	SEF
1	2460	4020	3950	1710	4120	3970	2910	4030	4430	4020	2730	1460
2	1550	4020	3940	1610	4120	3980	3070	4000	4320	4010	1680	2000
3	1500	4010	3950	1010	4100	3980	3270	3980	1720	4000	2730	1260
4	1140	4370	3940	2900	4180	3770	2890	3930	308	3990	2630	1920
5	748	4720	3960	3210	4220	3640	1890	3910	343	4010	2930	1910
6	769	3990	3980	2590	2900	2640	85	3900	675	4050	3890	2450
7	692	3980	4010	2960	1580	3210	922	2690	630	4050	2200	2430
8	800	4020	4000	5340	1620	3570	2460	2700	91	4050	2530	1210
9	1520	4030	3980	9740	1590	1060	507	2630	92	4050	2590	1210
10	1630	4050	3880	9300	1780	81	2830	118	2180	4040	2570	2460
11	1170	2790	2660	5190	2430	1210	3970	118	3980	3990	2590	2760
12	1430	4070	2530	4000	3070	3990	3980	1050	3980	3980	2570	2620
13	916	4060	1940	3980	2530	4030	3960	223	3970	3970	2480	2720
14	981	8260	3090	4010	80	3980	3890	100	3970	3960	2460	2540
15	1520	13900	4000	3930	80	947	3930	107	3870	3940	2500	2230
16	3110	10600	3900	3920	80	84	3970	112	3830	3930	2450	2700
17	3270	6880	3840	3970	2450	762	4020	120	3010	3920	2630	3900
18	3140	5630	3860	3960	2700	1710	4020	2790	3980	3950	2030	3920
19	3090	6230	3850	3950	3090	2490	4000	2670	3970	3950	1720	3910
20	1840	8360	3860	3950	3180	2860	3950	2940	1950	3920	2660	3980
21	775	6320	3760	3950	3380	2710	3960	2840	4000	3980	2540	4020
22	3200	5900	104	3980	306	1150	4000	3030	3940	3980	2470	3700
23	4070	3960	1180	3990	2570	83	4020	4030	3940	3970	2810	3910
24	4070	3940	1180	4010	3950	85	4020	2430	4770	3980	1060	3950
25	4080	3930	86	3980	3940	86	4010	4000	5360	3970	2320	3810
26	4090	3930	2750	3990	3980	1380	4000	4050	5310	3990	2830	2820
27	4080	3900	2560	4040	3840	952	3990	4080	8560	3980	2470	2580
28	4040	3900	2360	4100	2290	85	3980	4100	9650	4000	3210	116
29	4050	3920	2420	4120		85	3970	4390	13500	4010	3990	2390
30	4010	3940	2190	4020		85	3980	4410	7000	4030	2980	74
31	4040		2370	4110		86		4440		4060	1870	
TOTAL	73781	155630	94080	125520	74156	58751	100454	83918	117329	123730	79120	76960
MEAN	2380	5188	3035	4049	2648	1895	3348	2707	3911	3991	2552	2565
MAX	4090	13900	4010	9740	4220	4030	4020	4440	13500	4060	3990	4020
MIN	692	2790	86	1010	80	81	85	100	91	3920	1060	74
AC-FT	146300	308700	186600	249000	147100	116500	199300	166500	232700	245400	156900	152700
MEAN†	2358	4305	2405	3655	2572	1490	3488	3597	5855	3668	1732	1141
CFSM†	7.94	14.49	8.10	12.31	8.66	5.02	11.74	12.11	19.71	12.35	5.83	3.84
IN.†	9.15	16.17	9.33	14.19	9.02	5.79	13.10	13.96	21.99	14.24	6.72	4.29
AC-FT†	145000	256100	147900	224800	142800	91640	207500	221200	348300	225600	106500	67880

CAL YR 2001 TOTAL 768630 MEAN 2106 MAX 13900 MIN 47 AC-FT 1525000 MEAN† 2247 CFSM† 7.57 IN.† 102.71 AC-FT† 1627000 WTR YR 2002 TOTAL 1163429 MEAN 3187 MAX 13900 MIN 74 AC-FT 2308000 MEAN† 3019 CFSM† 10.16 IN.† 138.01 AC-FT† 2186000

 $[\]ensuremath{\dagger}$ Adjusted for change in contents in Baker Lake and Lake Shannon.

12194000 SKAGIT RIVER NEAR CONCRETE, WA

LOCATION.--Lat 48°31'28", long 121°46'11", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.16, T.35 N., R.8 E., Skagit County, Hydrologic Unit 17110007, on right bank at Dalles Bridge 1.3 mi southwest of Concrete, 2.4 mi downstream from Baker River, and at mile 54.1.

DRAINAGE AREA. -- 2,737 mi², of which 400 mi² is in Canada.

PERIOD OF RECORD. -- September 1924 to current year.

REVISED RECORDS.--WSP 1566: 1957. WSP 1736: 1948. WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 130.0 ft above NGVD of 1929. Prior to Dec. 10, 1924, nonrecording gage 200 ft upstream and Dec. 10, 1924, to Sept. 30, 1937, water-stage recorder at present site; both gages at datum 12.7 ft higher.

REMARKS.--Records good. Flow regulated by Ross Reservoir (station 12175000) and Diablo and Gorge Reservoirs, Baker Lake, and Lake Shannon (stations 12176500, 12177700, 12191600, 12193000). Chemical analyses November 1970 to September 1971, October 1973 to September 1974. U.S. Geological Survey satellite telemeter at station.

 $AVERAGE \ DISCHARGE. --78 \ years \ (water years 1925-2002), \ 15,070 \ ft^3/s, \ 10,920,000 \ acre-ft/yr, \ unadjusted.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 160,000 ft³/s Nov. 29, 1995, gage height, 41.57 ft; minimum discharge, probably less than 2,160 ft³/s during period Oct. 1-24, 1925, when recorder was not operating and gates in Baker River Dam were first closed; minimum daily recorded, 2,360 ft³/s Dec. 12, 1929.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of about 1815 reached a stage of 69.3 ft present datum, from floodmarks at site 200 ft upstream, discharge about 500,000 ft³/s. Records of other floods, prior to establishment of station, are given in WSP 1527.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 94,300 $\mathrm{ft^3/s}$ Jan. 8, gage height, 33.06 ft; minimum discharge, 3,370 $\mathrm{ft^3/s}$ Oct. 7.

1 6760 20900 15100 8710 16600 18700 14100 21600 25800 31200 13600 819 2 6500 18200 18200 19400 14300 14300 14300 14200 21200 22400 28500 12700 960 3101 14600 15500 14300 14300 14500 14300 14500 14300 1450			DISCH	ARGE, CUE	BIC FEET P	ER SECOND, DAIL	WATER Y		BER 2001 T	O SEPTEM	BER 2002		
2 6500 18200 16900 9410 16300 18000 14200 25500 25400 25500 12700 960 3 6101 16400 15500 14400 16400 16900 13500 17900 23400 23800 11700 921 5 4770 16700 14300 14500 16200 16800 13500 17900 23400 23800 11700 921 6 4 5390 14400 13900 14500 16200 16900 13500 17900 23400 23800 11700 921 6 4 4290 14800 13900 14900 15400 15200 12700 17700 28200 22600 13300 822 7 44010 13100 13800 49200 14300 15600 16000 22700 24600 111100 742 8 4 4750 12200 13500 79700 13100 15600 15600 16600 22700 24600 111100 742 9 6 630 11900 14300 34700 12900 12900 13000 16000 16300 16300 27400 11100 6230 10900 14300 34900 12700 18000 17600 13600 16300 27400 11100 6400 12700 12700 12700 12700 12800 19900 25200 33100 1900 810 11 7460 9510 12700 26000 13700 15700 15600 16300 27400 33100 1900 851 12 7690 11000 12200 24200 13800 22000 22500 14400 29900 35600 18200 851 13 9270 13800 15500 23900 13100 16600 27400 14400 29900 35600 18200 857 14 8 8 8 700 64800 19100 22800 9910 14400 31400 16700 37200 33600 12700 857 15 6710 64800 19100 28800 9910 14400 31400 16700 37200 33600 12700 766 16 9220 42700 26900 19700 9790 1700 23900 15700 37200 30600 12700 766 16 9220 42700 26900 19700 9790 1700 23900 15700 37200 30600 12700 766 18 9410 20400 24400 18400 12900 13600 18700 29000 25000 24300 10000 969 19 19 10900 19500 19800 18400 12900 13800 18700 29000 25000 24300 10000 969 19 1 1900 19500 19800 18400 13800 18500 18700 29000 32000 23000 9500 887 22 1 1200 22700 13000 16400 18800 18700 25000 32000 32400 32000 9900 19000 17000 1700 1700 1700 1700	DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
6 4390 14800 13900 14900 15400 15200 12700 17700 28200 22600 13300 822 7 4010 13100 13800 49200 14300 15700 15600 16600 22700 24600 11100 724 8 4750 12200 13800 79700 13100 15600 15600 16300 18200 29900 10800 613 9 6030 11900 14900 47700 12900 12900 13100 13600 15300 27400 11100 654 10 6230 10900 14900 34900 17700 1800 17600 12800 19500 26300 12000 810 11 7460 9510 12700 26000 13700 15700 19600 12800 19500 25300 33100 1900 810 12 7590 11000 12200 24200 13800 2000 22500 14400 29800 35100 1800 845 13 9270 13800 15500 23900 13100 19600 27400 16400 35900 35100 12000 851 14 8480 46700 24200 21200 10100 18600 43700 17600 37200 33100 12000 851 15 8710 64800 19100 20800 9910 14400 31400 16700 37200 30600 12770 766 16 9220 42700 26900 19700 9790 12700 23900 15700 35900 27800 11600 839 17 9720 26600 38300 19000 12400 12600 20800 17000 29600 26200 11200 1100 18 9410 20400 24400 14400 12900 13600 18700 29000 30500 24300 1000 969 19 10300 19500 19300 19300 19300 1600 18700 29000 30500 24300 1000 969 19 10300 19500 19000 18100 13800 14000 18700 29000 30500 24300 10000 969 19 10300 19500 19000 18100 13800 14000 18500 25300 22300 22300 30500 887 20 11000 28000 17000 617900 14600 14600 18200 23700 24500 22300 9200 722 21 13200 22700 10300 617900 57200 11900 18200 23300 32100 22800 9200 722 22 13200 22100 10600 17500 47600 14000 18200 23300 32100 22800 9200 722 22 13200 22100 10600 17500 47600 14000 18200 23400 3400 22800 9300 724 24 18400 17600 9970 19000 31300 16600 16800 19900 31000 23400 860 877 22 13200 22000 15000 17500 47600 14000 17000 24000 34000 23400 860 877 23 12500 15300 1800 18700 20800 13000 17000 24200 39400 31000 23400 860 877 24 18400 17600 9970 19000 31300 16000 16800 16800 19900 31000 23400 860 877 25 15800 15000 18000 17500 47600 14000 18200 25000 33000 6000 12000 6850 470 26 15800 15000 15000 17500 47600 14000 12700 23400 34200 22600 10300 685 27 15900 15300 15000 15000 17500 47600 14000 12700 12800 13000 19800 19900 10900 41000 18700 19800 18000 18000 18700 19800 19800 19800 19900 10900 41000 18000 17900	2 3 4	6500 6110 5390	18200 16400 14400	16900 15500 14700	9410 11400 14700	16300 16300 16400	18000 17500 16900	14200 14000 13500	23500 21200 17900	25400 24300 23400	28500 25500 23800	12700 12600 11700	8190 9600 10100 9210
9 6330 11990 14900 44700 12900 12900 13100 13600 16300 27400 11100 654 10 6320 10900 14300 34900 12700 11800 17600 12800 12900 25200 33100 11900 851 11 7460 9510 12700 26000 13700 15700 19600 12900 25200 33100 11900 851 12 7690 11000 12200 24200 13800 22000 22500 14400 29800 35600 11200 851 13 9270 13800 15500 23900 13100 19600 27400 16400 33500 35100 12200 857 14 8480 46700 24200 21200 10100 18600 43700 17600 37200 33600 12700 824 15 8710 64800 19100 20800 9910 14400 31400 16700 37200 36000 12700 824 15 8710 64800 19100 20800 9910 14400 31400 16700 37200 36000 12700 824 15 8710 64800 19100 20800 9910 14000 12700 2900 37200 3600 12700 824 16 9220 42700 26900 19700 9790 1200 12700 23900 15700 35900 26200 11000 1800 1800 1800 1800 1800 1800	6 7	4390 4010	14800 13100	13900 13800	14900 49200	15400 14300	15200 15700	12700 15600	17700 16600	28200 22700	22600 24600	13300 11100	8220 7240
12	9	6030	11900	14900	47700	12900	12900	13100	13600	16300	27400	11100	6130 6540 8100
16	12 13 14	7690 9270 8480	11000 13800 46700	12200 15500 24200	24200 23900 21200	13800 13100 10100	22000 19600 18600	22500 27400 43700	14400 16400 17600	29800 33500 37200	35600 35100 33600	11800 12200 12700	8510 8450 8570 8240
18	16	9220	42700	26900	19700	9790	12700	23900	15700	35900	27800	11600	7660 8390 11000
22 13200 22700 10300 e17900 57200 11900 18200 23300 32100 22800 9200 792 23 20800 20100 10600 17500 47600 10400 17700 23000 32600 23000 9420 805 24 18400 17600 9970 19000 31300 10600 16800 19900 31000 23400 8260 808 25 16500 15700 8360 22600 24800 10800 16800 21500 31200 22900 10000 794 26 15800 15000 11000 20100 22700 12900 17200 23400 34200 22600 10300 685 27 19500 15300 10800 18700 20800 13000 17000 24200 39400 21100 9780 699 28 16300 14500 10200 17800 17900 12300 16700 29900 39100 19900 10900 431 29 14300 14800 9950 17200 11300 17200 37000 53900 20600 12200 617 30 13600 14500 9330 16800 11200 18400 33800 37300 18500 10200 617 31 21100 9440 16800 10500 30300 16300 8670 TOTAL 323860 608310 472050 696920 516900 446100 563000 644700 900100 789400 343580 23907 MEAN 10450 20280 15230 22480 18460 14390 18770 20800 30000 25460 11080 796 MAX 21100 64800 38300 79700 57200 22000 43700 37000 53900 35600 13600 1100 MIN 4010 9510 8360 8710 9790 10400 12700 12800 16300 16300 8260 420 AC-FT 642400 1207000 936300 1382000 1025000 884800 1117000 1279000 1785000 1566000 681500 47420 STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 2002, BY WATER YEAR (WY) MEAN 11130 15570 15980 14790 13800 12140 13810 20400 24590 19300 10860 847 MAX 22550 49160 34660 25240 28840 23380 29270 36310 43320 37430 20930 1640 (WY) 1968 1991 1976 1935 1991 1972 1934 1925 1972 1972 1974 1941 194 SUMMARY STATISTICS FOR 201 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1925 - 2002 ANNUAL TOTAL 4010760 6543990 ANNUAL MEAN 10990 17930 17930 17930 15070 HIGHEST ANNUAL MEAN 10990 17930 17930 17930 15070 LOWEST ANNUAL MEAN 10990 17930 17930 17930 15070 LOWEST ANNUAL MEAN 10990 17930 17930 17930 15070 LOWEST ANNUAL MEAN 10990 17930 17930 17930 15070	19	10900	19500	19800	18100	12900 13800	14300	18500	19700	28100	24300	9600	9690 8870 9110
26	22 23 24	13200 20800 18400	22700 20100 17600	10300 10600 9970	e17900 17500 19000	57200 47600 31300	11900 10400 10600	18200 17700 16800	23300 23000 19900	32100 32600 31000	22800 23000 23400	9200 9420 8260	8550 7920 8050 8080
29 14300 14800 9950 17200 11300 17200 37000 53900 20600 12200 617 30 13600 14500 9330 16800 11200 18400 3800 37300 18500 10500 420 31 21100 9440 16800 10500 30300 16300 8670 TOTAL 323860 608310 472050 696920 516900 446100 563000 644700 900100 789400 343580 23907 MEAN 10450 20280 15230 22480 18460 14390 18770 20800 30000 25460 11080 796 MAX 21100 64800 38300 79700 57200 22000 43700 37000 53900 35600 13600 1100 MIN 4010 9510 8360 8710 9790 10400 12700 12800 16300 16300 8260 420 AC-FT 642400 1207000 936300 1382000 1025000 884800 1117000 1279000 1785000 1566000 681500 47420 STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 2002, BY WATER YEAR (WY) MEAN 11130 15570 15980 14790 13800 12140 13810 20400 24590 19300 10860 847 MAX 22550 49160 34660 25240 28840 23380 29270 36310 43320 37430 20930 1640 (WY) 1968 1991 1976 1935 1991 1972 1934 1925 1972 1972 1976 195 MIN 3808 2876 5289 4485 3195 6224 7716 11440 12300 8856 6403 485 (WY) 1926 1937 1930 1930 1929 1929 2001 1977 1926 1977 1941 194 SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1925 - 2002 ANNUAL TOTAL 4010760 6543990 ANNUAL MEAN 10990 17930 17930 15070 1991 LOWEST ANNUAL MEAN 2000 1000 1000 1000 1000 1000 1000 100	26 27	15800 19500	15000 15300	11000 10800	20100 18700	22700 20800	12900 13000	17200 17000	23400 24200	34200 39400	22600 21100	10300 9780	6850 6990
MEAN	29 30	14300 13600	14800 14500	9950 9330	17200 16800		11300 11200	17200 18400	37000 33800	53900 37300	20600 18500	12200 10500	6170 4200
MEAN 11130 15570 15980 14790 13800 12140 13810 20400 24590 19300 10860 847 MAX 22550 49160 34660 25240 28840 23380 29270 36310 43320 37430 20930 1640 (WY) 1968 1991 1976 1935 1991 1972 1934 1925 1972 1972 1976 195 MIN 3808 2876 5289 4485 3195 6224 7716 11440 12300 8856 6403 485 (WY) 1926 1937 1930 1930 1929 1929 2001 1977 1926 1977 1941 194 SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1925 - 2002 ANNUAL MEAN 10990 17930 15070 191 191 194 LOWEST ANNUAL MEAN 10990 17930 17930	MEAN MAX MIN	10450 21100 4010	20280 64800 9510	15230 38300 8360	22480 79700 8710	18460 57200 9790	14390 22000 10400	18770 43700 12700	20800 37000 12800	30000 53900 16300	25460 35600 16300	11080 13600 8260	239070 7969 11000 4200 474200
MAX 22550 49160 34660 25240 28840 23380 29270 36310 43320 37430 20930 1640 (WY) 1968 1991 1976 1935 1991 1972 1934 1925 1972 1972 1976 195 MIN 3808 2876 5289 4485 3195 6224 7716 11440 12300 8856 6403 485 (WY) 1926 1937 1930 1930 1929 1929 2001 1977 1926 1977 1941 194 SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1925 - 2002 ANNUAL TOTAL 4010760 6543990 ANNUAL MEAN 10990 17930 15070 HIGHEST ANNUAL MEAN 21270 1991 LOWEST ANNUAL MEAN 9512 2001	STATIS	STICS OF	MONTHLY M	EAN DATA	FOR WATER	YEARS 192	5 - 2002	2, BY WATE	R YEAR (W	Y)			
ANNUAL TOTAL 4010760 6543990 ANNUAL MEAN 10990 17930 15070 HIGHEST ANNUAL MEAN 21270 1991 LOWEST ANNUAL MEAN 9512 2001	MAX (WY) MIN	22550 1968 3808	49160 1991 2876	34660 1976 5289	25240 1935 4485	28840 1991 3195	23380 1972 6224	29270 1934 7716	36310 1925 11440	43320 1972 12300	37430 1972 8856	20930 1976 6403	8478 16400 1959 4852 1942
ANNUAL MEAN 10990 17930 15070 HIGHEST ANNUAL MEAN 21270 1991 LOWEST ANNUAL MEAN 9512 2001	SUMMAR	RY STATIS	STICS	FOF	2 2001 CAL	ENDAR YEAR		FOR 2002	WATER YEA	R	WATER YE	ARS 1925 ·	- 2002
Highest Daily Mean 4010 Sep 22 4010 Oct 7 2360 Dec 12 1929	ANNUAL HIGHES LOWEST	MEAN TANNUAL ANNUAL	MEAN	м	10990	Nov 15 Sep 22 Mar 1		79700 4010 5060 12980000 30100 16200	Jan Oct Oct	8 7 3	21270 9512 135000 2360 2400 10920000 26200 12800	Dec 12	2001 0 1990 2 1929

e Estimated

12199000 SKAGIT RIVER NEAR SEDRO WOOLEY, WA

LOCATION.--Lat $48^{\circ}29^{\circ}03^{\circ}$, long $122^{\circ}14^{\circ}31^{\circ}$, in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.36, T.35 N., R.4 E., Skagit County, Hydrologic Unit 17110007, on left bank pier of bridge on State Highway No. 9, 1.0 mi south of Sedro Wooley, and at mile 22.3.

DRAINAGE AREA. -- 3,015 mi2, of which 400 mi2 is in Canada.

PERIOD OF RECORD.--May 1908 to December 1923, February 1975 to June 1980 (discharge). December 1998 to current year (gage heights only).

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (Washington State Department of Transportation benchmark). January 21, 1975, to June 1980 at datum 15.46 ft lower. May 1, 1908, to December 31, 1923, nonrecording gage at site 200 ft upstream (datum uncertain).

REMARKS.--Flow regulated for powerplants on Baker and upper Skagit Rivers by Ross Reservoir (see sta 12175000) and by Diablo and Gorge Reservoirs (see sta 12176500 and 12177700), Baker Lake (12191600) and Lake Shannon (12193000). Small diversions for domestic and municipal use. Chemical analyses October 1975 to September 1979. U.S. Geological Survey satellite and telephone telemeters at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation since February 1975, 41.56 ft Dec. 4, 1975; maximum gage height, 56.5 ft Nov. 30, 1909, datum then in use. Minimum observed, 32.3 ft Sept. 29-30, Oct. 10-15, 1915, datum then in use.

EXTREMES FOR PERIOD OF RECORD (SINCE 1998).--Maximum elevation 39.21 ft Nov. 13, 1999; minimum elevation 22.28 ft, Oct. 7, 8, 2001.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of about 1815 reached an elevation of approximately 54.6 ft.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 38.99 ft Jan. 8; minimum, 22.28 ft Oct. 7, 8.

	GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.86	27.63	25.99	24.12	26.14	26.72	25.71	27.20	28.52	29.77	25.63	23.92
2	23.22	26.71	26.67	24.42	26.06	26.53	25.90	27.73	28.25	29.06	25.30	24.26
3	23.16	26.31	26.09	24.76	26.07	26.37	25.77	27.47	28.14	28.40	25.42	24.62
4	23.16	25.63	25.78	25.63	26.15	26.24	25.68	26.60	27.74	27.93	25.11	24.39
5	22.78	26.04	25.60	25.59	26.09	26.22	25.58	26.40	28.05	27.69	25.14	24.08
6 7 8 9	22.73 22.33 22.69 23.06 23.07	25.77 25.34 24.91 24.92 24.57	25.55 25.52 25.49 25.89 25.70	25.70 30.95 38.02 35.65 31.28	26.07 26.19 25.47 25.44 25.34	25.84 25.83 25.91 25.50 25.04	25.81 26.58 26.25 25.87 27.13	26.38 26.27 26.10 25.62 25.37	28.97 27.91 26.91 26.35 26.69	27.54 27.81 28.70 28.78 28.22	25.40 25.04 24.77 24.83 25.02	24.00 23.81 23.48 23.55 23.85
11	23.49	24.46	25.29	28.87	25.57	25.72	27.40	25.39	27.94	29.24	25.05	23.97
12	23.70	24.19	25.06	28.31	25.49	27.91	28.10	25.55	28.93	30.06	24.98	24.05
13	24.07	25.03	26.26	28.39	25.40	27.10	29.35	26.34	29.73	30.02	25.07	24.05
14	23.86	29.65	29.25	27.59	24.85	26.76	32.43	26.59	30.60	29.84	25.17	24.06
15	24.21	36.43	27.44	27.28	24.58	26.06	31.12	26.41	30.78	29.28	25.21	23.83
16	23.92	33.93	28.98	27.00	24.52	25.41	28.69	26.11	30.53	28.65	25.00	23.93
17	24.10	29.37	32.49	26.78	24.87	25.32	27.69	26.33	29.38	28.31	24.84	24.70
18	24.15	27.34	28.98	26.58	25.25	25.34	27.15	27.09	29.33	27.89	24.64	24.48
19	24.48	26.68	27.45	26.51	25.45	25.61	26.87	27.03	29.07	27.83	24.62	24.24
20	24.98	28.54	26.56	26.49	25.75	25.67	26.97	27.46	28.09	27.58	24.45	24.22
21	23.95	28.34	26.06	26.53	26.48	25.60	26.74	28.16	28.84	27.39	24.49	24.11
22	24.83	27.89	25.05	26.41	33.74	25.36	26.77	27.73	29.49	27.45	24.36	23.95
23	27.43	27.35	24.72	26.33	35.72	24.81	26.74	27.70	29.74	27.50	24.33	23.93
24	27.09	26.64	24.60	26.73	30.92	24.86	26.44	27.03	29.29	27.56	24.37	23.94
25	26.44	26.09	24.37	28.02	28.59	24.93	26.37	27.22	29.35	27.51	24.21	23.93
26 27 28 29 30 31	26.16 27.03 26.43 25.65 25.36 26.97	25.74 25.80 25.59 25.81 25.77	24.43 24.69 24.66 24.52 24.33 24.32	27.32 26.82 26.52 26.33 26.21 26.20	27.92 27.39 26.65 	25.20 25.41 25.54 25.18 25.14 24.92	26.50 26.41 26.32 26.40 26.56	27.63 27.86 28.84 30.44 30.34 29.45	29.67 30.68 30.95 33.47 32.05	27.44 27.19 26.94 26.97 26.74 26.30	24.59 24.56 24.55 25.01 24.91 24.22	23.62 23.44 23.27 22.96 23.11
MEAN	24.43	26.95	26.06	27.53	26.72	25.74	27.04	27.16	29.18	28.12	24.85	23.93
MAX	27.43	36.43	32.49	38.02	35.72	27.91	32.43	30.44	33.47	30.06	25.63	24.70
MIN	22.33	24.19	24.32	24.12	24.52	24.81	25.58	25.37	26.35	26.30	24.21	22.96

WTR YR 2002 MEAN 26.47 MAX 38.02 MIN 22.33

12200500 SKAGIT RIVER NEAR MOUNT VERNON, WA

LOCATION.--Lat $48^{\circ}26^{\circ}42^{\circ}$, long $122^{\circ}20^{\circ}03^{\circ}$, in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.7, T.34 N., R.4 E., Skagit County, Hydrologic Unit 17110007, on right bank 220 ft downstream of bridge on U.S. Highway 99, 1.5 mi north of Skagit Valley Junior College in Mount Vernon, and at mile 15.7.

DRAINAGE AREA.--3,093 mi^2 , of which 400 mi^2 is in Canada.

PERIOD OF RECORD.--October 1940 to current year. Monthly discharge only October 1940, published in WSP 1316.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Supplementary water-stage recorder in bridge pier 0.2 mi downstream from base gage from Dec. 3, 1957, to Oct. 15, 1964. Water-stage recorder located on downstream pier of the Highway 99 bridge from Oct. 15, 1964, to Jan. 6, 1993.

REMARKS.--No estimated daily discharge. Records good. Flow regulated by Ross Reservoir (station 12175000) and Diablo and Gorge Reservoirs, Baker Lake, and Lake Shannon (stations 12176500, 12177700, 12191600, 12193000). Small diversions for domestic and municipal use. Chemical analyses July 1959 to September 1971, October 1973 to September 1994. Prior to November 1962, published as "at Lawrence." U.S. Geological Survey satellite telemeter at station. Specific conductance February 1974 to November 1981. Water temperature July 1962 to August 1970, February 1974 to November 1981.

AVERAGE DISCHARGE.--62 years (water years 1941-2002), 16,640 ft³/s, 12,060,000 acre-ft, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 152,000 ${\rm ft}^3/{\rm s}$ Nov. 25, 1990, elevation, 37.37 ft, from floodmarks; minimum discharge, 2,740 ${\rm ft}^3/{\rm s}$ Oct. 26, 1942, elevation, 7.37 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1906 reached a stage of 37 ft, from Great Northern Railway high-water profile, discharge 180,000 ft^3/s .

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 50,000 $\mathrm{ft^3/s}$ and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 15	1445	69,000	27.83	Feb. 23	0730	71,200	28.21
Dec. 17	1345	52,700	24.70	Apr. 14	2115	53,600	24.88
Jan. 09	0015	*80,800	*29.78	Jun. 29	1900	59,000	25.98

Minimum discharge, 4,530 ft³/s Oct. 8.

		DISCH	ARGE, CUE	SIC FEEL P	ER SECOND, DAIL	Y MEAN		ER 2001 1	O SEPIEM	3ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5740	23600	17400	10300	17800	20400	15100	22500	29100	34600	14800	8310
2	7200	19800	20900	10900	17400	19700	16600	25100	27100	30800	13300	9370
3	7040	18200	18500	12200	17300	18900	15800	24500	26900	27700	13800	10700
4	6980	15500	17000	15500	17700	18300	15200	20500	24800	25400	12500	10100
5	6070	16600	16100	15800	17400	18100	14900	19000	25800	24300	12700	8940
6	5680	16100	15900	16000	17200	16500	15500	18900	30200	23500	13800	8650
7	4740	14300	15700	35700	18000	16400	18900	18800	26300	24600	12400	8110
8	5470	12600	15500	73700	15300	16700	17900	17500	21600	28500	11200	7050
9	6290	12600	17200	69500	14800	15300	16400	16100	18600	30200	11400	7120
10	6510	11500	16800	44500	14200	13000	21000	14500	19500	26800	12200	8030
11	7790	11300	14800	31400	14900	14800	23200	14200	25000	30900	12400	8490
12	8350	9840	13800	27200	14900	25600	25500	14700	29400	35700	12100	8780
13	9720	12600	17800	28100	14500	22300	31100	18000	33300	35800	12400	8800
14	9140	28000	32300	24400	12500	20700	45400	19500	37600	35000	12900	8860
15	10100	63800	25600	22900	11100	18000	42600	19000	39000	32300	13100	8130
16	9160	56900	29700	21600	10800	14800	29700	17700	37800	29100	12300	8370
17	9670	34800	48400	20500	11800	14300	24800	18300	32800	27300	11600	11100
18	9940	24200	33200	19700	13700	14200	22200	21400	31600	25400	10800	10400
19	10900	20800	25200	19300	14600	15300	20900	21700	31000	24900	10700	9530
20	12900	27800	21000	19200	16000	16000	21200	23300	26200	23900	10000	9360
21	9740	28100	18500	19400	18000	15600	20400	26800	29000	23000	10300	9050
22	11400	26300	14300	19000	49700	14800	20400	25300	32100	23200	9750	8490
23	21500	23900	12400	18600	66600	12200	20300	24900	33700	23500	9640	8350
24	21800	21000	11900	20000	42800	12200	19100	22400	32100	23700	10100	8380
25	18600	18300	11000	26100	30000	12400	18500	22700	32300	23600	8830	8350
26	17600	16500	10700	23700	26200	13400	18900	24300	33400	23200	10700	7410
27	20400	16700	12100	21200	23600	14300	18600	25500	38300	22200	10600	6890
28	19100	15900	12000	19700	20500	15100	18400	29200	40700	20900	10400	6870
29	15700	16800	11400	18800		13600	18800	37100	51300	20800	12300	5400
30	14400	16900	10700	18200		13300	19700	38200	48000	20100	12000	6270
31	19300		10600	18000		12400		33400		17900	9350	
TOTAL	348930	651240	568400	761100	579300	498600	647000	695000	944500	818800	360370	253660
MEAN	11260	21710	18340	24550	20690	16080	21570	22420	31480	26410	11620	8455
MAX	21800	63800	48400	73700	66600	25600	45400	38200	51300	35800	14800	11100
MIN	4740	9840	10600	10300	10800	12200	14900	14200	18600	17900	8830	5400
AC-FT	692100	1292000	1127000		1149000	989000	1283000	1379000	1873000		714800	503100
AC-FI	692100	1292000	1127000	1310000	1143000	363000	1203000	13/9000	16/3000	1624000	714000	303100
STATIS	STICS OF	MONTHLY M	EAN DATA	FOR WATER	YEARS 194	1 - 200	2, BY WATE	R YEAR (W	IY)			
MEAN	12290	18160	18780	17580	16750	14280	15060	20540	24750	20380	11780	9369
MAX	23710	52550	37930	27220	31140	27010	23360	36530	43460	37650	21890	17540
(WY)	1968	1991	1976	1974	1951	1972	1943	1946	1972	1972	1999	1959
MIN	4323	6592	8358	7636	7626	6856	8857	12460	13430	9310	6441	5023
(WY)	1943	1944	2001	1942	1942	1942	1973	1970	1992	1977	1941	1942
SUMMAR	Y STATIS	STICS	FOR	R 2001 CAL	ENDAR YEAR		FOR 2002	WATER YEA	I R	WATER YE	ARS 1941 -	- 2002
A NINIT TA T	TOTAL			4475180			7126900					
ANNUAL				12260			19530			16640		
	T ANNUAL	MIDAN		12200			19030			23140		1991
	' ANNUAL			62000	Nov. 15		72700	Tor	0	10500	Morr Of	2001
	T DAILY			63800	Nov 15		73700	Jan		142000	Nov 25	
	DAILY M			4740 5710	Oct 7		4740	Oct		3050	Oct 26	
		DAY MINIMU		5710	Mar 1		5960	Oct	4	3530	Oct 22	2 1942
		(AC-FT)		8877000			14140000			12060000		
	CENT EXC			19200			32100			27400		
	CENT EXC			10300			17900			14600		
90 PER	CENT EXC	CEEDS		6850			9100			7910		

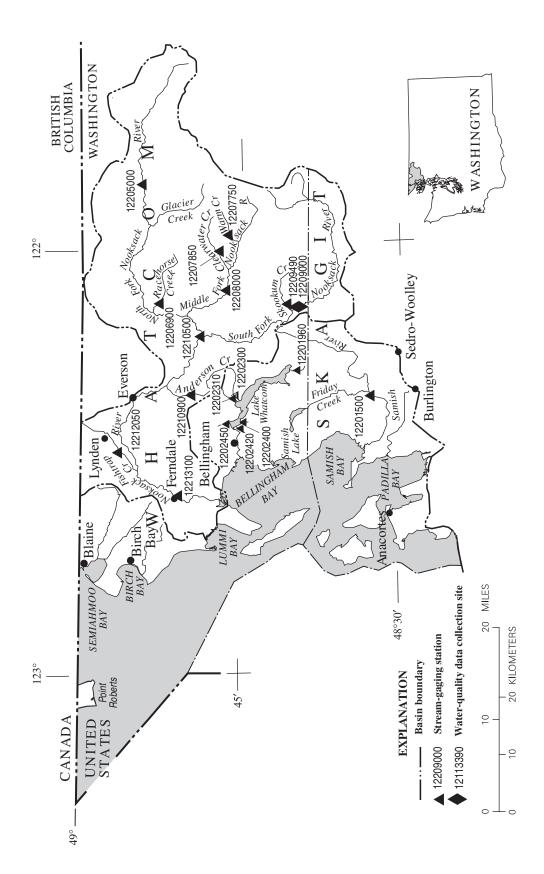


Figure 33. Location of surface-water stations in the Nooksack River and Samish River Basins.

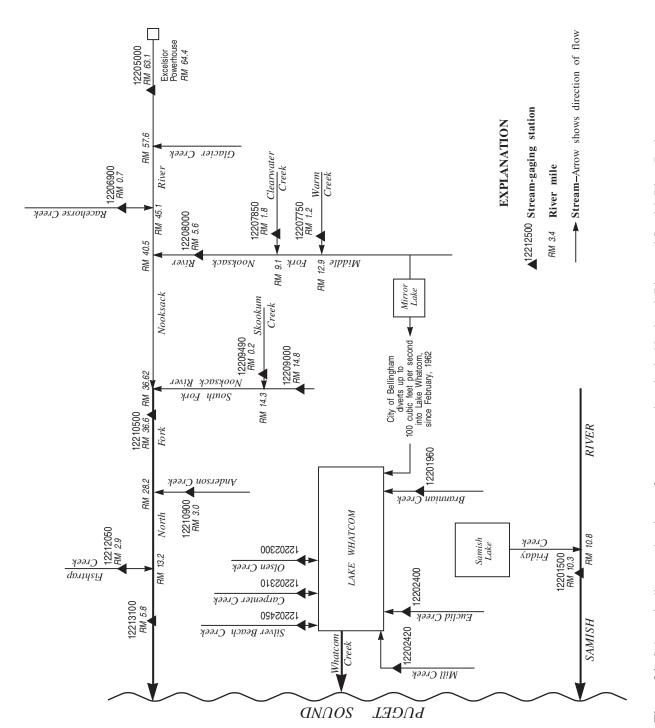


Figure 34. Schematic diagram showing surface-water stations in the Nooksack River and Samish River Basins.

276 SAMISH RIVER BASIN

12201500 SAMISH RIVER NEAR BURLINGTON, WA

LOCATION.--Lat $48^{\circ}32^{\circ}46^{\circ}$, long $122^{\circ}20^{\circ}13^{\circ}$, in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.6, T.35 N., R.4 E., Skagit County, Hydrologic Unit 17110004, on left bank, 0.5 mi downstream from Friday Creek, 300 ft downstream from bridge on U.S. Highway 99, 5.0 mi north of Burlington, and at mile 10.3.

DRAINAGE AREA. -- 87.8 mi².

PERIOD OF RECORD.--July 1943 to September 1971, annual maximum water years 1972-79, miscellaneous dischage measurements 1972-74, 1976-96, October 1996 to current year.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1286: 1944(M), 1945.

GAGE.--Water-stage recorder. Elevation of gage is 45 ft above NGVD of 1929, from topographic map. Prior to Dec. 1, 1948, at site 500 ft upstream at datum 0.75 ft higher. Dec. 1, 1948, to Jan. 7, 1949, nonrecording gage 200 ft upstream at datum 3.14 ft higher than present datum.

REMARKS.--No estimated daily discharges. Records good. State fish hatchery on Friday Creek diverts about 4 ft³/s, which is returned upstream from station. Slight regulation and there may be some pumping for irrigation. Chemical analyses 1959-70, 1973-74, 1977 to June 1980. Water temperatures March 1973 to April 1974.

 $AVERAGE \ DISCHARGE.--34 \ years \ (water \ years \ 1944-71, \ 1997-2002), \ 247 \ ft^3/s, \ 38.29 \ in/yr, \ 179,300 \ acre-ft/yr.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,830 ft³/s Dec. 28, 1949, gage height, 11.89 ft; minimum discharge, 11 ft³/s July 10, 1951.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

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

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 14	0800	*2,980	*10.63	Jan. 25	0800	1,930	8.99
Dec. 16	1930	1,950	9.02	Feb. 23	0200	2,600	10.07

Minimum discharge, 23 ft³/s Sept. 25.

			,		DAILY	MEAN V	ALUES					
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	446	582	246	502	400	550	204	136	145	39	28
2	47	354	699	281	476	352	451	204	127	121	38	30
3	47	280	603	261	520	319	380	198	120	104	37	33
4	45	239	560	240	540	292	336	188	115	98	44	30
5	40	255	564	222	484	288	323	237		145 121 104 98 91	64	28
6	39	215 185 163 144	679	222	476	263	428	256	121	82	49	28
7 8	41	185	719	332	479	243 226	660	229	107	140	45 43	27 28
9	41 44	163	714 961	5/6	5U3	218	497	199	96	142	43	28 27
10	49	132	679 719 714 861 758	222 332 576 553 417	476 479 503 484 436	211	428 660 497 465 733	256 229 199 183 168	91	101	39	26
11	59	119 114 118 505 655	641	341 463 534 444 356	415	274	574	159	89	89 77 70 65 61	37	26
12	59	114	647	463	365	344	565	156	92	77	38	26
13	70	118	1510	534	326	341	620	176	93	70	36	25
14	83 73	505	2560	444	291	355	892	319	87	65	35	25
												24
16	70 71	571	1790	318	248 238 299 321 338	439	784	202	78	57 54 53 52 52	34	30
17	71	457	1720	284	238	355	659	264	72	54	34	47
18	76	353	1190	262	299	323	540	236	197	53	32	31
19 20	76 294 177	295	1070	392	321	605	455	207	186	52	31	29 36
21	154	245	689	412	630	525	355	225	133	49	31	31
22	293	308	573	417	1910	481	338	208	113	47	31	30
23	336	518	488	433	2240	461	326	190	89	45	30	30 28
25	154 293 336 345 546	354	369	1670	847	428	263	159	75	49 47 45 44 42	30	28
26	410	318	330	1240	650	415	247	156	71	41 40 45 45 43	30	27
27	820	356	301	851	540	423	236	156	67	40	31	27
28	528	397	290	655	463	683	217	165	80	45	28	27
29	356	629	269	530		591	206	169	227	45	28	30
30	263	644	247	466		512	201	178	178	43	28	31
			251	520		459		149		41	28	
		10084	24619	15126	16577	12344	13767	6199	3384	2195	1108	873
MEAN	190	336	794	488	592	398	459	200	113	70.8	35.7	29.1
MAX	820	655	2560	1670	2240	694	892	319	227	145	64	47
MIN AC-FT	39 11660	114	40020	2000	238	24400	201	12200	6710	40	2200	1720
CFSM	2.16	20000 3.83	40030	5 56	52000	4 54	E 22	2 20	1 20	0 01	0.41	1/30
IN.	2.49	4.27	10.43	6.41	7.02	5.23	5.83	2.63	1.43	2195 70.8 145 40 4350 0.81 0.93	0.47	1730 0.33 0.37
STATIS'	TICS OF M							R YEAR (WY)				
MEAN	146	316	465	513	463	356	285	182	110	59.9	38.4	46.1
MAX	497	649	893	992	988	698	477	328	208	156	83.5 1954	134
(WY)	1957	1946	2000	1971	1961	1950	1959	2000	2000	1999	1954	1959
MIN	25.5	30.4	89.2	203	236	173	151	84.3	41.2	23.0	19.0	21.0
(WY)	1953	1953	1953	1949	1963	1970	1944	182 328 2000 84.3 1958	1958	1958	1958	1951
SUMMAR	Y STATIST	CICS	FOR	2001 CALE	NDAR YEAR		FOR 2002	WATER YEAR		WATER YEARS	1943 -	2002
ANNUAL	TOTAL			85044			112155					
ANNUAL HIGHES	MEAN Τ ΔΝΝΠΙΔΙ.	MFAN		233			307			247 340 123 5020 16 18 179300 2.82 38.29 539 174 31		1997
LOWEST	ANNITAL M	EAN								123		1944
HIGHES'	T DAILY M	IEAN		2560	Dec 14		2560	Dec 14		5020	Dec 28	1949
LOWEST	DAILY ME	AN		27	Sep 13		24	Sep 15		16	Aug 26	1958
ANNUAL	SEVEN-DA	MUMINIM Y		30	Aug 14		26	Sep 9		18	Aug 20	1958
ANNUAL	RUNOFF (AC-FT)		168700			222500			179300		
ANNUAL	RUNOFF (CFSM)		2.6	5		3.	50		2.82		
ANNUAL	RUNOFF (INCHES)		36.0	3		47.	52		38.29		
10 PER	CENI EXCE	EDS		495			645			539		
OU DER	CENT EXCE	בחבי פחשי		37 27			∠36 31			1/4 31		
>∪ PER	CDIVI BACE	טעעוו		31			21			21		

12201960 BRANNIAN CREEK AT SOUTH BAY DRIVE NEAR WICKERSHAM, WA

LOCATION.--Lat $48^{\circ}40^{\circ}08^{\circ}$, long $122^{\circ}16^{\circ}48^{\circ}$, in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.27, T.37 N., R.3 E., Whatcom County, Hydrologic Unit 17110002, on right bank 200 ft downstream from South Bay Road on the southeast shore of Lake Whatcom, 11 mi southeast of Bellingham and at mile 0.3.

DRAINAGE AREA. -- 3.36 mi².

PERIOD OF RECORD. -- October 2001 to September 2002.

GAGE.--Water-stage recorder. Elevation of gage is 330 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair, except for discharges below 3 ft3/s and above 100 ft3/s, and estimated discharges, which are poor.

AVERAGE DISCHARGE.--1 year (water year 2002) 12.1 ft³/s, 48.72 in/yr, 8,730 acre-ft/yr.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 307 $\mathrm{ft^3/s}$ Dec. 13, gage height 6.62 ft, from rating curve extended above 38 $\mathrm{ft^3/s}$; minimum daily discharge, 0.12 $\mathrm{ft^3/s}$ Aug. 30-31, Sept. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES DAY OCT NOV DEC JAN FEB MAR APR ${\tt MAY}$ JUN JUL AUG SEP 13 6.6 13 4.8 2.9 3.8 0.41 0.14 e1.1 30 11 10 4.6 4.5 0.44 2 e1.0 10 49 8.0 15 15 2.6 2.7 0.40 8.3 e0.95 7.0 2.4 2.1 30 21 13 0.38 e0.94 8.2 27 24 8.9 11 4.2 2.3 0.23 5 e0.83 9.1 24 5.7 21 8.8 11 7.4 2.7 1.8 0.88 0.16 e0.89 7.5 36 6.0 27 7.6 7.2 2.2 0.67 0.13 e0.94 e1.2 6.3 5.6 33 37 6.8 26 17 6.1 5.1 1.9 e0.12 e0.13 9.3 2.7 1.7 0.52 16 4.0 0.47 8 26 5.1 40 15 18 4.7 0.43 10 e1.8 4.6 29 12 20 6.2 28 4.2 1.5 2.1 0.46 e0.17 11 e2.0 4.3 23 10 17 12 20 3.8 1.4 0.45 e0.14 12 2.3 4.4 5.2 2.4 19 14 13 12 2.0 3.5 1.3 1.4 0.43 e0.14 19 15 4.0 0.44 13 e130 26 e0.13 e0.13 e170 14 3.1 25 14 11 16 42 7.5 1.2 0.40 15 2.3 27 64 12 9.8 17 36 5.6 1.1 1.2 0.40 e0.14 16 3 2 24 e114 11 8 8 18 35 4.6 1 0 1 0 0 38 e0 80 17 2.8 2.0 59 9.4 8.4 14 31 8.6 1.0 0.89 0.37 e0.5939 8.5 11 6.8 5.3 0.83 18 15 13 0.36 19 9 0 13 35 11 12 23 20 5.9 2.5 0.79 0.35 0.55 7.2 2.0 6.2 13 2.6 15 13 2.4 17 1.7 0.75 0.27 e0.70 12 41 20 21 5 9 20 14 14 6.6 1 4 0.70 0.21 e0 25 22 15 e105 2.0 5.7 14 16 13 13 1.3 0.65 0.19 e0.1923 14 13 14 80 11 5.0 1.1 24 14 17 11 41 48 20 9 6 4 8 1 1 0 59 0.17 e0 18 25 28 13 9.9 e130 34 21 8.5 4.5 0.95 0.58 0.18 e0.17 26 26 20 13 8 7 51 21 7.8 3 9 0 95 0.56 0 18 e0 14 7.3 27 38 17 21 23 3.6 0.52 8.0 35 0.90 0.16 e0.14 28 18 7.8 25 16 36 3.5 1.7 0.55 0.14 e0.15 ---29 12 26 7 1 20 26 5 8 3.6 11 0 54 0.13 e1 2 3.9 8.6 6.5 21 6.3 30 16 5.2 0.48 0.12 26 0.84 31 13 6.8 19 19 3.1 0.42 0.12 TOTAL 407.6 1133.8 598.7 709.0 495.7 158.5 66.30 42.15 11.07 9.38 233.55 534.6 MEAN 7.53 13.6 36.6 19.3 25.3 16.0 17.8 5.11 2.21 1.36 0.36 0.31 27 170 105 42 MAX 38 130 36 8.6 11 4.0 0.88 1.2 0.83 4.3 6.5 5.7 8.4 6.1 5.2 3.1 0.90 0.42 0.12 MIN 0.12 AC-FT 463 808 2250 1190 1410 983 1060 314 132 84 19 0.40 0.11 CFSM 2.24 4.76 1.52 0.66 0.09 4.04 10.9 5.75 7.54 5.30 2.59 7.85 IN. 4.51 12.55 6.63 5.49 5.92 1.75 0.73 0.47 0.12 0.10

WTR YR 2002 TOTAL 4400.35 MEAN 12.1 MAX 170 MIN 0.12 AC-FT 8730 CFSM 3.59 IN. 48.72

e Estimated

12202300 OLSEN CREEK NEAR BELLINGHAM, WA

LOCATION.--Lat $48^{\circ}45^{\circ}05^{\circ}$, long $122^{\circ}21^{\circ}08^{\circ}$, in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.30, T.38 N., R.4 E., Whatcom County, Hydrologic Unit 17110002, on left bank at downstream side of bridge on North Shore Road, 500 ft upstream from mouth and Lake Whatcom, and 5.8 mi east of Court House in Bellingham.

DRAINAGE AREA. -- 3.78 mi².

PERIOD OF RECORD.--November 1967 to September 1969, annual maximum, water years 1970-1974. October 2001 to September 2002.

GAGE.--Water-stage recorder. Elevation of gage is 311.8 ft above NGVD of 1929, from survey to Lake Whatcom, City of Bellingham Lake elevation. Prior to 1975 gage at elevation 5.49 ft lower.

REMARKS.--Records good except estimated discharges and flows above 150 ${\rm ft}^3/{\rm s}$, which are poor. No known regulation. Diversion rights above station for irrigation and domestic use.

AVERAGE DISCHARGE.--2 years (Water years 1969, 2002) 11.3 ft³/s, 40.47 in/yr, 8,160 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 226 ft^3/s Dec. 25, 1967, gage height 3.11 ft, at site and datum then in use, from rating curve extended above 42 ft^3/s ; minimum discharge, 0.25 ft^3/s Aug. 28-30, 2002.

EXTREMES FOR CURRENT YEAR.--Maximum gage height 6.03 ft, Dec. 14, discharge not determined; minimum discharge 0.25 $\rm ft^3/s$ Aug. 28-30.

		DISCHA	RGE, CUBI	C FEET PE		WATER YE Y MEAN VA		R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	e0.70 e0.65 e0.60 e0.55 e0.50	13 11 8.4 14	27 e60 e30 18 15	8.7 14 11 8.8 7.5	11 11 16 17 17	9.8 8.5 7.7 7.0 6.6	16 14 11 9.9	4.4 4.3 4.4 4.2 5.7	2.3 2.1 2.0 1.9 2.5	3.6 2.8 2.4 2.1 1.8	0.52 0.51 0.51 0.54 0.59	0.29 0.54 0.79 0.44 0.38
6 7 8 9 10	e0.55 e0.55 e0.80 e0.90 e1.2	e13 9.5 7.3 6.1 e5.3	15 16 23 30 20	7.8 15 71 45 25	20 22 20 17 16	5.7 5.3 5.0 5.0 5.2	22 31 17 19 33	5.5 4.9 4.6 4.3 4.0	1.9 1.7 1.6 1.5	1.6 1.9 3.9 2.4 1.8	0.64 0.55 0.50 0.45 0.46	0.36 0.34 0.37 0.49 0.40
11 12 13 14 15	e2.2 1.8 2.0 3.2 2.2	e4.6 e4.0 e5.0 e20 e30	16 16 143 234 56	18 20 21 18 14	16 13 11 9.9 8.8	16 16 15 15	23 22 29 48 28	3.7 3.5 3.6 4.8 3.9	1.3 1.3 1.2 1.1	1.5 1.3 1.2 1.1	0.43 0.40 0.38 0.36 0.36	0.36 0.35 0.32 0.31 0.31
16 17 18 19 20	2.6 2.8 5.5 13 6.5	e20 e15 e10 e15 e22	302 139 43 25 18	12 10 9.2 11 12	8.5 9.2 13 15	13 11 9.6 11 9.9	25 22 19 15 13	3.6 5.7 4.9 4.6 5.6	0.99 1.0 5.6 2.7 2.1	0.95 0.89 0.86 0.81 0.75	0.34 0.32 0.32 0.33 0.33	0.92 0.93 0.54 0.47 0.57
21 22 23 24 25	e7.0 e11 e9.0 e12 e24	e20 e32 e40 22 14	14 12 9.8 8.6 7.5	11 9.5 9.1 23 69	100 271 165 46 26	9.2 11 13 16 18	11 9.9 8.9 7.8 7.0	4.9 4.4 4.0 3.6 3.5	1.7 1.4 1.3 1.2	0.71 0.67 0.62 0.57 0.57	0.34 0.33 0.32 0.29 0.29	0.46 0.40 0.38 0.38 0.36
26 27 28 29 30 31	e21 37 17 10 7.7	11 9.1 11 22 19	6.6 6.6 7.3 6.7 6.5 7.6	33 21 16 13 12	18 14 12 	18 17 17 16 15	6.7 6.2 5.5 5.0 4.7	3.4 3.2 3.1 3.0 3.0	1.0 1.1 2.6 9.1 5.2	0.57 0.55 0.57 0.62 0.57 0.53	0.29 0.29 0.29 0.27 0.28 0.29	0.34 0.33 0.32 0.79 0.84
TOTAL MEAN MAX MIN AC-FT CFSM IN.	219.50 7.08 37 0.50 435 1.87 2.16	451.3 15.0 40 4.0 895 3.98 4.44	1339.2 43.2 302 6.5 2660 11.4 13.18	587.6 19.0 71 7.5 1170 5.01 5.78	938.4 33.5 271 8.5 1860 8.87 9.24	361.5 11.7 18 5.0 717 3.08 3.56	502.6 16.8 48 4.7 997 4.43 4.95	128.9 4.16 5.7 2.6 256 1.10 1.27	62.89 2.10 9.1 0.99 125 0.55 0.62	41.31 1.33 3.9 0.53 82 0.35 0.41	12.12 0.39 0.64 0.27 24 0.10 0.12	14.08 0.47 0.93 0.29 28 0.12 0.14
STATIS	TICS OF M	ONTHLY ME	AN DATA F	OR WATER	YEARS 196	8 - 2002,	BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	7.40 7.71 1969 7.08 2002	12.6 15.3 1969 7.61 1968	31.3 43.2 2002 20.8 1969	17.0 19.0 2002 14.9 1969	21.9 33.5 2002 11.6 1969	13.8 15.6 1969 11.7 2002	14.1 17.3 1969 8.35 1968	4.58 5.37 1969 4.16 2002	2.98 5.34 1968 1.51 1969	1.59 2.20 1968 1.24 1969	1.32 2.95 1968 0.39 2002	3.71 5.37 1968 0.47 2002
SUMMAR	Y STATIST	ICS			FOR 2	002 WATER	YEAR			WATER YEARS	3 1968 -	2002
LOWEST DAILY MEAN 0.27						ec 16 ug 29 ug 24			11.3 12.8 9.75 302 0.27 0.29 8160 2.98 40.47 22 6.3 0.53	Dec 16 Aug 29 Aug 24	2002	

e Estimated

12202310 CARPENTER CREEK NEAR BELLINGHAM, WA

LOCATION.--Lat $48^{\circ}45^{\circ}15^{\circ}$, long $122^{\circ}21^{\circ}10^{\circ}$, in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.30, T.38 N., R.4 E., Whatcom County, Hydrologic Unit 17110002, on left bank 60 ft upstream from North Shore Drive, 8.2 mi east of Bellingham, and 0.1 mi upstream from Lake Whatcom.

DRAINAGE AREA.--1.17 mi^2 .

PERIOD OF RECORD. -- May to September, 2002.

GAGE.--Water-stage recorder. Elevation of gage is 320 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records poor.

EXTREMES FOR PERIOD MAY TO SEPTEMBER.--Maximum daily discharge, 0.73 ${\rm ft}^3/{\rm s}$ May 22, June 29; minimum daily discharge, no flow on many days in August, September.

DISCHARG		FEET PER DAILY ME <i>P</i>		MAY TO SE	PTEMBER 2002
DAY	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	 	0.37 0.33 0.29 0.29 0.40	0.14 0.10 0.08 0.07 0.07	0.02 0.02 0.02 0.02 0.02	0.00 0.02 0.01 0.01 0.01
6 7 8 9 10	 	0.30 0.24 0.22 0.20 0.17	0.05 0.09 0.36 0.14 0.08	0.04 0.02 0.02 0.02 0.02	0.01 0.00 0.00 0.01 0.01
11 12 13 14 15	 	0.17 0.14 0.11 0.09 0.08	0.04 0.03 0.04 0.03 0.03	0.02 0.02 0.01 0.01 0.01	0.01 0.01 0.00 0.00 0.00
16 17 18 19 20	 	0.08 0.08 0.22 0.13 0.10	0.03 0.03 0.03 0.02 0.02	0.01 0.01 0.01 0.01 0.01	0.04 0.02 0.01 0.01 0.02
21 22 23 24 25	0.73 0.63 0.55 0.57	0.08 0.05 0.05 0.04 0.05	0.02 0.02 0.02 0.02 0.02	0.01 0.01 0.00 0.00 0.00	0.01 0.01 0.01 0.01 0.01
26 27 28 29 30 31	0.60 0.51 0.50 0.47 0.46 0.38	0.04 0.05 0.22 0.73 0.26	0.02 0.02 0.02 0.02 0.02 0.02	0.00 0.00 0.00 0.00 0.00	0.01 0.01 0.00 0.04 0.04
TOTAL MEAN MAX MIN AC-FT CFSM IN.		5.58 0.19 0.73 0.04 11 0.16 0.18	1.69 0.055 0.36 0.01 3.4 0.05 0.05	0.36 0.012 0.04 0.00 0.7 0.01	0.35 0.012 0.04 0.00 0.7 0.01

12202400 EUCLID CREEK AT EUCLID AVENUE AT BELLINGHAM, WA

LOCATION.--Lat 48°44'56", long 122°24'29", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.27, T.38 N., R.3 E., Whatcom County, Hydrologic Unit 17110002, on left bank 50 ft upstream from Euclid Avenue, 3.2 mi east of the City of Bellingham, and 320 ft upstream from mouth at Lake Whatcom.

DRAINAGE AREA. -- 0.54 mi².

PERIOD OF RECORD. -- October 2001 to September 2002.

GAGE.--Water-stage recorder. Elevation of gage is 320 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair except those for the period October 1 to Dec. 14, those above 30 $\rm ft^3/s$, those below 0.3 $\rm ft^3/s$, and estimated discharges, which are poor. Natural flow may be affected by upstream urbanization.

AVERAGE DISCHARGE.--1 year (water year 2002) 0.61 ft³/s, 15.31 in/yr, 441 acre-ft/yr.

EXTREMES FOR CURRENT YEAR.--Maximum gage height 4.86 feet Dec. 14, discharge not determined; minimum discharge, no flow many days during year.

		DISCHA	RGE, CUBI	C FEET PE		WATER YE Y MEAN VA	AR OCTOBEI LUES	R 2001 TC	SEPTEMBE	R 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3	e0.02 e0.02 e0.02	0.46 0.31 e0.25	1.5 3.2 1.6	0.35 0.47 0.38	1.4 1.4 1.9	0.45 0.38 0.34	0.55 0.46 0.41	e0.16 e0.16 e0.15	e0.09 e0.09 e0.08	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00
4 5	e0.02 e0.02	0.53 0.44	1.7 1.9	0.33 0.34	1.6 1.4	0.32 0.31	0.36 0.34	e0.16 e0.24	e0.08 e0.08	0.00	0.00	0.00
6 7 8 9	e0.02 e0.02 e0.02 e0.02	0.34 e0.29 e0.26 e0.29	2.3 1.7 1.7 1.5	0.39 0.92 2.4 1.5	1.6 1.4 1.2 0.97	e0.26 e0.25 e0.24 e0.26	0.50 0.55 0.41 0.86	e0.19 e0.17 e0.15 e0.14	e0.05 e0.05 e0.05 e0.05	0.00 0.00 e0.11 e0.04	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00
10	e0.02	e0.21	0.99	0.79	0.90	e0.29	0.81	e0.13	e0.04	0.00	0.00	0.00
12 13 14 15	e0.04 e0.04 e0.04 e0.02	0.32 0.59 2.2 1.5	1.4 11 15 3.2	1.1 0.91 0.72 0.57	0.64 0.58 0.52 0.47	0.84 1.0 1.2 1.2	0.74 1.1 2.0 1.3	e0.12 e0.16 e0.20 e0.14	e0.03 e0.03 e0.03 e0.03	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00
16 17 18 19	e0.05 e0.03 e0.17 0.07	e0.78 e0.46 e0.35 e0.75	7.2 3.3 1.9 1.6	0.49 0.42 0.41 0.77	0.41 0.42 0.45 0.43	1.2 0.87 0.80 1.3	1.5 1.0 0.78 0.65	e0.13 e0.22 e0.14 e0.13	e0.03 e0.03 e0.07 e0.05	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00
20 21 22 23	e0.03 e0.11 e0.24 e0.08	e1.6 e1.0 e0.75 e3.0	1.2 0.89 0.70 0.56	1.1 1.0 0.93 0.92	0.36 2.4 5.8 4.7	1.4 1.1 1.1 1.1	0.54 0.46 0.41 0.34	e0.18 e0.14 e0.12 e0.11	e0.04 e0.04 e0.03 e0.03	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00
24 25	e0.21 0.30	e1.8 e1.0	0.47	1.8 6.4	1.9 1.1	0.94 0.80	e0.30 e0.27	e0.10 e0.11	e0.03 e0.03	0.00	0.00	0.00
26 27 28 29 30 31	0.62 1.5 0.52 e0.27 e0.23 0.88	e0.76 e0.67 e0.95 1.8 1.5	0.36 0.32 0.30 e0.26 e0.24 0.31	2.9 1.8 1.3 0.96 0.93	0.84 0.66 0.54 	0.70 0.84 1.1 0.84 0.69 0.60	e0.29 e0.26 e0.22 e0.20 e0.18	e0.11 e0.10 e0.11 e0.11 e0.11	e0.03 e0.03 e0.16 e0.10 e0.04	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00
TOTAL MEAN MAX MIN AC-FT CFSM IN.	5.67 0.18 1.5 0.02 11 0.34 0.39	25.38 0.85 3.0 0.21 50 1.57	70.01 2.26 15 0.24 139 4.18 4.82	35.80 1.15 6.4 0.33 71 2.14 2.47	36.72 1.31 5.8 0.36 73 2.43 2.53	23.58 0.76 1.4 0.24 47 1.41 1.62	18.89 0.63 2.0 0.18 37 1.17 1.30	4.41 0.14 0.24 0.10 8.7 0.26 0.30	1.56 0.052 0.16 0.03 3.1 0.10	0.15 0.005 0.11 0.00 0.3 0.01	0.00 0.000 0.00 0.00 0.00 0.00	0.00 0.000 0.00 0.00 0.00 0.00

WTR YR 2002 TOTAL 222.17 MEAN 0.61 MAX 15 MIN 0.00 AC-FT 441 CFSM 1.13 IN. 15.31

e Estimated

12202420 MILL CREEK NEAR BELLINGHAM, WA

LOCATION.--Lat $48^{\circ}45^{\circ}19^{\circ}$, long $122^{\circ}24^{\circ}55^{\circ}$, in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.27, T.38 N., R.4 E., Whatcom County, Hydrologic Unit 17110002, on left bank 30 ft upstream from Lakeview Avenue, 50 ft downstream from small dam and pond, 3.0 mi from City of Bellingham and 0.2 mi upstream from mouth at Lake Whatcom.

DRAINAGE AREA. -- 0.79 mi².

PERIOD OF RECORD. -- June to September 2002.

GAGE.--Water-stage recorder. Elevation of gage is 320 ft above NGVD of 1929, from topographic map.

REMARKS.--Records poor except for period of no flow, which is good. Regulation and diversion at the upstream dam and pond during summer months. Basin affected by urbanization.

EXTREMES FOR PERIOD JUNE TO SEPTEMBER.--Maximum estimated daily discharge 0.30 ${\rm ft}^3/{\rm s}$ June 29; minimum discharge, no flow July 13 to Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, JUNE TO SEPTEMBER 2002 DAILY MEAN VALUES DAY JUN e0.06 0.00 0.00 2 --e0.05 0.00 0.00 3 --e0.04 0.00 0.00 4 --e0.04 0.00 0.00 ---0.00 6 e0.02 0.00 0.00 --e0.03 0.00 0.00 --e0.04 e0.03 0.00 0.00 8 10 ___ 0.00 0.00 11 e0.01 0.00 0.00 12 --e0.01 0.00 0.00 13 e0.00 e0.00 0.00 0.00 14 0.00 0.00 e0.03 15 e0.03 e0.00 0.00 0.00 16 e0.02 0.00 0.00 0.00 17 e0.02 0.00 0.00 0.00 e0.06 0.00 0.00 18 0.00 0.00 20 e0.05 0.00 0.00 0.00 21 e0.05 0.00 0.00 e0.04 e0.03 0.00 0.00 22 0.00 23 0.00 24 25 e0.02 0.00 0.00 0.00 26 e0.01 0.00 0.00 0.00 e0.01 e0.04 0.00 0.00 0.00 27 28 29 e0.30 0.00 0.00 3.0 e0.20 0.00 0.00 0.00 31 0.00 0.00 ---TOTAL 0.38 ---0.00 0.00 0.012 MEAN ---0.000 0.000 MAX ---0.06 0.00 0.00 ---0.00 0.00 MIN 0.00 AC-FT 0.8 0.00 0.00

e Estimated

12202450 SILVER BEACH CREEK AT MAYNARD PLACE AT BELLINGHAM, WA

LOCATION.--Lat $48^{\circ}46'10"$, long $122^{\circ}24'19"$, in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.22, T.38 N., R.3 E., Whatcom County, Hydrologic Unit 17110002, on left bank at Maynard Place subdivision, 3.5 mi east of Post Office in Bellingham and 0.1 m upstream from Lake Whatcom.

DRAINAGE AREA.--1.20 mi².

PERIOD OF RECORD.--October 2001 to September 2002.

GAGE.--Water-stage recorder. Elevation of gage is 320 ft above NGVD of 1929, from topographic map.

REMARKS.--Records poor. Probably some diversion upstream for domestic use, and other effects from urbanization.

AVERAGE DISCHARGE.--1 year (water year 2002) 1.97 ft^3/s , 22.27 $\mathrm{in/yr}$, 1,420 $\mathrm{acre-ft/yr}$.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.93 ft Feb. 22, maximum discharge not determined; minimum daily discharge, 0.04 ft 3 /s Oct. 4-7, June 23-26.

		DISCHA	ARGE, CUB	IC FEET PE		WATER YE Y MEAN V		R 2001 TO	SEPTEMBE	R 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e0.05	0.68	4.6	1.1	4.7	4.0	1.4	0.41	0.14	0.14	0.06	0.06
2	e0.05	0.45	7.1	1.6	4.1	3.0	1.2	0.40	0.12	0.10	0.06	0.12
3	e0.05	0.36	3.3	0.90	4.5	2.3	1.2	0.41	0.11	0.09	0.06	0.10
4	e0.04	1.7	3.6	0.71	3.5	1.7	1.1	0.44	0.12	0.08	0.07	0.08
5	e0.04	1.2	4.2	0.67	3.6	1.6	1.1	0.66	0.18	0.07	0.08	0.08
6	e0.04	0.71	3.9	0.85	3.8	1.1	1.9	0.50	0.11	0.07	0.10	0.06
7	e0.04	0.50	2.6	5.0	3.1	0.99	2.2	0.40	0.09	0.28	0.06	0.06
8	e0.05	0.41	3.8	13	3.1	0.99	1.5	0.44	0.09	0.52	0.06	0.07
9	e0.06	0.36	3.4	5.7	2.4	1.2	2.0	0.50	0.08	0.22	0.05	0.08
10	e0.08	0.32	3.3	3.4	2.6	1.3	2.1	0.30	0.07	0.16	0.06	0.07
11	e0.15	0.32	2.7	2.2	2.1	3.0	1.7	0.24	0.07	0.11	0.06	0.07
12	e0.12	0.44	2.5	4.2	1.9	2.4	1.9	0.22	0.07	0.09	0.06	0.07
13	0.09	0.75	21	3.3	1.6	2.1	3.2	0.34	0.06	0.09	0.06	0.06
14	0.19	3.3	17	2.3	1.4	2.1	4.9	0.60	0.06	0.09	0.06	0.07
15	0.06	2.6	6.9	1.7	1.4	2.2	2.3	0.32	0.06	0.08	0.06	0.07
16	0.16	1.5	18	1.6	1.2	2.3	3.3	0.27	0.06	0.07	0.05	0.14
17	0.10	0.97	8.3	1.3	1.4	1.9	2.1	0.68	0.06	0.07	0.05	0.09
18	0.43	0.77	4.6	1.5	1.9	1.9	1.6	0.36	0.12	0.07	0.05	0.08
19	0.25	1.5	4.1	4.1	1.6	3.0	1.4	0.32	0.08	0.07	0.05	0.07
20	0.12	2.7	2.8	3.3	1.3	2.7	1.3	0.62	0.06	0.07	0.05	0.07
21	0.23	1.8	2.0	2.1	14	2.6	1.2	0.38	0.06	0.07	0.05	0.06
22	0.57	3.5	1.6	1.9	68	2.9	0.97	0.32	0.05	0.06	0.05	0.06
23	0.23	5.3	1.2	2.1	60	2.6	0.86	0.27	0.04	0.06	0.05	0.06
24	0.47	2.7	0.99	4.5	27	2.1	0.78	0.24	0.04	0.06	0.05	0.06
25	1.0	2.0	0.86	22	17	1.9	0.73	0.26	0.04	0.06	0.05	0.06
26	1.2	1.7	0.75	8.3	12	1.8	0.95	0.25	0.04	0.07	0.05	0.06
27	2.3	1.7	0.69	4.9	8.5	1.9	0.85	0.23	0.05	0.07	0.06	0.06
28	0.68	3.3	0.71	3.6	5.4	2.0	0.67	0.24	0.49	0.07	0.06	0.06
29	0.43	5.1	0.60	2.8		1.7	0.62	0.22	0.43	0.07	0.06	0.13
30	0.41	3.6	0.51	3.2		1.6	0.52	0.22	0.20	0.07	0.06	0.19
31	1.2		0.87	5.9		1.5		0.16		0.06	0.06	
TOTAL	10.89	52.24	138.48	119.73	263.1	64.38	47.55	11.22	3.25	3.26	1.81	2.37
MEAN	0.35	1.74	4.47	3.86	9.40	2.08	1.58	0.36	0.11	0.11	0.058	0.079
MAX	2.3	5.3	21	22	68	4.0	4.9	0.68	0.49	0.52	0.10	0.19
MIN	0.04	0.32	0.51	0.67	1.2	0.99	0.52	0.16	0.04	0.06	0.05	0.06
AC-FT	22	104	275	237	522	128	94	22	6.4	6.5	3.6	4.7
CFSM	0.29	1.45	3.72	3.22	7.83	1.73	1.32	0.30	0.09	0.09	0.05	0.07
IN.	0.34	1.62	4.29	3.71	8.16	2.00	1.47	0.35	0.10	0.10	0.06	0.07

WTR YR 2002 TOTAL 718.28 MEAN 1.97 MAX 68 MIN 0.04 AC-FT 1420 CFSM 1.64 IN. 22.27

e Estimated

NOOKSACK RIVER BASIN 283

12205000 NORTH FORK NOOKSACK RIVER BELOW CASCADE CREEK, NEAR GLACIER, WA

LOCATION.--Lat $48^{\circ}54^{\circ}22^{\circ}$, long $121^{\circ}50^{\circ}35^{\circ}$, in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.36, T.40 N., R.7 E., Whatcom County, Hydrologic Unit 17110004, Mt. Baker National Forest, on right bank 0.2 mi downstream from Cascade Creek, 0.3 mi downstream from Deadhorse Creek, 4.8 mi east of Glacier, 5.5 mi upstream from Glacier Creek, and at mile 63.1.

DRAINAGE AREA, -- 105 mi2.

PERIOD OF RECORD.--October 1937 to current year. Published as "Nooksack River above Cascade Creek, near Glacier" 1937-58 and as "Nooksack River below Cascade Creek, near Glacier" 1958-66.

REVISED RECORDS. -- WSP 1092: 1946.

GAGE.--Water-stage recorder. Elevation of gage is 1,245 ft above NGVD of 1929, from river-profile map. Supplementary gage on left bank, at datum 1.19 ft lower, used as principal gage prior to Oct. 1, 1953, and Oct. 8, 1958, to Sept. 30, 1959.

REMARKS.--Records fair. No diversion upstream from station. Some regulation at low flow by powerplant at Excelsior. Summer flows augmented by glacier melt. U.S. Geological Survey satellite telemeter at station.

 $\hbox{AVERAGE DISCHARGE.$^{--65}$ years (water years 1938-2002), 782 ft}^3/s, 101.24 in/yr, 566,800 acre-ft/yr. \\$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,200 ft 3 /s Nov. 10, 1989, gage height, 9.56 ft; minimum discharge, 60 ft 3 /s Mar. 12, 1969; minimum daily, 98 ft 3 /s Jan. 8, 1979, result of freezeup.

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

Nov. 19 1815 5,490 6.90 June 29 04 Jan. 07 2145 *9,300 8.97 Minimum discharge, 216 ft ³ /s Feb. 17. DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OF DAILY MEAN VALUES DAY OCT NOV DEC JAN FEB MAR A 1 330 1010 659 313 276 405 3 2 305 905 747 717 267 372 3 3 281 717 551 688 276 348 3 4 259 826 488 528 266 332 3	145 5.040 7.61
DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OF DAILY MEAN VALUES DAY OCT NOV DEC JAN FEB MAR A 1 330 1010 659 313 276 405 3 2 305 905 747 717 267 372 3 3 281 717 551 688 276 348 3 4 259 826 488 528 266 332 3	145 5,040 7.61 330 3,900 7.41 130 8,220 *9.42
DAILY MEAN VALUES DAY OCT NOV DEC JAN FEB MAR A 1 330 1010 659 313 276 405 3 2 305 905 747 717 267 372 3 3 281 717 551 688 276 348 3 4 259 826 488 528 266 332 3	
1 330 1010 659 313 276 405 3 2 305 905 747 717 267 372 3 3 281 717 551 688 276 348 3 4 259 826 488 528 266 332 3	TOBER 2001 TO SEPTEMBER 2002
2 305 905 747 717 267 372 3 3 281 717 551 688 276 348 3 4 259 826 488 528 266 332 3	APR MAY JUN JUL AUG SEP
	881 871 1450 1860 752 598 842 1050 1460 1510 695 671 821 856 1490 1360 620 655 824 696 1510 1320 642 469 872 614 1880 1170 703 419
9 245 430 462 2450 269 265 4	
12 358 823 361 1100 253 416 9 13 427 1370 513 944 245 352 16 14 389 3730 738 765 234 324 31	569 388 1550 2260 762 432 951 482 1890 2180 748 441 560 746 2330 2060 868 441 110 834 2680 1950 983 443 460 706 2730 1640 912 445
17 394 1480 1580 535 226 269 7 18 365 1060 863 495 233 260 6 19 510 2720 647 468 288 262 6 20 432 3310 534 447 289 246 5	010 665 2400 1640 764 742 795 956 1950 1700 623 724 567 919 2520 1620 583 423 504 884 1830 1510 582 475 588 1260 1700 1310 548 444
27 1240 606 330 351 501 297 4 28 746 562 334 323 447 303 4 29 e565 571 326 306 299 4 30 e810 515 314 301 292 5	129 1170 2370 1520 702 299 113 1390 2520 1240 673 293 120 2010 3170 1120 736 281 154 3070 5490 1150 735 346 595 2280 2570 1070 695 312 891 617
TOTAL 15497 40187 16372 28733 13078 9348 208 MEAN 500 1340 528 927 467 302 6 MAX 1590 5950 1580 5490 2410 416 31	.61 9.58 19.7 14.8 6.73 4.11
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2002, BY W	WATER YEAR (WY)
MAX 1358 2143 1354 1161 1401 1061 9 (WY) 1968 1991 1940 1997 1991 1972 19 MIN 210 216 232 147 165 191 2	564 1119 1534 1315 808 582 930 1794 2459 2112 1582 1122 990 1997 1948 1974 1999 1978 253 686 893 725 473 353 975 1962 1941 1940 1941 1989
SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 20	002 WATER YEAR WATER YEARS 1938 - 2002
HIGHEST ANNUAL MEAN LOWEST ANNUAL MEAN HIGHEST DAILY MEAN LOWEST DAILY MEAN ANNUAL SEVEN-DAY MINIMUM ANNUAL SEVEN-DAY MINIMUM ANNUAL RUNOFF (AC-FT) ANNUAL RUNOFF (CFSM) ANNUAL RUNOFF (INCHES) 10 PERCENT EXCEEDS 1170 NOV 15 59 62 82 63 63 63 61 61 61 61 61 61 61 61 61 61 61 61 61	782 1090 1997 540 1944 950 Nov 15 8620 Nov 10 1990 226 Feb 16 98 Jan 8 1979 235 Feb 12 108 Jan 4 1979 000 566800 8.35 7.45 113.42 101.24

e Estimated

12206900 RACEHORSE CREEK AT NORTH FORK ROAD NEAR KENDALL, WA

LOCATION.--Lat 48°53'07", long 122°07'56", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.11, T.39 N., R.5 E., Whatcom County, Hydrologic Unit 17110004, on right bank on the downstream side of North Fork Road bridge, 2.2 mi south of Kendall, and at mile 0.7.

DRAINAGE AREA.--10.5 mi².

PERIOD OF RECORD.--October 1998 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 410 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good except those below 4 $\rm ft^3/s$ and those above 300 $\rm ft^3/s$, which are fair. No known diversions or regulation upstream of station.

AVERAGE DISCHARGE.--4 years (water year 1999-2002), 60.3 ft³/s, 78.00 in/yr, 43,670 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,370 ft 3 /s Dec. 29, 1998, gage height, 6.92 ft from rating curve extended above 189 ft 3 /s; minimum discharge, 1.3 ft 3 /s, Oct. 1, 1998.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,500 ${\rm ft}^3/{\rm s}$ Jan. 8, gage height 7.05 ft from rating curve extended above 189 ${\rm ft}^3/{\rm s}$; minimum discharge, 2.9 ${\rm ft}^3/{\rm s}$, Aug. 29-Sept. 2.

		DISCHA	RGE, CUBI	C FEET PE		WATER YE Y MEAN VA		R 2001 TO	SEPTEMBER	2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.8	122	66	45	25	37	72	108	89	71	6.5	2.9
2	8.9	99	110	259	24	33	53	98	92	53	6.2	18
3	8.4	69	55	112	34	31	42	69	91	44	6.1	18
4 5	7.8 7.4	109 113	43 35	70 56	34 34 34	29 28	47 68	53 53	92 128	41 36	7.3	7.3 5.4
6	7.2	67	46	131	54	23	157	44	93	33	12	4.6
7	7.1	49	42	632	64	21	171	38	64	37	8.5	7.3
8	8.9	39	108	746	43	20	82	35	51	70	6.9	7.6
9	12	33	93	255	35	20	132	33	66	45	6.2	
10	42	29	53	124	37	19	222	32	82	39	5.9	5.4
11	40	27	40	90	38	115	151	39	88	35	5.5	4.6
12	67	34	41	133	30	79	219	63	101	30	5.2	4.1
13	47	74	286	102	26	50	346	99	111	27	4.8	3.7
14	46	475	258	73	23	41	467	124	105	22	4.6	3.5
15	33	284	97	57	22	36	146	77	90	19	4.4	3.3
16	42	181	607	49	26	31	103	64	72	18	4.2	24
17	41	106	353	41	26	26	82	153	59	16		24
18	81	69	118	37	40	24	68	103	157	15	3.9	9.8
19	205	129	79	35	53	25	64	87	71	14	3.8	11
20	76	149	60	35	47	25	60	133	62	13	3.8	15
21	68	135	49	31	499	20	55	106	69	12	3.9	9.0
22	199	108	41	28	948	22	57	91	64	11	3.9	7.2
23	214	155	36	27	417	30	50	81	56	10	3.7	6.2
24	115	91	32	76	140	38	44	77	48	9.3	3.6	5.5
25	119	63	30	104	86	44	41	90	50	8.6	3.4	4.9
26 27	210 240	50 44	27 26	52 39	65 53	50 45	41 38	99 123	54 50	8.0 7.4	3.4	4.5
28 29 30	94 62 89	40 67 48	32 31 28	32 29 27	44 	49 46 42	43 50 77	188 197 167	101 247 104	7.4 8.5 7.6	3.2 3.0 3.0	4.1 7.5 10
31	205		28	26		41		100		7.0	3.0	
TOTAL	2412.5	3058	2950	3553	2967	1140	3248	2824	2607	774.8	158.3	249.7
MEAN	77.8	102	95.2	115	106	36.8	108	91.1	86.9	25.0	5.11	8.32
MAX	240	475	607	746	948	115	467	197	247	71	12	24
MIN	7.1	27	26	26	22	19	38	32	48	7.0	3.0	2.9
AC-FT	4790	6070	5850	7050	5890	2260	6440	5600	5170	1540	314	495
CFSM	7.41	9.71	9.06	10.9	10.1	3.50	10.3	8.68	8.28	2.38	0.49	0.79
IN.	8.55	10.83	10.45	12.59	10.51	4.04	11.51	10.01	9.24	2.75	0.56	0.88

CAL YR 2001 TOTAL 19502.8 MEAN 53.4 MAX 607 MIN 4.1 AC-FT 38680 CFSM 5.09 IN. 69.10 WTR YR 2002 TOTAL 25942.3 MEAN 71.1 MAX 948 MIN 2.9 AC-FT 51460 CFSM 6.77 IN. 91.91

12207750 WARM CREEK NEAR WELCOME, WA

LOCATION.--Lat 48°46'03", long 121°57'48", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.24, T.38 N., R.6 E., Whatcom County, Hydrologic Unit 17110004, on right bank, 10 mi southeast of Welcome, and at mile 1.2.

DRAINAGE AREA. -- 4.13 mi².

PERIOD OF RECORD.--October 1998 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,700 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. No diversions or regulation upstream of station. Records for water years 1991-1998 available in the files of Duke Engineering, Bellingham, Washington.

AVERAGE DISCHARGE.--4 years (water year 1999-2002), 29.0 ft³/s, 95.37 in/yr, 21,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $444 \text{ ft}^3/\text{s}$ Dec. 13, 1998, gage height 3.72 ft; maximum gage height, 3.81 ft Jan. 7, 2002; minimum discharge, 3.3 ft $^3/\text{s}$ Oct. 1, 1998.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 401 ${\rm ft}^3/{\rm s}$, Jan. 7, gage height 3.81 ft from rating curve extended above 104 ${\rm ft}^3/{\rm s}$; minimum discharge, 4.8 ${\rm ft}^3/{\rm s}$ Sept. 28, 29.

		DISCHA	RGE, CUBI	C FEET PE		WATER YE Y MEAN VA		R 2001 TO	SEPTEMBE	R 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	5.8 5.7 5.5 5.3 5.2	45 44 37 39 40	28 26 20 18 17	14 41 32 24 21	9.7 9.3 9.4 8.9 8.6	17 15 14 13	18 14 13 13	46 50 39 33 29	76 74 76 78 98	72 59 54 47 42	19 18 16 19 20	7.5 14 10 7.3 6.6
6 7 8 9 10	5.2 5.1 5.6 6.1	31 27 23 21 21	16 14 19 17 15	42 234 219 114 67	9.3 9.5 8.5 8.0	12 12 11 11	25 28 22 22 34	26 23 21 19 19	88 67 55 51 61	45 53 73 58 62	19 17 16 17 17	6.1 5.9 6.0 6.7 6.6
11 12 13 14 15	13 22 18 19 15	21 32 50 136 174	13 13 28 33 22	49 52 41 33 28	7.7 7.3 7.3 7.0 7.0	15 14 12 12 11	32 42 68 127 68	19 28 42 47 39	73 90 112 124 118	68 65 63 56 48	16 16 17 17 15	6.5 6.1 6.0 5.9 6.1
16 17 18 19 20	16 15 24 52 31	98 59 43 102 116	69 77 38 28 23	24 22 20 18 17	7.0 7.1 7.4 9.6 8.7	10 9.7 9.4 9.4 9.1	47 37 31 29 28	35 51 47 46 65	101 79 113 80 70	47 48 45 43 37	13 12 11 10 9.8	13 9.4 6.7 7.9 7.5
21 22 23 24 25	26 43 85 50 43	83 63 53 41 34	20 17 16 14 13	16 15 14 15 15	31 108 94 48 32	9.3 9.8 9.8 10	26 26 23 21 21	63 55 48 45 51	79 86 81 73 75	37 40 41 40 39	9.4 9.4 10 10 9.8	6.5 5.9 5.7 5.6 5.4
26 27 28 29 30 31	56 68 42 32 33 57	29 25 23 24 21	13 12 13 13 12 13	13 12 12 11 10 10	25 21 18 	11 11 10 10	20 19 19 22 31	59 71 108 139 130 93	87 89 106 165 99	35 29 26 27 25 22	9.0 8.6 8.6 8.2 8.1 7.8	5.3 5.2 5.0 7.1 7.2
TOTAL MEAN MAX MIN AC-FT CFSM IN.	820.5 26.5 85 5.1 1630 6.41 7.39	1555 51.8 174 21 3080 12.6 14.01	690 22.3 77 12 1370 5.39 6.22	1255 40.5 234 10 2490 9.80 11.30	542.3 19.4 108 7.0 1080 4.69 4.88	352.5 11.4 17 9.1 699 2.75 3.18	943 31.4 127 13 1870 7.61 8.49	1586 51.2 139 19 3150 12.4 14.29	2624 87.5 165 51 5200 21.2 23.64	1446 46.6 73 22 2870 11.3 13.02	413.7 13.3 20 7.8 821 3.23 3.73	210.7 7.02 14 5.0 418 1.70

CAL YR 2001 TOTAL 8401.6 MEAN 23.0 MAX 174 MIN 5.1 AC-FT 16660 CFSM 5.57 IN. 75.68 WTR YR 2002 TOTAL 12438.7 MEAN 34.1 MAX 234 MIN 5.0 AC-FT 24670 CFSM 8.25 IN. 112.04

12207850 CLEARWATER CREEK NEAR WELCOME, WA

LOCATION.--Lat $48^{\circ}47^{\circ}19^{\circ}$, long 122 $^{\circ}01^{\circ}18^{\circ}$, in NW $^{1}\!\!/_{4}$ sec.15, T.38 N., R.6 E., Whatcom County, Hydrologic Unit 17110004, on left bank, 7 mi southeast of Welcome, and at mile 1.8.

DRAINAGE AREA.--18.5 mi².

PERIOD OF RECORD.--October 1998 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,650 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except estimated daily discharges and those above 400 ft³/s, which are fair. No diversions or regulation upstream of station. Records for water years 1992-1998 are available in the files of Duke Engineering, Bellingham, Washington.

AVERAGE DISCHARGE.--4 years (water years 1999-2002) 129 ft³/s, 94.95 in/yr, 93,810 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,090 $\mathrm{ft^3/s}$ Dec. 29, 1998, gage height 6.14 ft; minimum discharge, 7.4 $\mathrm{ft^3/s}$ Oct. 1, 1998.

EXTREMES FOR CURRENT YEAR.--Maximum recorded discharge 1,980 ft³/s, Jan. 7, gage height 6.05 ft from rating curve extended above 315 ft³/s; minimum discharge, 14 ft³/s Oct. 5, 6, 7, Aug. 31, Sept. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		DISCHARG	E, CUE	SIC FEET P	DAILY	MEAN VAL		ER 2001 TO	SEPTEME	3ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	252	102	68	41	76	170	300	311	230	32	15
2	16	249	121	283	39	70	103	281	328	180	31	66
3	15	174	81	177	43	66	83	189	333	156	29	48
4	15	287	69	115	42	64	91	140	342	158	37	24
5	14	247	61	94	41	61	128	122	497	142	52	20
6	14		58	188	46	e54	279	103	365	138	62	18
7	15		57	1160	49	e51	260	91	253	156	38	18
8	19		91	1180	44	e49	151	84	203	269	31	19
9	32	81	87	535	40	e47	162	79	244	171	29	23
10	103	80	65	252	41	46	326	79	317	167	28	18
11	99		56	184	41	150	261	96	361	160	26	17
12	210		53	260	38	137	373	173	437	144	24	16
13	124		208	205	36	87	547	269	509	129	23	15
14	141		244	145	34	72	825	291	500	107	23	15
15	79	651	114	116	34	64	303	195	439	91	22	15
16	83		694	101	35	57	202	168	350	87	21	100
17	98		517	87	36	51	157	352	279	82	20	61
18	229		187	80	48	47	132	264	588	74	19	29
19	649		124	75	62	47	133	241	291	68	19	63
20	180	309	97	70	57	46	135	376	267	61	18	50
21	157		83	64	389	45	126	298	321	58	18	29
22	409		73	59	1520	49	134	252	320	57	18	24
23	722		65	57	846	51	120	226	279	56	17	22
24	262		60	73	291	55	102	219	243	52	17	20
25	234	116	56	89	170	63	97	271	260	48	16	19
26	430		53	64	126	72	97	298	288	44	16	18
27	380		51	56	102	69	93	372	269	39	16	17
28	179		61	e51	87	72	106	613	376	39	15	17
29	127		62	e47		70	130	634	650	45	15	32
30	149		56	e45		67	214	634	314	40	15	37
31	362		58	43		71		362		35	15	
TOTAL	5563		3764	6023	4378	2026	6040	8072	10534	3283	762	885
MEAN	179		121	194	156	65.4	201	260	351	106	24.6	29.5
MAX	722		694	1180	1520	150	825	634	650	269	62	100
MIN	14		51	43	34	45	83	79	203	35	15	15
AC-FT	11030		7470	11950	8680	4020	11980	16010	20890	6510	1510	1760
CFSM	9.68		6.55	10.5	8.44	3.53	10.9	14.1	18.9	5.72	1.33	1.59
IN.	11.17	12.57	7.56	12.09	8.79	4.07	12.13	16.20	21.15	6.59	1.53	1.78
CAL YR	2001	TOTAL 38840	MEAN	106 MAX	872 MIN 12	AC-FT	77040	CFSM 5.74	IN. 7	77.97		

WTR YR 2002 TOTAL 57592 MEAN 158 MAX 1520 MIN 14 AC-FT 114200 CFSM 8.52 IN. 115.62

e Estimated

12208000 MIDDLE FORK NOOKSACK RIVER NEAR DEMING, WA

LOCATION.--Lat $48^{\circ}46'46''$, long $122^{\circ}06'19''$, in lot 7 or 8, in SW $^{1/2}4$ sec.13, T.38 N., R.5 E., Whatcom County, Hydrologic Unit 17110004, on left bank 0.5 mi upstream from Heislers Creek, 6.0 mi southeast of Deming, and at mile 5.6.

DRAINAGE AREA.--73.3 mi². Area at site 1910-11, 1920-21, 1954, 75.4 mi².

PERIOD OF RECORD.--October 1910 to March 1911 (fragmentary gage heights and discharge measurements only), August 1920 to September 1921, February 1934 to September 1935, June to October 1954, October 1964 to November 1968, July 1969 to July 1970, January 1992 to current year.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 580 ft above NGVD of 1929, from river-profile map. Oct. 11, 1910, to Mar. 14, 1911, Aug. 28, 1920, to Sept. 30, 1921, June 3 to Oct. 31, 1954, nonrecording gages at site 0.8 mi downstream at different datums. Feb. 18 to Apr. 6, 1934, Nov. 16, 1934, to Sept. 30, 1935, nonrecording gage at present site and datum. Prior to January 1992 at same site, different datum.

REMARKS.--No estimated daily discharges. Records good. Since February 1962, the City of Bellingham sometimes diverts up to about 100 ft³/s for municipal use at dam 1.8 mi upstream. No regulation. U.S. Geological Survey satellite telemeter at station.

COOPERATION.--Records for the 1992-97 water years were provided by the City of Bellingham and were reviewed by the U.S. Geological Survey.

AVERAGE DISCHARGE.--16 years (water years 1921, 1935, 1965-68, 1993-2002), 501 $\mathrm{ft^3/s}$, 92.92 $\mathrm{in/yr}$, 363,200 $\mathrm{acre-ft/yr}$.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, not determined, probably occurred Nov. 5, 1934, gage height, 15.0 ft, from floodmarks, present site at different datum; minimum discharge, 30 ft³/s Oct. 3, 1965.

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

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 16	2145	4,080	6.06	Jan. 07	2115	*6,810	*7.27
Minimum disc	harge, 118	ft3/s Oct. 7,	, 8.				

		DISCHARGE	E, CUBIC	FEET PER		WATER Y MEAN V		ER 2001 TO	SEPTEMB	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	181	874	661	323	195	311	569	779	901	855	346	297
2	162	780	702	1220	185	285	383	758	912	680	321	440
3	153	545	402	786	224	265	316	535	934	602	288	377
4	150	739	309	523	224	257	329	444	965	551	339	252
5	142	726	319	435	218	257	448	452	1320	527	383	208
6	138	450	321	985	357	232	823	400	1020	606	313	184
7	121	377	305	4030	383	224	861	351	708	712	263	175
8	130	343	547	3300	289	205	480	326	567	1100	278	170
9	149	309	527	1660	249	201	464	306	615	742	308	218
10	306	294	361	992	250	205	960	301	816	830	329	229
11	332	316	302	751	250	693	779	339	970	902	324	238
12	550	528	298	1040	211	564	1190	525	1170	848	337	237
13	425	898	1030	838	190	377	1610	790	1420	793	372	235
14	462	2660	1140	608	173	323	2400	894	1470	707	368	248
15	311	2450	566	497	166	287	1110	615	1340	591	353	239
16	344	1390	2340	433	172	258	741	539	1130	621	310	527
17	353	788	1910	380	176	231	539	1090	891	625	258	379
18	583	559	798	347	238	215	445	816	1740	587	296	216
19	1240	1450	560	333	364	222	452	734	954	551	287	295
20	530	1760	439	323	306	210	475	1070	846	478	258	292
21	460	1340	373	296	1270	199	453	892	1010	481	255	221
22	1120	962	328	270	3310	215	465	730	1070	556	278	210
23	1760	1110	291	257	2120	234	427	633	939	614	331	220
24	831	666	266	406	995	262	373	605	831	599	377	211
25	805	479	246	561	628	310	352	733	920	589	333	192
26	1120	390	231	353	487	343	353	833	1090	547	301	179
27	1300	389	223	292	405	320	344	1010	1110	436	329	164
28	623	399	267	253	351	350	374	1630	1500	440	341	159
29	429	506	273	227		325	431	1880	2210	469	325	215
30	636	373	246	217		298	582	1660	1220	387	320	216
31	1380		263	207		297		1080		360	304	
TOTAL	17226		L6844	23143	14386	8975	19528	23750	32589		9825	7443
MEAN	556		543	747	514	290	651	766	1086	625	317	248
MAX	1760		2340	4030	3310	693	2400	1880	2210	1100	383	527
MIN	121		223	207	166	199	316	301	567	360	255	159
AC-FT	34170		33410	45900	28530	17800	38730	47110	64640	38450	19490	14760
CFSM	7.58	11.3	7.41	10.2	7.01	3.95	8.88	10.5	14.8	8.53	4.32	3.38
IN.	8.74	12.61	8.55	11.75	7.30	4.55	9.91	12.05	16.54	9.84	4.99	3.78
STATIST	CICS OF M	ONTHLY MEAN	DATA FO	OR WATER Y	EARS 1920	- 2002	, BY WATE	R YEAR (WY)				
MEAN	507	593	579	566	470	375	436	619	684	487	318	337
MAX	1272	1154	940	965	855	698	739	1039	1202	839	573	796
(WY)	1921	1996	1999	1997	1921	1997	1966	1997	1921	1954	1954	1920
MIN	229	215	237	271	175	237	127	385	327	311	174	120
(WY)	1994	1994	1993	1993	2001	1992	1967	1992	1996	1970	1994	1965
SUMMARY	STATIST	ICS	FOR 2	2001 CALEN	DAR YEAR		FOR 2002 I	WATER YEAR		WATER YEAR	S 1920 -	2002
ANNUAL				164040			217945					
ANNUAL	MEAN ANNUAL	MEAN		449			597			501 665		1921
	ANNUAL M									362		1994
	DAILY M			2660	Nov 14		4030	Jan 7		7500	Oct 4	
	DAILY ME			118	Feb 20		121	Jan 7 Oct 7			Sep 29	
		Y MINIMUM		118 124 325400	Feb 15		140	Oct 3		32 36	Sep 27	
		AC-FT)		325400	100 10		432300	555 3		363200	JUP 27	1,00
	RUNOFF (6.13			8.3	15		6.84		
	RUNOFF (83.25			110.0			92.92		
	CENT EXCE			815			1120			962		
	CENT EXCE			356			406			373		
	CENT EXCE			166			216			168		
_ 0 _ 1 _ 1 (0				200			220			200		

12209000 SOUTH FORK NOOKSACK RIVER NEAR WICKERSHAM, WA

LOCATION.--Lat 48°39'52", long 122°07'56", in lot 2, SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.26, T.37 N., R.5 E., Whatcom County, Hydrologic Unit 17110004, on left bank 0.5 mi upstream from Skookum Creek, 3.7 mi east of Wickersham, and at mile 14.8.

DRAINAGE AREA. -- 103 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1933 to October 1977, June to September 1978, October 1980 to September 1995 (seasonal records), October 1995 to current year.

REVISED RECORDS .-- WSP 832: 1935-36.

Time

GAGE.--Water-stage recorder. Elevation of gage is 385 ft above NGVD of 1929, from river-profile map. Prior to July 9, 1934, nonrecording gage, at same site and datum.

REMARKS.--Records good except estimated discharges, which are fair. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

Date

 $AVERAGE \ \ DISCHARGE. --51 \ \ years \ \ (water \ years \ 1934-77, \ 1996-2002), \ 750 \ \ \text{ft}^3/s, \ 98.88 \ \ in/yr, \ 543,100 \ \ \text{acre-ft/yr}.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,400 ft 3 /s Nov. 23, 1990, gage height, 13.20 ft, from rating curve extended above 11,000 ft 3 /s; minimum discharge, 59 ft 3 /s Oct. 20-25, 30, 31, 1987, gage height, 1.79 ft.

Time

Discharge Gage height

1997 1944 Nov 9 1990

Oct 21 1987 Oct 19 1987

750

1001 488

14000

59 60

543100

7.28 98.88 1480

562

150

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,200 ft³/s and maximum (*): Discharge Gage height (ft³/s) (ft)

Nov. 14 Dec. 17 Jan. 07	2245 0100 2145	6	,350 ,610 ,000	7.70 7.32 *10.35		. 22	0530 0415	11, 7,	100 270	9.35 7.66		
Minimum disc	charge, 9	4 ft ³ /s S	ept. 28-2	9.								
		DISCHA	RGE, CUBI	C FEET PE		WATER YE Y MEAN VA	AR OCTOBE	R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	135	1820	1080	493	374	557	1200	1300	1330	985	230	120
2	127	1420	1640	1480	356	499	764	1310	1360	804	217	132
3	121	1030	891	1260	451	461	614	1010	1400	717	210	211
4	116	1050	722	925	466	437	608	801	1390	664	218	142
5	111	1140	605	755	462	432	748	798	1680	e600	372	123
6	108	765	653	1210	728	384	1450	681	1590	608	254	115
7	110	613	621	7720	780	360	1810	574	1080	689	230	111
8	118	522	923	7210	624	336	980	512	887	1140	209	112
9	145	461	1050	3150	538	324	1010	477	904	775	201	131
10	231	417	729	1710	509	321	2190	499	1220	753	201	120
11	505	408	591	1270	509	1760	1580	537	1310	775	199	111
12	719	533	615	1920	427	1410	2850	781	1570	723	189	107
13	669	1070	2310	1590	381	887	3730	1190	1790	671	187	103
14	759	5080	2900	1080	341	732	4790	1380	1780	596	192	101
15	456	3700	1310	841	318	632	2010	970	1540	512	189	99
16	358	2140	5160	707	323	558	1420	830	1320	495	174	252
17	391	1310	3730	604	320	475	1120	1520	1080	496	160	384
18	483	932	1570	544	438	434	e930	1260	2040	467	152	174
19	1660	1100	1150	531	604	453	e830	1090	1200	441	147	150
20	743	1890	891	540	569	419	816	1430	1060	388	144	240
21	571	2150	737	502	3700	378	795	1280	1220	378	141	157
22	1730	1740	633	461	9240	391	880	1180	1280	385	137	131
23	3400	1890	555	442	4580	434	833	1060	1120	390	135	117
24	1530	1240	500	1100	2010	499	687	1010	985	381	137	111
25	1490	923	459	1670	1220	566	623	1160	976	362	138	105
26	1340	749	427	831	930	628	625	1260	1080	340	136	101
27	1910	678	403	616	753	622	594	1420	1070	294	131	99
28	1040	637	460	510	640	759	654	2270	1530	277	128	96
29	763	827	468	448		657	746	2500	3120	302	126	122
30	881	720	425	416		616	991	1970	1310	297	125	200
31	2740		444	400		623		1500		263	121	
TOTAL	25460	38955	34652	42936	32591	18044	38878	35560	41222	16968	5530	4277
MEAN	821	1298	1118	1385	1164	582	1296	1147	1374	547	178	143
MAX	3400	5080	5160	7720	9240	1760	4790	2500	3120	1140	372	384
MIN	108	408	403	400	318	321	594	477	887	263	121	96
AC-FT	50500	77270	68730	85160	64640	35790	77110	70530	81760	33660	10970	8480
CFSM	7.97	12.6	10.9	13.4	11.3	5.65	12.6	11.1	13.3	5.31	1.73	1.38
IN.	9.20	14.07	12.52	15.51	11.77	6.52	14.04	12.84	14.89	6.13	2.00	1.54
STATIST	rics of M	ONTHLY ME	AN DATA F	OR WATER	YEARS 193	4 - 2002,	BY WATER	YEAR (WY)			
1000-	525	1015	1056	0.4.5	504		0.4.0	1001	000	450	000	0.77
MEAN	630	1015	1059	940	794	696	840	1071	880	450	209	270
MAX	1806 1968	3341 1991	2164 1976	2092 1953	1847 1951	1745 1972	1456 1959	1666 1936	1740 1937	1075 1999	501	791 1959
(WY) MIN	68.6	1991	500	1953	288	324	401	1936 540	263	1999	1954 81.5	79.7
(WY)	1988	1937	1953	1937	288 1956	1955	1975	1994	1992	1940	1958	1998
(WI)	1200	1231	1200	1331	1230	1200	1210	1224	1772	1740	1330	1220
SUMMARY	Y STATIST	rics	FOR	2001 CALE	NDAR YEAR	F	OR 2002 W	ATER YEAR		WATER YEA	RS 1934	- 2002

335073 918

9240

8.91 121.02 1750

633 137

96 107 664600

Feb 22

246417

5160

107 116

6.55 89.00

496

146

488800

Dec 16

ANNUAL TOTAL

ANNUAL MEAN HIGHEST ANNUAL MEAN LOWEST ANNUAL MEAN HIGHEST DAILY MEAN

HIGHEST DAILY MEAN
LOWEST DAILY MEAN
ANNUAL SEVEN-DAY MINIMUM
ANNUAL RUNOFF (AC-FT)
ANNUAL RUNOFF (INCHES)
10 PERCENT EXCEEDS
50 PERCENT EXCEEDS
90 PERCENT EXCEEDS

e Estimated

12209000 SOUTH FORK NOOKSACK RIVER NEAR WICKERSHAM, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--WATER TEMPERATURE: July 2001 to current year.

INSTRUMENTATION.--Water-temperature sensor interfaced with a data collection platform for satellite telemetry.

REMARKS.--Records excellent except those for July 25 to September 30, which are good.

EXTREMES FOR PERIOD OF RECORD.-- WATER TEMPERATURE: Maximum, 21.5°C, Aug. 12, 2001; minimum, 0.1°C, Mar. 20, 2002.

EXTREMES FOR CURRENT YEAR.-- WATER TEMPERATURE: Maximum, 20.4°C Aug. 28; minimum, 0.1°C Mar. 20.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER		NC	VEMBER		DE	CEMBER			JANUARY	
1 2 3 4 5	12.9 12.5 11.8 11.2 10.5	10.8 9.3 8.9 8.2 7.3	11.6 10.8 10.3 9.7 8.9	6.8 7.5 7.5 7.2 6.8	6.1 6.7 6.5 6.6 5.6	6.5 7.0 7.0 6.9 6.2	5.0 4.8 4.7 3.7 4.0	4.4 4.0 3.7 3.2 3.2	4.8 4.5 4.4 3.4 3.6	4.8 4.9 4.6 4.9 5.1	3.0 4.4 4.3 4.4 4.3	3.8 4.7 4.4 4.6 4.7
6 7 8 9 10	10.0 9.5 10.4 10.0 8.7	7.8 8.2 8.9 8.7 7.6	8.9 8.9 9.6 9.5 8.1	5.8 5.9 5.8 5.9 6.5	4.9 4.9 4.5 4.8 4.6	5.3 5.3 5.2 5.3 5.5	3.9 4.4 4.8 4.4	3.5 3.5 4.4 4.0 3.5	3.7 3.9 4.6 4.2 3.8	5.5 4.8 4.9 4.9	4.7 3.5 4.0 4.5 4.3	5.0 4.2 4.5 4.7
11 12 13 14 15	8.8 8.3 8.6 9.0 8.8	7.4 7.4 7.5 7.5	8.0 7.8 8.0 8.1 8.0	7.0 8.0 7.6 7.9 8.1	6.3 7.0 7.0 6.8 7.3	6.7 7.5 7.3 7.3 7.9	4.3 4.1 4.8 4.7 4.4	3.3 3.1 4.1 3.3 3.7	3.9 3.6 4.5 3.8 3.9	5.5 5.4 4.5 4.2 3.2	4.4 4.3 4.1 3.2 2.3	4.9 5.0 4.3 3.8 2.7
16 17 18 19 20	8.9 8.3 7.4 8.4 7.9	8.3 7.3 7.0 7.0 6.7	8.6 7.9 7.2 7.6 7.3	7.3 6.7 5.5 7.2 7.2	6.7 5.0 4.2 5.5 6.6	7.2 5.7 4.8 6.4 6.9	4.6 4.0 4.0 3.6 4.0	3.8 3.1 3.6 3.0 3.2	4.2 3.6 3.8 3.4 3.6	3.4 3.0 3.0 2.9 2.9	3.0 2.2 2.4 2.4 2.6	3.2 2.5 2.7 2.6 2.8
21 22 23 24 25	7.4 7.1 6.8 6.4 6.7	6.9 6.7 6.2 5.8	7.2 6.9 6.5 6.0	6.7 6.3 6.2 5.4 5.1	6.2 6.2 5.4 4.7 4.3	6.4 6.2 5.9 5.0 4.7	4.2 3.9 3.6 2.6 2.0	3.8 2.9 2.6 1.9	4.0 3.3 3.1 2.3 1.7	2.9 2.4 1.9 3.0 3.4	2.4 1.0 1.2 1.9 2.9	2.7 1.7 1.6 2.4 3.2
26 27 28 29 30 31	7.3 6.8 5.8 6.2 7.2 6.9	6.6 5.8 4.7 4.8 6.2 5.6	6.9 6.1 5.3 5.6 6.6 6.2	5.4 5.0 4.6 4.4 4.5	4.6 4.4 3.8 4.0 3.9	5.0 4.7 4.1 4.2 4.2	2.1 3.3 4.5 3.7 3.1 3.8	1.3 1.9 3.3 3.0 2.3 2.3	1.6 2.7 3.9 3.3 2.5 3.2	3.1 2.5 1.5 1.9 2.2 3.1	2.3 1.3 0.7 0.9 1.0 2.2	2.7 1.9 1.0 1.3 1.6 2.6
MONTH	12.9	4.7	7.9	8.1	3.8	5.9	5.0	1.3	3.6	5.5	0.7	3.3

12209000 SOUTH FORK NOOKSACK RIVER NEAR WICKERSHAM, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		120112	,	WAIER (DE					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	2002		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1 2 3 4 5	3.4 3.7 4.0 3.8 3.8	2.6 2.6 3.4 2.6 3.1	2.9 3.1 3.6 3.2 3.5	3.6 3.8 4.4 4.7	1.8 1.6 2.0 2.6 2.6	2.6 2.6 3.1 3.6 3.9	6.1 5.8 6.9 7.7 6.3	3.6 2.8 3.1 3.8 4.4	4.8 4.3 5.1 5.8 5.5	9.0 7.6 6.3 5.7 5.5	4.9 5.2 4.3 4.8 4.4	7.0 5.7 5.2 5.1 4.9
	3.8 4.0 4.1 4.4 4.4	3.5 3.4 3.4 3.1 3.4	3.7 3.7 3.8 3.7 3.9	2.6 2.0 1.4 2.8 3.4	0.9 0.3 0.4 1.0 2.6	1.7 1.2 0.9 1.9 3.0	5.4 5.5 6.4 5.7 5.7	4.2 3.5 2.9 4.5 3.8	4.8 4.5 4.6 5.1 4.7	6.0 7.3 6.6 8.5 9.3	3.3 3.8 3.9 4.3 4.4	4.6 5.4 5.4 6.2 6.9
11 12 13 14 15	3.8 3.2 3.8 3.8 3.9	2.5 1.6 2.2 2.2 1.9	3.1 2.4 3.0 2.9 2.7	3.9 3.4 4.2 4.0 4.1	2.9 2.8 2.7 3.0 2.9	3.5 3.1 3.5 3.5 3.5	5.4 5.1 5.0 4.9 4.7	4.4 4.1 4.3 3.3 3.5	4.9 4.5 4.7 3.8 4.1	10.3 10.7 9.0 6.9 8.0	5.6 6.2 5.5 4.7 4.1	8.0 8.5 6.2 5.7 6.2
		2.3 3.4 3.9 3.8 3.3	2.9 4.1 4.3 4.3	3.6 3.5 2.3 2.2	2.4 1.5 0.4 1.0	2.9 2.5 1.3 1.6	5.3 6.0 8.2 8.2 7.3	3.6 4.3 4.5 4.7	4.4 5.1 6.1 6.2	9.4 8.6 7.0 7.4 7.2	4.7 5.8 4.8 5.0 5.6	7.2 7.1 5.9 6.2 6.1
21 22 23 24 25	4.7 3.6 3.6 3.4 3.0	2.7 2.7 3.3 2.4 1.3	3.8 3.2 3.5 2.9 2.2	3.8 4.8 5.6 5.9 6.5	1.4 2.4 2.6 3.2 4.0					8.0 7.0 7.6 9.2 8.6		6.3 6.1 6.5 7.1 6.9
26 27 28 29 30 31	3.9 3.3 3.8 	2.4 2.2 2.5 	3.1 2.8 3.0 	5.4 4.3 4.6 4.3 5.3 4.8	4.0 3.4 3.0 3.7 4.0 4.3	4.6 3.8 3.7 4.0 4.6 4.6	6.6 9.5 8.8 9.4 9.8	4.8 5.0 4.8 5.0 5.4	5.7 7.0 6.9 7.3 7.7	7.2 8.3 7.2 6.3 8.7 9.0	5.4 5.5 5.6 5.4 5.2	6.3 6.8 6.4 5.9 6.7 7.2
MONTH	5.2	1.3	3.3	6.5	0.1	3.1	9.8	2.8	5.3	10.7	3.3	6.3
DAV	MAY	MTN	MEVN	MAY	MTN	MEAN	MAY	MTN	MEAN	MAY	MTN	MEAN
DAY	MAX	MIN	MEAN	MAX		MEAN	MAX		MEAN	MAX		MEAN
		JUNE			JULY			AUGUST 12.1 12.6 10.8	MEAN 14.0 13.7 12.5 12.7 12.4	17.0 16.0 15.5	15.4 14.3 12.5	16.1 14.9 13.9 13.2
1 2 3 4 5 6 7 8	10.2 10.5 9.6 8.6 7.6	JUNE 5.3 5.4 5.5 6.3 6.2 5.3 5.2 5.3	7.7 8.0 7.7 7.1 6.7	11.7 11.7 11.0 10.1	JULY 8.1 7.6 9.1 8.8 8.0	9.7 9.7 9.9 9.5	16.1 14.8 14.4 13.3 13.7	12.1 12.6 10.8 12.1 10.9	14.0 13.7 12.5 12.7 12.4	17.0 16.0 15.5 15.6 15.6	SEPTEMBE 15.4 14.3 12.5 11.2 11.2 11.2 12.1 10.9	16.1 14.9 13.9 13.2 13.3 13.3
1 2 3 4 5 6 7 8 9 10	10.2 10.5 9.6 8.6 7.6 8.9 7.7 8.9 11.6 10.9	JUNE 5.3 5.4 5.5 6.3 6.2 5.3 6.2 5.3 6.5 6.2 6.1 6.4	7.7 8.0 7.7 7.1 6.7 6.8 6.4 7.0 9.0 8.8	11.7 11.7 11.0 10.1	JULY 8.1 7.6 9.1 8.8 8.0 9.5 10.2 9.5 10.5 11.1	9.7 9.7 9.9 9.5 11.9 10.8 10 11.1 13.1	16.1 14.8 14.4 13.3 13.7 14.3 15.9 17.4 17.2 18.8	AUGUST 12.1 12.6 10.8 12.1 10.9 11.9 10.9 12.0 13.7 15.0 13.9 13.9	14.0 13.7 12.5 12.7 12.4 13.0 13.4 14.6 15.3 16.7	17.0 16.0 15.5 15.6 15.6 15.8 14.5 12.9 15.7 16.7	SEPTEMBE 15.4 14.3 12.5 11.2 11.2 11.2 11.2 12.1 10.9 11.7 12.1	16.1 14.9 13.9 13.3 13.3 13.3 13.2 11.9 13.4 14.2
1 2 3 4 5 6 7 8 9 10 11 12 13 14	10.2 10.5 9.6 8.6 7.6 8.9 7.7 8.9 11.6 10.9	JUNE 5.3 5.4 5.5 6.3 6.2 5.3 6.2 5.3 6.5 6.2 6.1 6.4 6.6 6.5	7.7 8.0 7.7 7.1 6.7 6.8 6.4 7.0 9.0 8.8 9.0 9.1 9.0 8.7	11.7 11.7 11.0 10.1 14.4 12.9 10.4 14.0 15.5	JULY 8.1 7.6 9.1 8.8 8.0 9.5 10.2 9.5 10.5 11.1 11.1 11.7 11.5	9.7 9.7 9.9 9.5 11.9 10.8 10 11.1 13.1 13.6 13.8 13.8	16.1 14.8 14.4 13.3 13.7 14.3 15.9 17.4 17.2 18.8	AUGUST 12.1 12.6 10.8 12.1 10.9 11.9 12.0 13.7 15.0 13.9 13.9 15.0 15.4	14.0 13.7 12.5 12.7 12.4 13.0 13.4 14.6 15.3 16.7	17.0 16.0 15.5 15.6 15.6 15.8 14.5 12.9 15.7 16.7	SEPTEMBE 15.4 14.3 12.5 11.2 11.2 11.2 12.1 10.9 11.7 12.1 12.6 13.1 13.3 13.5	16.1 14.9 13.9 13.2 13.3 13.2 11.9 11.9 14.2 14.8 15.2 15.4
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	10.2 10.5 9.6 8.6 7.6 8.9 7.7 8.9 11.6 10.9 11.8 12.2 11.6 10.0 8.8 10.0 8.8 10.0	JUNE 5.3 5.4 5.5 6.3 6.2 5.3 6.5 6.2 6.1 6.4 6.5 6.5 6.7 7.1 6.8 6.5	7.7 8.0 7.7 7.1 6.8 6.4 7.0 9.0 8.8 9.0 9.1 9.0 8.7 8.7 8.7	11.7 11.7 11.0 10.1 14.4 12.9 10.4 14.0 15.5 15.6 16.1 15.2 15.6 16.2	JULY 8.1 7.6 9.1 8.8 8.0 9.5 10.2 9.5 8.5 10.5 11.1 11.7 11.5 11.2 12.3 13.0 13.4 13.5	9.7 9.7 9.9 9.5 11.9 10.8 10.1 13.1 13.6 13.8 13.6 13.9 14.7 14.9 15.3 14.7	16.1 14.8 14.4 13.3 13.7 14.3 15.9 17.4 17.2 18.8 18.6 19.3 20.2 20.2 219.9 19.1 17.9 18.1 18.2	12.1 12.6 10.8 12.1 10.9 11.9 10.9 11.9 12.0 13.7 15.0 13.9 13.9 15.0 15.4 15.2	14.0 13.7 12.5 12.7 12.4 13.0 13.4 14.6 15.3 16.7 16.3 16.5 17.4 17.7 17.5	17.0 16.0 15.5 15.6 15.6 15.8 14.5 12.9 15.7 16.7 17.1 17.5 17.4 16.0	SEPTEMBE 15.4 14.3 12.5 11.2 11.2 11.2 12.1 10.9 11.7 12.1 12.6 13.1 13.5 14.1 12.4 10.9 10.3 11.7	16.1 14.9 13.9 13.2 13.3 13.3 13.2 11.9 13.4 14.2 14.8 15.4 15.4 14.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	10.2 10.5 9.6 8.6 7.6 8.9 7.7 8.9 11.6 10.9 11.8 12.2 11.6 10.0 8.8 7.9 10.0 12.4 12.9 12.6 12.6	JUNE 5.3 5.4 5.5 6.3 6.2 5.3 6.5 6.2 6.1 6.4 6.5 6.5 6.7 7.1 6.8 6.5 7 7.4 7.3 7.6 8.1	7.7 8.0 7.7 7.1 6.8 6.4 7.0 9.0 8.8 9.0 9.1 9.0 8.7 8.7 8.2 8.0 7.2 9.5 10.2 10.0 10.4	11.7 11.7 11.0 10.1 14.4 12.9 10.4 14.0 15.5 15.6 16.1 15.2 15.6 16.2 16.8 16.7 17.0 15.9 16.9	JULY 8.1 7.6 9.1 8.8 8.0 9.5 10.2 9.5 8.5 10.5 11.1 11.7 11.5 11.2 12.3 13.0 13.4 13.5 11.4 13.9 14.5 14.8	9.7 9.7 9.9 9.5 11.9 10.8 10.1 13.1 13.6 13.3 13.6 13.9 14.7 14.9 15.3 14.7 14.2	16.1 14.8 14.4 13.3 13.7 14.3 15.9 17.4 17.2 18.8 18.6 19.3 20.2 20.2 219.9 19.1 17.9 18.1 18.2 16.3 16.8 18.4 19.5 20.0	12.1 12.6 10.8 12.1 10.9 11.9 10.9 11.9 12.0 13.7 15.0 13.9 15.0 15.4 15.2 14.7 13.6 13.8 13.8 13.8	14.0 13.7 12.5 12.7 12.4 13.0 13.4 14.6 15.3 16.7 16.3 16.7 17.5 16.9 15.7 15.9 15.0 15.6 16.8 17.6	17.0 16.0 15.5 15.6 15.6 15.6 15.7 16.7 17.1 17.5 17.7 17.4 16.0 14.7 13.9 12.8 13.2 12.8	SEPTEMBE 15.4 14.3 12.5 11.2 11.2 11.2 12.1 10.9 11.7 12.1 12.6 13.1 13.3 13.5 14.1 12.4 10.9 10.3 11.7 9.5	16.1 14.9 13.9 13.2 13.3 13.3 13.2 11.9 13.4 14.2 14.8 15.4 15.4 14.7 13.8 12.2 11.5 12.3 11.2
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	10.2 10.5 9.6 8.6 7.6 8.9 7.7 8.9 11.6 10.9 11.8 12.2 11.6 10.0 8.8 7.9 12.4 12.6 12.3 12.6 12.3 12.6 13.7	JUNE 5.3 5.4 5.3 6.2 5.3 6.2 5.3 6.5 6.2 6.4 6.5 6.7 7.1 6.8 6.7 7.4 7.3 7.6 8.1 8.2 8.8 8.0 7.8	7.7 8.0 7.7 7.1 6.7 6.8 6.4 7.0 8.8 9.0 9.1 9.0 8.7 8.7 8.2 8.0 7.2 9.5 10.2 10.0 10.4 11.0	11.7 11.7 11.0 10.1 14.4 12.9 10.4 14.0 15.5 15.6 16.1 15.2 15.6 16.2 16.8 16.7 17.0 15.9 16.9 17.8 18.3 18.8 19.1 18.8	JULY 8.1 7.6 9.1 8.8 8.0 9.5 10.2 9.5 8.5 10.5 11.1 11.7 11.5 11.2 12.3 13.0 13.4 13.5 11.4 13.9 14.5 14.8 15.3	9.7 9.7 9.9 9.5 11.9 10.8 10.1 13.1 13.6 13.8 13.3 14.7 14.9 15.3 14.7 14.2 15.4 16.1 16.7 17.1 16.1 15.3 13.4 13.0 14.0	16.1 14.8 14.4 13.3 13.7 14.3 15.9 17.4 17.2 18.8 18.6 19.3 20.2 20.2 19.9 19.1 17.9 18.1 18.2 16.3 16.8 18.4 19.5 20.0 19.5	AUGUST 12.1 12.6 10.8 12.1 10.9 11.9 12.0 13.7 15.0 13.9 15.0 15.4 15.2 14.7 13.6 13.8 13.8 13.8 13.8 13.8 13.8 13.8 13.7 13.3 14.4 15.9 16.0 14.4 15.8 15.9	14.0 13.7 12.5 12.7 12.4 13.0 13.4 14.6 15.3 16.7 16.3 16.5 17.4 17.7 17.5 15.9 15.7 15.6 16.8 17.6 17.6 17.6 17.6	17.0 16.0 15.5 15.6 15.6 15.6 15.7 16.7 17.1 17.5 17.4 16.0 14.7 13.9 12.8 12.8 12.9 13.5 14.2 12.8	SEPTEMBE 15.4 14.3 12.5 11.2 11.2 11.2 12.1 10.9 11.7 12.1 12.6 13.1 13.5 14.1 12.4 10.9 10.3 11.7 9.5 9.1 9.5 10.2 10.7 10.6 10.8 9.7 9.9 10.8 9.6	16.1 14.9 13.9 13.2 13.3 13.2 11.9 13.4 14.2 14.8 15.2 15.4 14.7 13.8 12.2 11.5 11.3 12.2 11.3 11.2

12209490 SKOOKUM CREEK ABOVE DIVERSION NEAR WICKERSHAM, WA

LOCATION.--Lat $48^{\circ}40^{\circ}18^{\circ}$, long $122^{\circ}08^{\circ}18^{\circ}$, in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.27, T.37 N., R.5 E., Whatcom County, Hydrologic Unit 17110004, on right bank, 200 ft upstream of hatchery diversion, 3.6 mi northeast of Wickersham, and at mile 0.25.

DRAINAGE AREA.--23.0 mi².

PERIOD OF RECORD.--October 1998 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 410 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good. No regulation or diversion upstream from station. Records for water years 1992-1998 are available in the files of Duke Engineering, Bellingham, Washington.

 $AVERAGE \ DISCHARGE.--4 \ years \ (water \ years \ 1999-2002) \ 146 \ ft^3/s, \ 86.48 \ in/yr, \ 106,100 \ acre-ft/yr.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,570 ${\rm ft}^3/{\rm s}$ Jan. 7, 2002, gage height 7.21 ft, from rating curve extended above 1,360 ${\rm ft}^3/{\rm s}$; minimum discharge, 14 ${\rm ft}^3/{\rm s}$, Oct. 1, 1998.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,570 ft³/s Jan. 7, gage height, 7.21 ft, from rating curve extended above 1,360 ft³/s; minimum discharge, 20 ft³/s Sept. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		212011	102, 0021	.0 1221 12	DAIL	Y MEAN VA	LUES	2001 10		. 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	226	194	75	88	99	159	250	216	162	48	27
2	e24	162	242	364	84	90	117	220	217	134	46	40
3	e23	121	125	191	107	85	106	159	214	122	44	41
4	e22	130	104	118	102	82	114	132	214	113	55	31
5	22	132	89	102	106	81	140	127	283	102	68	28
6	22	98	88	346	160	71	245	112	203	103	50	26
7	22	82	86	1840	138	66	231	98	157	113	46	26
8	23	71	157	1470	107	61	144	91	145	227	42	26
9	25	63	149	494	95	60	177	87	164	141	41	28
10	50	57	103	255	91	62	291	89	186	133	41	25
11	52	55	86	195	89	249	258	105	193	127	40	24
12	91	83	86	338	77	162	408	172	220	122	39	24
13	69	174	430	242	70	121	730	226	250	118	39	23
14	94	844	459	169	64	107	1000	233	242	105	41	22
15	55	619	186	142	61	98	295	160	210	93	41	22
16	62	303	1410	126	63	87	211	149	178	91	38	71
17	60	178	766	114	62	77	173	317	152	92	36	60
18	108	129	233	105	82	70	153	204	525	89	34	34
19	196	285	155	99	107	73	148	186	195	85	33	37
20	91	446	119	97	92	68	143	250	173	74	32	39
21	79	396	101	88	532	65	137	204	181	70	31	30
22	225	273	90	82	1520	70	141	200	172	74	30	27
23	374	325	81	77	784	80	129	177	153	76	30	26
24	167	186	74	123	267	92	114	177	140	74	30	25
25	187	137	67	170	178	115	111	211	146	72	30	24
26	299	114	62	118	144	119	114	216	155	69	29	23
27	317	104	59	99	124	108	113	260	158	62	28	22
28	142	100	68	107	111	118	122	443	306	60	28	21
29	107	143	68	99		111	142	522	537	63	28	38
30	158	112	60	98		101	203	401	218	60	27	41
31	496		61	94		99		245		52	27	
TOTAL	3687	6148	6058	8037	5505	2947	6569	6423	6503	3078	1172	931
MEAN	119	205	195	259	197	95.1	219	207	217	99.3	37.8	31.0
MAX	496	844	1410	1840	1520	249	1000	522	537	227	68	71
MIN	22	55	59	75	61	60	106	87	140	52	27	21
AC-FT	7310	12190	12020	15940	10920	5850	13030	12740	12900	6110	2320	1850
CFSM	5.17 5.96	8.91 9.94	8.50 9.80	11.3 13.00	8.55 8.90	4.13	9.52 10.62	9.01 10.39	9.42 10.52	4.32	1.64 1.90	1.35 1.51
IN.	5.96	9.94	9.80	13.00	8.90	4.//	10.62	10.39	10.52	4.98	1.90	1.51

CAL YR 2001 TOTAL 39569 MEAN 108 MAX 1410 MIN 22 AC-FT 78490 CFSM 4.71 IN. 64.00 WTR YR 2002 TOTAL 57058 MEAN 156 MAX 1840 MIN 21 AC-FT 113200 CFSM 6.80 IN. 92.29

e Estimated

12210500 NOOKSACK RIVER AT DEMING, WA

LOCATION.--Lat 48°48'38", long 122°12'13", in lot 12, NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.6, T.38 N., R.5 E., Whatcom County, Hydrologic Unit 17110004, on left bank 800 ft downstream from South Fork, 1.1 mi southeast of Deming, and at mile 36.6.

DRAINAGE AREA. -- 584 mi², includes 5 mi² in Canada.

PERIOD OF RECORD.--September 1910 to March 1911 (gage heights only), July 1935 to September 1957, October 1957 to September 1964 (discharges above 3,500 ft³/s only), October 1964 to current year. Published as "near Deming" 1910-11.

REVISED RECORDS.--WSP 1286: 1951. WSP 1736: 1937(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 204.2 ft above NGVD of 1929. Prior to Dec. 5, 1910, nonrecording gage at site 1.1 mi downstream at different datum. Dec. 5, 1910, to Mar. 31, 1911, nonrecording gage at site 5 mi downstream at different datum. July 20 to Sept. 19, 1935, nonrecording gage at same site and datum.

REMARKS.--Records poor. Slight regulation by powerplant at Excelsior. Since February 1962, City of Bellingham diverts at times up to about 100 ft³/s from the Middle Fork for municipal use. Summer flows augmented by glacier melt at source. U.S. Geological Survey satellite telemeter at station.

 $AVERAGE \ \ DISCHARGE. --60 \ \ years \ \ (water \ years \ 1936-57, \ 1965-2002), \ 3,349 \ \ ft^3/s, \ 77.91 \ \ in/yr, \ 2,426,000 \ \ acre-ft/yr.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,900 ft³/s Nov. 29, 1995, gage height, 14.80 ft; maximum gage height, 15.89 ft Dec. 3, 1975; minimum daily discharge, 430 ft³/s Oct. 29, Nov. 9, 1987.

EXTREMES OUTSIDE PERIOD OF RECORD.--Peak of Mar. 15, 1908, reportedly reached a stage of 20 ft. Peak of Feb. 27, 1932, reached a stage of 16.8 ft, from floodmarks, discharge, 49,300 ft³/s. Peak of November 1909 reached a stage about equal to that of the 1932 peak.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

 $\hbox{\it EXTREMES FOR CURRENT YEAR.$$--$ Peak discharges greater than base discharge of 16,000 ft}^3/s \ and \ maximum \ (*):$

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 15	0130	27,000	10.57	Feb. 22	0900	33,900	11.60
Dec. 14	0515	17,300	8.52	Apr. 14	0730	24,100	10.01
Dec. 17	0100	27,600	10.67	Jun. 29	1015	16,000	9.01
Jan. 08	0345	*47,400	*13.80				

Minimum discharge, 686 ft³/s Oct. 8.

	DAILY MEAN VALUES											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1110	6160	4180	2540	2170	3710	3890	4790 5150 4290 3620 3540	6040	6490	2380	1720
2	1010	5000	4180 6680 4190 3440 2980	6540 5910 4360 3590	2060	3390	3260	5150	5770	5420	2180	1920
3	920	3770	4190	5910	2270	3150	2810	4290	5880	4840	2000	2350
4	854	3820	3440	4360	2380	2980	2720	3620	5890	4570	2000	1580
5	794				2270				6940	4260	2480	1300
6	754 713 686 693 899	3170	3050	4710	2900	2660	4520	3230	6910	4140	2380	1230
7 8	/13	2510	2990	22300	3380	2520	6170	2880	4110	4520	2070	1120 1080
9	693	1880	5130	15700	2560	2350	3660	2480	3840	4960	2010	1190
10	899	1700	3560	10300	2420	2340	6950	3230 2880 2640 2480 2420	4650	4780	2380 2070 1930 2010 2180	1270
11								2450 2960 4300 5090 4110				1310
12	1950	2250	2650	8410	2170	5050	7520	2960	6490	5040	2100	1310 1310 1300 1300 1300
13	2560	3580	7470	7920	1980	3730	10300	4300	7660	4800	2320	1300
14	2250	17900	13200	6050	1830	3350	17700	5090	8470	4570	2460	1300
15												
16	1530 1820 1920 5440 2940	14700	17200	4310	1700	2840	7240	3590 5420 4960 4420 5560	7530	3970	2160 1810 1740 1700 1610	1740
17	1820	8890	19100	3760	1680	2540	5750	5420	6160	4050	1810	2680
18	1920	6170	9760	3390	1960	2390	4810	4960	9360	3900	1740	1470
19	2040	12900	7230 5650	3280	2330	2540	4350	4420 5560	7420 6140	3/60	1/00	1400
21	2110 4750 9840 5410 5030	10100	4690	3050	6920	2250	3960	5510 4920 4470 4200 4500	6330	3350	1520	1280
22	4750	7910	4020	2840	e29300	2290	3960	4920	6790	3530	1590	1150
23 24	9840	6330	3520	2720	e20100	2450	3810	44 / 0	6490	3/30	1/80	1150
25	5410	4720	3160	388U 6690	7490	2640	3390	4200	5860	3780	2070	1130
26	5110	3850	2660	4300	5840	3050	3050	4930	6570	3610	1900	999
27	8830	3470	2510	3390	4770	3000	2900	5560	6980	3190	1860	9.7.7
28 29	2020	3250	2610	2870	4180	3250	2960	10200	14200	2960	1990	1000
30	3020	3520	2440	2400		2930	3730	9820	8560	2910	1910	1200
31	8420		2410	2300		2830		4930 5560 8090 10300 9820 7450		2660	1760	
MEAN	2992	6334	5346	6408	4825	2956	5080	147650 4763 10300 2420	6782	4165	2017	1378
MAX	9840	22600	19100	32300	29300	5050	17700	10300	14300	6490	2480	2680
MIN	686	1670	2410	2300	1680	2250	2720	2420	3840	2660	1520	967
AC-FT	184000	376900	328700	394000	268000	181800	302300	292900	403500	256100	124000	82020
CFSM	5.12	10.8	9.15	11.0	8.26	5.06	8.70	8.16 9.41	11.6	7.13	3.45	2.36
										0.23	3.90	2.03
STATIS								ER YEAR (W				
MEAN	2655	4023	4253	3672	3346	2939	3322	4434 6750 1936 2669 1978	4643	3330	1984	1722
MAX	7237	10030	9668	7767	7208	7347	5323	6750	7815	6180	3609	3888
(WY)	1968	1991	1976	1997	1961	1972	1988	1936	1937	1974	1999	1978
MIN	595	672	1265	957	1349	1585	1584	2669	2368	1652	1159	941
(WY)	1988	1937	1986	1937	1936	1985	1975	1978	1940	1940	1994	1989
SUMMAR	Y STATIS	rics	FOR	2001 CAL	ENDAR YEAF	2	FOR 2002	Jan : Oct : Oct : 55	R	WATER YE	ARS 1935 -	- 2002
ANNUAL	TOTAL			1131413			1610406					
ANNUAL	MEAN			3100			4412			3349		
HIGHES	T ANNUAL	MEAN								4964		1997
LOWEST	ANNUAL I	MEAN		00500		_	20200		•	2227		1944
HIGHES	T DAILY M	MEAN PAN		22600	NOV 15)	32300	Jan	8	41500	NOV 25	1995
LOWEST AMMIAI.	SEVEN-D	ZAM ZAMINITMIN	νī	770	Oct 6	1	770	Oct	4	430	Oct 2:	1987
ANNUAL.	RUNOFF	(AC-FT)	•	2244000	OCL 4	•	3194000	JCL .	•	2426000	JUL 21	. 1001
ANNUAL	RUNOFF	(CFSM)		5.3	31		7.	.55		5.	73	
ANNUAL	RUNOFF	(INCHES)		72.0	07		102.	. 58		77.	91	
10 PER	CENT EXC	EEDS		5410			7910			6000		
50 PER	CENT EXC	EEDS		2410			3390			2700		
90 PER	CENT EXC	SEDS		1260			1590			1270		

e Estimated

12210900 ANDERSON CREEK AT SMITH ROAD NEAR GOSHEN, WA

LOCATION.--Lat 48°49'58", long 122°20'16", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.30, T.39 N., R.4 E., Whatcom County, Hydrologic Unit 17110004, on left bank on the downstream side of Smith Road bridge, 1.5 mi south of Goshen and at mile 3.0.

DRAINAGE AREA. -- 8.96 mi².

PERIOD OF RECORD. -- October 1998 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 200 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair except for estimated daily discharges, which are poor. No known diversions or regulation upstream of station.

AVERAGE DISCHARGE.--4 years (water years 1999-2002) 21.7 $\mathrm{ft^3/s}$, 32.91 $\mathrm{in/yr}$, 15,720 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 595 ft^3/s Dec. 14, 2001, gage height, 10.22 ft ; no flow Aug. 15 to Sept. 2, 2002.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 595 ft^3/s Dec. 14, gage height 10.22 ft ; no flow Aug. 15 to Sept. 2.

	DAILY MEAN VALUES											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	1.1 1.0 0.95 0.94 0.83	17 12 9.0 23 26	72 190 63 47 42	e30 e70 e54 e40 e30	37 36 76 52 41	15 13 12 11	21 18 15 13 15	5.2 4.9 4.6 4.5	2.5 2.2 2.0 1.9 2.6	3.7 2.7 2.3 2.0 1.8	0.31 0.34 0.26 0.27 0.37	e0.00 e0.00 e0.23 0.28 0.13
6 7 8 9 10	0.89 0.94 1.2 1.3	15 9.9 7.5 6.1 5.0	79 50 73 82 51	e70 e200 e250 e140 e90	58 51 42 29 28	9.1 8.2 7.7 8.6 13	34 71 32 43 84	9.3 7.9 e6.3 e5.0 e4.0	2.0 1.7 1.5 1.4	1.5 1.9 4.5 2.6 1.9	0.44 0.34 0.20 0.15 0.16	0.09 0.06 0.06 0.41 0.31
11 12 13 14 15	3.1 2.4 2.8 4.0 3.4	4.4 4.4 5.3 53	35 40 292 320 100	e50 e80 e56 e38 e27	25 19 16 13 11	40 40 46 43 40	50 45 55 98 55	e5.6 e8.0 e11 e12 6.8	1.2 1.1 0.96 0.83 0.78	1.6 1.3 1.3 1.2	0.14 0.10 0.07 e0.04 e0.00	0.20 0.15 0.11 0.09 0.06
16 17 18 19 20	3.4 3.9 4.6 11 6.7	38 19 13 21 37	222 160 65 49 33	20 16 15 41 48	9.9 9.9 14 17 16	38 23 20 55 45	64 43 31 24 20	5.3 11 7.8 6.8	0.76 0.77 2.3 1.7	0.88 0.80 0.82 0.69 0.59	e0.00 e0.00 e0.00 e0.00 e0.00	0.28 1.2 0.66 0.51 0.65
21 22 23 24 25	8.3 14 12 18 47	33 54 128 52 25	e23 e18 14 11 9.0	34 32 36 59 219	141 381 226 79 46	32 37 37 31 28	17 14 12 10 8.9	8.7 7.0 5.6 4.8 4.6	1.1 0.86 0.74 0.79 0.81	0.56 0.47 0.38 0.33 0.31	e0.00 e0.00 e0.00 e0.00 e0.00	0.58 0.40 0.38 0.38
26 27 28 29 30 31	43 102 29 13 9.3 23	17 18 67 108 65	e7.4 e7.1 8.7 7.6 6.5	89 46 29 22 20 35	31 23 19 	26 29 37 26 22	8.7 8.8 7.0 6.2 5.6	4.4 4.0 4.0 3.5 3.6 2.9	0.75 0.83 2.6 10 5.6	0.30 0.27 0.28 0.34 0.34	e0.00 e0.00 e0.00 e0.00 e0.00	0.29 0.26 0.28 0.83 1.2
TOTAL MEAN MAX MIN AC-FT CFSM IN.	374.85 12.1 102 0.83 744 1.35	958.6 32.0 128 4.4 1900 3.57 3.98	2187.3 70.6 320 6.5 4340 7.87 9.08	1986 64.1 250 15 3940 7.15 8.25	1546.8 55.2 381 9.9 3070 6.17 6.42	823.6 26.6 55 7.7 1630 2.97 3.42	929.2 31.0 98 5.6 1840 3.46 3.86	202.1 6.52 12 2.9 401 0.73 0.84	54.78 1.83 10 0.74 109 0.20 0.23	38.96 1.26 4.5 0.27 77 0.14 0.16	3.19 0.10 0.44 0.00 6.3 0.01	10.42 0.35 1.2 0.00 21 0.04 0.04

e Estimated

12212050 FISHTRAP CREEK AT FRONT STREET AT LYNDEN, WA

LOCATION.--Lat 48°56'22", long 122°28'46", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.19, T.40 N., R.3 E., Whatcom County, Hydrologic Unit 17110004, on right bank on downstream side of Front Street bridge, and at mile 2.9.

DRAINAGE AREA. -- 37.8 mi².

PERIOD OF RECORD.--October 1998 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 54 feet above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--4 years (water years 1999-2002) 68.3 ft³/s, 24.54 in/yr, 49,460 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 701 ft 3 /s Dec. 14, 2001, gage height, 7.71 ft from rating extended above 510 ft 3 /s; minimum discharge, 3.1 ft 3 /s Aug. 27-28, 2002.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 701 ft³/s Dec. 14, gage height, 7.71 ft; minimum discharge, 3.1 ft³/s Aug. 27-28.

		DISCHA	RGE, CUBIC	C FEET PER		WATER YEA		2001 TO	SEPTEMBE	R 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2	10	72	157	78	115	95	58	46	29	25	8.7	3.7
3	9.6 9.3	64 59	183 127	89 83	136 168	88 82	54 51	45 44	28 26	21 19	7.8 8.1	6.4 8.4
4	9.0	65	105	77	152	80	50	42	25	18	7.7	8.5
5	8.6	114	99	76	124	77	49	44	28	17	7.7	6.8
6	8.1	90	126	86	139	72	54	43	28	16	8.1	6.0
7	8.1	63	118	179	128	66	69	40	25	17	8.1	5.2
8	8.5	50	146	323	117	62	58	39	26	23	7.3	5.3
9	8.1	44	196	253	100	63	57	37	25	21	6.7	5.6
10	13	40	147	163	94	65	71	35	24	17	6.0	6.1
11	18	37	127	130	90	105	88	34	23	15	6.1	5.4
12	24	38	128	121	84	100	107	33	22	14	5.9	5.0
13	37	44	444	107	78	90	195	36	20	13	5.7	4.7
14	32	172	669	94	70	83	323	44	19	13	5.2	4.6
15	28	218	509	83	68	84	199	38	20	13	4.6	4.5
16	24	159	442	82	65	113	185	35	20	12	4.9	7.3
17	23	116	312	80	65	81	156	53	23	12	4.7	7.5
18	25	83	219	77	66	71	116	45	29	12	4.8	7.2
19	36	82	177	118	67	75	91	39	25	11	4.9	6.3
20	31	126	153	161	68	53	82	44	23	11	4.7	5.6
21	34	126	134	127	219	57	76	41	20	11	4.8	5.1
22	54	113	117	105	546	84	70	37	18	10	4.7	5.4
23	49	112	107	115	497	102	63	35	16	8.4	4.6	4.6
24	45	86	100 90	169	254	86	60	33	15	8.5	4.6	4.5
25	72	67	90	383	167	75	58	32	14	8.7	4.3	4.4
26	61	61	86	249	137	70	57	33	14	8.3	3.7	4.6
27	130	57	84	178	119	71	55	32	21	8.1	3.6	4.9
28	83	87	87	134	104	81 70	50	33	28	8.1	3.4	4.7
29 30	59 51	166 143	85 80	111 101		64	47 46	37 38	47 34	8.6 8.8	3.5 3.7	4.6 4.9
31	86	143	78	101		61		32		8.2	3.6	
TOTAL	1094.3	2754	5632	4236	4037	2426	2695	1199	715	416.7	172.2	167.8
MEAN	35.3	91.8	182	137	144	78.3	89.8	38.7	23.8	13.4	5.55	5.59
MAX	130	218	669	383	546	113	323	53	47	25	8.7	8.5
MIN	8.1	37	78	76	65	53	46	32	14	8.1	3.4	3.7
AC-FT	2170	5460	11170	8400	8010	4810	5350	2380	1420	827	342	333
CFSM	0.93	2.43	4.81	3.61	3.81	2.07	2.38	1.02	0.63	0.36	0.15	0.15
IN.	1.08	2.71	5.54	4.17	3.97	2.39	2.65	1.18	0.70	0.41	0.17	0.17

CAL YR 2001 TOTAL 20290.3 MEAN 55.6 MAX 669 MIN 7.5 AC-FT 40250 CFSM 1.47 IN. 19.97 WTR YR 2002 TOTAL 25545.0 MEAN 70.0 MAX 669 MIN 3.4 AC-FT 50670 CFSM 1.85 IN. 25.14

12213100 NOOKSACK RIVER AT FERNDALE, WA

LOCATION.--Lat $48^{\circ}50^{\circ}42^{\circ}$, long $122^{\circ}35^{\circ}17^{\circ}$, in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.29, T.39 N., R.2 E., Whatcom County, Hydrologic Unit 17110004, on right bank 300 ft downstream from Main Street bridge at Ferndale, and at mile 5.8.

DRAINAGE AREA. -- 786 mi2, of which 48.9 mi2 is in Canada.

PERIOD OF RECORD.--Annual maximum stage only, water years 1918, 1922, 1932, 1935. Annual maximum, water years 1946, 1950-66. October 1966 to current year.

REVISED RECORDS.--WDR WA-83-1: 1971(M), 1976(M), WDR WA-94-1: 1976(M), 1980(M), 1984(M), 1990(M), 1991(M).

GAGE.--Water-stage recorder. Datum of gage is 4.61 ft above NGVD of 1929. Prior to July 18, 1968, at site 220 ft upstream at datum 4.21 ft higher.

REMARKS.--No estimated daily discharges. Records good. City of Bellingham diverts up to about 100 ft³/s at times from Middle Fork Nooksack River for municipal use. Cities of Ferndale and Lynden divert about 10 ft³/s for municipal use. Numerous small diversions located upstream for irrigation. Chemical analyses October 1961 to September 1970. U.S. Geological Survey satellite telemeter at station.

 $AVERAGE \ DISCHARGE. --36 \ years \ (water years \ 1967-2002), \ 3,821 \ ft^3/s, \ 66.05 \ in/yr, \ 2,768,000 \ acre-ft/yr.$

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded discharge, 57,000 ft³/s Nov. 10, 1990, gage height, 23.56 ft; minimum discharge, 463 ft³/s Oct. 26, Nov. 9, 10, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 16,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 15	0915	19,800	15.63	Feb. 23	1045	*30,300	*18.94
Dec. 14	1230	17,200	14.41	Apr. 14	1515	19,600	15.53
Dec. 17	0945	21,700	16.37	Jun. 29	1445	16,500	14.07
Jan. 09	0315	28,100	18.40				

Minimum discharge, 712 ft^3/s Oct. 8.

		DISCH	ARGE, CUB	IC FEET PE		WATER Y Y MEAN V		ER 2001 TO	SEPTEME	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	993	7060	4480	2560	3210	4160	3560	4280	6300	6900	2370	1650
2	047	5510	7210	4220	3180	3760		4910			2180	1630
3	24/						3330	4910	6040	4020		
3	875	4640	5410	5390	3350	3460	3060	4420	6150	4830	2050	2230
4 5	947 875 821 785	3970 5690	4380 3990	4190 3520	3680 3300	3250 3140	2880	4420 3750 3540	6070	4490	1950 2280	1740 1430
3	703											
6 7	752 743	4270 3470	3840 4070	3630 11600	3580 4260	2930 2760	3750 5930	3400 3060	7600 5820	3910 4200	2250 2080	1310 1220
8	719	3000		24100	3840	2650	4490	2800	4790	5420	1940	1160
9	725	2670		23300	3530	2570	3700	2630	4280	5730	1920	1170
10	755	2420	4670	12100	3260	2540	4490 3700 6230	2530	4830	5420 5730 4840	2020	1250
11	1480	2290	4020	8520	3360	3060	5870	2500 2710 3720 4650 4280	5490	5410	2070	1320
12	1340	2390	3550	7640	3080	5760	6930	2710	6360	5450	2000	1310
13	2560	3550	6210	8330	2900	4090	9470	3720	7500	5140	2090	1310
14	1940	11100	14900	6340	2720	3690	15700	4650	8450	4920	2200	1280
15	1970	17700	9150	8520 7640 8330 6340 5300	2590	3420					2250	1320
16	1470	14600	12900	4680	2520 2470 2620 2850 3210	3320	8120	3600 4540 5190 4440 4890	7800	4040	2100	1320
17	1770	8780	19300	4240	2470	2990	6500	4540	6470	4110	1850	2490
18	1550	6120	10800	3870	2620	2790	5420	5190	8300	3970	1720	1680
19	4020	5530	7790	3860	2850	2810	4790	4440	7480	3830	1700	1370
20	3600	12200	6180	3980	3210	2920					1640	1660
21	2300	9510	5170	3830	4130 20500	2660	4220	5810 5030 4740 4330 4430	5860	3300	1560	1410
22	3240	7890	4490	3550	20500	2680	4090	5030	6510	3370	1560	1210
23	8290	8790		3410	27500	2850	4030	4740	6500	3590	1640	1170
24	6130	7160	3560		15300		3620	4330	5800	3720	1840	1160
25	5110	5450	3250		8790						1970	1120
26	4710	4630	2990	6170	6730	3200	3190	4890 5330 7060 9850 9860 7690	6130	3580	1840	1050
27	8790	4140	2800	4820	5550	3230	3070	5330	6710	3260	1750	1010
28	5830	3990	2730	4050	4760	3340	3020	7060	7070	2860	1810	980
29	4100	4670	2780	3600		3380	3080	9850	13100	2950	1850	981
30 31	8790 5830 4100 3370	4620	2620	3360		3170	3410	9860	9710	2830	1800	1030
21	7080		2520	3230		3030		7690		2620		
	88765	187810	179820	198840	156770	99620	154030	144860	203590	130440	60000	40971
	2863	6260	5801	6414	5599	3214	5134	4673	6786	4208	1935	1366
MAX	8790	17700	19300	24100	27500	5760	15700	9860	13100	6800	2370	2490
MIN	719	2290	2520	2560	2470	2540	2880	4673 9860 2500	4280	2620	1560	980
	176100	372500	356700	394400	311000	197600	305500	287300	403800	258700	119000	81270
CFSM	3.64	7.96	7.38		7.12		6.53	5.95	8.63	5.35	2.46	1.74
IN.	4.20	8.89	8.51	9.41	7.42	4.71	7.29	6.86	9.64	6.17	2.84	1.94
STATIS	TICS OF 1	MONTHLY MI	EAN DATA	FOR WATER	YEARS 1967	7 - 2002	2, BY WATE	4567 6526 1969 2998 1978	.)			
MEAN	2642	4964	5202	4770	4322	3715	3696	4567	4905	3533	2109	1830
MAX	6815	13980	9992	8720	8197	9339	5723	6526	8285	6218	4006	4074
(WY)	1968	1991	1976	1984	1982	1972	1988	1969	1974	1999	1999	1978
MIN	629	1276	1539	1149	1719	1864	1746	2998	2411	1988	1338	917
(WY)	1988	1988	1986	1979	2001	1985	1975	1978	1992	1977	1987	1989
SUMMAR	Y STATIS	TICS	FOR	2001 CALE	ENDAR YEAR		FOR 2002	WATER YEAR		WATER YEA	ARS 1967 -	2002
	TOTAL			1177878			1645516			2005		
ANNUAL				3227			4508			3821		1001
	T ANNUAL									5152		1991
	'ANNUAL ! T DAILY !			19300	D 17		27500	E-1 00		2536	NT 11	2001
TOMECA	ו אי אידערוי	LV VI		193UU	Dec 1/		2/5UU 710	Feb 23 Oct 8 Oct 4		46200	MOA TI	1007
TOMEST	DAIDI M	ΣΑΝ ΣΑΝ	vr	713	Oct 6		713	Oct 6		400	NOV 3	1007
VIMILIVI	. SEAFM=D1	(VC=Ed.) PT MINIMON	71	7336000	OCL 4		3264000	OCL 4		2769000	OCL 23	170/
THOMING	. AUNOFF	(CEGM)		00000 درے	1		J204000	74		Z / U U U U U	16	
VIMILIVI	. DIMOPP	(TNCHEC)		4.1	-± 75		5.	98		4.8	15	
10 DED	CENT EVO	LEDG (TMCUED)		5070			7010	00		6770		
50 PER	CEML EAC	EEDS		2500			7690			3100		
90 000	CEML EXC	REDS		1280			1520			1380		
JU FER	LUACI IVILLO	טעשט		19300 719 757 2336000 4.1 557 2500 2500 1280			1320			1000		

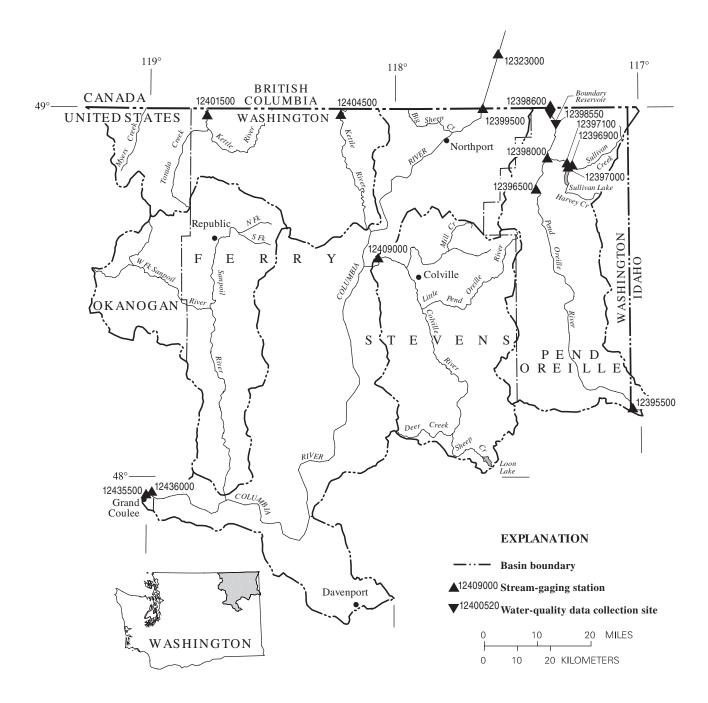


Figure 35. Location of surface-water and water-quality stations in the Columbia River Basin above Franklin D. Roosevelt Lake and including Colville, Kettle, and Pend Oreille River Basins.

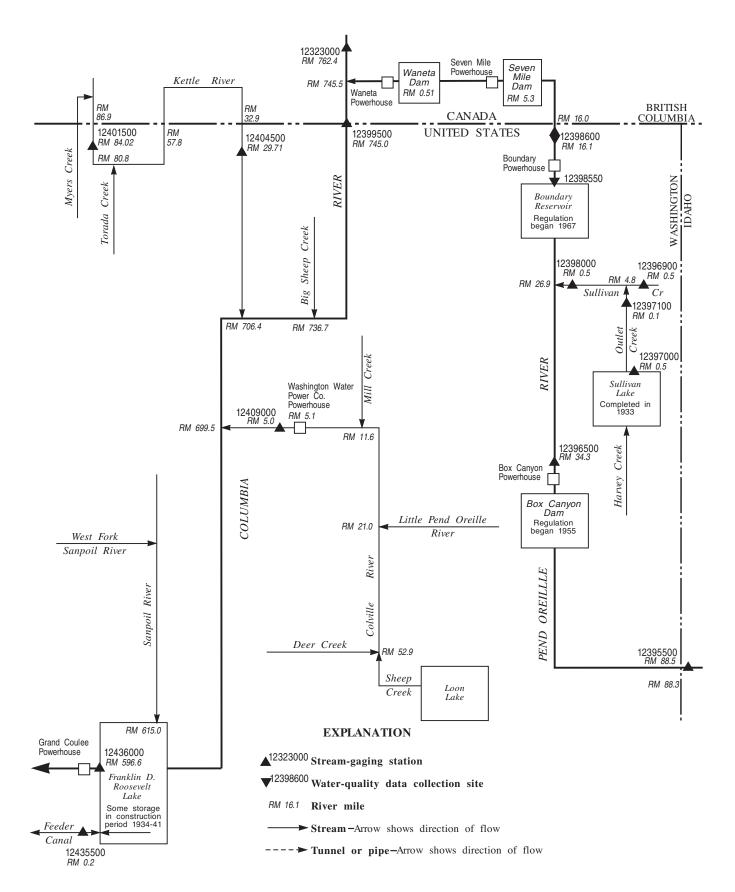


Figure 36. Schematic diagram showing surface-water and water-quality stations in the Columbia River Basin above Franklin D. Roosevelt Lake and including Colville, Kettle, and Pend Oreille River Basins.

298 COLUMBIA RIVER MAIN STEM

12323000 COLUMBIA RIVER AT BIRCHBANK, BRITISH COLUMBIA (International gaging station)

LOCATION.--Lat 49°10'40", long 117°42'59", on right bank at Birchbank, British Columbia, 0.7 mi downstream from Sullivan Creek, 7 mi upstream from Trail, 11.7 mi downstream from Kootenay River, 17.4 mi upstream from international boundary, and at mile 762.4.

DRAINAGE AREA.--34,000 mi², approximately.

PERIOD OF RECORD.--April 1913 to current year in reports of Geological Survey and Water Survey of Canada. Published as "at Trail, British Columbia" 1913-37.

REVISED RECORDS. -- WSP 982: 1942. WSP 1216: 1949.

GAGE.--Water-stage recorder. Datum of gage is 1,329.90 ft above NGVD of 1929, 1947 international joint adjustment, published as 1,338.00 ft prior to October 1948. Prior to Oct. 1, 1937, nonrecording gage on highway bridge at site 6.8 mi downstream at datum 16.27 ft lower.

REMARKS.--Flow regulated by six major reservoirs, and by numerous small reservoirs and powerplants. Diversions upstream from station for irrigation of about 25,000 acres.

COOPERATION.--Discharge records furnished by Environment Canada, Monitoring and Systems Branch, Water Survey Division. This station is maintained by Canada under agreement with the United States.

AVERAGE DISCHARGE.--89 years (water years 1914-2002), 71,240 ft³/s, 51,610,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $377,000 \text{ ft}^3/\text{s}$ June 9, 1961, gage height, 50.05 ft; maximum gage height, 50.62 ft June 11, 1948; minimum discharge observed, 8,940 ft $^3/\text{s}$ Feb. 3, 1937, gage height, 6.27 ft, site and datum then in use.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 143,000 ft³/s July 13; minimum daily discharge, 26,900 ft³/s Apr. 5.

					DAI	LY MEAN V	ALUES					
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56900	43800	71700	52300	49400	46600	27100	46600	102000	138000	97800	96100
2	52600	43800	75600	52300	54000	48000	27400	50500	103000	136000	96100	93600
3	52600	43400	86900	52600	48400	48400	27300	51600	104000	136000	94300	86900
4	52600	43400	83000	52600	45900	49800	27200	51900	103000	136000	95300	80500
5	50100	43400	77700	52600	51900	47300	26900	51200	101000	133000	94600	80900
	50100	15100	,,,,,	32000	32300	1,500	20500	31200	101000	133000	31000	00300
6	47700	42000	81200	52600	52600	44500	28600	53000	104000	130000	95300	72700
7	47700	39900	75600	52600	53000	43800	31000	51600	101000	127000	93900	73100
8	47700	39900	66000	53000	48700	44100	30400	51900	98200	131000	93200	69600
9	47300	39900	65700	53000	43400	44100	30800	51200	102000	138000	90800	72400
10	48000	39900	67500	53300	42700	44100	32600	49400	94600	136000	91100	72000
11	47300	39600	69600	53000	42700	44100	32400	50100	89300	136000	94300	74500
12	47300	39600	69600	53000	42400	44100	34700	50100	86500	140000	94300	75600
13	47000	39900	68500	53000	42400	44500	36700	51200	91500	143000	94300	76600
14	47000	39900	68900	53000	42700	44500	39600	50900	90100	142000	94300	77000
15	45200	39900	68200	53000	42700	44500	39900	52600	94300	142000	93900	77000
16	42000	40300	68200	53000	44800	44500	42000	51900	98900	141000	89300	76300
17	40300	44500	68200	52600	44500	44500	42700	54000	102000	141000	91500	73100
18	40300	57900	68200	53000	45900	44800	45200	53700	102000	140000	91800	73500
19	40300	65300	65000	53000	44100	44800	39200	53700	103000	138000	91800	75200
20	40300	62900	57200	53000	44100	44800	44100	56500	98900	130000	88300	72400
21	40300	57200	53000	48000	44800	44800	44100	63600	95000	127000	85800	71000
22	40300	54700	53000	44100	44800	43100	47000	73100	95000	125000	90400	68500
23	39600	54000	53000	44100	46600	42000	45600	75200	95700	120000	90400	70300
23	38800	54400	53000	44100	44100	42400	45900	74200	96400	116000	93200	69600
25	37800	54700	52600	44100	46300	41000	46600	71700	102000	110000	94300	68200
26	37800	55100	52600	44100	46300	40600	45600	71700	118000	104000	95300	67500
27	39200	56500	52600	44100	45900	38500	44800	73500	119000	102000	96400	71700
28	41000	56500	52600	48700	47300	33700	44800	79100	130000	102000	96400	67500
29	43100	55100	52600	49100		30400	44500	83000	139000	102000	95700	66400
30	44100	62500	52600	52600		28400	43800	87900	142000	99600	96400	66000
31	43800		52600	52600		27300		101000		98900	95000	
	1386000	1449900	2002700	1572100	1292400	1318000	1138500	1887600	3101400	3940500	2895500	2235700
MEAN	44710	48330	64600	50710	46160	42520	37950	60890	103400	127100	93400	74520
MAX	56900	65300	86900	53300	54000	49800	47000	101000	142000	143000	97800	96100
MIN	37800	39600	52600	44100	42400	27300	26900	46600	86500	98900	85800	66000
AC-FT	2749000	2876000	3972000	3118000	2563000	2614000	2258000	3744000	6152000	7816000	5743000	4435000

CAL YR 2001 TOTAL 20342200 MEAN 55730 MAX 86900 MIN 31600 AC-FT 40350000 WTR YR 2002 TOTAL 24220300 MEAN 66360 MAX 143000 MIN 26900 AC-FT 48040000

12395500 PEND OREILLE RIVER AT NEWPORT, WA

LOCATION.--Lat 48°10'56", long 117°02'00", in SE \(^1_4\)SE \(^1_4\)SW \(^1_4\) sec.24, T.56 N., R.6 W. (Boise Meridian), Bonner County, Hydrologic Unit 17010216, on left bank, at Newport, 0.2 mi upstream from bridge on U.S. Highway 2, 0.2 mi east of Idaho-Washington State line, 1.6 mi downstream from Albeni Falls Dam, and at mile 88.5.

DRAINAGE AREA.--24,200 mi², approximately.

PERIOD OF RECORD.--June 1903 to September 1941, October 1952 to current year. Prior to October 1921, published as "Clark Fork at Newport, Wash.," October 1921 to September 1937, as "Clark Fork at Priest River, Idaho," and October 1937 to September 1941, as "Pend Oreille River at Priest River, Idaho."

REVISED RECORDS .-- WSP 532: 1903-11.

GAGE.--Water-stage recorder. Datum of gage is 1,999.7 ft above NGVD of 1929. Prior to Sept. 22, 1928, nonrecording gages at Priest River, Newport, or Metaline Falls at various datums (see description, WSP 532, p. 92). Sept. 22, 1928, to Sept. 30, 1935, at datum 40.44 ft higher, and Oct. 1, 1935, to Sept. 30, 1941, water-stage recorder at datum 0.30 ft higher. Since December 1952, auxiliary water-stage recorder 2.74 mi downstream from base gage.

REMARKS.--No estimated daily discharges. Records good. Flow regulated at Albeni Falls Dam and affected by storage in Pend Oreille Lake (see sta 12392500), Flathead Lake, Hungry Horse Reservoir, and several smaller reservoirs. Diversions above station for irrigation of about 354,000 acres. Stage-discharge relation affected by backwater from Box Canyon dam 54 mi downstream. Discharge computed from slope and conveyance of reach between base and auxiliary gage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 136,000 ft³/s June 15, 1933, June 21, 1933, June 12, 1972; minimum, 1,280 ft³/s Sept. 1, 1961,

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1894 reached a stage of about 64.0 ft, present site and datum, (from water surface profiles) discharge, about 200,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 95,400 ft³/s June 9; maximum gage height, 46.75 ft, June 9; minimum daily, 7,670 ft³/s Dec. 13.

		DI	SCHARGE,	CUBIC FEE		OND, WATER DAILY MEAN		OBER 2001	TO SEPTE	MBER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15800	19000	8810	10200	17000	13200	14800	31100	78700	79700	16100	9150
2	15700	18900	8020	10000	17600	13300	14500	31300	82000	72700	15300	9390
3	15900	18800	9040	10200	17100	13300	14800	31500	85800	62500	14000	10100
4	15800	19100	9460	9360	17400	13800	14600	31500	88700	54800	12800	10900
5	15900	18800	10200	10600	17700	14700	14700	31500	90900	49000	12700	10700
6	16100	19200	11000	11500	17500	14800	14700	35800	92800	40200	12700	12000
7	16100	20800	10800	12300	17300	14700	14600	39600	94300	42800	12700	12900
8	16000	22700	9340	16600	19100	14700	14600	39600	95100	44300	17100	12900
9	19200	21700	8240	23600	20300	14700	15000	39800	95400	44900	19300	12200
10	19500	21800	9020	26500	20200	15300	18900	37000	94700	40700	16300	12100
11	19700	21700	9580	25700	18300	16400	22100	31500	94100	35200	16300	12200
12	19500	16400	8680	22300	15000	17900	25400	31000	93200	34600	16400	12200
13	19400	11800	7670	22400	14000	17500	28400	29500	92200	35400	16300	12400
14	19400	12200	8890	19100	15400	17900	30100	28400	89800	35900	16500	12800
15	19600	13200	11100	16900	16100	21300	34700	29400	88700	37100	16300	12800
16	19500	16200	13600	19400	15900	23100	36200	31900	88500	34600	15300	13600
17	19700	17800	14700	19300	15000	22500	36600	32100	86000	32400	14500	14100
18	19700	14300	15700	17800	14600	23100	36900	32300	83700	34200	14100	14100
19	19700	9660	17400	16600	16900	22300	35800	32300	78100	35600	13900	13600
20	20000	8550	17600	15800	17100	20700	34400	37800	69400	29600	12900	14200
21	19900	8040	15100	15400	14100	17500	33800	47600	67000	25400	12500	14000
22	19900	8290	13200	16800	13200	14200	36000	57100	66900	24000	12200	13800
23	19700	9420	13000	17700	13200	13300	38400	68100	66000	22200	11800	13600
24	19700	9870	13000	17400	13100	14100	38100	74800	66300	22100	12000	13500
25	19200	9800	13000	16000	13700	18300	36500	74500	72200	22300	13400	13500
26 27 28 29 30 31	18600 18400 18600 19200 19000	9800 11400 12400 12400 10500	12900 12900 14600 15500 13800 11600	14600 14600 16400 17900 17700 17300	14700 16300 14600 	21300 21500 19900 18000 17200 16700	33500 31200 31100 31000 31000	69600 64600 65600 69500 73900 75700	78000 77100 77200 79500 81500	21300 20800 20700 20800 18200 16800	13800 13800 13900 14200 13200 10800	13000 11700 10800 10400 10200
TOTAL	573400	444530	367450	517960	452400	537200	812400	1405900	2493800	1110800	443100	368840
MEAN	18500	14820	11850	16710	16160	17330	27080	45350	83130	35830	14290	12290
MAX	20000	22700	17600	26500	20300	23100	38400	75700	95400	79700	19300	14200
MIN	15700	8040	7670	9360	13100	13200	14500	28400	66000	16800	10800	9150
AC-FT	1137000	881700	728800	1027000	897300	1066000	1611000	2789000	4946000	2203000	878900	731600
		STAT	ristics o	F MONTHLY	MEAN DATA	A FOR WATER	YEARS 1	903 - 2002	, BY WATE	R YEAR (W	Y)	
MEAN	17650	18400	16300	15580	16400	19070	27360	49620	62020	32230	14180	13480
MAX	31330	32280	36790	40010	41290	42260	56940	97850	114900	73730	45210	21990
(WY)	1960	1960	1996	1934	1996	1996	1956	1997	1933	1907	1907	1907
MIN	6208	6049	5987	4271	4380	6622	5507	15320	15220	7295	5875	6353
(WY)	1932	1937	1937	1937	1936	1937	1977	1977	1977	1977	1988	1931
SUMMAR	RY STATIST	'ICS	FOR	2001 CALEN	IDAR YEAR		FOR 2002	WATER YEA	R	WATER	YEARS 1903	- 2002
LOWEST HIGHES LOWEST ANNUAL ANNUAL 10 PER 50 PER		AN AN N MINIMUM C-FT) DS DS	969 2 1	3390 9500	May 3 Mar 5 Mar 3	185	95400 7670 8770 900000 66900 17500	Jun Dec 1 Dec	3	25140 38600 12920 135000 2420 3280 18210000 52700 18900 8610	Sep	1997 1941 19 1933 19 1962 28 1962

12396500 PEND OREILLE RIVER BELOW BOX CANYON, NEAR IONE, WA

LOCATION.--Lat 48°46'52", long 117°24'55", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.19 T.38 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, on left bank 1,000 ft downstream from Box Canyon Dam, 2.8 mi north of Ione, and at mile 34.3.

DRAINAGE AREA. -- 24,900 mi², approximately.

PERIOD OF RECORD. -- October 1952 to current year.

REVISED RECORDS. -- WSP 1933: Drainage area. WDR WA-81-2: 1976.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Prior to Mar. 29, 1954, nonrecording gage at site 300 ft upstream at same datum. Mar. 29 to Aug. 25, 1954, nonrecording gage at present site and datum. Since Aug. 20, 1967, auxiliary water-stage recorder 1.2 mi downstream at same datum.

REMARKS.--No estimated daily discharges. Records fair except those below 10,000 ft³/s, which are poor. Flow regulated by Box Canyon Reservoir, 1,000 ft upstream, since June 1955 and by Pend Oreille Lake, Flathead Lake, Hungry Horse Reservoir, and by several smaller reservoirs and powerplants. Numerous diversions upstream from station for irrigation.

AVERAGE DISCHARGE.--50 years (water years 1953-2002), 26,590 ft³/s, 19,264,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 136,000 ft³/s June 13, 14, 1972; maximum daily elevation, 2,015.44 ft June 5, 7, 1997 (mean of surge), (backwater from Boundary Dam); minimum daily discharge, 82 ft³/s Oct. 5, 1985 (result of regulation).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1948 reached an elevation of 2,018.00 ft, from floodmarks, discharge, 167,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 100,000 ft³/s June 10; maximum elevation, 2,007.47 ft June 10, (backwater from Boundary Dam); minimum daily discharge, 7,770 ft³/s Nov. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES DAY OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP TOTAL MEAN MAX AC-FT 1105000

CAL YR 2001 TOTAL 4895970 MEAN 13410 MAX 30200 MIN 5690 AC-FT 9711000 WTR YR 2002 TOTAL 9495070 MEAN 26010 MAX 93700 MIN 7770 AC-FT 18830000

12396900 SULLIVAN CREEK ABOVE OUTLET CREEK, NEAR METALINE FALLS, WA

LOCATION.--Lat $48^{\circ}50^{\circ}44^{\circ}$, long $117^{\circ}17^{\circ}08^{\circ}$, in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.30, T.39 N., R.44 E., Pend Oreille County, Hydrologic Unit 17010216, Colville National Forest, on left bank, at upstream side of road bridge, 0.1 mi upstream from Outlet Creek, 4 mi southeast of Metaline Falls, and at mile 5.0.

DRAINAGE AREA. -- 70.2 mi2.

Date

May 22

PERIOD OF RECORD.--January 1959 to September 1972, April 1994 to current year.

REVISED RECORD. -- WDR-95-1: 1994(M).

Time

1300

GAGE.--Water-stage recorder. Datum of gage is 2,550.2 ft above NGVD of 1929. Dec. 20, 1968, to September 1972, water-stage recorder 50 ft downstream at datum of 2,540.09 ft (revised to 2,556.75 ft Oct. 1, 1969) NGVD of 1929. Jan. 6, 1966, to Dec. 20, 1968, water-stage recorder 200 ft downstream at datum of 2,541.20 ft NGVD of 1929. Prior to Jan. 6, 1966, water-stage recorder 50 ft downstream at datum 2,540.09 ft NGVD of 1929.

REMARKS.--Records fair. No regulation or diversion upstream from station.

Discharge Gage height

(ft)

(ft³/s)

AVERAGE DISCHARGE.--21 years (water years 1960-72, 1995-2002), 124 ft³/s, 23.91 in/yr, 89,510 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,540 ${\rm ft}^3/{\rm s}$ June 1, 1997, May 25, 1999, maximum gage height, 5.57 ${\rm ft}$ June 1, 1997; minimum discharge, 6.5 ${\rm ft}^3/{\rm s}$ Feb. 23, 24, 1962.

831 4.36 May 29 1715 *1,160 *4.70

Time

Date

Discharge Gage height

 (ft^3/s)

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

Minimum dai:	ly discha	rge, 16 ft	3/s Dec.	26.								
		DISCHAF	RGE, CUBIO	C FEET PE	R SECOND, DAILY	WATER YE MEAN VA		R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	19 19 18 18	27 25 25 25 25	31 31 30 30 30	e18 e22 e25 e26 26	e35 35 34 33 33	e36 e34 e38 e39 e39	56 56 56 57 60	235 271 305 298 281	921 870 830 804 798	143 129 117 108 99	49 48 47 46 45	33 31 34 33 33
6 7 8 9 10	18 18 19 20 20	25 24 23 24 23	29 29 29 29 27	26 41 93 64 52	32 33 34 e33 e33	e37 e36 e34 e37 e42	69 72 73 75 85	260 239 222 209 199	759 640 568 504 463	91 84 120 106 93	45 44 43 42 42	35 35 34 34 33
11 12 13 14 15	22 22 22 24 22	22 22 22 35 44	29 26 29 30 27	47 46 44 42 34	34 29 35 33 33	e42 e43 e40 e39 e40	92 124 176 339 318	193 196 221 277 283	463 473 501 535 542	95 104 99 94 90	42 41 41 40 40	32 32 32 32 32
16 17 18 19 20	21 21 21 21 21	57 50 42 39 39	30 33 28 30 28	e32 e36 e35 41 43	35 36 35 35 35	e41 e39 e38 e41 e41	262 228 203 187 179	280 295 320 392 659	530 480 460 428 365	85 82 78 75 72	39 39 38 38 37	32 35 38 35 35
21 22 23 24 25	21 23 25 23 22	39 39 38 36 34	28 28 22 28 e20	44 40 39 39 39	35 46 53 e44 e24	e35 e43 e43 e45 e46	183 195 189 181 176	746 806 709 584 530	325 302 286 259 232	69 67 64 65 62	38 37 37 36 36	34 34 32 31 31
26 27 28 29 30 31	22 24 26 23 23 32	33 32 32 32 31	e16 e18 e22 e27 e25 e22	37 35 31 e28 e32 e35	e31 e36 e37 	e49 e49 51 51 52 53	173 169 167 173 198	534 634 909 1130 1080 998	212 197 179 189 162	60 58 56 54 52 51	35 36 35 37 37 35	30 31 31 30 35
TOTAL MEAN MAX MIN AC-FT CFSM IN.	668 21.55 32 18 1320 0.31 0.35	964 32.13 57 22 1910 0.46 0.51	841 27.13 33 16 1670 0.39 0.45	1192 38.45 93 18 2360 0.55 0.63	981 35.04 53 24 1950 0.50 0.52	1293 41.71 53 34 2560 0.59 0.69	4571 152.4 339 56 9070 2.17 2.42	14295 461.1 1130 193 28350 6.57 7.58	14277 475.9 921 162 28320 6.78 7.57	2622 84.58 143 51 5200 1.20 1.39	1245 40.16 49 35 2470 0.57 0.66	989 32.97 38 30 1960 0.47 0.52
STATIS	rics of M		AN DATA FO		YEARS 1959			YEAR (WY)				
MEAN MAX (WY) MIN (WY)	38.56 95.7 1960 21.5 2002	42.78 79.3 1998 21.7 1995	38.18 100 1996 20.3 1995	32.24 57.8 1960 17.4 1962	33.48 68.4 1996 16.4 1962	47.01 95.3 1972 16.5 1962	130.4 243 1969 41.4 2001	483.4 785 1997 211 2001	422.4 663 1967 133 2001	109.1 235 1999 59.2 2001	48.44 68.8 1999 34.2 1994	38.61 84.7 1997 24.1 2001
SUMMAR	Y STATIST	ICS	FOR 2	2001 CALE	NDAR YEAR	F	OR 2002 W	ATER YEAR		WATER YEAR	RS 1959 -	- 2002
LOWEST HIGHES' LOWEST ANNUAL ANNUAL ANNUAL ANNUAL 10 PERC 50 PERC	MEAN I ANNUAL ANNUAL M I DAILY M DAILY ME	EAN EAN AN Y MINIMUM AC-FT) CFSM) INCHES) EDS EDS		19875 54.4 445 16 16 39420 0.7 10.5 134 28 19	May 25 Jan 28 Feb 4		43938 120.4 1130 16 18 87150 1.7 23.2 319 39 23	May 29 Dec 26 Oct 1		123.6 179 54.5 1450 10 13 89510 1.7(23.9) 358 44 25		1962

e Estimated

12397000 SULLIVAN LAKE NEAR METALINE FALLS, WA

LOCATION.--Lat $48^{\circ}50'21"$, long $117^{\circ}17'15"$, in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.31, T.39 N., R.44 E., Pend Oreille County, Hydrologic Unit 17010216, Colville National Forest, 200 ft south of dam at outlet, and 4.0 mi southeast of Metaline Falls.

DRAINAGE AREA. -- 51.2 mi².

PERIOD OF RECORD.--May 1912 to September 1923, January 1959 to current year (fragmentary).

REVISED RECORDS. -- WSP 1933: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is NGVD of 1929 (levels by Pend Oreille County Public Utility District). Prior to Sept. 30, 1923, nonrecording gage on dam at outlet of lake at different datum.

REMARKS.--Lake elevation is controlled by concrete dam. Top of gates is at 2,588.7 ft, bottom of gates is at 2,584.7 ft. Bottom of sluiceway is at 2,564 ft. Some small diversions for domestic use.

COOPERATION.--Elevation record furnished by Public Utility District No. 1 of Pend Oreille County, supplemented by U.S. Geological Survey readings during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 2,589.94 ft July 15, 1975; minimum elevation observed, 2,564.00 ft on many days during period Jan. 6 to Mar. 25, 1970, and Feb. 11, 2002.

EXTREMES FOR CURRENT YEAR.--Maximum elevation observed, 2,588.10 ft July 9; minimum elevation observed, 2,564.00 ft Feb. 11.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		2578.30						2571.37		2587.91	2587.55	
2	2581.02	2577.78		2564.70			2564.75			2587.92		
3			2566.02				2565.72	2571.85	2586.95	2587.92		2586.88
4	2580.95								2587.27			
5		2576.80				2564.80			2587.43		2587.50	
		2570.00				2501.00			2507.15		2507.50	
6			2565.62		2564.05			2572.90	2587.52			
7		2575.88	2565 52	2564.71	2564 95				2587.58			
8		2575.50					2565.85			2588.02		
9		2574.98									2587.40	
10								2573.75				2586.75
10			2505.50				2300.00	25/5.75	2367.43	2300.00		2500.75
11				2564.90	2564.00				2587.50			
12	2581.01			2304.50	2304.00					2588.08		
13		2573.30					2567.70				2587.35	
14		2572.80				2304.07	2567.70	25/4.35				
15		2572.49						2575.05		2587.95		
16		2572.25					2569 00			2507 00		
							2568.48			2507.00		
17												
18				2565.20			2568.72			2587.85		
19		2571.10							2588.02			2586.55
20		2570.00			2564.25			2577.23			2587.16	
21		2570 09				2564.84		2578 02	2587.85			
22	2580.86	2370.03					2569.57			2587.63		
23	2580.80						2303.37			2307.03		2586.46
24	2580.55			2564.05				2579.65		2587.64		2360.40
25	2580.30				2564.80		2570.05		2587.70			
26	2579.95	2568 03	2564.70			2564 90	2570 23	2584 05	2587 68		2587.07	
27												
28		2567.12							2587.73		2587.00	
29	2578.98								2307.73		2307.00	
30	25/0.90						2571.00	2584.80			2587.00	
31		2566.57						2584.80				2586.35
3 L	2578.42							∠585.65				

pend oreille river basin 303

12397100 OUTLET CREEK NEAR METALINE FALLS, WA

LOCATION.--Lat $48^{\circ}50^{\circ}42^{\circ}$, long $117^{\circ}17^{\circ}12^{\circ}$, in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.30, T.39 N., R.44 E., Pend Oreille County, Hydrologic Unit 17010216, Colville National Forest, on right bank 0.1 mi upstream from mouth, 0.4 mi downstream from Sullivan Lake Dam, and 4 mi east of Metaline Falls.

DRAINAGE AREA. -- 51.5 mi².

PERIOD OF RECORD. -- January 1959 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,540.2 ft above NGVD of 1929.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated by Sullivan Lake 0.4 mi upstream (station 12397000). No diversions upstream from station.

AVERAGE DISCHARGE.--43 years (water years 1960-2002), 74.5 ft³/s, 53,970 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 924 ft^3/s May 31, 1969, gage height, 12.26 ft ; minimum discharge, 1.5 ft^3/s part or all of each day Mar. 4-10, 1990; minimum gage height, 8.76 ft part of each day Apr. 9-12, 1973, and Mar. 4-10, 1980.

DISCHARGE CURIC FEET PER SECOND WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 308 ${\rm ft}^3/{\rm s}$ Nov. 16, gage height, 10.77 ft, result of regulation; minimum discharge, 10 ${\rm ft}^3/{\rm s}$ May 3, result of regulation.

		DISCHA	RGE, CUBI	IC FEET PEF		WATER YI MEAN V		R 2001 TO	SEPTEME	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	203	137	30	34	29	26	12	143	102	22	21
2	12	202	119	30	33	28	22	12	169	98	22	21
3	12	200	108	29	32	28	21	16	213	88	22	21
4	12	197	98	26	32	27	21	20	244	79	22	21
5	12	218	89	24	31	27	21	19	263	79	22	20
6 7	12	235	80 72	23 26	31 31	27 27	22 22	19	283 298	78 76	22 22	20 20
8	12 12	238 252	72 67	26 37	31 32	27	22 17	18 17	298 306	76 83	22	20
9	12	252	62	48	31	27	14	16	306	85	22	20
10	12	247	58	54	30	28	15	15	257	85	22	20
11	12	244	54	57	30	30	15	15	232	84	22	20
12	12	239	50	61	29	31	16	15	232	84	22	20
13	12	250	51	61	29	31	16	16	232	81	22	20
14	12	269	48	59	27	31	18	16	233	81	22	20
15	12	278	45	57	27	31	19	16	233	74	21	20
16	12	292	44	55	26	31	24	16	233	67	21	19
17	12	300	42	53	25	31	22	16	237	66	21	19
18	12	290	39	52	25	30	23	17	255	64	21	19
19	12	293	38	51	25	30	24	e18	263	58	21	19
20	12	289	37	51	26	30	24	e20	261	52	21	19
21	12	284	37	50	26	29	25	e22	241	51	21	19
22	54	278	35	50	24	28	25	e24	217	38	21	19
23	110	263	33	48	26	28	25	e25	213	22	21	19
24	139	249	32	45	28	27	25	25	190	22	21	19
25	171	236	32	36	29	27	23	25	168	22	21	19
26	179	227	31	36	29	27	18	26	149	22	21	19
27	179	217	31	36	29	28	15	26	135	22	21	19
28	177	193	31	35	29	28	14	27	127	22	21	19
29	183	174	31	34		28	12	28	124	22	21	19
30 31	191 197	154	30 30	34 34		27 27	12	21 79	106	22 22	21 21	19
			30	34		21				22		
TOTAL	1832	7263	1691	1322	806	885	596	657	6563	1851	665	589
MEAN	59.10	242.1	54.55	42.65	28.79	28.55	19.87	21.19	218.8	59.71	21.45	19.63
MAX	197	300	137	61	34	31	26	79	306	102	22	21
MIN	12	154	30	23	24	27	12	12	106	22	21	19
AC-FT	3630	14410	3350	2620	1600	1760	1180	1300	13020	3670	1320	1170
STATIST	TICS OF M	ONTHLY ME	AN DATA F	FOR WATER Y	ZEARS 1959	- 2002	, BY WATER	YEAR (WY)				
MEAN	204.5	204.3	83.85	43.22	30.76	31.34	24.01	38.57	146.3	45.68	24.03	26.98
MAX	395	343	382	201	130	323	132	239	437	133	63.1	157
(WY)	1991	1985	1960	1984	1984	1959	1974	1961	1974	1999	1999	1965
MIN	15.7	18.0	16.2	13.4	8.15	2.07	1.93	3.60	5.51	6.58	6.93	6.99
(WY)	1974	1962	1976	1979	1981	1990	1973	1977	1977	1977	1977	1977
SUMMARY	STATIST	'ICS	FOR	2001 CALEN	NDAR YEAR	1	FOR 2002 W	ATER YEAR		WATER YEAR	RS 1959	- 2002
ANNUAL	TOTAL			14069.6			24720					
ANNUAL				38.55	5		67.7	3		74.5	0	
	T ANNUAL									132		1974
	ANNUAL M			_				_		42.7	_	1993
	DAILY M			300	Nov 17		306	Jun 8		842		
	DAILY ME			6.3	Jun 1		12	Oct 1		1.5		5 1990
		Y MINIMUM		7.9	May 31		12	Oct 1		1.5	Mar	4 1990
	RUNOFF (CENT EXCE			27910 161			49030 232			53970 244		
	CENT EXCE			161			232			244 25		
	CENT EXCE			9.7			16			5.8		
20 L DICC		~		2.,						5.0		

e Estimated

12398000 SULLIVAN CREEK AT METALINE FALLS, WA

LOCATION.--Lat 48°51'37", long 117°21'47", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.22, T.39 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, on left pier of State highway bridge, 0.5 mi upstream from mouth, 0.5 mi east of Metaline Falls and at mile 0.5.

DRAINAGE AREA. -- 142 mi2.

PERIOD OF RECORD.--October 1953 to November 1968, April 1994 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,050 ft above NGVD of 1929, from topographic map. Aug. 24, 1956, to November 1968, water-stage recorder 100 ft downstream, at different datum. Prior to Aug. 24, 1956, staff gage at site 20 ft upstream at different datum.

REMARKS.--Records fair except for those above 1,000 ${\rm ft}^3/{\rm s}$, which are poor. Some regulation by storage in Sullivan Lake. Small diversions upstream from station for municipal water supply.

AVERAGE DISCHARGE.--23 years (water years 1954-68, 1995-2002), 240 ft³/s, 174,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 4,350 ${\rm ft}^3/{\rm s}$ June 1, 1997, gage height, 4.38 ft; minimum discharge, 7.3 ${\rm ft}^3/{\rm s}$ Jan. 1, 1958, result of freezeup; minimum daily discharge, 27 ${\rm ft}^3/{\rm s}$ Jan. 1, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,670 ${\rm ft}^3/{\rm s}$ May 28, gage height, 2.21 ft, minimum discharge, 39 ${\rm ft}^3/{\rm s}$ Oct. 4, 5 and 7.

	DI	SCHARGE,	CUBIC FEET	PER SECONI			OCTOBER 2001 VALUES	TO SEPTE	MBER 200)2		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	256	178	52	85	86	93	302	1240	310	92	67
2	41	248	159	57	84	83	90	360	1170	287	91	65
3	40	246	148	59	81	86	87	424	1190	263	89	69
4	40	243	137	57	80	86	88	430	1140	238	87	67
5	39	262	128	55	79	86	91	404	1160	225	86	64
6	39	286	124	57	79	83		372	1200	212	85	64
7	39	283	119	75	81	81		331	1100	201	84	63
8 9	40 41	296 299	110 104	171 156	81 78	79 82		300 278	988 883	271 278	82 81	62 62
10	42	295	94	140	78	87		261	739	244	80	61
11	46	291	93	135	78	89		251	694	232	79	61
12	45	287	85	137	69	90		252	728	218	77	60
13	45	293	91	135	75	87		277	793	208	76	59
14	47	324	95	128	72	85		361	894	202	75	59
15	45	357	83	111	70	86	520	380	924	191	75	59
16	43	380	86	107	72	87	418	375	913	174	73	59
17	43	385	96	109	74	84	347	393	834	167	72	61
18	42	368	79	101	72	82	310	439	831	161	71	64
19	42	359	79	108	72	84		514	826	152	70	61
20	42	353	74	110	72	83	267	836	711	142	70	59
21	43	346	73	109	71	76	265	988	656	138	70	59
22	72	342	70	102	81	83		1090	607	131	69	59
23	141	327	61	98	102	83	275	943	602	112	69	59
24	169	312	64	99	94	83	259	750	554	112	68	58
25	204	296	61	93	74	84	250	649	486	109	68	57
26	223	286	53	89	81	86	239	639	437	106	68	58
27	223	273	53	84	86	87	225	736	399	103	68	58
28	225	248	60	78	87	88		1150	372	100	67	57
29	224	222	63	70		87	220	1410	391	98	68	58
30	233	196	61	81		87	247	1340	343	97	71	64
31	249		59	85		90		1260		95	68	
TOTAL	2848	8959	2840		2208	2630		18495	23805	5577	2349	1833
MEAN	91.87	298.6	91.61		8.86	84.84		596.6	793.5	179.9	75.77	61.10
MAX	249	385	178	171	102	90		1410	1240	310	92	69
MIN	39	196	53	52	69	76		251	343	95	67	57
AC-FT	5650	17770	5630	6050	4380	5220	13110	36680	47220	11060	4660	3640
STATIST	TICS OF M	ONTHLY M	EAN DATA FO	R WATER YEA	RS 1954	- 200	2, BY WATER	YEAR (WY)				
MEAN	223.2	213.5	147.3		9.86	112.3		670.1	721.6	197.0	86.65	87.39
MAX	370	460	465	230	147	360		1398	1590	630	183	262
(WY)	1967	1996	1960		1959	1959		1997	1999	1999	1999	1957
MIN	55.4	52.7	44.6		35.6	42.2		266	189	92.5	54.3	43.0
(WY)	1959	1957	1958	1958	2001	2001	2001	2001	2001	2001	2001	2001
SUMMARY	STATIST	ICS	FOR 2	001 CALENDA	R YEAR		FOR 2002 WA	TER YEAR		WATER YEA	RS 1954 -	- 2002
ANNUAL				40053			81204					
ANNUAL				109.7			222.5			240.2		
	C ANNUAL									386		1997
	ANNUAL M			440			4.4.0	M 05		121	_	2001
	DAILY M				May 25 Feb 7		1410	May 29		4020	Jun 1	
	DAILY ME SEVEN-DA		Mr.		Feb 7 Feb 5		39 40	Oct 5 Oct 2		27 30	Jan 1	
	RUNOFF (*1	79450	ren 5		161100	OCL 2		174000	Dec 31	130/
	CENT EXCE			273			534			557		
	CENT EXCE			57			96			115		
	CENT EXCE			38			59			56		

12398550 BOUNDARY DAM RESERVOIR NEAR METALINE FALLS, WA

LOCATION.--Lat $48^{\circ}59^{\circ}20^{\circ}$, long $117^{\circ}20^{\circ}55^{\circ}$, in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.10, T.40 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, at Boundary Dam 1.0 mi upstream from international boundary, 8.8 mi north of Metaline Falls and at mile 17.

DRAINAGE AREA.--25,200 mi², approximately.

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- April 1999 to current year.

PERIOD OF DAILY RECORD . - -

WATER TEMPERATURE: April 1999 to current year.
TOTAL DISSOLVED GAS: April 1999 to current year.

INSTRUMENTATION. -- Water-quality monitor since April 1999.

REMARKS.--Temperature record rated excellent. Total dissolved gas record rated good.

EXTREMES FOR PERIOD OF RECORD.-WATER TEMPERATURE: Maximum recorded, 24.0°C (rounded) on several days during August, 2000, but may have been higher during periods of missing record; minimum recorded, 0.0°C Dec. 21-29, 2001, but may have occurred during periods of missing winter record.

TOTAL DISSOLVED GAS: Maximum recorded, 137 percent June 22, 2002; minimum 92 percent, Dec. 28, 2000, but may have been lower

during periods of missing record.

EXTREMES FOR CURRENT YEAR. --

WATER TEMPERATURE: Maximum, 23.5°C on July 29; minimum, 0.1°C Jan. 7-9.

TOTAL DISSOLVED GAS: Maximum, 137 percent, June 22; minimum, 95 percent, Dec. 23-26, Feb. 2, but may have been lower during periods of missing record.

PRESSURE, TOTAL PARTIAL, DISSOLVED GASSES, UNFILTERED, PERCENT SATURATION, OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN									
		OCTOBER		No	OVEMBER		Di	ECEMBER			JANUARY	
1	99	98	98	97	97	97	98	99	99	96	96	96
2	98	98	98	96	97	97	98	99	98	97	97	97
3	98	98	98	97	96	96	97	98	98	97	97	97
4	98	97	97	97	97	97	97	97	97	96	96	96
5	98	98	98	98	98	98	97	97	97	97	96	96
6	98	99	99	97	98	97	96	97	97	98	98	98
7	98	97	98	96	96	96	95	96	95	99	99	99
8	98	97	98	96	97	96	95	97	96	98	99	99
9	97	97	97	97	97	97	96	97	96	98	98	98
10	97	97	97	97	97	97	97	97	97	99	97	98
11	97	98	97	97	98	98	97	97	97	100	100	99
12	96	97	96	98	99	99	97	98	97	101	101	101
13	96	96	96	99	99	99	98	100	99	100	98	99
14	96	96	96	98	98	98	98	100	99	99	98	99
15	96	96	96	98	98	98	97	97	97	98	97	98
16	97	97	97	98	98	98	98	98	98	97	97	97
17	97	97	97	97	98	98	96	98	97	96	96	96
18	97	96	97	97	97	97				96	97	96
19	97	97	97	97	98	98				97	97	97
20	97	97	97	99	99	99				98	98	98
21	98	98	98	100	100	100				98	98	98
22	98	99	99	100	101	101	96	96	96	97	97	97
23	97	99	98	99	100	99	94	95	95	96	97	96
24	97	97	96	99	100	100	95	95	95	97	98	97
25	96	96	96	98	100	99	95	95	95	98	98	98
26	97	96	97	97	98	97	96	95	95	98	98	98
27	98	98	99	97	98	97	96	97	96	97	98	97
28	98	97	97	98	100	99	97	97	96	97	97	97
29	98	97	98	99	100	100	96	96	96	97	97	97
30	98	99	98	98	98	98	96	96	96	97	96	97
31	98	99	98				96	96	96	96	96	96
MONTH	99	96	97	100	96	98				101	96	97

12398550 BOUNDARY DAM RESERVOIR NEAR METALINE FALLS, WA--Continued

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12398550 BOUNDARY DAM RESERVOIR NEAR METALINE FALLS, WA--Continued TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Table Tabl	DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
6 16.2 15.8 16.1 9.1 9.0 9.1 4.3 3.9 4.2 0.3 0.2 0.2 7 15.9 15.6 15.8 9.0 8.8 9.0 3.9 3.5 3.8 0.2 0.1 0.2 9 15.2 14.7 15.1 8.7 8.8 8.5 3.2 2.9 3.1 0.4 0.1 0.2 9 15.2 14.7 15.1 8.7 8.2 8.5 3.2 2.9 3.1 0.4 0.1 0.2 10 14.8 14.2 14.5 8.2 7.7 7.9 3.0 2.7 2.8 1.1 0.4 0.7 1.2 11 14.2 13.8 14.0 7.7 7.5 7.6 2.8 2.6 2.8 1.6 1.1 1.4 1.5 13 13.4 13.0 13.2 7.4 7.3 7.3 2.6 2.5 2.6 1.7 1.4 1.5 13 13.4 13.0 13.2 7.4 7.3 7.3 2.6 2.5 2.6 2.2 1.7 1.9 14 13.1 12.7 12.9 7.3 7.3 7.3 2.6 2.5 2.6 2.2 1.7 1.9 14 13.1 12.7 12.9 7.3 7.3 7.3 2.4 2.0 2.3 2.6 2.5 2.6 1.7 1.9 1.4 15. 12.7 12.5 12.6 7.4 7.2 7.3 2.4 2.0 2.3 2.6 2.5 2.6 1.7 1.9 1.9 1.1 12.1 12.3 12.0 12.1 7.5 7.3 7.4 2.4 2.0 2.3 2.5 2.6 2.5 2.6 2.2 1.7 1.9 1.9 1.9 1.1 1.9 1.1 1.1 1.1 1.1 1.1			OCTOBER		1	NOVEMBER		DI	ECEMBER			JANUARY	
6 16.2 15.8 16.1 9.1 9.0 9.1 4.3 3.9 4.2 0.3 0.2 0.2 7 15.9 15.6 15.8 9.0 8.8 9.0 3.9 3.5 3.8 0.2 0.1 0.2 9 15.2 14.7 15.1 8.7 8.8 8.5 3.2 2.9 3.1 0.4 0.1 0.2 9 15.2 14.7 15.1 8.7 8.2 8.5 3.2 2.9 3.1 0.4 0.1 0.2 10 14.8 14.2 14.5 8.2 7.7 7.9 3.0 2.7 2.8 1.1 0.4 0.7 1.2 11 14.2 13.8 14.0 7.7 7.5 7.6 2.8 2.6 2.8 1.6 1.1 1.4 1.5 13 13.4 13.0 13.2 7.4 7.3 7.3 2.6 2.5 2.6 1.7 1.4 1.5 13 13.4 13.0 13.2 7.4 7.3 7.3 2.6 2.5 2.6 2.2 1.7 1.9 14 13.1 12.7 12.9 7.3 7.3 7.3 2.6 2.5 2.6 2.2 1.7 1.9 14 13.1 12.7 12.9 7.3 7.3 7.3 2.4 2.0 2.3 2.6 2.5 2.6 1.7 1.9 1.4 15. 12.7 12.5 12.6 7.4 7.2 7.3 2.4 2.0 2.3 2.6 2.5 2.6 1.7 1.9 1.9 1.1 12.1 12.3 12.0 12.1 7.5 7.3 7.4 2.4 2.0 2.3 2.5 2.6 2.5 2.6 2.2 1.7 1.9 1.9 1.9 1.1 1.9 1.1 1.1 1.1 1.1 1.1	2 3 4	17.7 17.3 17.0	17.6 17.2 16.9 16.5 16.2	17.7 17.4 17.1 16.7 16.3	9.2 9.0 9.2 9.1 9.2	9.0 9.0 9.0 9.0	9.1 9.0 9.1 9.1 9.2	5.8 5.7 5.3 5.0 4.6	5.5 5.3 4.9 4.6 4.2	5.7 5.5 5.1 4.8 4.4	0.7 0.6 0.5 0.4 0.3	0.5 0.4 0.3 0.3	0.6 0.5 0.4 0.3
11 14.2 13.8 14.0 7.7 7.5 7.6 2.8 2.6 2.8 1.6 1.1 1.4 1.2 1.4 12 13.8 13.4 13.6 7.5 7.4 7.4 2.7 2.5 2.6 1.7 1.4 1.5 1.7 1.4 1.5 1.7 7.7 7.6 7.7 7.8 2.8 2.6 2.5 2.6 1.7 1.4 1.5 1.6 1.1 1.4 1.5 11.7 1.4 1.5 1.6 1.6 1.1 1.4 1.5 1.6 1.6 1.1 1.4 1.5 1.6 1.6 1.1 1.4 1.5 1.6 1.6 1.1 1.4 1.5 1.6 1.6 1.1 1.4 1.5 1.7 1.4 1.5 1.7 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9	7 8 9	15.9 15.6 15.2								4.2 3.8 3.3 3.1 2.8	0.3 0.2 0.2 0.4 1.1	0.2 0.1 0.1 0.1 0.4	0.2 0.2 0.2 0.2 0.7
21 11.4 11.0 11.2 7.7 7.6 7.7 2.2 2.1 2.2 1.4 1.2 1.4 22 11.1 10.8 11.0 7.6 7.6 7.6 7.6 2.1 1.9 2.1 1.3 1.2 1.3 23 10.8 10.7 10.8 7.6 7.5 7.6 2.0 1.7 1.8 1.4 1.2 1.3 24 10.7 10.4 10.6 7.5 7.4 7.5 1.7 1.6 1.7 1.3 1.2 1.3 25 10.4 10.0 10.2 7.4 7.2 7.3 1.6 1.5 1.5 1.2 1.1 1.2 26 10.0 9.8 9.9 7.2 6.9 7.1 1.6 1.5 1.5 1.5 1.2 1.1 1.2 28 9.7 9.8 9.6 9.7 7.0 6.7 6.8 1.7 1.6 1.6 1.7 1.3 1.2 1.2 28 9.7 9.6 9.6 6.7 6.5 6.6 1.6 1.6 1.4 1.5 1.3 1.2 1.3 29 9.6 9.6 9.6 6.7 6.5 6.6 6.2 6.4 1.4 1.2 1.3 1.5 1.3 1.2 1.3 29 9.6 9.6 9.6 6.5 6.2 6.4 1.4 1.2 1.3 1.5 1.3 1.2 1.3 30 9.6 9.4 9.5 6.2 5.8 6.0 1.2 0.9 1.1 1.6 1.5 1.5 1.5 1.3 1.4 MONTH 17.9 9.2 12.9 9.2 5.8 7.8 5.8 0.6 2.7 2.6 0.1 1.2 DAY MAX MIN MEAN MAX MIN MAX MIN MEAN MAX MIN	11 12 13 14 15	14.2 13.8 13.4 13.1 12.7	13.8										
26 10.0 9.8 9.9 7.2 6.9 7.1 1.6 1.5 1.6 1.1 1.0 1.1 27 9.8 9.6 9.7 7.0 6.7 6.8 1.7 1.6 1.6 1.2 1.1 1.2 28 9.7 9.6 9.6 6.7 6.5 6.6 1.6 1.4 1.5 1.3 1.2 1.3 29 9.6 9.6 9.6 6.5 6.2 6.4 1.4 1.2 1.3 1.5 1.3 1.4 1.5 31 9.4 9.2 9.4 1.0 0.6 0.8 1.5 1.3 1.4 MONTH 17.9 9.2 12.9 9.2 5.8 7.8 5.8 0.6 2.7 2.6 0.1 1.2 DAY MAX MIN MEAN MAX MIN MAX MI	16 17 18 19 20	12.6 12.3 12.0 11.8 11.5	12.1 12.0 11.8 11.5	12.4 12.1 11.9 11.7 11.5	7.4 7.5 7.6 7.7	7.3 7.5 7.6 7.6	7.3 7.4 7.5 7.6 7.7	2.3 2.4 2.3 2.3 2.3	2.2 2.2 2.1 2.3 2.2	2.3 2.3 2.2 2.3 2.2	2.6 2.4 2.2 1.8	2.3 2.1 1.7 1.5	2.5 2.3 1.9 1.6 1.4
MONTH 17.9 9.2 12.9 9.2 5.8 7.8 5.8 0.6 2.7 2.6 0.1 1.2 DAY MAX MIN MEAN FEBRUARY MARCH APRIL MAY	21 22 23 24 25	11.4 11.1 10.8 10.7 10.4	11.0 10.8 10.7 10.4 10.0	11.2 11.0 10.8 10.6 10.2	7.7 7.6 7.6 7.5 7.4	7.6 7.6 7.5 7.4 7.2	7.7 7.6 7.6 7.5 7.3	2.2 2.1 2.0 1.7 1.6	2.1 1.9 1.7 1.6 1.5	2.2 2.1 1.8 1.7	1.4 1.3 1.4 1.3	1.2 1.2 1.2 1.2 1.1	1.4 1.3 1.3 1.2
MONTH 17.9 9.2 12.9 9.2 5.8 7.8 5.8 0.6 2.7 2.6 0.1 1.2 DAY MAX MIN MEAN FEBRUARY MARCH APRIL MAY	26 27 28 29 30 31	10.0 9.8 9.7 9.6 9.6 9.4	9.8 9.6 9.6 9.4 9.2	9.9 9.7 9.6 9.5 9.4	7.2 7.0 6.7 6.5 6.2	6.9 6.7 6.5 6.2 5.8	7.1 6.8 6.6 6.4 6.0	1.6 1.7 1.6 1.4 1.2	1.5 1.6 1.4 1.2 0.9 0.6	1.6 1.6 1.5 1.3 1.1	1.1 1.2 1.3 1.5 1.6	1.0 1.1 1.2 1.3 1.5	1.1 1.2 1.3 1.4 1.5
FEBRUARY MARCH APRIL MAY	MONTH	17.9	9.2										
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	1 2 3 4 5	1.3 1.2 1.6 1.7	1.0 1.0 1.1 1.5 1.5	1.2 1.1 1.3 1.6 1.7	2.5 2.0 1.7 1.7	MARCH 1.8 1.6 1.6 1.4 1.6	2.2 1.8 1.7 1.6 1.7	4.7 5.7 5.9 6.1 6.6	3.5 4.6 5.2 5.4 5.7	4.2 5.0 5.4 5.7 5.9	9.5 9.6 10.2 10.0	MAY 8.6 9.0 9.6 9.9	9.0 9.4 9.9 10.0 9.8
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			FEBRUARY			MARCH			APRIL			MAY	
11 24 22 24 16 14 15 71 60 70 00 01 06	1 2 3 4 5 6 7 8 9	1.3 1.2 1.6 1.7 1.8 1.7 1.7 1.9 2.1 2.3	1.0 1.0 1.1 1.5 1.5 1.6 1.6 1.7 1.9	1.2 1.1 1.3 1.6 1.7 1.6 1.7 1.8 2.0 2.1	2.5 2.0 1.7 1.7 1.8 1.8 1.7 1.6 1.4	1.8 1.6 1.6 1.4 1.6 1.5 1.4 1.2	2.2 1.8 1.7 1.6 1.7 1.7 1.6 1.5 1.4	4.7 5.7 5.9 6.1 6.6 6.3 6.5 7.0 7.1 7.1	3.5 4.6 5.2 5.4 5.7 6.0 6.2 6.3 6.6	4.2 5.0 5.4 5.7 5.9 6.1 6.4 6.6 6.8 7.0	9.5 9.6 10.2 10.0 10.0 9.9 9.7 9.3 8.3 8.3	MAY 8.6 9.0 9.6 9.9 9.8 9.7 9.3 8.3 7.8 7.8	9.0 9.4 9.9 10.0 9.8 9.6 8.9 8.1
14 2.3 2.2 2.3 2.1 1.7 1.8 7.7 7.4 7.5 10.6 9.8 10.2	1 2 3 4 5 6 7 8 9 10 11 12 13 14	1.3 1.2 1.6 1.7 1.8 1.7 1.9 2.1 2.3 2.4 2.4 2.3 2.3	1.0 1.0 1.1 1.5 1.5 1.6 1.6 1.7 1.9 1.9	1.2 1.1 1.3 1.6 1.7 1.6 2.0 2.1 2.4 2.3 2.3 2.3	2.5 2.0 1.7 1.7 1.8 1.8 1.7 1.6 1.4 1.4	MARCH 1.8 1.6 1.6 1.4 1.6 1.5 1.4 1.2 1.3 1.4 1.6 1.6 1.7	2.2 1.8 1.7 1.6 1.7 1.7 1.6 1.5 1.4 1.4	4.7 5.7 5.9 6.1 6.6 6.3 6.5 7.0 7.1 7.1 7.1 7.1	APRIL 3.5 4.6 5.2 5.4 5.7 6.0 6.2 6.3 6.6 6.8 6.9 7.0 7.4	4.2 5.0 5.7 5.9 6.1 6.4 6.8 7.0 7.0 7.0 7.5	9.5 9.6 10.2 10.0 10.0 9.9 9.7 9.3 8.3 8.3 8.9 9.5 10.1	MAY 8.6 9.0 9.6 9.9 9.8 9.7 9.3 8.3 7.8 7.8 8.1 8.7 9.3 9.8	9.0 9.4 9.9 10.0 9.8 9.6 8.9 8.1 8.1 8.6 9.1 9.7
14 2.3 2.2 2.3 2.1 1.7 1.8 7.7 7.4 7.5 10.6 9.8 10.2 15 2.3 2.1 2.0 2.0 7.8 7.6 7.7 10.8 10.4 10.6 16 2.3 2.0 2.2 2.0 1.9 1.9 8.1 7.7 7.9 11.0 10.6 10.8 17 2.2 2.1 2.1 1.7 1.9 7.7 7.1 7.4 11.0 10.7 10.8 18 2.1 1.9 2.0 2.6 2.0 2.3 7.2 6.9 7.1 11.5 11.0 11.3 19 2.2 2.0 2.1 2.8 2.6 2.7 6.9 6.7 6.8 11.5 11.3 11.4	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	1.3 1.2 1.6 1.7 1.8 1.7 1.7 1.9 2.1 2.3 2.4 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.2	FEBRUARY 1.0 1.0 1.1 1.5 1.5 1.6 1.6 1.7 1.9 1.9 2.3 2.0 2.1 2.0 2.1 1.9 2.0	1.2 1.1 1.3 1.6 1.7 1.6 1.7 1.8 2.0 2.1 2.4 2.3 2.3 2.3 2.3 2.2 2.1 2.1	2.5 2.0 1.7 1.7 1.8 1.8 1.7 1.6 1.4 1.4 1.7 2.1 2.1 2.1 2.1 2.1 2.6 2.1	MARCH 1.8 1.6 1.6 1.4 1.6 1.5 1.4 1.2 1.3 1.4 1.6 1.6 1.7 2.0	2.2 1.8 1.7 1.6 1.7 1.5 1.4 1.4 1.5 1.6 1.8 2.0	4.7 5.7 5.9 6.1 6.6 6.3 6.5 7.0 7.1 7.1 7.1 7.1 7.8 8.1 7.7 7.8	APRIL 3.5 4.6 5.2 5.4 5.7 6.0 6.2 6.3 6.6 6.8 6.9 7.0 7.4 7.6 7.7 7.1 6.9 6.7	4.2 5.4 5.7 5.9 6.1 6.4 6.8 7.0 7.0 7.2 7.5 7.7 7.4 7.1 6.8	9.5 9.6 10.2 10.0 10.0 9.9 9.7 9.3 8.3 8.3 8.9 9.5 10.1 10.6 10.8	MAY 8.6 9.0 9.6 9.9 9.8 9.7 9.3 8.3 7.8 7.8 8.1 8.7 9.3 9.8 10.4 10.6 10.7 11.0 11.3	9.0 9.4 9.9 10.0 9.8 9.8 9.6 8.1 8.1 8.6 9.7 10.2 10.6 10.8 11.3 11.4
14 2.3 2.2 2.3 2.1 1.7 1.8 7.7 7.4 7.5 10.6 9.8 10.2 15 2.3 2.1 2.0 2.0 2.0 7.8 7.6 7.7 10.8 10.4 10.6 16 2.3 2.0 2.2 2.0 1.9 1.9 8.1 7.7 7.9 11.0 10.6 10.8 17 2.2 2.1 2.1 1.7 1.9 7.7 7.1 7.4 11.0 10.7 10.8 18 2.1 1.9 2.0 2.6 2.0 2.3 7.2 6.9 7.1 11.5 11.0 11.3 19 2.2 2.0 2.1 2.8 2.6 2.7 6.9 6.7 6.8 11.5 11.3 11.4 20 2.4 2.2 2.3 3.0 2.8 2.9 7.4 6.7 7.0 11.3 10.4 10.8 21 2.5 2.2 2.4 3.0 2.8 3.0 7.6 7.1 7.4	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	1.3 1.2 1.6 1.7 1.8 1.7 1.7 1.9 2.1 2.3 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.2 2.4 2.4 2.5 2.7 2.2 2.9	FEBRUARY 1.0 1.0 1.1 1.5 1.5 1.6 1.6 1.7 1.9 1.9 2.3 2.0 2.2 2.1 2.0 2.1 1.9 2.0 2.1 1.9 2.0 2.2 2.5 2.7 2.8	1.2 1.1 1.3 1.6 1.7 1.6 1.7 1.8 2.0 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1	2.5 2.0 1.7 1.7 1.8 1.8 1.7 1.6 1.4 1.4 1.7 2.1 2.1 2.1 2.1 2.1 2.1 2.1 3.0 3.0 3.0 3.0 3.0 3.2 8.2 7.2	MARCH 1.8 1.6 1.6 1.4 1.6 1.5 1.4 1.2 1.3 1.4 1.6 1.7 2.0 1.9 1.7 2.0 2.6 2.8 2.8 2.7 2.6 2.5	2.2 1.8 1.7 1.6 1.7 1.5 1.4 1.4 1.5 1.6 1.8 2.0 1.9 1.9 2.3 2.7 2.9	4.7 5.7 5.9 6.1 6.6 6.3 6.5 7.0 7.1 7.1 7.1 7.1 7.8 8.1 7.7 7.8 8.1 7.7 6.9 7.4 7.9 8.2 8.1	APRIL 3.5 4.6 5.2 5.4 5.7 6.0 6.2 6.3 6.6 6.8 6.9 7.0 7.4 7.6 7.7 7.1 6.9 6.7 7.1 7.6 7.9 7.8	4.2 5.4 5.7 5.9 6.1 6.6 6.8 7.0 7.0 7.2 7.5 7.7 7.4 7.1 6.8 7.0 7.4 7.8 8.0 8.0	9.5 9.6 10.2 10.0 10.0 9.9 9.7 9.3 8.3 8.9 9.5 10.1 10.6 10.8 11.0 11.5 11.5 11.3	MAY 8.6 9.0 9.6 9.9 9.8 9.7 9.3 8.3 7.8 7.8 8.1 8.7 9.3 9.8 10.4 10.6 10.7 11.3 10.4 10.3 10.8 11.0 9.9	9.0 9.4 9.9 10.0 9.8 9.8 9.6 8.9 8.1 8.1 8.6 9.7 10.2 10.6 10.8 11.3 11.4 10.8
14 2.3 2.2 2.3 2.1 1.7 1.8 7.7 7.4 7.5 10.6 9.8 10.2 15 2.3 2.1 2.0 2.0 2.0 7.8 7.6 7.7 10.8 10.4 10.6 16 2.3 2.0 2.2 2.0 1.9 1.9 8.1 7.7 7.9 11.0 10.6 10.8 17 2.2 2.1 2.1 1.7 1.9 7.7 7.1 7.4 11.0 10.7 10.8 18 2.1 1.9 2.0 2.6 2.0 2.3 7.2 6.9 7.1 11.5 11.0 11.3 19 2.2 2.0 2.1 2.8 2.6 2.7 6.9 6.7 6.8 11.5 11.3 11.4 20 2.4 2.2 2.3 3.0 2.8 2.9 7.4 6.7 7.0 11.3 10.4 10.8 21 2.5 2.2 2.4 3.0 2.8 3.0 7.6 7.1 7.4	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	1.3 1.2 1.6 1.7 1.8 1.7 1.9 2.1 2.3 2.4 2.3 2.3 2.3 2.3 2.3 2.2 2.1 2.2 2.4 2.5 2.7 2.8 2.9 2.9 2.8 2.7 2.7 2.8	FEBRUARY 1.0 1.0 1.1 1.5 1.5 1.6 1.6 1.7 1.9 2.3 2.0 2.2 2.1 2.0 2.1 1.9 2.0 2.1 1.9 2.0 2.2 2.5 2.7 2.8 2.7 2.8 2.7 2.6 2.4 2.4	1.2 1.1 1.3 1.6 1.7 1.6 1.7 1.8 2.0 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1	2.5 2.0 1.7 1.7 1.8 1.8 1.7 1.6 1.4 1.4 1.7 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 3.0 3.0 3.0 3.0 3.0 3.0 3.7 2.7	MARCH 1.8 1.6 1.6 1.4 1.6 1.5 1.4 1.6 1.7 2.0 1.9 1.7 2.0 2.6 2.8 2.7 2.6 2.5 3.0 3.3 3.3	2.2 1.8 1.7 1.6 1.7 1.5 1.4 1.4 1.5 1.6 1.8 2.0 1.9 1.9 2.3 2.7 2.9 3.0 2.8 2.7 2.6 2.8 3.5 3.5	4.7 5.7 5.9 6.1 6.6 6.3 6.5 7.0 7.1 7.1 7.1 7.1 7.7 7.8 8.1 7.7 7.2 6.9 7.4 7.6 7.9 8.1 8.1 8.1 8.1 8.2	APRIL 3.5 4.6 5.2 5.4 5.7 6.0 6.2 6.3 6.6 6.8 6.9 7.0 7.4 7.6 7.7 7.1 7.6 7.7 7.1 7.6 7.8 7.7 7.6 7.8 7.7 7.6	4.2 5.4 5.7 5.9 6.1 6.6 6.8 7.0 7.0 7.2 7.5 7.7 7.4 16.8 7.0 7.8 8.0 7.8 8.0 7.9	9.5 9.6 10.2 10.0 10.0 9.9 9.7 9.3 8.3 8.9 9.5 10.1 10.6 10.8 11.0 11.5 11.3 10.8 11.2 11.3 9.9	MAY 8.6 9.0 9.6 9.9 9.8 9.7 9.3 8.3 7.8 7.8 8.1 8.7 9.3 9.8 10.4 10.6 10.7 11.0 11.3 10.4 10.8 11.0 9.9 9.6 10.1 10.5 11.1	9.0 9.4 9.9 10.0 9.8 9.8 9.6 8.9 8.1 8.1 8.6 9.1 10.2 10.6 10.8 11.3 11.4 10.8 10.5 11.1 11.1 11.1 11.7 9.7 9.8 10.2 10.7 9.7
14 2.3 2.2 2.3 2.1 1.7 1.8 7.7 7.4 7.5 10.6 9.8 10.2 15 2.3 2.1 2.0 2.0 2.0 7.8 7.6 7.7 10.8 10.4 10.6 16 2.3 2.0 2.2 2.0 1.9 1.9 8.1 7.7 7.9 11.0 10.6 10.8 17 2.2 2.1 2.1 1.7 1.9 7.7 7.1 7.4 11.0 10.7 10.8 18 2.1 1.9 2.0 2.6 2.0 2.3 7.2 6.9 7.1 11.5 11.0 11.3 19 2.2 2.0 2.1 2.8 2.6 2.7 6.9 6.7 6.8 11.5 11.3 11.4 20 2.4 2.2 2.3 3.0 2.8 2.9 7.4 6.7 7.0 11.3 10.4 10.8 21 2.5 2.2 2.4 3.0 2.8 3.0 7.6 7.1 7.4	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	1.3 1.2 1.6 1.7 1.8 1.7 1.9 2.1 2.3 2.4 2.4 2.3 2.3 2.3 2.2 2.1 2.2 2.4 2.5 2.7 2.8 2.9 2.8 2.7 2.7 2.8 2.7 2.8	1.0 1.0 1.1 1.5 1.5 1.6 1.6 1.7 1.9 1.9 2.3 2.0 2.2 2.1 2.0 2.1 1.9 2.0 2.2 2.1 2.0 2.1 2.0 2.1 2.0 2.1 2.0 2.1 2.0 2.1 2.0 2.1 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0	1.2 1.1 1.3 1.6 1.7 1.6 1.7 1.8 2.0 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1	2.5 2.0 1.7 1.8 1.8 1.7 1.6 1.4 1.4 1.6 1.7 2.1 2.1 2.1 2.1 2.1 2.2 3.0 3.0 3.0 2.8 3.0 3.0 3.0 3.7 3.7 3.7	MARCH 1.8 1.6 1.6 1.4 1.6 1.5 1.4 1.2 1.3 1.4 1.6 1.6 2.0 1.9 1.7 2.0 2.6 2.8 2.8 2.7 2.6 2.5 2.5 3.0 3.3 3.3 3.0	2.2 1.8 1.7 1.6 1.7 1.6 1.5 1.4 1.4 1.5 1.6 1.8 2.0 1.9 2.3 2.7 2.9 3.0 2.8 2.7 2.7 2.6 2.8 3.5 3.5 3.5 3.5 3.5	4.7 5.7 5.9 6.1 6.6 6.3 6.5 7.0 7.1 7.1 7.1 7.4 7.7 7.8 8.1 7.7 7.2 9 8.2 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1	APRIL 3.5 4.6 5.2 5.4 5.7 6.0 6.2 6.3 6.6 6.8 6.9 7.0 7.4 7.6 7.7 1.1 6.9 6.7 7.1 7.6 7.7 7.6 7.7 7.6 7.7 7.6 8.0	4.20 5.45 5.75 6.14 66.87 7.00 7.02 7.57 7.77 7.44 7.88 8.00 7.89 8.4	9.5 9.6 10.2 10.0 10.0 9.9 9.7 9.3 8.3 8.3 8.9 9.5 10.1 10.6 10.8 11.0 11.5 11.3 10.8 11.2 11.2 11.2 11.3 9.9	MAY 8.6 9.0 9.6 9.9 9.8 9.7 9.3 8.3 7.8 7.8 10.4 10.6 10.7 11.0 11.3 10.4 10.3 10.8 11.0 9.6 9.6 10.1 11.1 11.6	9.0 9.4 9.9 10.0 9.8 9.6 8.9 8.1 8.6 9.1 9.7 10.2 10.6 10.8 11.3 11.1 11.1 10.7 9.7 9.8 10.2 11.1 11.1 11.1 11.7

12398550 BOUNDARY DAM RESERVOIR NEAR METALINE FALLS, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBE	ER
1 2 3 4 5	12.2 12.6 12.8 13.0 13.0	11.9 12.2 12.4 12.8 12.7	12.1 12.4 12.5 12.9	16.0 16.1 16.6 16.9 16.8	15.2 15.3 16.0 16.6 16.6	15.5 15.7 16.3 16.8 16.7	22.7 22.4 22.3 21.9 22.0	22.2 22.0 21.9 21.7 21.3	22.4 22.2 22.1 21.8 21.6	21.5 21.4 21.5 21.3 21.1	21.3 21.2 21.2 21.0 20.9	21.3 21.3 21.3 21.2 21.0
6 7 8 9 10	12.8 12.5 12.3 11.4 11.7	12.4 12.3 11.0 10.8 11.4	12.6 12.3 11.6 11.0	17.2 17.7 17.9 17.6 18.1	16.7 17.1 17.5 17.4 17.4	17.0 17.4 17.7 17.5 17.8	21.4 21.3 21.6 21.1 20.6	20.9 20.8 20.6 20.4 20.3	21.2 21.0 20.9 20.7 20.5	21.0 20.8 20.3 20.4 20.0	20.8 20.3 19.9 19.7 19.4	20.9 20.6 20.1 19.9 19.6
11 12 13 14 15	12.1 12.6 12.7 13.6 13.7	11.7 12.1 12.4 12.7 13.4	11.9 12.3 12.5 13.1 13.6	19.0 19.9 19.8 20.0 20.7	18.0 18.7 19.3 19.6 19.8	18.6 19.2 19.6 19.8 20.2	20.6 20.9 21.6 21.2 21.5	20.3 20.4 20.6 20.9 21.0	20.4 20.6 20.8 21.0 21.1	20.3 19.2 19.3 19.5	19.0 18.7 18.7 18.8 18.9	19.4 18.9 18.9 19.0 19.1
16 17 18 19 20	14.2 14.4 14.4 13.7 12.9	13.7 14.2 13.6 12.9 12.4	13.9 14.3 13.9 13.4 12.6	21.1 21.7 21.9 22.3 22.2	20.4 20.9 21.2 21.7 21.5	20.8 21.2 21.6 21.9 21.8	21.2 21.6 21.6 21.6 21.7	21.0 21.0 21.0 20.8 20.7	21.0 21.1 21.1 21.1 20.9	19.2 19.3 19.2 19.1 18.9	19.1 19.2 19.0 18.7 18.3	19.1 19.2 19.1 18.9 18.6
21 22 23 24 25	13.9 14.8 15.4 15.6 16.1	12.6 13.9 14.8 15.4 15.6	13.2 14.4 15.2 15.4 15.9	22.0 22.1 22.3 22.5 22.8	21.4 21.5 21.8 22.0 22.2	21.6 21.7 22.0 22.2 22.5	21.4 21.1 21.4 21.1 21.1	20.6 20.5 20.4 20.5 20.6	20.8 20.7 20.6 20.6 20.8	18.5 18.2 17.7 17.4 17.1	18.1 17.7 17.2 16.9 16.7	18.3 18.0 17.4 17.1 16.9
26 27 28 29 30 31	16.7 17.3 17.2 16.8 16.4	16.1 16.7 16.8 16.4 16.0	16.3 17.1 17.1 16.7 16.2	23.0 23.1 23.2 23.5 22.8 22.6	22.6 22.7 22.8 22.8 22.6 22.4	22.7 22.9 22.9 23.0 22.7 22.5	21.2 21.6 21.7 21.9 21.8 21.7	20.8 20.9 21.0 21.2 21.3 21.3	20.9 21.1 21.2 21.4 21.4 21.4	16.7 16.7 16.7 16.4 16.3	16.5 16.4 16.4 16.3 16.0	16.6 16.5 16.5 16.4 16.2
MONTH YEAR	17.3 23.5	10.8	13.7	23.5	15.2	20.0	22.7	20.3	21.1	21.5	16.0	18.9

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY

LOCATION.--Lat $48^{\circ}59^{\circ}56^{\circ}$, long $117^{\circ}21^{\circ}09^{\circ}$, in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.3, T.40 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, on left bank 0.1 mi upstream from international boundary, 0.9 mi downstream from Boundary Dam, 6.0 mi downstream from Slate Creek, 9.7 mi north of Metaline Falls, and at mile 16.1.

DRAINAGE AREA. -- 25,200 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1908 to September 1910 (gage heights only), December 1912 to October 1995, October 1996 to current year. Prior to October 1928, published as "Clark Fork at Metaline Falls," October 1928 to September 1937 as "Clark Fork below Z Canyon, near Metaline Falls," and October 1938 to September 1964 as "below Z Canyon, near Metaline Falls." Concurrent records published for present site December 1962 to September 1964.

REVISED RECORDS. -- WSP 442: 1913. WSP 1716: 1919.

GAGE.--Daily discharge determined from flow through turbines plus spillway flow when present. Datum of gage is 1,700.00 ft above NGVD of 1929 (City of Seattle Boundary Dam datum). Prior to Dec. 20, 1928, nonrecording gage at Metaline Falls at datum approximately 1,983.4 ft above NGVD of 1929. Dec. 20, 1928, to Sept. 30, 1964, water-stage recorder at site 1.3 mi upstream at datum 1,721.18 ft NGVD of 1929 (levels by Corps of Engineers).

REMARKS.--Flow regulated by Boundary Reservoir 0.9 mi upstream beginning April 1967, Box Canyon Reservoir beginning June 1955, Pend Oreille Lake beginning June 1952, Flathead Lake beginning April 1938, Hungry Horse Reservoir beginning September 1951, and by several smaller reservoirs and powerplants. In 1980 there were diversions for irrigation of 429,700 acres upstream from the station and there probably has not been any appreciable change since that time. Chemical analyses October 1973 to September 1986. Specific conductance records January 1974 to September 1981. Water temperature records April 1974 to

COOPERATION.--Discharge records at Boundary Dam provided by Seattle City Light's Power Resources Branch. The U.S. Geological Survey made 6 discharge measurements at this site during the year.

AVERAGE DISCHARGE.--89 years (water years 1913-95, 1997-2002), 26,620 ft³/s, 19,290,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 171,300 ft³/s June 13, 1948, gage height, 60.25 ft, site and datum then in use; minimum daily discharge, no flow Aug. 14, 21, 28, Sept. 4, 1988, Aug. 7, 1994, result of regulation.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1894 reached a stage of 69.0 ft, from floodmarks, at site and datum 1.3 mi upstream.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 96,900 ft³/s June 10; minimum daily discharge, 2,040 ft³/s Nov. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12400	18800	10700	8280	20800	19900	21500	37600	77700	80400	16100	9880
2	16400	20100	7630	10700	15000	13600	15600	35300	82500	74900	16500	8630
3	14800	21300	9530	10600	17000	9400	13900	29900	91700	65800	17700	10900
4	15700	17000	10600	13600	17900	15600	17500	36600	90700	59100	11800	9700
5	16000	20200	10500	10800	17700	17700	18200	28600	91000	53700	13100	11500
6	17200	18900	10300	7000	18400	15800	15900	32000	92800	48100	13800	12100
7	15100	20400	11500	14900	18400	14700	13100	42300	94100	42800	11800	13500
8	16200	22800	12000	14500	17600	16600	17800	37200	94000	45000	15100	12700
9	16600	22400	8200	23400	20900	13000	17600	41900	95600	42900	18800	12600
10	19600	24600	8440	25200	20200	14200	14700	40000	96900	45500	15800	11700
11	19400	19900	10200	25300	19400	15800	20300	37300	96600	39400	17600	12000
12	19900	20600	10400	27400	17300	19200	27700	35000	95200	35900	18300	12600
13	19400	15400	8940	22300	16800	18700	33400	34900	95300	34900	17000	14900
14	18800	13000	10600	21700	14600	18800	33600	29700	94700	35300	16100	11500
15	20400	11900	10400	20000	17400	19800	35900	30800	92600	35900	16300	10400
16	19700	16300	11800	18900	16200	23800	47900	31900	90400	36000	16900	14100
17	19600	18500	16500	19000	14800	23200	46500	32100	89900	36000	14700	13200
18	20000	15900	15600	18800	15100	25300	44800	33000	84500	33800	13500	14200
19	19600	15300	16000	17600	15000	23100	42300	30800	82300	31900	15000	14600
20	19900	11900	19500	17300	17500	22200	29900	40300	70700	34800	13700	15400
21	20400	11600	16800	17200	19200	21400	39600	41300	66000	28100	12000	10100
22	20600	2040	15200	17300	16500	16700	39000	49800	68300	29600	12300	16000
23	21100	10800	13600	16200	14000	17500	32900	60900	66700	23400	14000	13200
24	22300	10500	14500	17800	11200	10200	27300	72200	65500	23200	12500	14700
25	19900	8310	10900	18100	12500	15500	33900	77100	69400	22500	10700	13200
26	19900	11100	16000	15800	14500	22900	37600	74800	78200	22500	15400	13800
27	18100	12700	12000	13800	18800	20300	35200	67800	77300	22400	15000	13200
28	15000	10800	14500	16400	13900	21400	30700	66600	77500	19500	13100	11400
29	18500	14300	16500	18900		21300	34600	69400	79100	21800	13800	10600
30	21500	12100	17100	16000		18400	30100	77600	82600	20000	13900	11000
31	19600		10400	18100		16500		80000		17400	13700	
TOTAL	573600	469450	386840	532880	468600	562500	869000	1434700	2529800	1162500	456000	373310
MEAN	18500	15650	12480	17190	16740	18150	28970	46280	84330	37500	14710	12440
MAX	22300	24600	19500	27400	20900	25300	47900	80000	96900	80400	18800	16000
MIN	12400	2040	7630	7000	11200	9400	13100	28600	65500	17400	10700	8630
AC-FT	1138000	931200	767300	1057000	929500	1116000	1724000	2846000	5018000	2306000	904500	740500

CAL YR 2001 TOTAL 5072450 MEAN 13900 MAX 32400 MIN 2040 AC-FT 10060000 WTR YR 2002 TOTAL 9819180 MEAN 26900 MAX 96900 MIN 2040 AC-FT 19480000

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1974 to 1981 (National Stream-quality Accounting Network Station), Water-quality monitor April 1999 to current year.

PERIOD OF DAILY RECORD. -

SPECIFIC CONDUCTANCE: January 1974 to September 1981.
WATER TEMPERATURE: April 1974 to September 1981; April 1999 to current year.
TOTAL DISSOLVED GAS: May 1999 to current year.

INSTRUMENTATION. -- Water-quality monitor April 1974 to September 1981; April 1999 to current year.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Temperature record excellent except the following days that contain partial record which are considered good: Dec. 2, 3, Jan. 1, 2, 3, 5, 7, 8, 13-15, 17-19, 29-31, Feb. 1-6, 28, Mar. 1, 8, 15, 16, 18, 19, 21-23, Apr. 3, 4, 24, 25, 30, May 2, 14-17, July 13, 23, 24, 27. Total dissolved gas record good except Dec. 2, Jan. 1, 7, 8, 13-15, 17, 29, 30, Feb. 1, 6, Mar. 1, 8, 15, 16, 18, 19, 21, 22, Apr. 4, 24, 25, 30, May 2, 14-17, June 13, which are fair, and Dec. 3, Jan. 3, 13, 19, 31, Feb. 3, 5, Mar. 23, Apr. 3, and July 23-25 are poor. In addition to the water-quality monitor record, samples were collected approximately once a month from 1974 to 1981.

EXTREMES FOR PERIOD OF DAILY RECORD . --

SPECIFIC CONDUCTANCE: Maximum, 242 micromhos July 17, 1974; minimum, 62 micromhos April 25, 1975.
WATER TEMPERATURE: Maximum, 24.5°C (rounded) July 28-30, 1975; minimum, 0.0°C (rounded) at times during winter periods.
TOTAL DISSOLVED GAS: Maximum, 142 percent saturation Aug. 7, 15, 2000 and July 15, 2001, but may have been higher during periods of missing record; minimum, 92 percent saturation Dec. 18, 20, 28, 2000, but may have been lower during periods f of missing record.

EXTREMES FOR CURRENT YEAR.-WATER TEMPERATURE: Maximum, 22.9°C July 27-29, but may have been higher during periods of missing record; minimum, 0.2°C on Jan. 8 and 9, but may have been lower during periods of missing record.

TOTAL DISSOLVED GAS: Maximum, 141 percent saturation June 9, but may have been higher during periods of missing record; minimum, 94 percent saturation Nov. 18 and Dec. 7, but may have been lower during periods of missing record.

PRESSURE, TOTAL PARTIAL, DISSOLVED GASSES, UNFILTERED, PERCENT SATURATION, OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER		NO	OVEMBER		DI	ECEMBER			JANUARY	•
1 2	109	98	101	106	97	99	102	98	100	101	97	99
	114	98	100	109	96	99	104	100	102	103	98	100
3	109	97	101	105	96	98	104	97	99	106	99	101
4	109	98	101	101	97	98	107	96	98	107	96	100
5	114	98	101	120	97	100	107	96	99	101	97	98
6	120	98	101	105	96	98	107	96	99			
7	125 112	98 98	104 102	101 106	95 95	96 97	110 110 102	94 95	96 97	104 103	100	102 101
9	115	97	104	108	95	97	108	97	100	100	98	98
10	112	98	100	99	96	96	108	96	100	100	98	98
11	109	98	100	104	96	98	113	97	103	102	100	100
12	109	97	101	118	97	101	105	96	99	103	101	102
13 14	110 117	97 96	100	99 104	97 97	97 100	105 106 111	99 98	100 104	101 102	99 99	102 100 100
15	108	96	98	100	97	98	108	95	97	103	97	99
16	110	97	99	104	96	97	109	96	97	101	97	98
17	108	97	100	99	95	97	101	96	96	101	97	98
18	108	97	101	100	94	97	100	96	97	100	98	98
19	106	98	101	103	96	98	99	96	97	101	98	99
20	106	98	100	113	97	102	101	97	98	108	98	101
21	105	98	99	109	99	101	103	97	99	100	98	99
22	105	99	100	113	100	106	105	96	98	100	98	99
23	106	99	100	112	97	103	98	95	96	100	98	98
24	107	97	98	102	97	98	99	95	96	101	98	99
25	108	96	98	107	97	101	98	95	96	104	98	99
26	109	98	101	106	96	99	100	95	96	101	99	99
27	104	99	101	104	97	98	100	97	98	100	98	99
28	109	99	100	106	99	100	101	97	99	100	98	98
29	113	98	102	109	99	102	99	96	97	101	98	99
30	108	99	99	119	97	102	97	96	96	98	98	98
31	107	98	100				99	97	97	100	97	98
MONTH	125	96	100	120	94	99	113	94	98			

						TILLE KIVEK						
						r internatio						
						UNFILTERED,						
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX		MEAN	MAX	MIN	MEAN
	I	FEBRUARY			MARCH		A	PRIL			MAY	
1 2	100 99	97 97	98 98	106 102	98 98	100 99	107 106	103 102	104 103	113 112	109 106	109 111
3 4	102 101	98 98	99 98	107 109	99 101	101 103	107 106	103 104	105 105	117 113	111 109	112 110
5	101	99	100	102	101	101	106	104	105	111	110	110
6	104	100	100	103	101	102	110	104	106	112	106	109
7 8	105 101	101 101	101 100	103 103	103 102	103 103	112 108	104 104	106 106	107 112	105 108	106 110
9 10	102 100	98 100	98 100	103 104	102 101	103 102	109 112	104 104	106 107	113 115	112 114	113 115
11	101	100	100	104	102	102	107	103	104	115	114	115
12 13	113 104	100 101	101 102	104 103	101 100	101 101	108 106	104 105	105 105	114 113	111 111	112 111
14 15	104 103	101 100	102 101	102 103	100 101	101 102	108 110	106 107	106 109	111 110	108 107	110 108
16	104	101	102	105	102	103	118	110	114	108	106	106
17	106	102	103	102	101	101	117	112	116	109	106	107
18 19	105 111	102 102	103 104	107 104	100 100	101 101	113 111	111 109	112 110	111 112	108 110	109 110
20	103	102	102	104	100	101	115	110	112	110	109	109
21 22	106 107	102 102	102 104	101 106	99 101	100 102	113 114	112 113	112 113	116 115	109 112	111 114
23 24	107 104	102 102	103 102	106 105	101 101	102 102	112 115	112 107	112 110	123 133	115 123	119 128
25	108	100	101	104	100	102	108	105	107	132	128	130
26 27	104 104	100 100	101 100	105 109	102 103	102 104	112 114	110 111	112 112	133 133	128 125	130 128
28	102	100	100	107	103	104	112	110	111	131	125	128
29 30				104 104	102 102	103 103	111 112	109 105	109 109	131 133	130 130	130 133
2.1				106	104	105				122	129	131
31					104	105				133		
MONTH	113	97	101	109	98	102	118	102	108	133	105	116
MONTH	113	97	101	109 MAX	98	102	118 MAX	102	108	133 MAX	105	116 MEAN
MONTH DAY	113 MAX 132	97 MIN JUNE 129	101 MEAN 130	109 MAX 134	98 MIN JULY 133	102 MEAN 133	118 MAX AU0	102 MIN GUST 101	108 MEAN 110	133 MAX	105 MIN SEPTEMBER	116 MEAN
MONTH DAY 1 2 3	113 MAX 132 133 136	97 MIN JUNE 129 130 132	101 MEAN 130 132 133	109 MAX 134 135 132	98 MIN JULY 133 130 129	102 MEAN 133 132 131	118 MAX AU 130 114 113	102 MIN GUST 101 101 100	108 MEAN 110 106 103	133 MAX	105 MIN SEPTEMBER	116 MEAN
MONTH DAY 1 2	113 MAX 132 133	97 MIN JUNE 129 130	101 MEAN 130 132	109 MAX 134 135	98 MIN JULY 133 130	102 MEAN 133 132	118 MAX AU0 130 114	102 MIN GUST 101 101	108 MEAN 110 106	133 MAX	105 MIN SEPTEMBER 	116 MEAN
MONTH DAY 1 2 3 4	113 MAX 132 133 136 133	97 MIN JUNE 129 130 132 129	101 MEAN 130 132 133 130	109 MAX 134 135 132 135	98 MIN JULY 133 130 129 128	102 MEAN 133 132 131 129	118 MAX AU0 130 114 113 107	102 MIN GUST 101 101 100 99	108 MEAN 110 106 103 103	133 MAX	105 MIN SEPTEMBER	116 MEAN
MONTH DAY 1 2 3 4 5 6 7	113 MAX 132 133 136 133 131 135 138	97 MIN JUNE 129 130 132 129 129 129 129	101 MEAN 130 132 133 130 129 131 135	109 MAX 134 135 132 135 134 124 125	98 MIN JULY 133 130 129 128 125 123 120	102 MEAN 133 132 131 129 128 124 122	118 MAX AU 130 114 113 107 108 112 108	102 MIN GUST 101 101 100 99 98	108 MEAN 110 106 103 103 100 106 102	133 MAX	105 MIN SEPTEMBEF 101	116 MEAN 102
MONTH DAY 1 2 3 4 5 6 7 8 9	113 MAX 132 133 136 133 131 135 138 137 141	97 MIN JUNE 129 130 132 129 129 129 129 132 132 133	101 MEAN 130 132 133 130 129 131 135 135 137	109 MAX 134 135 132 135 134 124 125 118 120	98 MIN JULY 133 130 129 128 125 123 120 119 118	102 MEAN 133 132 131 129 128 124 122 119 119	118 MAX AUC 130 114 113 107 108 112 108 109 109	MIN GUST 101 100 99 98 99 99 98 99	108 MEAN 110 106 103 103 100 106 102 101 100	133 MAX 105 104 104	105 MIN SEPTEMBER 101 99 98	116 MEAN 102 100 100
DAY 1 2 3 4 5 6 7 8 9 10	113 MAX 132 133 136 133 131 135 138 137 141 137	97 MIN JUNE 129 130 132 129 129 129 132 133 133	101 MEAN 130 132 133 130 129 131 135 135 137 134	109 MAX 134 135 132 135 134 124 125 118 120 121	98 MIN JULY 133 130 129 128 125 123 120 119 118 119	102 MEAN 133 132 131 129 128 124 122 119 119 120	118 MAX AUG 130 114 113 107 108 112 108 109 109 109	MIN GUST 101 100 99 98 99 99 99 99	108 MEAN 110 106 103 103 100 106 102 101 100 100	133 MAX 105 104 111	105 MIN SEPTEMBEF 101 99 98 100	116 MEAN 102 100 100 100
DAY 1 2 3 4 5 6 7 8 8 9 10 11 12	113 MAX 132 133 136 133 131 135 138 137 141 137	97 MIN JUNE 129 130 132 129 129 129 132 133 133 133	101 MEAN 130 132 133 130 129 131 135 135 137 134 133 134	109 MAX 134 135 132 135 134 124 125 118 120 121	98 MIN JULY 133 130 129 128 125 123 120 119 118 119 119	102 MEAN 133 132 131 129 128 124 122 119 119 120 121 118	118 MAX AU 130 114 113 107 108 112 108 109 109 109 102 104 115	MIN GUST 101 101 100 99 98 99 99 99 99 100	108 MEAN 110 106 103 100 100 100 100 101 100 100 100 100	133 MAX 105 104 111 112 116	105 MIN SEPTEMBER 101 99 98 100 100	116 MEAN 102 100 100 100 100 100 100 100
DAY 1 2 3 4 5 6 7 8 9 10 11 12 13 14	113 MAX 132 133 136 133 131 135 138 137 141 137	97 MIN JUNE 129 130 132 129 129 129 132 133 133 133 133 133	101 MEAN 130 132 133 130 129 131 135 137 134 133 134 132 133	109 MAX 134 135 132 135 134 124 125 118 120 121 122 120 116 117	98 MIN JULY 133 130 129 128 125 123 120 119 118 119 116 116 116 115	102 MEAN 133 132 131 129 128 124 122 119 119 120 121 118 116 116	118 MAX AUC 130 114 113 107 108 112 108 109 109 109 101 104 115 116 115	MIN GUST 101 100 99 98 99 99 99 99 100 101 102	108 MEAN 110 106 103 103 100 106 102 101 100 100 101 104 104 105	133 MAX 105 104 104 111 112 116 105 110	105 MIN SEPTEMBEF 101 99 98 100 100 100 100 100 100	116 MEAN 102 100 100 102 103 102 102 102 102
DAY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	113 MAX 132 133 136 133 131 135 138 137 141 137 141 137 141 137	97 MIN JUNE 129 130 132 129 129 129 132 133 133 133 133 133	101 MEAN 130 132 133 130 129 131 135 135 137 134 133 134 132 133 133	109 MAX 134 135 132 135 134 124 125 118 120 121 122 120 116 117 115	98 MIN JULY 133 130 129 128 125 123 120 119 118 119 116 116 115 114	102 MEAN 133 132 131 129 128 124 122 119 119 119 110 121 118 116 116 114	118 MAX AUG 130 114 113 107 108 112 108 109 109 102 104 115 116 115 113	MIN GUST 101 100 99 8 99 99 98 99 99 100 101 102 101	108 MEAN 110 106 103 103 100 106 102 101 100 100 100 101 100 101 104 104 105 105	133 MAX 105 104 101 111 112 116 105 110 115	105 MIN SEPTEMBER 101 99 98 100 100 100 100 101 102 103	116 MEAN 102 100 100 100 100 100 100 100 100 100
DAY 1 2 3 4 5 6 7 8 9 10 11 12 13 14	113 MAX 132 133 136 133 131 135 138 137 141 137	97 MIN JUNE 129 130 132 129 129 129 132 133 133 133 133 133	101 MEAN 130 132 133 130 129 131 135 137 134 133 134 132 133	109 MAX 134 135 132 135 134 124 125 118 120 121 122 120 116 117	98 MIN JULY 133 130 129 128 125 123 120 119 118 119 116 116 116 115	102 MEAN 133 132 131 129 128 124 122 119 119 120 121 118 116 116	118 MAX AUC 130 114 113 107 108 112 108 109 109 109 101 104 115 116 115	MIN GUST 101 100 99 98 99 99 99 99 100 101 102	108 MEAN 110 106 103 103 100 106 102 101 100 100 101 104 104 105	133 MAX 105 104 104 111 112 116 105 110	105 MIN SEPTEMBER 101 99 98 100 100 100 101 1002 103 102 102	116 MEAN 102 100 100 102 103 102 102 102 102
MONTH DAY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	113 MAX 132 133 136 133 131 135 138 137 141 137	97 MIN JUNE 129 130 132 129 129 129 132 133 133 133 133 133 135	101 MEAN 130 132 133 130 129 131 135 137 134 133 134 132 133 133 131	109 MAX 134 135 132 135 134 124 125 118 120 121 122 120 116 117 115	98 MIN JULY 133 130 129 128 125 123 120 119 118 119 119 116 115 114	102 MEAN 133 132 131 129 128 124 122 119 119 120 121 118 116 116 114	118 MAX AUG 130 114 113 107 108 112 108 109 109 109 1012 104 115 116 115 113 113	MIN GUST 101 100 99 98 99 99 99 100 101 102 101	108 MEAN 110 106 103 103 100 106 102 101 100 100 101 104 105 105	133 MAX 105 104 104 111 112 116 105 110 115	105 MIN SEPTEMBEF 101 99 98 100 100 100 100 101 102 103 102	116 MEAN 102 100 100 100 102 103 102 102 102 106 108
DAY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	113 MAX 132 133 136 133 131 135 138 137 141 137 133 139 133 134 134 133 134	97 MIN JUNE 129 130 132 129 129 129 132 133 133 133 133 135 125 124 126	101 MEAN 130 132 133 130 129 131 135 135 137 134 133 134 132 133 131 130 129	109 MAX 134 135 132 135 134 124 125 118 120 116 117 115 118 116 115	98 MIN JULY 133 130 129 128 125 123 120 119 118 119 116 116 115 114 114 114 113	102 MEAN 133 132 131 129 128 124 122 119 119 110 121 118 116 116 114 115 115 114	118 MAX AUG 130 114 113 107 108 112 108 109 109 102 104 115 116 115 113 113 104 107	MIN GUST 101 100 99 8 99 98 99 98 99 100 101 102 101 102 101	108 MEAN 110 106 103 103 100 106 102 101 100 100 101 104 104 105 105 103 101 100	133 MAX 105 104 101 111 112 116 105 110 117 116 109	105 MIN SEPTEMBER 101 99 98 100 100 100 100 101 102 103 102 102 100	116 MEAN 102 100 100 102 103 102 102 106 108 107 105
MONTH DAY 1 2 3 4 5 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	113 MAX 132 133 136 133 131 135 138 137 141 137 141 137 133 134 134 134 133 130 130 131	97 MIN JUNE 129 130 132 129 129 129 132 133 133 133 133 132 133 133 132 132	101 MEAN 130 132 133 130 129 131 135 135 137 134 133 134 132 133 131 130 129 129 130 132	109 MAX 134 135 132 135 134 124 125 118 120 121 122 120 116 117 115 118 116 116 119	98 MIN JULY 133 130 129 128 125 123 120 119 118 119 116 116 115 114 114 113 112 112	102 MEAN 133 132 131 129 128 124 122 119 119 120 121 118 116 116 114 115 115 114 113 113	118 MAX AUG 130 114 113 107 108 109 109 102 104 115 116 115 113 104 107 110 110 109	MIN GUST 101 101 100 99 98 99 99 99 100 101 102 101 101 99 100 100 100 100 100 100	108 MEAN 110 106 103 103 100 106 102 101 100 100 101 104 105 105 103 101 102 103 101 102 103 104 102	133 MAX 105 104 104 111 112 116 105 110 115 117 116 109 103 104 106	105 MIN SEPTEMBEF 101 99 98 100 100 100 101 102 103 102 102 100 100 100 100	116 MEAN 102 100 100 1002 103 102 104 105 107 107 107 107 107 107 107 107 107 107
MONTH DAY 1 2 3 4 5 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	113 MAX 132 133 136 133 131 135 138 137 141 137 133 139 133 134 134 133 130 130 131 133 131 133 131 133 131 133 134 137	97 MIN JUNE 129 130 132 129 129 129 132 133 133 133 133 132 133 133 132 132	101 MEAN 130 132 133 130 129 131 135 135 137 134 133 134 132 133 131 130 129 129 130 132 132 133	109 MAX 134 135 132 135 134 124 125 118 120 116 117 115 118 116 115 116 117 117 110	98 MIN JULY 133 130 129 128 125 123 120 119 118 119 116 116 115 114 114 113 112 111 107 100	102 MEAN 133 132 131 129 128 124 122 119 120 121 118 116 116 114 115 114 113 113 114 110 106	118 MAX AUG 130 114 113 107 108 112 108 109 109 102 104 115 116 115 113 113 104 107 110 110 109 116 108	MIN GUST 101 101 100 99 88 99 99 98 99 100 101 102 101 102 101 102 101 101 99 100 100 100 101	108 MEAN 110 106 103 103 100 106 102 101 100 100 101 104 104 105 105 103 101 102 103 104 104 105 105 107 108 109 109 1000 1000 1000 1000 1000 10	133 MAX 105 104 104 111 112 116 105 110 115 117 116 109 103 104 106 103 109	105 MIN SEPTEMBER 101 99 98 100 100 101 102 103 102 100 100 100 100 100 99 98 100	116 MEAN 102 100 100 102 103 102 106 108 107 105 102 100 100 101 101 101
MONTH DAY 1 2 3 4 5 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	113 MAX 132 133 136 133 131 135 138 137 141 137 133 139 133 134 134 133 130 130 131 133 130 131	97 MIN JUNE 129 130 132 129 129 129 132 133 133 133 133 125 124 126 127 129 131	101 MEAN 130 132 133 130 129 131 135 137 134 133 134 132 133 131 130 129 129 129 130 132 132	109 MAX 134 135 132 135 134 124 125 118 120 121 122 120 116 117 115 118 116 115 116 117 117	98 MIN JULY 133 130 129 128 125 123 120 119 118 119 119 116 116 115 114 114 113 112 111 107	102 MEAN 133 132 131 129 128 124 122 119 119 110 121 118 116 116 114 115 114 113 113	118 MAX AU 130 114 113 107 108 112 108 109 109 102 104 115 116 115 113 113 104 107 110 110 109 116	MIN GUST 101 101 100 99 98 99 99 99 99 100 101 102 100 100 100 100 100 100 100	108 MEAN 110 106 103 100 106 102 101 100 101 100 101 102 101 102 103 101 105 105 103 101 102 103 101 102 103 104	133 MAX 105 104 111 112 116 105 117 116 109 103 104 106 103	105 MIN SEPTEMBER 101 99 98 100 100 100 101 102 103 102 100 100 100 100 99 98	116 MEAN 102 100 100 1002 103 102 102 106 108 107 105 102 101 101
MONTH DAY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	113 MAX 132 133 136 133 131 135 138 137 141 137 141 137 133 134 134 134 133 133 130 130 131 133 133 131 130 131 133 133	97 MIN JUNE 129 130 132 129 129 132 133 133 133 133 133 132 133 133 132 133 133	101 MEAN 130 132 133 130 129 131 135 135 137 134 133 134 132 133 131 130 129 129 130 131 130 131 130 131 130 131 130 131	109 MAX 134 135 132 135 134 124 125 118 120 121 122 120 116 117 115 118 116 117 115 118 116 117 110 110 109	98 MIN JULY 133 130 129 128 125 123 120 119 118 119 116 115 114 114 114 113 112 112 111 107 100 107 99	102 MEAN 133 132 131 129 128 124 122 119 119 120 121 118 116 116 114 115 115 114 113 113 114 110 106 108 105	118 MAX AUG 130 114 113 107 108 112 108 109 109 102 104 115 116 115 113 113 104 107 110 110 109 116 108 109 109 110 109 116 108 106 110 106	MIN GUST 101 101 100 99 98 99 99 99 100 101 102 101 102 101 101 99 98 100 100 100 100 100 100 100 100 100 10	108 MEAN 110 106 103 103 100 106 102 101 100 100 101 104 105 105 103 101 102 103 101 102 103 101 102 103 101 102 103 101 102 103 101 102 103 101 102 103 101 102 103 101 102 103 101 102 103 101 102 103 101 102 103 101	133 MAX 105 104 104 111 112 116 105 110 115 117 116 109 103 104 106 103 109 111 105 107	105 MIN SEPTEMBEF 101 99 98 100 100 100 101 102 103 102 102 100 100 100 100 100 100 100 100	116 MEAN 3 102 100 100 100 100 100 100 100 100 100
MONTH DAY 1 2 3 4 5 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	113 MAX 132 133 136 133 131 137 141 137 133 134 134 133 133 131 130 131 131 130 131 131 130 131 131	97 MIN JUNE 129 130 132 129 129 129 132 133 133 133 133 135 125 124 126 127 129 131 131 130 129 130 129 131	101 MEAN 130 132 133 130 129 131 135 135 137 134 133 130 129 129 130 130 130 130 131 134 133 131 131 134 132 133 131 130 132 131 134 133 131 134 133 131	109 MAX 134 135 132 135 134 124 125 118 120 121 122 116 117 115 116 119 117 110 110 109	98 MIN JULY 133 130 129 128 125 123 120 119 118 119 119 119 111 111 114 113 112 111 107 100 107 99 105	102 MEAN 133 132 131 129 128 124 122 119 120 121 118 116 114 115 114 113 113 114 110 106 108 105	118 MAX AUG 130 114 113 107 108 112 108 109 109 102 104 115 116 115 113 113 104 107 110 100 109 116 108 106 110 106 101	MIN GUST 101 101 100 99 88 99 99 99 100 101 102 101 102 101 99 100 100 100 100 100 100 99 98 98 99 99	108 MEAN 110 106 103 103 100 106 102 101 100 100 101 104 104 105 105 103 101 102 103 104 104 105 105 107 108 109 109 100 100 100 100 100 100 100 100	133 MAX 105 104 104 111 112 116 105 110 115 117 116 109 103 109 111 105 107 110 112	105 MIN SEPTEMBER 101 99 98 100 100 100 101 102 103 102 100 100 100 100 100 100 100 100 100	116 MEAN 102 100 100 100 102 103 102 106 108 107 105 102 100 100 100 100 100 100 100 100 100
MONTH DAY 1 2 3 4 5 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	113 MAX 132 133 136 133 131 135 138 137 141 137 133 134 134 133 131 130 131 133 131 130 133 131 130 133	97 MIN JUNE 129 130 132 129 129 129 132 133 133 133 133 132 132 132 133 133	101 MEAN 130 132 133 130 129 131 135 137 134 133 134 132 133 133 131 130 129 129 129 130 131 130 132 130 130 131 131 134 133	109 MAX 134 135 132 135 134 124 125 118 120 121 122 120 116 117 115 118 116 117 110 110 109	98 MIN JULY 133 130 129 128 125 123 120 119 118 119 119 116 116 115 114 114 113 112 111 107 100 107 99	102 MEAN 133 132 131 129 128 124 122 119 119 120 121 118 116 116 114 115 115 114 113 113 114 110 106 108 105	118 MAX AU 130 114 113 107 108 112 108 109 109 102 104 115 116 115 113 113 104 107 110 110 109 116 108 106 110 106 101	MIN GUST 101 101 100 998 999 999 999 100 101 102 1001 1001 999 100 101 101 999 100 100 1	108 MEAN 110 106 103 100 106 102 101 100 101 100 101 102 101 105 105 105 101 102 101 102 101 102 101 102 103 101 102 103 101 102 103 101 102 103 104	133 MAX 105 104 111 112 116 105 117 116 109 103 109 101 106 103 109 111 105	105 MIN SEPTEMBER 101 99 98 100 100 100 101 102 103 102 100 100 100 100 100 100 100 100 100	116 MEAN 102 100 100 1002 103 102 102 106 108 107 105 102 101 101 101 101 101 101 103 104

MONTH 141 124 132 --- ---

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN		MAX			MAX			MAX		MEAN
		OCTOBER			NOVEMBER		D	ECEMBER			JANUARY	
1		17.2	17.6	9.2	9.0	9.1	5.9	5.6	5.7	0.7		0.6
2 3	17.5 17.1	17.0 16.7	17.3 16.9 16.5 16.3	9.0 9.1 9.1 9.2	9.0	9.0	5.6 4.9 4.7	5.0		0.7 0.6 0.5 0.6	0.5	0.6 0.5
4 5	16.7 16.4	16.3 16.1	16.5	9.1	9.0	9.1	4.9	4.7	4.8	0.5	0.4	0.4
6 7	16.1 15.8	15.8 15.5	16.0 15.7	9.1 9.0	8.9 8.8	9.0 8.9	4.4 4.1	4.0 3.6	4.2 3.8	0.4	0.3	0.3
8	15.5 15.1	15.1	15.3	8.8	8.7	8.8	3.7	3.3	3.5	0.4	0.2	0.3
9 10	14.6	14.6 14.1	16.0 15.7 15.3 14.9	8.7	8.2 7.7	8.5 7.9	4.4 4.1 3.7 3.3 3.1	2.9	3.2	1.2	0.2	0.3
11	1/1 1		14 0	7 7	7 5	7.6	3 2	2 8	2 9	1 6	1 2	1.4
12	13.8	13.8 13.4 13.0 12.7 12.5	13.6	7.6	7.3	7.5	3.0	2.7	2.8	1.8	1.5	1.6
13 14	13.4 13.0	13.0 12.7	13.2 12.8	7.4 7.4	7.2 7.3	7.3 7.3	2.7 3.0	2.6 2.5	2.7 2.6	2.3 2.6	1.7	2.0
15	12.7	12.5	12.6	7.3	7.3	7.3	3.2 3.0 2.7 3.0 2.5	2.4	2.4	2.7		
16	12.5	12.1	12.3	7.4	7.3	7.3	2.6 2.4 2.4 2.4 2.3	2.4	2.4	2.6	2.3	2.5
17	12.1	11.9	12.0	7.5	7.4	7.4	2.4	2.3	2.4	2.5	1 9	2.1
19	11.7	11.9 11.7 11.5 11.3	11.7	7.7	7.5	7.6	2.4	2.3	2.4		1.6	
21	11.3	11.1 10.8 10.7 10.3 10.0	11.2 11.0 10.8 10.5 10.2	7.7 7.7 7.6 7.5 7.4	7.6	7.7	2.3 2.2 2.0 1.8 1.7	2.2	2.3	1.5	1.4	1.4
22	10.8	10.8	10.8	7.7	7.6	7.6	2.2	1.8	1.9	$\frac{1.4}{1.4}$	1.3	$\frac{1.4}{1.4}$
24	10.7	10.3	10.5	7.5	7.4	7.5	1.8	1.7	1.8	1.3	1.2	1.3
			10.2	7.4	7.2	7.3	1.7	1.0	1.0	1.3	1.1	1.2
26 27	10.0 9.8	9.8 9.6 9.5 9.4 9.4 9.2	9.9 9.7	7.2 7.0	7.0 6.7	7.1 6.9	1.7 1.7	1.6 1.6	1.6 1.7	1.1	1.0	1.1
28	9.6	9.5	9.6	6.7	6.5	6.6	1.7	1.5	1.6	1.3	1.0	1.2
30	9.6	9.4	9.6 9.5	6.5	6.2 5.9	6.4	1.5	1.3	1.4	1.5	1.4	1.5
31	9.4	9.2	9.4				1.7 1.7 1.7 1.5 1.3	0.7	0.9	1.5	1.3	1.4
MONTH	17.7	9.2										
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY						MEAN			MEAN	MAX		MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1 2	1.3 1.2	FEBRUARY 1.1 1.1			MARCH			APRIL			MAY	8.9
1 2 3	1.3 1.2 1 5	1.1 1.1			MARCH			APRIL			MAY	8.9 9.8
1 2	1.3 1.2 1 5	FEBRUARY 1.1 1.1			MARCH			APRIL			MAY	8.9
1 2 3 4 5	1.3 1.2 1.5 1.7	1.1 1.1 1.4	1.2 1.1 1.6	2.0 1.8 1.7	MARCH 2.0 1.4 1.5 1.6 1.6	1.8 1.7 1.6 1.7	4.6 5.2 5.6 5.8 6.0	3.7 4.5 5.4	4.2 4.9 5.8	9.1 9.6 10.0 10.0 9.9	MAY 8.7 9.4 9.8 9.8	8.9 9.8 9.9 9.8
1 2 3 4 5	1.3 1.2 1.5 1.7	1.1 1.1 1.4	1.2 1.1 1.6	2.0 1.8 1.7	MARCH 2.0 1.4 1.5 1.6 1.6	1.8 1.7 1.6 1.7	4.6 5.2 5.6 5.8 6.0	3.7 4.5 5.4	4.2 4.9 5.8	9.1 9.6 10.0 10.0 9.9	MAY 8.7 9.4 9.8 9.8	8.9 9.8 9.9 9.8
1 2 3 4 5	1.3 1.2 1.5 1.7	1.1 1.1 1.4	1.2 1.1 1.6	2.0 1.8 1.7	MARCH 2.0 1.4 1.5 1.6 1.6	1.8 1.7 1.6 1.7	4.6 5.2 5.6 5.8 6.0	3.7 4.5 5.4	4.2 4.9 5.8	9.1 9.6 10.0 10.0 9.9	MAY 8.7 9.4 9.8 9.8	8.9 9.8 9.9 9.8
1 2 3 4 5	1.3 1.2 1.5 1.7	1.1 1.1 1.4	1.2 1.1 1.6 1.7 1.8 2.0 2.2	2.0 1.8 1.7 1.8 1.8 1.7 1.6 1.5	MARCH 2.0 1.4 1.5 1.6 1.6 1.6 1.1 1.4	1.8 1.7 1.6 1.7 1.7 1.6 	4.6 5.2 5.6 5.8 6.0 6.3 6.5 6.7 6.9 7.1	3.7 4.5 5.4 6.0 6.0 6.1 6.4 6.8	4.2 4.9 5.8	9.1 9.6 10.0 10.0 9.9	MAY 8.7 9.4 9.8 9.8 9.7 9.3 8.4 7.8 7.7	8.9 9.8 9.9 9.8 9.6 9.0 8.1 8.0
1 2 3 4 5 6 7 8 9	1.3 1.2 1.5 1.7 1.8 1.7 1.8 1.9 2.1	1.1 1.1 1.4 1.6 1.7 1.9 2.0	1.2 1.1 1.6 1.7 1.8 2.0 2.2	2.0 1.8 1.7 1.8 1.8 1.7 1.6 1.5	MARCH 2.0 1.4 1.5 1.6 1.6 1.6 1.1 1.4	1.8 1.7 1.6 1.7 1.7 1.6 	4.6 5.2 5.6 5.8 6.0 6.3 6.5 6.7 6.9 7.1	3.7 4.5 5.4 6.0 6.0 6.1 6.4 6.8	4.2 4.9 5.8 6.1 6.3 6.5 6.7	9.1 9.6 10.0 10.0 9.9 9.9 9.7 9.3 8.4 8.2	MAY 8.7 9.4 9.8 9.8 9.7 9.3 8.4 7.8 7.7	8.9 9.8 9.9 9.8 9.6 9.0 8.1 8.0
1 2 3 4 5 6 7 8 9	1.3 1.2 1.5 1.7	1.1 1.1 1.4 1.6 1.7 1.9 2.0	1.2 1.1 1.6 1.7 1.8 2.0 2.2	2.0 1.8 1.7 1.8 1.8 1.7 1.6 1.5	MARCH 2.0 1.4 1.5 1.6 1.6 1.6 1.1 1.4	1.8 1.7 1.6 1.7 1.7 1.6 	4.6 5.2 5.6 5.8 6.0 6.3 6.5 6.7 6.9 7.1	3.7 4.5 5.4 6.0 6.0 6.1 6.4 6.8	4.2 4.9 5.8 6.1 6.3 6.5 6.7	9.1 9.6 10.0 10.0 9.9	MAY 8.7 9.4 9.8 9.8 9.7 9.3 8.4 7.8 7.7	8.9 9.8 9.9 9.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14	1.3 1.2 1.5 1.7 1.8 1.7 1.8 2.1 2.3 2.4 2.4 2.3 2.3	1.1 1.1 1.4 1.6 1.7 1.9 2.0	1.2 1.1 1.6 1.7 1.8 2.0 2.2 2.4 2.3 2.3 2.2	1.8 1.7 1.8 1.6 1.5 1.4	MARCH 2.0 1.4 1.5 1.6 1.6 1.1 1.4 1.5 1.6 1.6 1.6	1.8 1.7 1.6 1.7 1.7 1.6 1.4 1.4 1.5 1.6 1.6	4.6 5.2 5.6 5.8 6.0 6.3 6.5 6.7 7.1 7.1 7.1 7.1	3.7 4.5 5.4 6.0 6.0 6.1 6.4 6.8 6.9 7.0 7.1	4.2 4.9 5.8 6.1 6.3 6.7 7.0 7.0 7.2 7.5	9.1 9.6 10.0 10.0 9.9 9.9 9.7 9.3 8.4 8.2 8.7 9.3 9.8	MAY 8.7 9.4 9.8 9.8 9.7 9.3 8.4 7.8 7.7 8.1 8.7 9.2	8.9 9.8 9.9 9.8 9.6 9.0 8.1 8.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	1.3 1.2 1.5 1.7 1.8 1.7 1.8 1.9 2.1 2.3 2.4 2.3 2.3 2.3	1.1 1.1 1.4 1.6 1.7 1.9 2.0 2.3 2.2 2.1 2.1 2.2	1.2 1.1 1.6 1.7 1.8 2.0 2.2 2.4 2.3 2.3 2.2 2.2	2.0 1.8 1.7 1.8 1.8 1.7 1.6 1.5 1.4 1.6 1.7 2.0 2.1	MARCH 2.0 1.4 1.5 1.6 1.6 1.4 1.1 1.4 1.5 1.6 1.6	1.8 1.7 1.6 1.7 1.6 1.4 1.4 1.5 1.6 1.8	4.6 5.2 5.6 5.8 6.0 6.3 6.5 6.7 7.1 7.1 7.4 7.6 7.8	3.7 4.5 5.4 6.0 6.1 6.4 6.8 6.9 7.0 7.1 7.4 7.6	4.2 4.9 5.8 6.1 6.3 6.5 6.7 7.0 7.0 7.2 7.5 7.7	9.1 9.6 10.0 10.0 9.9 9.7 9.3 8.4 8.2 8.7 9.3 9.8 10.3	MAY 8.7 9.4 9.8 9.8 9.7 9.3 8.4 7.8 7.7 8.1 8.7 9.2	8.9 9.8 9.9 9.8 9.6 9.0 8.1 8.0 8.5 9.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	1.3 1.2 1.5 1.7 1.8 1.7 1.8 2.1 2.3 2.4 2.4 2.3 2.3 2.3 2.3	FEBRUARY 1.1 1.1 1.4 1.6 1.7 1.9 2.0 2.3 2.2 2.1 2.1 2.2	1.2 1.1 1.6 1.7 1.8 2.0 2.2 2.4 2.3 2.3 2.2 2.2	1.8 1.7 1.8 1.6 1.5 1.4 1.6 1.7 2.0 2.1	MARCH 2.0 1.4 1.5 1.6 1.6 1.1 1.4 1.5 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6	1.8 1.7 1.6 1.7 1.7 1.6 1.4 1.4 1.5 1.6 1.8	4.6 5.2 5.6 5.8 6.0 6.3 6.5 6.7 6.9 7.1 7.1 7.1 7.4 7.6 7.8	APRIL 3.7 4.5 5.4 6.0 6.0 6.1 6.4 6.8 6.9 7.0 7.1 7.4 7.6 7.8	4.2 4.9 5.8 6.1 6.3 6.7 7.0 7.0 7.0 7.2 7.5 7.7	9.1 9.6 10.0 10.0 9.9 9.9 9.7 9.3 8.4 8.2 8.7 9.3 9.8 10.3 10.7	MAY 8.7 9.4 9.8 9.8 9.7 9.3 8.4 7.8 7.7 8.1 8.7 9.2	8.9 9.8 9.9 9.8 9.6 9.0 8.1 8.0 8.5 9.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	1.3 1.2 1.5 1.7 1.8 1.7 1.8 1.9 2.1 2.3 2.4 2.4 2.3 2.3 2.3 2.2 2.2 2.2	1.1 1.1 1.4 1.6 1.7 1.9 2.0 2.3 2.2 2.1 2.1 2.1 2.1	1.2 1.1 1.6 1.7 1.8 2.0 2.2 2.4 2.3 2.3 2.2 2.2 2.2	2.0 1.8 1.7 1.8 1.8 1.7 1.6 1.5 1.4 1.6 1.7 1.7 2.0 2.1	MARCH 2.0 1.4 1.5 1.6 1.6 1.4 1.1 1.4 1.5 1.6 1.6 1.6 1.8	1.8 1.7 1.6 1.7 1.6 1.4 1.4 1.5 1.6 1.8	4.6 5.2 5.6 5.8 6.0 6.3 6.5 6.7 7.1 7.1 7.4 7.6 7.8 8.1 7.8	APRIL 3.7 4.5 5.4 6.0 6.0 6.1 6.4 6.8 6.9 7.0 7.1 7.4 7.6 7.8 7.2 7.0	4.2 4.9 5.8 6.1 6.3 6.5 7.0 7.0 7.0 7.2 7.5 7.7	9.1 9.6 10.0 10.0 9.9 9.7 9.3 8.4 8.2 8.7 9.3 9.8 10.3 10.7	MAY 8.7 9.4 9.8 9.8 9.7 9.3 8.4 7.8 7.7 8.1 8.7 9.2 10.9	8.9 9.8 9.9 9.8 9.6 9.0 8.1 8.0 8.5 9.0 9.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	1.3 1.2 1.5 1.7 1.8 1.7 1.8 1.9 2.1 2.3 2.4 2.4 2.3 2.3 2.3	1.1 1.1 1.4 1.6 1.7 1.9 2.0 2.3 2.2 2.1 2.1 2.2	1.2 1.1 1.6 1.7 1.8 2.0 2.2 2.4 2.3 2.3 2.3 2.2 2.2	2.0 1.8 1.7 1.8 1.7 1.6 1.5 1.4 1.6 1.7 2.0 2.1	MARCH 2.0 1.4 1.5 1.6 1.6 1.4 1.1 1.4 1.4 1.5 1.6 1.6 1.6	1.8 1.7 1.6 1.7 1.7 1.6 1.4 1.4 1.5 1.6 1.6 1.8	4.6 5.2 5.6 5.8 6.0 6.3 6.5 6.7 6.9 7.1 7.1 7.4 7.6 7.8	APRIL 3.7 4.5 5.4 6.0 6.0 6.1 6.4 6.8 6.9 7.0 7.1 7.4 7.6	4.2 4.9 5.8 6.1 6.3 6.7 7.0 7.0 7.2 7.5 7.7	9.1 9.6 10.0 10.0 9.9 9.7 9.3 8.4 8.2 8.7 9.3 9.8 10.3 10.7	MAY 8.7 9.4 9.8 9.8 9.7 9.3 8.4 7.8 7.7 8.1 8.7 9.2	8.9 9.8 9.9 9.8 9.6 9.0 8.1 8.0 8.5 9.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	1.3 1.2 1.5 1.7 1.8 1.7 1.8 2.1 2.3 2.4 2.4 2.3 2.3 2.3 2.2 2.2 2.1 2.2 2.3	1.1 1.1 1.4 1.6 1.7 1.9 2.0 2.3 2.2 2.1 2.1 2.1 2.2	1.2 1.1 1.6 1.7 1.8 2.0 2.2 2.4 2.3 2.3 2.2 2.2 2.2 2.1 2.1 2.1 2.3	2.0 1.8 1.7 1.8 1.8 1.7 1.6 1.5 1.4 1.6 1.7 1.7 2.0 2.1 2.1 2.5 2.8 3.0	MARCH 2.0 1.4 1.5 1.6 1.6 1.4 1.1 1.4 1.4 1.5 1.6 1.6 2.6	1.8 1.7 1.6 1.7 1.7 1.6 1.4 1.4 1.5 1.6 1.8 2.8	4.6 5.2 5.6 5.8 6.0 6.3 6.5 6.7 7.1 7.1 7.1 7.4 7.6 7.8 8.1 7.8 7.3 7.0	APRIL 3.7 4.5 5.4 6.0 6.0 6.1 6.4 6.8 6.9 7.0 7.1 7.4 7.6 7.8 7.2 7.0 6.8 6.8	4.2 4.9 5.8 6.1 6.3 6.5 7.0 7.0 7.0 7.2 7.5 7.7 7.9 7.5 7.2 6.9 7.0	9.1 9.6 10.0 10.0 9.9 9.9 9.7 9.3 8.4 8.2 8.7 9.3 9.8 10.3 10.7	MAY 8.7 9.4 9.8 9.8 9.7 9.3 8.4 7.8 7.7 8.1 8.7 9.2 10.9 11.3 10.4	8.9 9.8 9.9 9.8 9.6 9.0 8.1 8.0 8.5 9.0 9.5 11.2 11.4 10.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	1.3 1.2 1.5 1.7 1.8 1.7 1.8 1.9 2.1 2.3 2.4 2.4 2.3 2.3 2.3 2.2 2.2 2.2 2.2 2.3	FEBRUARY 1.1 1.1 1.4 1.6 1.7 1.9 2.0 2.3 2.2 2.1 2.1 2.2 2.1 2.1 2.2 2.1 2.1 2.2 2.1 2.5	1.2 1.1 1.6 1.7 1.8 2.0 2.2 2.4 2.3 2.3 2.3 2.2 2.2 2.1 2.1 2.1 2.3	1.8 1.7 1.8 1.7 1.6 1.5 1.4 1.6 1.7 1.7 2.0 2.1 2.0 2.1 2.5 3.0	MARCH 2.0 1.4 1.5 1.6 1.6 1.4 1.1 1.4 1.5 1.6 1.6 2.6	1.8 1.7 1.6 1.7 1.7 1.6 1.4 1.4 1.5 1.6 1.6 1.8 2.8	4.6 5.2 5.6 5.8 6.0 6.3 6.5 6.7 7.1 7.1 7.1 7.6 7.8 8.1 7.8 7.3 7.0 7.2	APRIL 3.7 4.5 5.4 6.0 6.0 6.1 6.4 6.8 6.9 7.0 7.1 7.4 7.6 7.8 7.2 7.0 6.8 6.8	4.2 4.9 5.8 6.1 6.3 6.5 7.0 7.0 7.0 7.5 7.7 7.5 7.7 7.9 7.5 7.2 6.9 7.0	9.1 9.6 10.0 10.0 9.9 9.9 9.7 9.3 8.4 8.2 8.7 9.3 10.3 10.7	MAY 8.7 9.4 9.8 9.8 9.7 9.3 8.4 7.8 7.7 8.1 8.7 9.2 10.9 11.3 10.4	8.9 9.8 9.9 9.8 9.6 9.0 8.1 8.0 8.5 9.0 9.5 11.2 10.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	1.3 1.2 1.5 1.7 1.8 1.7 1.8 1.9 2.1 2.3 2.4 2.4 2.3 2.3 2.3 2.2 2.2 2.2 2.2 2.3	FEBRUARY 1.1 1.1 1.4 1.6 1.7 1.9 2.0 2.3 2.2 2.1 2.1 2.1 2.2 2.1 2.2 2.1 2.2 2.1 2.7	1.2 1.1 1.6 1.7 1.8 2.0 2.2 2.4 2.3 2.3 2.2 2.2 2.2 2.1 2.1 2.1 2.1 2.3	2.0 1.8 1.7 1.8 1.7 1.6 1.5 1.4 1.6 1.7 1.7 2.0 2.1 2.1 2.5 2.8	MARCH 2.0 1.4 1.5 1.6 1.6 1.4 1.1 1.4 1.4 1.5 1.6 2.6	1.8 1.7 1.6 1.7 1.7 1.6 1.4 1.4 1.5 1.6 1.8 1.9 2.8	4.6 5.2 5.6 5.8 6.0 6.3 6.5 6.7 7.1 7.1 7.4 7.6 7.8 8.1 7.8 7.3 7.0 7.2	APRIL 3.7 4.5 5.4 6.0 6.0 6.1 6.4 6.8 6.9 7.0 7.1 7.4 7.6 7.8 7.2 7.0 6.8 6.8 7.2 7.6 8.0	4.2 4.9 5.8 6.1 6.3 6.5 7.0 7.0 7.2 7.5 7.7 7.9 7.5 7.2 6.9 7.4 7.8 8.1	9.1 9.6 10.0 10.0 9.9 9.9 9.7 9.3 8.4 8.2 8.7 9.3 9.8 10.3 10.7 10.9 11.0 11.4 11.5 11.3	MAY 8.7 9.4 9.8 9.8 9.7 9.3 8.4 7.7 8.1 8.7 9.2 10.9 11.3 10.4 10.3 10.8 11.0	8.9 9.8 9.9 9.8 9.6 9.0 8.1 8.0 8.5 9.0 9.5 11.2 11.4 10.4 11.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	1.3 1.2 1.5 1.7 1.8 1.7 1.8 1.9 2.1 2.3 2.4 2.3 2.3 2.3 2.2 2.2 2.2 2.2 2.3	FEBRUARY 1.1 1.1 1.4 1.6 1.7 1.9 2.0 2.3 2.2 2.1 2.1 2.2 2.1 2.1 2.2 2.1 2.1 2.2 2.1 2.5	1.2 1.1 1.6 1.7 1.8 2.0 2.2 2.4 2.3 2.3 2.3 2.2 2.2 2.1 2.1 2.1 2.3	1.8 1.7 1.8 1.7 1.6 1.5 1.4 1.6 1.7 1.7 2.0 2.1 2.0 2.1 2.5 3.0	MARCH 2.0 1.4 1.5 1.6 1.6 1.4 1.1 1.4 1.5 1.6 1.6 2.6	1.8 1.7 1.6 1.7 1.7 1.6 1.4 1.4 1.5 1.6 1.6 1.8 2.8	4.6 5.2 5.6 5.8 6.0 6.3 6.5 6.7 7.1 7.1 7.1 7.6 7.8 8.1 7.8 7.3 7.0 7.2	APRIL 3.7 4.5 5.4 6.0 6.0 6.1 6.4 6.8 6.9 7.0 7.1 7.4 7.6 7.8 7.2 7.0 6.8 6.8	4.2 4.9 5.8 6.1 6.3 6.5 7.0 7.0 7.0 7.5 7.7 7.5 7.7 7.9 7.5 7.2 6.9 7.0	9.1 9.6 10.0 10.0 9.9 9.9 9.7 9.3 8.4 8.2 8.7 9.3 10.3 10.7	MAY 8.7 9.4 9.8 9.8 9.7 9.3 8.4 7.8 7.7 8.1 8.7 9.2 10.9 11.3 10.4	8.9 9.8 9.9 9.8 9.6 9.0 8.1 8.0 8.5 9.0 9.5 11.2 10.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	1.3 1.2 1.5 1.7 1.8 1.7 1.8 2.1 2.3 2.4 2.4 2.3 2.3 2.3 2.3 2.2 2.2 2.2 2.2 2.2 2.3	FEBRUARY 1.1 1.1 1.4 1.6 1.7 1.9 2.0 2.3 2.2 2.1 2.1 2.2 2.1 2.1 2.2 2.1 2.1 2.2 2.1 2.7 2.7	1.2 1.1 1.6 1.7 1.8 2.0 2.2 2.4 2.3 2.3 2.2 2.2 2.1 2.1 2.1 2.3	1.8 1.7 1.8 1.7 1.6 1.5 1.4 1.6 1.7 2.0 2.1 2.0 2.1 2.5 3.0 3.1 2.9 2.8 3.1	MARCH 2.0 1.4 1.5 1.6 1.6 1.1 1.4 1.4 1.5 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6	1.8 1.7 1.6 1.7 1.6 1.4 1.4 1.5 1.6 1.8 2.8	4.6 5.2 5.6 5.8 6.0 6.3 6.5 6.7 6.9 7.1 7.1 7.4 7.6 7.8 8.1 7.8 7.0 7.2	APRIL 3.7 4.5 5.4 6.0 6.0 6.1 6.4 6.8 6.9 7.0 7.1 7.4 7.6 7.8 7.2 7.0 6.8 6.8 7.2 7.6 8.0	4.2 4.9 5.8 6.1 6.3 6.7 7.0 7.0 7.0 7.2 7.5 7.7 7.9 7.5 7.2 7.5 7.7	9.1 9.6 10.0 10.0 9.9 9.9 9.7 9.3 8.4 8.2 8.7 9.3 10.3 10.7 10.9 11.0 11.5 11.3	MAY 8.7 9.4 9.8 9.8 9.7 9.3 8.4 7.8 7.7 8.1 8.7 9.2 10.9 11.3 10.4 10.3 10.8 11.0 9.9	8.9 9.8 9.9 9.8 9.6 9.0 8.1 8.0 8.5 9.0 11.2 11.4 10.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 25 26 27	1.3 1.2 1.5 1.7 1.8 1.7 1.8 2.1 2.3 2.4 2.3 2.3 2.3 2.2 2.2 2.2 2.2 2.2 2.3 2.5 2.7 2.8 2.9 2.7 2.7	FEBRUARY 1.1 1.1 1.4 1.6 1.7 1.9 2.0 2.3 2.2 2.1 2.1 2.1 2.2 2.1 2.1 2.2 2.1 2.1	1.2 1.1 1.6 1.7 1.8 2.0 2.2 2.4 2.3 2.3 2.2 2.2 2.1 2.1 2.1 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.2 2.2	2.0 1.8 1.7 1.8 1.7 1.6 1.7 1.7 2.0 2.1 2.0 2.1 2.5 3.0 3.1 2.9 2.8 3.1 2.7	MARCH 2.0 1.4 1.5 1.6 1.6 1.4 1.1 1.4 1.5 1.6 2.6 2.6 2.6 3.0	1.8 1.7 1.6 1.7 1.7 1.6 1.4 1.4 1.5 1.6 1.8 2.8	4.6 5.2 5.6 5.8 6.0 6.3 6.5 6.7 6.9 7.1 7.1 7.4 7.6 7.8 8.1 7.8 7.3 7.0 7.2 7.6 8.0 8.2	APRIL 3.7 4.5 5.4 6.0 6.0 6.1 6.4 6.8 6.9 7.0 7.1 7.4 7.6 7.8 7.2 7.0 6.8 6.8 7.2 7.6 8.0 7.7 7.8	4.2 4.9 	9.1 9.6 10.0 10.0 9.9 9.9 9.7 9.3 8.4 8.2 8.7 9.3 10.7 10.9 11.0 11.4 11.5 11.3 10.8 11.2 11.2 11.2	MAY 8.7 9.4 9.8 9.8 9.7 9.3 8.4 7.8 7.7 8.1 8.7 9.2 10.9 11.3 10.4 10.3 10.8 11.0 9.9 9.6 9.6 10.1	8.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	1.3 1.2 1.5 1.7 1.8 1.7 1.8 1.9 2.1 2.3 2.4 2.4 2.3 2.3 2.3 2.2 2.1 2.2 2.3 2.5 2.7 2.8 2.9 3.0 2.7 2.7 2.8	FEBRUARY 1.1 1.1 1.4 1.6 1.7 1.9 2.0 2.3 2.2 2.1 2.1 2.2 2.1 2.1 2.2 2.1 2.1 2.2 2.1 2.1	1.2 1.1 1.6 1.7 1.8 2.0 2.2 2.4 2.3 2.2 2.2 2.1 2.1 2.1 2.3 2.3 2.2 2.2 2.2 2.1 2.1 2.1 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3	2.0 1.8 1.7 1.8 1.6 1.5 1.4 1.6 1.7 2.0 2.1 2.0 2.1 2.5 3.0 3.1 2.9 2.8 3.0 3.1 2.7	MARCH 2.0 1.4 1.5 1.6 1.6 1.1 1.4 1.4 1.5 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6	1.8 1.7 1.6 1.7 1.6 1.4 1.4 1.5 1.6 1.8 2.8 2.7 2.6 2.8 3.2 3.5 3.6	4.6 5.2 5.8 6.0 6.3 6.5 6.7 6.9 7.1 7.1 7.4 7.6 7.8 8.1 7.8 8.1 7.9 8.0 8.2 8.1 7.9 8.0	APRIL 3.7 4.5 5.4 6.0 6.0 6.0 6.1 6.4 6.8 6.9 7.0 7.1 7.4 7.6 7.8 7.2 7.0 6.8 6.8 7.2 7.6 8.7 7.7 7.8 7.7 7.8 7.7	4.2 4.9 5.8 6.1 6.3 6.7 7.0 7.0 7.2 7.5 7.7 7.9 7.5 7.7 7.9 7.8 8.1	9.1 9.6 10.0 10.0 9.9 9.9 9.7 9.3 8.4 8.2 8.7 9.3 10.3 10.7 11.9 11.4 11.5 11.3 9.9	MAY 8.7 9.4 9.8 9.8 9.7 9.3 8.4 7.8 7.7 8.1 8.7 9.2 10.9 11.3 10.4 10.3 10.8 11.0 9.9 9.6 9.6 10.1 10.4 11.1	8.9 9.8 9.9 9.8 9.6 9.0 8.1 8.5 9.0 9.5 11.2 11.4 10.9 10.4 11.0 11.0 10.8 9.8 9.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	1.3 1.2 1.5 1.7 1.8 1.7 1.8 1.7 2.3 2.4 2.3 2.3 2.2 2.1 2.3 2.2 2.1 2.3 2.5 2.7 2.8 2.9 3.0 2.7 2.8	FEBRUARY 1.1 1.1 1.4 1.6 1.7 1.9 2.0 2.3 2.2 2.1 2.1 2.1 2.2 2.1 2.1 2.2 2.1 2.1	1.2 1.1 1.6 1.7 1.8 2.0 2.2 2.4 2.3 2.3 2.2 2.2 2.1 2.1 2.1 2.3 2.3 2.3 2.3 2.3 2.3	2.0 1.8 1.7 1.8 1.7 1.6 1.7 1.7 2.0 2.1 2.0 2.1 2.5 2.8 3.0 3.1 2.9 2.8 3.1 2.7	MARCH 2.0 1.4 1.5 1.6 1.6 1.1 1.4 1.5 1.6 1.6 1.6 2.6 2.6 2.6 3.0 3.4 3.1	1.8 1.7 1.6 1.7 1.7 1.6 1.4 1.4 1.5 1.6 1.8 2.8 2.8 3.2 3.5 3.6 3.2	4.6 5.2 5.6 5.8 6.0 6.3 6.5 6.7 6.9 7.1 7.1 7.4 7.6 7.8 8.1 7.8 7.3 7.2 7.6 8.0 8.2 7.9 8.1 8.7	APRIL 3.7 4.5 5.4 6.0 6.0 6.1 6.4 6.8 6.9 7.0 7.4 7.6 7.8 7.2 7.0 6.8 6.8 7.2 7.6 8.8 7.2 7.7 7.8 7.8 7.7	4.2 4.9 	9.1 9.6 10.0 10.0 9.9 9.9 9.7 9.3 8.4 8.2 8.7 9.3 10.3 10.7 10.9 11.0 11.4 11.5 11.3 9.9	MAY 8.7 9.4 9.8 9.8 9.7 9.3 8.4 7.8 7.7 8.1 8.7 9.2 10.9 11.3 10.4 10.3 10.8 11.0 9.6 9.6 10.1 10.4 11.1 11.6	8.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	1.3 1.2 1.5 1.7 1.8 1.7 1.8 1.9 2.1 2.3 2.4 2.4 2.3 2.3 2.3 2.2 2.1 2.2 2.3 2.5 2.7 2.8 2.9 3.0 2.7 2.7 2.8	FEBRUARY 1.1 1.1 1.4 1.6 1.7 1.9 2.0 2.3 2.2 2.1 2.1 2.2 2.1 2.1 2.2 2.1 2.1 2.2 2.1 2.1	1.2 1.1 1.6 1.7 1.8 2.0 2.2 2.4 2.3 2.2 2.2 2.1 2.1 2.1 2.3 2.3 2.2 2.2 2.2 2.1 2.1 2.1 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3	2.0 1.8 1.7 1.8 1.6 1.5 1.4 1.6 1.7 2.0 2.1 2.0 2.1 2.5 3.0 3.1 2.9 2.8 3.0 3.1 2.7	MARCH 2.0 1.4 1.5 1.6 1.6 1.1 1.4 1.4 1.5 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6	1.8 1.7 1.6 1.7 1.6 1.4 1.4 1.5 1.6 1.8 2.8 2.7 2.6 2.8 3.2 3.5 3.6	4.6 5.2 5.8 6.0 6.3 6.5 6.7 6.9 7.1 7.1 7.4 7.6 7.8 8.1 7.8 8.1 7.9 8.0 8.2 8.1 7.9 8.0	APRIL 3.7 4.5 5.4 6.0 6.0 6.0 6.1 6.4 6.8 6.9 7.0 7.1 7.4 7.6 7.8 7.2 7.0 6.8 6.8 7.2 7.6 8.7 7.7 7.8 7.7 7.8 7.7	4.2 4.9 5.8 6.1 6.3 6.7 7.0 7.0 7.2 7.5 7.7 7.9 7.5 7.7 7.9 7.8 8.1	9.1 9.6 10.0 10.0 9.9 9.9 9.7 9.3 8.4 8.2 8.7 9.3 10.3 10.7 11.9 11.4 11.5 11.3 9.9	MAY 8.7 9.4 9.8 9.8 9.7 9.3 8.4 7.8 7.7 8.1 8.7 9.2 10.9 11.3 10.4 10.3 10.8 11.0 9.9 9.6 9.6 10.1 10.4 11.1	8.9 9.8 9.9 9.8 9.6 9.0 8.1 8.5 9.0 9.5 11.2 11.4 10.9 10.4 11.0 11.0 10.8 9.8 9.8

pend oreille river basin 313

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN									
		JUNE			JULY			AUGUST			SEPTEMBE	R
1 2 3 4 5	12.3 12.5 12.8 13.1 13.1	11.9 12.3 12.5 12.8 12.8	12.1 12.4 12.5 12.9 12.9	16.0 16.0 16.6 16.8 16.9	15.2 15.4 16.0 16.6 16.6	15.5 15.7 16.3 16.8 16.7	22.4 22.2 22.0 21.8 21.6	21.3 21.9 21.6 21.4 21.1	22.2 22.1 21.9 21.7 21.4	 	 	
6 7 8 9 10	12.9 12.6 12.4 11.5 11.8	12.5 12.3 11.1 10.9 11.5	12.7 12.4 11.7 11.1 11.6	17.1 17.5 17.8 17.6 17.9	16.6 17.1 17.5 17.3 17.3	17.0 17.4 17.7 17.5 17.7	21.2 20.9 20.7 20.5 20.4	20.8 20.5 20.3 20.2 20.2	21.0 20.8 20.6 20.4 20.3	20.6 20.2 19.8 19.5	20.2 19.8 19.4 19.1	20.4 20.0 19.6 19.3
11 12 13 14 15	12.2 12.6 13.6 13.7	11.8 12.2 12.7 13.5	12.0 12.4 13.1 13.6	18.6 19.3 19.7 19.8 20.4	17.9 18.6 19.5 19.6	18.4 19.1 19.7 20.1	20.3 20.6 20.8 21.0 21.1	20.2 20.3 20.3 20.4 20.6	20.3 20.4 20.7 20.8 21.0	19.1 18.8 18.9 19.0 19.1	18.8 18.6 18.5 18.4 18.0	19.0 18.8 18.8 18.9 18.9
16 17 18 19 20	14.2 14.4 14.4 13.7 12.9	13.7 14.2 13.6 12.9 12.4	13.9 14.3 13.9 13.4 12.5	20.9 21.3 21.7 22.0 21.8	20.3 20.8 21.1 21.6 21.4	20.7 21.1 21.5 21.8 21.7	21.1 21.1 21.1 21.0 20.8	20.6 20.6 20.5 20.7 20.3	20.9 20.9 20.9 20.9 20.7	19.2 19.2 19.1 19.0 18.6	18.7 19.0 19.0 18.6 18.3	19.1 19.2 19.1 18.8 18.5
21 22 23 24 25	13.8 14.8 15.4 15.5 16.1	12.6 13.8 14.8 15.4 15.5	13.1 14.4 15.1 15.4 15.8	21.6 21.8 22.1 22.3	21.3 21.4 	21.5 21.6 	20.7 20.6 20.6 20.6 20.8	20.2 20.2 20.2 20.1 20.4	20.5 20.5 20.4 20.5 20.7	18.3 18.0 17.4 17.1 16.9	18.0 17.4 17.0 16.8 16.6	18.1 17.7 17.2 17.0 16.8
26 27 28 29 30 31	16.6 17.2 17.2 16.8 16.4	16.1 16.6 16.8 16.4 16.0	16.2 17.0 17.1 16.7 16.3	22.9 22.9 22.9 22.7 22.5	22.7 21.6 21.2 21.6	22.8 22.7 22.4 22.3	21.0 21.1 	20.6	20.8 20.9	16.7 16.5 16.5 16.4 16.3	16.5 16.4 15.5 15.9 16.0	16.6 16.5 16.3 16.3
MONTH												

314 COLUMBIA RIVER MAIN STEM

12399500 COLUMBIA RIVER AT INTERNATIONAL BOUNDARY (International gaging station)

LOCATION.--Lat $49^{\circ}00^{\circ}03^{\circ}$, long $117^{\circ}37^{\circ}42^{\circ}$, in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.4, T.40 N., R.41 E., Stevens County, Hydrologic Unit 17020001, on left bank at international boundary, 0.5 mi downstream from Pend Oreille River, and at mile 745.0.

DRAINAGE AREA. -- 59,700 mi², approximately.

PERIOD OF RECORD. -- October 1937 to current year. Prior to March 1938, monthly discharge only, published in WSP 1316.

REVISED RECORDS.--WSP 932: 1937(m), 1938(M), 1939(m).

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (Bureau of Reclamation datum). Prior to Apr. 27, 1939, nonrecording gage at same site and datum. Since May 31, 1942, auxiliary water-stage recorder and Jan. 1 to May 30, 1942, auxiliary nonrecording gage 2.2 mi downstream from base gage at same datum.

REMARKS.--Records good except for estimated daily discharges and periods when the base gage height drops below 1,298 ft, which are fair. Flow regulated by numerous reservoirs. It was estimated that 436,400 acres were under irrigation in the United States in 1980 with diversions for irrigation of an additional 35,000 acres in Canada. U.S. Geological Survey satellite telemeter at station.

COOPERATION. -- This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--65 years (water years 1938-2002), 99,630 ft³/s, 72,182,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 550,100 ft^3/s June 12, 1948, elevation, 1,338.13 ft; minimum discharge, 18,000 ft^3/s Feb. 7, 1954, elevation, 1,289.38 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1894 reached a stage of 1,346 ft, from information by Bureau of Reclamation, discharge, $680,000 \text{ ft}^3/\text{s}$.

A discharge of about 12,900 ft^3/s occurred Jan. 30 or 31, 1937, based on information from other gaging stations, elevation, 1,287.9 ft, from rating curve extended below 1,291.6 ft and may have been as low sometime in January 1930.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 236,000 ${\rm ft}^3/{\rm s}$ June 30, elevation, 1,316.58 ft; minimum daily discharge, 40,000 ${\rm ft}^3/{\rm s}$ April 2.

					DAI	LY MEAN V	ALUES					
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71300	62800	82900	63000	66900	65900	e50000	79100	184000	224000	115000	110000
2	68100	64200	89300	67000	73400	65200	e40000	90800	188000	217000	113000	106000
3	70400	63800	96500	60600	66700	59700	e43800	92100	199000	207000	112000	102000
4	69700	63100	96000	66600	65600	63500	e43800	86800	197000	200000	110000	94200
5	66900	63400	90800	72300	68200	64600	e46500	90400	195000	192000	113000	91500
	00300	03100	30000	,2500	00200	01000	010500	30100	133000	152000	113000	31300
6	66400	63000	93100	59400	69500	65300	e47500	92700	201000	184000	112000	88100
7	66200	60300	90800	64900	72100	62500	e43400	91600	199000	174000	109000	84100
8	63200	61900	78700	66600	68000	60500	e51500	92500	195000	182000	107000	81300
9	68100	61900	75500	72800	63400	57800	e51000	95400	200000	189000	111000	85800
10	67600	64900	81200	81100	64100	57900	e52800	92700	194000	188000	108000	88300
11	68600	65500	79300	82500	64300	62800	e54000	90900	188000	180000	114000	88300
12	67800	63100	76900	83300	63300	63600	67800	90400	185000	181000	115000	91700
13	67800	56600	81300	81400	59200	63600	69500	90100	189000	182000	113000	92500
14	66900	52100	80600	80300	57200	64700	76100	89500	189000	180000	112000	96000
15	67400	48900	78600	72200	59600	68400	82400	87100	191000	183000	111000	88300
13	07100	10300	70000	72200	33000	00100	02100	07100	131000	103000	111000	00300
16	64500	58300	74200	76300	62200	65500	94300	87200	195000	183000	106000	88100
17	61500	62300	88400	75300	60700	71100	94500	90200	198000	182000	109000	91400
18	60700	78800	87100	76000	64100	67900	93800	e91600	193000	180000	107000	87700
19	61700	86600	85900	70400	60900	70800	89200	e92000	190000	178000	109000	90400
20	62200	78400	78000	66400	61100	70300	84100	e102000	177000	167000	106000	92000
	=		=					44=000		4.55000		
21	59600	71700	73100	69100	64600	66300	83300	e115000	165000	165000	99300	86400
22	63700	57700	67900	63800	62500	64800	88200	e131000	168000	154000	104000	84400
23	59500	62600	68900	63600	64200	52800	87800	e141000	168000	148000	104000	87600
24	61300	66900	70300	61200	58800	53700	84400	e147000	168000	145000	105000	84400
25	63000	63600	63200	63500	62100	53500	76000	e148000	174000	137000	106000	82900
26	57800	68700	69300	62100	58400	62800	84800	e147000	198000	130000	108000	84000
27	57400	69500	68700	59700	63600	63200	83300	e143000	203000	128000	112000	88600
28	57900	70900	66900	64200	68100	56200	86100	e150000	210000	125000	112000	81400
29	62900	65500	67400	69700		51900	82600	160000	223000	128000	109000	78000
30	63500	79500	72700	72800		49000	81700	168000	231000	123000	109000	82700
31	64300		69100	71200		45100		187000		120000	110000	
										=======		
	1997900	1956500	2442600	2159300	1792800	1910900	2114200	3452100	5755000	5256000	3390300	2678100
MEAN	64450	65220	78790	69650	64030	61640	70470	111400	191800	169500	109400	89270
MAX	71300	86600	96500	83300	73400	71100	94500	187000	231000	224000	115000	110000
MIN	57400	48900	63200	59400	57200	45100	40000	79100	165000	120000	99300	78000
AC-FT	3963000	3881000	4845000	4283000	3556000	3790000	4194000	6847000	11420000	10430000	6725000	5312000
CAL Y	R 2001	TOTAL 258	65300 MF	AN 70860	MAX 1150	00 MIN 4	0300 AC-	FT 513000	000			
WTR Y		TOTAL 349		AN 95630	MAX 2310		0000 AC-					

e Estimated

KETTLE RIVER BASIN 315

12401500 KETTLE RIVER NEAR FERRY, WA (International gaging station)

LOCATION.--Lat $48^{\circ}58^{\circ}53^{\circ}$, long $118^{\circ}45^{\circ}55^{\circ}$, in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.10, T.40 N., R.32 E., Ferry County, Hydrologic Unit 17020002, on right bank 0.5 mi upstream from Catherine Creek, 1.3 mi south of international boundary and Ferry, 3.2 mi upstream from Toroda Creek, and at mile 84.02.

DRAINAGE AREA.--2,200 mi², approximately.

Time

Date

PERIOD OF RECORD.--August 1928 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,836.8 ft above NGVD of 1929. Prior to Nov. 23, 1928, nonrecording gage at same site and datum.

REMARKS.--Records excellent except for estimated daily discharges, which are good. Several small diversions upstream from station for irrigation. No regulation. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--74 years (water years 1929-2002), 1,545 ft^3/s , 1,120,000 acre-ft/yr.

Discharge Gage height (ft³/s) (ft)

COOPERATION.--This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,200 ft³/s May 29, 1948, gage height, 21.15 ft; minimum discharge, 14 ft³/s, discharge measurement, Jan. 23, 1930, but may have been less during period of ice effect Jan. 18-23, 1930.

Date

Time

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 10,800 ft^3/s and maximum (*):

Date	11116	(10	/5/	(LC)	Date		TIME	(10 /	>/	(IC)		
May 29	1530	*12,	100	17.81	May	29	1730			*17.83		
Minimum disc	harge, 9	1 ft ³ /s Se	pt. 15,1	.6, gage h	eight 9.26	ft.						
		DISCHAR	GE, CUBI	IC FEET PE	R SECOND, DAILY	WATER YE MEAN VA		ER 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	150	222	338	274	289	254	379	4440	9500	2800	292	115
2	142	250	347	273	320	272	409	5190	8530	2350	284	127
3	135	253	375	272	333	286	413	5550	7970	2050	273	123
4	130 125	246	357	273	321	278	448	4980	7390	1840	263	114 112
5	125	246	331	269	317	262	483	4300	7640	1710	251	112
6	122	255	323	273	291	198	576	3850	8090	1600	246	114
7	120	262	297	282	304	226	748	3500	6660	1450	242	113
8	120	244	291	298	312	227	900	3200	5390	1430	236	110
9	120	228	249	331	291	223	969	2970	4570	1650	244	109
10	120	228	267	438	290	258	1040	2780	4300	1480	233	112
11	124	218	289	504	269	255	1230	2640	4590	1310	213	113
12	134	202	192	508	230	263	1660	2670	5350	e1180	198	111
13	142	210	233	478	262	264	2530	3030	5850	e1060	184	104
14	148	237	330	394	270	259	4870	3990	6480	e1000	173	98
15	151	259	210	320	247	255	5810	4730	6670	e900	163	94
16	153	614	236	314	243	256	4720	4280	6710	822	155	93
17	152	871	302	318	263	245	3920	4160	6000	753	152	100
18 19	150	737 566	244 273	287	279	225 215	3400 3090	4760	5440	690 605	149 150	100 100
20	164 172	538	218	309 353	284 274	215	3040	5020 6040	6240 5300	569	144	114
20	1/2	330	210	333	2/4	213	3040	0040	3300	369	144	114
21	176	565	174	332	277	216	3160	7690	4530	524	139	119
22	183	542	136	321	280	239	3360	8590	4390	485	136	115
23	195	513	153	268	283	239	3480	9020	4480	453	129	115
24	196	484	223	248	242	244	3260	7950	4290	424	124	113
25	206	452	255	349	203	269	3010	7240	3990	397	121	107
26	206	406	220	343	209	303	2850	7630	3750	388	125	103
27	201	401	146	e300	216	321	2780	8390	3670	404	125	102
28	201	393	118	e230	248	327	2780	9600	3390	382	120	101
29	207	383	170	e170		337	2980	11600	3530	348	119	102
30	209	359	223	200		340	3530	11800	3710	325	117	103
31	214		266	241		351		10800		307	115	
TOTAL	4968	11384	7786	9770	7647	8126	71825	182390	168400	31686	5615	3256
MEAN	160	379	251	315	273	262	2394	5884	5613	1022	181	109
MAX	214	871	375	508	333	351	5810	11800	9500	2800	292	127
MIN	120	202	118	170	203	198	379	2640	3390	307	115	93
AC-FT	9850	22580	15440	19380	15170	16120	142500	361800	334000	62850	11140	6460
STATIST	ICS OF M	ONTHLY MEA	N DATA E	FOR WATER	YEARS 1929	- 2002,	BY WATER	R YEAR (WY)			
MEAN	379	381	270	221	230	422	2492	6711	5106	1500	437	347
MAX	2085	1280	1161	640	626	1811	6351	10440	9924	4380	1987	1941
(WY)	1942	1942	1942	1942	1935	1983	1934	1957	1974	1982	1948	1941
MIN	90.9	84.3	78.2	40.3	72.5	110	300	2222	1338	346	104	86.7
(WY)	1988	1930	1930	1930	1930	1930	1929	1930	1987	1934	1973	1929
CIMMADA	STATIST	TCC	FOR	2001 CATE	NDAR YEAR		2002 2002 1	WATER YEAR		WATER YEA	DC 1000	2002
DUMMARI	SIMIISI	105	FOR	ZUUI CALE	MDAR IEAR		OR 2002 V	MAIL MAIAN		WAIL ALIAW	ARS 1929 -	2002
ANNUAL 1				332348 911			512853 1405			1545		
HIGHEST										2543		1997
LOWEST A										659		1930
HIGHEST				8280	May 25		11800	May 30		20300	May 29	1948
LOWEST I				74 93	Feb 7		93	Sep 16 Sep 13		15 15	Jan 16	1930
		Y MINIMUM		93	Sep 18		98	sep 13		15 1120000	Jan 16	1930
		AC-FT)		659200 3330			1017000 4740			1120000 5220		
10 PERCI	ENT EXCE			3330 244			4740 287			379		
	ENT EXCE			120			120			130		
JU PERCI	DIVI DACE	כחמו		120			120			130		

e Estimated

316 KETTLE RIVER BASIN

12404500 KETTLE RIVER NEAR LAURIER, WA (International gaging station)

LOCATION.--Lat 48°59'04", long 118°12'55", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.11, T.40 N., R.36 E., Ferry County, Hydrologic Unit 17020002, on right bank 1,000 ft downstream from Deep Creek, 1.1 mi south of international boundary, 1.1 mi southeast of Laurier, and at mile 29.71.

DRAINAGE AREA.--3,800 mi², approximately.

Time

0829

Date

May 30

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

REVISED RECORDS.--WSP 737: 1930-31. WSP 862: 1937. WSP 882: 1938.

GAGE.--Water-stage recorder. Datum of gage is 1,425.5 above NGVD of 1929. Prior to Jan. 3, 1930, nonrecording gage at same site and datum.

REMARKS.--Records excellent except for estimated daily discharges, which are fair. Diversions for irrigation of about 720 acres in the United States (for 1946 from United States reports), and 2,090 acres in Canada from the Canada Year Book for 1940. U.S. Geological Survey satellite telemeter at station.

 ${\tt COOPERATION.--This\ station\ is\ maintained\ by\ the\ United\ States\ under\ agreement\ with\ Canada.}$

AVERAGE DISCHARGE.--73 years (water years 1930-2002), 2,930 $\mathrm{ft^3/s}$, 2,123,000 acre-ft/yr.

Discharge Gage height (ft³/s) (ft)

*20,400 *12.85

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft 3 /s May 29, 1948, gage height, 17.25 ft; minimum daily discharge, 70 ft 3 /s Jan. 11-31, 1930.

Date Time

No other peak greater than base discharge.

Discharge Gage height (ft³/s) (ft)

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May or June 1894 reached a stage of about 22 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 18,100 ft^3/s and maximum (*):

.mum disch DAY	arge, 1	.77 ft ³ /s S	-		ER SECOND, DAILY			ER 2001 TC	SEPTEME	BER 2002		
DAY	OCT	DISCHAR	GE, CUB	IC FEET PE				ER 2001 TC	SEPTEME	ER 2002		
DAY	OCT					INDIAN AV	ALUES					
	OCI	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	
1	234	301	673	537	e560	623	929	7370	16900	5920	645	
2	230	319	648	532	e660	671	1070	8700	15200	4880	615	
3	220	332	668	540	747	680	1140	9580	14300	4280	585	
4	212	340	679	544	756	677	1180	9210	13500	3830	559	
5	205	334	652	541	745	663	1270	8110	13600	3530	534	
6	200	333	625	545	737	631	1460	7340	14900	3280	510	
7	197	337	599	560	714	e520	1830	6680	13200	3030	498	
8	195	345	581	593	730	e540	2220		10600	2920	484	
9	195											
10	198	337 322	570 503	723 1000	707 693	e530 590	2360 2460	5660 5330	8970 8100	3130 3090	474 466	
10	130	322	503	1000			2400			3090	400	
11	202	314	529	1050	671 607	627 622 632 629 621	2750	5030	8290	2740	446	
12	210	308	508	1060	607	622	3410	4930	9300	2510	417	
13	220	295	490	1050	e540	632	4970	5220	10700	2300	397	
14	225	304	505	987	628	629	8230	6310	11900	2120	378	
15	229	334	535	e740	624	621	11100	7910	12700	1950	356	
16	232	483	506 538 493 602	e680	580	622	9180	7590	12700	1780	341	
17	232	1020	538	e700	612	621	7670	7250	12100	1630	325	
18	233	1180	493	e630	631	597	6680	7820	10500	1490	317	
19	240	1020	602	e680	649	562	6010	8360	10700	1370	306	
20	240	876	541	e750	647	558	5730	9430	9870	1260	296	
21	250	873	e380	e720	646	556	5840	12200	8610	1170	290	
22	258	917	e280	e680	636	544	6110	13600	8210	1090	281	
23	265	906	e300	e600	668	575	6350	14800	8490	1020	276	
24	272	863	e350	e560	686	587	6170	13300	8380	963	267	
25	282	821	470	e660	597	602	5730	12100	7750	912	258	
26	287	775	438	778	e480	658	5430	12100	7320	867	250	
27	290	723	e300	791	e500	725	5260	13400	7130	856	249	
28	282	710	e250	743	586	769	5220	15100	6780	823	247	
29	279	709	e350	e500		797	5370	18800	6780	779	237	
30	286	692	446	e400		827	6020	20100	7410	731	233	
31	299		495	e470		856		18800		686	240	
TOTAL	7399	17423	15504	21344	18037	19712	139149	308240	314890	66937	11777	
MEAN	239	581	500	689	644	636	4638	9943	10500	2159	380	
MAX	299	1180	679	1060	756	856	11100	20100	16900	5920	645	
MIN	195	295	250	400	480	520	929	4930	6780	686	233	
	14680	34560	30750	42340	35780	39100	276000	611400	624600	132800	23360	1
STATISTI	CS OF M	ONTHLY MEA	N DATA H	FOR WATER	YEARS 1929	- 2002,	, BY WATE	R YEAR (WY	")			
MEAN	678	757	609	518	562	1080	5194	12150	9246	2819	835	
MAX	3815	2600	2652	1450	1407	4247	12170	18620	17650	6928	3140	
(WY)	1942	1942	1942	1942	1935	1983	1934	1997	1974	1982	1976	
MIN	176	202	154	76.5	97.9	212	1478	4246	2888	759	250	
(WY)	1988	1930	1930	1930	1930	1930	1937	1930	1987	1934	1973	
SUMMARY	STATIST	CICS	FOR	2001 CALE	ENDAR YEAR	I	FOR 2002 I	WATER YEAR	2	WATER YEA	ARS 1929 -	20
ANNUAL T				576917			946454					
ANNUAL M HIGHEST		MEZN		1581			2593			2930 4725		19
	NNUAL M									1251		19
LAUWIESTI: A				14200	May 25		20100	May 30)	34200	May 29	
					C 21		181	Con 16		70	Jan 11	
HIGHEST												
HIGHEST LOWEST D	AILY ME	AN		151	Sep 21		101	Sep 13		70	Jan 11	
HIGHEST LOWEST D	AILY ME	AN Y MTNTMUM		151 154	Sep 21 Sep 19		190	Sep 13		70	Jan 11	
HIGHEST LOWEST D ANNUAL S ANNUAL R	DAILY ME SEVEN-DA SUNOFF (AN Y MINIMUM AC-FT)		1144000	Sep 21 Sep 19			Sep 13	Š	34200 70 70 2123000	Jan 11	
HIGHEST LOWEST D	DAILY ME SEVEN-DA RUNOFF (ENT EXCE	AN Y MINIMUM AC-FT) EDS		151 154 1144000 5800 413	Sep 19		190 1877000 8540 646	Sep 13		70 2123000 9630 800	Jan 11	

e Estimated

COLVILLE RIVER BASIN 317

12409000 COLVILLE RIVER AT KETTLE FALLS, WA

LOCATION.--Lat 48°35'40", Long 118°03'41", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.30, T.36 N., R.38, E., Stevens County, Hydrologic Unit 17020003, on right bank 600 ft downstream from Washington Water Power Co.'s hydroelectric plant at foot of Meyers Falls, 1.0 mi south of town of Kettle Falls, and at mile 5.0.

DRAINAGE AREA.--1,007 mi²

PERIOD OF RECORD. -- October 1922 to current year. Published as "at Meyer Falls" 1922-38.

REVISED RECORDS.--WSP 1316: 1938(M), 1941(M), 1948(M). WSP 1636: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,400 ft above NGVD of 1929, from topographic map. Prior to Oct. 21, 1932, nonrecording gage at site 500 ft upstream at different datum. Oct. 21, 1932, to Sept. 19, 1938, nonrecording gages at site 200 ft upstream at different datum. Sept. 20, 1938, to Mar. 20, 1949, nonrecording gage at present site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Several diversions upstream from station for irrigation. Regulation at low flow by powerplant. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--80 years (water years 1923-2002), 309 ft³/s, 224,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,440 $\rm ft^3/s~Jan.~21,~1974,~gage~height,~9.84~ft;~maximum~gage~height,~10.17~ft~Apr.~23,~1956;~minimum~discharge~observed,~0.5~ft^3/s~Aug.~15,~1930.$

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,720 ft³/s Apr. 15, gage height, 7.95 ft; minimum discharge, 17 ft³/s Oct. 30, result of regulation.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		DISCHA	RGE, CUB	IC FEET PE	ER SECOND, DAILY	WATER YI MEAN V		R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	120	183	133	238	e300	443	929	515	219	77	73
2	65	116	195	172	233	e290	466	933	492	201	77	69
3	65	104	203	170	228	e290	473	944	461	192	77	65
4	64	99	199	163	224	e275	481	928	446	181	77	64
5	63	99	185	162	221	287	494	897	426	181	77	58
6 7	63 66	91 92	171 160	165 198	219 221	285 280	546 630	890 859	403 386	169 165	77 74	69 70
8	70	96	146	389	241	269	701	800	381	170	73	70
9	70	92	147	485	259	258	736	761	386	195	73	70
10	71	91	148	501	256	268	815	710	384	196	69	70
11	82	92	135	492	245	279	935	657	374	161	64	65
12 13	84 88	93 94	137 143	472 442	223 e205	332 368	990 1100	619 593	359 346	159 147	61 61	63 66
14	93	100	143	442	e205 e200	368	1280	580	333	139	59	65
15	88	112	295	356	e195	357	1560	571	315	134	51	65
16	85	124	255	307	e190	342	1630	562	299	124	59	65
17	79	128	330	272	211	337	1570	544	282	116	52	68
18	83	152	385	273	212	335	1510	566	290	108	57	75
19	79	137	308	302	214	324	1450	576	324	108	63	77
20	81	125	261	314	239	316	1390	597	322	97	58	78
21	81	124	235	284	253	304	1330	604	290	99	53	76
22	96	126	220	247	278	295	1280	661	267	93	55	75
23 24	96 105	143 161	192 150	234 238	404 427	296 301	1230 1180	799 788	259 252	86 89	58 61	74 74
25	97	153	e135	251	e390	322	1110	741	241	87	63	76
26 27	95 95	136 131	e120 e110	281 292	e370 e325	353 371	1050 1030	702 657	227 219	83 83	61 61	77 77
28	95	131	e110	250	e305	375	991	636	219	83	65	81
29	93	132	e155	e170		381	937	642	209	83	66	84
30	95	147	161	e185		400	926	607	229	77	58	91
31	97		165	e230		422		548		76	61	
TOTAL	2547	3541	5948	8836	7226	9985	30264	21901	9924	4101	1998	2150
MEAN	82.2	118	192	285	258	322	1009	706	331	132	64.5	71.7
MAX	105	161	385	501	427	422	1630	944	515	219	77	91
MIN	63	91	110	133	190	258	443	544	207	76	51	58
AC-FT	5050	7020	11800	17530	14330	19810	60030	43440	19680	8130	3960	4260
STATIST	ICS OF MO	ONTHLY MEA	AN DATA	FOR WATER	YEARS 1923	- 2002,	, BY WATER	YEAR (WY)				
MEAN	119	155	185	211	286	503	847	697	358	159	89.3	97.2
MAX	301	401	783	1374	970	1410	2168	1744	1035	467	258	241
(WY)	1928	1928	1974	1974	1974	1983	1969	1948	1948	1948	1948	1997
MIN (WY)	35.8 1932	49.5 1932	56.3 1932	32.9 1930	65.8 1937	127 1930	128 1930	93.8 1930	48.4 1926	20.6 1977	12.0 1931	22.7 1931
									1926			
SUMMARY	STATIST	ICS	FOR	2001 CALE	ENDAR YEAR	I	FOR 2002 W	ATER YEAR		WATER YEARS	1923 -	2002
ANNUAL	TOTAL			56648			108421					
ANNUAL				155			297			309		
	ANNUAL N									768		1974
	ANNUAL ME DAILY ME			425	Apr 29		1630	Apr 16		70.5 3360	Jan 20	1930
	DAILY MEA			425 32	Sep 1		51	Apr 16 Aug 15		0.50		
		MINIMUM		37	Aug 16		56	Aug 15		5.3	Aug 14	
	RUNOFF (A			112400	5 +0		215100	5 10		224100	5	
	ENT EXCE			279			701			728		
	ENT EXCER			153			199			176		
90 PERC	ENT EXCE	EDS		49			66			65		

e Estimated

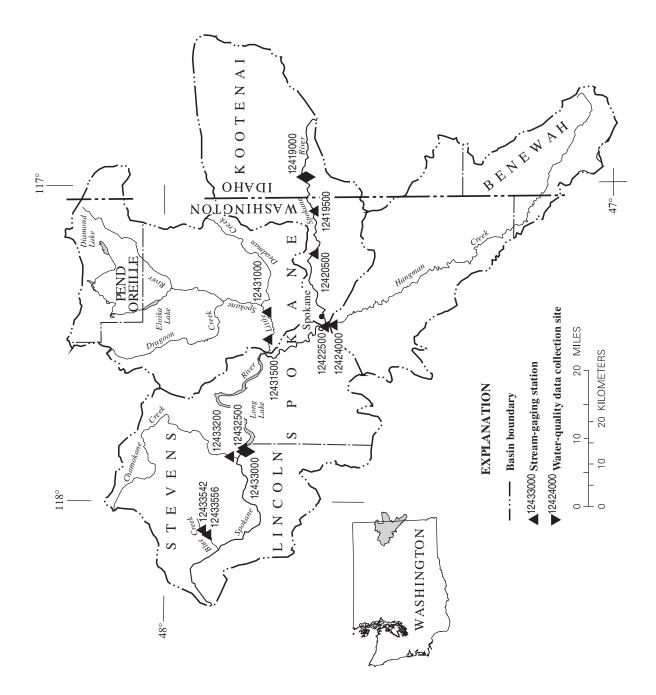


Figure 37. Location of surface-water and water-quality stations in the Spokane River Basin.

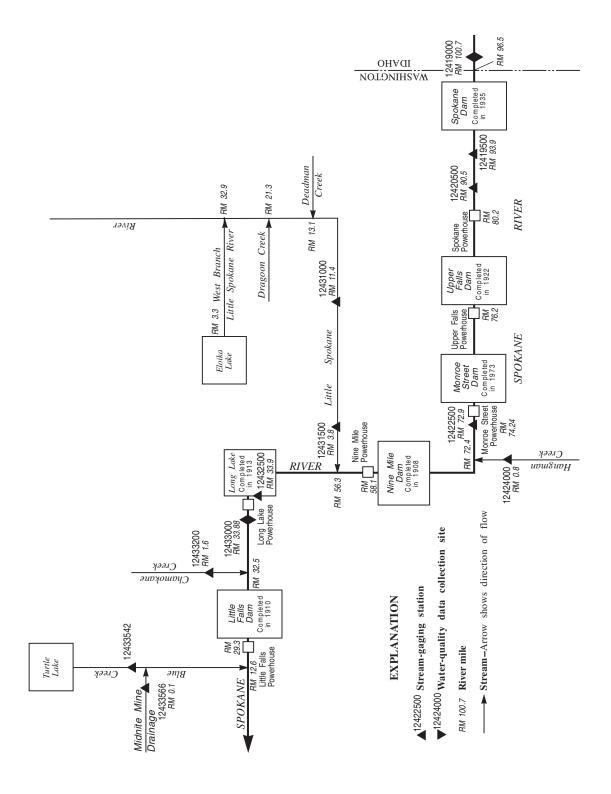


Figure 38. Schematic diagram showing surface-water and water-quality stations in the Spokane River Basin.

12419000 SPOKANE RIVER NEAR POST FALLS, ID

LOCATION.--Lat 47°42'11", long 116°58'37", in SW¹/₄SW¹/₄SW¹/₄sec.4, T.50 N., R.5 W., Kootenai County, Hydrologic Unit 17010305, on right bank, 1 mi downstream from powerplant of Avista Utilities, 1.5 mi southwest of Post Falls, and at mile 100.7.

DRAINAGE AREA.--3,840 mi², approximately, of which about 122 mi² in the vicinity of Hayden Lake is noncontributing to this station.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1912 to current year (prior to January 1913, monthly discharge only, published in WSP 870 and 1736). Prior to October 1949, published as "at Post Falls."

GAGE.--Water-stage recorder. Datum of gage is 2,050 ft, referred to originally accepted elevation of 2,157.40 ft for the U.S. Geological Survey bench mark in southeast corner of Idaho First National Bank Building (see WSP 882). Gage datum is 2,047.00 ft above NGVD of 1929. Jan. 1, 1913, to Nov. 21, 1920, nonrecording gage, and Nov. 22, 1920, to Sept. 15, 1934, recording gage 0.6 mi upstream. From Sept. 16, 1934, to Nov. 15, 1949, recording gage 0.8 mi upstream. From Nov. 16, 1949, at present site. Datum of all gages prior to Sept. 30, 1964, 50 ft lower.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated by dam at Post Falls and affected by storage in Coeur d'Alene Lake (sta 12415500).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,100 ft³/s, when recorder was not operating, Dec. 25, 1933, (determined from unpublished records collected by Washington Water Power Co. for station at Liberty Bridge); minimum, 65 ft³/s July 25, 30, 1973; minimum gage height, 4.68 ft, July 20, 21, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 30,500 ft³/s Apr. 17; minimum daily, 569 ft³/s Aug. 29.

		DIS	SCHARGE,	CUBIC FEET				OBER 2001	TO SEPTEM	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	AILY MEAN MAR	VALUES	MAY	JUN	JUL	AUG	SEP
1	e1600	2350	3450	3540	7040	8760	9940	19300	28600	9610	910	691
2	e1800	2350	3460	3270	6790	8510	10000	19500	28800	8620	767	727
3	e1800	2360	3460	3190	6280	8210	10300	19700	28500	6880	762	727
4	e1800	2350	3470	3020	6070	7630	10500	20100	28000	6160	761	734
5	e1800	2350	3470	2920	5940	7470	10600	20500	27500	5380	750	732
6	e1800	2350	3470	2920	5710	7060	11100	20600	26800	4270	952	730
7 8	e1800 e1800	2370 2340	3460 3460	2920 3510	5480 5390	6900 6560	11600 12300	20300 19900	26000 25200	3970 3980	1100 1100	731 731
9	e1800	2340	3450	4930	5020	6380	12300	19100	24300	3980	1100	1250
10	e1800	2240	3630	5470	4880	6060	13800	18300	23300	3510	1100	1690
11	e1800	2240	4160	6200	4770	6010	15900	17500	22200	3240	1100	1690
12 13	e1800 e1800	2230 2220	4430 4450	6350 6440	4620 4470	6840 8010	17300 18700	16700 15900	21100 20000	2810 2550	1090 1090	1680 1680
13	e1800	2220	5060	7630	4310	8880	20700	16000	19200	2540	1090	1720
15	e1800	2220	5430	8150	4260	9200	24400	16500	18800	2550	1090	1720
16	e1800	2220	5430	8650	4110	9280	28700	17000	18500	2550	979	1720
17	e1800	2220	5430	8490	4010	9160	30500	17300	18400	2540	913	1710
18	e1800	2220	5730	8350	3930	9090	30300	17400	18300	2830	911	1720
19	e1800	2210	5920	8190	3910	8690	29200	17700	17700	3000	844	1720
20	1800	2220	5860	8020	4010	8600	28000	18500	17300	2990	694	1720
21	1800	2220	5830	7820	3970	8750	26600	20000	16100	2890	626	1730
22	1790	2220	5750	7610	3990	8740	25600	21700	14800	2240	623	1730
23	1810	2230	5670	7410	4590	8710	24600	23400	14300	1870	656	1730
24 25	2110	2230	5430	7120	5890	8660	23800	25000	13300	1870	675	1720
25	2290	2230	5110	6920	7610	8650	23100	25600	12100	1870	672	1720
26	2350	2530	4580	7290	8450	8690	22300	25700	11000	1790	673	1720
27	2360	2700	4340	7540	8850	8750	21500	25500	9850	1660	670	1720
28	2350	2730	4200	7550	8830	8910	20900	25800	8590	1650	607	1720
29	2340	2830	4110	7460		9230	20200	26300	8750	1480	569	1720
30 31	2350 2360	3140	3700 3700	7330 7190		9390	19600	27300	9630	1340 1190	631 676	1720
						9520		28100				
TOTAL	59710	70590	139100	193400	153180	255300	584240	642200	576920	103800	26181	43053
MEAN	1926	2353	4487	6239	5471	8235	19470	20720	19230	3348	844.5	1435
MAX	2360	3140	5920	8650	8850	9520	30500	28100	28800	9610	1100	1730
MIN AC-FT	1600 118400	2210 140000	3450 275900	2920 383600	3910 303800	6010 506400	9940 1159000	15900 1274000	8590 1144000	1190 205900	569 51930	691 85400
AC-FI	110400											05400
				F MONTHLY I								
MEAN	1744	2878	4894	5205	6240	8185	14410	17540	9700	2108	937.1	1180
MAX	5460	13130	23660	24930	23280	25440	26050	34930	26710	10720	2133	1849
(WY)	1928	1928	1934	1934	1996	1972	1943	1997	1974	1916	1917	1985
MIN (WY)	782 1964	627 1936	784 1936	903 2001	1025 1929	1751 1929	3558 1977	5141 1992	1584 1926	851 1994	185 1958	188 1949
STIMMAR	Y STATIST	TCS	FO	R 2001 CAL	ZNDAR VEAE	,	FOR 2002	WATER YEAR	·	WATER V	EARS 1913	- 2002
ANNUAL		100	1061		JIVDIIIC IDIII		347674	WILLIA ILII	•	WALLEN I	DINO 1915	2002
ANNUAL				2908		20	7802			6224		
	ANNUAL M	EAN	-							11600		1974
	ANNUAL ME									2143		1977
	DAILY ME		16	5400	May 3		30500	Apr 17	7	49800	Dec 3	25 1933
	DAILY MEA			224	Aug 21		569	Aug 29		67		24 1973
	SEVEN-DAY			250	Aug 31		642	Aug 24		108		10 1966
	RUNOFF (A		2106				48000	5 2		4509000	5	. ====
	CENT EXCEE			5780			20800			17200		
	CENT EXCEE			1800			4450			2990		
	CENT EXCEE			592			1100			900		
		•										

e Estimated

12419000 SPOKANE RIVER NEAR POST FALLS, ID--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD .-- Water years 1973-1981, July 1989 to current year.

PERIOD OF DAILY RECORD .--

WATER TEMPERATURE: May to September 1998, May to September 1999, May to September 20001, November 2001 to

October 2002 (discontinued).

SPECIFIC CONDUCTANCE: February 1999 to September 2001 (discontinued).

INSTRUMENTATION .-- Water-quality data logger.

EXTREMES FOR PERIOD OF DAILY RECORD .--

WATER TEMPERATURE: Maximum, 27.1 °C July 29, 1998; minimum, 1.4 °C Feb. 17, 18, 2001.

SPECIFIC CONDUCTANCE: Maximum recorded daily mean, 57 microsiemens/cm Aug. 30 to Sept. 4, 2000; minimum recorded daily mean, 42 microsiemens/cm May 6-8, June 14-15. 2000.

EXTREMES FOR CURRENT YEAR .--

WATER TEMPERATURE: Maximum, 24.2 °C July 26-27; minimum, 2.0 °C Mar. 7-8.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	TURBID- ITY LAB HACH 2100AN (NTU) (99872)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT													
24 JAN	0930	2290	54	7.4	3.5	10.0					22	6.03	1.79
08 FEB	0915	3510	60	7.3	8.5	5.2					23	6.00	1.88
06	0845	5730	58	7.1	1.5	3.2					22	5.78	1.86
APR 02	1330	10100	61	7.4	6.0	3.7	3.8	13.3	108	S1			
17	1215	30800	53	7.2	10.0	4.2					22	5.79	1.90
22	1200	25700	53	7.4	13.5	4.9					21	5.55	1.83
MAY	1200	23700	22		13.3	4.5					2.1	3.33	1.05
01	1545	19300	53	7.0	17.0	8.2	6.2	11.6	106	S1			
22	1245	22000	43	7.0	7.0	8.9					18	4.62	1.46
JUN													
13	1250	2020	42	7.2	29.5	14.0	4.0	9.3	97	S3	16	4.28	1.27
JUL													
08	0930	3980	40	7.1	14.0	18.0					16	4.21	1.23
AUG													
26	0920	675	47	7.7	18.0	20.9					17	4.64	1.39
Date	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
Date	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHATE, DIS- SOLVED (MG/L AS P)	PHORUS TOTAL (MG/L AS P)	DIS- SOLVED (UG/L AS CD)	WATER UNFLTRD TOTAL (UG/L AS CD)	DIS- SOLVED (UG/L AS FE)	TOTAL RECOV- ERABLE (UG/L AS FE)	DIS- SOLVED (UG/L AS PB)	TOTAL RECOV- ERABLE (UG/L AS PB)	NESE, DIS- SOLVED (UG/L AS MN)
	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHATE, DIS- SOLVED (MG/L AS P)	PHORUS TOTAL (MG/L AS P)	DIS- SOLVED (UG/L AS CD)	WATER UNFLTRD TOTAL (UG/L AS CD)	DIS- SOLVED (UG/L AS FE)	TOTAL RECOV- ERABLE (UG/L AS FE)	DIS- SOLVED (UG/L AS PB)	TOTAL RECOV- ERABLE (UG/L AS PB)	NESE, DIS- SOLVED (UG/L AS MN)
OCT	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665)	DIS- SOLVED (UG/L AS CD) (01025)	WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	DIS- SOLVED (UG/L AS FE) (01046)	TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	DIS- SOLVED (UG/L AS PB) (01049)	TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	NESE, DIS- SOLVED (UG/L AS MN) (01056)
OCT 24	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665)	DIS- SOLVED (UG/L AS CD) (01025)	WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	DIS- SOLVED (UG/L AS FE) (01046)	TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	DIS- SOLVED (UG/L AS PB) (01049)	TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	NESE, DIS- SOLVED (UG/L AS MN) (01056)
OCT 24 JAN	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665)	DIS- SOLVED (UG/L AS CD) (01025)	WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	DIS- SOLVED (UG/L AS FE) (01046)	TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	DIS- SOLVED (UG/L AS PB) (01049)	TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	NESE, DIS- SOLVED (UG/L AS MN) (01056)
OCT 24 JAN 08	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665)	DIS- SOLVED (UG/L AS CD) (01025)	WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	DIS- SOLVED (UG/L AS FE) (01046)	TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	DIS- SOLVED (UG/L AS PB) (01049)	TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	NESE, DIS- SOLVED (UG/L AS MN) (01056)
OCT 24 JAN 08 FEB	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHORUS DIS- SOLVED (MG/L AS P) (00666) E.003	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665)	DIS- SOLVED (UG/L AS CD) (01025)	WATER UNFLTRD TOTAL (UG/L AS CD) (01027) .15	DIS- SOLVED (UG/L AS FE) (01046)	TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	DIS- SOLVED (UG/L AS PB) (01049)	TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	NESE, DIS- SOLVED (UG/L AS MN) (01056)
OCT 24 JAN 08 FEB 06	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHORUS DIS- SOLVED (MG/L AS P) (00666) E.003	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665)	DIS- SOLVED (UG/L AS CD) (01025)	WATER UNFLTRD TOTAL (UG/L AS CD) (01027) .15	DIS- SOLVED (UG/L AS FE) (01046)	TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	DIS- SOLVED (UG/L AS PB) (01049)	TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	NESE, DIS- SOLVED (UG/L AS MN) (01056)
OCT 24 JAN 08 FEB 06	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)019 E.009	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .16 .20	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHORUS DIS- SOLVED (MG/L AS P) (00666) E.003	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665) .007 .008	DIS- SOLVED (UG/L AS CD) (01025) .10 .14	WATER UNFLTRD TOTAL (UG/L AS CD) (01027) .15 .16 .19	DIS- SOLVED (UG/L AS FE) (01046) E7 <10	TOTAL RECOV- ERABLE (UG/L AS FE) (01045) 30 30	DIS- SOLVED (UG/L AS PB) (01049) .16 E.07	TOTAL RECOV- ERABLE (UG/L AS PB) (01051) 1 <1 <1	NESE, DIS- SOLVED (UG/L AS MN) (01056) 1.6 1.1
OCT 24 JAN 08 FEB 06 APR	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)019 E.009 <.015	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .16 .20 .12	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)079 .055	PHORUS DIS- SOLVED (MG/L AS P) (00666) E.003 .005	PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665) .007 .008 .006	DIS- SOLVED (UG/L AS CD) (01025) .10 .14	WATER UNFLTRD TOTAL (UG/L AS CD) (01027) .15 .16 .19	DIS- SOLVED (UG/L AS FE) (01046) E7 <10	TOTAL RECOV- ERABLE (UG/L AS FE) (01045) 30 30	DIS- SOLVED (UG/L AS PB) (01049) .16 E.07	TOTAL RECOV- REABLE (UG/L AS PB) (01051) 1 <1 <1	NESE, DIS- SOLVED (UG/L AS MN) (01056) 1.6 1.1
OCT 24 JAN 08 FEB 06 APR 02 17	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)019 E.009 <.015 <.015	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .16 .20 .12 .12 .13	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHORUS DIS- SOLVED (MG/L AS P) (00666) E.003 .005 .004	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665) .007 .008 .006	DIS- SOLVED (UG/L AS CD) (01025) .10 .14 .17	WATER UNFLTRD TOTAL (UG/L AS CD) (01027) .15 .16 .1939	DIS- SOLVED (UG/L AS FE) (01046) E7 <10	TOTAL RECOV- REABLE (UG/L AS FE) (01045) 30 30 30 130	DIS- SOLVED (UG/L AS PB) (01049) .16 E.07 .10	TOTAL RECOV- RECOV- ERABLE (UG/L AS PB) (01051) 1 <1 <1 <1 5	NESE, DIS- SOLVED (UG/L AS MN) (01056) 1.6 1.1 .9
OCT 24 JAN 08 FEB 06 APR 02 17	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)019 E.009 <.015 <.015	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .16 .20 .12 .12 .13	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHORUS DIS- SOLVED (MG/L AS P) (00666) E.003 .005 .004	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665) .007 .008 .006	DIS- SOLVED (UG/L AS CD) (01025) .10 .14 .17	WATER UNFLTRD TOTAL (UG/L AS CD) (01027) .15 .16 .1939	DIS- SOLVED (UG/L AS FE) (01046) E7 <10	TOTAL RECOV- REABLE (UG/L AS FE) (01045) 30 30 30 130	DIS- SOLVED (UG/L AS PB) (01049) .16 E.07 .10	TOTAL RECOV- RECOV- ERABLE (UG/L AS PB) (01051) 1 <1 <1 <1 5	NESE, DIS- SOLVED (UG/L AS MN) (01056) 1.6 1.1 .9
OCT 24 JAN 08 FEB 06 APR 02 17 22 MAY	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) .019 E.009 <.015 <.015	GEN, AM- MONITA + ORGANIC TOTAL (MG/L AS N) (00625) .16 .20 .12 .12 .13 .15	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)079 .055 .083 .117 .098	PHORUS DIS- SOLVED (MG/L AS P) (00666) E.003 .005 .004	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665) .007 .008 .006	DIS- SOLVED (UG/L AS CD) (01025) .10 .14 .17	WATER UNFLTRD TOTAL (UG/L AS CD) (01027) .15 .16 .1939 .42	DIS- SOLVED (UG/L AS FE) (01046) E7 <10 <10	TOTAL RECOV- REABLE (UG/L AS FE) (01045) 30 30 30 130 110	DIS- SOLVED (UG/L AS PB) (01049) .16 E.07 .10	TOTAL RECOV- REABLE (UG/L AS PB) (01051) 1 <1 <1 5 4	NESE, DIS- SOLVED (UG/L AS MN) (01056) 1.6 1.1 .9
OCT 24 JAN 08 FEB 06 APR 02 17 22 MAY 01	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) 019 E.009 <.015 <.015 <.015	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .16 .20 .12 .12 .13 .15	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)079 .055 .083 .117 .098	PHORUS DIS- SOLVED (MG/L AS P) (00666) E.003 .005 .004 E.003 .008	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665) .007 .008 .006 .008 .010 .010	DIS- SOLVED (UG/L AS CD) (01025) .10 .14 .17	WATER UNFLTRD TOTAL (UG/L AS CD) (01027) .15 .16 .19 .39 .42	DIS- SOLVED (UG/L AS FE) (01046) E7 <10 <10 25 21	TOTAL RECOV- RECOV- ERABLE (UG/L AS FE) (01045) 30 30 30 130 110	DIS- SOLVED (UG/L AS PB) (01049) .16 E.07 .10	TOTAL RECOV- RECOV- ERABLE (UG/L AS PB) (01051) 1 <1 <1 < 5 4	NESE, DIS- SOLVED (UG/L AS MN) (01056) 1.6 1.1 .9
OCT 24 JAN 08 FEB 06 APR 02 17 22 MAY 01 22	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) 019 E.009 <.015 <.015 <.015	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .16 .20 .12 .12 .13 .15	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)079 .055 .083 .117 .098	PHORUS DIS- SOLVED (MG/L AS P) (00666) E.003 .005 .004 E.003 .008	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665) .007 .008 .006 .008 .010 .010	DIS- SOLVED (UG/L AS CD) (01025) .10 .14 .17	WATER UNFLTRD TOTAL (UG/L AS CD) (01027) .15 .16 .19 .39 .42	DIS- SOLVED (UG/L AS FE) (01046) E7 <10 <10 25 21	TOTAL RECOV- RECOV- ERABLE (UG/L AS FE) (01045) 30 30 30 130 110	DIS- SOLVED (UG/L AS PB) (01049) .16 E.07 .10	TOTAL RECOV- RECOV- ERABLE (UG/L AS PB) (01051) 1 <1 <1 < 5 4	NESE, DIS- SOLVED (UG/L AS MN) (01056) 1.6 1.1 .9
OCT 24 JAN 08 FEB 06 APR 02 17 22 MAY 01 JUN	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) 019 E.009 <.015 <.015 <.015 <.015 <.015	GEN, AM- MONITA + ORGANIC TOTAL (MG/L AS N) (00625) .16 .20 .12 .12 .13 .15 .17	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)079 .055 .083 .117 .098 .066 .027	PHORUS DIS- SOLVED (MG/L AS P) (00666) E.003 .005 .004	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665) .007 .008 .006 .008 .010 .010 .021	DIS- SOLVED (UG/L AS CD) (01025) .10 .14 .17 .24 .23	WATER UNFLTRD TOTAL (UG/L AS CD) (01027) .15 .16 .1939 .4228	DIS- SOLVED (UG/L) AS FE) (01046) E7 <10 <10 25 21 23	TOTAL RECOV- REABLE (UG/L AS FE) (01045) 30 30 130 110 110	DIS- SOLVED (UG/L AS PB) (01049) .16 E.07 .10 .77 .66	TOTAL RECOV- REABLE (UG/L AS PB) (01051) 1 <1 <1 5 4 8	NESE, DIS- SOLVED (UG/L AS MN) (01056) 1.6 1.1 .9 .8 .7
OCT 24 JAN 08 FEB 06 APR 02 17 22 MAY 01 22 JUN 13	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) 019 E.009 <.015 <.015 <.015 <.015 <.015	GEN, AM- MONITA + ORGANIC TOTAL (MG/L AS N) (00625) .16 .20 .12 .12 .13 .15 .17	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)079 .055 .083 .117 .098 .066 .027	PHORUS DIS- SOLVED (MG/L AS P) (00666) E.003 .005 .004	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665) .007 .008 .006 .008 .010 .010 .021	DIS- SOLVED (UG/L AS CD) (01025) .10 .14 .17 .24 .23	WATER UNFLTRD TOTAL (UG/L AS CD) (01027) .15 .16 .1939 .4228	DIS- SOLVED (UG/L) AS FE) (01046) E7 <10 <10 25 21 23	TOTAL RECOV- REABLE (UG/L AS FE) (01045) 30 30 130 110 110	DIS- SOLVED (UG/L AS PB) (01049) .16 E.07 .10 .77 .66	TOTAL RECOV- REABLE (UG/L AS PB) (01051) 1 <1 <1 5 4 8	NESE, DIS- SOLVED (UG/L AS MN) (01056) 1.6 1.1 .9 .8 .7
OCT 24 JAN 08 FEB 06 APR 02 17 22 MAY 01 22 JUN 13 JUL	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) 019 E.009 <.015 <.015 <.015 <.015 <.015	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .16 .20 .12 .12 .13 .15 .17 .14	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)079 .055 .083 .117 .098 .066 .027 <.013	PHORUS DIS- SOLVED (MG/L AS P) (00666) E.003 .005 .004 E.003 .008	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L) AS P) (00665) .007 .008 .006 .008 .010 .010 .021 .011	DIS- SOLVED (UG/L AS CD) (01025) .10 .14 .17 .24 .23	WATER UNFLTRD TOTAL (UG/L AS CD) (01027) .15 .16 .1939 .4228	DIS- SOLVED (UG/L AS FE) (01046) E7 <10 <10 25 21 23	TOTAL RECOV- RECOV- ERABLE (UG/L AS FE) (01045) 30 30 130 110 110 80	DIS- SOLVED (UG/L AS PB) (01049) .16 E.07 .10 .77 .66	TOTAL RECOV- RECOV- ERABLE (UG/L AS PB) (01051) 1 <1 <1 5 4 8 5	NESE, DIS- SOLVED (UG/L AS MN) (01056) 1.6 1.1 .9 .8 .7

12419000 SPOKANE RIVER NEAR POST FALLS, ID--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

	MANGA-				SEDI-
	NESE,		ZINC,		MENT,
	TOTAL	ZINC,	TOTAL	SEDI-	DIS-
	RECOV-	DIS-	RECOV-	MENT,	CHARGE,
	ERABLE	SOLVED	ERABLE	SUS-	SUS-
Date	(UG/L	(UG/L	(UG/L	PENDED	PENDED
	AS MN)	AS ZN)	AS ZN)	(MG/L)	(T/DAY)
	(01055)	(01090)	(01092)	(80154)	(80155)
OCT					
24	4	41	45		
JAN					
08	4	55	60		
FEB					
06	3	65	60		
APR					
02				2.0	54.5
17	9	72	91		
22	8	69	89		
MAY					
01				5.0	261
22	9	59	63		
JUN					
13	9	41	48	4.0	21.8
JUL					
08	7	48	51		
AUG					
26	3	32	34		

- < Less than
 E Estimated value
 S Most probable value

WATER TEMPERATURE, DEGREES CELSIUS, NOVEMBER 2001 TO OCTOBER 2002

DAY	MAX	MIN	MEAN									
		NOVEMBE	R		DECEMBE	R		JANUARY			FEBRUAR	Y
1				6.6	6.1	6.3	4.5	4.2	4.4	3.8	3.4	3.6
2				6.6	5.9	6.2	4.2	4.1	4.2	3.9	3.6	3.7
3				6.7	6.6	6.7	4.5	4.2	4.4	3.8	3.4	3.6
4				6.6	6.4	6.5	4.7	4.5	4.7	3.8	3.4	3.5
5				6.4	6.1	6.2	4.7	4.7	4.7	3.9	3.4	3.7
6				6.2	6.1	6.1	4.8	4.7	4.8	3.9	3.6	3.7
7				6.4	6.1	6.2	5.3	4.8	5.1	3.8	3.4	3.6
8				6.6	6.2	6.5	5.5	5.3	5.5	3.6	3.3	3.4
9				6.6	6.4	6.6	5.5	5.0	5.2	3.6	3.3	3.5
10				6.4	6.2	6.3	5.0	4.8	4.9	3.6	3.3	3.5
11				6.2	6.1	6.2	5.0	4.8	4.8	3.8	3.3	3.5
12				6.2	6.2	6.2	5.0	4.8	4.8	3.4	3.0	3.1
13				6.2	6.1	6.2	4.8	4.7	4.7	3.3	3.0	3.1
14				6.1	5.9	6.0	4.8	4.5	4.7	3.3	3.0	3.1
15				6.1	5.6	5.8	4.7	4.2	4.4	3.3	3.0	3.1
16				5.8	5.6	5.7	4.4	4.2	4.3	3.3	3.1	3.2
17				5.9	5.8	5.9	4.4	4.2	4.3	3.6	3.3	3.4
18				5.9	5.3	5.5	4.4	4.1	4.2	3.8	3.6	3.7
19				5.6	5.3	5.4	4.2	3.9	4.0	3.6	3.6	3.6
20				5.6	5.5	5.6	4.1	4.1	4.1	3.6	3.3	3.4
21				5.6	5.6	5.6	4.1	3.8	4.0	3.8	3.3	3.5
22				5.6	5.5	5.6	4.1	3.9	4.0	4.1	3.6	3.9
23				5.5	5.3	5.3	3.9	3.8	3.8	3.9	3.3	3.6
24				5.3	5.2	5.3	4.2	3.8	4.0	3.3	2.8	2.9
25				5.2	4.8	4.9	4.2	4.1	4.1	2.8	2.5	2.7
26				4.8	4.5	4.7	4.1	3.8	3.9	2.8	2.5	2.7
27	7.6	7.5	7.6	4.5	4.2	4.4	3.8	3.4	3.7	3.0	2.5	2.7
28	7.5	6.7	7.1	4.4	4.1	4.2	3.8	3.4	3.5	3.3	2.7	3.0
29	6.7	6.2	6.6	4.5	4.4	4.5	3.6	3.3	3.4			
30	6.6	6.2	6.5	4.5	4.4	4.4	3.6	3.3	3.4			
31				4.5	4.4	4.5	3.6	3.4	3.5			
MONTH				6.7	4.1	5.7	5.5	3.3	4.3	4.1	2.5	3.4

12419000 SPOKANE RIVER NEAR POST FALLS, ID--Continued

WATER TEMPERATURE, DEGREES CELSIUS, NOVEMBER 2001 TO OCTOBER 2002 DAY MAX MIN MEAN MAX MIN MEAN MAX MIN MEAN MAX MIN MEAN MARCH APRIL MAY JUNE 3.3 2.7 3.0 4.4 3.3 3.7 8.6 7.3 7.8 13.2 12.3 12.7 3.3 2.7 3.0 4.2 3.1 3.7 8.9 7.8 8.3 13.8 12.8 13.2 7.2 3.4 2.8 3.1 4.5 3.1 3.8 8.6 7.6 13.4 12.4 12.9 12.6 3.4 7.2 6.9 14.0 13.3 3.0 3.1 4.5 3.4 4.0 5 3.4 3.0 3.2 4.5 3.6 4.1 7.2 6.9 7.0 13.8 13.2 13.6 3.3 3.9 4.2 7.0 13.5 12.6 4.5 2.5 2.0 2.3 4.4 3.9 4.1 7.5 7.0 7.2 12.9 12.1 12.4 8 2.7 2.3 4.5 3.6 4.0 8.1 7.2 7.6 13.1 12.8 12.9 2.8 2.2 3.9 7.5 7.9 13.4 12.8 13.0 4.4 8.4 10 3.3 2.8 3.0 4.4 3.8 4.0 9.0 7.6 8.2 12.9 12.3 12.6 3.4 12 3.4 3.1 3.3 4.5 4.1 4.3 9.8 8.7 9 2 14 1 13.1 13 5 13 3.0 3.9 10.0 8.9 3.3 2.8 4.8 4.3 9.4 14.8 13.1 13.8 15.6 13.8 15 3.1 2.8 2.9 4.5 3.9 4.2 9.5 8.7 9.1 15.9 13.2 14.6 2.9 10.0 9.1 16.3 13.7 17 3 1 2 5 2.8 4 7 4 1 4 3 10 4 9.2 9 7 15 9 14 5 15 0 3.0 2.5 4.8 4.1 4.5 10.4 14.8 14.4 18 10.1 14.1 3.0 20 3.0 2.5 2.7 5.3 4.7 5.0 9.7 9.0 9.3 15.9 14.1 14.8 16.7 15.7 21 3.0 2.0 2.5 5.0 5.2 9.7 9.7 14.9 22 3.1 2.5 2.8 5.3 4.7 5.1 9.5 8.7 9.1 17.1 15.4 16.0 3.6 2.8 5.5 4.5 8.6 17.3 16.3 16.7 24 6.2 5.4 10.6 9.8 17.3 15.2 3.4 25 3.4 3.1 3.2 6.4 5.5 6.0 10.7 10.0 10.3 18.1 16.7 17.3 26 3.6 2.8 3.2 6.4 5.6 6.0 10.6 10.0 10.2 18.6 17.6 18.1 27 3.6 3.1 3.4 6.7 5.8 6.1 11.7 10.3 10.7 19.9 18.1 18.7 7.0 3.8 20.2 29 3.8 3.1 3.5 7.5 6.1 6.7 12.0 10.9 11.2 19.7 18.4 19.0 7.2 30 3.9 3.3 3.6 7.6 6.9 12.4 11.4 11.8 18.8 18.1 18.4 11.7 12.3 MONTH 3.9 2.0 3.0 7.6 3.1 4.8 12.9 6.7 9.2 20.2 12.1 14.9 DAY MAX MTN MEAN MAX MTN MEAN MAX MTN MEAN MAX MTN MEAN JULY AUGUST SEPTEMBER OCTOBER 18.3 17.8 18.0 22.5 21.8 21.8 21.5 15.5 15.3 2 18.4 17.6 17.9 22.2 21.3 21.7 21.8 20.8 21.3 15.1 14.6 14.7 3 18.4 18.3 18.4 22.2 21.0 21.6 21.3 20.8 21.1 14.6 14.4 14.5 22.0 21.2 21.5 21.2 20.3 20.7 14.9 14.4 18.1 18.4 14.6 5 18.4 17.9 18.2 21.5 20.7 21.1 20.7 20.2 20.4 14.9 14.4 14.7 21.2 17.9 20.5 19.1 18.4 18.8 21.3 20.3 20.8 20.0 19.4 19 7 15.1 14.7 14.9 8 19.1 17.9 18.7 21.2 20.3 20.7 19.7 19.1 19.3 ---19.4 10 20.0 18.9 19.4 21.3 20 5 20 9 19.4 18.7 19 0 ---------11 20.2 19.7 21.5 20.7 19.2 21.0 12 21.0 19.9 20.3 21.7 20.5 21.1 19.5 18.7 19.1 ------22.3 21.0 21.6 21.8 20.8 21.3 19.7 19.4 ---13 19.1 15 23.2 22.2 22.7 22.0 21.0 21.4 19.9 19.4 19.7 ------23.3 19.4 16 23.1 22.0 21.0 21.4 19.7 17 23.5 22.7 23.1 22.0 20.8 21.4 19.4 18.7 19.1 ------23.7 23.0 23.3 21.8 20.8 21.3 18.7 18.2 18 18.5 23.6 23.2 21.7 20.8 21.2 ---20 23.7 23.3 23.5 21.8 20.7 21.1 17.9 17.4 17.7 ------21 23 5 23 0 23 3 21 5 20 7 21 0 17 6 17 0 17 3 22 22.8 20.5 21.0 17.1 ------23.7 23.3 21.7 17.4 16.8 23.7 23.2 23.4 20.5 21.1 17.4 17.1 23 21.8 16.8 24 24.0 23 2 23.6 21 5 20.8 21.1 17.4 16.8 17.1 ---25 24.0 23.5 20.7 21.2 23.8 21.8 17.4 16.8 17.1 26 24 2 23 5 23 8 21 8 20 7 21 2 17.1 16.8 17 0 27 24.2 23.5 23.8 22.0 20.8 21.4 17.0 16.6 16.8 ------23.9 23.3 23.6 21.2 17.0 16.3 16.6 29 23 3 22 8 23.1 22.0 21 3 21.6 16 5 15 9 16 2 ---------------22.3 21.0 21.6 30 22.8 22.6 22.3 15.9 15.4 15.7 22.3 21.7 22.0 22.2 21.2 MONTH 24.2 17.6 21.4 22.5 20.2 21.3 21.8 15.4 18.7

12419500 SPOKANE RIVER ABOVE LIBERTY BRIDGE, NEAR OTIS ORCHARDS, WA

LOCATION.--Lat $47^{\circ}40^{\circ}56^{\circ}$, long $117^{\circ}05^{\circ}05^{\circ}$, in NW $\frac{1}{4}$ sec.11, T.25 N., R.45 E., Spokane County, Hydrologic Unit 17010305, on left bank 1.2 mi upstream from Liberty Bridge, 1.8 mi southeast of Otis Orchards, 3.3 mi northeast of Greenacres, and at mile 93.9.

DRAINAGE AREA.--3,880 \mbox{mi}^2 , approximately.

PERIOD OF RECORD.--January 1929 to December 1936, March 1937, August 1937 to August 1941, October 1941 to October 1942, February to May 1943, August 1943 to November 1946, February to July 1947, September 1947 to February 1948; May to November 1948, March to November 1949, and April to September 1950 (monthly discharge only); October 1950 to September 1983, April 1999 to current year.

REVISED RECORD. -- None.

GAGE.--Water-stage recorder. Datum of gage is 2,000 ft above NGVD of 1929, (levels by Avista Corporation).

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow partly regulated by dam at Post Falls, Idaho, 8.2 mi upstream and affected by storage in Coeur d'Alene Lake. Chemical analysis July 1959 to September 1971, April to September 1999. Water temperature December 1963 to September 1965.

AVERAGE DISCHARGE.-- 50 years (water years 1930-36, 1938-40, 1942, 1944-46, 1951-83, 2000-02), 6,097 ft³/s, 4,417,000 acreft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,100 $\mathrm{ft^3/s}$ Dec. 25, 1933, gage height, 22.24 ft ; minimum daily discharge, 38 $\mathrm{ft^3/s}$ July 20, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 31,400 ft³/s Apr. 17, gage height, 19.11 ft, from inside high water mark; minimum discharge, 427 ft³/s Aug. 28-30, gage height 8.37 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		DISCHA	ARGE, CUB.	IC FEET P	ER SECOND, DAILY	WATER Y Y MEAN V		SER 2001 T	O SEPTEME	SER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1080	2110	3190	3370	6510	8140	9290	18600	e29000	8930	754	519
2	1350	2110	3190	3120	6300	7900		18900	e29300	8080	596	555
3	1370		3210	3030	5870	7620	9710	19100	e29000	6490	589	559
4	1410	2110	3220	2870	5650	7100	9890	19600	e28300	5720	578	565
5	1420	2110	3220	2750	5540	6930	10100	20000	e27700	5100	571	566
6	1430	2110	3220	2750	5340	6560 6380 6110 5950 5690	10500	20100	e26500	4030	701	562
7	1430	2130	3220	2750	5130	6380	11000	19700	e25900	3690	864	566
8	1430	2110	3220	3250	5030	6110	11700	19200	e24900	3690	865	567
9 10	1430 1440	2010 1990	3220 3360	4590 5140	4700 4580	5950	11700 13100	18500 17600	23800 22900	3680 3290	866 866	906 1370
10	1440	1990	3360	2140				17600	22900	3290	000	1370
11	1440	1990	3820	5760	4430 4330 4170 4030 3990	5600	15300	16800	21800	2980	864	1370
12 13	1470 1470	1980 1980	4100 4140	5920 6000	4330	6310	16800 18100	16000 15200	20600 19500	2600 2290	862 860	1360 1360
14	1470	1980	4140	6990	4170	7390	20100	15200	18500	2290	858	1390
15	1460	1980	5040	7490	3990	8570	23700	15700	18100	2280	859	1390
16 17	1450 1470	1980 1980	5060 5060	8020 7890	3850	8640	e27600	16200 16600	17800 17700	2280 2280	782 716	1400 1410
18	1470	1970	5310	7750	3680	8490	e30200	16700	17600	2520	716	1410
19	1470	1970	5520	7630	3630	8110	e29900	17000	17000	2700	670	1420
20	1470	1980	5470	7470	3750	8020	e27600 e30200 e30600 e29900 e28200	17800	16600	2700	554	1430
21	1480	1980	5450	7270	3720	0120	e26800	19300	15400	2610	474	1430
22	1470	1990	5390	7060	3730	8130	e25400	21100	14100	2040	474	1430
23	1490	1990	5310	6890	4210	8100	24100	22900	13600	1590	491	1430
24	1760	1990	5120	6640	5400	8050	23300	e24600	12700	1590	511	1430
25	2000	2000	4830	6440	6970	8120 8130 8100 8050 8040	22600	e25800	11400	1580	510	1430
26	2060	2270	4370	6750	7750 8160 8190 	8080	21800	e25800	10500	1520	510	1430
27	2080	2470	4130	6990	8160	8140	21000	e25700	9270	1360	506	1430
28	2080	2500	4000	6990	8190	8290	20400	e25800	8030	1350	467	1440
29	2090	2600	3930	6910		8580	19600	e26600	8050	1250	427	1440
30	2100	2840	3510	6780		8750	19000	e27500	8960	1080	463	1450
31	2110		3520	6660		8870		e28500		999	510	
TOTAL	49150	63320	130000	179920	142370	237430	570900	628200	564510	94579	20334	35015
MEAN	1585						19030	20260	18820		656	1167
MAX	2110	2840	5520	8020	8190	8870	30600	28500	29300	8930	866	1450
MIN	1080	1970	3190	2750	3630	5600	9290	15200	8030	999	427	519
AC-FT	9/490	125600	25/900	356900	282400	1 07	1132000	1246000	1120000	187600	40330	69450 0.30
IN.	0.41	0.61	1.25	1.73	1.36	2.28	5.47	6.02	5.41	3051 8930 999 187600 0.79 0.91	0.17	0.34
STATIS'	TICS OF I	MONTHLY ME	EAN DATA	FOR WATER	YEARS 1929	9 - 2002	2, BY WATE	R YEAR (W	Y)			
MEAN	1629	2665	4721	5273	6131	7519		17730	9735		801	1055
MAX	3281	7913	23660	24980	16050		25150	28700	25710	6043	1464	1731
(WY)	1969	1960	1934	1934	1961	1972		1932	1974	1950	1948	1971
MIN (WY)	748	1960 597 1936	726	834	1010 2001	1673 1929	3605 1977	5441 1944	2067 1931	717 2001	149 2001	127 1949
(WI)	1304	1330	1330	2001	2001	1323	13//	1344	1931	2001	2001	1343
SUMMAR	Y STATIS	TICS	FOR	2001 CAL	ENDAR YEAR		FOR 2002	WATER YEA	R	WATER YEAR		
ANNUAL	TOTAL			972977			2715728 7440					
ANNUAL	MEAN			2666			7440			6104		
HIGHES!	T ANNUAL	MEAN								11260		1974
LOWEST	ANNUAL I	MEAN							_	2077		1977
HIGHES:	I. DAILY M	MEAN		16200	May 3		30600	Apr 1	8	49800	Dec 25	1933
TOMEST	DATEN - D	ΣΛ ΜΙΝΙΙΨΙΙΨ ΕΈντη	Л	56 71	Aug 21		427 495	Aug 2	<i>9</i>	71	Jun 21	2001
ANNUAL	RUNOFF	(AC-FT)	4	1930000	Aug 21		5387000	nug 2	_	4422000	Aug 21	2001
ANNUAL	RUNOFF	(CFSM)		0.0	69		1.	92		1.57		
ANNUAL	RUNOFF	(INCHES)		9.	33		26.	04		21.38		
10 PER	CENT EXC	EEDS		5410			20200			17100		
50 PER	CENT EXC	EEDS		1490			4140			3030		
90 PER	CENI EXC	CUAA		278			865			6104 11260 2077 49800 0.00 71 4422000 1.57 21.38 17100 3030 784		

e Estimated

12420500 SPOKANE RIVER AT GREENACRES, WA

LOCATION.--Lat 47°40'39", long 117°09'04", in SW $\frac{1}{4}$ of NW $\frac{1}{4}$ sec.8, T.25 N., R.45 E., Spokane County, Hydrologic Unit 17010305, on left bank 600 ft upstream from Barker Road Bridge, 0.5 mi north of Greenacres, and at mile 90.5.

DRAINAGE AREA.--4,150 mi², approximately

PERIOD OF RECORD.--March 1948 to July 1952, August 1999 to current year.

REVISED RECORDS. -- None

GAGE.--Water-stage recorder. Elevation of gage is 1,980 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair except for estimated daily discharges and discharges below 600 ${\rm ft}^3/{\rm s}$, which are poor. Flow partly regulated by dam at Post Falls, Idaho, 11.6 mi upstream and affected by storage in Coeur d'Alene Lake.

AVERAGE DISCHARGE.--6 years (water years 1949-51, 2000-02) $6,508 \text{ ft}^3/\text{s}$, 4,715,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge not determined, probably occurred May 30, 1948, during period of no gage-height record (comparison with other stations on this stream indicates a discharge of about 40,000 ft³/s); minimum discharge, 22 ft³/s August 21, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 32,200 ft 3 /s, Apr. 17, gage height 13.46 ft; minimum discharge, 280 ft 3 /s, Aug. 30, gage height 3.50 ft.

		DISCHA	ARGE, CUB	IC FEET PE		WATER Y Y MEAN V		ER 2001 T	O SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	1030 1320 1330 1370 1390	2050 2060 2060 2060 2070	e3150 e3150 e3160 e3160 e3160	3440 3210 3100 2950 2840	6660 6450 5970 5730 5630	8330 8110 7830 7300 7120	9480 9600 9840 10000 10200	19000 19200 19500 19900 20300	29100 29400 29100 28600 28000	9200 8340 6660 5780 5150	651 481 466 453 446	372 408 410 417 419
6 7 8 9 10	1390 1400 1420 1420 1430	2070 2090 2080 2000 1990	e3160 e3160 e3150 e3160 e3500	2840 2840 3280 4590 5170	5430 5220 5110 4790 4670	6770 6570 6280 6080 5810	10600 11100 11800 11800 13100	20500 20100 19600 18900 18000	27300 26400 25500 24600 23500	4040 3690 3680 3670 3300	548 731 733 732 733	416 416 421 713 1210
11 12 13 14 15	1440 1450 1440 1450 1450	1990 1980 1970 1970	e3820 e4100 e4140 e4650 e5040	5780 5960 6040 7060 7560	4510 4420 4260 4110 4060	5680 6450 7570 8420 8780	15200 16700 18100 20100 23900	17200 16400 15600 15600 16100	22300 21100 19900 19000 18500	2950 2600 2280 2270 2270	722 717 715 715 715	1210 1210 1210 1250 1250
16 17 18 19 20	1450 1450 1450 1450 1460	1980 1990 1980 1980 1990	e5060 e5060 e5310 e5520 e5470	8120 7990 7870 7760 7600	3940 3810 3770 3710 3840	8850 8770 8710 8340 8250	28600 31100 31000 30000 28500	16500 16900 17100 17300 18100	18300 18100 18000 17500 17100	2260 2250 2470 2660 2660	648 575 574 529 422	1250 1260 1260 1270 1280
21 22 23 24 25	1460 1470 1480 1720 1940	e1990 e2000 e2010 e2000 e2010	e5450 e5380 e5320 e5130 e4830	7410 7210 7030 6780 6570	3800 3820 4260 5450 7120	8380 8380 8330 8290 8280	27100 25900 24700 23900 23100	19600 21400 23200 25000 26000	15900 14500 13900 13000 11700	2580 2060 1580 1560 1550	339 336 350 373 371	1290 1300 1300 1300 1300
26 27 28 29 30 31	1990 2020 2010 2020 2040 2050	e2200 e2400 e2510 e2680 e2950	e4370 e4130 e4000 e3930 e3510 e3520	6880 7140 7160 7060 6930 6810	7940 8350 8380 	8310 8370 8510 8790 8970 9100	22200 21300 20700 20000 19300	26000 25800 26000 26700 27600 28600	10700 9550 8300 8250 9220	1480 1290 1280 1170 979 912	370 365 332 287 316 367	1310 1310 1310 1320 1330
TOTAL MEAN MAX MIN AC-FT CFSM IN.	48190 1555 2050 1030 95580 0.37 0.43	63080 2103 2950 1970 125100 0.51 0.57	129650 4182 5520 3150 257200 1.01 1.16	182980 5903 8120 2840 362900 1.42 1.64	145210 5186 8380 3710 288000 1.25 1.30	243730 7862 9100 5680 483400 1.89 2.18	578920 19300 31100 9480 1148000 4.65 5.19	637700 20570 28600 15600 1265000 4.96 5.72	576320 19210 29400 8250 1143000 4.63 5.17	94621 3052 9200 912 187700 0.74 0.85	16112 520 733 287 31960 0.13 0.14	30722 1024 1330 372 60940 0.25 0.28
STATIST	TICS OF I	MONTHLY MI	EAN DATA 1	FOR WATER	YEARS 194	8 - 2002	2, BY WATE	R YEAR (W	Y)			
MEAN MAX (WY) MIN (WY)	1812 2788 1952 865 1950	2722 4435 1951 1499 1949	4761 9128 1951 1591 2001	4317 7735 1951 945 2001	6077 15440 1951 1118 2001	8054 16490 1950 2075 2001	16430 20030 2000 4593 2001	20900 29510 1948 10830 2001	11610 22900 1948 3124 2001	2296 6216 1950 780 2001	599 1391 1948 150 2001	673 1185 1999 132 1949
ANNUAL ANNUAL HIGHEST LOWEST		MEAN MEAN	FOR	2001 CALE 976684 2676	NDAR YEAR May 3		FOR 2002 7 2747235 7527 31100	WATER YEA Apr 1		6508 9028 2498 40000	RS 1948 - May 30	1950 2001
LOWEST ANNUAL ANNUAL ANNUAL ANNUAL 10 PERO 50 PERO	DAILY M	EAN AY MINIMUM (AC-FT) (CFSM) (INCHES) EEDS EEDS	1	47 59 1937000 0.6 8.7 5410 1490 318	Aug 21 Aug 21		287 344 5449000 1. 24. 20600 4140 727	Aug 2 Aug 2 81	9	47 57 4715000 1.5 21.3 18400 3160 407	Aug 21 Aug 29	2001

e Estimated

12422500 SPOKANE RIVER AT SPOKANE, WA

LOCATION.--Lat 47°39'34", long 117°26'53", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.13, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010305, on right bank at Cochran Street in Spokane, 0.5 mi upstream from Hangman Creek, and at mile 72.9.

DRAINAGE AREA.--4,290 mi², approximately, of which about 122 mi² in the vicinity of Hayden Lake is noncontributing to this

PERIOD OF RECORD. -- April 1891 to current year.

REVISED RECORDS.--WSP 532: 1891-1904. WSP 1246: Drainage area. WSP 1286: 1907-09.

GAGE.--Water-stage recorder. Elevation of gage is 1,697 ft above NGVD of 1929 (river-profile survey). Prior to July 1, 1921, water-stage recorders and nonrecording gages at several sites within 4 mi of present site at various datums.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by powerplants of Avista Corp. at Post Falls, Idaho, 28.8 mi upstream and at Spokane, 1.3 mi upstream, and by Coeur d'Alene Lake, Idaho. Rathdrum Prairie Canal diverts water upstream from station for irrigation. In 1946, approximately 22,600 acres, of which about 15,000 acres utilized surface water, were under irrigation upstream from Spokane. Since 1966 irrigation has been from many wells in the valley near the river with only about 3,000 acres irrigated from the river. Chemical analyses October 1972 to September 1973. U.S. Geological Survey satellite telemeter at station.

COOPERATION. -- Discharge figures for July 16-19 and 23 provided by Avista Corporation.

AVERAGE DISCHARGE.--111 years (water years 1892-2002), 6,742 ft³/s, 4,884,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,000 ft³/s, estimated, May 31, 1894 (see WSP 532); minimum, 49.7 ft³/s Aug. 26, 1991, due to regulation for construction at Post Street Dam, but may have been lower during periods of missing record in 1991.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 31,400 ${\rm ft}^3/{\rm s}$ Apr. 18, gage height, 26.88 ft; minimum discharge, 860 ${\rm ft}^3/{\rm s}$ Aug. 26, gage height, 17.31 ft.

	- .											
		DISCHA	ARGE, CUB	IC FEET P		, WATER Y LY MEAN V	EAR OCTOB	BER 2001 T	O SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1370	2470	3440	3950	7010	8360	9560	19300	29400	9620	1510	1010
2	1660	2480	3460	3740	6820	8240	9690	19400	29600	9050	1320	1020
3	1670	2490	3480	3610	6440	8000	9910	19600	29500	7610	1300	1050
4	1710	2500	3490	3500	6180	7610	10100	20000	29000	6590	1290	1020
5	1760	2490	3530	3350	6100	7400	10300	20500	28400	6170	1260	1060
6	1770	2490	3530	3350	5920	7130	10600	20600	27800	5090	1260	1050
7	1790	2500	3530	3390	5720	6930	11000	20400	27100	4630	1460	1040
8	1800	2530	3540	3600	5610	6680	11700	19900	26300	4520	1410	1050
9	1780	2470	3540	4560	5350	6510	11800	19200	25300	4490	1410	1120
10	1800	2410	3640	5270	5250	6340	12700	18400	24100	4200	1420	1610
11	1830	2440	3910	5770	5020	5980	14800	17600	23000	3780	1390	1620
12	1820	2430	4240	6010	4990	6670	16200	16700	21800	3520	1390	1640
13	1860	2450	4380	6130	4830	7560	17500	16000	20700	3120	1390	1640
14	1860	2410	4620	6850	4680	8390	19400	15800	19600	3020	1360	1670
15	1870	2430	5080	7360	4650	8780	22900	16200	19100	3000	1380	1700
16	1890	2430	5160	8010	4540	8940	27700	16700	18700	3060	1350	1700
17	1870	2500	5180	7960	4330	8890	30400	17000	18500	3020	1240	1730
18	1870	2420	5360	7880	4370	8850	30800	17200	18400	3150	1240	1740
19	1910	2440	5600	7820	4210	8550	30000	17400	17900	3280	1250	1760
20	1940	2440	5610	7680	4380	8500	28700	18100	17500	3200	1150	1770
21	1950	2460	5600	7540	4290	8560	27400	19400	16500	3160	1040	1750
22	1950	2470	5590	7410	4290	8580	26200	21300	15100	2770	1060	1800
23	1960	2470	5530	7240	4550	8530	25100	23000	14400	2410	1010	1770
24	2090	2470	5470	7030	5540	8510	24300	24900	13600	2280	1040	1770
25	2300	2490	5190	6850	6990	8510	23400	26000	12400	2240	1040	1810
26	2340	2610	4860	7070	7800	8510	22600	26200	11500	2190	1030	1800
27	2390	2800	4610	7320	8260	8540	21800	26100	10400	2010	1020	1830
28	2390	2870	4510	7400	8360	8650	21100	26300	9190	1990	999	1830
29	2430	2960	4380	7300		8920	20400	26800	8740	1960	965	1800
30 31	2450	3060	4100	7190 7090		9120	19700	27800	9640	1720	945	1840
31	2490		4070	7090		9230		28700		1720	989	
TOTAL	60570	75880	138230	189230	156480	249970	577760	642500	593170	118570	37918	46000
MEAN	1954	2529	4459	6104	5589	8064	19260	20730	19770	3825	1223	1533
MAX	2490	3060	5610	8010	8360	9230	30800	28700	29600	9620	1510	1840
MIN	1370	2410	3440	3350	4210	5980	9560	15800	8740	1720	945	1010
AC-FT	120100	150500	274200	375300	310400	495800	1146000	1274000	1177000	235200	75210	91240
STATIS	TICS OF M	ONTHLY ME	EAN DATA	FOR WATER	YEARS 189	91 - 2002	, BY WATE	R YEAR (W	Y)			
MEAN	2157	3291	5176	5521	6284	8316	14180	17900	11050	3420	1756	1740
MAX	5643	13050	22910	25430	22060	25380	25030	34390	29850	11910	4744	3302
(WY)	1928	1928	1934	1934	1996	1972	1943	1997	1894	1899	1899	1912
MIN	1300	1151	1233	1339	1489	2047	3865	5214	2141	1050	531	932
(WY)	1893	1940	1932	1931	1929	1929	1977	1992	1926	1994	1994	1966
SUMMAR	Y STATIST	CICS	FOR	2001 CAL	ENDAR YEAI	3	FOR 2002	WATER YEA	R	WATER YE	ARS 1891 -	2002
ANNUAL	TOTAL			1142158			2886278					
ANNUAL				3129			7908			6742		
	T ANNUAL									12310		1974
	ANNUAL M									2508		1977
	T DAILY M			15600	May 4		30800	Apr 1		49000	May 31	
	DAILY ME			550	Sep '		945	Aug 3		466	Aug 11	
		Y MINIMUN		578 2265000	Sep :	L	993 5725000	Aug 2	/	502 4884000	Aug 21	1994
	RUNOFF (CENT EXCE			5600			20900			17200		
	CENT EXCE			1980			4630			3720		
	CENT EXCE			907			1400			1510		
		-										

12424000 HANGMAN CREEK AT SPOKANE, WA

LOCATION.--Lat $47^{\circ}39^{\circ}10^{\circ}$, long $117^{\circ}26^{\circ}55^{\circ}$, in NW $^{1/2}_4$ sec.24, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010306, on left bank 0.3 mi downstream from bridge on Interstate 90 in Spokane, and at mile 0.8.

DRAINAGE AREA. -- 689 mi2.

Date

Time

PERIOD OF RECORD.--April 1948 to September 1977; October 1977 to September 1978 (discharges above 20 ${\rm ft}^3/{\rm s}$ only), October 1978 to current year. Prior to October 1958, published as Latah Creek at Spokane.

REVISED RECORDS.--WSP 1933: Drainage area. WSP 2133: 1965(P).

GAGE.--Water-stage recorder. Datum of gage is 1,717.42 ft above NGVD of 1929 (levels by Corps of Engineers). Prior to Nov. 22, 1948, nonrecording gage at site 0.5 mi upstream at different datum.

REMARKS.--Records fair. No regulation. Some diversions for irrigation upstream from station. Suspended sediment October 1997 to September 2001. U.S Geological Survey satellite telemeter and National Weather Service telemeter at station.

AVERAGE DISCHARGE.--53 years (water years 1949-77, 1979-2002), 235 ft^3/s , 4.64 $\mathrm{in/yr}$, 170,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,200 ${\rm ft}^3/{\rm s}$ Jan. 1, 1997 (measured), gage height, 14.31 ft (from outside high-water mark); minimum discharge, 0.74 ${\rm ft}^3/{\rm s}$ Sept. 5, 14, 1992.

Time

Date

Discharge Gage height (ft³/s) (ft)

 $\hbox{\it EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft^3/s and maximum (*): } \\$

Discharge Gage height (ft³/s) (ft)

		,,	-,	(/				(, -,		(/		
Jan. 08 Jan. 26 Feb. 22	0100 0230 2300	3,2 4,0 3,1	60	6.59 7.25 6.45	Feb. Mar. Mar.	12	0400 0530 1400	3,570 *4,570 2,610		6.86 *7.65 5.93		
Minimum dis	charge,	4.5 ft ³ /s (Oct. 4.									
		DISCHAR	GE, CUBI	C FEET PEF		WATER Y	EAR OCTOBER ALUES	2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	20	60	e60	224	e270	465	152	78	23	11	8.5
2	5.3 5.2	18 16	62 67	e58 e58	195 170	e200 e200	458 426	147 149	72 67	23 21	9.6 9.7	7.5 8.5
4	5.0	15	82	70	163	258	392	146	63	19	9.5	9.7
5	5.5	15	101	88	151	261	370	145	60	18	9.6	9.0
6 7	5.4 5.2	15 15	104 89	121 1340	146 150	390 258	385 432	148 155	54 50	18 17	11 9.9	9.0 9.9
8	6.3	15	74	2770	239	258	455	149	50	18	10	9.2
9 10	6.3	14 14	70 74	1590 764	418 453	236 235	424 407	135	52 54		9.4 8.5	8.5 10
	7.1							125				
11 12	7.7 9.4	13 13	82 86	476 358	379 315	1340 3830	439 473	114 107	55 55	17 16	8.5 7.5	9.5 9.4
13	9.0	13	99	318	253	2060	472	99	53	15	6.8	9.1
14 15	9.9 9.8	15 15	764 1300	258 197	204 170	1070 787	708 1150	92 87	50 46	15 14	7.3 7.8	8.9 8.9
16 17	10 10	18 24	537 671	155 120	151 156	624 537	738 534	86 91	42 38	14 14	6.7 6.8	7.6 15
18	9.7	25	726	101	179	446	435	94	41		7.4	14
19 20	8.9 9.5	24 23	392 266	104 93	317 969	378 1710	350 299	92 91	42 41	13 12	6.4 6.5	14 15
21	11	22	213	84	1070	1040	272	88	40	13	6.9	15
22	11	25	179	80	2650	818	249	92	38	11	e12	11
23 24	12 12	28 35	136 122	88 87	2540 3320	930 767	235 230	108 157	41 38	12 11	9.9 9.2	6.7 8.3
25	12	40	e100	842	e1330	894	220	158	35	13	8.2	8.2
26	11	59	e85	3190	e520	831	206	124	30		e8.3	8.4
27 28	11 11	65 51	e70 e65	1490 639	e360 e320	743 657	193 182	106 97	28 27		8.1 8.8	8.7 7.7
29	12	51	e60	386		575	170	94	29		9.4	7.8
30 31	16 17	49	e55 e58	313 264		526 478	160	94 91	27	12 12	8.5 8.0	9.9
TOTAL MEAN	286.8 9.25	765 25.5	6849 221	16562 534	17512 625	23607 762	11929 398	3613 117	1396 46.5		267.2 8.62	292.9 9.76
MAX	17	65	1300	3190	3320	3830	1150	158	78	24	12	15
MIN AC-FT	5.0 569	13 1520	55 13580	58 32850	146 34740	200 46820	160 23660	86 7170	27 2770		6.4 530	6.7 581
CFSM	0.01	0.04	0.32	0.78	0.91	1.11	0.58	0.17	0.07	0.02	0.01	0.01
IN.	0.02	0.04	0.37	0.89	0.95	1.27	0.64	0.20	0.08	0.03	0.01	0.02
STATIS	TICS OF MO	ONTHLY MEA	N DATA F	OR WATER Y	EARS 1948	- 2002	, BY WATER	YEAR (WY)				
MEAN	18.2	45.1	203	472	738	744	351	195	76.5	22.9	13.7	13.7
MAX (WY)	48.5 1998	216 1997	1251 1956	2097 1997	1776 1996	1914 1969	928 1969	1925 1948	434 1990		47.3 1997	46.2 1997
MIN	2.30	10.4	10.9	24.0	39.5	44.1	27.0	15.1	6.21	2.43	1.29	1.01
(WY)	1993	1988	1993	1979	1994	1977	1977	1992	1992	1973	1992	1992
SUMMAR	Y STATIST	ICS	FOR	2001 CALEN	IDAR YEAR	1	FOR 2002 WA	TER YEAR		WATER YEA	RS 1948 -	- 2002
ANNUAL				35844.2			83593.9					
ANNUAL HIGHES	MEAN TANNUAL 1	MEAN		98.2			229			235 629		1997
LOWEST	ANNUAL M	EAN								27.3		1977
	T DAILY ME DAILY MEX			1300 3.5	Dec 15 Sep 18		3830 5.0 5.3	Mar 12 Oct 4		18000	Jan 1 1 Sep 9	1997 5 1992
		Y MINIMUM AC-FT)		3.5	Sep 13			Oct 1		0.9		
ANNUAL ANNUAL	RUNOFF (AC-FT) CFSM)		3.8 71100 0.14	Į.		165800 0.33			170500 0.3	4	
ANNUAL	RUNOFF (INCHES)		0.14	Ł		4.51			4.6		
	CENT EXCEI			258 41			595 61			584 43		
	CENT EXCE			5.3			8.5			9.0		

e Estimated

12431000 LITTLE SPOKANE RIVER AT DARTFORD, WA

LOCATION.--Lat $47^{\circ}47^{\circ}05^{\circ}$, long $117^{\circ}24^{\circ}12^{\circ}$, in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.5, T.26 N., R.43 E., Spokane County, Hydrologic Unit 17010308, on left bank 50 ft upstream from county bridge, 0.5 mi east of Dartford, 1.7 mi downstream from Deadman Creek, 7.5 mi north of Spokane, and at mile 11.4.

DRAINAGE AREA. -- 665 mi2.

Date

PERIOD OF RECORD. -- April 1929 to September 1932, December 1946 to current year.

Discharge Gage height

1230 946 4.66 Apr. 15

(ft)

(ft³/s)

Time

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1286: 1930, 1932(M), 1947-49(M). WSP1446: 1951(M).

GAGE.--Water-stage recorder. Datum of gage is 1,585.62 ft above NGVD of 1929 (levels by Washington State Department of Transportation). Prior to 1996 an arbitrary datum of 1,590 ft was used, from topographic map. Prior to Mar. 16, 1951, nonrecording gage and Mar. 16, 1951, to July 5, 1961, water-stage recorder, at site 0.5 mi downstream at different datum.

REMARKS.--Records good. No regulation. Small diversions for irrigation upstream from station. U.S. Geological Survey satellite telemeter at station. Chemical analyses, July 1960 to September 1970, water temperatures, July 1968 to September 1970.

AVERAGE DISCHARGE.--58 years (water years 1930-32, 1948-2002), 304 ft³/s, 6.21 in/yr, 220,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $4.110 \text{ ft}^3/\text{s Mar.} 21, 1997, gage height, } 8.27 \text{ ft; minimum discharge, } 62 \text{ ft}^3/\text{s Mar.} 21, 1994.$

Time

Date

Discharge Gage height (ft³/s) (ft)

*1,360 *5.43

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 940 ${\rm ft}^3/{\rm s}$ and maximum (*):

Minimum disc	charge,	104 ft ³ /s Au	ıg. 11,	15, 16, 18	3, 19, gag	e height,	2.23 ft.					
		DISCHAR	GE, CUB	IC FEET PE		WATER YEA		2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108	181	260	e211	364	486	662	579	348	187	125	114
2	108	167	279	e210	359	455	657	570	334	182	125	113
3 4	108 109	158 154	281 271	e212 e217	345 341	439 436	653 653	556 545	321 307	176 173	124 120	112 112
5	109	151	256	e217 e220	341	436	663	538	293	168	121	113
5	100	151	250	e220	327	420	663	330	233	100	121	113
6	110	151	247	247	324	441	689	547	278	166	121	115
7	110	151	238	357	342	412	710	528	267	167	124	116
8	113	150	230	689	400	392	738	523	266	169	120	115
9	115	149	227	912	406	390	751	499	278	175	119	115
10	116	148	225	823	382	395	793	473	276	167	118	114
11	121	148	220	680	362	466	830	448	269	165	116	113
12	124	148	217	611	332	723	848	429	255	158	115	113
13	128	147	237	597	324	701	879	417	243	153	114	112
14	127	161	393	563	316	603	1010	409	234	150	110	111
15	126	181	407	507	304	557	1270	398	223	144	107	113
16	126	182	337	475	302	542	1170	388	214	144	109	113
17	126	209	399	454	306	538	1150	382	212	142	111	119
18	127	213	392	423	306	515	1080	390	215	142	107	123
19	128	196	365	417	322	504	978	389	243	139	106	122
20	130	189	341	419	372	514	906	392	234	137	106	120
21	124	1.01	222	410	275	476	055	205	017	120	100	110
21 22	134 140	191 202	323 310	412 381	375 519	476 466	855 813	395 418	217 208	132 130	108 112	119 118
23	148	237	284	379	811	492	779	493	204	130	111	119
24	152	235	275	378	764	545	744	450	200	127	112	119
25	151	211	264	428	603	553	712	422	195	129	111	118
26	149	204	e210	521 470	545 508	574 576	687	405	190	129	110	119
27 28	147 147	199 195	e212 e233	470 396	514	588	663 637	389 394	179 179	128 128	111 113	121 121
29	146	210	e233	351	214	612	614	403	194	129	110	121
30	152	238	e220	362		633	593	386	198	128	113	125
31	179		e216	364		644		366		127	116	
TOTAL	4013	5456	8594	13686	11475	16096	24187	13921	7274	4621	3545	3498
MEAN MAX	129.5 179	181.9 238	277.2 407	441.5 912	409.8 811	519.2 723	806.2 1270	449.1 579	242.5 348	149.1 187	114.4 125	116.6 125
MIN	108	147	210	210	302	390	593	366	179	127	106	111
AC-FT	7960	10820	17050	27150	22760	31930	47970	27610	14430	9170	7030	6940
CFSM	0.19	0.27	0.42	0.66	0.62	0.78	1.21	0.68	0.36	0.22	0.17	0.18
IN.	0.22	0.31	0.48	0.77	0.64	0.90	1.35	0.78	0.41	0.26	0.20	0.20
STATIST	TICS OF	MONTHLY MEA	N DATA 1	FOR WATER	YEARS 1929	- 2002,	BY WATER	YEAR (WY)				
MEAN	156.6	190.8	239.5	288.4	412.2	588.0	633.0	421.1	263.5	167.0	133.7	138.4
MAX	244	357	824	1204	1108	1629	1469	1176	710	331	217	227
(WY)	1998	1984	1974	1974	1961	1997	1997	1948	1948	1948	1997	1997
MIN	87.9	113	114	99.6	143	167	168	132	98.2	80.3	67.8	80.3
(WY)	1932	1930	1993	1930	1993	1930	1977	1930	1931	1931	1931	1931
SUMMARY	STATIS	STICS	FOR	2001 CALE	NDAR YEAR	FO	OR 2002 WA	TER YEAR		WATER YEAR	RS 1929 -	2002
ANNUAL				71968			116366					
ANNUAL		147737		197.2			318.8			303.9		1000
	ANNUAL ANNUAL									626 128		1997 1931
HIGHEST	DAILY	MEAN		407	Dec 15		1270	Apr 15		3710	Mar 21	
LOWEST	DAILY N	MEAN		98	Aug 18		106	Aug 19		63	Jul 24	
ANNUAL	SEVEN-I	MUMINIM YA		99	Sep 9		108	Aug 15		65	Aug 13	1931
		(AC-FT)		142700	_		230800	-		220200		
	RUNOFF			0.3			0.48			0.46		
		(INCHES)		4.0	3		6.51			6.21	L	
	CENT EXC			311 200			640 235			612 204		
	ZENT EXC			103			235 114			122		
50 L 1100				200								

e Estimated

12431500 LITTLE SPOKANE RIVER NEAR DARTFORD, WA

LOCATION.--Lat $47^{\circ}46^{\circ}52^{\circ}$, long $117^{\circ}29^{\circ}43^{\circ}$, in NW $^{1/2}_{4}$ sec.3, T.26 N., R.42 E., Spokane County, Hydrologic Unit 17010308, on right bank on downstream side of county bridge, 4 mi west of Dartford, 1.5 mi north of Spokane city limits, and at mile 3.9.

DRAINAGE AREA. -- 698 mi2.

PERIOD OF RECORD.--April 1948 to March 1952, October 1997 to current year.

Discharge Gage height (ft³/s) (ft)

REVISED RECORDS.--WSP 1216: Drainage area.

Time

GAGE.--Water-stage recorder. Elevation of gage is 1,550 ft above NGVD of 1929, from topographic map. Prior to October 1997, in center of stream on downstream side of highway bridge, at unknown datum.

REMARKS.--No estimated daily discharges. Records good. No regulation. Many small diversions for irrigation and domestic use upstream from station.

AVERAGE DISCHARGE.--8 years (water years 1949-51, 1998-2002), 599 ft³/s, 11.66 in/yr, 434,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,260 $\rm ft^3/s~Apr.~15$, 2000, gage height, 10.01 ft, minimum discharge, 315 $\rm ft^3/s~Aug.~16$, 17, 2001, gage height, 4.72 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 22-23, 1997, reached a discharge of 4,380 $\mathrm{ft^3/s}$ based on comparison with records for Little Spokane River at Dartford (12431000), stage not determined.

Date Time

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,150 ft^3/s and maximum (*):

Apr. 15	1430	*1,	520	*9.13	No c	ther p	eak greater	than base	discha	rge.		
Minimum dis	charge, 3	33 ft ³ /s 0	oct. 2.									
		DISCHA	RGE, CUBIC	FEET PER			YEAR OCTOBER	R 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	335	426	492	473	589	741	940	865	605	435	360	344
2	335	412	507	472	585	709		848	593		359	342
3	339	402	510	476	576	690		831	581	422	357	342
4	337	396	504	478	570	685		817	567	419	356	343
5	337	393	493	478	564	680	946	806	554	416	355	343
6	340	390	485	480	559	687		811	539		355	345
7	341	388	475	532	567	672		795	526		358	346
8	344	386	468	767	611	650		785	522		354	345
9	346	386	463	1010	632	644 651	1040	764	531	419	352	345
10	349	385	461	1080				733	532	412	349	344
11	354	384	456	964	598	692	1120	706	525	406	348	343
12	361	382	453	854	5/3	858	1150	684	512	401	346	343
13	363	383	468	818	560	1010		669	500	396	345	342
14	361	391	562	794	558	918		656	490	395	343	342
15	359	416	650	740	547	840	1440	646	478	388	340	343
16	359	419	577	696	545	813		634	468	387	339	344
17 18	359 359	445 454	597 627	675 649	546 549	807 789		628 632	462 464	385 382	343 340	350 354
19	362	434	595	649				632	488	378	340	354
20	365	427	576	636	600	700	1260	635	485		339	351
					000	773 780	1200					
21	367	426	560	633 610	606	761		637	469		339	349
22	374	437	546	610	678	732	1160	652	458	370	342	349
23	383	470	525	90T	924	747	1110	715	453		342	349
24	387	477	508	596	1040	796	1080	699	449		343	349
25	388	455	503	619	606 678 924 1040 929	816		670	443	369	342	349
26	388	445	470	705	803 758 756 	840	1010	654	437		341	351
27	386	438	471	696	758	846	977	639	428		343	353
28	386	436	497	628	756	856	946	635	425			353
29	383	448	484	582		875	915	650	440			353
30	392	472		580		908	886		446			355
31	418		477	586		918		620				
TOTAL	11257	12605		20548	17993	24184	33080	21783	14870	12115	10742	10415
MEAN	363.1	420.2	514.1	662.8	642.6	780.1	. 1103	702.7	495.7	390.8	346.5	347.2
MAX	418	477	650		1040	1010	1440	865	605	435	360	355
MIN	335	382	453	472	545	644		620	425	362	339	342
AC-FT	22330	25000	31610	40760	35690	47970		43210	29490			20660
CFSM	0.52	0.60	0.74	0.95	0.92	1.12		1.01	0.71		0.50	0.50
IN.	0.60	0.67	0.85	1.10	0.96	1.29	1.76	1.16	0.79	0.65	0.57	0.56
STATIS	TICS OF M	ONTHLY MEA	AN DATA FO	R WATER Y	EARS 1948	- 200	2, BY WATER	YEAR (WY)				
MEAN	441.7	474.5	533.5	561.1	699.7	997.4		800.0	586.6	446.0		393.0
MAX	525	555	622	707		1301		1381				421
(WY)	1998	1998	1999	1999	1999	1999		1948	1948		1948	1999
MIN (WY)	363 2002	420 2002	435 1950	433 1950	443 2001	513 2001		491 2001	399 2001		323 2001	327 2001
							FOR 2002 W					
ANNUAL				155557			205529					
ANNUAL				426.2			563.1			599.0		
	T ANNUAL I	MEAN		420.2			303.1			686		1999
	ANNUAL M									432		2001
	T DAILY M			650 318 319	Dec 15		1440	Apr 15		2130	Mar :	
LOWEST	DAILY ME	AN		318	Aug 17		335	Oct 1		318	Aug 1	
ANNUAL	SEVEN-DA	Y MINIMUM		319	Aug 15		338	Oct 1		319	Aug 1	5 2001
ANNUAL	RUNOFF (AC-FT)		308500			407700			434000		
ANNUAL	RUNOFF (CFSM)		0.61 8.29			0.83			0.8		
ANNUAL	RUNOFF (INCHES)		8.29			10.95	5		11.6	6	
10 PER	CENT EXCE	EDS		534			918			1010		
50 PER	CENI EXCE	EDS		437			478			488		
90 PER	CENI EACE	Y MINIMUM AC-FT) CFSM) INCHES) EDS EDS		325			344			393		

12432500 LONG LAKE AT LONG LAKE, WA

LOCATION.--Lat $47^{\circ}50'12"$, long $117^{\circ}50'20"$, in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.13, T.27 N., R.39 E., Lincoln County, Hydrologic Unit 17010307, at left end of spillway at Long Lake Dam on Spokane River, 12.0 mi north of Reardan, and at mile 33.9.

DRAINAGE AREA.--6,020 mi², approximately, of which about 122 mi² in the vicinity of Hayden Lake is noncontributing to this station.

PERIOD OF RECORD.--October 1913 to current year. Prior to October 1950 monthend contents only, published in WSP 1316. October 1950 to September 1977 monthend stage and contents only.

REVISED RECORDS.--WSP 1736: Monthend contents for 1916-33 corrected. WSP 1933: Drainage area. WDR WA-01-1: Calendar year change in contents for 1998-99 corrected.

GAGE.--Water-stage recorder with remote indicator in powerhouse. Datum of gage is NGVD of 1929 (levels by Avista Corporation).

REMARKS.--Reservoir is formed by concrete dam, completed in 1913 and raised in 1950. Capacity, 104,200 acre-ft between elevations 1,512 ft and 1,536 ft, normal limits of operation. Contents at elevation 1,512 ft by capacity table used prior to October 1915, 148,600 acre-ft. Records given herein represent usable contents. Water used for power. About 25,000 acres irrigated upstream from station, largely from wells in the Spokane Valley. Flow regulated by Coeur d'Alene Lake and powerplants along Spokane River.

COOPERATION.--Lake elevations and capacity table furnished by Avista Corporation. Records not reviewed.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 107,600 acre-ft Jan. 16, 1974, elevation, 1,536.67 ft; minimum contents, since filling reservoir in 1920, 214 acre-ft Feb. 16, 1985, elevation, 1,512.06 ft.

EXTREMES FOR CURRENT YEAR. -- Maximum contents, 104,000 acre-ft Nov. 24, elevation, 1,535.96 ft; minimum contents, 75,930 acre-ft Feb. 22, elevation, 1,530.20 ft.

> Capacity table (elevation, in feet and usable contents, in acre-feet) (Based on data furnished by Avista Corporation)

1,512	0	1,526	56,330	1,534	94,240
1,513	3,570	1,528	65,460	1,535	99,190
1,517	18,640	1,531	79,740	1,536	104,200
1,520	30,550	1,532	84,540	1,537	109,300
1 522	38 880	1 533	89 360		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	1535.38 1535.27	1535.33 1535.07 1535.42 1535.51 1535.40	1535.35		1535.63	1535.64 1535.72 1535.68 1535.78 1535.78	1535.53 1535.50 1535.43	1535.05 1535.30 1535.10 1535.12 1534.87	1534.36	1535.75 1535.80	1535.18 1535.12 1535.22 1535.30 1535.63	1535.70 1535.61 1535.60 1535.50 1535.38
6 7 8 9 10	1535.60 1535.58 1535.60	1535.17	1535.38 1535.53	1531.85 1531.95 1532.85 1533.20 1533.43	1535.27	1535.78 1535.74 1535.68 1535.70 1535.80	1535.53 1535.45	1534.98 1535.09 1535.10 1535.00 1535.00	1534.25 1534.23 1534.25 1534.25 1534.50	1535.41 1535.46 1535.40		1535.44 1535.50
11 12 13 14 15	1535.07 1535.56 1535.70	1535.62 1535.57 1535.45 1535.42 1535.20	1535.10 1534.88 1534.94	1533.60 1533.62 1533.78 1533.85 1534.38		1535.80 1535.20 1534.97 1535.65 1535.53	1534.40 1534.50	1535.25 1535.20 1535.25 1535.30 1535.32	1534.90 1534.92 1535.15 1535.13 1535.10	1535.49 1535.15 1535.35 1535.35 1535.41	1535.50 1535.54	1535.31 1535.18 1535.23 1535.37 1535.60
16 17 18 19 20	1535.32 1535.32	1535.48 1535.55 1535.45		1535.00 1535.59 1535.75 1535.71 1535.72	1531.81 1531.26 1530.62	1535.50 1535.45 1535.50 1535.42 1535.45	1534.38 1534.48 1534.43	1535.30 1535.35 1535.22 1535.32 1535.00	1535.39 1535.40 1535.28 1535.36 1535.28	1535.19 1535.25 1535.33	1535.34 1535.45 1535.48	
21 22 23 24 25	1535.57 1535.50	1535.41 1535.54 1535.59 1535.46 1535.52	1534.21 1534.03	1535.68 1535.62 1535.60 1535.62 1535.75	1532.20	1535.46 1535.49 1535.40		1535.05 1534.90 1534.92 1534.85 1534.78	1535.28 1535.25 1535.35 1535.45 1535.48	1535.14 1534.83		1535.42 1535.48 1535.37 1535.50
26 27 28 29 30 31	1535.50 1535.52	1535.15 1535.10 1534.99	1532.93	1535.49 1535.58 1535.68 1535.61 1535.68 1535.63	1535.55	1535.50 1535.48 1535.52 1535.47 1535.45 1535.52	1535.00 1535.15	1534.77 1534.75 1534.78 1534.79 1534.60	1535.51 1535.50 1535.59 1535.78 1535.48	1535.34 1535.05		1535.35 1535.15 1535.50 1535.56 1535.45
MAX MIN (†) (‡)	1535.73 1535.07 100900 -1300	1535.62 1534.90 99600 -1300	1535.53 1532.92 88970 -10630	1535.75 1531.85 102400 +13430	1535.63 1530.25 102000 -400	1535.80 1534.97 101800 -200	1535.59 1534.38 99650 -2150	1535.35 1534.60 97210 -2440	1535.78 1534.20 101600 +4390	1535.80 1534.83 101100 -500	1535.63 1535.12 102200 +1100	1535.70 1535.15 101500 -700

CAL YR 2001 MAX 1535.82 MIN 1522.55 AC-FT(‡) -7890 WTR YR 2002 MAX 1535.80 MIN 1530.25 AC-FT(‡) -700

[†] Contents, in acre-feet, on last day of month. † Change in Contents, in acre-feet.

12433000 SPOKANE RIVER AT LONG LAKE, WA

LOCATION.--Lat $47^{\circ}50'12"$, long $117^{\circ}50'25"$, in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.13, T.27 N., R.39 E., Lincoln County, Hydrologic Unit 17010307, on left bank at Long Lake powerhouse, 1.4 mi upstream from Chamokane Creek, 12.0 mi north of Reardan, and at mile 33.88.

DRAINAGE AREA.--6,020 mi², approximately, of which about 122 mi² in the vicinity of Hayden Lake is noncontributing to this station.

PERIOD OF RECORD.--April 1939 to current year.

REVISED RECORDS.--WSP 1933: Drainage area. WDR WA-01-1: Calendar year adjusted mean discharge, runoff in inches, and acre-feet for 1998, and adjusted mean discharge, cubic feet per square mile, runoff in inches, and acre-feet for 1999 corrected.

GAGE.--Water-stage recorder. Datum of gage is 1,299.00 ft above NGVD of 1929 (levels by Avista Corporation). Oct. 1, 1978, to Sept. 30, 1981, incorrectly published at datum 1,300 ft.

REMARKS.--Flow regulated by Coeur d'Alene Lake and Long Lake (station 12432500) for powerplants of Avista Corporation. About 25,000 acres irrigated upstream from station, largely from wells in the Spokane Valley. Chemical analyses October 1958 to September 1986, November 1999 to April 2000. Specific conductance records March 1973 to September 1981. Water temperature July 1959 to September 1962, October 1966 to September 1970, March 1973 to September 1981.

COOPERATION.--Discharge records furnished by Avista Corporation; three discharge measurements made by U.S. Geological Survey.

AVERAGE DISCHARGE.--63 years (water years 1940-2002), 7,777 ft³/s, 5,634,000 acre-ft/yr, adjusted for storage in Long Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,700 ft³/s Jan. 19, 1974, gage height, 78.40 ft; maximum recorded gage height, 78.66 ft May 24, 1948; minimum daily discharge, 90 ft³/s Oct. 23, 1994.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 31,700 ft³/s April 15, gage height, 72.64 ft; minimum discharge, 150 ft³/s Aug. 12.

	DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	2360	3060	3600	4310	7980	9140	10900	20900	29500	9890	2660	1210	
2	2320	3920	4200	5180	7560	9070	11100	20100	29800	10600	2170	1830	
3	2280	2260	4560	5080	7260	9110	11400	21400	29900	7950	1630	1580	
4	2610	3050	4460	5000	6900	8360	11700	21300	29500	7020	1820	1860	
5	2250	3460	4380	5030	6880	8300	11500	22400	28200	7290	1080	1870	
6	1770	3620	4660	5270	6880	8360	11700	21600	28200	6400	2890	1700	
7	2260	3450	4170	5320	6880	7940	12400	21400	27200	5560	2110	1490	
8	2510	3320	3920	5300	6880	7800	13500	21200	26500	5320	2090	1460	
9	2410	3140	4580	6790	6880	7150	13600	21200	25500	5540	1940	1600	
10	2760	2080	4350	6700	6840	7010	13900	19900	24100	4660	1540	2600	
11	2830	2920	5470	6700	6780	7330	17300	18400	22900	4670	1690	2210	
12	3270	3330	5210	6700	6780	13400	19000	18300	22800	5270	2220	2540	
13	1370	3530	5900	6700	6680	11900	20000	17400	21100	3320	1820	2130	
14	2220	3240	6000	6700	6780	8640	20800	17200	20900	3800	2240	1860	
15	2390	3760	7000	6720	6780	10800	25000	17400	20400	3600	2210	1680	
16	3020	4080	7000	6730	6780	10700	29400	18100	19000	3910	1570	2360	
17	2940	1950	7070	6780	6700	10400	31400	18300	19600	4000	1100	2580	
18	2900	2980	7080	8070	6700	10100	31500	18900	19900	3620	1310	2520	
19	2440	3520	7060	8560	6720	10100	31200	18600	19300	3860	1620	2080	
20	2030	3500	7010	8360	6710	11000	29900	20000	19000	3880	2060	2740	
21	2730	3020	6840	8300	6690	10500	27700	20200	17900	3890	1360	1860	
22	2630	3100	6740	8240	6670	10400	26700	22600	16200	3680	1710	2130	
23	2520	3070	6870	7860	6680	10300	25700	23700	15300	3790	1350	2670	
24	3000	3680	6840	7490	6720	10400	25600	25600	14700	3660	1820	2050	
25	3260	3240	6880	7300	6810	10100	24300	26900	13600	2810	1320	2410	
26	3530	3750	6660	12300	6760	10400	24200	27100	12700	1940	1590	2700	
27	2280	4380	5920	9610	6780	10300	23300	26900	11900	2520	1980	2920	
28	3000	3920	5940	8600	7720	10100	22000	26900	10100	2780	1970	1500	
29	3300	4050	5490	8450		10700	21100	27300	8880	3430	1600	2280	
30	3380	3670	4820	8100		10700	21400	28600	11400	1880	1590	2690	
31	3820		5100	8180		10600		29100		2130	389		
TOTAL	82390	100050	175780	220430	193180	301110	619200	678900	615980	142670	54449	63110	
MEAN	2658	3335	5670	7111	6899	9713	20640	21900	20530	4602	1756	2104	
MAX	3820	4380	7080	12300	7980	13400	31500	29100	29900	10600	2890	2920	
MIN	1370	1950	3600	4310	6670	7010	10900	17200	8880	1880	389	1210	
AC-FT	163400	198400	348700	437200	383200	597300	1228000	1347000	1222000	283000	108000	125200	
MEAN†	2636	3313	5497	7327	6894	9709	20607	21863	20616	4593	1774	2093	
CFSM†	0.44	0.55	0.91	1.22	1.15	1.61	3.42	3.63	3.42	0.76	0.29	0.35	
IN.†	0.50	0.61	1.05	1.40	1.19	1.86	3.82	4.19	3.82	0.88	0.34	0.39	
AC-FT†	162100	197100	338100	450600	382800	597100	1226000	1345000	1226000	282500	109100	124500	

CAL YR 2001 TOTAL 1459831 MEAN 4000 MAX 16700 MIN 305 AC-FT 2896000 MEAN† 3988 CFSM† 0.66 IN.† 9.00 AC-FT† 2888000 WTR YR 2002 TOTAL 3247249 MEAN 8897 MAX 31500 MIN 389 AC-FT 6441000 MEAN† 8894 CFSM† 1.48 IN.† 20.06 AC-FT† 6440000

[†] Adjusted for change in contents in Long Lake.

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. --October 1959 to September 1986, October 1998 to April 2002, November 2001 to September 2002.

PERIOD OF DAILY RECORD. --

SPECIFIC CONDUCTANCE: March 1973 to September 1981.
WATER TEMPERATURE: July 1959 to September 1962, October 1966 to September 1970, March 1973 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.-SPECIFIC CONDUCTANCE: Maximum, 235 microsiemens Sept. 8, 1973; minimum, 50 microsiemens May 19, 1976.
WATER TEMPERATURE: Maximum, 24.5 °C (rounded) Aug. 8, 1959; minimum, 0.0 °C (rounded) Jan. 21, Feb. 26, 1960.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)
NOV 08 JAN	1600	3340	222	8.0	9.8	10.7	96	23.0	9.47		.22		.018
30 APR	1500	7980	111	7.5	.7	3.6	44	11.0	4.08	E.009	.17	.669	.026
03	1420	11100	110	7.9	7.2	6.0	43	10.7	3.87	<.015	.19	.916	.024
26 JUL	1530	24600	73	7.7	9.1	6.9	28	7.14	2.44	<.015	.27	.200	.009
15 SEP	1230	4640	100	7.9	27.1	19.1	41	10.2	3.79	E.013	E.09	.328	<.004
11	1140	3160	215	8.0	27.0	18.4	98	23.8	9.46	<.015	.13	.976	.006
	Date	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	
	NOV 08	PHORUS TOTAL (MG/L AS P)	DIS- SOLVED (UG/L AS CD)	WATER UNFLTRD TOTAL (UG/L AS CD)	TOTAL RECOV- ERABLE (UG/L AS FE)	DIS- SOLVED (UG/L AS FE)	DIS- SOLVED (UG/L AS PB)	TOTAL RECOV- ERABLE (UG/L AS PB)	NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	NESE, DIS- SOLVED (UG/L AS MN)	DIS- SOLVED (UG/L AS ZN)	TOTAL RECOV- ERABLE (UG/L AS ZN)	
	NOV 08 JAN 30	PHORUS TOTAL (MG/L AS P) (00665)	DIS- SOLVED (UG/L AS CD) (01025)	WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	DIS- SOLVED (UG/L AS FE) (01046)	DIS- SOLVED (UG/L AS PB) (01049)	TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	NESE, DIS- SOLVED (UG/L AS MN) (01056)	DIS- SOLVED (UG/L AS ZN) (01090)	TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	
	NOV 08 JAN 30 APR 03 26	PHORUS TOTAL (MG/L AS P) (00665)	DIS- SOLVED (UG/L AS CD) (01025)	WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	DIS- SOLVED (UG/L AS FE) (01046)	DIS- SOLVED (UG/L AS PB) (01049)	TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	NESE, DIS- SOLVED (UG/L AS MN) (01056)	DIS- SOLVED (UG/L AS ZN) (01090)	TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	
	NOV 08 JAN 30 APR 03	PHORUS TOTAL (MG/L AS P) (00665) .023 E.039	DIS- SOLVED (UG/L AS CD) (01025) <.04 .06	WATER UNFITRD TOTAL (UG/L AS CD) (01027) E.03 .08	TOTAL RECOV- ERABLE (UG/L AS FE) (01045) 40 100 230	DIS- SOLVED (UG/L AS FE) (01046) <10 <10	DIS- SOLVED (UG/L AS PB) (01049) .27 <.08	TOTAL RECOV- ERABLE (UG/L AS PB) (01051) <1 <1	NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	NESE, DIS- SOLVED (UG/L AS MN) (01056) 16.6 2.4 5.9	DIS- SOLVED (UG/L AS ZN) (01090) 5 37	TOTAL RECOV- ERABLE (UG/L AS ZN) (01092) 8 36 41	

12433200 CHAMOKANE CREEK BELOW FALLS, NEAR LONG LAKE, WA

LOCATION.--Lat 47°51'42", long 117°51'28", in SE ½ SW ½ sec.2, T.27 N., R.39 E., Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation, on right bank 800 ft downstream from Chamokane Falls, 1.4 mi upstream from mouth, 1.8 mi north of town of Long Lake, and at mile 1.6.

DRAINAGE AREA. -- 179 mi2.

PERIOD OF RECORD.--February 1971 to September 1978, April 1984 to September 1987 (seasonal records), October 1987 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,420 ft above above NGVD of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges and discharges from June 21 to Aug. 19, which are fair. No known regulation. Diversions upstream for irrigation, domestic use, and fish hatchery. Pumpage from ground-water wells can cause small fluctuations in discharge. Water temperature records April 1984 to September 1987 (seasonal records); October 1987 to September 1989. U. S. Geological Survey Satellite telemeter at site.

AVERAGE DISCHARGE.--22 years (water years 1972-78, 1988-2002), 64.6 ft³/s, 4.90 in/yr, 46,790 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,200 ft³/s Apr. 25, 1975, gage height, 5.06 ft, from rating curve extended above 500 ft³/s on basis of slope-area measurement of peak flow; maximum gage height, 5.37 ft Mar. 20, 1997; minimum discharge, 9.4 ft³/s Dec. 30, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 743 ft³/s Jan. 9, gage height, 3.65 ft; minimum discharge, 21 ft³/s July 22, but may have been lower during periods of estimated record.

DISCHARGE PUBLISHED. CUBIC FEET PER SECOND. WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

	DI	SCHARGE F	овытопво,	CODIC FEE		MEAN V		OCTOBER 200)I 10 SE	SPIEMBER 200	12	
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR		JUN	JUL	AUG	SEP
1	24	26	33 32	e28	64	137	339 321 294 283	109 107 101 96 90	e38	30		29
2	24		32	e29	64 62 59 56 53	114	321	107	e36	29		29
3	24	26	31	e32	59	110	294	101	e35	30	27	29
4	24	25	29 28	e32 e30 e31	56	108	283	96	e35	30	28	29
5	25					95	291	90			28	30
6 7	25 25	25 25	27 26 25 25 25	36 56	49 52	96 84	306 349	89 89 86 80 73	e33 e32	29 31	28 28 28	30 30
8	25	24	25	259	63	78	356	86	e33	36	28	30
9	25	24	25	689	57	69	325	80	e37	e34	27	30
											27	30
11 12	26	24	25	359 279 237 203 172	54 51	92	345	68 65 61 60 58	35	e30	28	29 29
13	27	25	31	237	49	203	325	61	30	e29	27	29
14	27	31	36	203	48	191	433	60	27	e29	e2.7	29
												29
16	26	28	60	141	45	163	388	56 56 62 62 59	25	e28	e27	29
17 18	26	31	64	129	47	149	329	56	24	e28	e28	31 31
19	26	27	02	109	49	132	271	62	28	e27	e28	31
20	25	25	60	115	54	115	210	59	25	26	29	29
21	27	27 30 29 27 26	50	112	63	101	195	58	27	25 24 24 e25 e26	29	30
22	26	30	44	90	95	104	181	61 61 60 57	34	24	30	30
23	26	29	e35	78 82 92	327	105	170	61	35	24	29	30
24 25	26	27	e28	82	337	126 180	159	60	33	e25	29 30	30 30
							150					
26 27	25 25	26 25 26 28 28	e25 e25 e26 e28 e28 e28	98 89 74 63 63 66	187 168 160 	239 259	143 137	55 53 53 53 51 43	33 33	e26 e25 e24 e24 e25 e26	30 29	30 31
28	25	26	e26	74	160	287	128	53	32	e24	29	30
29	25	28	e28	63		341	118	53	36	e24	29	30
30	29	28	e28	63		354	112	51	31	e25	29	31
31	30										29	
TOTAL	799	791	1118	4470	2631	4995	8086	2132 68.77	957	864	872	893
MEAN	25.77	26.37	36.06	144.2	93.96	161.1	269.5	68.77	31.90	27.87	28.13	29.77
MAX	30	31	83	689	337	375	525	109	38	36	30	31
MIN	24	24 1570	25	28	45	69	112	43	24	24	26	29
CFSM	1580	0.15	2220	8870	5220	9910	16040	4230	1900	1/10	1/30	1//0
IN.	0.14	0.15	0.20	0.81	0.55	1.04	1.68	109 43 4230 0.38 0.44	0.10	0.18	0.18	0.17
STATIST								R YEAR (WY)				
MEAN										20 71	27 01	27 00
MAX	41 5	47 5	236	239	232	626	564	257	115	59 5	47 2	43 0
(WY)	1998	1974	1974	1997	1995	1997	1975	67.55 257 1975	1997	1997	1997	1997
MIN	18.9	19.1	17.1 1993	17.4	21.2	29.9	22.6 1992	19.6 1992	19.4	18.2	18.4	18.1
(MA)	1993	1993	1993	1993	1995 21.2 1994	1977	1992	1992	1994	1994	1994	1990
SUMMARY	Y STATIST	ICS	FOR :	2001 CALEN			FOR 2002	WATER YEAR		WATER YEAR	RS 1971 -	2002
ANNUAL				11761			28608					
ANNUAL				32.22			78.	38		64.59		
	r annual									170		1997
	ANNUAL M			0.0	D 10			T		25.8		1994
	DAILY ME			83 20 20 23330	Dec 19		689	Jan 9 Oct 1 Oct 1		1/5U	Mar 20	1997
			1	20	Sen 5		24	Oct 1		16	Jan 2	1993
ANNUAL.	RUNOFF (Y MINIMUM AC-FT)	•	23330	DCP J		56740	000 1		46790	Juli 2	. 1000
ANNUAL	RUNOFF (CFSM)		0.18			0.	44		0.36	5	
ANNUAL	RUNOFF (INCHES)		2.44			0. 5.	95		4.90)	
10 PERG	CENT EXCE	EDS		47			205			136		
	CENT EXCE			30			31			31		
90 PER	CENT EXCE	EDS		22			25			20		

e Estimated

12433542 BLUE CREEK ABOVE MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA

LOCATION.--Lat $47^{\circ}55^{\circ}28$ ", long $118^{\circ}05^{\circ}18$ ", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.13, T.28 N., R.37 E., Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation, on right bank, 2.4 mi downstream from Turtle Lake, and 5.4 mi northwest of Wellpinit.

DRAINAGE AREA.--6.0 mi².

PERIOD OF RECORD.--June 1984 to October 1998, January 2000 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,070 ft above NGVD of 1929, from topographic map.

REMARKS.--Records poor. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--16 years (water years 1985-98, 2001-2002), 1.24 ${\rm ft}^3/{\rm s}$, 2.80 in/yr, 895 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65 ${\rm ft}^3/{\rm s}$ Mar. 22, 1997, gage height, 3.22 ft, minimum discharge, 0.01 ${\rm ft}^3/{\rm s}$ Aug. 12, 13, 1992, gage height, 0.86 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 17 ft³/s Apr. 3, gage height 1.81 ft; minimum discharge 0.04 ft³/s Oct. 1-4 and 11, but may have been lower during periods of ice effect or missing record.

		DISCHAF	RGE, CUBIC	FEET PER		WATER Y	YEAR OCTOBER VALUES	2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.06	0.06	e0.18	e0.18	e0.50	e0.75	15	4.3	1.2	0.64	0.30	0.14
2	0.06	0.06	0.28	e0.18	e0.50	e0.75	15	4.0	1.2	0.64	0.30	0.14
3	0.06	0.06	0.28	e0.20	e0.50	e0.80	15	3.9	1.1	0.61	0.30	0.14
4	0.06	0.06	0.24	e0.20	e0.50	e0.84	15	3.7	1.1	0.58	0.30	0.14
5	0.06	0.06 0.06 0.06 0.07	0.24			e0.84 e0.84			1.1	0.56	0.30	0.14
6	0.06	0.06 0.07 0.07 0.07 0.07	0.24	e0.25	e0.50	e0.84	15 14 14 14 14	3.5	1.0 1.0 1.0 1.0 0.99	0.56	0.29	0.12
7	0.06	0.07	0.22	0.75	e0.50	e0.80	14	3.6	1.0	0.55	0.27	0.12
8	0.06	0.07	0.21	0.78	e0.50	e0.80	14	3.4	1.0	0.60	0.26	0.12
9	0.06	0.07	0.21	0.96	e0.52	e0.90	14	3.3	1.0	0.55	0.26	0.12
10									0.99	0.54	0.26	0.11
11	0.07	0.07 0.08 0.08 0.13 0.11	0.27	0.81	e0.50	1.7	13 12 12 12 12	3.0	0.97	0.53	0.25	0.10
12	0.07	0.08	e0.22	0.81	e0.48	1.7	12	2.9	0.95	0.50	0.25	0.10
13	0.07	0.08	e0.35	0.81	e0.48	1.7	12	2.8	0.91	0.50	0.25	0.10
14	0.07	0.13	e0.34	0.81	e0.48	1.9	12	2.7	0.89	0.49	0.23	0.08
15									0.87	0.47	0.20	0.09
16 17	0.07	0.12	e0.28	e0.75	e0.54	2.1	11 11 9.6 9.0 8.6	2.3	0.87	0.44	0.21 0.22 0.23 0.23 0.21	0.12
18	0.07	0.18	e0.28	e0.70	e0.56	2.0	11	2.3	0.87	0.39 0.39	0.22	0.10
19	0.06	0.11	e0.24	e0.75	e0.58	2.0	9.6	2.2	0.87	0.39	0.23	0.09
20	0.06	0.11	0.26	e0.80	e0.58	1.9	8.6	2.2	0.85	0.38	0.23	0.09
										0.27		
22	0.06	0.12	0.24	00.75	0.69	2.0	7.9	2.0	0.70	0.37	0.20	0.08
22	0.06	0.15	00.22	00.75	1 2	2.0	6.0	1 0	0.73	0.37	0.19	0.07
23	0.06	0.13	00.20	0.73	1.3	2.1	6.7	1.9	0.71	0.37	0.10	0.07
25	0.06	e0.13	e0.16	0.73	e0 80	2.2	7.9 7.5 6.9 6.7 6.3	1.8	0.71	0.37 0.37 0.37 0.35 0.35	0.20 0.19 0.18 0.18 0.19	0.07
26 27	0.06	0.11	e0.15	0.60	e0.70	3.2	5.9	1.6	0.69	0.34	0.18	0.08
27	0.06	0.10	00.15	0.56	e0.70	6.0	5.0	1.0	0.00	0.33	0.19	0.09
28	0.06	0.11	e0.15	e0.50	eu./5	7.0	5.1	1.5	0.67	0.31	0.18	0.09
20	0.00	0.13	00.10	00.40		10	4.9	1.3	0.65	0.30	0.13	0.09
31	0.10		e0.18	e0.50		13	5.9 5.6 5.1 4.9 4.6	1.3		0.30	0.14	
шоша т	2 02	2 00	7.00	10 16	17 41	02.02	316.6 10.55 15 4.6 628 1.76 1.96	70.0	26.60	12.00	7.04	2 05
TOTAL	2.02	2.99	7.08	19.16	1/.41	03.02	316.6	79.9	26.60	13.99	7.04	3.05
MEAN	0.065	0.100	0.228	0.618	0.622	2.6/8	10.55	2.5//	0.887	0.451	0.227	0.102
MINI	0.11	0.16	0.35	0.96	0.40	0.75	15	1 2	0.65	0.04	0.30	0.14
MIN	0.06	0.06	0.15	0.10	0.40	1.75	4.0	1.3	0.65	0.30	0.14	0.07
CECM	0.01	0.9	0 04	0 10	0 10	U 1E	1 76	120	0 15	0 00	0 04	0.0
TN	0.01	0.02	0.04	0.10	0.10	0.43	1.76	0.43	0.15	0.00	0.04	0.02
										0.05	0.04	0.02
STATIS'							2, BY WATER					
MEAN	0.160	0.200 0.37 1985 0.10 2002	0.219	0.756	1.718	5.564	4.020 14.1 1997 0.34 1990	1.407	0.754	0.366 0.76 1997	0.194	0.142
MAX	0.25	0.37	0.47	5.61	12.4	25.7	14.1	3.40	1.85	0.76	0.36	0.24
(WY)	1998	1985	1997	1997	1995	1997	1997	1996	1997	1997	1984	1984
MIN	0.062	0.10	0.13	0.094	0.16	0.34	0.34	0.30	0.1/	0.10	0.067	0.054
(WY)	2002	2002	2001	2001	1990	1990	1990	1992	1992	1994	2001	2001
SUMMAR	Y STATIST	ICS	FOR 2	2001 CALEN	IDAR YEAR		FOR 2002 WA	TER YEAR		WATER YEAR	RS 1984 -	2002
ANNUAL	TOTAL			84.81			578.86					
ANNUAL				0.23	2		1.58	6		1.2	36	
HIGHES'	T ANNUAL	MEAN								4.6	9 9	1997
LOWEST	ANNUAL M	IEAN								0.1	9	1994
HIGHES'	r daily M	EAN		0.74	May 24		15	Apr 1		60	Mar 21	1997
LOWEST	DAILY ME	AN		0.04	Sep 16		0.06	Oct 1		0.0	4 Sep 16	2001
ANNUAL	SEVEN-DA	MUMINIM Y		0.04	Sep 16		0.06	Oct 1		0.0	4 Sep 16	2001
ANNUAL	RUNOFF (AC-FT)		168	_		1150			895	_	
ANNUAL	RUNOFF (CFSM)		0.03	9		0.26			0.2	T	
ANNUAL	RUNOFF (INCHES)		0.53			3.59			2.8	U	
10 PER	CENT EXCE	EDS		0.56			4.1			2.9	_	
50 PER	CENI EXCE	EDS		0.15			0.50			0.2	5	
90 PER	CENT EXCE	EDS		0.06	1		15 0.06 0.06 1150 0.26 3.59 4.1 0.50			0.1	۷	

e Estimated

12433556 MIDNITE MINE DRAINAGE NEAR WELLPINIT, WA

LOCATION.--Lat $47^{\circ}55^{\circ}27^{\circ}$, long $118^{\circ}05^{\circ}20^{\circ}$, in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.13, T.28 N., R.37 E., Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation, on right bank, 2.4 mi downstream from Turtle Lake, and 0.1 mi upstream from confluence with Blue Creek, and 5.4 mi northwest of Wellpinit.

DRAINAGE AREA. -- 1.3 mi².

PERIOD OF RECORD.--June 1984 to October 1998, January 2000 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,070 ft above NGVD of 1929, from topographic map.

REMARKS.--Records poor. Three ponds upstream from gage exist for mine surface-water retention; June 1987, three diversions from the upstream channels were added to retain and treat contaminated water for mixing and later release. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--16 years (water years 1985-98, 2001-02), $0.39 \text{ ft}^3/\text{s}$, 285 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $5.9~{\rm ft}^3/{\rm s}$ Mar. 19, 1997, gage height, 1.78 ft; no flow during part of water years 1986 to 1992 and 2001.

EXTREMES FOR CURRENT YEAR.--Maximum discharge .96 ft^3/s Apr. 16, gage height 1.31 ft; minimum discharge, .03 ft^3/s Oct. 1-3, 16 and 17.

		DISCHA	RGE, CUBI	C FEET PE		WATER YE MEAN VA		R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	0.04 0.04 0.04 0.05 0.05	0.11 0.10 0.10 0.10 0.10	0.07 0.07 0.06 0.06 0.07	e0.10 e0.10 e0.12 e0.12 e0.13	e0.18 e0.18 e0.18	e0.28 e0.28 e0.29 e0.30 e0.32	0.33 0.33 0.30 0.29 0.28	0.74 0.76 0.68 0.29 0.19	0.30 0.18 0.27 0.59 0.76	0.25 0.54 0.71 0.57 0.25	0.79 0.67 0.30 0.13 0.26	0.09 0.07 0.17 0.47 0.61
6 7 8 9 10	0.06	0.10 0.08 0.08 0.08 0.08	0.06 0.06 0.06 0.06 0.06	0.15 0.26 0.37 0.38 0.27	e0.20 e0.20 e0.20 e0.20 e0.20	e0.29 e0.26 e0.27 e0.30 e0.34	0.25 0.23 0.21 0.21 0.21	0.28 0.59 0.72 0.80 0.68	0.76 0.65 0.31 0.18 0.28	0.15 0.14 0.30 0.64 0.79	0.63 0.80 0.77 0.63 0.29	0.53 0.24 0.08 0.17 0.47
11 12 13 14 15	0.06 0.06 0.06 0.05 0.04	0.08 0.08 0.09 0.12 0.10	0.06 0.06 0.12 0.13 0.09	0.23 0.22 0.19 0.19 e0.17	e0.19 e0.18 e0.18 e0.18 e0.20	e0.36 e0.34 e0.33 0.33	0.19 0.20 0.20 0.26 0.31	0.29 0.17 0.27 0.60 0.75	0.59 0.76 0.74 0.61 0.29	0.78 0.67 0.30 0.13 0.25	0.11 0.22 0.57 0.74 0.72	0.61 0.62 0.53 0.24 0.08
16 17 18 19 20	0.04 0.05 0.06 0.06 0.06			e0.16 e0.14 e0.15 e0.16 e0.20	e0.20 e0.22 e0.22 e0.22 e0.20	0.30 0.30 0.30 0.30 0.28	0.85 0.92 0.86 0.72 0.29	0.76 0.67 0.29 0.18 0.27	0.15 0.25 0.55 0.67 0.70	0.57 0.76 0.79 0.67 0.30	0.61 0.27 0.10 0.21 0.54	0.15 0.42 0.57 0.60 0.49
21 22 23 24 25	0.08 0.08 0.08 0.08 0.12	0.07 0.10 0.07 0.05 0.06	e0.08 e0.08 e0.07 e0.07	e0.18 e0.16 e0.16 e0.18 e0.20	0.18 0.30 0.34 e0.30 e0.25	0.27 0.26 0.25 0.24 0.26	0.19 0.28 0.52 0.76 0.86	0.58 0.79 0.76 0.69 0.33	0.59 0.28 0.15 0.24 0.52	0.13 0.25 0.62 0.79 0.80	0.69 0.67 0.57 0.26 0.10	0.22 0.07 0.14 0.40 0.55
26 27 28 29 30 31	0.11 0.11 0.13 0.16 0.18 0.13	0.06 0.05 0.05 0.06 0.05	e0.08 e0.08 e0.09 e0.10 e0.10	e0.18 e0.18 e0.18 e0.16 e0.17 e0.18	e0.26 e0.26 e0.28	0.30 0.34 0.37 0.39 0.39	0.72 0.29 0.19 0.30 0.60	0.19 0.18 0.23 0.55 0.74 0.65	0.65 0.66 0.59 0.31 0.15	0.67 0.30 0.13 0.26 0.63 0.78	0.19 0.50 0.65 0.66 0.56 0.26	0.58 0.51 0.25 0.08 0.15
TOTAL MEAN MAX MIN AC-FT	2.28	2.47	2.44	5.74 0.185	6.06 0.216	9.53 0.307	12.15 0.405 0.92 0.19 24	15.67 0.505 0.80	13.73	14.92 0.481 0.80	14.47	10.16 0.339 0.62 0.07 20
STATIS'	TICS OF M	ONTHLY ME	AN DATA F	OR WATER	YEARS 1984	- 2002,	BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	0.435 1.27 1997 0.051 1992	0.380 1.11 1996 0.076 1991	0.068	0.183 0.73 1997 0.075 1989	0.244 0.65 1997 0.088 1993	1997 0.13	0.549 1.31 1995 0.098 1992	0.550 1.29 1995 0.064 1992	0.498 1.12 1996 0.046 1992	0.421 1.05 1996 0.026 1988	0.394 1.06 1996 0.008 1992	0.407 1.11 1997 0.019 2001
SUMMAR	Y STATIST	ICS	FOR	2001 CALE	NDAR YEAR	I	OR 2002 W	ATER YEAR		WATER YEA	RS 1984 -	2002
ANNUAL TOTAL ANNUAL MEAN HIGHEST ANNUAL MEAN LOWEST ANNUAL MEAN HIGHEST DAILY MEAN LOWEST DAILY MEAN ANNUAL SEVEN-DAY MINIMUM ANNUAL RUNOFF (AC-FT) 10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS				94.63 0.29 0.00 0.00 188 0.84 0.11	59		109.6 0.3 0.9 0.0 0.0 217 0.6 0.2 0.0	00		0.3 1.0 0.0 5.3 0.0 0.0 285 1.1 0.1	0	1997 1992 1997 1986 1990

e Estimated

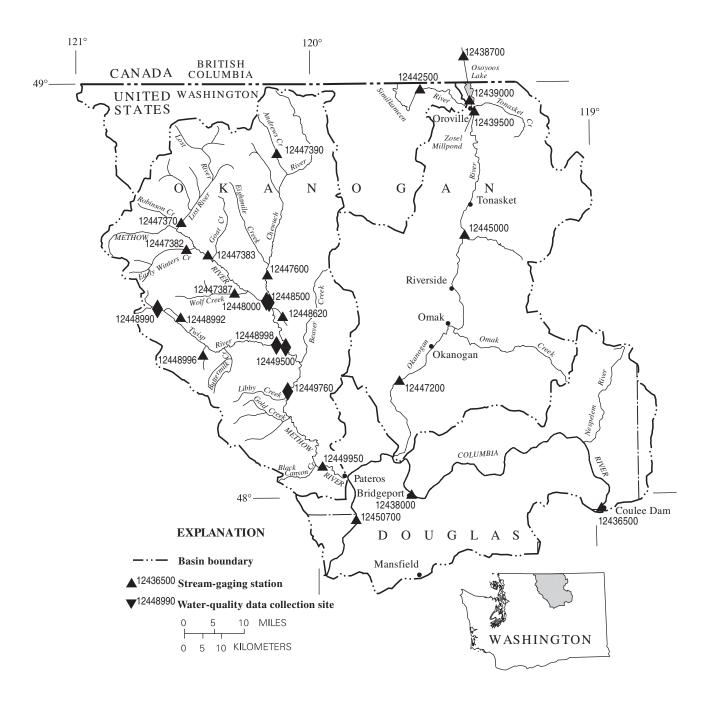


Figure 39. Location of surface-water stations in the Columbia River Basin from Coulee Dam to Wells Dam including Okanogan and Methow River Basins.

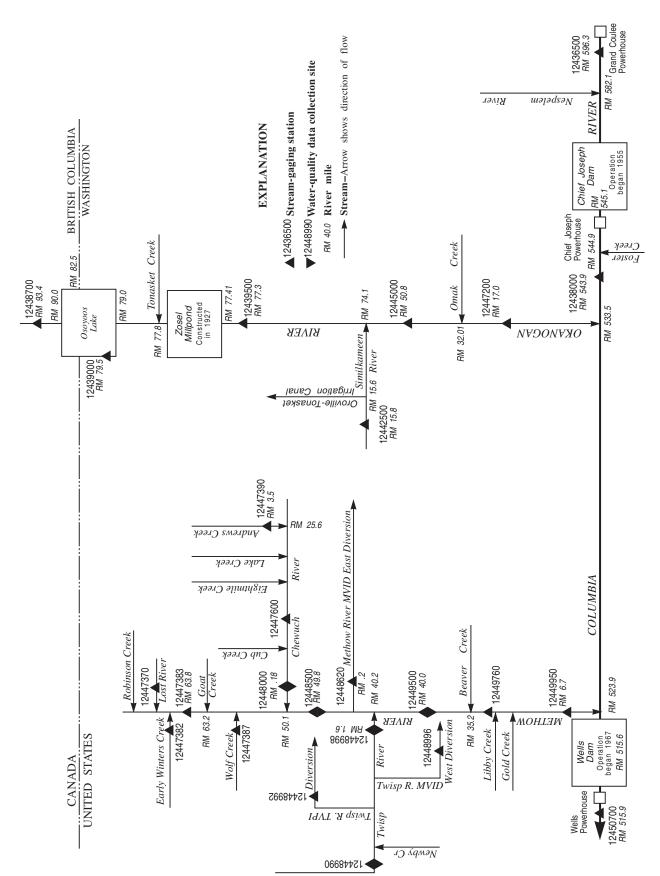


Figure 40. Schematic diagram showing surface-water stations in the Columbia River Basin from Coulee Dam to Wells Dam including Okanogan and Methow River Basins.

DIVERSION AT GRAND COULEE DAM

12435500 FEEDER CANAL AT GRAND COULEE, WA

LOCATION.--Lat 47°57'05", long 118°59'40", on line between secs.1 and 2, T.28 N., R.30 E., Grant County, Hydrologic Unit 17020001, on left bank at Grand Coulee, 0.2 mi downstream from headworks structure, and 0.5 mi southwest of Grand Coulee Dam.

PERIOD OF RECORD. -- October 1951 to current year.

GAGE.--Daily discharge determined from flow through pumps or reverse flow through generators. Datum of gage is 1,500.00 ft above MGVD of 1929 (Bureau of Reclamation datum), adjustment of 1937. May 1, 1952, to Jan. 10, 1978, at datum 50.00 ft higher. Jan. 11, 1978, to Feb. 22, 1981, nonrecording gage at datum 1,500.00 ft lower. May 1, 1952, to Oct. 13, 1960, auxiliary gage 0.6 mi downstream from base gage at same datum.

REMARKS.--Since 1951, water has been pumped (lift about 280 ft) from Franklin D. Roosevelt Lake into the two-mile long Feeder Canal, which empties into Banks Lake. From Banks Lake, it is distributed through a system of canals to the Columbia Basin Project for irrigation. Between May 1951, and December 1974, six pumps were used. Since December 1974, six pump generators, which can also generate power during peak demand periods by returning water from Banks Lake, via the Feeder Canal, to Franklin D. Roosevelt Lake have been added; two in December 1974 and one each in April, June, and November 1983 and April 1984. Discharge is computed from relations between pump operation and head.

COOPERATION. -- Discharge records furnished by Bureau of Reclamation; three discharge measurements made by U.S. Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 20,000 ${\rm ft}^3/{\rm s}$ July 5, 1997; minimum daily discharge, -7,900 ${\rm ft}^3/{\rm s}$ Nov. 16, 2001, reverse flow from Banks Lake.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 16,100 ${\rm ft}^3/{\rm s}$ Sept. 15; minimum daily discharge, -7,900 ${\rm ft}^3/{\rm s}$ Nov. 16, reverse flow from Banks Lake.

DAILY MEAN VALUES DAY DEC FEB SEP OCT NOV JAN APR MAY JUN JUL AUG 3640 1450 0.00 0.00 8.1 0.00 0.00 0.00 0.00 0.00 0.00 3660 10300 -5400 0.00 0.00 -288 3910 1640 -1400 0.00 0.00 0.00 -33 -1160 0.00 0.00 0.00 5350 -3180 0.00 4.0 0.00 0.00 5230 -4360 0.00 0.00 0.00 0.00 0.00 0.00 5440 -3880 0.00 0.00 5530 1980 0 00 0.00 0.00 0 00 -5440 0.00 -1540 5540 1390 0.00 8.1 -3600 0.00 5500 -3110 0.00 0.00 9240 -4360 4380 -7790 0.00 0.00 0.00 -7900 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 -700 0.00 0.00 -7 6 0 00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 -366 8.1 0.00 -438 0.00 0.00 1710 -1380 0.00 0.00 1700 -2320 0.00 -3660 0.00 1950 -2580 0.00 -2380 6040 -1780 0.00 0.00 0.00 ---0.00 0.00 -1810 0.00 0.00 TOTAL 1471.40 19244.00 -1756.80 -9640.00 45398.10 MEAN 49.05 620.8 -56.67 -344.3 MAX 0.00 -5440 -1810 -1540 MIN -7900 -3660 -288 -366 AC-FT -3480 -19120

CAL YR 2001 TOTAL 1259712.40 MEAN 3451 MAX 10800 MIN -7900 AC-FT 2499000 WTR YR 2002 TOTAL 1438507.70 MEAN 3941 MAX 16100 MIN -7900 AC-FT 2853000

339 COLUMBIA RIVER MAIN STEM

12436000 FRANKLIN D. ROOSEVELT LAKE AT GRAND COULEE DAM, WA

LOCATION.--Lat $47^{\circ}57'20"$, long $118^{\circ}59'02"$, near center of sec.1, T.28 N., R.30 E., Grant County, Hydrologic Unit 17020001, in block 12 of Grand Coulee Dam on Columbia River, and at mile 596.6.

DRAINAGE AREA.--74,700 mi^2 , approximately.

PERIOD OF RECORD.--April 1938 to current year. Prior to October 1943, published as Columbia River Reservoir at Grand Coulee Dam.

REVISED RECORDS.--WSP 1286: 1942, 1945(M). WSP 1316: 1942 (May monthend contents). WSP 1933: Drainage area. WDR WA-73-1: 1965, 1967. WDR WA-75-1: 1974 monthend contents.

GAGE .-- U.S. Geological Survey water-stage recorder. Datum of gage is NGVD of 1929, adjustment of 1937 (Bureau of Reclamation datum), or 1.425 ft above NGVD of 1929 (levels by Bureau of Reclamation). Prior to Apr. 24, 1942, nonrecording gage at site 2,000 ft upstream at same datum.

REMARKS.--Reservoir is formed by concrete dam; construction of dam began in 1934; completed in 1941; storage began early in construction period. Capacity, 5,022,000 acre-ft between elevations 1,208 ft, proposed lower limit of operation, and 1,288 ft, top of gates. Capacity increased to 5,185,000 acre-ft by use of 2-ft flashboards installed after high-water period each year beginning August 1961. Storage below 1,208 ft, 4,209,000 acre-ft. Figures given herein represent total contents. Water is used for power generation and irrigation. Flow is regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversion by Feeder Canal (station 12435500) for irrigation of about 600,000 acres in the United States plus additional diversions in Canada for irrigation of about 66,500 acres. Maximum and minimum midnight contents were published as EXTREMES FOR CURRENT YEAR for 1997 to 2001.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents recorded, 9,586,000 acre-ft July 17, 1942, June 3, 1945, elevation, 1,290.3 ft; maximum elevation, 1,290.36 ft Aug. 6, 1976; minimum contents observed, 16,200 acre-ft Aug. 29, 1938, elevation, 956.1 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 9,387,000 acre-ft July 9, elevation, 1,289.91 ft; minimum contents, 5,875,000 acre-ft May 19, elevation, 1,239.87 ft.

Capacity table dated October 24, 1975 (elevation, in feet, and contents, in acre-ft) (Prepared by U.S. Geological Survey from data furnished by Bureau of Reclamation)

1,210.0	4,301,000	1,270.0	7,864,000
1,230.0	5,309,000	1,291.0	9,477,000
1,250.0	6,502,000		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1283.45	1286.62	1283.74	1283.96	1271.45	1256.83	1262.50	1244.69	1264.33	1287.35	1286.41	1281.97
2	1283.53	1286.90	1284.82	1283.30	1271.28	1256.81	1262.23	1244.35	1266.69	1286.92	1285.62	1282.65
3	1283.70	1287.11	1284.87	1282.32	1271.46	1257.67	1262.17	1244.58	1268.35	1286.50	1285.40	1282.88
4	1283.98	1287.34	1285.08	1281.37	1270.53	1257.62	1262.21	1244.32	1269.21	1286.65	1285.59	1283.37
5	1284.18	1287.10	1285.13	1280.88	1269.49	1257.80	1261.90	1244.62	1270.03	1287.13	1285.31	1283.72
6	1284.60	1286.87	1285.51	1281.14	1268.72	1257.56	1262.40	1243.75	1271.17	1287.25	1284.96	1284.08
7 8	1285.19 1285.33	1286.59 1286.42	1285.95 1286.67	1280.69 1280.65	1268.29 1267.90	1256.93 1256.24	1263.04 1263.68	1243.09 1242.78	1271.65 1272.57	1288.69 1289.45	1284.16 1283.12	1284.51 1285.05
9	1285.33	1286.42	1286.67	1280.65	1267.90	1256.24	1263.68	1242.78	1272.57	1289.45	1283.12	1285.05
10	1285.23	1286.53	1286.84	1282.06	1266.68	1256.16	1264.18	1242.32	1274.11	1289.26	1282.32	1285.23
10												
11	1285.54	1286.78	1286.75	1282.35	1265.48	1255.84	1262.84	1242.29	1275.20	1289.00	1282.33	1285.87
12	1285.39	1286.71	1286.25	1282.97	1264.64	1255.47	1261.93	1242.64	1276.08	1288.38	1282.02	1285.87
13	1285.88	1286.78	1286.24	1283.74	1263.52	1255.63	1261.78	1241.75	1277.58	1288.14	1281.51	1286.01
14	1286.23	1286.58	1286.27	1283.11	1262.98	1255.87	1261.53	1241.42	1278.78	1289.23	1281.19	1287.20
15	1286.06	1286.40	1286.82	1282.33	1261.44	1256.05	1260.88	1241.07	1280.34	1289.07	1280.89	1287.61
16	1285.73	1286.17	1287.40	1281.83	1260.85	1256.08	1260.12	1240.37	1282.18	1288.88	1281.13	1287.77
17	1285.63	1286.29	1287.54	1281.17	1260.72	1257.23	1258.83	1240.16	1283.15	1288.93	1281.66	1288.16
18	1285.50	1286.91	1287.24	1280.57	1260.12	1256.91	1257.36	1239.93	1284.00	1288.82	1281.98	1287.89
19	1285.23	1287.04	1287.20	1280.34	1259.21	1256.98	1256.18	1240.25	1283.83	1288.39	1281.75	1287.85
20	1285.64	1286.77	1286.49	1280.71	1258.67	1256.47	1254.96	1240.42	1283.35	1288.30	1281.54	1287.51
21	1285.81	1286.32	1285.96	1279.97	1258.30	1256.53	1253.46	1241.29	1283.21	1288.64	1280.81	1287.44
22	1285.64	1286.37	1285.85	1278.92	1258.34	1257.27	1252.22	1242.63	1283.79	1288.05	1280.14	1287.76
23	1285.59	1286.23	1286.21	1278.21	1258.27	1258.07	1250.98	1244.18	1285.15	1287.64	1279.89	1287.41
24	1285.49	1286.01	1285.78	1277.39	1258.53	1258.85	1249.91	1246.14	1284.99	1287.50	1279.98	1286.85
25	1285.48	1285.72	1286.11	1276.58	1258.04	1259.41	1248.61	1248.43	1284.84	1287.37	1280.66	1286.52
26	1285.56	1285.16	1285.06	1276.38	1257.57	1259.55	1247.79	1250.01	1285.22	1287.63	1280.39	1286.49
27	1285.99	1284.55	1284.53	1276.51	1257.08	1260.05	1247.69	1251.12	1285.30	1288.22	1280.45	1287.05
28	1286.11	1284.01	1284.09	1275.40	1257.01	1260.51	1247.54	1252.71	1285.05	1288.57	1280.14	1287.14
29	1285.84	1283.30	1284.18	1274.27		1260.71	1246.37	1255.13	1286.03	1288.12	1280.08	1287.70
30	1285.78	1283.28	1284.70	1273.07		1261.58	1244.89	1257.92	1287.15	1287.39	1279.93	1287.84
31	1286.34		1284.14	1272.12		1262.21		1260.81		1286.98	1280.39	
MAX	1286.34	1287.34	1287.54	1283.96	1271.46	1262.21	1264.18	1260.81	1287.15	1289.45	1286.41	1288.16
MIN	1283.45	1283.28	1283.74	1272.12	1257.01	1255.47	1244.89	1239.93	1264.33	1286.50	1279.89	1281.97
(†)	9098000	8856000	8923000	8018000	6961000	7315000	6180000	7218000	9163000	9149000	8633000	9218000
(‡)	+246000	-242000	+67000	-905000	-1057000	+354000	-1135000	+1038000	+1945000	-14000	-516000	+585000

CAL YR 2001 MAX 1287.54 MIN 1216.94 AC-fT# +1221000 WTR YR 2002 MAX 1289.45 MIN 1239.93 AC-FT# +366000

[†] Total Contents, in acre-feet, at end of month. † Change in contents, in acre-feet.

340 COLUMBIA RIVER MAIN STEM

12436500 COLUMBIA RIVER AT GRAND COULEE DAM, WA

LOCATION.--Lat $47^{\circ}57^{\circ}56^{\circ}$, long $118^{\circ}58^{\circ}54^{\circ}$, in SW $\frac{1}{4}$ sec.36, T.29 N., R.30 E., Douglas County, Hydrologic Unit 17020005, in pier 3 on west side of bridge on State Highway 155, 3,200 ft downstream from Grand Coulee Dam, 14.2 mi upstream from Nespelem River, and at mile 596.3.

DRAINAGE AREA. -- 74,700 mi², approximately.

PERIOD OF RECORD.--April 1913 to June 1923 (monthly discharge only), July to December 1923, January 1924 to May 1928 (monthly discharge only), June 1928 to current year. Published as "at Grand Coulee near Nespelem" prior to 1936 and as "at Grand Coulee" 1936-42.

REVISED RECORDS. -- WSP 1286: 1942, 1947. WSP 1933: Drainage area.

GAGE.--Daily discharge determined from flow through turbines plus spillway flow when present. Datum of gage is NGVD of 1929, adjustment of 1937 (Bureau of Reclamation datum). June 27 to Dec. 31, 1923, June 12, 1928, to Mar. 31, 1931, nonrecording gage at site 0.5 mi upstream at datum 2.4 ft lower. Apr. 1, 1931, to Dec. 31, 1935, water-stage recorder 850 ft downstream at present datum. Jun. 1, 1936, to June 11, 1955, water-stage recorder at present site and datum. June 12, 1955, to July 18, 1988, water-stage recorder at present site and datum with auxiliary water-stage recorder 5.3 mi downstream at datum 1.42 ft lower.

REMARKS.--Flow is regulated by numerous reservoirs. Feeder Canal diversion (station 12435500) for Columbia Basin project is used to irrigate approximately 600,000 acres in the United States. An additional 66,500 acres in Canada are irrigated by other diversions.

COOPERATION.--Discharge records provided by Bureau of Reclamation at Grand Coulee Dam through the Corps of Engineers,
Northwestern Division, Reservoir Control Center. The U.S. Geological Survey made 2 discharge measurements at this site during
the year.

AVERAGE DISCHARGE.--89 years (water years 1914-2002), 108,700 ft³/s, 78,750,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $637,800 \text{ ft}^3/\text{s}$ June 12, 1948, elevation, 987.90 ft; minimum discharge, 14,900 ft $^3/\text{s}$ Dec. 17, 1956, elevation, 934.37 ft; minimum daily discharge, 15,300 ft $^3/\text{s}$ Feb. 1, 1937.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES OUTSIDE PERIOD OF RECORD. -- Flood in June 1894 reached a discharge of 725,000 ft3/s, estimated.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 238,000 ft³/s July 2; minimum daily discharge, 24,000 ft³/s March 31.

DAILY MEAN VALUES DAY OCT NOV DEC JAN MAR APR MAY JUN JUL AUG SEP 5 2.7 ---TOTAL 1734600 MEAN MAX MTN AC-FT 3441000 7270000 10600000 10030000

CAL YR 2001 TOTAL 25299800 MEAN 69310 MAX 127000 MIN 20900 AC-FT 50180000 WTR YR 2002 TOTAL 36721200 MEAN 100600 MAX 238000 MIN 24000 AC-FT 72840000

COLUMBIA RIVER MAIN STEM 341

12438000 COLUMBIA RIVER AT BRIDGEPORT, WA

LOCATION.--Lat 48°00'24", long 119°39'51", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.14, T.29 N., R.25 E., Douglas County, Hydrologic Unit 17020005, on left bank at Bridgeport, 1.0 mi downstream from Foster Creek, 1.6 mi downstream from Chief Joseph Dam, and at mile 543.9.

DRAINAGE AREA.--75,700 mi², approximately.

PERIOD OF RECORD. -- April 1952 to current year.

REVISED RECORDS. -- WSP 1933: Drainage area.

GAGE.--Daily discharge determined from flow through turbines plus spillway flow when present. Datum of gage is NGVD of 1929 (levels by Corps of Engineers). Apr. 4, 1952, to Aug. 4, 1988, water-stage recorder; May 26, 1967, to Aug. 4, 1988, auxiliary water-stage recorder 4,800 ft upstream from base gage at same datum.

REMARKS.--Flow regulated by numerous reservoirs. Feeder Canal diversion (station 12435500) for Columbia Basin project is used to irrigate approximately 600,000 acres in the United States. An additional 66,500 acres in Canada are irrigated by other diversions

COOPERATION.--Discharge records provided by Corps of Engineers at Chief Joseph Dam through the Corps of Engineers, Northwestern Division, Reservoir Control Center. The U.S. Geological Survey made 6 discharge measurements at this site during the year.

AVERAGE DISCHARGE.--50 years (water years 1953-2002), 110,100 ft³/s, 79,770,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 495,800 ft³/s June 11, 1961; maximum elevation, 792.20 ft June 7, 1956; minimum observed discharge, 4,220 ft³/s Mar. 22, 1966, elevation, 746.91 ft; minimum daily discharge, 22,300 ft³/s Nov. 11, 1973.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 229,000 ft³/s July 2; minimum daily discharge, 28,400 ft³/s March 31.

DAILY MEAN VALUES DAY FEB SEP OCT NOV DEC JAN APR MAY JUN JUL AUG 77700 TOTAL 1772700 MEAN MAX MTN 7425000 10700000 10080000 AC-FT 3516000

CAL YR 2001 TOTAL 25820300 MEAN 70740 MAX 129000 MIN 23200 AC-FT 51210000 WTR YR 2002 TOTAL 37268300 MEAN 102100 MAX 229000 MIN 28400 AC-FT 73920000

12438700 OKANAGAN RIVER NEAR OLIVER, BRITISH COLUMBIA (International gaging station)

LOCATION.--Lat 49°06'53", long 119°33'50", approximately 75 ft upstream from drop structure No. 3, 0.8 mi downstream from Testalinden Creek, 4.2 mi south of Oliver, and at mile 93.4.

DRAINAGE AREA. -- 2,930 mi².

PERIOD OF RECORD.--October 1961 to current year in reports of U.S. Geological Survey. March 1944 to December 1948 and April 1952 to current year in reports of Water Survey of Canada.

GAGE.--Water-stage recorder.

REMARKS.--Regulation by control dams at outlets of Okanagan and Skaha Lakes. Diversion for irrigation.

COOPERATION.--Discharge records furnished by Water Survey of Canada. This station is maintained by Canada under agreement with the United States subsequent to Feb. 14, 1965.

AVERAGE DISCHARGE.--52 years (water years 1945-47, 1953-56, 1958-2002), 671 ft^3/s , 486,100 acre-ft/yr. 41 years (water years 1962-2002), 663 ft^3/s , 480,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $3,740~\text{ft}^3/\text{s}$ June 11, 1990, gage height, 7.52 ft; minimum, 55.9 ft $^3/\text{s}$ Jan. 30, 1963, gage height, 0.63 ft.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge 2,300 ft^3/s June 5; minimum daily discharge, 236 ft^3/s Nov. 8.

		DISCHAF	RGE, CUB	SIC FEET PER			YEAR OCTOBE VALUES	ER 2001 TO) SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	420	352	253	276	274	544		1310	2010	1080	509	865
2	413	353	252	277	274	544		1340	1970	1060	512	869
3	410	353	253	277	274	547		1360	2000	946	519	865
4	396	353	251	278	274	547		1340	2240	826	519	855
5	371	333	251	278	274	551		1310	2300	788	519	851
6	371	268	251	279	274	554		1290	2260	579	516	862
7 8	364	245 236	250 251	280 281	274 274	554 558		1270 1250	2220 2210	565 583	519 519	865 865
9	367 367	246	251	282	274	558		1250	2190	576	519	865
10	360	246	252	282	274	558		1230	1980	558	523	862
11	360	246	252	281	274	554		1230	1730	544	516	862
12	378	247	251	282	275	558		1230	1630	540	512	791
13 14	381 381	247 247	252 254	281 280	275 276	558 558		1240 1260	1590 1570	544 544	505 505	586 565
15	378	251	254	281	276	558 558		1240	1570	537	498	562
13	370	231	232	201	2//	550	750	1240	1330	557	400	302
16	378	257	253	280	277	562		1210	1540	530	509	569
17	364	255	253	278	278	562		1240	1510	523	512	533
18	364	252	259	278	276	562		1270	1540	516	512	448
19	367	252	278	278	276	562		1290	1700	516	505	396
20	364	253	277	278	276	562	699	1430	1960	516	505	381
21	364	254	277	278	276	562	710	1530	2000	512	509	378
22	364	255	277	278	277	562	816	1540	1990	509	505	374
23	353	255	277	277	275	565		1660	1970	505	509	371
24	357	255	277	277	272	565		1800	1970	509	519	367
25	357	256	277	277	339	565	1210	1750	1930	505	516	367
26	360	256	277	277	512	565	1190	1750	1850	505	636	378
27	353	253	277	275	526	565		1730	1450	516	844	381
28	352	252	276	274	537	565		1880	1150	516	844	388
29	353	252	276	274		565		1950	1100	512	848	399
30	351	251	276	274		565		2130	1110	509	855	399
31	349		276	274		565		2090		512	862	
TOTAL	11467	8031	8139	8622	8514	17320		45400	54220	18481	17700	18119
MEAN	369.9	267.7	262.5	278.1	304.1	558.7		1465	1807	596.2	571.0	604.0
MAX	420	353	278	282	537	565		2130	2300	1080	862	869
MIN	349	236	250	274	272	544		1210	1100	505	498	367
AC-FT	22740	15930	16140	17100	16890	34350	46600	90050	107500	36660	35110	35940
STATIST	TICS OF M	ONTHLY MEA	N DATA	FOR WATER Y	EARS 1962	- 200	2, BY WATER	R YEAR (WY	")			
MEAN	414.3	345.0	309.2	378.3	524.5	677.2	778.6	1189	1150	880.5	744.8	556.4
MAX	689	1029	688	932	1221	1965		2832	3099	2715	2665	2232
(WY)	1998	1979	1977	1996	1997	1983		1997	1990	1997	1997	1997
MIN (WY)	160 1971	122 1971	112 1968	107 1971	85.6 1971	124 1968		267 1992	228 1963	209 1963	187 1963	205 1988
(WY)	19/1	1971	1968	19/1	1971	1968	1968	1992	1963	1963	1963	1988
SUMMARY	STATIST	ICS	FOR	2001 CALEN	IDAR YEAR		FOR 2002 W	VATER YEAR	2	WATER YEA	RS 1962 -	2002
ANNUAL	TOTAL			108561			239506					
ANNUAL				297.4			656.2	2		662.9		
	C ANNUAL 1									1714		1997
	ANNUAL M				M			_		235		1988
	DAILY M			463	May 15		2300	Jun 5		3660 79	Jun 11	
	DAILY ME	AN Y MINIMUM		192 197	Apr 21 Feb 2		236 245	Nov 8	3	80	Jan 29 Jan 28	
	RUNOFF (215300	reu Z		475100	INOA	,	480200	uaii 28	12/1
	CENT EXCE			396			1520			1660		
	CENT EXCE			292			512			397		
	CENT EXCE			199			255			196		

okanogan river basin 343

12439000 OSOYOOS LAKE NEAR OROVILLE, WA (International gaging station)

LOCATION.--Lat 48°57'24", long 119°26'18", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.21, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on west shore 1.0 mi north of Oroville, 3.0 mi south of international boundary, and at mile 79.5.

DRAINAGE AREA. -- 3, 132 mi².

MEAN

MAX

910.96

911.40

910.51

910.04

910.52

909.68

909.64

909.68

909.55

909.70

909.49

PERIOD OF RECORD. -- July 1928 to current year.

REVISED RECORDS.--WSP 1346: Drainage area. WDR WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Prior to Sept. 2, 1928, nonrecording gage, and Sept. 2, 1928, to Nov. 9, 1929, water-stage recorder, 100 ft south of international boundary. Nov. 10, 1929, to Sept. 7, 1930, Mar. 22, 1952, to Sept. 23, 1953, June 25, 1955, to Apr. 11, 1956, nonrecording gage, and Sept. 8, 1930, to Mar. 21, 1952, Sept. 24, 1953, to June 24, 1955, Apr. 12, 1956, to Feb. 7, 1969, water-stage recorder, at site 1.0 mi south of international boundary. All elevations prior to Oct. 1, 1944, at datum 2.39 ft lower. To convert from present datum to Geodetic Survey of Canada 1934 datum, subtract 1.63 ft; to convert from present datum to 1947 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft.

REMARKS.--Approximately 44,000 acres are irrigated upstream from station in Canada. Elevation may occasionally be affected by dam at Zosel's Mill in Oroville and by backwater from the Similkameen River during extreme high water. U.S. Geological Survey satellite telemeter at station.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 917.11 ft June 2, 3, 1972; minimum elevation, 908.82 ft, present datum, Oct. 14. 1929.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 29, 1894, reached an elevation of 918.8 ft plus or minus 0.5 ft, present datum, 1.0 mi downstream from present lake outlet, from floodmark on old Okanogan Hotel Building, documented in 1930 from the diary of Mr. and Mrs. Stansbury, operators of the hotel in 1894.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 912.54 ft June 1; minimum elevation, 909.48 ft Feb. 25,26.

DAY OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP 912.33 912.29 909.56 911.40 910.52 909.65 909.74 911.14 911.20 912.50 911.28 911.36 911.19 911.38 909.77 911.41 910.51 909.64 909.56 911.17 911.26 912.50 911.28 911.20 3 912 24 911.36 910.48 909 65 909 56 909 81 911 22 911.31 912.41 911.27 911.39 911 32 4 912.18 911.35 910.43 909.64 909.55 909.84 911.26 911.36 912.36 911.22 911.38 911.33 5 910.39 912.11 911.36 909.64 909.54 909.90 911.27 911.40 912.37 911.21 911.38 911.35 909.55 911.39 912.39 912.05 911.33 910.35 909.65 909.90 911.24 911.21 911.39 911.34 6 911.99 911.27 910.29 909.87 911.22 911.36 912.39 911.27 909.55 911.25 911.38 8 911 93 911.21 910.24 909 67 909.56 909 87 911.20 911.32 912.32 911.31 911.38 911.22 909.54 912.14 911.38 911.20 911.88 911.17 910.21 909.68 909.89 911.20 911.29 911.35 10 911.82 911.14 910.17 909.67 909.53 909.92 911.20 911.26 911.98 911.36 911.40 911.20 11 911.09 910.14 909.67 909.54 909.95 911.20 911.23 911.78 911.33 911.39 911.20 12 ---911.05 910.11 909.67 909.54 909.98 911.21 911.20 911.63 911.30 911.37 911.19 13 ---911.01 910 08 909 68 909.53 910 02 911 21 911.17 911.59 911.31 911.35 911 14 ---911.33 910.99 910.07 909.68 909.53 910.05 911.27 911.17 911.60 911.35 911.07 14 15 910.02 910.12 910.96 909.67 909.53 911.34 911.19 911.63 911.31 911.32 911.04 910.93 910.00 909.66 909.52 910.24 911.35 911.18 911.71 911.30 911.32 911.13 16 911.52 910.91 909.98 909.66 909.52 910.31 911.33 911.18 911.75 911.30 911.30 911.23 18 911.49 910.85 909.94 909.65 909.52 910.34 911.32 911.21 911.70 911.29 911.29 911.29 909.51 910.40 911.58 911.49 910.80 909.92 909.66 911.30 911.24 911.30 911.31 911.30 19 909.65 911.27 20 911.51 910.78 909.90 909.52 910.46 911.28 911.51 911.28 911.26 911.32 911.51 910.76 909.88 909.65 909.52 910.46 911.28 911.39 911.46 911.24 911.32 911.24 21 22 911 51 910.75 909.85 909.64 909.54 910.49 911.27 911.42 911.41 911.22 911.33 911.22 909.57 23 911.53 910.72 909.82 909.62 910.56 911.30 911.42 911.38 911.25 911.36 911.21 911.52 909.80 911.42 911.28 911.20 24 910.70 909.60 909.52 910.63 911.37 911.41 911.36 909.49 25 911.51 910.66 909.77 909.60 910.70 911.42 911.42 911.47 911.31 911.37 911.16 911.33 911.46 911.48 910.62 909.75 909.54 910.76 911.39 911.39 911.13 26 2.7 911.48 910.58 909.73 909.60 909.64 910.83 911.22 911.37 911.40 911.36 911.42 911.12 909.72 909.70 28 911.45 910.54 909.60 910.89 911.13 911.41 911.26 911.38 911.38 911.08 29 911.44 909.71 910.94 911.12 911.60 911.25 911.37 911.33 911.09 30 911.43 910.51 909.69 909.57 911.00 911.17 911.93 911.27 911.36 911.28 911.08 909.68 909.57 911.41 911.06 912.29 911.35 911.22

910.28

911.06

909.74

911.25

911.42

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911.30

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911.35

911.42

911.22

911.20

911.35

12439500 OKANOGAN RIVER AT OROVILLE, WA (International gaging station)

LOCATION.--Lat $48^{\circ}55^{\circ}51^{\circ}$, long $119^{\circ}25^{\circ}09^{\circ}$, in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on left bank in Oroville, 20 ft downstream from Burlington Northern trestle, 0.5 mi downstream from Tonasket Creek, 1.7 mi downstream from Osoycos Lake, 3.2 mi upstream from Similkameen River, and at mile 77.3.

DRAINAGE AREA.--3,195 mi².

PERIOD OF RECORD. -- October 1942 to current year.

REVISED RECORDS.--WDR WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Prior to Oct. 26, 1944, nonrecording gage at Zosel Mill dam 200 ft upstream, Oct. 26, 1944, to Mar. 6, 1948, water-stage recorder on railroad trestle 20 ft upstream, both at same datum. Auxiliary water-stage recorder 0.5 mi downstream used during high-water periods; May 15, 1946, to Apr. 9, 1948, nonrecording gage at same site, both at datum 900.00 ft above NGVD of 1929. To convert to 1947 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft.

REMARKS.--Records good except for estimated daily discharges and backwater periods, May 18 to July 19 which are fair. Diversions made to irrigate approximately 44,000 acres in Canada and minor diversions in the United States upstream from station.

Natural regulation in several large lakes and artificial regulation in Okanagan Lake 46.7 mi upstream for flood control and irrigation; also regulated by Zosel dam at Oroville, 500 ft upstream from gage. Water temperature April 1986 to September 1987. U.S. Geological Survey satellite telemeter at station.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--60 years (water years 1943-2002), 698 ft³/s, 505,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,770 ft³/s June 7, 1997; maximum elevation, 916.89 ft June 2, 1972, at datum then in use, backwater from Similkameen River; minimum daily discharge, -2,270 ft³/s reverse flow May 29, 1948; minimum elevation, 903.98 ft Mar. 1, 1948, at datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,570 ft³/s June 9; maximum elevation, 912.20 ft May 31, result of backwater from Similkameen River and result of regulation at Zosel Dam; minimum discharge, 186 ft³/s Sept. 15,16; minimum elevation, 905.95 ft, result of regulation at Zosel Dam.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		DISCHA	RGE, CUB.	IC FEET PE	ER SECOND, DAILY	MEAN V		R 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	444	432	367	e353	311	423	385	1020	1480	939	205	787
2	461	430	365	e326	311	427	384	1050	2000	930	262	407
3	463	429	401	e311	311	432	386	1090	2060	940	364	496
4	468	427	423	e311	311	437	436	1090	2050	783	363	583
5	463	428	419	e311	309	505	573	1180	2050	653	365	648
6	459	424	414	e311	311	530	629	1270	1990	457	367	802
7 8	458 458	423 419	406	e311	311	518 477	627 573	1250 1230	2110 2450	380	364 364	877 790
9	458	419	402 401	e311 311	311 309	450	546	1230	2520	383 381	364	737
10	456	417	397	311	306	455	544	1200	2460	494	375	737
11	458	411	397	311	309	458	545	1190	2310	551	375	736
12	458	408	395	311	307	464	549	1180	1810	431	375	734
13	458	404	391	311	305	467	548	1170	1520	369	375	662
14	460	402	390	313	305	397	547	1120	1400	372	375	618
15	458	401	386	311	305	337	644	1100	1280	369	369	379
16	490	397	385	311	305	347	709	1090	1150	369	374	188
17	515	397	381	311	305	353	706	1100	1360	368	369	191
18	419	395	380	311	305	389	707	1120	1710	367	369	288
19	364	391	380	311	305	415	706	1120	1790	368	328	349
20	364	391	374	311	305	422	701	1160	1960	369	305	348
21	364	391	369	323	305	419	700	1260	2040	368	305	343
22	367	389	369	342	308	376	720	1420	1990	306	305	342
23	372	386	369	338	317	355	755	1560	1920	261	339	342
24 25	403	382	364	322	310	358	818	1670	1740	264 264	360	342
	444	378	360	311	266	361	1160	1740	1770		363	341
26	441	374	358	311	244	365	1410	1710	1880	264	406	337
27	441	369	e358	313	308	369	1360	1600	1740	265	624	337
28	441	369	e358	314	399	372	1220	1480	1440	270	842	332
29	440	369	e358	311		375	1050	1140	922	363	835	332
30 31	435 435	365	e353 e353	311 311		377 380	1010	855 952	930	375 282	825 815	332
31	435		e353			380		952		282	815	
TOTAL	13615	12017	11823	9786	8614	12810	21648	38337	53832	13555	13031	14737
MEAN	439.2	400.6	381.4	315.7	307.6	413.2	721.6	1237	1794	437.3	420.4	491.2
MAX	515	432	423	353	399	530	1410	1740	2520	940	842	877
MIN	364	365	353	311	244	337	384	855	922	261	205	188
AC-FT	27010	23840	23450	19410	17090	25410	42940	76040	106800	26890	25850	29230
STATIST	TICS OF N	MONTHLY MEA	AN DATA I	FOR WATER	YEARS 1943	- 2002	, BY WATER	YEAR (WY)			
MEAN	510.2	479.3	467.9	487.2	579.1	655.3	778.8	1173	1170	827.8	666.2	572.3
MAX	1430	1551	1404	1190	1214	1918	2475	2870	3165	2598	2570	2279
(WY)	1949	1949	1949	1949	1997	1983	1983	1983	1997	1997	1997	1997
MIN (WY)	179 1989	148 1971	149 1971	162 1968	140 1971	74.1 1977	115 1968	180 1992	111 1992	126 1947	150 1963	81.7 1944
	Y STATIST				ENDAR YEAR		FOR 2002 W.			WATER YEA		
		1100	1010		INDIAN TERM			HIDK IDAK		WATER TEA	100 1545	2002
ANNUAL				97300	_		223805			607.6		
ANNUAL	MEAN TANNUAL	MEDAN		266.6	•		613.2			697.6 1691		1997
	ANNUAL N									213		1988
	ANNUAL I T DAILY N			724	May 15		2520	Jun 9		3680	Jun 14	
	DAILY ME			91	May 15		188	Sep 16		-2270	May 29	
		AY MINIMUM		93	Apr 27		271	Jul 22		-1080	May 24	
ANNUAT.	RUNOFF	(AC-FT)		193000			443900			505400	, 2.	
10 PER	CENT EXC	EEDS		427			1270			1510		
	CENT EXC			244			397			506		
	CENT EXC			139			311			205		

e Estimated

12442500 SIMILKAMEEN RIVER NEAR NIGHTHAWK, WA (International gaging station)

LOCATION.--Lat $48^{\circ}59^{\circ}05^{\circ}$, long $119^{\circ}37^{\circ}02^{\circ}$, in NW $\frac{1}{4}$ sec.7, T.40 N., R.26 E., Okanogan County, Hydrologic Unit 17020007, on left bank 1,000 ft upstream from Oroville-Tonasket Irrigation District canal intake, 1.6 mi northeast of Nighthawk, 3.8 mi downstream from Palmer Creek, and at mile 15.8.

DRAINAGE AREA.--3,550 mi², approximately.

PERIOD OF RECORD.--May 1911 to current year (prior to September 1928, mean monthly discharge included Oroville-Tonasket Irrigation District canal). Published as "near Oroville" 1911-28.

REVISED RECORDS. -- WSP 1183: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,137.70 ft NGVD of 1929. Prior to Sept. 11, 1928, staff gages at sites 7 mi downstream (below Oroville-Tonasket Irrigation District canal) at various datums.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow at high stages regulated by natural diversion into and release from Palmer Lake of about 6,000 acre-feet. Several small diversions upstream from station for irrigation of about 2,900 acres in the United States in 1946 and approximately 10,500 acres in Canada in 1957. National Weather Service satellite telemeter at station. Water temperature April 1986 to September 1987.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--91 years (water years 1912-2002), 2,291 $\mathrm{ft^3/s}$, 1,660,000 acre-ft/yr. 74 years (water years 1929-2002), 2,319 $\mathrm{ft^3/s}$, 1,680,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $45,800 \text{ ft}^3/\text{s}$ June 1, 1972; maximum gage height, 18.78 ft May 31, 1972; minimum discharge, $65 \text{ ft}^3/\text{s}$ Jan. 3, 1974; minimum gage height, 1.55 ft Jan. 31, 1988, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,900 ft³/s May 30, gage height, 12.23 ft; minimum daily discharge, 211 ft³/s

		DISCHAR	GE, CUBI	IC FEET PE		WATER Y	YEAR OCTOBER VALUES	2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	238	356	458	411	567	835	569	3940	16500	7290	1260	426
2	230	376	442	410	602	778	599	5130	14900	6470	1180	414
3	223	394	505	408	604	738	584	6040	14500	5790	1090	405
4	217	400	496	395	597	713	578	5750	14400	5380	1040	400
5	214	404	456	380	567	700	599	5180	14400	5070	1020	410
6 7	215 215	391 390	433 418	379 376	530 525	639 590	653 787	4790 4420	14900 13700	4640 4370	981 985	413 419
8	215	372		376	525 550		925	4100			1000	
9			428			570			11500	4640		435
	220	342	442	2230	529	604	924	3820	10200	6100	949	439
10	219	331	444	2030	507	604	932	3590	9650	5180	889	428
11	224	338	433	1660	484	610	967	3440	10000	4840	837	409
12	235	337	423	1460	476	639	1110	3530	11100	4760	808	393
13	243	351	404	1310	445	641	1310	4000	12400	4470	773	378
14	258	360	400	1170	430	606	2190	4890	13900	4130	723	365
15	300	516	400	1030	463	592	3890	5370	15100	3890	683	353
16	308	1360	393	882	463	584	3780	5260	15900	3560	657	345
17	296	1660	425	815	444	556	3400	5370	15200	3240	634	340
18	290	1240	449	817	450	535	3030	6160	13500	3040	608	333
19	307	941	440	762	455	519	2780	6460	12400	2820	585	333
20	308	829	404	765	447	509	2680	7020	10900	2630	566	336
0.1	205	025	200		440		0.750	11000	10000	0.400		200
21	325	837	373	777	442	505	2750	11000	10200	2420	554	328
22	367	829	e340	725	438	495	2910	11800	10400	2220	550	328
23	348	762	e330	658	612	500	3010	12000	10700	2070	541	329
24	342	709	357	661	1080	508	2990	11700	10400	1950	510	324
25	376	648	337	709	1050	521	2870	11200	9780	1850	486	315
26	363	588	320	695	940	545	2800	11300	9500	1770	504	308
27	348	577	e305	635	893	563	2750	12300	9650	1680	544	309
28	339	553	327	521	884	568	2710	13900	9440	1580	518	312
29	376	543	359	e420		549	2760	16100	8690	1460	485	320
30	381	495	386	438		554	3070	17400	8180	1390	463	322
31	365		407	505		549		17600		1330	440	
TOTAL	8908	18229	12534	24822	16474	18419	60907	244560	361990	112030	22863	10969
MEAN	287	608	404	801	588	594	2030	7889	12070	3614	738	366
MAX	381	1660	505	2230	1080	835	3890	17600	16500	7290	1260	439
MIN	214	331	305	376	430	495	569	3440	8180	1330	440	308
AC-FT	17670	36160	24860	49230	32680	36530		485100	718000	222200	45350	21760
STATIS	TICS OF M	ONTHLY MEAN	N DATA E	FOR WATER	YEARS 1929	- 2002	2, BY WATER	YEAR (WY)			
MEAN	689	936	794	645	672	735	2065	7921	8760	3029	936	600
MAX	2265	4531	3480	2067	2235	2206	13510	15360	24910	8495	2625	1614
	1960	1991	1996		1935	1934	1934	1972	1972	1972	1948	1954
(WY)				1981								
MIN (WY)	239 1988	254 1988	231 1988	215 1930	217 1929	341 1988	427 1929	2788 1984	2508 1992	665 1940	295 1940	216 2001
, ,	Y STATIST			2001 CALE			FOR 2002 WA			WATER YEA		
			2 310									2002
ANNUAL				375985			912705			0		
ANNUAL				1030			2501			2319		
	T ANNUAL I									4831		1972
	ANNUAL M									1038		2001
	T DAILY M			8110	May 25		17600	May 31		44800		1 1972
	DAILY ME			186	Sep 20		214	Oct 5		120		4 1988
		Y MINIMUM		188	Sep 19		217	Oct 4		141	Jan	5 1974
ANNUAL	RUNOFF (AC-FT)		745800	-		1810000			1680000		
10 PER	CENT EXCE	EDS		3150			9650			6800		
	CENT EXCE			401			604			794		
	CENT EXCE			239			332			371		
50 I III				232			JJ2			2.1		

e Estimated

12445000 OKANOGAN RIVER NEAR TONASKET, WA

LOCATION.--Lat 48°37'57", long 119°27'38", in lot 3, sec.8, T.36 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on right bank 1,000 ft upstream from Chewiliken Creek, 5.2 mi south of Tonasket, and at mile 50.8.

DRAINAGE AREA. -- 7,260 mi², approximately.

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

REVISED RECORDS.--WSP 862: 1937. WSP 1316: 1934(M), 1938(M). WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 860.78 ft above NGVD of 1929.

REMARKS.--Records good except for estimated daily discharges, which are fair, and period from Oct. 1-Jan. 15, which is poor. Diversions upstream from station for irrigation of about 10,700 acres in the United States and 55,000 acres in Canada. Flow affected by regulation of Okanagan and Skaha Lakes and by natural storage in other lakes. U.S. Geological Survey satellite telemeter at station. Water temperature April 1986 to September 1987.

AVERAGE DISCHARGE.--73 years (water years 1930-2002), 2,964 ft³/s, 2,147,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 44,700 ft^3/s June 2, 1972, gage height, 22.54 ft ; minimum discharge recorded, 126 ft^3/s Sept. 5, 1931, gage height, 3.43 ft .

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19,100 ${\rm ft^3/s}$ June 1, gage height, 14.89 ft; minimum discharge, 525 ${\rm ft^3/s}$ Sept. 18, gage height 4.11 ft.

		DISCHA	RGE, CUB	IC FEET PE		WATER Y		ER 2001 TC) SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2	669 724	831 822	990 964	832 841	949 947	1360 1330	1010 1030	4300 5400	18900 18100	8580 7680	1520 1440	1280 1140
3	716	847	924	808	958	1280	1060	6600	17100	6920	1470	736
4	707	864	1010	795	957	1250	1050	6910	16700	6320	1440	956
5	698	874	1010	774	939	1240	1140	6430	16600	5790	1400	976
6 7	694 690	858 843	966 937	765 772	916 884	1280 1310	1330 1420	6130 5810	16800 17000	5320 4790	1370 1340	1100 1320
8	691	842	925	788	891	1130	1540	5480	15600	4740	1360	1300
9	689	822	955	1110	893	1090	1570	5170	13800	5870	1350	1240
10	686	790	941	2660	870	1130	1570	4910	12500	5840	1290	1200
11 12	698 700	776 782	943 919	2410 2210	856 836	1140 1160	1590 1640	4710 4640	12100 12600	5360 5170	1230 1170	1190 1170
13	715	795	920	1910	830	1200	1790	4860	13300	4900	1140	1150
14	720	836	921	1790	802	1190	2070	5530	14400	4560	1090	1020
15	727	845	865	1560	788	1040	3520	6250	15600	4270	1030	967
16	768	1100	908	1420	819	1020	4500	6320	16600	4030	1030	647
17 18	819 809	1910	906 866	1280	819 804	991 968	4280 3910	6210	17100	3690	998 977	544 529
19	683	1880 1580	882	1230 1230	812	1020	3610	6830 7470	16400 15200	3450 3260	945	658
20	692	1360	860	1160	818	1010	3430	7680	13800	3090	851	692
21	694	1300	821	1170	812	998	3410	10200	12600	2910	826	692
22	718	1300	790	1190	810	999	3510	12900	12200	2700	813	682
23 24	766 735	1280 1190	768 777	1130 1090	808 1010	938 941	3670 3750	13600 13800	12500 12500	2440 2300	810 846	679 670
25	735 796	1130	769	1060	1410	952	3850	13400	11700	2180	830	655
26 27	848 833	1070 1020	742 719	1110 1070	1280 1190	957 997	4240 4180	13200 13600	11300 11300	2090 2000	834 922	651 660
28	815	1020	729	e920	1310	1000	4070	14500	11200	1910	1300	645
29	808	1010	744	e800		1010	3860	15900	10200	1820	1360	650
30	854	978	780	e820		1010	3850	17300	9280	1860	1320	671
31	861		807	875		1010		18500		1710	1290	
TOTAL MEAN	23023 743	31555 1052	27058	37580 1212	26018 929	33951 1095	81450 2715	274540	424980 14170	127550	35592	26470
MAX	861	1910	873 1010	2660	1410	1360	4500	8856 18500	18900	4115 8580	1148 1520	882 1320
MIN	669	776	719	765	788	938	1010	4300	9280	1710	810	529
AC-FT	45670	62590	53670	74540	51610	67340	161600	544600	842900	253000	70600	52500
				FOR WATER								
MEAN	1205	1463	1331	1181	1293	1425	2754	8591	9777	3748	1480	1094
MAX	2849	4618	4252	2564	2964	3131	13220	16190	27720	10210	4095	3039
(WY)	1960	1991	1996	1981	1991	1991	1934	1972	1972	1972	1993	1948
MIN	403	413	399	360	532	525	770	3790	2650	605	231	231
(WY)	1932	1930	1930	1930	1937	1931	1931	1941	1992	1940	1931	1940
SUMMARY	STATIST	ICS	FOR	2001 CALE	NDAR YEAR	1	FOR 2002 V	WATER YEAR	2	WATER YEA	ARS 1929 -	- 2002
ANNUAL ANNUAL				478582			1149767			2964		
HIGHEST	ANNUAL			1311			3150			6019		1972
	ANNUAL M			0000	M - 0 =		10000			1142	-	1931
	DAILY M DAILY ME			8230 422	May 25 Aug 23		18900 529	Jun 1		44200 132	Jun 2 Sep 5	
		Y MINIMUM		435	Sep 8		635	Sep 18 Sep 16		146	Aug 31	
	RUNOFF (949300	DCP 0		2281000	DCP IC	•	2147000	1149 3.	
	CENT EXCE			3170			11300			7670		
	CENT EXCE			760			1130			1460		
90 PERC	CENT EXCE	EDS		485			733			654		

e Estimated

12447200 OKANOGAN RIVER AT MALOTT, WA

LOCATION.--Lat $48^{\circ}16^{\circ}53^{\circ}$, long $119^{\circ}42^{\circ}12^{\circ}$, in SW $\frac{1}{4}$ sec.9, T.32 N., R.25 E., Okanogan County, Hydrologic Unit 17020006, on right bank 75 ft upstream from highway bridge at Malott, 0.1 mi upstream from Loup Creek, and at mile 17.0.

DRAINAGE AREA.--8,080 mi^2 , approximately.

PERIOD OF RECORD.--April 1958 to current year. April 1958 to September 1965, published as "near Malott." Records published for both sites December 1965 to July 1967.

REVISED RECORDS.--WDR WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 783.55 ft above NGVD of 1929. April 1958 to November 1965, water-stage recorder at site 3.9 mi downstream at NGVD of 1929.

REMARKS.--Records good except for estimated daily discharges, which are fair. Diversions upstream from station for irrigation of about 22,000 acres in the United States and 55,000 acres in Canada. Flow regulated by Okanagan and Skaha Lakes and by natural storage in other lakes. U.S. Geological Survey satellite telemeter at station. Daily water temperature records November 1969 to June 1971. Chemical analyses 1959-62, 1963-70 (partial record station), 1972, 1975-94. Published as "near Brewster" prior to 1964 and as "near Malott" 1963-66 (station 12447300).

AVERAGE DISCHARGE.--44 years (water years 1959-2002), 3,100 ft³/s, 2,246,000 acre-ft/yr, includes records for "near Malott" site located 3.9 miles downstream, water years 1959-65.

37 years (water years 1966-2002), 3,117 ft³/s, 2,258,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $45,600~{\rm ft}^3/{\rm s}$ June 3, 1972, gage height, 22.16 ft; minimum observed, 288 ft $^3/{\rm s}$ Sept. 4, 1970, gage height, 2.03 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,600 ${\rm ft}^3/{\rm s}$ June 1, gage height, 13.36 ft; minimum discharge, 516 ${\rm ft}^3/{\rm s}$ Sept. 19, gage height, 2.66 ft.

		DISCHA	RGE, CUBI	C FEET PI	ER SECOND, DAILY	WATER Y MEAN V		ER 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	687	938	982	802	e940	1330	1080	3990	18500	9280	1650	1240
2	721	920	945	834	929	1350	1080	4850	18200	8370	1530	1200
3	764	916	907	830	938	1310	1100	6130	17200	7560	1480	999
4	761	941	891	795	940	1270	1120	7040	16600	6860	1550	742
5	755	952	976	786	939	1250	1130	6750	16500	6190	1500	906
6	755	960	964	789	931	1220	1240	6320	16500	5760	1460	943
7	755	950	915	786	908	1240	1390	6010	16800	5110	1420	1090
8	758	936	898	790	904	1180	1470	5620	16100	4860	1360	1290
9	758	934	879	785	894	1160	1570	5310	14400	5270	1400	1240
10	758	909	897	1610	892	1120	1580	5000	13100	6400	1390	1160
11	765	884	909	2330	876	1160	1590	4750	12400	5670	1330	1140
12	771	874	903	2060	855	1170	1620	4590	12600	5370	1260	1120
13	784	884	904	1880	840	1190	1710	4670	13100	5140	1210	1090
14	790	900	887	1750	833	1210	1910	5180	13900	4810	1170	1060
15	793	912	861	1620	817	1180	2460	6010	15000	4470	1100	947
16	809	912	865	1500	808	1060	4120	6440	16000	4200	1040	861
17	855	1320	873	1370	833	1030	4290	6310	16800	3870	1020	625
18	892	1940	864	1240	826	1000	3980	6580	16700	3560	998	548
19	875	1760	e890	1220	819	1010	3670	7450	15500	3370	968	535
20	773	1530	895	1200	829	1030	3440	7750	14500	3140	912	639
21	782	1360	866	1150	846	1030	3370	8910	13300	2950	835	658
22	786	1330	834	1160	836	1030	3390	12200	12600	2740	814	663
23	818	1310	799	1170	829	1020	3550	13300	e12500	2480	798	650
24	849	1250	795	1190	826	985	3640	13700	e12800	2260	792	642
25	838	1180	795	1090	1110	986	3740	13500	e12100	2120	820	633
26	891	1120	784	1040	1380	992	4020	13300	11800	2040	803	629
27	926	1040	758	1090	1240	1010	4200	13400	11600	1960	788	634
28	909	1020	749	1020	1220	1060	4100	14100	11600	1880	913	638
29	898	1020	750	e900		1060	3920	15000	11000	1800	1280	632
30	911	987	758	e830		1060	3780	16400	9900	1790	1280	638
31	948		781	e880		1070		17700		1780	1250	
TOTAL	25135	32889	26774	36497	25838	34773	79260	268260	429600	133060	36121	25792
MEAN	811	1096	864	1177	923	1122	2642	8654	14320	4292	1165	860
MAX	948	1940	982	2330	1380	1350	4290	17700	18500	9280	1650	1290
MIN	687	874	749	785	808	985	1080	3990	9900	1780	788	535
AC-FT	49860	65240	53110	72390	51250	68970	157200	532100	852100	263900	71650	51160
STATIS'	TICS OF N	MONTHLY MEA	AN DATA F	OR WATER	YEARS 1966	5 - 2002	, BY WATE	R YEAR (WY	7)			
MEAN	1146	1464	1302	1242	1415	1710	2869	8644	10210	4157	1681	1169
MAX	1847	4747	4402	2970	2979	3946	7015	16420	29290	10990	4150	2963
(WY)	1998	1991	1996	1984	1991	1983	1996	1972	1972	1972	1993	1997
MIN	605	574	565	540	569	601	928	4319	2625	938	434	372
(WY)	1988	1988	1971	1988	2001	1988	2001	1977	1992	1977	1977	1988
SUMMAR	Y STATIST	rics	FOR	2001 CALE	ENDAR YEAR		FOR 2002	WATER YEAR	2	WATER YE	ARS 1966 -	- 2002
ANNUAL				477900			1153999					
ANNUAL				1309			3162			3117		
	T ANNUAL									6312		1972
	ANNUAL N			0				_		1334	_	2001
HIGHES'	T DAILY N	1EAN		8480	May 26		18500	Jun 1		45300	Jun 3	
LOWEST	DAILY MI	SAN		429 439	Sep 12		535 617	Sep 19		288	Sep 4	
ANNUAL	SEVEN-DA	AY MINIMUM		439	Sep 9			Sep 17	′	296	Aug 30	19./0
ANNUAL	KUNOFF	(AC-FT)		947900			2289000			2258000		
TO PER	CENT EXC	SEDS		3160			11700			8140		
50 PER	CENT EXC	MEAN EAN AY MINIMUM (AC-FT) EEDS EEDS EEDS		786			1120			1510		
90 PER	CENT EXC	SEDS		488			785			700		

e Estimated

12447370 LOST RIVER NEAR MAZAMA, WA

LOCATION.--Lat 48°39'19", long 120°30'18", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.5 T.36 N., R.19 E., Okanogan County, Hydrologic Unit 17020008, on right bank at Lost River Rd., 0.5 mi upstream from mouth, and 6.5 mi northwest of Mazama.

DRAINAGE AREA. -- 146 mi².

PERIOD OF RECORD.--Oct. 1, 2000 to current year. Miscellaneous discharge measurements 1926, 1970-71, 1990.

GAGE.--Water-stage recorder. Elevation of gage is 2,370 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good, except for estimated daily discharges, which are fair. No known diversions for irrigation upstream from station.

 $AVERAGE \ DISCHARGE.--2 \ years \ (water years 2001-2002), \ 178 \ ft^3/s, \ 16.54 \ in/yr, \ 128,700 \ acre-ft/yr.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,040 ft³/s June 16, 2002, gage height 9.58 ft; minimum discharge 6.6 ft³/s Feb. 27, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,040 ${\rm ft}^3/{\rm s}$ June 16, gage height 9.58 ft; minimum discharge, 18 ${\rm ft}^3/{\rm s}$ Feb. 12 and 13, gage height 5.55 ft.

5 5	J	DISCHARO	GE, CUBIC	FEET PER			YEAR OCTOBER	2001 TO	SEPTEMB:	ER 2002		
						MEAN '						
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	26	36	25	22	49	76	465	1510	827	169	69
2	25	24	34 33	26	22	47		587	1500	709	157	69
3 4	24 24	25 24	33 32	25 24	22 21	46 47		571 515	1470 1550	657 658	146 139	67 64
5	24	24	32	24	21	50	106	460	1660	575	133	63
6	23	24	31	25	21	48	138	399	1620	553	128	61
7	23	22	30	25 27 31 30				354	1290	591	123	60
8	23	23	31	31	20	46 44 43	152 146 139	319	1050	949	119	58
9	23	21	30	30			139	293	893	782	117	56
10	23	21	30	30	19	42		275	856	739	119	55
11	24	21	29 28 30 29	30	19	44		276	1070	803	116	53
12 13	23 24	21	28	30	19 19 19	41 39	187	325 477	1370 1640	762 698	110 107	52 51
14	23	52	29	29	19	38		616	1760	690	107	50
15	23	76	28	28	19	37	369	614	1740	595	105	48
16	22	85	e27 e28 29 28	28	19	37	283	594	1820	538	101	48
17	22	62	e28	27	19	35	233	654	1550	511	96	47
18	22	53	29	27	19	34	202	721	1360	475	92	46
19 20	21 21	49 48	28 27	27	20 20	34 33		726 1080	1140 1080	440 394	89 87	46 45
21 22	21 22	49 49	27	26 25	24 113 133 87	31 31		1340 1110	1220 1390	353 328	87 85	44 43
23	26	47	27 27 27	25 25 25	133	33		932	1460	316	83	42
24	23	44	27	25	87	39	200	866	1350	312	82	41
25	23	42	26	26	73	46	193	893	1310	297	84	40
26	23	40 38 37 37 35	25	24	65 58 53 	56	188 184 184 209 308	982	1450	292	83	39
27	23	38	26	24	58	53	184	1130	1500	261	80	38
28 29	24 22	37	26	23	53	51	184	1470 1710	1300 1230	232 219	78 75	38 37
30	22	37	25	22		52 57	308	1760	1040	202	74	36
31	28		25	23		68		1670		187	72	
TOTAL	720	1142	889	815	1006	1351	5776	24184	41179	15945	3244	1506
MEAN	23.23	38.07	28.68	26.29	35.93	43.58	192.5	780.1	1373	514.4	104.6	50.20
MAX	28	85	36	31 22	133	68	473	1760	1820	949	169	69
MIN	21	21	25	22 1620	19	31	69	275	856	187	72	36 2990
AC-FT CFSM	1430 0.16	2270 0.26	1760 0.20	0.18	2000 0.25	2680 0.30	11460 1.32	47970 5.34	81680 9.40		6430 0.72	0.34
IN.	0.18	0.20	0.23	0.18	0.25	0.34	1.47	6.16	10.49	4.06	0.72	0.34
							2, BY WATER					
							•					
MEAN MAX	27.76 32.3	31.08 38.1	22.39	18.95 26.3	22.09 35.9	32.34 43.6	122.0 193	573.8 780	834.9 1373	320.9 514	80.63	40.62
(WY)	2001	2002	2002	2002	2002	2002		2002	2002	2002	2002	2002
MIN	23.2	24.1	16.1	11.6	8.25	21.1	51.5	367	297	127	56.6	31.0
(WY)	2002	2001	2001	2001	2001	2001		2001	2001	2001	2001	2001
SUMMAR	Y STATIST	ICS	FOR 2	001 CALEN	DAR YEAR		FOR 2002 WA	TER YEAR		WATER YEAR	S 2001 -	2002
ANNUAL	TOTAL			32484.0			97757					
ANNUAL				89.00			267.8			177.7		
	C ANNUAL N									268		2002
итсиве	ANNUAL ME DAILY ME	ZANT		945	May 25		1820	Tun 16		87.6 1820	Jun 16	2001
LOWEST	DATLY MEZ	AN		7 2	Feb 20		19	Jun 16 Feb 9		7 2	Feb 20	
ANNUAL	SEVEN-DAY	Y MINIMUM		7.4	Feb 16		19 19	Feb 9		7.4	Feb 16	
ANNUAL	RUNOFF (A	AN Y MINIMUM AC-FT)		64430		19 Feb 9 193900 1.83				7.2 Feb 20 2001 7.4 Feb 16 2001 128700		
THAIACITE	ICOLIOI (SI DI'I)		0.01						1.22		
	RUNOFF (8.28 249			24.91 1010			16.54 552		
	CENT EXCER			249 30			1010 51			552 37		
	CENT EXCE			10			23			15		

e Estimated

12447382 EARLY WINTERS CREEK NEAR MAZAMA, WA

LOCATION.--Lat 48°35'55", long 120°26'31", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.26, T.10 N., R.19 E., Okanogan County, Hydrologic Unit 17020008, on left bank 80 ft downstream from Hwy 20 bridge crossing, 0.3 mi upstream from mouth, and 1.7 mi northwest of Mazama.

DRAINAGE AREA. -- 80.15 mi².

PERIOD OF RECORD.--October 2000 to current year. Miscellaneous discharge measurements 1975-89, 1990.

GAGE.--Water-stage recorder. Elevation of gage is 2,180 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair, except for estimated daily discharges, which are poor. No regulation. Several diversions upstream for irrigation.

AVERAGE DISCHARGE.--2 years (water years 2001-2002), 124 $\mathrm{ft^3/s}$, 89,520 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,420 ft^3/s May 28, 2002, gage height, 14.66 ft ; maximum gage height, 14.82 ft May 28, 2002, from outside high water mark; minimum daily discharge 9.0 ft^3/s Feb. 20-22, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,420 ${\rm ft}^3/{\rm s}$ May 28, gage height, 14.66 ft; maximum gage height, 14.82 ft May 28, from outside high water mark; minimum discharge 15 ${\rm ft}^3/{\rm s}$ Oct. 5-10, Nov. 7.

		DISCHARGE	E, CUBIC	FEET PER	SECOND, DAILY	WATER Y	EAR OCTOBER ALUES	R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	22	e29	21	e23	64	50	365	940	461	99	36
2	17	21	30	21	e23	61 59 57 56	50	477	910	414	84	36
3	17	21	29	21	23	59	51	492	925	391	79	35
4	16	20	e27	20	23 22 22	57	51 53	453	971	393	74	33
5	16	21	e27	20	22	56		477 492 453 412	1150	345	71	31
6	16	20	e26	21	22	54	71	361 315 280 251 234	1000	326	69	30
7	15	18	27	23	22	54	83	315	861	359	65	29
8	16	21	26	32	22	53	90	280	715	548	56	27
9	15	19	e24	32	22	50	95	251	601	453	53	26
10	16	19	e24	28	22 22 22 22 22 21	49	98	234	586	433	58	29
11	18	19	e24	27	e21	50	105	230	718	470	59	31
12	17	19	e23	28	e21	49	119	251	883	454	55	30
13	19	22	e24	27	e21	46	170	324	1060	436	53	29
14	18	40	e24	27	e21	44	333	415	1290	451	55	28
15	18	49	e23	e26	e21	43	335	427	1390	392	56	28
16	17	47	e24	e25	e21	42	293 259 232 215	422 463 511 522 648	1260	343	52	28
17	17	41	e23	e25	21	40	259	463	842	332	48	28
18	16	39	e24	e24	21	43	232	511	709	311	45	27
19	17	41	e22	e24	21	39	215	522	629	293	42	27
20	17	42	e22	e24	21	-11	200	010	624	257	41	27
21	17	41	e22 e21 e21	e24	24 114 112	38	208 212 208 201 196	773 722 625 587	713	220	41	26
22	19	41	e21	e23	114	36	212	722	776	202	40	26
23	23	38 35	e21	e22	112	36	208	625	763 765	200	39 40	25
24	21		e21	e22	e82	36	201	587		209		24
25	20	35	e21	e25	e78			500	734	206	45	24
26	19	33	e20	e24	e76	37	192	608 688 946 1440 1420	774	204 184 155	48	23
27 28	20	31	e22	e23	e /2	38	187	688	798	184	44 42	23 22
	20	31	e22	e22	68	39	186	946	704	155		22
29 30	18	e28	e21	e21		41	197	1440	691	142	41 40	22
31	25	33 31 31 e28 e29	21	e24 e24		43	245	1100	588	155 142 129 117	38	
TOTAL	557		735					17240	25270	0030	1672	832
MEAN	17.97			24 19	37 79	45 81	166 7	559 6	845 7	9830 317.1	53.94	27.73
MAX		49	30	32	114	64	335	1440	1390	548	99	36
MIN	15	49 18	20	20	21	36	50	230	586	117		
AC-FT	1100	1790	1460	1490	2100	2820	9920	34410	50320	19500	3320	1650
CFSM	0.22	0.38	0.30	0.30	0.47	0.57	2.08	6.98	10.5	3.95	0.67	0.35
IN.	0.26	18 1790 0.38 0.42	0.34	0.35	0.49	0.66	2.32	8.05	11.77	4.56	0.78	0.39
STATIST		ONTHLY MEAN										
										104 =	42 =2	04.55
MEAN MAX	20.66		9.06		24.44			435.6	534.6 846		43.50 53.9	24.60 27.7
	23.4	30.1 2002	23.7	24.2	37.8	45.8	167	560	2002	2002		27.7
(WY) MIN	18.0	2002	2002	12.4	2002	2002	49.0	312	2002	71.8	2002 33.1	21.5
(WY)	2002	19.4 2001	2001	2001	11.1 2001	2001	2001	2001		2001	2001	2001
		ICS										
ANNUAL				25171.9			65475			123.6		
ANNUAL				68.96			179.4					0000
	r annual Annual m									179		2002
HIGHEGO TOMESI	M VITAU 1	EΔN		831	Mass 24		1440	Mass 20		67.8 1440 9.0 9.3 89520	May 29	2001
LOWEST	DATIV ME	AM		9.0	Feb 20		15	Oct 7		0 0	Feb 20	
ANNITAT.	SEVEN-DA	Y MTNTMIM		9.3	Feb 17		16	0ct /		9.3	Feb 17	
ANNUAL	RUNOFF (AC-FT)		49930	100 17		129900	JUL 4		89520	100 17	2001
ANNUAL	RUNOFF (CFSM)		0.86			2.24	1		1.54		
ANNUAL	RUNOFF (INCHES)		11.68			30.37	7		20.93		
10 PERC	CENT EXCÈ	EDS		179			614			392		
50 PERG	CENT EXCE	EAN EAN AN Y MINIMUM AC-FT) CFSM) INCHES) EDS EDS		26			41			29		
90 PERG	CENT EXCE	EDS		12			20			14		

e Estimated

12447383 METHOW RIVER ABOVE GOAT CREEK NEAR MAZAMA, WA

LOCATION.--Lat 48°34'32", long 120°23'05", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.31, T.36 N., R.20 E., Okanogan County, Hydrologic Unit 17020008, on left bank, 0.6 mi upstream from Goat Creek, and 1.5 mi southeast of Mazama, and at mile 63.8.

DRAINAGE AREA. -- 373 mi2.

PERIOD OF RECORD. -- April 1991 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,040 ft above NGVD of 1929, from topographic map. Crest-stage gage since September 1992.

REMARKS.--Records fair except for estimated daily discharges which are poor. No known regulation. Several diversions for irrigation upstream from station. U. S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--11 years (water years 1992-2002), 512 ft³/s, 370,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,440 ft³/s June 17, 1999, gage height, 20.56 ft; minimum discharge, no flow for all or part of many days during most years.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 2,500 ft^3/s and minimum (*):

Date		Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May	21	0330	3,170	17.63	June 16			(a) *20.26
May	30	0000	5,240	18.99	June 23	0130	4,370	18.83
June	6	0730	4,490	19.06	June 27	0030	5,090	18.91
June	16	0200	*6,230	20.04				

(a) From crest-stage gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.00	0.00	0.00	e25	e97	1100	3500	1660	353	71
2	0.00	0.00	0.00	0.00	0.00	e26	e93	1410	3380	1420	316	69
3	0.00	0.00	0.00	0.00	0.00	e26	e89	1440	3340	1290	292	65
4	0.00	0.00	0.00	0.00	0.00	e27	e105	1300	3470	1310	264	59
5	0.00	0.00	0.00	0.00	0.00	e27	169	1140	3870	1160	246	55
6	0.00	0.00	0.00	0.00	0.00	e26	221	1010	4040	1060	233	51
7	0.00	0.00	0.00	0.00	0.00	e25	286	921	3090	1120	215	47
8	0.00	0.00	0.00	0.00	0.00	e25	311	882	2390	1840	193	42
9 10	0.00	0.00	0.00	0.00	0.00	e28 e30	323 329	763 704	1890	1590 1470	181 188	37 35
10	0.00	0.00	0.00	0.00	0.00	630	323	704	1770	1470	100	35
11 12	0.00	0.00	0.00	0.00	0.00	e33 e33	355 377	677 800	2220 3050	1640 1650	191 177	34 30
13	0.00	0.00	0.00	0.00	0.00	e33	528	1040	3810	1510	167	27
14	0.00	0.00	0.00	0.00	0.00	e32	953	1270	4750	1470	166	25
15	0.00	0.00	0.00	0.00	0.00	e32	920	1320	5350	1300	165	22
16	0.00	0.00	0.00	0.00	0.00	e32	812	1280	5310	1120	153	21
17	0.00	0.00	0.00	0.00	0.00	e31	769	1430	3930	1060	142	19
18	0.00	0.00	0.00	0.00	0.00	e31	678	1640	3290	994	128	18
19	0.00	0.00	0.00	0.00	0.00	e30	629	1650	2560	932	117	17
20	0.00	0.00	0.00	0.00	0.00	e30	594	2300	2360	845	108	15
21	0.00	0.00	0.00	0.00	0.00	e30	621	2970	2610	754	105	14
22	0.00	0.00	0.00	0.00	e10	e29	644	2530	3530	711	100	13
23	0.00	0.00	0.00	0.00	e20	e40	641	2100	4090	682	94	12
24	0.00	0.00	0.00	0.00	e25	e49	606	1890	3490	675	92	10
25	0.00	0.00	0.00	0.00	e23	e60	591	1930	3360	652	96	8.8
26	0.00	0.00	0.00	0.00	e23	e70	568	2130	4090	642	110	8.2
27	0.00	0.00	0.00	0.00	e24	e69	534	2540	3950	596	102	7.0
28	0.00	0.00	0.00	0.00	e25	e68	519	3250	3070	533	94	6.0
29	0.00	0.00	0.00	0.00		e68 e70	540 719	4400 4580	2730	494 451	88	4.9 4.9
30 31	0.00	0.00	0.00	0.00		e70 e83	719	4580 4120	2200	413	82 76	4.9
TOTAL	0.00	0.00	0.00	0.00	150.00	1218	14621	56517	100490	33044	5034	847.8
MEAN	0.000	0.000	0.000	0.000	5.357	39.29	487.4	1823	3350	1066	162.4	28.26
MAX	0.00	0.00	0.00	0.00	25	83	953	4580	5350	1840	353	71
MIN AC-FT	0.00	0.00	0.00	0.00	0.00 298	25 2420	89 29000	677 112100	1770 199300	413 65540	76 9980	4.9 1680
AC-FI	0.00	0.00	0.00	0.00	298	2420	29000	112100	199300	65540	9980	1680
STATIST	rics of M	ONTHLY ME	AN DATA F	OR WATER	YEARS 1991	- 2002,	BY WATER	YEAR (WY	7)			
MEAN	27.90	97.33	71.93	22.42	14.51	102.4	578.9	2028	2191	956.1	200.6	39.89
MAX	214	452	523	124	93.3	405	1080	3297	3907	2527	610	102
(WY)	1998	2000	1996	1996	1996	1992	1996	1998	1999	1999	1999	1999
MIN (WY)	0.000 1995	0.000 1993	0.000 1993	0.000 1992	0.000 1993	0.000 1993	10.0 2001	937 2001	642 2001	191 2001	29.0 2001	0.65 1994
SUMMARY	STATIST	ICS	FOR	2001 CAL	ENDAR YEAR	I	FOR 2002 W	ATER YEAR	2	WATER YEA	RS 1991 -	2002
ANNUAL	TOTAL			55479.2			211921.8	0				
ANNUAL				152.0)		580.6			511.7		
	r annual									798		1999
	ANNUAL M									153		2001
HIGHEST	DAILY M	EAN		2530	May 24		5350	Jun 15		8460 Jun 16 1999 0.00 Dec 15 1991		
LOWEST	DAILY ME	AN		0.0						0.0	U Dec 15	1991
ANNUAL	SEVEN-DA	X WINTWOM		110000	00 Jan 1					0.0 370700	0 Dec 15	1991
ANNUAL 10 DEG	ייטעים ייואיםי	PDC		549		420300 2160				1700		
10 PERC	LEML EXCE	EDS		0.0	00		30			62		
90 PER	HIGHEST DAILY MEAN LOWEST DAILY MEAN ANNUAL SEVEN-DAY MINIMUM ANNUAL RUNOFF (AC-FT) 10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS			0.0			0.0	0		0.0	0	
20 L 1110				0.1			5.0	-		5.0	-	

e Estimated

12447387 WOLF CREEK BELOW DIVERSION NEAR WINTHROP, WA

LOCATION.--Lat 48°29'00", long 120°18'24", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.2 T.34 N., R.20 E., Okanogan County, Hydrologic Unit 17020008, on left bank approximately 400 ft downstream from Wolf Creek diversion, 6.0 mi northwest of Winthrop, and at mi 4.2.

DRAINAGE AREA. -- 32.5 mi2.

PERIOD OF RECORD.--Oct. 1, 2000 to current year. Miscellaneous discharge measurements made at location 250 ft upstream 1972-73 and 1976.

GAGE.--Water-stage recorder. Elevation of gage is 2,660 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges and those discharges above 100 ft³/s which are fair. No known regulation. Wolf Creek Reclamation District irrigation diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--2 years (water years 2001-2002), 26.4 ft³/s, 19,140 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $454 \text{ ft}^3/\text{s}$ May 29, 2002, gage height 8.15 ft; maximum gage height, 8.45 ft May 29, 2002, from outside high water mark; minimum discharge, $.80 \text{ ft}^3/\text{s}$ Nov. 11, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, $454 \text{ ft}^3/\text{s}$ May 29, gage height, 8.15 ft; maximum gage height, 8.45 ft from outside high-water mark; minimum discharge, $1.3 \text{ ft}^3/\text{s}$ Nov. 7.

		DISCHAF	RGE, CUBI	C FEET PER			YEAR OCTOBER VALUES	2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	3.5 3.3 3.2 3.1 3.1	4.6 4.5 4.5 4.3 4.8	7.0 6.6 6.1 5.2 6.0	5.1 5.1 5.0 e4.8 5.0	5.5 5.3 5.2 5.1	e30 27 19 14 16	21 21 21 24 28	142 169 169 139 112	229 223 214 226 263	74 63 56 55 49	18 17 16 15	6.0 5.9 6.1 5.9 5.8
6 7 8 9 10	3.1 3.2 3.4 3.3 3.5		65.0	11 9.1 8.2	5.2 4.9 4.9 4.6 4.7	16 16 15 14 14	31 32 30 30 29	95 81 70 61 57	236 179 140 113 108	45 45 69 60 52	14 14 12 11	6.1 6.5 5.9 5.0 5.1
11 12 13 14 15	3.9 3.8 4.2 4.0 3.9	4.4 4.3 5.3 10	5.9 5.7 5.9 e5.9 5.9	7.9 7.9 7.8 e6.8 e5.6	4.6 e4.2 e4.5 4.8 4.8	14 13 12 12 11	31 36 63 125 99	60 75 109 128 125	126 161 200 232 242	56 57 51 52 44	10 10 9.9 9.7 9.6	5.2 5.1 4.8 4.6 4.5
16 17 18 19 20	3.8 3.7 3.8 3.7		e5.6	e6.4 e6.2 e6.2 e6.8 e6.8	4.8 4.8 4.8 5.0 4.8	11 11 e10 10 9.9	51 46	119 133 143 143 193	246 180 147 114 102	37 35 32 30 26	9.1 8.7 8.4 7.9 7.7	4.4 4.5 4.5 4.5 4.4
21 22 23 24 25	3.8 4.4 5.2 4.2 4.5	7.9 8.0 6.9 6.3 6.4	5.9 5.4 5.3 5.2 5.1		5.3 90 185 64 e30	9.6 9.6 9.9 11 12	60 61	232 196 167 157 169	112 134 153 131 122	22 19 17 16 16	7.5 7.3 6.9 7.0 8.5	4.3 4.3 4.3 4.3
26 27 28 29 30 31	4.3 4.5 4.2 4.0 4.4 5.5	e4.8 e4.5 e7.0 e6.4 e6.0	e4.8 e5.0 5.5 5.3 5.1	6.1 e5.6 e5.2 e4.7 e5.0 e6.0	e32 e34 e36 	15 16 16 16 17 19		179 197 301 338 313 267	133 147 130 109 94	15 14 11 13 18 20	8.3 7.4 7.0 6.7 6.4 6.6	4.3 4.3 4.2 4.0
TOTAL MEAN MAX MIN AC-FT CFSM IN.	120.3 3.881 5.5 3.1 239 0.12 0.14	183.7	178.9	6.365	573.9 20.50 185 4.2 1140 0.63 0.66	446.0 14.39 30 9.6 885 0.44 0.51	49.47 125 21 2940 1.52	4839 156.1 338 57 9600 4.80 5.54	4946 164.9 263 94 9810 5.07 5.66	1169 37.71 74 11 2320 1.16 1.34	312.6 10.08 18 6.4 620 0.31 0.36	147.4 4.913 6.5 4.0 292 0.15 0.17
STATIST	rics of M	ONTHLY MEA	AN DATA F	OR WATER Y	EARS 2001	- 200	2, BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	4.521 5.16 2001 3.88 2002	5.070 6.12 2002 4.02 2001	4.629 5.77 2002 3.49 2001	4.895 6.36 2002 3.43 2001	11.96 20.5 2002 3.41 2001	10.80 14.4 2002 7.22 2001	49.5 2002 13.0	110.7 156 2002 65.4 2001	97.10 165 2002 29.3 2001	24.01 37.7 2002 10.3 2001	7.619 10.1 2002 5.15 2001	4.053 4.91 2002 3.19 2001
SUMMARY	Y STATIST	ICS	FOR	2001 CALEN	DAR YEAR		FOR 2002 WA	TER YEAR		WATER YEAR	RS 2001 -	2002
LOWEST HIGHEST LOWEST ANNUAL ANNUAL ANNUAL ANNUAL 10 PERC	MEAN FANNUAL M ANNUAL M FDAILY M DAILY ME	EAN EAN AN Y MINIMUM AC-FT) CFSM) INCHES) EDS EDS		4780.5 13.10 152 2.7 2.8 9480 0.40 5.47 34 5.9 3.3			14598.1 39.99 338 3.0 3.2 28960 1.23 16.71 136 8.5 4.3	May 29 Nov 7 Oct 2		26.4: 40.0 12.8 338 2.1 2.8 19140 0.8: 11.00 75 6.4 3.4	May 29 Nov 11 Sep 18	2002 2001 2002 2000 2001

e Estimated

12447390 ANDREWS CREEK NEAR MAZAMA, WA (Hydrologic benchmark station)

LOCATION.--Lat $48^{\circ}49^{\circ}23^{\circ}$, long $120^{\circ}08^{\circ}41^{\circ}$, in NE $\frac{1}{4}$ sec.1, T.38 N., R.21 E., Okanogan County, Hydrologic Unit 17020008, Okanogan National Forest, on left bank 50 ft upstream from Blizzard Creek, 3.5 mi upstream from mouth, and 20 mi northeast of Mazama.

DRAINAGE AREA.--22.1 mi².

May 30

PERIOD OF RECORD. -- June 1968 to current year.

Minimum discharge, 1.2 ft³/s Nov. 7.

REVISED RECORDS.--WDR WA-76-2: 1975. WDR WA-77-2: 1976.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 4,300 ft above NGVD of 1929, from topographic map.

REMARKS.--Records poor. No regulation or diversion. Chemical analyses water years 1972-96.

 ${\tt AVERAGE\ DISCHARGE.--34\ years\ (water\ years\ 1969-2002),\ 31.3\ ft^3/s,\ 19.26\ in/yr,\ 22,700\ acre-ft/yr.}$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,120 $\mathrm{ft^3/s}$ June 10, 1972, gage height, 4.00 ft, from rating curve extended above 440 $\mathrm{ft^3/s}$; minimum discharge, 1.2 $\mathrm{ft^3/s}$ Nov. 4, Dec. 30, 1968, Nov. 20, 1970, Apr. 7, 1975, Nov. 7, 2001.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 $\mathrm{ft^3/s}$ and maximum (*): Discharge Gage height (ft) Date Time Discharge (ft) Gage height (ft)

-- (a)*403 (a)*2.99 June 14 1930 360 2.88

(a) From cre	a) From crest-stage gage.											
	DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES											
DAY	OCT	NOV		JAN	FEB	MAR	APR		JUN	JUL	AUG	SEP
1 2 3 4 5	3.2 3.1 2.9 2.9 2.9		4.1 4.2 4.1 4.1 4.2				3.6 3.5 3.6 3.7 4.0			73 66 60 54	e14 e13 e12 e12 e11	5.9 5.7 5.8 5.6 5.5
6 7 8 9 10	2.9 2.9 2.9 2.9 2.8	2.9 2.3 3.4 2.8 2.9	4.1 4.1 4.0 4.0 3.9	3.5 3.8 4.1 3.6 3.5	3.3 3.4 3.3 3.3	3.5 3.5 3.3 3.3	4.5 4.6 4.5 4.6 4.7	32 30 27 25 24	e215 183 153 134 146	49 45 61 48 43	e11 e13 e12 11	5.8 6.5 7.0 6.1 5.7
13 14 15							5.0 5.7 7.3 13			e35 e33 e30 e28	10 10 9.7 9.3 8.9	5.5 5.2 5.0 4.8 4.7
										e26 e24 e23 e22 e21		
										e20 e19 e18 e16 e19		
26 27 28 29 30 31	3.1 3.3 2.8 3.2 3.5 3.9	4.2 4.1 3.4 4.2 4.1	3.4 3.4 3.4 3.4 3.5	3.5 3.4 3.3 3.3 3.3	3.6 3.6 3.6 	3.4 3.4 3.3 3.5 3.6	12 12 12 14 19	e160 e200 e250 e300 e320 e260	121 115 109 119 93	e18 e17 e17 e16 e16 e15	7.5 7.0 6.6 6.4 6.2 6.0	3.8 4.0 3.8 3.7 3.8
TOTAL MEAN MAX MIN AC-FT CFSM IN.	94.7 3.055 3.9 2.8 188 0.14 0.16	140.4 4.680 13 2.3 278 0.21 0.24	116.7 3.765 4.2 3.4 231 0.17 0.20	108.4 3.497 4.1 3.3 215 0.16 0.18	95.0 3.393 4.4 3.2 188 0.15 0.16	105.0 3.387 3.6 3.2 208 0.15 0.18	263.7 8.790 19 3.5 523 0.40 0.44	3131 101.0 320 24 6210 4.57 5.27	5259 175.3 293 93 10430 7.93 8.85	1053 33.97 81 15 2090 1.54 1.77	286.8 9.252 14 6.0 569 0.42 0.48	146.5 4.883 7.0 3.7 291 0.22 0.25
STATIST							BY WATER					
MEAN MAX (WY) MIN (WY)	6.605 19.1 1979 2.58 1971	6.474 22.1 2000 2.72 1971	4.973 13.4 2000 2.17 1971	4.097 10.3 1984 1.69 1971	3.617 6.53 1982 1.71 2001	3.812 6.85 1992 1.81 2001	14.98 49.9 1994 2.95 1975	110.2 205 1998 36.4 1984	152.2 419 1974 34.9 2001	46.12 125 1999 13.6 2001	13.76 34.7 1976 5.36 1973	8.374 40.8 1978 3.28 1970
SUMMARY	Y STATIST	ICS	FOR :	2001 CALEN	IDAR YEAR	F	FOR 2002 W	ATER YEAR		WATER YEA	RS 1968 -	2002
LOWEST HIGHEST LOWEST ANNUAL ANNUAL ANNUAL ANNUAL 10 PERC 50 PERC	MEAN F ANNUAL	EAN EAN AN Y MINIMUM AC-FT) CFSM) INCHES) EDS EDS		3945.7 10.81 150 1.5 1.6 7830 0.44 6.66 32 3.6 1.8	_		320 2.3 2.9 21420 1.34 18.18 123 4.2 3.2	Ð		31.3 59.1 10.7 874 1.2 1.4 22700 1.4 19.2 98 6.4 2.9		1972 2001 5 1974 0 1968 1 1975

e Estimated

12447600 CHEWUCH RIVER ABOVE CUB CREEK NEAR WINTHROP, WA

LOCATION.--Lat $48^{\circ}33^{\circ}53^{\circ}$, long $120^{\circ}10^{\circ}35^{\circ}$, in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.2 T.35 N., R.21 E., Okanogan County, Hydrologic Unit 17020008, on left bank at Frank MacPherson bridge at junction of East and West Chewack Rd., 0.9 mi below Boulder Creek, at mile 7.6 and 7.2 mi northeast of Winthrop.

DRAINAGE AREA. -- 466 mi².

PERIOD OF RECORD.--October 2000 to current year. Miscellaneous discharge measurements 1978-84.

REVISED RECORD.--Miscellaneous discharge measurements 1978-84 incorrectly published as at station 12447500 Chewack River below Boulder Creek near Winthrop, WA.

GAGE.--Water-stage recorder. Elevation of gage is 1,980 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good, except for estimated daily discharges, which are fair. Several diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--2 years (water years 2001-2002) 187 ft^3/s , 135,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 2,930 ft^3/s May 30, 2002, gage height 12.86 ft; maximum gage height 13.17 ft, May 30, 2002, from outside high water mark; minimum discharge, 20 ft^3/s Sept. 18, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,930 ft³/s May 30, gage height 12.86 ft; maximum gage height 13.17 ft, May 30, from outside high-water mark; minimum discharge, 21 ft³/s Feb. 12, but may have been less during periods of ice effect or missing record.

2	DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	54	e58	49	e49	49	70	411	2100	651	109	48
2	46	51	58	50	e49	49	68	527	1980	571	102	46
3	45	49	57	48	e48	48	68	570	1950	512	99	45
4 5	43 42	49 48	54	47 48	47 45	48 48	72 78	536	2010	466 429	95 92	44
			e49					494	2160			44
6 7	42 42	47	e52	49 51	45 45	47 47	88 97	444 434	2140 1750	394 367	91 97	45 45
8	42	46 44	e49 e52	51 57	45 45	47	100	434 383	1520	367 464	97	45 50
9	42	45	e46	56	45	e43	102	355	1390	453	87	52
10	43	45	e48	53	44	48	106	335	1380	376	82	54
11	46	45	e49	52	44	50	114	330	1420	345	78	53
12 13	45	45	e50	52	e41	49	126 150	360	1590	323 302	74	50 47
13 14	45 45	48 64	e52 53	50 e50	e43 e48	47 47	233	467 611	1770 1950	302 290	71 67	4 / 45
15	46	73	e48	e44	e47	46	257	631	2020	270	64	43
16	45	93	e50	e48	e44	48	246	599	1980	252	66	42
17	45	91	e54	e47	44	46	228	678	1690	237	60	42
18	44	72	e50	e47	43	45	210	791	1490	222	59	42
19	45	68	e48	e48	45	47	208	818	1300	208	59	42
20	45	73	e45	e50	45	47	211	1450	1160	196	61	41
21	44	74	e48	e48	46	46	219	1830	1100	186	64	41
22	46	74	e52	e45	48	46	240	1570	1100	174	62	41
23 24	49 47	68 62	e52 e51	e45 e47	54 50	48 51	242 234	1350 1250	1080 1010	163 156	59 57	41 40
25	49	61	e49	e50	e39	55	235	1330	947	146	58	40
26	48	59	e47	e49	e44	57	235	1470	900	156	74	39
27	48	56	e46	e46	e56	57	233	1630	868	147	65	38
28	47	58	e53	e44	e56	56	229	2130	831	136	60	38
29	46	57	e53	e43		58	249	2520	876	129	57	38
30 31	49 54	e55	50 50	e46 e50		59 65	303	2570 2380	750	122 116	53 51	37
TOTAL	1412	1774	1573	1509	1299	1543	5251	31254	44212	8959	2268	1313
MEAN	45.55	59.13	50.74	48.68	46.39	49.77	175.0	1008	1474	289.0	73.16	43.77
MAX	54	93	58	57	56	65	303	2570	2160	651	109	54
MIN	42	44	45	43	39	43	68	330	750	116	51	37
AC-FT	2800	3520	3120	2990	2580	3060	10420	61990	87690	17770	4500	2600
CFSM TN.	0.10 0.11	0.13 0.14	0.11 0.13	0.10 0.12	0.10	0.11	0.38	2.16	3.16	0.62 0.72	0.16 0.18	0.09
									3.55	0.72	0.10	0.10
STATIST	rics of M	ONTHLY MEA	AN DATA F	OR WATER	YEARS 2001	- 2002,	, BY WATER	YEAR (WY)				
MEAN	53.24	58.03	49.39	47.48	45.79	48.13	112.3	668.0	868.2	202.0	58.19	35.08
MAX	60.9	59.1	50.7	48.7	46.4	49.8	175	1008	1474	289	73.2	43.8
(WY) MIN	2001 45.5	2002 56.9	2002 48.0	2002	2002 45.2	2002 46.5	2002 49.6	2002 328	2002	2002 115	2002 43.2	2002 26.4
(WY)	2002	2001	2001	46.3 2001	2001	2001	2001	2001	263 2001	2001	2001	2001
SUMMARY	Y STATIST	ICS	FOR	2001 CALE	NDAR YEAR	F	FOR 2002 W.	ATER YEAR		WATER YEAR	S 2001 -	- 2002
ANNUAL	тотат.			34129			102367					
ANNUAL				93.5	0		280.5			187.4		
	r annual	MEAN								280		2002
	ANNUAL M									94.4		2001
	r DAILY M			863	May 25		2570	May 30		2570	May 30	
	DAILY ME			21	Sep 18		37	Sep 30		21	Sep 18	
	RUNOFF (Y MINIMUM		22 67690	Sep 15		39 203000	Sep 24		22 135800	Sep 1	2001
	RUNOFF (0.2	0		0.6	0		0.40)	
	RUNOFF (2.7			8.1			5.46		
	CENT EXCE			235			972			394		
	CENT EXCE			48			54			52		
90 PERC	CENT EXCE	EDS		31			44			41		

e Estimated

12448000 CHEWUCH RIVER AT WINTHROP, WA

LOCATION.--Lat 48°28'38", long 120°11'07", SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.2, T.34 N., R.21 E., Okanogan County, Hydrologic Unit 17020008, on right bank, 80 ft downstream from State Road 20 bridge crossing, at northwest end of Winthrop, WA, and at mile 0.18.

DRAINAGE AREA.--525 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1912 to 1913, seasonal records only. October 1991 to current year. Prior to October 1991 published as "Chewack River at Winthrop, WA".

GAGE.--Water-stage recorder. Datum of gage is 1,736.26 ft above NGVD of 1929 (Okanogan County Public Works benchmark). Prior to November 1991, nonrecording gage 10 ft upstream from bridge, and at datum 8.74 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are fair. No known regulation. Several diversions for irrigation upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--11 years (water years 1992-2002), 392 ft^3/s , 283,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,480 ft³/s June 16, 1999, gage height, 8.92 ft; maximum gage height, 9.79 ft June 16, 1999, from outside high-water mark; minimum discharge, 20 ft³/s Sept. 18 and 19, 2001, gage height, 2.24 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	(ft ³ /s)	(ft)	Date	Time	(ft ³ /s)	(ft)
May 21	0730	2,110	6.01	June 6	0530	2,690	6.51
May 30	0500	*3,010	6.77	June 16	0430	2,680	6.50
May 30	0500		(a) *7.02				

Minimum discharge, 30 ${\rm ft}^3/{\rm s}$ Feb. 12, but may have been less during periods of ice effect, gage height 2.48 ft. (a) From crest-stage gage.

		DISCRAI	RGE, CUBI	C FEEL FE	DAILY	MEAN V		R 2001 10	SEPIEME	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	63	e67	55	e51	53	79	448	2410	748	112	51
2	58	59	66	57	51	54	77	575	2280	660	106	50
3	54	56	64	54	50	52	78	626	2230	583	103	48
4	51	55	62	52	48	52	81	597	2320	532	100	47
5	50	55	e55	53	48	52	87	552	2470	493	99	47
6	49	54	e59	55	47	51	95	503	2470	450	97	47
7 8	49	52	e56	58	48	51	105	498	2040	418	101	48
9	48	49	e58	62	48	50	111	444	1760	510	100	51
	48	50	e53	64	47	48	115	403	1610	536	90	56
10	49	50	e54	60	46	53	118	380	1590	462	85	57
11 12	53 52	50 50	e55 e55	58 58	46 e44	54 54	128	372 397 496 635 671	1620 1810	413 388	81 76	57 54
13	51	52	56	56	e46	51	168	496	2040	358	70	51
14	51	68	60	e55	e50	50	265	635	2280	339	69	49
15	51	79	e53	e48	e49	50	128 141 168 265 304	671	2420	311	66	47
16	51	95	e57	e52	e46	52		637	2390	284	67	46
17	51	101	e60	e50	e48	48	261	706 828	2000	267	61	46
18	51	85	e56	e50	46	48	244	828	1770	249	60	46
19	50	76	e54	e51	47	50	235	853	1510	229	60	45
20	50	83	e50	e54	47	50	239	1480	1340	217	62	45
21	49	84	e54	e53	49	50	249	2010	1270	205	64	45
22	51	84	e57	e49	51	49	271	1720	1260	191	63	45
23	57	79	e54	e49	58	50	279	1500	1250	177	60	44
24	57	72	e56	e52	e54	55	267	1380	1170	166	57	44
25	58	69	e54	e55	e41	60	266	1460	1090	155	58	42
26	57	67	e53	e53	e46	62	264	1600	1020	160	74	43
27	56	63	e51	e50	59	63	260	1760	1000	155	68	42
28	55	68	e60	e48	59	63	255	2260	956	142	63	42
29	53	65	e60 60 57	e47		65	273	2690	996	142 133 125	59	41
30 31	55 61	e62	57 56	e50 e53		67 72	336	2760 2630	860	125	56 54	41
TOTAL	1632	1995	1762	1661	1370	1679	5932	33871	51232	10174	2343	1417
MEAN	52.65	66.50	56.84	53.58		54.16	197.7	1093	1708	328.2	75.58	47.23
MAX	61	101	67	64 47	59	72 48	336	2760	2470 860	748 118	112	57
MIN	48 3240	49 3960	50 3490	4 /	41 2720	3330		372 67180	101600	20180	54 4650	41 2810
AC-FT									101600	20180	4650	2810
STATIST	TICS OF M	ONTHLY MEA	AN DATA F	OR WATER	YEARS 1992	- 2002	, BY WATER	YEAR (WY))			
MEAN	92.36	98.33	82.08	70.36	72.17	103.9	387.9	1454	1568	530.3	157.0	72.98
MAX	176	210	148			169	761	2671 1998	3348	1414	349	130
(WY)	1998	2000	2000	2000	2000	1996	1996	1998	1999	1999	1999	1999
MIN	52.6	63.4	44.1 1993	40.2	48.9		59.9	348	278	115	40.2	26.2
(WY)	2002	1995	1993	1993	2002	1993	2001	2001	2001	2001	2001	2001
SUMMAR	Y STATIST	ICS	FOR	2001 CALE	NDAR YEAR	I	FOR 2002 W	ATER YEAR		WATER YEA	ARS 1992 -	2002
ANNUAL				36600			115068					
ANNUAL				100.3			315.3			391.7	7	
	r annual									630		1999
	ANNUAL M									101		2001
	r DAILY M			930	May 25		2760	May 30		6010	Jun 17	1999
	DAILY ME			20	May 25 Sep 18 Sep 13		41	May 30 Feb 25 Sep 24		6010 20 22	Sep 13	2001
ΑΙΝΙΝΟΑΙ	DIMORE /	Y MINIMUM AC-FT)		72600	sep 13		42 228200	Sep 24		283700	2eh 13	2001
10 DED	CENT EXCE	EDS		247			1120			1080		
	CENT EXCE			55			60			103		
	CENT EXCE			30			48			50		
		-										

e Estimated

12448000 CHEWUCH RIVER AT WINTHROP, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.-WATER TEMPERATURE: April 16, 2002 to September 30, 2002 (discontinued).

 ${\tt INSTRUMENTATION.--Electronic\ thermister/data\ logger\ with\ fifteen-minute\ punch\ interval.}$

REMARKS.--Records excellent.

EXTREMES FOR PERIOD.-- WATER TEMPERATURE: Maximum 20.8°C July 24, 25; minimum, 3.4°C April 24.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	1	FEBRUARY			MARCH			APRIL			MAY	
1										11.3	6.7	9.2
2										9.7	6.5	8.1
3										8.2	4.7	6.6
4										7.5	4.0	5.9
5										8.5	4.7	6.5
6										7.5	3.6	5.5
7										7.3	3.7	5.3
8										7.5	3.6	5.7
9										8.2	4.2	6.3
10										10.4	4.8	7.5
11										11.5	5.8	8.6
12										11.6	7.2	9.4
13										10.2	7.6	8.9
14										10.2	6.4	8.3
15										9.5	5.3	7.5
16										10.6	5.4	8.0
17							8.7	4.8	6.7	11.3	7.5	9.4
18							8.5	4.2	6.3	9.7	6.8	7.9
19							10.2	4.7	7.2	9.6	6.5	7.9
20							9.9	6.1	7.9	9.1	6.7	7.8
21							11.2	6.2	8.6	6.8	5.6	6.2
22							9.9	5.9	7.8	7.0	5.4	6.1
23							8.8	5.4	7.0	9.2	5.6	7.0
24							8.4	3.4	6.0	9.8	5.0	7.3
25							10.1	5.9	7.8	8.8	6.8	7.7
26							9.8	5.9	7.5	8.8	6.1	7.5
27							9.5	6.4	7.6	10.4	6.2	8.2
28							10.9	5.3	7.9	9.6	7.2	8.3
29							11.6	6.2	8.9	9.2	6.4	7.7
30							12.6	7.8	10.1	9.3	5.6	7.3
31										9.2	5.9	7.6
MONTH										11.6	3.6	7.5

12448000 CHEWUCH RIVER AT WINTHROP, WA--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBE	IR.
1 2 3 4 5	9.6 8.5 9.6 10.1 10.6	6.2 6.2 6.1 6.7 7.2	7.8 7.4 7.8 8.3 8.7	13.8 13.6 15.4 13.3 13.6	9.2 9.0 10.6 10.4 8.7	11.4 11.4 12.9 12.0 11.2	17.9 17.4 15.2 15.7 16.0	11.8 12.1 11.2 11.5 10.6	14.9 14.8 13.5 13.6 13.3	17.7 16.5 16.5 15.4 14.1	14.7 12.7 12.9 11.0 10.4	16.4 14.8 14.6 13.3 12.5
6 7 8 9 10	8.8 8.5 6.2 9.5 10.2	5.9 4.8 4.2 5.6 7.0	7.4 6.4 5.4 7.3 8.5	13.5 14.7 14.9 15.8 17.4	9.8 10.6 12.2 10.4 11.8	11.7 12.6 13.4 13.1 14.6	14.4 16.9 17.9 19.4 19.4	10.7 10.1 11.3 12.9 13.8	12.7 13.3 14.6 16.1 16.6	14.4 13.8 13.8 15.4 16.1	9.5 10.2 9.3 10.2 11.0	12.1 12.2 11.7 12.8 13.7
11 12 13 14 15	11.6 10.9 11.9 12.2 12.7	7.3 7.6 7.5 8.1 8.4	9.3 9.3 9.6 10.0 10.4	19.0 19.0 17.0 19.4 18.9	13.5 13.9 14.3 14.3	16.2 16.6 15.6 16.6 16.3	18.9 19.4 20.2 20.2 19.8	13.3 12.9 13.9 14.4 13.9	16.1 16.3 17.2 17.5	16.6 16.8 16.5 15.5	11.5 11.8 12.1 11.3 12.2	14.2 14.4 14.4 13.7 13.9
16 17 18 19 20	10.6 10.6 9.6 11.8 12.7	8.2 7.8 8.1 7.0 7.8	9.4 9.2 8.8 9.1 10.1	19.2 19.7 19.8 19.7	13.9 14.6 14.7 14.6 13.8	16.6 17.0 17.3 17.0	18.4 16.8 18.1 17.4 18.1	13.3 11.9 12.1 12.4 12.4	16.1 14.8 15.2 15.1 15.2	14.7 14.7 14.6 14.7 12.7	11.8 11.8 10.4 10.4 9.5	13.3 13.3 12.6 12.5 11.3
21 22 23 24 25	13.6 14.1 12.9 13.2 14.7	8.5 9.6 9.9 9.5 9.8	11.0 11.9 11.4 11.4	19.7 20.3 19.7 20.8 20.8	14.3 14.3 14.7 15.2 15.5	16.9 17.2 17.2 17.9 18.1	17.7 18.1 19.5 19.2 17.7	12.7 12.2 13.8 13.6 14.7	15.3 15.2 16.7 16.7	12.2 12.6 13.0 13.3 12.7	8.2 8.1 8.7 9.6 9.3	10.4 10.4 10.9 11.5 11.1
26 27 28 29 30 31	16.1 14.8 13.3 14.7 13.3	10.9 12.2 11.6 10.6 10.1	13.4 13.4 12.1 12.5 11.5	19.5 19.4 19.5 18.5 19.0 18.1	15.0 13.9 14.3 14.4 13.8 12.2	17.2 16.6 16.5 16.3 16.2 15.1	16.8 19.2 19.5 19.2 19.0	12.7 13.2 14.1 14.3 14.7	15.0 16.1 17.0 16.9 17.0 16.8	11.3 12.9 11.9 11.5 10.6	9.0 8.4 8.2 9.3 8.2	9.8 10.4 10.1 10.4 9.4
MONTH	16.1	4.2	9.7	20.8	8.7	15.3	20.2	10.1	15.6	17.7	8.1	12.4

12448500 METHOW RIVER AT WINTHROP, WA

LOCATION.--Lat 48°28'25", long 120°10'34", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.2, T.34 N., R.21 E., Okanogan County, Hydrologic Unit 17020008, on left bank at Winthrop, 0.3 mi downstream from Chewuch River, and at mile 49.8.

DRAINAGE AREA. -- 1,007 mi².

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--January to October 1912, August 1971 to June 1972 (destroyed by flood of May 31, 1972), November 1989 to current year. Published as "near Winthrop" January to October 1912.

GAGE.--Water-stage recorder. Datum of gage is 1,718.09 ft above NGVD of 1929. January to August 1912, nonrecording gage at site 0.6 mi downstream at different datum. August 1971 to June 1972, water-stage recorder at same site at different datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. No known regulation. Diversions for irrigation of about 1,170 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--12 years (water years 1991-2002), 1,197 ft^3/s , 867,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,400 ft³/s May 31, 1972, gage height, 20.90 ft, from outside high-water mark; minimum discharge, 115 ft³/s Nov. 28, 2000, gage height, 9.44 ft.

 $\hbox{\it EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft^3/s and maximum (*): } \\$

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 21	1200	5,890	14.66	June 16	0430		(a) *16.56
May 30	0600	9,010	16.07	June 23	0545	5,550	14.48
June 16	0430	*9,190	16.15				
Minimum di	scharge, 149	ft ³ /s Jan. 29	, but may have	been less	during periods	of ice effect	, gage height

nt 9.61 ft. (a) From crest-stage gage.

		DISCHARGE	, CUBIC	FEET PE			YEAR OCTOBER	R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	193	199	210	188	189	244	471	2020	7040	3060	698	260
2	195	194	205	192	189	247		2550	6680	2640	646	257
3	193	191	204	187	189	247		2690	6560	2390	610	253
4	190	191	196	184	186	250		2470	6840	2320	579	248
5	190	189	189	186	186	254		2230	7390	2120	546	244
6	191	188	198	191	187	250		1990	7510	1970	528	242
7	191	186	192	196	188	251		1820	5980	1970	518	240
8	190	183	196	205	187	250		1640	4800	2700	490	238
9	189	184	186	206	184	246		1510	4040	2610	455	235
10	192	181	189	198	184	256	707	1380	3820	2320	445	230
11	196	181	191	196	183	263	749	1360	4290	2440	442	228
12	193	182	191	197	176	264		1460	5390	2480	427	217
13	191	185	192	193	179	257		1840	6490	2250	408	208
14	191	215	195	192	187	255		2360	7750	2210	399	203
15	192	220	181	e170	182	257		2500	8290	2030	395	197
16	190	235	198	e160	182	262		2420	8400	1780	383	193
17	188	238	206	e170	186	256		2640	6790	1680	367	189
18	188		188	180	182	254		2970	5620	1580	353	188
19	186		180	193	185	259		2980	4600	1490	338	191
20	185	224	e170	195	185	257	1140	4120	4170	1370	326	190
21	186		e175	193	191	253		5640	4310	1240	324	190
22	189		e185	173	195	252		4950	4820	1160	317	189
23	195		194	173	243	255		4140		1100	304	189
24	193	213	194	194	242	268	1230	3760	4830	1070	290	e192
25	196	210	e185	201	210	291	1200	3820	4490	1040	294	e191
26	193	206	e180	191	224	304	1170	4130	4710	1030	330	e191
27	191	200	e170	e180	238	314	1130	4680	5150	981	315	e191
28	191	212	195	e170	252	321	1100	6340	4590	896	298	e191
29	187	205	192	e160		344	1170	8140	4220	839	288	e190
30	191	198	188	189		361	1450	8430	3720	799	277	e188
31	199		188	193		419		7880		755	271	
TOTAL	5925	6124	5903	5796	5491	8461	30763	106860	168490	54320	12661	6353
MEAN	191	204	190	187	196	273	1025	3447	5616	1752	408	212
MAX	199	238	210	206	252	419	1840	8430	8400	3060	698	260
MIN	185	181	170	160	176	244	466	1360	3720	755	271	188
AC-FT	11750	12150 1	1710	11500	10890	16780	61020	212000	334200	107700	25110	12600
STATIS	TICS OF MC	NTHLY MEAN I	DATA FO	R WATER	YEARS 1912	2 - 200	2, BY WATER	YEAR (WY	")			
MEAN	280	409	334	255	251	423		4242	4568	1661	541	275
MAX	575	915	957	459	452	878		7125	10110	3832	1208	418
(WY)	1998	1991	1996	1996	1996	1992		1998	1972	1999	1999	1999
MIN	181	188	189	181	173	177		1629	1257	501	204	150
(WY)	1995	1995	1995	1995	1912	1912	2001	2001	2001	2001	2001	1994
SUMMAR	Y STATISTI	CS	FOR 2	001 CALE	NDAR YEAR		FOR 2002 W	ATER YEAR	2	WATER YEA	ARS 1912 -	2002
ANNUAL	TOTAL			154851			417147					
ANNUAL	MEAN			424			1143			1197		
HIGHES'	T ANNUAL M	IEAN								1729		1999
LOWEST	ANNUAL ME	AN								430		2001
HIGHES'	T DAILY ME	AN		3950	May 25		8430	May 30)	21400	Jun 9	
LOWEST	DAILY MEA	N.		138 142	Sep 18		160	Jan 16	5	134 136	Sep 21	1994
ANNUAL	SEVEN-DAY	MINIMUM		142 307100	Sep 13		180	Jan 13	}		Sep 24	1994
ANNUAL	RUNOFF (A	C-FT)		307100	-		180 827400 4120			867000	-	
10 PER	CENT EXCEE	DS		1100			4120			3320		
50 PER	CENT EXCEE	DS		191			250			354		
90 PER	CENT EXCEE	MEAN AN AN M M M MINIMUM AC-FT) EDS EDS		167			186			190		

e Estimated

12448500 METHOW RIVER AT WINTHROP, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.-WATER TEMPERATURE: April 18, 2002 to September 30, 2002 (discontinued).

INSTRUMENTATION.--Electronic thermister/data logger with fifteen-minute punch interval.

 ${\tt REMARKS.--Records}$ good, except mid-July to Sept., which are fair.

EXTREMES FOR PERIOD.-- WATER TEMPERATURE: Maximum 18.6°C Aug. 14; minimum, 3.6°C April 24 and May 6.

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	1	FEBRUARY			MARCH			APRIL			MAY	
1										10.8	6.0	8.4
2										9.0	6.1	7.6
3										8.1	4.6	6.4
4										7.5	4.1	5.8
5										8.1	4.7	6.4
6										7.4	3.6	5.4
7										7.8	3.9	5.6
8										7.0	3.8	5.6
9										8.0	4.2	6.2
10										10.3	4.9	7.5
11										11.4	5.6	8.4
12										11.2	6.6	8.9
13										9.7	6.9	8.3
14										10.1	6.0	8.0
15										9.2	5.0	7.2
16										10.3	5.3	7.8
17										10.9	6.9	8.9
18							8.9	4.2	6.4	8.9	6.3	7.5
19							9.7	4.6	6.9	9.0	6.3	7.5
20							9.5	5.5	7.4	8.4	6.6	7.5
21							10.8	6.0	8.1	6.9	5.5	6.3
22							9.8	5.5	7.3	7.0	5.3	6.2
23							8.4	4.9	6.6	8.9	5.5	6.9
24							8.4	3.6	6.0	9.7	5.0	7.2
25							9.3	5.5	7.3	8.5	6.6	7.6
26							8.9	5.5	7.1	8.7	6.0	7.4
27							9.0	6.0	7.3	10.0	6.1	8.0
28							10.8	5.0	7.7	9.3	6.9	8.1
29							11.4	5.8	8.5	8.9	6.1	7.5
30							11.4	7.0	9.2	9.2	5.5	7.2
31										9.0	5.8	7.4
MONTH										11.4	3.6	7.2

METHOW RIVER BASIN 359

12448500 METHOW RIVER AT WINTHROP, WA--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBE	ER
1 2 3	9.5 8.7 9.3	6.1 6.1 6.0	7.6 7.5 7.6	12.6 12.4 13.8	8.0 8.0 9.2	10.1 10.1 11.4	15.9 16.2 14.1	10.3 10.6 10.1	13.1 13.3 12.3	16.7 15.1 15.6	12.8 11.1 11.4	14.5 13.2 13.3
4 5	10.0	6.4 6.9	8.1 8.3	11.5 12.6	8.9 7.7	10.4 10.2	14.1 14.9	10.4 9.7	12.4 12.2	14.9 13.5	9.7 9.3	12.2 11.6
6 7 8 9	8.6 8.4 6.3 9.2	5.6 4.9 4.4 5.6	7.1 6.4 5.6 7.3	12.8 13.2 12.8 13.7	8.6 9.3 10.1 8.6	10.7 11.2 11.4 11.0	13.8 15.9 16.8 18.1	9.8 9.3 10.4 11.7	11.8 12.4 13.5 14.7	14.1 13.5 13.1 15.1	8.9 9.3 8.6 9.7	11.4 11.3 11.0 12.2
10	10.1	6.9	8.4	15.1	9.8	12.3	17.8	12.3	14.9	15.6	10.1	12.8
11 12 13 14 15	11.5 10.4 11.5 11.4 11.7	7.0 7.2 7.0 7.2 7.5	9.2 8.9 9.1 9.2 9.5	15.7 15.4 13.5 15.9 15.6	10.8 10.8 11.1 11.7 10.8	13.1 13.1 12.4 13.5 13.1	17.3 17.9 18.4 18.6 18.1	11.8 11.5 12.1 12.8 12.1	14.5 14.7 15.3 15.6 15.1	15.7 15.9 15.9 14.9 14.6	10.4 10.6 10.9 10.3 10.9	13.1 13.3 13.3 12.7 12.7
16 17 18 19 20	9.7 9.5 8.9 11.2 12.0	7.2 7.2 7.4 6.6 7.4	8.6 8.4 8.1 8.6 9.5	16.2 16.4 16.7 16.8 16.5	11.2 11.7 12.0 12.0 11.2	13.6 13.8 14.2 14.2 13.8	17.1 15.9 16.7 16.2 17.0	11.8 10.6 10.8 11.1 11.4	14.4 13.3 13.7 13.7 14.1	13.7 14.3 14.1 13.8 12.8	10.9 10.8 9.5 9.5 8.7	12.3 12.3 11.8 11.8
21 22 23 24 25	12.6 12.4 11.4 11.8 13.1	7.8 8.3 8.3 8.0 8.3	10.1 10.4 9.8 9.9 10.6	17.0 17.5 16.8 17.8 17.8	11.5 11.5 11.8 12.3 12.9	14.1 14.4 14.3 14.9 15.2	16.5 16.8 18.1 17.6 15.6	11.5 11.2 12.1 11.8 12.8	14.0 14.1 15.0 14.8 14.1	12.4 12.8 13.1 13.2 12.6	7.8 7.8 8.3 8.9 8.6	10.2 10.3 10.7 11.0 10.7
26 27 28 29 30 31	13.7 12.0 10.8 12.6 11.4	8.7 9.7 9.2 8.9 8.3	11.2 10.8 9.8 10.5 9.7	17.5 17.1 17.3 16.8 17.0 16.4	12.8 12.0 12.0 12.1 11.7	15.0 14.4 14.3 14.1 14.0	15.7 17.8 17.9 17.1 17.3	11.2 11.8 12.3 12.3 12.8 12.1	13.5 14.7 15.1 14.9 14.9	10.6 13.2 11.8 11.8	8.7 8.4 8.0 8.9 8.1	9.5 10.5 10.1 10.2 9.4
MONTH	13.7	4.4	8.9	17.8	7.7	13.0	18.6	9.3	14.0	16.7	7.8	11.7

12448620 METHOW RIVER/MVID EAST DIVERSION NEAR WINTHROP, WA

LOCATION.--Lat 48°25'08", long 120°08'24", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.30, T.34 N., R.22 E., Okanogan County, Hydrologic Unit 17020008, at diversion structure 3.8 mi southeast of Winthrop city limits.

PERIOD OF RECORD. -- May 2001 to current year (irrigation season only).

MIN

0.43

4.4

GAGE.--Water-stage recorder. Elevation of gage is 1,640 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Methow Valley Irrigation District personnel via diversion and headgate. Canal diverts water from the Methow River at river mile 44.8 in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.30, T.34 N., R.22 E., for irrigation and water supply in the Methow River Basin. Figures herein represent water diverted from the main stem, some of which may return to the Methow River through seepage.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 30 ${\rm ft^3/s~May~13}$, 2001; minimum discharge, no flow preceding and succeeding irrigation periods.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, $27 \text{ ft}^3/\text{s}$ June 13, gage height, 2.34 ft; minimum discharge, no flow preceding and succeeding irrigation period.

DISCHARGE, CUBIC FEET PER SECOND, APRIL TO OCTOBER 2002 DAILY MEAN VALUES APR MAY JUN JUL SEP OCT DAY AUG 9.9 ---------5 7.6 1.5 17 7 ---------0.38 ---17 15 0.93 0.00 0.43 0.00 0.00 12 10 0.00 0.00 0.00 8.2 17 5.7 ---0.00 2.0 0.00 4.4 17 0.00 8.3 12 ---0.00 ___ ---17 0.00 0.00 0.00 0.00 ---0.00 ___ 3.6 9.9 ___ TOTAL 436.26 371.6 17.3 ___ ---MEAN 14.1 15.9 17.2 12.4 MAX

methow river basin 361

12448990 TWISP RIVER ABOVE NEWBY CREEK NEAR TWISP, WA

LOCATION.--Lat 48°22'51", long 120°15'38", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.7, T.33 N., R.21 E., Okanogan County, Hydrologic Unit 17020008, on right bank at county road bridge 6.0 mi west of Twisp city limits and at mile 8.1.

DRAINAGE AREA. -- 207 mi2.

WATER DISCHARGE RECORDS

PERIOD OF RECORD. -- October 2000 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,040 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good, except for estimated daily discharges and discharges above 800 ${\rm ft}^3/{\rm s}$, which are fair. Several small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--2 year (water years 2001-2002), 192 ft³/s, 139,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,690 ft^3/s June 16, 2002, gage height, 10.77 ft; maximum gage height, 10.94 ft June 16, 2002, from outside high water mark; minimum daily discharge, 24 ft^3/s Sept. 23-25, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,690 ft³/s June 16, gage height, 10.77 ft; maximum gage height 10.94 ft June 16, from outside high-water mark; minimum discharge, 25 ft³/s Oct. 3-5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		DISCIAN	JE, CODI	C FEET FER		MEAN V		3K 2001 10	OBF TEME	ER ZUUZ		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	33	48	37	e41	e75	123	508	1380	816	150	57
2	26	32	48	37	42	79	123	659	1330	718	137	56
3	26	31	47 45	37	42	75 75	122	696	1360	670	129	55
4 5	25 26	31 30	e39	36 35	41 40	75 76	129 146	633 569	1460 1710	681 598	121 115	54 53
5	20						146	269	1/10	596	115	53
6	26	31	e42	36 40 53 59 55	40	75	170	516 467 431 402 381	1650	557	113	53
7	26	29	e40	40	41	e73	192 200 202	467	1230	567	112	52
8	26	29	e42	53	41	e72	200	431	1100	828	103	51
9 10	26 27	30 30	e38 e39	59	40 30	e72	202	402 381	991 981	709 634	98 98	49 47
10									301	031	50	1,
11	32	30	e40	52 52 50 49 e37	39	76 76 73 71 69	223 247 323 515 496	374 406 499 613 641	1100		100	46
12	29	30	41	52	e36	76	247	406	1230	688	94	44
13 14	30 30	33 40	42	40	e40	/3 71	323 E1E	499 613	1390 1770	622 622	90 86	42 41
15	29	60	e40	e37	e40	69	496	641	2060	548	87	40
16	29	59	e42	e41	e35	70	436	651 734 823 834	1920	472	84	39
17 18	28	7E	02.0	e40	3 /	67	393	734	1370 1290	450 424	79 75	39 39
19	28	52	e36	e43	37	66	340	834	1130	401	71	39
20	28	57	e33	e41 e40 e40 e43 e44	e35 37 36 37 37	66	436 393 360 340 332	984	1130	369	68	38
21 22	28 30		e36 e40	e45	38 56	64 63		1090 1030	1190 1250	322 301	68 66	38 38
23	39	55	e40 38 37	e41 e41 e44	127	64	355	957	1280	290	64	37
24	33	49	37	e44	105	68	343	927	1240	290	63	37
25	33	52	37	e45	e78	72	336	953	1200	282	65	36
26	32	48	e35	e43	e79	76	334	1020	1250	275	76	37
27	32	46		₽41	e81	79	334 329 320 332 387	1090	1310	252	70	37
28	32	47	e37	e39	e78	82	320	1350	1220	221	65	36
29	30	46	e36	e37		86	332	1670	1140	203	62	35
30 31	31 34	47	e33 e37 e36 37 37	e39 e37 e42 e44		92 108	387	1710 1530	1000	187 170	60 61	35
31	34											
TOTAL	906	1279	1228	1335 43.1 59 35 2650 0.21	1431	2296	8707 290	25148	39662	14854 479 828 170 29460 2.31 2.67	2730	1300
MEAN	29.2	42.6	39.6	43.1	51.1	74.1	290	811	1322	479	88.1	43.3
MAX	39	60	48	59	127	108	212	1710	2060	828	150	57
MIN AC-FT	25 1000	29	33	35	35	4550	122 17270	374	70670	170	6U E410	35 2580 0.21
CFSM	0.14	0.21	0.19	0.21	0.25	0.36		3.92	6.39	2.31	0.43	0.21
IN.	0.16	0.23	0.22	0.24	0.26	0.41	1.56	4.52	7.13	2.67	0.49	0.23
STATIST	TCS OF MC	NTHIY MEA	J DATA F	OR WATER Y	EARS 2001	- 2002	. BY WATER	R YEAR (WY)				
MEAN MAX	37.6 46.0	42.2	37.2	36.9	39.8 51.1	54.7 74.1	185 290	639 811	818 1322	310	66.3	35.3 43.3
(WY)	2001	42.6 2002	2002	43.1 2002	2002	2002	2002	2002	2002	479 2002	88.1 2002	2002
MIN	29.2	41.7	34.9	30.8	28.4	35.3	80.3	467	313	141	44.6	27.2
(WY)	2002	2001	34.9 2001	2001	2001	2001	2001	2001	2001	2001	2001	2001
SUMMARY	STATISTI			2001 CALENI	DAR YEAR	1	FOR 2002 V	VATER YEAR		WATER YEARS	2001 -	2002
ANNUAL	TOTAL			39085			100876					
ANNUAL				107			276			192		
	ANNUAL M									276		2002
LOWEST	ANNUAL ME	EAN								108		2001
HIGHEST	DAILY ME	SAN		1110	May 24		2060	Jun 15		2060	Jun 15 Sep 23	2002
ANNUAL.	SEVEN-DAY	MINITMIM		25	Sep 19		26	Oct 2		25	Sep 19	2001
ANNUAL	RUNOFF (A	AC-FT)		77530			200100	-35 2		139200		
ANNUAL	RUNOFF (C	CFSM)		1110 24 25 77530 0.52 7.02			1.3	34		192 276 108 2060 24 25 139200 0.93 12.62		
ANNUAL	RUNOFF (I	NCHES)		7.02			18.1	L3		12.62		
TO FERCE	ENT EXCEE	حاطة		287 39			995 64			573 46		
	ENT EXCEE			27			32			29		
20 I LIKE		~		2,			52			2,7		

e Estimated

12448990 TWISP RIVER ABOVE NEWBY CREEK NEAR TWISP, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD .--

WATER TEMPERATURE: October 1, 2001 to September 30, 2002 (discontinued).

INSTRUMENTATION.--Electronic thermister/data logger with fifteen-minute punch interval. Thirty-minute punch interval used February 13 to April 15.

REMARKS.--Records fair.

EXTREMES FOR PERIOD . --

31

 ${\tt MONTH}$

WATER TEMPERATURE: Maximum 18.8°C Aug. 15, but may have been higher during period of missing record; minimum, 0.0°C on several days during February and March.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAY MAX MIN MIN MIN MEAN MAX MIN MEAN MEAN MAX OCTOBER NOVEMBER DECEMBER JANUARY 1 12.5 9.8 11.9 6.8 9.2 ------------------------6.3 8.7 ---___ ------------------___ 4 5 9.7 5.3 9.3 4.3 6.7 ------------6 7 9.0 4.6 5.0 6.9 6.6 ------------8.0 8 8.4 5.4 6.9 ------------------8.4 5.1 4.6 6.6 5.6 ------9 ---------------------10 11 12 6.1 7.5 8.0 4.3 ---6.0 9.1 13 9.4 6.0 7.7 ------___ ___ ------___ ___ ___ 14 15 8.8 6.3 4.3 ---------------------------8.0 6.1 5.1 4.2 16 17 8.5 6.6 ---6.6 5.4 18 8.5 4.5 6.2 ---------___ ------___ ___ ---5.6 3.5 ---------------------------19 8.5 6.9 20 7.0 5.4 21 6.8 6.7 4.5 4.5 5.6 5.6 3.7 23 7.1 6.2 _ _ _ ___ ___ ---------___ ___ ---------24 ---------------------6.5 5.1 25 7.3 26 6.7 27 ___ ---___ ---___ ---28 ---_ _ _ ___ ___ ---___ 29 ---------------------------------------30

12448990 TWISP RIVER ABOVE NEWBY CREEK NEAR TWISP, WA--Continued
TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	млч	MIN	MEAN	MAX	MTN	MEAN	MAX	MTN	MEAN	MAX	MIN	MEAN
DAI						PIEAN	MAA		PIEMN	MAA		MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1					0.0	0.8	8.3	3.5	5.4			
2				3.3 4.1	0.0	1.2 1.8	7.3 8.4	2.7	4.7 4.8			
4				4.1	0.1	1.9	9.0	2.2	5.1			
5				5.2	1.4	2.8	7.3	2.8	5.0			
6				2.8	0.3	1.5	7.2	3.6	4.9			
7				1.9	0.0	0.7	8.3	3.1	5.3			
8 9				2.0	0.0	0.7	8.0	2.2	4.7			
10				2.4	0.0 0.9	0.9 1.8	7.0 8.1	3.6 3.5	5.1 5.4			
11 12				2.7	0.9	1.8	7.5	4.1	5.7			
13				5.8 3.9	0.9	2.9 2.3	8.3 9.7	3.8 4.2	5.8 6.5			
14				4.9	0.0	2.2	5.8	3.3	4.6			
15				4.4	1.6	2.9		2.7				
16				2.8	0.9	1.9						
17				4.4	0.0	1.9						
18 19				1.7 2.7	0.0	0.8						
20				2.7	0.0	1.3 1.0						
21		0 1	1 7	4.2	0.1	2.0						
22 23	3.8 2.7	0.1 0.9	1.7 1.9	5.5 6.9	0.8 1.6	3.0 4.0						
24	2.7	0.3	1.3	8.6	2.2	4.9						
25	0.8	0.0	0	7.7	1.6	4.3						
26	2.4	0.0	0.4	5.8	2.0	3.7						
27	2.0	0.0	0.5	6.0	1.7	3.7						
28	3.0	0.0	1.1	7.3	2.7	4.7						
29 30				7.2 8.6	1.9 2.8	4.4 5.4						
31				8.9	2.8	5.4						
MONTH				8.9	0.0	2.5						
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY	MAX	MIN JUNE	MEAN	MAX	MIN	MEAN		MIN AUGUST	MEAN		MIN SEPTEMBE	
DAY 1	MAX		MEAN	MAX 		MEAN			MEAN		SEPTEMBE	IR.
1 2		JUNE			JULY			AUGUST		17.1 16.1	SEPTEMBE 12.7 10.5	14.6 13.2
1 2 3		JUNE 		 	JULY 	 	 	AUGUST	 	17.1 16.1 15.8	12.7 10.5 10.5	14.6 13.2 12.8
1 2		JUNE			JULY			AUGUST		17.1 16.1	SEPTEMBE 12.7 10.5	14.6 13.2
1 2 3 4 5		JUNE		 	JULY		 	AUGUST		17.1 16.1 15.8 14.5 13.0	12.7 10.5 10.5 8.2 7.8	14.6 13.2 12.8 11.1 10.5
1 2 3 4 5		JUNE			JULY			AUGUST		17.1 16.1 15.8 14.5 13.0	SEPTEMBE 12.7 10.5 10.5 8.2 7.8 7.6	14.6 13.2 12.8 11.1 10.5
1 2 3 4 5		JUNE		 	JULY		 	AUGUST		17.1 16.1 15.8 14.5 13.0	12.7 10.5 10.5 8.2 7.8	14.6 13.2 12.8 11.1 10.5
1 2 3 4 5 6 7 8		JUNE			JULY			AUGUST		17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5	12.7 10.5 10.5 8.2 7.8 7.6 7.9 7.0 9.0	14.6 13.2 12.8 11.1 10.5 10.4 10 11.8
1 2 3 4 5		JUNE			JULY		 	AUGUST		17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2	12.7 10.5 10.5 8.2 7.8 7.6 7.9 7.0	14.6 13.2 12.8 11.1 10.5
1 2 3 4 5 6 7 8		JUNE			JULY			AUGUST		17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5	12.7 10.5 10.5 8.2 7.8 7.6 7.9 7.0 9.0	14.6 13.2 12.8 11.1 10.5 10.4 10 11.8
1 2 3 4 5 6 7 8 9 10		JUNE			JULY			AUGUST		17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5 15.8	12.7 10.5 10.5 8.2 7.8 7.6 7.9 7.0 9.0 8.8 9.0	14.6 13.2 12.8 11.1 10.5 10.4 10 11.8 12.1
1 2 3 4 5 6 7 8 9 10		JUNE			JULY			AUGUST		17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5 15.8	12.7 10.5 10.5 8.2 7.8 7.6 7.9 7.0 9.0 8.8 9.0 9.1	14.6 13.2 12.8 11.1 10.5 10.4 10 11.8 12.1 12.3 12.5 12.3
1 2 3 4 5 6 7 8 9 10		JUNE			JULY			AUGUST		17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5 15.8	12.7 10.5 10.5 8.2 7.8 7.6 7.9 7.0 9.0 8.8 9.0	14.6 13.2 12.8 11.1 10.5 10.4 10 11.8 12.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		JUNE			JULY			AUGUST		17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5 15.8 16.1 16.1 15.8 15.3 15.0	12.7 10.5 10.5 8.2 7.8 7.6 7.9 7.0 9.0 8.8 9.0 9.1 9.1 8.8 10.1	14.6 13.2 12.8 11.1 10.5 10.4 10 10 11.8 12.1 12.3 12.5 12.3 12.0 12.4
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		JUNE			JULY		 18.8	AUGUST		17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5 15.8 16.1 16.1 15.8 15.3 15.0	12.7 10.5 10.5 10.5 8.2 7.8 7.6 7.9 9.0 8.8 9.0 9.1 9.1 9.1 11.8	14.6 13.2 12.8 11.1 10.5 10.4 10 11.8 12.1 12.3 12.5 12.3 12.0 12.4
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		JUNE			JULY			AUGUST		17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5 15.8 16.1 16.1 15.8 15.3 15.0	12.7 10.5 10.5 8.2 7.8 7.6 7.9 7.0 9.0 8.8 9.0 9.1 9.1 8.8 10.1	14.6 13.2 12.8 11.1 10.5 10.4 10 10 11.8 12.1 12.3 12.5 12.3 12.0 12.4
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18		JUNE			JULY		 18.8 17.9 16.9 17.2	AUGUST	14.1 13.0 13.2 13.0	17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5 15.8 16.1 16.1 15.8 15.3 15.0 14.1 14.5	12.7 10.5 10.5 10.5 8.2 7.8 7.6 7.9 7.0 9.0 8.8 9.0 9.1 9.1 8.8 10.1	14.6 13.2 12.8 11.1 10.5 10.4 10 11.8 12.1 12.3 12.5 12.3 12.0 12.4
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		JUNE			JULY		 18.8 17.9 16.9 17.2	AUGUST	 14.1 13.0 13.2	17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5 15.8 16.1 15.8 15.3 15.0 14.1 14.5	12.7 10.5 10.5 10.5 8.2 7.8 7.6 7.9 7.0 9.0 9.1 9.1 8.8 10.1 10.5 10.1 8.1	14.6 13.2 12.8 11.1 10.5 10.4 10 11.8 12.1 12.3 12.5 12.3 12.0 12.4
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20		JUNE			JULY		 18.8 17.9 16.9 17.2	AUGUST	14.1 13.0 13.2 13.0	17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5 15.8 16.1 16.1 15.8 15.3 15.0 14.1 14.5	12.7 10.5 10.5 10.5 8.2 7.8 7.6 7.9 7.0 9.0 8.8 9.0 9.1 9.1 8.8 10.1	14.6 13.2 12.8 11.1 10.5 10.4 10 11.8 12.1 12.3 12.5 12.3 12.0 12.4
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22		JUNE			JULY		 18.8 17.9 16.9 17.2 16.4 16.4	AUGUST	14.1 13.0 13.2 13.3 13.9	17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5 15.8 16.1 16.1 15.8 15.3 15.0 14.1 14.5 13.6 13.6	12.7 10.5 10.5 10.5 8.2 7.8 7.6 7.9 7.0 9.0 8.8 9.0 9.1 9.1 9.1 8.8 10.1 10.5 10.1 8.4 7.6	14.6 13.2 12.8 11.1 10.5 10.4 10 10 11.8 12.1 12.3 12.5 12.3 12.0 12.4 12.1 12.0 10.8 10.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23		JUNE			JULY		 18.8 17.9 16.9 17.2 16.4 16.8 17.7 18.5	AUGUST	14.1 13.0 13.2 13.3 13.9 14.6	17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5 15.8 16.1 16.1 15.8 15.3 15.0 14.1 14.5 13.6 13.8 12.7	12.7 10.5 10.5 10.5 8.2 7.8 7.6 7.9 7.0 9.0 8.8 9.0 9.1 9.1 8.8 10.1 10.5 10.1 8.4 7.6	14.6 13.2 12.8 11.1 10.5 10.4 10 11.8 12.1 12.3 12.5 12.3 12.0 12.4 12.1 12.0 10.8 10.9 10
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22		JUNE			JULY		 18.8 17.9 16.9 17.2 16.4 16.4	AUGUST	14.1 13.0 13.2 13.3 13.9	17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5 15.8 16.1 16.1 15.8 15.3 15.0 14.1 14.5 13.6 13.6	12.7 10.5 10.5 10.5 8.2 7.8 7.6 7.9 7.0 9.0 8.8 9.0 9.1 9.1 9.1 8.8 10.1 10.5 10.1 8.4 7.6	14.6 13.2 12.8 11.1 10.5 10.4 10 10 11.8 12.1 12.3 12.5 12.3 12.0 12.4 12.1 12.0 10.8 10.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24		JUNE			JULY		 18.8 17.9 16.9 17.2 16.4 16.4 16.8 17.7 18.5	AUGUST	14.1 13.0 13.2 13.0 13.4 13.3 13.9 14.6 14.0	17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5 15.8 16.1 16.1 15.8 15.3 15.0 14.1 14.5 13.6 13.8 12.7	12.7 10.5 10.5 10.5 8.2 7.8 7.6 7.9 9.0 9.0 8.8 9.0 9.1 8.8 10.1 10.5 10.5 10.1 8.8 10.1	14.6 13.2 12.8 11.1 10.5 10.4 10 11.8 12.1 12.3 12.5 12.3 12.0 12.4 12.1 12.0 10.9 10
1 2 3 4 4 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27		JUNE			JULY		 18.8 17.9 16.9 17.2 16.4 16.4 16.8 17.7 18.5 18.0 14.7	AUGUST	14.1 13.0 13.2 13.0 13.4 13.3 13.9 14.6 14.0 13.2	17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5 15.8 16.1 16.1 15.8 15.3 15.0 14.1 14.5 13.6 13.8 12.7	12.7 10.5 10.5 10.5 8.2 7.8 7.6 7.9 9.0 8.8 9.0 9.1 9.1 9.1 10.5 10.1 8.8 10.1 10.5 10.1 8.4 7.6 6.2 6.2 6.3 6.7 7.3	14.6 13.2 12.8 11.1 10.5 10.4 10 10 11.8 12.1 12.3 12.5 12.3 12.0 12.4 12.1 12.0 10.8 10.9 10.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28		JUNE			JULY		 18.8 17.9 16.9 17.2 16.4 16.4 16.8 17.7 18.5 18.0 14.7	AUGUST	14.1 13.0 13.2 13.3 13.9 14.6 14.0 13.2 14.2 14.5	17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5 15.8 16.1 16.1 15.8 15.3 15.0 14.1 14.5 13.6 13.8 12.7 12.7 12.7 12.8 12.5 12.4	12.7 10.5 10.5 10.5 8.2 7.8 7.6 7.9 7.0 8.8 9.0 9.1 9.1 8.1 8.1 10.5 10.1 8.1 8.1 6.2 6.2 6.8 7.6 7.6 7.9 7.0 8.8	14.6 13.2 12.8 11.1 10.5 10.4 10 10 11.8 12.1 12.3 12.5 12.3 12.0 12.4 12.1 12.0 10.8 10.9 10 9.1 9.2 9.7 10 9.4 9.4 9.4
1 2 3 4 4 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27		JUNE			JULY		 18.8 17.9 16.9 17.2 16.4 16.4 16.8 17.7 18.5 18.0 14.7	AUGUST	14.1 13.0 13.2 13.0 13.4 13.3 13.9 14.6 14.0 13.2	17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5 15.8 16.1 16.1 15.8 15.3 15.0 14.1 14.5 13.6 13.8 12.7	12.7 10.5 10.5 10.5 8.2 7.8 7.6 7.9 9.0 8.8 9.0 9.1 9.1 9.1 10.5 10.1 8.8 10.1 10.5 10.1 8.4 7.6 6.2 6.2 6.3 6.7 7.3	14.6 13.2 12.8 11.1 10.5 10.4 10 10 11.8 12.1 12.3 12.5 12.3 12.0 12.4 12.0 10.8 10.9 10 9.1 9.2 9.7 10 9.4 8.6 9.4
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29		JUNE			JULY		 18.8 17.9 16.9 17.2 16.4 16.4 16.8 17.7 18.5 18.0 14.7	AUGUST	14.1 13.0 13.2 13.0 13.4 13.3 13.9 14.6 14.0 13.2 14.5 14.5	17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5 15.8 16.1 16.1 15.8 15.3 15.0 14.1 14.5 13.6 13.8 12.7 12.7 12.7 12.7 12.7 12.7 12.8 12.5 12.4	12.7 10.5 10.5 10.5 8.2 7.8 7.6 7.9 7.0 9.0 8.8 9.0 9.1 8.8 10.1 10.5 10.1 8.4 7.6 6.2 6.2 6.2 6.7 7.3 6.7	14.6 13.2 12.8 11.1 10.5 10.4 10 11.8 12.1 12.3 12.5 12.0 12.4 12.1 12.0 10.9 10 9.1 9.2 9.7 10 9.4 9.4 9.1
1 2 3 4 4 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30		JUNE			JULY		 18.8 17.9 16.9 17.2 16.4 16.4 16.3 17.7 18.5 18.0 14.7	AUGUST	14.1 13.0 13.2 13.0 13.4 13.3 13.9 14.6 14.0 13.2 14.2 14.2 14.5 14.3	17.1 16.1 15.8 14.5 13.0 13.8 12.4 13.2 15.5 15.8 16.1 16.1 15.8 15.3 15.0 14.1 14.5 13.8 12.7 12.7 12.7 12.8 12.7 12.8 12.4	12.7 10.5 10.5 10.5 8.2 7.8 7.6 7.9 9.0 8.8 9.0 9.1 9.1 9.1 10.5 10.1 8.8 10.1 10.5 10.1 8.4 7.6 6.2 6.2 6.7 7.3 6.7 7.3	14.6 13.2 12.8 11.1 10.5 10.4 10 10 11.8 12.1 12.3 12.5 12.3 12.0 12.4 12.1 12.0 10.9 10 9.1 9.2 9.7 10 9.4 8.6 9.4 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1

12448992 TWISP RIVER TVPI DIVERSION NEAR TWISP, WA

LOCATION.--Lat 48°22'50", long 120°14'31", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.8, T.33 N., R.21 E., Okanogan County, Hydrologic Unit 17020008, on right bank approximately 80 ft downstream from fish screen and 5.2 mi west of Twisp city limits.

PERIOD OF RECORD.--April 2001 to October 2002 (irrigation season only). Discontinued at end of 2002 irrigation season.

GAGE.--Water-stage recorder. Elevation of gage is 1,980 ft above NGVD of 1929, from topographic map.

REMARKS.-- No estimated daily discharges. Records good. Flow regulated by Twisp Valley Power and Irrigation Co. personnel via diversion and head gate. Canal diverts water from the Twisp River in NW $^{1}_{4}$ NW $^{1}_{4}$ sec.8 T.33 N., R.21 E. for irrigation and water supply in the Twisp River Basin. Figures given herein represent water diverted from main stem of the Twisp River, some of which may return to the Twisp River through seepage.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 13 ${\rm ft}^3/{\rm s}$, May 21-27, 2001; minimum discharge, no flow preceding and succeeding irrigation periods.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12 ${\rm ft^3/s}$, July 12, gage height 2.60 ft; minimum discharge, no flow preceding and succeeding irrigation period.

DISCHAR	GE, CUBIC		R SECOND, EAN VALUES		02 TO OCTO	DBER 2002	
DAY	APR	MAY	JUN	JUL	AUG	SEP	OCT
1 2		3.5	9.9	10 10	9.8 9.3	8.9 9.0	7.1 7.1
3		3.9	9.8 9.9	11	9.3	9.0	7.1
4		4.5	9.9	11	9.8	9.0	6.9
5		4.5	9.9	11	9.6	8.9	6.6
6		4.3	9.7	10	9.5	8.8	6.5
7 8		5.0 6.8	9.4 9.6	11 11	9.5 9.3	8.7 8.5	6.5 6.5
9		7.6	9.5	11	9.3	8.4	6.4
10		8.0	9.6	11	9.2	8.4	6.1
11		8.4	9.7	11	9.2	8.4	5.1
12		9.0	10	12	9.1	8.3	4.0
13		9.7	10	12	9.0	8.1	3.4
14 15		9.7 9.7	9.9 9.8	12 11	8.9 8.8	7.9 7.5	1.7 0.00
							0.00
16		9.6	9.7	11	8.7	7.5	
17		9.6	9.3	11	8.6	7.5	
18 19		9.7 9.7	9.2 9.3	11 11	8.5 8.4	7.5 7.5	
20		9.7	9.8	11	8.2	7.5	
20		J.,	3.0		0.2	,.5	
21		9.7	9.9	11	8.1	7.5	
22		9.7	10	11	8.2	7.4	
23		9.7	10	11	8.7	7.2	
24	0.00	9.7	10	11	8.8	7.2	
25	0.00	9.7	10	11	8.8	7.2	
26	0.00	9.9	10	11	9.1	7.2	
27	0.00	9.9	11	11	9.0	7.2	
28	0.00	9.5	10	11	8.9	7.1	
29	0.00 1.3	9.4 9.6	10 10	11	8.8	7.1 7.1	
30 31	1.3	9.6	10	11 10	9.0 9.0	7.1	
J±		2.1					-
TOTAL		253.2	294.8	340	278.3	237.5	
MEAN		8.17	9.83	11.0	8.98	7.92	
MAX		9.9	11	12	9.8	9.0	
MIN AC-FT		3.5 502	9.2 585	10 674	8.1 552	7.1 471	
MC-LI		502	202	0/4	>>∠	4/1	

12448996 TWISP RIVER/MVID WEST DIVERSION NEAR TWISP, WA

LOCATION.--Lat 48°22'12", long 120°11'31", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.10, T.33 N., R.21 E., Okanogan County Hydrologic Unit 17020008, at diversion structure 3.1 mi west of Twisp city limits.

PERIOD OF RECORD. -- May 2001 to current year (irrigation season only).

MIN

GAGE.--Water stage recorder. Elevation of gage is 1,780 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good, except for estimated daily discharges and August 24 to September 9 which are fair. Flow regulated by Methow Valley Irrigation District personnel via diversion and head gate. Canal diverts water from the Twisp River in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.10, T.33 N., R.21 E. for irrigation and water supply in the Methow River Basin. Figures herein represent water diverted from the Twisp River, some of which may return to the Twisp River and Methow River through seepage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41 ${\rm ft}^3/{\rm s}$ May 28, 2002, gage height 1.89 ft; minimum discharge, no flow when diversion shut off each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 41 ${\rm ft}^3/{\rm s}$ May 28, gage height, 1.89 ft; minimum discharge, no flow when diversion shut off.

DISCHARGE, CUBIC FEET PER SECOND, APRIL TO OCTOBER 2002 DAILY MEAN VALUES APR JUN JUL SEP OCT DAY MAY AUG 2.0 ---___ ---20 4.4 0.78 5 21 7 ---0.59 ---0.34 ---0.15 0.02 0.00 0.00 12 2.3 ---0.00 0.00 ___ ---0.00 2.0 2.0 0.00 0.00 17 22 ---0.00 0.00 ___ ---0.00 0.00 0.00 0.00 ---0.00 ---0.00 0.00 0.00 ---0.00 0 00 ---TOTAL ---___ 15.2 MEAN 20.2 19.3 19.8 20.0 MAX

12448998 TWISP RIVER NEAR TWISP, WA

LOCATION.--Lat $48^{\circ}22^{\circ}12^{\circ}$, long $120^{\circ}08^{\circ}51^{\circ}$, in SE $\frac{1}{4}$ sec.12, T.33 N., R.21 E., Okanogan County, Hydrologic Unit 17020008, on left bank, 20 ft downstream from county road bridge, 0.8 mi west of the Twisp city limits, and at mile 1.6.

DRAINAGE AREA. -- 245 mi².

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--May 1975 to September 1979, October 1989 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,640 ft above NGVD of 1929, from topographic map, May 1975 to September 1979, water-stage recorder at same site. Crest-stage gage since September 1992.

REMARKS.--Records good except for estimated daily discharges which are fair. No known regulation. Several diversions upstream from station for irrigation. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--17 years (water years 1976-79, 1990-2002), 262 ft^3/s , 189,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,540 ft³/s June 17, 1999, gage height, 11.83 ft; maximum gage height, 12.42 ft June 17, 1999, from crest-stage gage; minimum daily discharge, 15 ft³/s Oct. 2-4, 1989, Sept. 28-30, Oct. 1-3, 1994, Sept. 19-20 and 22-24, 2001.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 29, 1948, had a discharge of 9,440 $\mathrm{ft^3/s}$, by slope-area measurement made about 1,000 ft upstream from mouth.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft3/s and maximum (*):

Date		Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May	30	0430	1,970	10.51	June 16		(a) *11.02
June	5	2245	1,920	10.47	June 23	0115	1,350	9.88
June	16	0115	*2,220	10.79	June 27	0345	1,370	9.92

Minimum discharge, 18 ${\rm ft}^3/{\rm s}$ Oct.1 and 3-6. (a) From crest-stage gage.

	_											
		DISCHAF	RGE, CUBIC	FEET PE	R SECOND,	WATER YI MEAN V		R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	41	54	41	e44	e74	117	489	1480	690	135	38
2	20	39	53			75	117		1460	600	121	
				43	e44			640				38
3	19	39	53	41	e44	73	115	687	1530	547	111	38
4	18	38	e50	40	e43	73	119	631	1580	541	105	37
5	18	38	e45	39	44	74	133	572	1780	480	100	37
6	23	38	e47	40	43	73	149	515	1730	443	98	37
7	30	38	e45	42	44	74	165	464	1290	449	98	36
8	35	36	e47	51	44	e73	172	423	1030	686	91	36
9	37	37	e43	59	43	73	176	389	865	614	87	35
10	38	37	e44	56	42	73	180	362	808	542	82	34
11	43	37	e45	54	41	74	200	353	977	590	80	35
12	40	37	46	53	e39	75	233	375	1250	605	76	34
13	39	38	46	52	e42	72	308	460	1480	550	72	33
14	40	51	e44	51	e47	70	541	561	1800	549	69	32
15	40	63	e46	e40	e42	68	536	584	1970	484	69	32
16	40	63	48	e44	e38	69	467	586	1880	406	64	32
17	40	56	49	e43	e40	67	417	652	1450	381	62	31
18	39	53	e46	e43	38	65	380	744	1210	358	59	32
19	38	56	e42	e46	39	67	356	743	995	339	56	32
20	38	61	e39	e47	39	67	344	916	947	312	53	32
21	37	63	e42	e48	40	64	348	1070	1020	265	53	32
22	39	62	e45	e44	50	63	363	971	1170	247	53	32
23	e48	60	44	e44	112	64	367	853	1250	239	49	31
24	e43	55	42	e47	100	67	353	803	1170	239	45	31
25	43	56	41	e48	e77	71	345	820	1090	233	49	29
26	42	53	38	e46	e79	75	342	889	1170	231	57	29
27	40	51	e37	e44	e81	78	338	1010	1260	213	50	29
28	41	54	e42	e42	e78	81	328	1370	1140	187	47	29
										173		
29	40	51	e41	e40		86	327	1760	1020		43	28
30	40	53	40	e45		90	366	1810	886	163	40	27
31	42		41	e47		103		1650		154	41	
TOTAL	1109	1454	1385	1420	1457	2271	8702	24152	38688	12510	2215	988
MEAN	35.8	48.5	44.7	45.8	52.0	73.3	290	779	1290	404	71.5	32.9
MAX	48	63	54	59	112	103	541	1810	1970	690	135	38
MIN	18	36	37	39	38	63	115	353	808	154	40	27
AC-FT	2200	2880	2750	2820	2890	4500	17260	47910	76740	24810	4390	1960
STATIST	rics of Mo	ONTHLY MEA	AN DATA FO	OR WATER	YEARS 1975	- 2002	, BY WATER	YEAR (WY)				
MEAN	63.0	108	97.2	67.5	71.3	114	338	839	933	412	103	47.8
MAX	144	350	323	152	168	270	723	1455	1517	859	302	110
(WY)	1998	1991	1996	1976	1996	1996	1996	1997	1999	1991	1976	1978
MIN	34.2	44.8	36.3	31.6	29.2	39.6	80.1	201	282	56.9	23.7	16.4
(WY)	1990	1978	1994	1993	1994	1977	2001	1977	1977	1977	1977	1994
SUMMARY	Y STATIST	ics	FOR 2	001 CALE	NDAR YEAR	I	FOR 2002 W	ATER YEAR		WATER YEARS	S 1975 -	- 2002
ANNUAL	TOTAL			36436			96351					
ANNUAL	MEAN	de la		99.8			264			262		1001
	ANNUAL 1 ANNUAL MI									413 82.9		1991 1977
				1100	M 04		1070	T 1.			M 1/	
	DAILY ME			1180	May 24		1970	Jun 15		3200	May 19	7 1991
	DAILY MEA			15	Sep 19		18	Oct 4		15	Sep 28	
	SEVEN-DAY			17	Sep 17		21	Oct 1		13	Sep 26	1994
	RUNOFF (A			72270			191100			189800		
	CENT EXCE			254			887			785		
	CENT EXCE			42			59			86		
90 PERC	CENT EXCE	EDS		23			37			35		

e Estimated

12448998 TWISP RIVER NEAR TWISP, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.-- WATER TEMPERATURE: October 1, 2001 to September 30, 2002 (discontinued).

INSTRUMENTATION.--Electronic thermister/data logger with fifteen-minute punch interval. Thirty-minute punch interval used October 26 to July 29.

REMARKS.--Records excellent.

EXTREMES FOR PERIOD. --

WATER TEMPERATURE: Maximum 19.6°C Aug. 14; minimum, 0.0°C on many days November to March.

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER		NC	VEMBER		DE	CEMBER			JANUARY	
1 2 3 4 5	14.6 13.8 13.2 12.1 11.5	8.8 8.7 8.2 7.3 6.4	11.4 11.0 10.5 9.6 8.8	6.8 7.9 7.0 7.8 6.3	4.8 5.6 4.8 5.8 4.3	5.8 6.6 5.9 6.7 5.6	2.3 2.1 2.0 0.9 0.0	0.0 0.9 0.6 0.0	1.3 1.5 1.5 0.5	2.9 2.5 2.8 2.5 2.3	2.0 1.2 1.7 1.0 0.9	2.3 1.9 2.1 1.6 1.5
6 7 8 9 10	11.2 9.0 10.2 9.8 7.6	6.5 6.7 6.5 5.9	8.6 8.0 8.1 7.6 6.7	5.0 3.7 5.0 4.5 3.9	2.6 1.4 2.3 2.1 1.5	3.9 2.4 3.4 3.0 2.5	0.9 0.7 1.7 0.9	0.0 0.0 0.7 0.0	0.3 0.2 1.2 0.2	2.1 2.8 3.9 2.8 1.8	0.9 1.4 2.1 0.2 0.2	1.4 2.2 2.9 1.4 1.1
11 12 13 14 15	9.8 9.5 10.2 10.6 9.0	5.4 6.7 7.0 7.5 5.6	7.2 7.9 8.6 8.7 7.2	4.3 5.0 6.2 7.2 7.3	1.5 2.9 4.8 5.9 6.2	2.9 4.0 5.6 6.4 6.7	0.4 0.7 0.7 2.1 0.0	0.0 0.0 0.0 0.0	0.1 0.3 0.4 0.9	2.1 3.1 1.8 1.2 0.0	0.6 1.8 0.6 0.0	1.4 2.4 1.2 0.5 0.0
16 17 18 19 20	9.5 9.0 8.5 9.6 7.9	6.4 5.3 5.3 5.9 4.8	7.7 6.9 6.7 7.3 6.3	6.2 5.3 3.4 4.0 5.0	4.8 2.6 1.5 2.6 3.9	5.4 4.3 2.6 3.5 4.4	1.4 1.0 0.0 0.0	0.0 0.0 0.0 0.0	0.7 0.6 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0
21 22 23 24 25	7.6 6.8 8.2 7.3 7.5	5.3 4.8 5.8 4.5 5.9	6.3 5.8 6.7 5.8 6.6	5.6 5.4 5.1 3.6 4.2	4.7 4.6 2.8 2.5 3.1	5.1 5.1 4.1 2.9 3.6	0.0 0.6 1.2 2.0 1.7	0.0 0.0 0.0 0.7 0.9	0.0 0.3 0.6 1.3	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0
26 27 28 29 30 31	7.9 5.9 5.8 6.1 7.9	6.7 5.6 3.6 3.1 5.0	6.6 4.6 4.3 5.6 6.4	4.2 3.2 2.9 2.3 1.2	2.8 2.5 0.0 0.4 0.0	3.5 2.9 1.2 1.2 0.5	0.9 0.0 0.6 1.8 2.6 2.9	0.0 0.0 0.0 0.6 1.7 2.0	0.5 0.0 0.3 1.2 2.0 2.2	0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0
MONTH		3.1		7.9	0.0	4.1	2.9	0.0	0.6	3.9	0.0	0.8

12448998 TWISP RIVER NEAR TWISP, WA--Continued

				WATER (DEG								
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY	•		MARCH			APRIL			MAY	
1 2	0.0	0.0	0.0	2.5	0.0	0.9 1.1	8.4 7.3	4.0	6.2 5.6	11.0		7.9 7.4
3	0.4	0.0	0.2	2.8 3.7 3.4 3.7	0.4	1.9	7.3 8.2 8.7	3.6	5.6	9.8 8.5		6.2
5	1.5 2.0	0.2 0.7	1.4	3.4	0.7	2.2	7.2	3.2 3.9	6.2 5.9	8.7 8.1	3.4 4.0	5.9 5.9
6	1.7	0.6	1.1		0.7	1.7	6.8	4.3	5.6	6.7	2.8	4.6
7 8	2.1 2.0	0.4	1.3 0.9	2.3 1.5 2.5	0.0	0.9 0.5	8.5 7.9	3.6 2.8	6.0 5.4	6.4 6.8	3.2 2.9	4.7 5.0
9 10	1.5 2.6	0.0	0.7	2.5	0.0	0.9	6.8 8.5 7.9 7.3 8.1	4.3	5.8 6.4	7.2 9.8	3.4	5.4 6.8
11 12	2.1 0.0	0.0 0.0 0.0	0.9 0.0 0.0	3.4 4.7 4.3 4.8 5.0	1.8	2.4	8.1 8.7 10.4 8.3 6.7	4.7	6.7 6.7	11.3 11.2	E 1	7.9 8.4
13 14	0.0	0.0	0.0	4.3 4.8	1.7 0.4	3.0 2.6	10.4 8.3	5.0 4.2	7.7 5.7	9.7 10.2		7.8 7.5
15	0.0	0.0	0.0			3.4	6.7	2.8	4.4	9.2	4.0	6.6
16 17	0.0 1.5	0.0	0.0 0.6 1.2	3.4 4.3 2.0	1.7	2.4	6.7 6.1 7.5 7.5 8.7	3.7	5.0 5.4	10.4	4.7 6.1	7.4
18	2.6	0.0	1.2	2.0	0.2	0.9	7.5 7.5 8.7	3.2	5.4	10.4 10.9 8.3 8.7	5.3	8.3 6.8
19 20	3.2 3.1	1.2 0.7	2.1 1.7	3.9 2.6	0.4	2.0 1.3	8.7 8.7	3.2 4.0	6.4	7.6	6.2	7.0 6.9
21	2.8	0.2	1.5	4.2	0.4	2.1	10.2	4.5	7.4	7.5 7.2 9.0 10.2 8.4	5.4	6.3
22	3.9	0.2 1.7 0.7	2.4	5.3	1.2	3.2	10.2 9.6 8.1 7.9	4.2	6.8	7.2	5.3	6.2
24	2.3	0.4	1.5 2.4 1.8 1.3	4.2 5.3 7.2 8.2 8.1	3.4	5.6	7.9	2.5	5.3	10.2	4.3	7.0
25	1.2		0.3	8.1	3.1	5.4	8.2	4.5		8.4		7.1
26 27	0.9 1.2	0.0	0.2	6.4 6.1 8.2	3.4	4.7 4.3	7.9 8.2		6.3 6.8	9.0 9.6	5.1 5.3	7.0 7.4
28	2.8	0.0	1.0	8.2	3.2	5.4	10.4	5.3 3.9	7.1	9.0	5.9	7.3
29 30				7.2 9.0 9.6	2.9 3.6 4.2	5.0 6.2	11.0 11.3	4.5 5.9	7.8 8.4	8.8 9.2	5.0 4.7	6.7 6.6
31				9.6	4.2	6.4				9.0	5.0	6.8
MONTH	3.9	0.0	0.8	9.6	0.0	2.9	11.3	2.5	6.2	11.3	2.8	6.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY	MAX	MIN JUNE	MEAN	MAX	MIN JULY	MEAN		MIN AUGUST	MEAN		MIN SEPTEMBE	
1	9.3	JUNE 5.1	6.9	12.2	JULY 6.8	9.3		AUGUST		17.8	SEPTEMBE	R 15.7
	9.3 8.7	JUNE 5.1 5.4		12.2 12.2	JULY 6.8 6.8	9.3 9.3 10.6	 15.3	AUGUST 10.6		17.8 17.2	SEPTEMBE 14.2 12.3	R
1 2	9.3 8.7	JUNE 5.1 5.4 5.1 5.6	6.9 7.0	12.2 12.2	JULY 6.8 6.8	9.3 9.3 10.6 9.5	15.3 14.3 13.7	AUGUST 10.6 10.0 10.4	13.2 12.5 12.2	17.8 17.2 17.3 15.9	SEPTEMBE 14.2 12.3 12.6 10.4	15.7 14.7 14.6 12.7
1 2 3 4 5	9.3 8.7 8.8 9.9 9.6	JUNE 5.1 5.4 5.1 5.6 5.8	6.9 7.0 6.9 7.5 7.6	12.2 12.2 13.8 10.9 12.7	JULY 6.8 6.8 8.4 7.9 6.7	9.3 9.3 10.6 9.5 9.5	15.3 14.3 13.7 14.0	AUGUST 10.6 10.0 10.4 9.5	13.2 12.5 12.2 12.0	17.8 17.2 17.3 15.9 14.5	14.2 12.3 12.6 10.4 9.8	15.7 14.7 14.6 12.7 12.1
1 2 3 4 5	9.3 8.7 8.8 9.9 9.6	JUNE 5.1 5.4 5.1 5.6 5.8	6.9 7.0 6.9 7.5 7.6	12.2 12.2 13.8 10.9 12.7	JULY 6.8 6.8 8.4 7.9 6.7 7.8 8.7	9.3 9.3 10.6 9.5 9.5	15.3 14.3 13.7 14.0	AUGUST 10.6 10.0 10.4 9.5 9.4 9.0	13.2 12.5 12.2 12.0 11.5 12.3	17.8 17.2 17.3 15.9 14.5	SEPTEMBE 14.2 12.3 12.6 10.4 9.8 9.5 9.7	15.7 14.7 14.6 12.7 12.1 11.9 11.8
1 2 3 4 5 6 7 8 9	9.3 8.7 8.8 9.9 9.6	JUNE 5.1 5.4 5.1 5.6 5.8	6.9 7.0 6.9 7.5 7.6	12.2 12.2 13.8 10.9 12.7	JULY 6.8 6.8 8.4 7.9 6.7 7.8 8.7	9.3 9.3 10.6 9.5 9.5 10.1 10.9 11.3 10.5	15.3 14.3 13.7 14.0 13.2 15.9 16.5 18.0	AUGUST 10.6 10.0 10.4 9.5 9.4 9.0 10.3 11.8	13.2 12.5 12.2 12.0 11.5 12.3 13.6 15.0	17.8 17.2 17.3 15.9 14.5	SEPTEMBE 14.2 12.3 12.6 10.4 9.8 9.5 9.7 8.9	15.7 14.7 14.6 12.7 12.1 11.9 11.8 11.5 13.0
1 2 3 4 5 6 7 8 9	9.3 8.7 8.8 9.9 9.6 8.2 8.4 5.9 7.9	JUNE 5.1 5.4 5.1 5.6 5.8 4.7 4.0 4.2 5.4 5.9	6.9 7.0 6.9 7.5 7.6 6.3 6.0 5.3 6.5	12.2 12.2 13.8 10.9 12.7 13.2 13.3 12.7 13.5	JULY 6.8 6.8 8.4 7.9 6.7 7.8 8.7 9.8 7.8 9.2	9.3 9.3 10.6 9.5 9.5 10.1 10.9 11.3	15.3 14.3 13.7 14.0	AUGUST 10.6 10.0 10.4 9.5 9.4 9.0	13.2 12.5 12.2 12.0 11.5 12.3 13.6	17.8 17.2 17.3 15.9 14.5 14.6 14.3 16.1	14.2 12.3 12.6 10.4 9.8 9.5 9.7 8.9 10.4 10.9	15.7 14.7 14.6 12.7 12.1 11.9 11.8 11.5
1 2 3 4 5 6 7 8 9 10	9.3 8.7 8.8 9.9 9.6 8.2 8.4 5.9 7.9 10.2	JUNE 5.1 5.4 5.1 5.6 5.8 4.7 4.0 4.2 5.4 5.9 6.2	6.9 7.0 6.9 7.5 7.6 6.3 6.5 7.8	12.2 12.2 13.8 10.9 12.7 13.2 13.3 12.7 13.5 15.2	JULY 6.8 6.8 8.4 7.9 6.7 7.8 8.7 9.8 7.8 9.2	9.3 9.3 10.6 9.5 9.5 10.1 10.9 11.3 10.5 11.9	15.3 14.3 13.7 14.0 13.2 15.9 16.5 18.0 18.3	AUGUST 10.6 10.0 10.4 9.5 9.4 9.0 10.3 11.8 12.9	13.2 12.5 12.2 12.0 11.5 12.3 13.6 15.0 15.6	17.8 17.2 17.3 15.9 14.5 14.9 14.6 14.3 16.1 16.7	SEPTEMBE 14.2 12.3 12.6 10.4 9.8 9.5 9.7 8.9 10.4 10.9	15.7 14.7 14.6 12.7 12.1 11.9 11.8 11.5 13.0 13.7
1 2 3 4 5 6 7 8 9 10	9.3 8.7 8.8 9.9 9.6 8.2 8.4 5.9 7.9 10.2	JUNE 5.1 5.4 5.6 5.8 4.7 4.0 4.2 5.4 5.9 6.2	6.9 7.0 6.9 7.5 7.6 6.3 6.0 5.3 6.5 7.8 8.6 8.1 8.2	12.2 12.2 13.8 10.9 12.7 13.2 13.3 12.7 13.5 15.2	JULY 6.8 6.8 8.4 7.9 6.7 7.8 8.7 9.8 7.8 9.2 10.2 10.1 10.6	9.3 9.3 10.6 9.5 9.5 10.1 10.9 11.3 10.5 11.9	15.3 14.3 13.7 14.0 13.2 15.9 16.5 18.0 18.3 17.5 18.1	AUGUST 10.6 10.0 10.4 9.5 9.4 9.0 10.3 11.8 12.9 12.0 12.0 12.9	13.2 12.5 12.2 12.0 11.5 12.3 13.6 15.0 15.6	17.8 17.2 17.3 15.9 14.5 14.9 14.6 14.3 16.1 16.7	SEPTEMBE 14.2 12.3 12.6 10.4 9.8 9.5 9.7 8.9 10.4 10.9 11.2 11.4 11.4	15.7 14.7 14.6 12.7 12.1 11.9 11.8 11.5 13.0 13.7
1 2 3 4 5 6 7 8 9 10	9.3 8.7 8.8 9.9 9.6 8.2 8.4 5.9 7.9 10.2 11.5 10.2 10.9	JUNE 5.1 5.4 5.1 5.6 5.8 4.7 4.0 4.2 5.4 5.9 6.2	6.9 7.0 6.9 7.5 7.6 6.3 6.0 5.3 6.5 7.8	12.2 12.2 13.8 10.9 12.7 13.2 13.3 12.7 13.5 15.2	JULY 6.8 6.8 6.7 7.8 8.7 9.8 7.8 9.2 10.2 10.1	9.3 9.3 10.6 9.5 9.5 10.1 10.9 11.3 10.5 11.9	15.3 14.3 13.7 14.0 13.2 15.9 16.5 18.0 18.3 17.5 18.1	AUGUST 10.6 10.0 10.4 9.5 9.4 9.0 10.3 11.8 12.9 12.0 12.0	13.2 12.5 12.2 12.0 11.5 12.3 13.6 15.0 15.6	17.8 17.2 17.3 15.9 14.5 14.9 14.6 14.3 16.1 16.7	SEPTEMBE 14.2 12.3 12.6 10.4 9.8 9.5 9.7 8.9 10.4 10.9 11.2 11.4	15.7 14.7 14.6 12.7 12.1 11.9 11.5 13.0 13.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	9.3 8.7 8.8 9.9 9.6 8.2 8.4 5.9 10.2 11.5 10.2 10.9	JUNE 5.1 5.4 5.1 5.6 5.8 4.7 4.0 4.2 5.4 5.9 6.2 5.9 5.9 6.1	6.9 7.0 6.9 7.5 7.6 6.3 6.3 6.5 7.8 8.6 8.1 8.2 8.0 8.1	12.2 12.2 13.8 10.9 12.7 13.2 13.3 12.7 13.5 15.2 15.8 15.5 13.9 16.0 15.4	JULY 6.8 6.8 8.4 7.9 6.7 7.8 8.7 9.8 7.8 9.2 10.2 10.6 11.6 9.8	9.3 9.3 10.6 9.5 9.5 10.1 10.9 11.3 10.5 11.9	15.3 14.3 13.7 14.0 13.2 15.9 16.5 18.0 18.3 17.5 18.1 18.9 19.6 18.8	AUGUST 10.6 10.0 10.4 9.5 9.4 9.0 10.3 11.8 12.9 12.0 12.0 12.0 13.7 13.2	13.2 12.5 12.2 12.0 11.5 12.3 13.6 15.0 15.6 14.9 15.2 16.0 16.6 16.0	17.8 17.2 17.3 15.9 14.5 14.9 14.6 14.3 16.1 16.7	SEPTEMBE 14.2 12.3 12.6 10.4 9.8 9.5 9.7 8.9 10.4 10.9 11.2 11.4 11.4 10.9 11.8	15.7 14.7 14.6 12.7 12.1 11.9 11.5 13.0 13.7 13.8 14.0 13.5 13.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	9.3 8.7 8.8 9.9 9.6 8.2 8.4 5.9 10.2 11.5 10.2 10.9 10.4 8.8 8.7	JUNE 5.1 5.4 5.1 5.6 5.8 4.7 4.0 4.2 5.9 6.2 5.9 5.9 6.1 5.8 6.2	6.9 7.0 6.9 7.5 7.6 6.3 6.3 6.5 7.8 8.6 8.1 8.2 8.0 8.1	12.2 12.2 13.8 10.9 12.7 13.2 13.3 12.7 13.5 15.2 15.8 15.5 13.9 16.0 15.4	JULY 6.8 6.8 8.4 7.9 6.7 7.8 8.7 9.8 9.2 10.2 10.6 11.6 9.8 10.6 11.0	9.3 9.3 10.6 9.5 9.5 9.5 10.1 10.9 11.3 10.5 11.9 12.8 12.7 12.1 13.5 12.5	15.3 14.3 13.7 14.0 13.2 15.9 16.5 18.0 18.3 17.5 18.1 18.9 19.6 18.8	AUGUST 10.6 10.0 10.4 9.5 9.4 9.0 10.3 11.8 12.9 12.0 12.0 12.0 13.7 13.2	13.2 12.5 12.2 12.0 11.5 12.3 13.6 15.0 15.6 14.9 15.2 16.0 16.6 16.0	17.8 17.2 17.3 15.9 14.5 14.9 14.6 14.3 16.1 16.7	SEPTEMBE 14.2 12.3 12.6 10.4 9.8 9.5 9.7 8.9 10.4 10.9 11.2 11.4 11.4 10.9 11.8 12.0 11.7	15.7 14.7 14.6 12.7 12.1 11.9 11.8 11.5 13.0 13.7 13.8 14.0 13.9 13.5 13.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	9.3 8.7 8.8 9.9 9.6 8.2 8.4 5.9 10.2 11.5 10.2 10.9 10.4 8.8 8.7	JUNE 5.1 5.4 5.1 5.6 5.8 4.7 4.0 4.2 5.9 6.2 5.9 5.9 6.1 5.8 6.2	6.9 7.0 6.9 7.5 7.6 6.3 6.3 6.5 7.8 8.6 8.1 8.2 8.0 8.1	12.2 12.2 13.8 10.9 12.7 13.2 13.3 12.7 13.5 15.2 15.8 15.5 13.9 16.0 15.4	JULY 6.8 6.8 6.8 7.9 6.7 7.8 8.7 9.8 9.2 10.2 10.6 11.6 9.8 10.6 11.0 11.5	9.3 9.3 10.6 9.5 9.5 10.1 10.9 11.3 10.5 11.9 12.8 12.7 12.1 13.5 12.5 13.7 14.3	15.3 14.3 13.7 14.0 13.2 15.9 16.5 18.0 18.3 17.5 18.1 18.9 19.6 18.8	AUGUST 10.6 10.0 10.4 9.5 9.4 9.0 10.3 11.8 12.9 12.0 12.0 12.0 13.7 13.2	13.2 12.5 12.2 12.0 11.5 12.3 13.6 15.0 15.6 14.9 15.2 16.0 16.6 16.0	17.8 17.2 17.3 15.9 14.5 14.9 14.6 14.3 16.1 16.7	SEPTEMBE 14.2 12.3 12.6 10.4 9.8 9.5 9.7 8.9 10.4 10.9 11.2 11.4 10.9 11.8 12.0 11.7 10.1 10.0	15.7 14.6 12.7 12.1 11.9 11.5 13.0 13.7 13.8 14.0 13.5 13.8 14.0 13.5 13.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	9.3 8.7 8.8 9.9 9.6 8.2 8.4 5.9 7.9 10.2 11.5 10.9 10.4 10.7 8.8 8.7 8.2 10.2 11.5	JUNE 5.1 5.4 5.6 5.8 4.7 4.0 5.4 5.9 6.2 5.9 6.2 5.9 6.1 5.8 6.2 5.9 6.1	6.9 7.0 6.9 7.5 7.6 6.3 6.0 5.5 7.8 8.6 8.1 8.1 7.5 7.5 8.7	12.2 12.2 13.8 10.9 12.7 13.2 13.3 12.7 13.5 15.2 15.8 15.5 13.9 16.0 15.4	JULY 6.8 6.8 6.8 7.9 6.7 7.8 8.7 9.8 9.2 10.2 10.6 11.6 9.8 10.6 11.0 11.5 10.4	9.3 9.3 10.6 9.5 9.5 9.5 10.1 10.9 11.3 10.5 11.9 12.8 12.7 12.1 13.5 12.5 13.7 14.3 14.3 13.5	15.3 14.3 13.7 14.0 13.2 15.9 16.5 18.0 18.3 17.5 18.1 18.9 19.6 18.8 18.0 17.0 17.3 17.0 18.1	AUGUST 10.6 10.0 10.4 9.5 9.4 9.0 10.3 11.8 12.9 12.0 12.9 13.7 13.2 12.9 11.4 11.5 11.8 12.3	13.2 12.5 12.2 12.0 11.5 12.3 13.6 15.0 15.6 14.9 16.6 16.0 15.3 14.3 14.3 14.4	17.8 17.2 17.3 15.9 14.5 14.9 14.6 16.1 16.7 17.0 17.3 17.0 16.2 16.4 15.7 16.1 15.6 13.8	SEPTEMBE 14.2 12.3 12.6 10.4 9.8 9.5 9.7 8.9 10.4 10.9 11.2 11.4 10.9 11.8 12.0 11.7 10.1 10.0 9.4	15.7 14.6 12.7 12.1 11.9 11.5 13.0 13.7 13.8 14.0 13.5 13.8 14.0 13.5 13.8
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	9.3 8.7 8.8 9.9 9.6 8.2 8.4 5.9 10.2 11.5 10.2 10.9 10.4 10.7 8.8 8.7 8.2 10.2 11.5 11.8 11.6 10.2 11.3	JUNE 5.1 5.4 5.1 5.6 5.8 4.7 4.0 4.2 5.4 5.9 6.2 5.9 5.9 6.1 5.8 6.2 6.5 6.4 6.5 7.0 7.3 7.0 7.2	6.9 7.5 7.6 6.3 6.3 6.5 7.8 8.6 8.1 7.4 7.3 7.7 8.7 9.0 9.6	12.2 12.2 13.8 10.9 12.7 13.2 13.3 12.7 13.5 15.2 15.8 15.5 13.9 16.0 15.4 16.6 17.1 17.1 17.1 17.1 17.1 17.1 17.1	JULY 6.8 6.8 6.8 7.9 6.7 7.8 8.7 9.8 9.2 10.2 10.6 11.6 9.8 10.6 11.5 10.4 10.9 11.2 11.8 12.2 12.6 12.9	9.3 9.3 10.6 9.5 9.5 10.1 10.9 11.3 10.5 11.9 12.8 12.7 12.1 13.5 12.5 13.7 14.3 14.3 14.3 14.3 14.5 15.1 15.3	13.2 15.9 16.5 18.0 18.3 17.5 18.1 19.6 18.8 18.0 17.0 17.0 18.1 17.5 18.1 17.5 18.1 17.5 18.1	AUGUST 10.6 10.0 10.4 9.5 9.4 9.0 10.3 11.8 12.9 12.0 12.0 12.0 12.9 13.7 13.2 12.9 11.4 11.5 11.8 12.3 11.8 12.3	13.2 12.5 12.2 12.0 11.5 12.3 13.6 15.0 15.6 14.9 15.2 16.0 16.6 16.0 15.3 14.3 14.4 14.3 14.8	17.8 17.2 17.3 15.9 14.5 14.9 14.6 16.1 16.7 17.0 17.3 17.0 16.2 16.4 15.7 16.1 15.4 15.6 13.8	SEPTEMBE 14.2 12.3 12.6 10.4 9.8 9.5 9.7 8.9 10.4 10.9 11.2 11.4 11.9 11.8 12.0 11.7 10.1 10.0 9.4 8.3 8.1 8.6 9.2 8.7	15.7 14.6 12.7 12.1 11.9 11.5 13.0 13.7 13.8 14.0 13.5 13.8 14.0 13.5 13.8 14.0 10.5 10.5 10.6 11.1 11.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	9.3 8.8 9.9 9.6 8.2 8.4 5.9 7.9 10.2 11.5 10.9 10.4 10.7 8.8 8.7 8.2 10.2 11.5 11.8 11.6 10.2 11.3 12.4	JUNE 5.1 5.4 5.1 5.6 5.8 4.7 4.0 4.2 5.4 5.9 6.2 5.9 5.9 6.1 5.8 6.2 6.5 6.4 6.5 7.0 7.3 7.0 7.2 7.8 8.8 8.1 7.0	6.9 7.0 6.9 7.5 6.3 6.3 6.5 7.8 8.1 7.5 7.3 7.3 7.3 7.3 9.2 8.7 9.6 9.6 19.9 9.6 19.9 9.6 19.9 9.6 19.9 9.6 19.9 9.6 19.9 9.6 19.9 9.6 19.9 9.6 19.9 9.6 19.9 9.6 19.9 9.6 19.9 9.6 19.9 9.6 19.9 19.9	12.2 12.2 13.8 10.9 12.7 13.2 13.3 12.7 13.5 15.2 15.8 15.5 13.9 16.0 15.4 16.0 16.6 17.1 16.1 16.1 16.8 17.4 17.3 17.4 17.4 17.4 17.4	JULY 6.8 6.8 6.8 7.9 6.7 7.8 8.7 9.8 9.2 10.2 10.6 11.6 9.8 10.6 11.5 10.4 10.9 11.2 11.8 12.2 12.6 12.9	9.3 9.3 10.6 9.5 9.5 9.5 10.1 10.9 11.3 10.5 11.9 12.8 12.7 12.1 13.5 12.5 13.2 14.3 14.3 14.3 14.3 14.5 15.1 15.3	13.2 15.9 16.5 18.0 18.3 17.5 18.1 19.6 18.8 18.0 17.0 17.0 18.1 17.5 18.1 17.5 18.1 17.5 18.1	AUGUST 10.6 10.0 10.4 9.5 9.4 9.0 10.3 11.8 12.9 12.0 12.0 12.9 13.7 13.2 12.9 11.4 11.5 11.8 12.3 11.8 12.3 11.8 12.3 11.8 13.5 13.6	13.2 12.5 12.2 12.0 11.5 12.3 13.6 15.0 15.6 14.9 16.6 16.0 15.3 14.3 14.3 14.4 14.3 14.8	17.8 17.2 17.3 15.9 14.5 14.9 14.6 16.1 16.7 17.0 17.0 16.2 16.4 15.6 13.8 13.2 13.5 14.2 14.2 13.4 11.1 13.5 13.1 12.9 11.7	SEPTEMBE 14.2 12.3 12.6 10.4 9.8 9.5 9.7 8.9 10.4 10.9 11.2 11.4 11.4 10.9 11.8 12.0 11.7 10.1 10.0 9.4 8.3 8.1 8.6 9.2 8.7 9.0 8.7 8.3 9.2 8.1	15.7 14.6 12.7 12.1 11.9 11.8 11.5 13.0 13.7 13.8 14.0 13.5 13.8 14.0 13.9 13.5 13.6 11.5 10.6 11.1 11.4 11.0

12449500 METHOW RIVER AT TWISP, WA

LOCATION.--Lat 48°21'55", long 120°06'54", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.17, T.33 N., R.22 E., Okanogan County, Hydrologic Unit 17020008, on left bank, 0.25 mi downstream from Twisp River, 0.3 mi east of center of Twisp, and at mile 40.

DRAINAGE AREA. -- 1,301 mi².

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--June 1919 to September 1962, April 1991 to current year. Monthly discharge only for some periods, published in WSP 1316. Miscellaneous measurements in 1967, 1970, 1976, 1978-90. For 1976, 1978-80 published as "at site 2.7 mi downstream", in error.

GAGE.--Water-stage recorder. Elevation of gage is 1,580 ft above NGVD of 1929, from topographic map. Prior to Oct. 3, 1919, several staff gages in the immediate vicinity at different datum. Oct. 3, 1919 to Sept. 30, 1929, and Oct. 31 to Nov. 6, 1933, chain gage on road bridge 40 ft upstream at same datum as staff gages. Nov. 7 to Dec. 18, 1933, staff gage at present site at different datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. No known regulation. Numerous diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--54 years (water years 1920-62, 1992-2002), 1,340 ft³/s, 970,800 acre-ft/yr. Includes discharge for water years 1930-34, which were estimated for WSP 1316.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,800 ft³/s May 29, 1948, gage height, 12.94 ft, in gage well, from rating curve extended above 18,000 ft³/s on basis of slope-area measurement of peak flow; minimum observed, 134 ft³/s Sept. 4, 5, 1926, Sept. 9, 10, 1929, but may have been less during period of ice effect Jan. 6 to Mar. 4, 1937.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

 $\hbox{\it EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,200 ft^3/s and maximum (*): } \\$

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 21	1000	6,440	4.02	June 16	0500	*10,300	*5.51
May 30	0630	9,790	5.32	June 23	0630	6,590	4.08
June 6	0630	9 080	5.06				

Minimum daily discharge, 197 ft³/s Oct. 1.

		DISCHAP	KGE, CUBI	C FEET PE		MEAN V		3ER 2001 TC) SEPIEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	197	233	271	228	228	313	579	2290	7840	3750	811	314
2	202	233	271	230	229	314	595	2990	7550	3210	741	310
3	202	228	267	228	231	310	591	3230	7550	2890	691	307
4	202	228	259	225	226	313	603	2980	7800	2800	656	299
5	202	228	259	224	228	319	651	2690	8390	2560	622	296
6	206	228	259	225	226	316	734	2420	8580	2350	605	295
7	212	226	254	230	228	318	826	2210	6950		598	296
8 9	217 235	224 222	254	243	229	315 310	8//	2020 1890	5720	3220 3200	568 533	294 289
10	254	217	248	225 230 243 264 260	226 228 229 223 224	324	734 826 877 899 912	1750	4560		511	280
11	254	215				328	958	1680	5100	2920	501	272
12	254	215	248	248	210	332	1040	1770	6290	2920 3020 2740	487	263
13	251	215	248	245	209	324	1260	2160	7380	2740	470	257
14	248	234	242	242	224	317	2060	2730	8730	2700	462	254
15	248	215 215 215 234 261	242	227	220	315	2230	1680 1770 2160 2730 2930		2470	501 487 470 462 457	252
16	242	272	242	224	218 224 220 222 222	324 317 311 315 318	1960	2870		2130	445 432 416 401 388	243
17	240	284	247	221	224	317	1740	3100	7820	2010	432	237
18	237	284	248	215	220	311	1570	3530	6680	1870 1760	416	237
19 20	237 236	277 277	241 e220	221 215 230 237	222 222	315 318	1470 1440	3620 4660	5560 5060	1760 1630	401 388	236 236
21 22	233 233	277 280	e225	241	228	309	1470	6270 5640 4850 4440	5210	1460	384	236 237
23	233	284	240	220	237	210	1500	1050	6270	1330	365	237
24	237	284	248	234	341	323	1520	4440	5900	1260	352	235
25	236	278	244	241 226 221 234 e245	292	350	1470 1560 1590 1520 1480	4480	5470	1460 1350 1280 1260 1220	355	235
26	233	277	e230	e235	300 315 327 	370	1460	4830	5700	1200 1160 1050 981 928 875	396	238
27	233	277	e215	e225	315	387	1430	5410	6250	1160	386	227
28	233	277	233	e215	327	407	1390	6980	5650	1050	367	224
29	233	274	233	e205 224		435	1440	8960	5160	981	348	224
30	229	271	233	224		452	1680	9380	4600	928	332	223
31	228		228	235		516		8770		875	325	
TOTAL	7138	7580 253 284	7592	7203	6840	10521	38015			65114		7783
MEAN	230	253	245	232	244		1267	3985	6580	2100	477	259
MAX		284	271	264 205	341	516 309		9380	9590	3750 875	811	314
MIN AC-FT	197 14160	215 15030	15060	205 14290	209 13570	20870	579 75400	1680 245000		129200	325 29330	223 15440
CTDTT C	TTCS OF M	IONTHI.V MEZ	א מיימרו או	OP WATER	VFADC 1919	= 2002	BA MVL	ER YEAR (WY				
							-					
MEAN	415	471	402	314	318	434	1589	4952	4946	1766 4392	502	308
MAX (WY)	1383 1960	1183	1205	5/8	958 1935	1773	7692 1934	9515	11030	4392	1280 1999	727 1959
MIN	189	1934	1996	1935	1935	1934 204	1934	1957 1546	846	1954 289	162	148
(WY)	1937	1940	1205 1996 222 1926	1937	1929	1936		1920	1926	1926	1926	1929
SUMMAR	Y STATIST				NDAR YEAR		FOR 2002	WATER YEAR	2	WATER YE	ARS 1919 -	2002
ANNUAL				183365			493511					
ANNUAL				502			1352			1360		
	r annual									2231		1951
LOWEST	ANNUAL M	IEAN		4000	M 05		0500	T 2.0		467	M 00	1926
HIGHES:	I. DATLY ME	IEAN		4800	May 25		9590	Jun 16	•	32500	May 29	1948
POMEPI	CEALMIDA DWITT NE	ALMINITMIN A		1//	Sep 13		202 TA/	OCL I		134 141	sep 4	1926
ANNITAT.	BINOEE (AC-FT)		363700	2ch 13		978900	Jun 16 Oct 1 Oct 1	-	985400	Sep 2	. 1320
10 PER	CENT EXCE	EDS		1270			4840			3980		
	CENT EXCE			233			313			420		
	CENT EXCE			198			224			224		
20 1210	CLIVE LIESCE			100			224			224		

e Estimated

12449500 METHOW RIVER AT TWISP, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.-WATER TEMPERATURE: April 18, 2002 to September 30, 2002 (discontinued).

 ${\tt INSTRUMENTATION.--Electronic\ thermister/data\ logger\ with\ fifteen-minute\ punch\ interval.}$

REMARKS.--Records excellent.

EXTREMES FOR PERIOD.-- WATER TEMPERATURE: Maximum 19.1°C Aug. 14; minimum, 4.4°C May 6.

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	I	FEBRUARY			MARCH			APRIL			MAY	
1										10.9	6.9	9.1
2										9.8	6.7	8.3
3										8.7	5.1	7.1
4										8.1	4.8	6.5
5										8.7	5.3	6.8
6										7.9	4.4	6.1
7										7.9	4.7	6.3
8										8.1	4.5	6.4
9										8.1	5.1	6.8
10										10.7	5.8	8.2
11										11.5	6.9	9.3
12										11.3	7.6	9.7
13										10.6	7.8	9.0
14										10.4	6.6	8.5
15										9.6	5.8	7.8
16										10.6	6.1	8.4
17										11.2	7.6	9.4
18							9.5	4.8	7.2	9.7	6.7	8.0
19							9.6	5.3	7.7	9.0	6.9	7.9
20							9.5	6.2	8.0	8.7	7.5	7.9
21							10.9	6.9	8.9	7.5	6.1	6.9
22							9.6	6.2	8.2	7.5	5.9	6.7
23							8.6	5.8	7.3	9.0	6.1	7.4
24							8.6	4.5	6.8	9.9	5.6	7.8
25							9.8	6.2	8.0	9.3	7.0	8.0
26							9.3	6.2	7.8	9.2	6.6	7.8
27							9.2	6.9	8.1	9.9	6.7	8.4
28							10.9	5.9	8.5	9.5	7.3	8.5
29							11.5	6.7	9.3	9.6	6.4	7.9
30							11.8	8.1	9.9	9.5	5.9	7.7
31										9.3	6.2	7.8
MONTH										11.5	4.4	7.8

METHOW RIVER BASIN 371

12449500 METHOW RIVER AT TWISP, WA--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBE	ER
1 2 3 4 5	9.6 9.9 9.8 10.3	6.4 6.7 6.4 6.9 7.2	8.1 8.2 8.1 8.6 8.7	12.6 12.6 14.0 12.3 12.6	7.9 8.4 9.6 9.3 8.2	10.3 10.5 11.6 10.7 10.5	16.0 16.2 14.4 14.0 15.2	11.7 12.0 11.5 11.5	14.0 14.2 13.2 13.0 13.0	17.4 15.7 16.8 15.6 14.1	14.4 12.7 12.9 11.0 10.9	15.9 14.5 14.7 13.3 12.7
6 7 8 9 10	8.6 8.6 7.2 9.3 10.9	6.1 5.3 5.3 6.2 7.5	7.4 6.9 6.3 7.6 9.1	12.9 13.2 12.7 13.7 14.9	9.2 9.9 10.7 8.9 10.3	11.2 11.7 11.8 11.2 12.5	14.9 16.0 17.0 18.3 18.3	11.0 10.6 12.0 13.0 14.0	13.0 13.4 14.6 15.7 16.1	14.6 14.1 13.7 15.7 16.3	10.3 10.6 9.8 11.0 11.8	12.4 12.4 11.9 13.2 14.0
11 12 13 14 15	12.0 10.6 11.5 11.2	7.6 7.6 7.3 7.3	9.7 9.2 9.3 9.3 9.5	15.4 15.2 14.0 15.9	11.2 11.2 11.2 12.0 11.0	13.4 13.3 12.5 13.8 13.4	17.8 18.1 18.9 19.1 18.4	13.4 13.0 14.0 14.3 13.8	15.6 15.7 16.4 16.7 16.3	16.7 16.8 16.7 15.7	12.0 12.1 12.3 11.8 12.4	14.3 14.4 14.5 13.9 13.9
16 17 18 19 20	10.3 9.6 9.0 11.2 12.0	7.3 7.3 7.6 6.9 7.8	8.6 8.5 8.3 8.8 9.8	16.0 16.3 16.8 17.0 16.5	11.7 12.0 12.3 12.4 11.8	13.9 14.2 14.6 14.8 14.3	17.6 16.7 17.0 16.2 17.6	13.2 12.3 12.3 12.7 12.7	15.5 14.6 14.7 14.7 15.1	15.1 15.6 14.9 14.9	12.3 12.0 10.7 10.9 10.3	13.4 13.4 12.7 12.9 12.1
21 22 23 24 25	12.3 12.0 11.2 11.5 12.7	8.1 8.6 8.4 8.2 8.6	10.3 10.4 9.9 10 10.6	16.8 17.3 17.1 17.6 17.6	12.1 12.4 12.7 13.2 13.7	14.6 14.9 14.9 15.5	17.0 17.8 18.6 18.1 16.8	13.0 12.9 13.8 13.7 14.4	15.2 15.3 16.2 16.0 15.5	13.2 13.4 13.8 13.8	9.2 9.0 9.6 10.1 9.8	11.2 11.2 11.7 12.0 11.7
26 27 28 29 30 31	13.4 12.4 10.8 12.4 10.9	9.0 9.8 9.2 8.9 8.4	11.2 10.8 9.8 10.5 9.7	17.8 17.3 17.0 17.3 17.1 16.3	14.0 12.7 12.9 12.7 12.4 11.7	15.8 15.1 14.9 15.1 14.8 14.2	16.8 18.3 18.6 17.8 17.6	12.3 13.2 14.0 14.0 14.1	14.6 15.7 16.3 16.1 16.0	11.7 12.9 13.2 12.3 11.7	9.9 8.9 9.5 10.1 9.2	10.4 10.8 11.4 11.0 10.3
MONTH	13.4	5.3	9.1	17.8	7.9	13.4	19.1	10.6	15.1	17.4	8.9	12.7

12449760 METHOW RIVER AT CARLTON, WA

LOCATION.--Lat $48^{\circ}14^{\circ}11^{\circ}$, long $120^{\circ}06^{\circ}43^{\circ}$, in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.32, T.32 N., R.22 E., Okanogan County, Hydrologic Unit 17020008, on left bank approximately 0.5 mile downstream from Methow Valley Irrigation District diversion return, and 1.0 mile south of Carlton, WA city limits.

DRAINAGE AREA. -- 1,531 mi².

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--October 2001 to September 2002.

GAGE.--Water-stage recorder. Elevation of gage is 1,450 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good, except for estimated daily discharges, which are poor, and discharges above 7,000 $\mathrm{ft^3/s}$, which are poor. Several small diversions for irrigation upstream from station.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,000 ft³/s June 16, 2002 gage height, 9.08 ft; maximum gage height 9.48 ft June 16, 2002, from outside high-water mark; minimum discharge, 244 ft³/s Dec. 27, 2001, but may have been lower during periods of ice effect.

		DISCHA	RGE, CUBI	C FEET PE		WATER Y	EAR OCTOBE ALUES	R 2001 TO) SEPTEMBI	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	e246 e251 e251 e251 e251	e264 e264 e259 e259 e259	305 300 299 292 282	273 283 275 270 271	281 282 283 278 277	365 364 361 363 368	611 643 636 643 689	2340 3080 3420 3190 2900	8060 7680 7630 7820 8360	3850 3280 2900 2790 2560	873 804 749 713 679	352 345 341 334 332
6 7 8 9	e254 e259 e262 e270 e289	e259 e256 e254 e252 e247	289 284 288 280 276	280 284 293 311 305	277 280 283 274 272	369 368 367 361 371	767 866 928 961 978	2610 2390 2190 2030 1890	8680 7260 6030 5070 4650	2340 2290 3040 3230 2770	654 644 616 581 556	334 334 333 330 322
11 12 13 14 15	e289 e289	e245 e245 e245 e264 e291	279 280 283 286 274	299 298 296 291 e277	272 262 e254 e272 e269	374 382 375 369 369	1010 1100 1280 2030 2370	1800 1860 2210 2810 3090	5090 6250 7340 8610 9290	2840 2990 2700 2650 2460	545 536 514 499 489	314 307 298 295 293
16 17 18 19 20	e276 e274 e271 e271 e269	e303 e315 e315 e309 e309	e274 e278 e281 e274 e262	e274 e271 e265 280 289	267 272 268 269 270	375 372 363 367 373	2110 1880 1700 1580 1530	3030 3220 3680 3800 4670	9620 8010 6870 5740 5130	2130 2000 1880 1760 1650	476 464 449 435 422	288 283 282 281 279
21 22 23 24 25	e266 e266 e267 e270 e269	e309 e312 e316 e316 e310	e276 287 282 280 276	291 273 e268 e282 e296	278 280 354 389 348	363 359 361 372 399	1560 1650 1690 1630 1590	6570 6160 5280 4800 4790	5210 5730 6250 5960 5530	1490 1380 1300 1270 1240	415 411 400 386 385	279 282 280 277 274
26 27 28 29 30 31	e265	e309 e309 e309 e307 e305	273 253 277 280 276 274	e285 e275 e265 e250 e266 286	344 361 376 	419 435 446 468 489 540	1560 1530 1490 1520 1740	5130 5710 7100 8960 9530 8940	5670 6260 5770 5210 4720	1220 1180 1090 1030 982 933	422 421 402 385 369 362	281 277 274 272 270
TOTAL MEAN MAX MIN AC-FT	8291 267 289 246 16450			8722 281 311 250 17300	8192 293 389 254 16250	12027 388 540 359 23860	40272 1342 2370 611 79880	129180 4167 9530 1800 256200	199500 6650 9620 4650 395700	65225 2104 3850 933 129400	16056 518 873 362 31850	9043 301 352 270 17940
STATIST	rics of M	ONTHLY MEA	AN DATA F	OR WATER	YEARS 200	2 - 2002	, BY WATER	YEAR (W	7)			
MEAN MAX (WY) MIN (WY)	267 267 2002 267 2002	284 284 2002 284 2002	281 281 2002 281 2002	281 281 2002 281 2002	293 293 2002 293 2002	388 388 2002 388 2002	1342 1342 2002 1342 2002	4167 4167 2002 4167 2002	6650 6650 2002 6650 2002	2104 2104 2002 2104 2002	518 518 2002 518 2002	301 301 2002 301 2002
SUMMARY	Y STATIST	ICS			FOR 2	002 WATE	R YEAR					
LOWEST ANNUAL ANNUAL 10 PERC 50 PERC	MEAN DAILY M DAILY ME	AN Y MINIMUM AC-FT) EDS EDS			10190 50 3	07 20 45 1 49 1	Jun 16 Nov 11 Nov 7					

e Estimated

12449760 METHOW RIVER AT CARLTON, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.-- WATER TEMPERATURE: April 11, 2002 to September 30, 2002 (discontinued).

 ${\tt INSTRUMENTATION.--Electronic\ thermister/data\ logger\ with\ fifteen-minute\ punch\ interval.}$

REMARKS.--Records excellent.

EXTREMES FOR PERIOD.-- WATER TEMPERATURE: Maximum 21.0°C Aug. 14; minimum, 4.3°C April 15.

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	1	FEBRUARY			MARCH			APRIL			MAY	
1										11.2	8.2	9.9
2										10.6	7.8	9.1
3										8.8	6.1	7.7
4										8.5	5.4	7.1
5										8.5	5.7	7.1
6										7.6	5.1	6.3
7										7.5	5.3	6.3
8										8.2	5.4	6.9
9										8.5	5.7	7.1
10										10.4	6.4	8.3
11							10.4			11.6	7.9	9.9
12							10.2	7.8	9.0	11.6	9.0	10.4
13							11.6	8.2	9.8	10.9	9.0	9.8
14							10.9	6.8	8.8	10.6	7.5	9.1
15							6.8	4.3	5.6	9.8	6.7	8.4
16							7.1	5.6	6.4	10.6	6.8	8.9
17							9.0	5.6	7.2	11.3	8.7	10.1
18							9.6	5.7	7.6	10.7	7.6	8.6
19							9.3	6.4	7.8	9.0	7.3	8.3
20							9.6	7.3	8.4	9.0	8.1	8.4
21							11.2	7.8	9.4	8.1	6.4	7.2
22							10.2	7.5	8.9	7.8	6.2	7.0
23							9.6	6.7	7.9	9.5	6.4	7.7
24							8.5	5.4	7.1	9.9	6.4	8.2
25							9.9	7.0	8.4	9.8	7.6	8.5
26							9.3	7.3	8.4	9.5	7.0	8.2
27							9.5	7.6	8.5	10.1	7.3	8.7
28							10.9	7.0	8.8	9.8	7.9	9.1
29							11.5	8.1	9.8	9.8	6.7	8.2
30							11.8	9.5	10.7	9.6	6.2	7.9
31							11.0	9.5	10.7	9.6	6.5	8.1
21										٥.٤	0.5	0.1
MONTH										11.6	5.1	8.3

12449760 METHOW RIVER AT CARLTON, WA--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBE	lR.
1 2 3 4 5	9.8 10.1 9.8 10.6 10.4	6.8 7.1 6.8 7.3 7.6	8.3 8.5 8.4 8.8 9.1	12.7 12.7 13.6 13.2 12.9	8.7 9.2 10.6 10.4 9.2	10.7 11.0 12.1 11.4 11.0	16.3 17.4 15.7 15.0 15.8	13.3 13.3 12.9 12.4 11.8	15.0 15.3 14.5 13.9 13.6	18.9 17.1 18.1 16.6 14.6	15.8 14.3 14.1 12.4 11.8	17.2 16.0 16.1 14.6 13.5
6 7 8 9 10	9.3 8.7 8.1 9.0 11.0	6.4 5.6 5.6 6.5 8.1	7.8 7.2 6.5 7.5 9.5	13.2 13.9 13.6 13.6	10.4 11.0 11.6 9.8 11.2	11.7 12.4 12.7 11.9 13.2	15.4 16.5 18.2 19.7 20.0	12.2 11.9 13.3 14.4 15.4	13.8 14.3 15.7 16.9 17.5	15.5 15.0 14.7 16.6 17.4	11.2 11.5 10.7 11.6 12.7	13.4 13.5 12.8 13.9 15.1
11 12 13 14 15	12.1 11.5 11.5 11.2 11.6	8.4 8.4 7.8 7.8 7.9	10.1 9.7 9.6 9.6 9.8	15.8 15.5 15.0 16.5 15.7	12.4 12.4 12.2 12.9 12.2	14.2 14.2 13.4 14.5 14.2	19.4 19.7 20.8 21.0 20.3	14.7 14.4 15.4 16.0 15.4	17.1 17.1 17.9 18.4 17.8	17.7 18.1 17.9 16.9	13.2 13.5 13.5 13.0 13.6	15.5 15.7 15.7 15.1 15.2
16 17 18 19 20	10.9 9.8 9.3 11.2 11.9	7.6 7.8 7.9 7.1 8.2	8.9 8.8 8.6 9.0	16.2 16.8 17.3 17.4 16.6	12.9 13.3 13.6 14.1 13.5	14.6 15.1 15.6 15.9 15.3	19.0 18.1 18.2 17.9 18.7	14.6 13.6 13.5 13.9	16.9 16.0 15.9 16.1 16.3	16.3 16.6 15.8 15.4 14.7	13.3 13.3 11.9 11.6 11.2	14.6 14.7 13.8 13.7
21 22 23 24 25	12.4 12.1 11.6 11.6 12.9	8.8 9.3 9.0 8.8 9.3	10.7 10.8 10.3 10.3	17.1 17.7 16.9 17.9	13.8 14.3 14.7 14.9 15.4	15.6 16.0 16.0 16.4 16.9	19.2 19.4 20.3 19.8 18.1	14.4 14.1 15.4 15.2 15.9	16.7 16.8 17.8 17.6 17.0	13.8 13.8 14.3 14.3	10.1 9.6 10.2 10.9 10.6	12.0 11.8 12.3 12.6 12.4
26 27 28 29 30 31	13.5 13.2 11.2 12.7 11.6	9.8 10.6 9.6 9.3 9.0	11.7 11.4 10.2 10.8 10.2	18.7 18.1 18.2 18.6 17.7 17.1	15.5 14.6 14.7 14.7 14.6 13.3	17.1 16.4 16.3 16.3 16.1 15.4	18.4 19.8 20.3 19.8 19.8	14.1 14.9 15.4 15.7 15.4 15.2	16.2 17.2 17.8 17.8 17.6 17.5	12.6 13.3 13.5 12.6 11.6	10.7 9.3 9.8 10.4 9.0	11.1 11.3 11.8 11.5 10.4
MONTH	13.5	5.6	9.4	18.7	8.7	14.3	21.0	11.8	16.5	18.9	9.0	13.7

12449950 METHOW RIVER NEAR PATEROS, WA

LOCATION.--Lat 48°04'39", long 119°59'02", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.20, T.30 N., R.23 E., Okanogan County, Hydrologic Unit 17020008, on right bank 1.4 mi downstream from Black Canyon Creek, 4.3 mi northwest of Pateros, and at mile 6.7.

DRAINAGE AREA. -- 1.772 mi2.

PERIOD OF RECORD. -- April 1959 to current year.

REVISED RECORDS. -- WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 900 ft above NGVD of 1929, from topographic map. Prior to Dec. 17, 1964, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Diversions for irrigation of about 11,000 acres upstream from station (1959 Bureau of Reclamation land classification). U.S. Geological Survey satellite telemeter at station. Water temperature October 1968 to October 1970.

AVERAGE DISCHARGE.--43 years (water years 1960-2002), 1,550 $\mathrm{ft^3/s}$, 1,123,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,800 ft 3 /s May 31, 1972, gage height, 12.25 ft; minimum daily discharge, 150 ft 3 /s Jan. 8-10, 1974, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since 1894, 46,700 ft³/s May 29, 1948, determined by slope-area measurement of peak flow at site 1 mi downstream

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,000 ft^3/s and maximum (*):

Date	Time	Disch (ft ³	arge /s)	Gage height (ft)	Date		Time	Disch (ft ³	arge (Gage height (ft)		
May 30	1115	9,		7.70	June		1115	*10,		*7.89		
Minimum disc								,				
MIIIIIIIIIIII GISC	charge, 27	•										
		DISCHAR	GE, CUE	BIC FEET PER		WATER YE MEAN VA		R 2001 TC) SEPTEMI	3ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	270	310	335	297	299	378	536	2160	8150	4040	917	385
2	275	312	339	300	297	378	586	2850	7600	3460	856	373
3	285	307	338	305	297	378	614	3290	7540	3080	797	364
4 5	285 282	304 301	333 326	302 298	297 297	378 378	627 640	3150 2890	7740 8340	2920 2730	762 722	357 353
6	283	298	319	299	294	378	676	2630	8790	2500	692	351
7 8	288 295	297 294	318 318	304 311	294 297	378 378	743 821	2410 2220	7410 6140	2410 2930	680 658	351 351
9	297	294	317	324	297	378	918	2050	5260	3390	625	351
10	302	290	310	333	294	379	946	1930	4810	2920	595	349
11	207	200	200	224	200	200	971	1000	F000	2000	577	220
12	307 309	288 286	309 305	334 330	290 288	386 390	1040	1820 1840	5090 6080	2900 3070	569	339 332
13	309	289	309	326	282	392	1190	2110	7160	2840	549	324
14	309	296	310	323	275	392	1780	2660	8410	2750	530	317
15	309	317	311	315	283	387	2310	3000	9270	2610	516	311
16	309	342	306	301	285	387	2090	2990	9780	2290	506	307
17	307	354	319	298	283	392	1880	3110	8150	2120	495	302
18	305	356	325		286	387	1700	3530	6860	1990	480	297
19	305	350	e310	294	286	383	1580	3710	5870	1880	465	297
20	301	354	e280	299	286	385	1520	4280	5210	1760	452	296
21	301	362	e290	306	288	386	1530	6120	5220	1610	440	294
22	301	370	e295	310	293	381	1600	5920	5670	1480	436	294
23 24	302 308	373 363	e300	293 316	303 357	378 380	1660 1610	5140 4680	6180 5990	1390 1350	428 415	297 295
25	309	350	308 305	349	374	390	1570	4600	5570	1310	415	293
26 27	312 310	341 334	301 297	337 326	363 362	407 425	1550 1530	4890 5360	5640 6140	1280 1250	433 451	294 294
28	306	332	288	e300	371	439	1490	6580	5840	1160	432	294
29	304	340	294	e280		453	1500	8770	5270	1080	417	294
30	302	335	297	e285		473	1660	9510	4850	1020	404	291
31	308		297	295		495		9080		968	394	
TOTAL	9295	9735	9609	9581	8518	12269	38868	125280	200030	68488	17102	9648
MEAN	300	324	310	309	304	396	1296	4041	6668	2209	552	322
MAX	312	373	339	349	374	495	2310	9510	9780	4040	917	385
MIN AC-FT	270 18440	286 19310	280 19060	280 19000	275 16900	378 24340	536 77090	1820 248500	4810 396800	968 135800	394 33920	291 19140
				FOR WATER Y								
MEAN	478	538	481	423	420	601	1583	4932	5915	2167	703	444
MAX (WY)	1458 1960	1327 1991	1361 1996	938 1981	803 1968	1407 1968	3364 1996	9768 1972	13150 1972	4960 1999	1860 1976	1196 1978
MIN	294	294	270	248	262	237	309	1415	1583	471	284	238
(WY)	1988	1988	1995	1995	2001	1977	2001	1977	2001	1977	1977	2001
SUMMARY	STATISTIC	S	FOR	2001 CALEND	AR YEAR	FC	OR 2002 WA	TER YEAR		WATER YEARS	S 1959 -	2002
ANNUAL	TOTAL.			207201			518423					
ANNUAL				568			1420			1550		
	r annual M									2963		1972
	ANNUAL ME DAILY ME			4870	Mar- ar		9780	Jun 16		565 27200	M > -	1977
	DAILY MEA			4870 226	May 25 Sep 24		9780 270	Oct 1		27200 150	May 31 Jan 8	
	SEVEN-DAY			228	Sep 19		281	Oct 1		154	Jan 5	
ANNUAL	RUNOFF (A	C-FT)		411000			1028000			1123000		
	CENT EXCEE			1370			4970			4320		
	CENT EXCER			303 257			378			542		
90 PER	CENT EXCEE	פתי		25 /			294			304		

e Estimated

376 COLUMBIA RIVER MAIN STEM

12450700 COLUMBIA RIVER BELOW WELLS DAM, WA

LOCATION.--Lat $47^{\circ}56^{\circ}48^{\circ}$, long $119^{\circ}51^{\circ}56^{\circ}$, in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.6, T.28 N., R.24 E., Chelan County, Hydrologic Unit 17020005, at powerhouse of Wells Dam, 0.7 mi northeast of Azwell, and at mile 515.9.

DRAINAGE AREA.--86,100 mi^2 , approximately.

PERIOD OF RECORD.--October 1967 to current year. October 1953 to September 1967 (monthly discharge only) in the files of the U.S. Geological Survey.

GAGE.--Daily discharge determined from flow through turbines plus spillway flow when present. Datum of gage is NGVD of 1929 (levels by Bechtel Corporation). Prior to Oct. 1, 1970, at site 0.8 mi downstream at same datum. Oct. 1, 1970, to July 20, 1988, water-stage recorder at present site and datum with auxiliary water-stage recorder 6.8 mi downstream from base gage at same datum.

REMARKS.--Flow regulated by numerous reservoirs. Feeder Canal diversion (station 12435500) for Columbia Basin project is used to irrigate approximately 600,000 acres in the United States. An additional 66,500 acres in Canada are irrigated by other diversions.

COOPERATION.--Discharge records provided by Public Utility District No. 1 of Douglas County at Wells Dam through the Corps of Engineers, North Pacific Division, Reservoir Control Center. The U.S. Geological Survey made 6 discharge measurements at this site during the year.

 $AVERAGE \ DISCHARGE. --49 \ years \ (water years \ 1954-2002), \ 115,300 \ ft^3/s, \ 83,530,000 \ acre-ft/yr, \ unadjusted.$

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, $402,000 \text{ ft}^3/\text{s}$ June 15, 1972; maximum elevation, 731.92 ft June 16, 1972; minimum discharge, 17,900 ft $^3/\text{s}$ Oct. 5, 1970 (from powerplant records); minimum elevation, 703.55 ft Sept. 28, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 251,000 ft³/s July 2; minimum daily discharge, 28,500 ft³/s Mar. 31.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65400	53700	47800	67500	98500	88000	56700	124000	132000	241000	137000	46100
2	50500	51200	49500	93900	85700	72200	66100	133000	161000	251000	145000	64900
3	58900	46600	92400	101000	72300	52200	59700	128000	194000	249000	116000	92500
4	58800	44500	95800	112000	117000	73700	52900	120000	238000	219000	93500	68100
5	45300	74800	89800	91700	105000	60200	58900	111000	233000	187000	114000	69900
6	38500	74800	75000	59700	107000	87200	38300	158000	220000	190000	123000	67400
7	43100	75400	75300	81200	91800	94500	33400	156000	235000	143000	144000	54800
8	59600	75100	48000	76200	100000	93200	51700	128000	221000	152000	147000	52500
9	53500	65800	52400	59800	91000	65400	59600	145000	208000	184000	138000	86800
10	57400	54000	93700	60400	83500	55500	51100	130000	230000	207000	116000	73500
11	57800	56200	99900	75700	122000	88200	115000	107000	204000	204000	98300	62600
12	64200	65900	93700	63300	106000	84300	116000	101000	209000	218000	125000	78800
13	42500	60000	86400	65300	101000	70600	94700	137000	189000	200000	131000	77800
14	44700	65200	79100	105000	91700	70200	113000	134000	199000	142000	126000	46400
15	68600	70700	66300	110000	114000	79800	141000	131000	176000	175000	123000	46700
16	74000	74800	46700	100000	95900	67700	177000	140000	170000	208000	98300	80300
17	64500	57200	84200	107000	69600	54400	186000	129000	193000	185000	81400	71000
18	61400	62000	94500	103000	97300	88200	189000	119000	214000	183000	81300	82500
19	64400	82300	96300	90400	96400	78300	180000	117000	231000	199000	121000	99500
20	45700	87500	107000	62200	92900	97800	179000	130000	248000	180000	118000	94200
21	44500	86600	96000	110000	83000	79700	155000	125000	229000	156000	117000	81000
22	62900	55200	76400	105000	73400	49300	176000	136000	185000	176000	132000	73500
23	58500	69600	63100	105000	77400	31800	159000	147000	147000	173000	120000	100000
24	66100	73100	87000	91000	61300	35800	157000	146000	186000	154000	96800	101000
25	63700	66600	53300	107000	84200	47500	152000	124000	216000	139000	73500	97000
26 27 28 29 30 31	54000 44500 43900 72900 60200 46100	100000 97700 102000 95400 83400	100000 97600 89300 68800 53800 92100	78200 68200 111000 117000 120000 122000	82600 95700 76700 	63600 57300 52100 47800 34700 28500	145000 124000 114000 152000 152000	144000 156000 155000 160000 151000 162000	209000 233000 245000 218000 197000	119000 104000 106000 129000 148000 152000	116000 110000 118000 107000 111000 89500	85100 61600 65200 43300 85700
MEAN MAX MIN	1736100 56000 74000 38500 3444000	2127300 70910 102000 44500 4220000	2451200 79070 107000 46700 4862000	2819700 90960 122000 59700 5593000	2572900 91890 122000 61300 5103000	2049700 66120 97800 28500 4066000	3505100 116800 189000 33400 6952000	4184000 135000 162000 101000 8299000	6170000 205700 248000 132000 12240000	5473000 176500 251000 104000 10860000	3567600 115100 147000 73500 7076000	2209700 73660 101000 43300 4383000

CAL YR 2001 TOTAL 25912300 MEAN 70990 MAX 123000 MIN 29500 AC-FT 51400000 WTR YR 2002 TOTAL 38866300 MEAN 106500 MAX 251000 MIN 28500 AC-FT 77090000

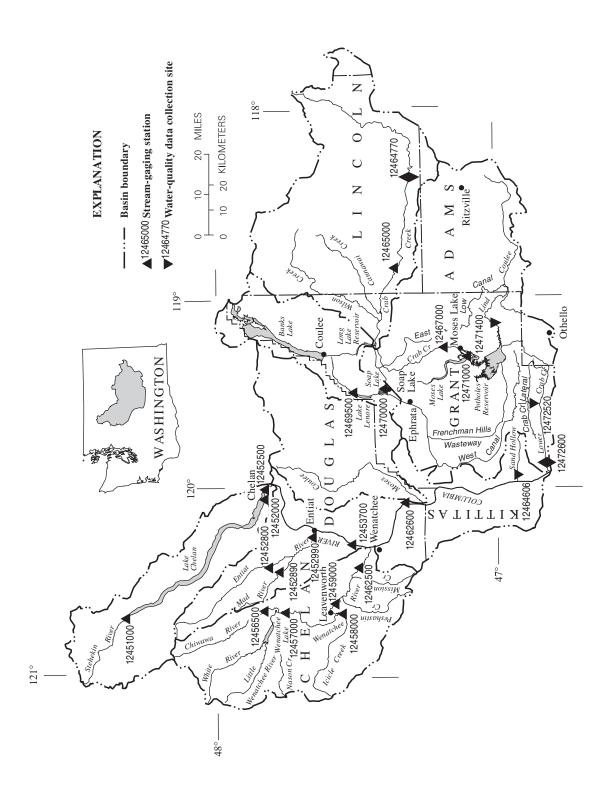


Figure 41. Location of surface-water and water-quality stations in the Columbia River Basin from Chelan to Priest Rapids Dam including Chelan River, Entiat River, Wenatchee River, and Crab Creek Basins.

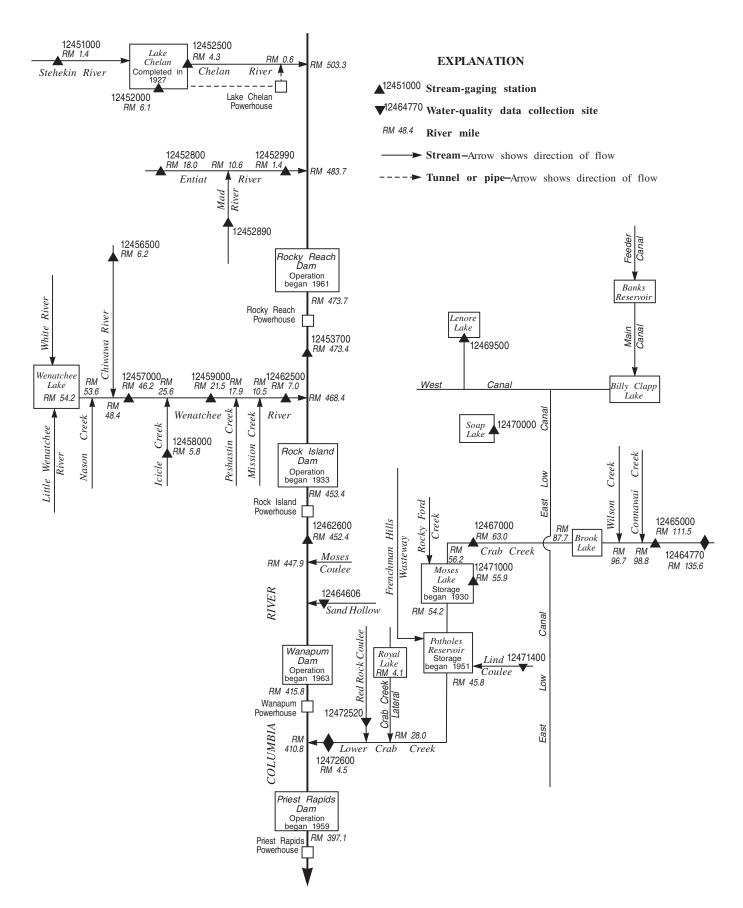


Figure 42. Schematic diagram showing surface-water and water-quality stations in the Columbia River Basin from Chelan to Priest Rapids Dam including Chelan River, Entiat River, Wenatchee River, and Crab Creek Basins.

CHELAN RIVER BASIN 379

12451000 STEHEKIN RIVER AT STEHEKIN, WA

LOCATION.--Lat $48^{\circ}19^{\circ}47^{\circ}$, long $120^{\circ}41^{\circ}26^{\circ}$, in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.26, T.33 N., R.17 E., Chelan County, Hydrologic Unit 17020009, Lake Chelan National Recreation Area, on left bank 1,100 ft upstream from Boulder Creek, 1.4 mi upstream from Lake Chelan, and 2.1 mi northwest of Stehekin.

DRAINAGE AREA. -- 321 mi2.

Date

May 29 June 6 Time

PERIOD OF RECORD.--October 1910 to October 1915, October 1926 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 412: 1914. WSP 1316: 1911(M), 1914-15(M). WSP 1446: 1912(M). WSP 1933: Drainage area. WDR-80-2: Drainage area

GAGE.--Water-stage recorder. Datum of gage is 1,098.5 ft above NGVD of 1912. To convert to NGVD of 1929, subtract 1.73 ft. Prior to Aug. 17, 1911, nonrecording gage 0.4 mi upstream from mouth at Lake Chelan at different datums (datum change made June 13, 1911). Aug. 17, 1911 to Oct. 31, 1915, nonrecording gage 0.2 mi downstream from Boulder Creek at different datum.

REMARKS.--Records good, except for estimated daily discharges and the period July 14 to Aug. 28, which are fair. No known regulation or diversion. U.S. Geological Survey satellite telemeter at station.

Date

23.95 June 16 0130 23.66 June 27 0200

AVERAGE DISCHARGE.--81 years (water years 1911-14, 1927-2002), 1,413 ft³/s, 59.78 in/yr, 1,024,000 acre-ft/yr, includes monthly discharge values published in WSP 1316.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,900 ft³/s Nov. 29, 1995, gage height, 29.58 ft, from rating curve extended above 11,000 ft³/s on basis of slope-area measurement at 18,800 ft³/s; minimum discharge, 56 ft³/s Jan. 12, 1930.

Time

Discharge Gage height (ft³/s) (ft)

*24.92 24.26

*8,960 7,820

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,500 $\mathrm{ft^3/s}$ and maximum (*):

Discharge Gage height (ft³/s) (ft)

7,220 6,840

Minimum dis	charge 21	.1 ft ³ /s Oc	t. 10.									
		DISCHAR	GE, CUBI	C FEET PER		WATER YE		ER 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
DAI	001	NOV	DEC	OPIN	PED	PPIC	AFK	PIELL	UOIN	001	AUG	JHF
1	339	440	523	277	396	788	608	2920	5300	4990	2050	e980
2	323	433	493	282	387	731	627	3550	5390	4540	1880	e970
3	289	449	467	270	382	688	617	3330	5850	4350	1690	e930
4	272	414	452	267	361	664	651	2820	6010	4320	1550	e870
5	255	451	435	264	351	654	753	2450	6340	4010	1490	e800
6	245	441	436	273	352	623	917	2150	6270	3900	1460	e770
7	232	424	413	369	346	599	1100	1920	4850	4290	1380	e720
8	226	415	408	1140	339	573	1110	1740	3980	5600	1350	e690
9	221	407	394	908	326	547	1100	1630	3470	4980	1400	e670
10	223	399	381	738	321	539	1160	1560	3600	4840	1600	e640
11	272	394	370	663	316	545	1280	1590	4590	5780	1620	e620
12	241	373	364	648	304	531	1480	1800	5820	5940	1530	e600
13 14	382	408	381	632	302 295	500	2220	2320	6760	5680	1550	e590
	327	996	388	588		480	3980	2710	7710	5980	1640	e585
15	309	1950	377	554	290	467	3140	2640	8190	5260	1650	e580
16	279	1780	362	531	287	456	2460	2640	7950	4810	1470	e570
17	289	1280	408	508	285	439	2100	3030	6710	4800	1270	e560
18	266	1010	414	486	283	429	1860	3370	6250	4640	1160	e550
19	312	883	389	475	294	423	1740	3270	5560	4490	1110	e530
20	338	848	368	468	291	417	1720	4010	5480	4110	1080	e515
21	300	833	354	463	319	401	1790	4400	5880	3880	1080	e510
22	366	820	340	444	1320	390	1820	3940	6480	3750	1080	e495
23	466	773	328	430	1940	387	1760	3490	6670	3760	1100	e480
24 25	404 394	714 664	319 311	450 530	1540 1240	395 408	1640 1560	3300 3360	6470 6320	3820 3750	1140 1220	e470 e465
25	394	664	311	530	1240	408	1560	3360	6320	3/50	1220	e465
26	364	623	302	504	1090	431	1530	3670	6810	3700	1170	e460
27	385	590	296	466	948	439	1530	3980	7330	3250	1130	e455
28	390	581	295	443	854	451	1540	5200	6710	2920	1140	e445
29	365	546	289	427		463	1680	6800	7080	2890	e1160	e440
30	351	508	286	416		487	2110	6710	6050	2690	e1130	e435
31	461		283	407		535		6090		2380	e990	
moma r	2225	00045	11606	15301	15550	15000	45500	100200	101000	124100	10000	10205
TOTAL	9886	20847	11626	15321	15759	15880	47583	102390	181880	134100	42270	18395
MEAN	319	695	375	494	563	512	1586	3303	6063	4326	1364	613
MAX	466	1950	523	1140	1940	788	3980	6800	8190	5980	2050	980
MIN	221	373	283	264	283	387	608	1560	3470	2380	990	435
AC-FT	19610	41350	23060	30390	31260	31500	94380	203100	360800	266000	83840	36490
CFSM IN.	0.99 1.15	2.16	1.17 1.35	1.54 1.78	1.75 1.83	1.60 1.84	4.94 5.51	10.3 11.87	18.9 21.08	13.5 15.54	4.25	1.91
TIV.	1.15	2.42	1.33	1.70	1.03	1.04	5.51	11.07	21.00	13.34	4.90	2.13
STATIS'	TICS OF M	ONTHLY MEA	N DATA F	OR WATER Y	YEARS 1911	- 2002,	BY WATE	R YEAR (WY)			
MEAN	605	696	525	404	398	525	1443	3542	4167	2642	1258	697
MAX	1869	3192	1896	1577	1209	1546	4644	5810	7738	5479	2716	1399
(WY)	1960	1991	1976	1984	1971	1934	1934	1958	1950	1950	1974	1959
MIN	230	148	125	86.0	115	194	549	1475	1680	1157	681	409
(WY)	1988	1930	1930	1930	1937	1937	1955	1977	1915	1977	1944	1942
SUMMAR'	Y STATIST	rics	FOR	2001 CALEN	NDAR YEAR	F	OR 2002 I	WATER YEAR		WATER YEA	RS 1911 -	2002
ANNUAL	ΤΟΤΆΤ.			329314			615937					
ANNUAL				902			1687			1409		
	T ANNUAL	MEAN		302			1007			2008		1950
	ANNUAL M									864		2001
	T DAILY M			6360	May 24		8190	Jun 15		18000	Nov 29	
	DAILY ME			115	Feb 7		221	Oct 9		58	Jan 12	
		Y MINIMUM		124	Feb 21		237	Oct 6		67	Jan 9	
	RUNOFF (653200			1222000			1021000		
	RUNOFF (2.81	L		5.3	26		4.3	9	
	RUNOFF (38.16	5		71.			59.6		
	CENT EXCE			2260			4980			3620		
	CENT EXCE			436			664			740		
	CENT EXCE			142			310			246		

e Estimated

380 CHELAN RIVER BASIN

12452000 LAKE CHELAN AT CHELAN, WA

LOCATION.--Lat 47°50'11", long 120°03'37", near center of sec.15, T.27 N., R.22 E., Chelan County, Hydrologic Unit 17020009, on south shore of Lake Chelan at Lakeside, 2.1 mi west of Chelan.

DRAINAGE AREA. -- 924 mi2.

PERIOD OF RECORD.--September 1897 to December 1899, January to June 1905 and December 1910 to September 1911 (fragmentary gage heights only), October 1911 to current year. Records of change in contents prior to October 1911, published in WSP 482 and 492 in conjuction with records for Chelan River near Chelan, have been found to be unreliable and should not be used. Monthend contents October 1911 to September 1950 published in WSP 1316.

REVISED RECORDS.--WSP 1246: 1951. WSP 1286: 1952. WSP 1933: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1912. To convert to NGVD of 1929, subtract 1.73 ft. Prior to Jan. 1, 1900, nonrecording gage at Lakeside about 1 mi west of Chelan at datum 1,070.18 ft above NGVD of 1912. Jan. 1 to June 30, 1905, nonrecording gage at upper highway bridge at Chelan at different datum. Dec. 5, 1910, to Nov. 13, 1927, nonrecording gage at Forest Service boat landing at Chelan at datum 1,076.07 ft above NGVD of 1912.

REMARKS.--Reservoir is formed by low concrete dam at lake outlet completed Sept. 3, 1927. Usable capacity between elevations 1,079 ft and 1,100 ft 677,400 acre-ft. Regulation between these elevations is allowed by stipulation of the Federal Power Commission. Water is used for power development. Elevation of lake maintained between 1,092 ft and 1,100 ft during period Aug. 16 to Sept. 15 for scenic effect and recreational purposes. Diversions for irrigation of about 6,280 acres with an annual depletion of about 11,000 acre-ft, 1946 estimate. Chemical analyses June 1971 to August 1972.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 1,100.16 ft June 30, 1981 (affected by seiche action); maximum contents, 679,300 acre-ft June 30, 1981, elevation, 1,100.06 ft, mean of seiche; minimum elevation since completion of dam in 1927, 1,079.68 ft Apr. 3, 4, 1937, Apr. 3, 1970, contents, 21,350 acre-ft; minimum elevation, 1,076.78 ft, Jan. 27, 28, Dec. 2-5, 1898.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 676,700 acre-ft July 24, elevation, 1,099.98 ft; minimum contents, 172,000 acre-ft Apr. 12, 13, elevation, 1,084.43.

Capacity table (elevation, in feet, and usable contents, in acre-feet) (Based on data by the Pacific Northwest Coordination Agreement)

1,080	31,540	1,090	350,900	1,100	677,400
1 085	190 200	1 095	513 300		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
	1098.09	1094.72	1094.29	1091.88	1089.52	1087.34	1084.89	1085.24	1090.37	1098.52	1099.58	1099.63
	1097.98	1094.61	1094.37	1091.81	1089.41	1087.27	1084.81	1085.37	1090.80	1098.53	1099.59	1099.57
	1097.86	1094.51	1094.43	1091.71	1089.31	1087.20	1084.75	1085.55	1091.11	1098.60	1099.51	1099.52
	1097.74	1094.41	1094.45	1091.60	1089.22	1087.13	1084.69	1085.68	1091.48	1098.67	1099.45	1099.44
5	1097.63	1094.31	1094.43	1091.50	1089.12	1087.07	1084.63	1085.79	1091.92	1098.69	1099.39	1099.32
	1097.54	1094.20	1094.36	1091.43	1089.02	1086.97	1084.59	1085.88	1092.39	1098.76	1099.40	1099.25
	1097.41	1094.08	1094.26	1091.41	1088.95	1086.89	1084.56	1085.91	1092.74	1098.89	1099.38	1099.19
	1097.29	1093.97	1094.17	1091.40	1088.90	1086.82	1084.53	1085.94	1092.99	1099.11	1099.40	1099.06
	1097.19	1093.87	1094.07	1091.37	1088.80	1086.74	1084.50	1085.96	1093.17	1099.21	1099.45	1098.96
10	1097.04	1093.76	1093.96	1091.33	1088.69	1086.66	1084.47	1085.98	1093.29	1099.28	1099.52	1098.88
	1096.96	1093.65	1093.86	1091.28	1088.59	1086.60	1084.45	1085.99	1093.50	1099.45	1099.59	1098.78
	1096.85	1093.55	1093.75	1091.27	1088.47	1086.56	1084.43	1085.99	1093.81	1099.67	1099.65	1098.70
	1096.73	1093.44	1093.67	1091.17	1088.36	1086.49	1084.44	1086.01	1094.22	1099.75	1099.71	1098.66
14	1096.58	1093.45	1093.63	1091.10	1088.25	1086.41	1084.55	1086.09	1094.74	1099.86	1099.78	1098.61
15	1096.45	1093.44	1093.50	1091.01	1088.14	1086.33	1084.73	1086.18	1095.34	1099.81	1099.85	1098.59
16	1096.37	1093.47	1093.46	1090.94	1088.04	1086.24	1084.87	1086.24	1095.98	1099.81	1099.88	1098.56
17	1096.26	1093.44	1093.41	1090.85	1087.93	1086.15	1084.95	1086.33	1096.46	1099.86	1099.90	1098.52
18	1096.12	1093.40	1093.30	1090.76	1087.83	1086.05	1085.02	1086.46	1096.79	1099.89	1099.90	1098.48
19	1095.99	1093.48	1093.21	1090.68	1087.72	1085.97	1085.06	1086.61	1096.83	1099.89	1099.90	1098.41
20	1095.89	1093.59	1093.13	1090.67	1087.63	1085.88	1085.08	1086.79	1096.75	1099.80	1099.89	1098.35
21	1095.76	1093.69	1093.04	1090.53	1087.55	1085.81	1085.11	1087.02	1096.66	1099.69	1099.86	1098.29
22	1095.65	1093.78	1092.94	1090.41	1087.53	1085.73	1085.13	1087.29	1096.66	1099.74	1099.80	1098.24
23	1095.67	1093.87	1092.84	1090.32	1087.52	1085.65	1085.16	1087.47	1096.70	1099.85	1099.79	1098.21
24	1095.54	1093.92	1092.74	1090.25	1087.52	1085.57	1085.17	1087.64	1096.73	1099.94	1099.79	1098.19
25	1095.41	1093.95	1092.63	1090.18	1087.52	1085.48	1085.17	1087.80	1096.82	1099.90	1099.82	1098.21
26	1095.30	1094.00	1092.51	1090.08	1087.49	1085.39	1085.16	1087.97	1097.05	1099.75	1099.85	1098.22
27	1095.22	1094.03	1092.40	1089.98	1087.46	1085.32	1085.16	1088.17	1097.46	1099.71	1099.83	1098.24
28	1095.10	1094.10	1092.31	1089.89	1087.41	1085.23	1085.17	1088.40	1097.80	1099.69	1099.78	1098.26
29	1094.97	1094.18	1092.21	1089.79		1085.14	1085.17	1088.78	1098.18	1099.66	1099.75	1098.29
30	1094.88	1094.22	1092.10	1089.70		1085.05	1085.18	1089.33	1098.49	1099.64	1099.72	1098.25
31	1094.82		1091.99	1089.61		1084.98		1089.90		1099.62	1099.67	
MEAN	1096.40	1093.90	1093.40	1090.84	1088.28	1086.20	1084.85	1086.77	1094.91	1099.46	1099.69	1098.70
	1098.09	1094.72	1094.45	1091.88	1089.52	1087.34	1085.18	1089.90	1098.49	1099.94	1099.90	1099.63
MIN	1094.82	1093.40	1091.99	1089.61	1087.41	1084.98	1084.43	1085.24	1090.37	1098.52	1099.38	1098.19
(†)	505800	489600	412800	337000	266200	188300	196300	357000	629600	663900	665800	617100
(‡)	-111000	-16200	-76800	-75800	-70800	-77900	+8100	+160700	+272600	+34300	+1900	-48700

CAL YR 2001 MEAN 1094.73 MAX 1099.71 MIN 1090.03 AC-FT(†) +60900 WTR YR 2002 MEAN 1092.82 MAX 1099.94 MIN 1084.43 AC-FT(†) +300

t Contents, in acre-feet, at 2400, on last day of month.

[†] Change in contents, in acre-feet.

CHELAN RIVER BASIN 381

12452500 CHELAN RIVER AT CHELAN, WA

LOCATION.--Lat $47^{\circ}50'05"$, long $120^{\circ}00'43"$, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.30, T.27 N., R.23 E., Chelan County, Hydrologic Unit 17020009, at Chelan River powerplant tailrace, 4.3 mi downstream from control dam at outlet of Lake Chelan, and 3.0 mi southeast of Chelan.

DRAINAGE AREA. -- 924 mi².

PERIOD OF RECORD.--November 1903 to current year. Published as "below Chelan Lake" 1904-05. Adjusted records for October 1903 to September 1911, published in WSP 482, 492, and 870 are unreliable and should not be used.

REVISED RECORDS.--WSP 482: 1904-13. WSP 612: 1924. WSP 1246: 1951. WSP 1286: 1952. WSP 1933: Drainage area. See also PERIOD OF

GAGE.--Water-stage recorder and watt-hour meters on each turbine. Datum of gage is 1,074.66 ft above NGVD of 1912. To convert to NGVD of 1929, subtract 1.62 ft. See WSP 1933 for history of changes prior to Mar. 20, 1939. Mar. 20, 1939, to Sept. 30, 1981, gage at site 1.7 mi downstream from the Lake Chelan gage, at same datum, and published as the gage of record, used to determine head and spill discharge.

REMARKS.--Daily discharge determined from flow through turbines computed from relation between loading and head, plus flow through two irrigation pipes which divert water from the penstock just above the turbines, plus spill discharge. Unmeasured water that is diverted for irrigation upstream from station is a small percentage of total runoff. Public Utility District No. 1 of Chelan County diverts water at Chelan to develop about 40,000 kW and to irrigate 900 acres near Chelan. This quantity is included in records of daily discharge. Diversions for irrigation of about 6,280 acres with an annual depletion of about 11,000 acre-ft, 1946 estimate. Flow regulated by Lake Chelan (station 12452000).

COOPERATION. -- Records partially furnished by Public Utility District No. 1 of Chelan County.

AVERAGE DISCHARGE.--98 years (water years 1905-2002), 2,050 ft³/s, 30.13 in/yr, 1,485,000 acre-ft/yr, adjusted for storage since October 1911.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 18,400 ft³/s June 3, 1968; no flow part of day Jan. 30, 1917, when lake outlet was blocked with ice, and at other times owing to artificial regulation.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 8,740 ft^3/s June 20; minimum daily discharge, 6.5 ft^3/s Nov. 22-30 and Dec.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		21001	II(02) 002		DAII	LY MEAN V	ALUES	DIC 2001 1	0 0211212	DIC 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2210	2210	6.6	2210	2210	2210	2210	2220	2220	6280	2570	2220
2	2210	2160	6.6	2210	2210	2210	2210	2220	2220	3960	2570	2220
3	2210	2210	6.6	2210	2210	2210	2210	2220	2220	3450	2450	2220
4	2210	2210	6.5	2210	2210	2210	2210	2220	2220	3460	2330	2220
5	1910	2210	1880	2120	2210	2210	2210	2220	2220	3010	2080	2040
3	1510	2210	1000	2120	2210	2210	2210	2220	2220	3010	2000	2010
6	2190	2210	2120	2210	2210	2210	2210	2220	2220	2460	1450	2220
7	2200	2210	2210	2210	1990	1960	2210	2220	2220	2410	1540	2220
8	2210	2210	2210	2210	2210	2210	2210	2220	2220	4140	507	2220
9	2210	2210	2210	2210	2210	2210	2210	2220	2130	4200	591	2170
10	2190	2210	2210	1930	2210	2210	2210	2220	2220	3760	621	2220
11	2010	2210	2210	2210	2210	2210	2210	2220	2220	3500	226	2130
12	2210	2210	2210	2210	2210	2210	2210	2220	2220	4730	629	1990
13	2210	2210	2210	2210	2210	2210	2210	2220	2280	5760	514	1420
14	2210	2210	2210	2210	2210	2210	2210	2220	2340	6350	697	1350
15	2210	2210	2210	2210	2210	2210	2210	2220	2340	6020	608	1310
	2210	2210	2210	2210	2210	2210	2210	2220	2310	0020	000	1310
16	2210	2210	2210	2210	2210	2210	2210	2220	2340	4760	1410	1240
17	2210	2210	2210	2210	2210	2210	2120	2220	2350	4160	1580	1350
18	2210	607	2210	2210	2210	2210	2210	2220	5210	5350	1100	1340
19	2120	47	2210	2210	2210	2210	2210	2220	6310	5460	1660	1340
20	2210	6.6	2050	2210	2210	2210	2210	2220	8740	5400	1630	1340
21	2120	6.6	2210	2210	2030	2100	2210	2220	8630	3830	1520	1170
22	2210	6.5	2210	2210	2210	2210	2210	2220	8620	2500	1520	1340
23	2210	6.5	2210	2210	2210	2210	2210	2220	8660	2510	1520	322
24	2210	6.5	2210	2010	2210	2210	2210	2220	7620	3630	1500	410
25	2210	6.5	2210	2210	2210	2210	2210	2220	5620	7170	1450	122
26	2210	6.5	2210	2210	2210	2210	2210	2220	4100	6770	1230	122
27	2210	6.5	2010	2210	2210	2210	2210	2220	3470	3360	1490	122
28	2210	6.5	2210	2210	2210	2210	2210	2220	3550	3410	2220	122
29	2120	6.5	2210	2210		2210	2210	2220	3580	3410	2220	826
30	2210	6.5	2210	2210		2210	2210	2220	4360	3120	2220	1340
31	2210		2210	2210		2210		2220		2570	2220	
TOTAL	67690	38245.7	58916.3	67940	61480	68150	66210	68820	116670	130900	45873	42676
MEAN	2184	1275	1901	2192	2196	2198	2207	2220	3889	4223	1480	1423
MAX	2210	2210	2210	2210	2210	2210	2210	2220	8740	7170	2570	2220
MIN	1910	6.5	6.5	1930	1990	1960	2120	2220	2130	2410	226	122
AC-FT	134300	75860	116900	134800	121900	135200	131300	136500	231400	259600	90990	84650
MEAN†	379	1003	652	959	920	932	2342	4832	8472	4779	1510	604
	0.41	1.09	0.71	1.04	1.00	1.01	2.53	5.23	9.17	5.17	1.63	0.65
IN.†	0.47	1.21		1.20	1.04	1.16	2.83	6.03	10.23	5.96	1.88	0.73
AC-FT†	23300	59660	40100	59000	51100	57300	139300	297200	504000	293900	92890	35950

CAL YR 2001 TOTAL 393656.1 MEAN 1079 MAX 2220 MIN 6.5 AC-FT 780800 MEAN† 1162 CFSM† 1.26 IN.† 17.08 AC-FT† 841700 WTR YR 2002 TOTAL 833571.0 MEAN 2284 MAX 8740 MIN 6.5 AC-FT 1653000 MEAN† 2283 CFSM† 2.47 IN.† 33.54 AC-FT† 1653000

[†] Adjusted for change in contents in Lake Chelan.

ENTIAT RIVER BASIN 382

12452800 ENTIAT RIVER NEAR ARDENVOIR, WA

LOCATION.--Lat $47^{\circ}49^{\circ}107^{\circ}$, long $120^{\circ}25^{\circ}19^{\circ}$, in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.27, T.27 N., R.19 E., Chelan County, Hydrologic Unit 17020010, on left bank 0.5 mi downstream from Stormy Creek, 6.0 mi northwest of Ardenvoir, and at mile 18.0.

DRAINAGE AREA. -- 203 mi².

PERIOD OF RECORD. -- September 1957 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,560.97 ft above NGVD of 1929.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station. Water temperature July 1968 to September 1970.

 ${\tt AVERAGE\ DISCHARGE.--45\ years\ (water\ years\ 1958-2002),\ 378\ ft^3/s,\ 25.29\ in/yr,\ 273,800\ acre-ft/yr.}$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,430 ft³/s June 10, 1972, gage height, 8.98 ft; minimum discharge, 20 ft³/s Nov. 24, 25, 1993.

 $\hbox{\it EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,750 ft}^3/s \ \hbox{\it and maximum} \ \ (\star): \\$ Discharge Gage height (ft³/s) (ft)

 10100	delivi ilmi	Disch	arge (Gage height				Disch	arge G	age height		
Date	Time	(ft ³ ,		(ft)	Date		Time	(ft ³ /		(ft)		
May 30 June 6	0330 0415		320 320	5.63 5.63	June June		0245 0915	*2, 1,	860 980	*6.19 5.26		
Minimum disch	narge, 44	ft ³ /s Oct	. 10, 9	gage height	0.81 ft.							
		DISCHAR	GE, CUB	IC FEET PER		WATER Y		R 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2	57 55	75 66	103 100	72 73	111 106	144 144	147 149	543 686	1840 1780	1280 1070	308 283	146 144
3	53	64	100	71	104	142	148	775	1820	957	265	145
4 5	50 49	62 61	97 94	69 68	102 99	140 140	152 164	760 716	1880 2100	904 837	248 236	137 126
6 7	49 48	59 55	95 90	70 99	100 100	139 135	178 188	660 610	2210 1880	788 774	229 226	117 112
8	48	52	89	274	98	132	194	563	1530	979	208	107
9 10	47 47	56 56	84 84	242 197	93 92	129 129	202 210	527 492	1280 1180	980 895	200 208	102 98
11	61	56	84	182	91	138	225	478	1270	940	217	95
12	55	56	72	174	80	140	241	496	1520	993	209	92
13	59	63	82	165	82	132	291	566	1860	941	203	91
14 15	57 55	137 232	90 80	157 e130	90 88	128 127	555 563	630 670	2270 2630	937 858	206 218	89 87
16	53	221	91	e125	87	127	514	693	2760	769	207	86
17	52	171	105	e118	90	125	473	754	2280	725	195	86
18 19	50 51	149 147	84 88	e116 e115	85 87	119 121	430 402	848 882	1890 1620	683 655	184 175	84 82
20	52	147	91	e124	86	121	385	1010	1470	608	167	80
21	50	147	94	e130	88	116	382	1160	1490	547	163	80
22 23	55 75	146 133	89 85	124 124	154 213	115 116	392 392	1170 1080	1680 1830	519 512	158 155	76 74
23	62	118	83	131	176	118	392	1030	1810	520	158	74
25	62	119	76	131	152	124	382	1040	1680	509	164	72
26	61	111	74	124	158	128	384	1110	1760	473	175	71
27 28	63 63	105 102	77 77	e110 e100	153 152	129 129	387 378	1230 1520	1940 1810	451 402	161 156	71 69
29	57	98	74	e90		131	391	1980	1840	383	154	67
30 31	62 85	104	73 73	e100 e105		132 139	437	2250 2050	1640	363 339	153 155	67
TOTAL MEAN	1743 56.2	3168 106	2678 86.4	3910 126	3117 111	4029 130	9720 324	28979 935	54550 1818	22591 729	6144 198	2825 94.2
MAX	85	232	105	274	213	144	563	2250	2760	1280	308	146
MIN AC-FT	47 3460	52 6280	72 5310	68 7760	80 6180	115 7990	147 19280	478 57480	1180 108200	339 44810	153 12190	67 5600
CFSM	0.28	0.52	0.43	0.62	0.55	0.64	1.60	4.60	8.96	3.59	0.98	0.46
IN.	0.32	0.58	0.49	0.72	0.57	0.74	1.78	5.31	10.00	4.14	1.13	0.52
STATIST	ICS OF MON	THLY MEA	N DATA	FOR WATER Y	EARS 1957	- 2002	, BY WATER	YEAR (WY)			
MEAN	98.6	128	126	106	114	149	326	1065	1440	643	219	113
MAX (WY)	292 1960	468 1996	506 1976	308 1981	321 1996	437 1972	753 1996	1862 1958	2793 1974	1589 1999	577 1999	210 1978
MIN	51.9	45.3	49.3	47.7	51.3	67.9	93.2	380	450	179	99.3	58.5
(WY)	1988	1994	1994	1988	1993	1993	1967	1977	2001	1977	1994	1994
	STATISTIC	CS	FOR	2001 CALENI	DAR YEAR	:	FOR 2002 W	ATER YEAR		WATER YEAR	S 1957	- 2002
ANNUAL 1				58824 161			143454 393			378		
HIGHEST	ANNUAL ME			101			393			621		1972
LOWEST A	ANNUAL MEA DAILY MEA	M M		1290	May 25		2760	Jun 16		161 5100	Jun 1	2001
	DAILY MEAN			38	Feb 7		47	Oct 9 Oct 4		22	Nov 2	1993
	SEVEN-DAY			48 116700	Oct 4		48 284500	Oct 4		32 273800	Nov 2	2 1993
	RUNOFF (AC RUNOFF (CE			0.79			284500 1.9	4		1.86		
	RUNOFF (IN			10.78 389			26.2 1170	:9		25.29 1110		
TO PERCE	uvi daubbl	<i>-</i>		202			TT/0			TTTO		

389 84 55

1170 140 63

66

10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS

e Estimated

ENTIAT RIVER BASIN 383

12452890 MAD RIVER AT ARDENVOIR, WA

LOCATION.--Lat $47^{\circ}44^{\circ}13^{\circ}$, long $120^{\circ}22^{\circ}03^{\circ}$, in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.19, T.26 N., R.20 E., Chelan County, Hydrologic Unit 17020010, at Moe Ridge bridge, 0.35 mi. above mouth and about 100 ft. above concrete diversion at Ardenvoir.

DRAINAGE AREA.--92.4 mi².

PERIOD OF RECORD. -- April to September 2002.

GAGE.--Water-stage recorder. Datum of gage is 1,260 ft above NGVD of 1929.

REMARKS.--Records good.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 698 ${\rm ft}^3/{\rm s}$ May 30, gage height 3.89 ft; minimum discharge during period Apr. 25 to Sept. 30, 21 ${\rm ft}^3/{\rm s}$, Sept. 24-26, 29; 15.1 ${\rm ft}^3/{\rm s}$ measured Oct. 11.

DISCHARG	E, CUBI		R SECOND, EAN VALUES		2 TO OCTO	BER 2002	
DAY	APR	MAY	JUN	JUL	AUG	SEP	OCT
1		182	560	186	53	28	24
2		210	545	170	51	28	23
3		221	535	156	51	29	24
4		210	537	146	50	28	27
5		195	578	137	49	28	24
6		185	554	128	49	29	23
7		176	457	122	52	28	22
8		166	374	129	49	28	22
9		157	324	119	46	28	22
10		150	313	116	45	27	22
11		148	324	111	43	26	22
12		157	349	104	42	25	22
13		177	401	100	41	24	22
14		188	474	95	39	24	22
15		191	523	90	39	23	22
16		202	521	87	38	24	22
17		222	432	83	37	24	22
18		246	369	79	36	23	22
19		260	321	76	36	22	22
20		296	294	73	35	22	22
21		336	285	71	35	22	22
22		338	299	68	35	22	22
23		316	312	65	34	22	22
24		310	297	63	33	22	21
25		317	273	61	33	22	21
26	128	341	266	59	32	22	21
27	131	375	266	58	32	22	21
28	129	481	250	57	31	22	22
29	136	600	237	57	31	22	21
30	152	659	203	56	30	22	e19
31		621		54	29		e14
TOTAL		8633	11473	2976	1236	738	679
MEAN		278	382	96.0	39.9	24.6	21.9
MAX		659	578	186	53	29	27
MIN		148	203	54	29	22	14
AC-FT		17120	22760	5900	2450	1460	1350

e Estimated

384 ENTIAT RIVER BASIN

12452990 ENTIAT RIVER NEAR ENTIAT, WA

LOCATION.--Lat 47°39'48", long 120°14'58", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.18, T.25 N., R.21 E., Chelan County, Hydrologic Unit 17020010, on left bank 200 ft upstream from bridge, 1.2 mi west of Entiat High School, and at mile 1.4.

DRAINAGE AREA. -- 419 mi².

PERIOD OF RECORD. -- March 1996 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 750 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation, but approximately 6 diversions and 50 small pumps divert water for agricultural irrigation upstream from station. U. S. Geological Survey telemeter at station.

AVERAGE DISCHARGE.--6 years (water years 1997-2002), 526 ft³/s, 381,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,600 $\rm ft^3/s$ June 17, 1999, gage height, 11.20 ft; minimum daily discharge, 58 $\rm ft^3/s$ Dec. 12, 2000, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,050 ft^3/s and maximum (*):

Date	Time	(ft ³ /s)	(ft)	Date	Time	(ft ³ /s)	(ft)
May 30 June 6	0730 0600	2,910 2,800	9.84 9.77	June 16 June 27	0645 1115	*3,250 2,080	*10.04 9.27
Minimum daily	discharge	, $74 \text{ ft}^3/\text{s Oc}$	et. 3-6, gage	height 6.49	ft.		
		DISCHARGE, CU	JBIC FEET PER	SECOND, WATE DAILY MEA	ER YEAR OCTOBER AN VALUES	2001 TO SEPT	EMBER 2002
DAY	OCT	NOV DEC	C JAN	FEB N	MAR APR	MAY J	UN JUL

					DAILY	MEAN V	ALUES					
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	126	147	110	149	196	240	752	2420	1430	356	171
2	82	109	147	119 123	149	195	250	954	2420 2320	1210	328	171 168
3	76	107	139	120	141	191	247	1100	2340	1080	313	165
4	76	104	137	116	139	188	248	1080	2360	1020	297	163
5	76	101	132	115	136	188	265	1010	2570	945	282	154
6	76	102	137	118	135	191	295	926	2690	866	273	147
7	77	99	133	128	137	186	311	850	2300	842	277	143
8	77 77	95 97	130 126	281 312	139 131	182 180	313 320	785 736	1830 1560	1030 1050	259 247	138 133
10	76	98	123	256	129	178	320 326	689	1480	959	247	126
10	70	96	123	230	123	170	320	009	1400	939	240	120
11	85	96	127	235	128	184	352	666	1540	975	257	121
12	89	96	118	227	114	196	384	684	1760	1030	249	118
13	85	98	122	218	116	185	450	767	2150	982	236	117
14	91	141	139	208	127	180	822	855	2610	974	232	117
15	88	282	122	e174	125	179	859	915	2940	893	243	114
16	87	266	134	e170	125	181	751	946	3090	786	237	114
17	84	216	163	e160	129	179	674	1030	2600	737	225	114
18	84	190	136	e155	126	173	610	1160	2130	695	216	115
19	82	184	139	e160	126	172	564	1220	1800	659	204	113
20	85	187	141	e170	126	176	542	1370	1650	624	197	110
21	87	191	145	183	129	168	542	1560	1650	571	192	111
22	89	188	139	165	162	167	560	1570	1800	534	189	110
23 24	113 106	179 161	132 131	165 174	291 256	167 172	567 552	1470 1410	1980 1970	523 528	185 184	106 102
25	105	157	126	172	222	189	549	1420	1810	518	193	102
23	105	137	120	1/2	222	100	242	1420	1010	310	100	101
26	105	150	121	166	212	202	551	1500	1840	505	200	101
27	105	145	122	e140	209	206	559	1630	2030	500	186	102
28	108	148	124	e135	209	204	548	1980	1930	460	181	100
29	101	133	121	e120		209	561	2550	1920	433	177	e99
30	102	142	121	e135 e120 e130 e140		210	622	2840	1760	410	175	e98
31	118		121	e140		222		2690		387	178	
TOTAL	2772	4388	4091	5255	4313	5796	14434	39115	62830	24156	7214	3691
MEAN	89.4	146	132	170	154	187	481		2094	779	233	123
MAX	118	282	163	312 115	291	222	859	2840	3090	1430	356	171
MIN	76	95	118			167	240	666	1480	387	175	98
AC-FT	5500	8700	8110	10420		11500	28630	77580	124600	47910	14310	
CFSM IN.	0.21 0.25	0.35	0.31	0.40	0.37	0.45 0.51	1.15 1.28	3.01 3.47	5.00 5.58	1.86 2.14	0.56 0.64	0.29
IN.	0.25	0.39	0.36	0.47	0.38	0.51	1.28	3.4/	5.58	2.14	0.64	0.33
STATIST	rics of M	ONTHLY MEA	N DATA F	OR WATER	EARS 1996	- 2002	, BY WATER	YEAR (WY)			
MEAN MAX	163 301	209 412	168 316	172 235	169 202	255 385	621 1090	1446 2277	1842 2674	892 1682	310 655	164 232
(WY)	1998	2000	2000	2000	1997	1997	1996	1998	1999	1999	1999	1997
MIN	89.4	133	118	108	92.1	125	165	673	497	218	123	87.7
(WY)	2002	1999	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001
SUMMARY	STATIST:	ICS	FOR	2001 CALEN	NDAR YEAR		FOR 2002 W	ATER YEAR		WATER YEAR	RS 1996 -	2002
ANNUAL				74988			178055					
ANNUAL				205			488			526		
	C ANNUAL I	MEAN								699		1997
	ANNUAL M DAILY M	EAN		1400	Marr 2E		2000	Tun 16		209	Tun 17	2001
	DAILY ME	ΣMI EMIN		60	Feb 7		76	Oct 3		4010	Jun 17 Dec 12 Oct 3	2000
		Y MINIMUM		76	Oct. 3		76	Oct. 3		76	Oct 3	2001
ANNUAL	RUNOFF (AC-FT)		148700			3090 76 76 353200			381300		
ANNUAL	RUNOFF (CFSM)		0.49	9			5		209 4810 58 76 381300 1.20 17.0 1470 219		
	RUNOFF (INCHES)		6.66	5		15.83	1		17.0	7	
	CENT EXCE	EDS		441			1520			1470		
	CENT EXCE	EDG EDG		127			185 102			219 116		
JU PERC	LINI BACE.	טענט		1480 60 76 148700 0.49 6.66 441 127 85			102			110		

e Estimated

COLUMBIA RIVER MAIN STEM 385

12453700 COLUMBIA RIVER AT ROCKY REACH DAM, WA

LOCATION.--Lat $47^{\circ}31^{\circ}28^{\circ}$, long $120^{\circ}18^{\circ}04^{\circ}$, in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.2, T.23 N., R.20 E., Chelan County, Hydrologic Unit 17020010, on right bank 0.5 mi downstream from Rocky Reach Dam, 1.5 mi downstream from Swakane Creek, 7.4 mi north of Wenatchee, and at mile 473.4.

DRAINAGE AREA. -- 87,800 mi², approximately.

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

GAGE.--Daily discharge determined from flow through turbines plus spillway flow when present. Datum of gage is NGVD of 1929.
Oct. 1, 1960, to July 22, 1988, water-stage recorder with auxiliary water-stage recorder 1.9 mi downstream from base gage at same datum.

REMARKS.--Flow regulated by numerous reservoirs. Feeder Canal diversion (station 12435500) for Columbia Basin project is used to irrigate approximately 600,000 acres in the United States. An additional 66,500 acres in Canada are irrigated by other diversions.

COOPERATION.--Discharge records provided by Public Utility District No. 1 of Chelan County at Rocky Reach Dam through the Corps of Engineers, North Pacific Division, Reservoir Control Center. The U.S. Geological Survey made 6 discharge measurements at this site during the year.

AVERAGE DISCHARGE.--42 years (water years 1961-2002), 115,200 ft³/s, 83,460,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 535,000 ft³/s June 10, 1961, elevation, about 635.50 ft; minimum daily discharge, 25,100 ft³/s Nov. 11, 1973.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 254,000 ft³/s June 20; minimum daily discharge, 30,100 ft³/s March 31.

1 72600 56900 50700 76000 103000 89300 58500 130000 142000 243000 139000 49200 243000 139000 4900 251000 146000 655 3 59700 48500 93000 108000 74900 53200 61600 133000 192000 248000 117000 918 4 65700 51200 96800 116000 127000 74200 51700 124000 234000 218000 92400 658 542700 74400 97600 99200 102000 68100 58200 110000 236000 188000 116000 706 658 542700 74400 97600 99200 102000 68100 58200 110000 236000 188000 116000 706 706 706 45300 78200 74400 86800 110000 84900 39900 160000 218000 189000 121000 706 706 706 706 706 70	SEP 9300 5300 1500 1500 0600 0300 3000 1400 9400 2300 2900 6400 7200 02200
2 49900 50700 48200 93500 85800 76300 67500 134000 154000 251000 146000 653 3 59700 48500 93000 108000 74900 53200 61600 133000 192000 248000 117000 914 4 65700 51200 96800 116000 127000 74200 51700 124000 234000 218000 92400 658 5 42700 74400 97600 99200 102000 68100 58200 110000 236000 188000 116000 706 6 45300 78200 74400 64800 110000 84900 39900 160000 218000 189000 121000 703 8 62000 77400 78600 80600 91100 94400 37800 160000 238000 159000 143000 53 8 62000 79600 49600 78500 104000 100000 56800 128000 229000 143000 148000 514	5300 1500 5800 0600 0300 3000 1400 9400 2300 2900 5400 7200
2 49900 50700 48200 93500 85800 76300 67500 134000 154000 251000 146000 653 3 59700 48500 93000 108000 74900 53200 61600 133000 192000 248000 117000 914 4 65700 51200 96800 116000 127000 74200 51700 124000 234000 218000 92400 658 5 42700 74400 97600 99200 102000 68100 58200 110000 236000 188000 116000 706 6 45300 78200 74400 64800 110000 84900 39900 160000 218000 189000 121000 703 8 62000 77400 78600 80600 91100 94400 37800 160000 238000 159000 143000 53 8 62000 79600 49600 78500 104000 100000 56800 128000 229000 143000 148000 514	5300 1500 5800 0600 0300 3000 1400 9400 2300 2900 5400 7200
4 65700 51200 96800 116000 127000 74200 51700 124000 234000 218000 92400 658 5 42700 74400 97600 99200 102000 68100 58200 110000 236000 188000 116000 706 6 45300 78200 74400 64800 110000 84900 39900 160000 218000 189000 121000 703 7 40600 77400 78600 80600 91100 94400 37800 160000 238000 159000 143000 53 8 62000 79600 49600 78500 104000 100000 56800 128000 229000 143000 148000 514 9 56300 65800 56000 68200 94300 66400 61400 148000 202000 175000 133000 894 10 59600 56600 95100 61800 86800	5800 0600 0300 3000 1400 9400 2300 2900 6400 7200 02200
5 42700 74400 97600 99200 102000 68100 58200 110000 236000 188000 116000 706 6 45300 78200 74400 64800 110000 84900 39900 160000 218000 189000 121000 703 7 40600 77400 78600 80600 91100 94400 37800 160000 238000 159000 143000 53 8 62000 79600 49600 78500 104000 100000 56800 128000 229000 143000 148000 514 9 56300 65800 56000 68200 94300 64600 61400 148000 202000 175000 133000 894 10 59600 56600 95100 61800 86800 57800 46400 135000 227000 206000 118000 723 11 61300 59700 105000 74500 126000 <td>0600 0300 3000 1400 9400 2300 2900 6400 7200</td>	0600 0300 3000 1400 9400 2300 2900 6400 7200
6 45300 78200 74400 64800 110000 84900 39900 160000 218000 189000 121000 703 7 40600 77400 78600 80600 91100 94400 37800 160000 238000 159000 143000 530 8 62000 79600 49600 78500 104000 100000 56800 128000 229000 143000 148000 514 9 56300 65800 56600 68200 94300 64600 61400 148000 202000 175000 133000 894 10 59600 56600 95100 61800 86800 57800 46400 135000 227000 206000 118000 723 11 61300 59700 105000 74500 126000 90200 107000 112000 203000 204000 95300 625 12 65600 69600 96800 69900 110000 85400 120000 103000 209000 213000 124000 764 13 47800 61400 94500 66700 104000 75500 100000 136000 186000 204000 125000 772 14 43200 68300 82800 106000 92500 72500 109000 137000 194000 161000 125000 5000	0300 3000 1400 9400 2300 2900 6400 7200
7 40600 77400 78600 80600 91100 94400 37800 160000 238000 159000 143000 530 8 62000 79600 49600 78500 104000 10000 56800 128000 229000 143000 5148000 514800 514800 514800	3000 1400 9400 2300 2900 6400 7200
8 62000 79600 49600 78500 104000 100000 56800 128000 229000 143000 148000 514 9 56300 65800 56000 68200 94300 64600 61400 148000 202000 175000 133000 894 10 59600 56600 95100 61800 86800 57800 46400 135000 227000 206000 118000 723 11 61300 59700 105000 74500 126000 90200 107000 112000 203000 204000 95300 629 12 65600 69600 96800 69900 110000 85400 120000 103000 209000 213000 124000 762 13 47800 61400 94500 66700 104000 75500 100000 136000 204000 125000 772 14 43200 68300 82800 106000 92500 725	1400 9400 2300 2900 6400 7200
9 56300 65800 56000 68200 94300 64600 61400 148000 202000 175000 133000 894 10 59600 56600 95100 61800 86800 57800 46400 135000 227000 206000 118000 72: 11 61300 59700 105000 74500 126000 90200 107000 112000 203000 204000 95300 625 12 65600 69600 96800 69900 110000 85400 120000 103000 209000 213000 124000 762 13 47800 61400 94500 66700 104000 75500 100000 136000 204000 204000 125000 772 14 43200 68300 82800 106000 92500 72500 109000 137000 194000 161000 125000 502	9400 2300 2900 5400 7200
10 59600 56600 95100 61800 86800 57800 46400 135000 227000 206000 118000 723 11 61300 59700 105000 74500 126000 90200 107000 112000 203000 204000 95300 622 12 65600 69600 96800 69900 110000 85400 120000 103000 209000 213000 124000 764 13 47800 61400 94500 66700 104000 75500 100000 136000 186000 204000 125000 772 14 43200 68300 82800 106000 92500 72500 109000 137000 194000 161000 125000 502	2300 2900 5400 7200 0200
11 61300 59700 105000 74500 126000 90200 107000 112000 203000 204000 95300 62 12 65600 69600 96800 69900 110000 85400 120000 103000 209000 213000 124000 76 13 47800 61400 94500 66700 104000 75500 100000 136000 186000 204000 125000 77 14 43200 68300 82800 106000 92500 72500 109000 137000 194000 161000 125000 502	2900 5400 7200
12 65600 69600 96800 69900 110000 85400 120000 103000 209000 213000 124000 764 13 47800 61400 94500 66700 104000 75500 100000 136000 186000 204000 125000 772 14 43200 68300 82800 106000 92500 72500 109000 137000 194000 161000 125000 502	5400 7200 0200
13 47800 61400 94500 66700 104000 75500 100000 136000 186000 204000 125000 772 14 43200 68300 82800 106000 92500 72500 109000 137000 194000 161000 125000 502	7200 0200
14 43200 68300 82800 106000 92500 72500 109000 137000 194000 161000 125000 502	0200
15 70500 75400 66700 114000 118000 82700 141000 132000 182000 162000 123000 440	
	1000
	9000
	1500
	5200
	5700
20 50600 85100 111000 68400 93400 99700 180000 136000 254000 181000 114000 919	1900
	5300
	1500
	7800
	7800
25 65100 65700 57200 112000 82200 46000 157000 124000 215000 145000 69000 950	5000
	7600
	7500
	2900
	1800
	1300
31 49200 91100 126000 30100 161000 149000 92700 -	
TOTAL 1811900 2197600 2549700 2937000 2645300 2109900 3536800 4244000 6191000 5472000 3522200 21854	5400
MEAN 58450 73250 82250 94740 94480 68060 117900 136900 206400 176500 113600 728	2850
MAX 75200 105000 111000 126000 127000 100000 187000 161000 254000 251000 148000 978	7800
MIN 40600 48500 48200 61800 65100 30100 37800 103000 142000 103000 69000 418	1800
AC-FT 3594000 4359000 5057000 5826000 5247000 4185000 7015000 8418000 12280000 10850000 6986000 43350	5000

CAL YR 2001 TOTAL 26117900 MEAN 71560 MAX 125000 MIN 28600 AC-FT 51800000 WTR YR 2002 TOTAL 39402800 MEAN 108000 MAX 254000 MIN 30100 AC-FT 78160000

12456500 CHIWAWA RIVER NEAR PLAIN, WA

LOCATION.--Lat $47^{\circ}50^{\circ}15^{\circ}$, long $120^{\circ}39^{\circ}40^{\circ}$, in SE $\frac{1}{4}$ sec.13, T.27 N., R.17 E., Chelan County, Hydrologic Unit 17020011, on right bank 3/4 mi upstream from Goose Creek, 5.3 mi north of Plain, 6.2 mi upstream from mouth, 11 mi northeast of Chiwaukum, and at mile 6.2.

DRAINAGE AREA. -- 170 mi2.

PERIOD OF RECORD.--May 1911 to October 1914 (published as Chiwawa Creek near Leavenworth), August 1936 to November 1949, August 1954 to September 1957, May 1991 to current year.

REVISED RECORDS.--WSP 1316: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,100 ft above NGVD of 1929 (from river-profile map). May 29, 1911 to Oct. 31, 1914, staff gage at site 3 miles downstream at different datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station. U. S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--30 years (water years 1912-14, 1937-49, 1955-57, 1992-2002), 517 ${\rm ft^3/s}$, 41.30 ${\rm in/yr}$, 374,600 acre-ft/yr. Includes discharges for 1912 and 1913, which were estimated for WSP 1316.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,030 ft³/s Nov. 30, 1995, gage height, 9.36 ft; minimum daily discharge, 45 ft³/s Feb. 25, Mar. 2-5, 1993.

EXTREMES OUTSIDE PERIOD OF RECORD.--Peak Nov. 25, 1990, was 6,810 ft^3/s , gage height, 9.26 ft, from rating curve extended beyond highest measurement of 5,570 ft^3/s .

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,470 ft³/s June 16, gage height, 7.52 ft; minimum discharge, 75 ft³/s Oct. 7, 9-10, gage height 3.81 ft.

DISCHARGE. CUBIC FEET PER SECOND. WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		DISCHAR	RGE, CUBI	C FEET PE	R SECOND, DAILY	WATER YI MEAN V		R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	179	172	110	152	263	232	1180	2450	1750	565	224
2	83	148	167	110	145	248	243	1390	2390	1490	518	221
3	79	e150	161	109	143	236	235	1470	2500	1350	469	223
4	78	e142	157	106	140	226	250	1340	2540	1330	438	205
5	77	e135	153	105	140	224	281	1240	2690	1230	428	188
6	77	e128	153	105	139	220	313	1120	2770	1150	420	180
7	77	e118	148	164	140	213	364	1000	2430	1190	399	176
8 9	77 76	e110 e102	143 139	548 547	137 132	206 199	383 388	921 866	2030 1730	1570 1510	380 394	167 160
10	78	e96	136	427	131	197	414	818	1660	1390	451	155
11	108	e90	133	359	129	206	469	818	1890	1560	460	151
12	102	e86	129	316	128	211	521	874	2190	1660	418	148
13	104	e88	135	284	128	198	739	1020	2580	1560	409	147
14	108	e350	156	261	124	189	1490	1130	2980	1630	407	144
15	105	682	148	240	121	182	1340	1140	3200	1480	426	143
16	98	623 422	143	226	120	180 177	1100	1150	3350	1280	390	140
17 18	94 90	335	e160 e150	e210 e200	118 119	174	951 840	1250 1380	2900 2460	1240 1160	361 332	137 132
19	90	297	e145	191	121	175	783	1410	2140	1120	314	128
20	100	310	e142	191	125	177	768	1570	2000	1090	296	129
21	96	322	e140	191	131	167	797	1730	2050	954	283	126
22	105	306	e138	183	272	162	819	1680	2240	923	273	122
23	177	280	137	179	468	162	796	1560	2390	923	266	118
24	145	245	131	184	419	167	748	1490	2360	946	270	117
25	133	223	124	202	370	177	732	1490	2200	962	266	115
26 27	127 119	209 192	122 122	194 185	331 300	179 179	744 775	1530 1620	2280 2540	995 893	272 264	115 115
28	118	187	121	180	282	178	769	1970	2380	780	253	113
29	108	176	119	174		181	818	2500	2510	754	246	109
30	108	174	114	165		188	939	2740	2260	701	244	111
31	182		112	160		211		2640		651	236	
TOTAL	3204	6905	4350	6806	5205	6052	20041	44037	72090	37222	11148	4459
MEAN	103	230	140	220	186	195	668	1421	2403	1201	360	149
MAX	182	682	172	548	468	263	1490	2740	3350	1750	565	224
MIN	76	86	112	105	118	162	232	818	1660	651	236	109
AC-FT CFSM	6360 0.61	13700 1.35	8630 0.83	13500 1.29	10320 1.09	12000	39750 3.93	87350 8.36	143000 14.1	73830 7.06	22110	8840 0.87
IN.	0.61	1.51	0.83	1.49	1.14	1.15	4.39	9.64	15.77	8.15	2.12	0.87
STATIST	TTCS OF M	ONTHIV MEZ	N DATA F	OR WATER	YEARS 1911	- 2002	BY WATER	YEAR (WY	.)			
MEAN	169	235	186	150	143	190	610		1614	849	287	161
MEAN	395	235 973	186 768	356	602	488	1266	1583 2683	2840	2175	287 899	359
(WY)	1998	1996	1996	1996	1996	1992	1914	1956	1999	1999	1999	1954
MIN	63.5	77.8	80.4	78.4	66.1	91.4	214	826	660	256	106	80.5
(WY)	1943	1937	2001	1937	2001	1993	1937	1944	1941	1941	1941	1942
SUMMARY	STATIST	ICS	FOR	2001 CALE	NDAR YEAR	I	FOR 2002 W.	ATER YEAR		WATER YEA	RS 1911 -	2002
ANNUAL	TOTAL.			100924			221519					
ANNUAL				277			607			510		
	C ANNUAL I									783		1956
LOWEST	ANNUAL M	EAN								264		1944
HIGHEST	r Daily M	EAN		2100	May 25		3350 76 77 439400	Jun 16		6050	Nov 30	
LOWEST	DAILY ME	AN		59	Feb 26		76	Oct 9		45	Feb 25 Feb 28	
AMMUAL	SEVEN-DA	YC-ET)		200200	reb 21		139100	OCL 4		369600	reD 28	1993
ANNUAL.	RUNOFF (CFSM)		1.6	3		3.5	7		3.0	0	
ANNUAL	RUNOFF (INCHES)		22.0	8		48.4	7		40.7		
10 PERC	CENT EXCE	EDS		687			1670			1430		
50 PERC	CENT EXCE	EAN EAN AN Y MINIMUM AC-FT) CFSM) INCHES) EDS EDS EDS		145			226			264 6050 45 46 369600 3.0 40.7 1430 201		
90 PERO	CENT EXCE	EDS		73			110			90		

e Estimated

387 12457000 WENATCHEE RIVER AT PLAIN, WA

LOCATION.--Lat $47^{\circ}45^{\circ}47^{\circ}$, long $120^{\circ}39^{\circ}54^{\circ}$, in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.12, T.26 N., R.17 E., Chelan County, Hydrologic Unit 17020011, on left bank 300 ft downstream from county road bridge at Plain, 0.3 mi downstream from Beaver Creek, 2.2 mi downstream from Chiwawa River, 11.3 mi north of Leavenworth, and at mile 46.2.

DRAINAGE AREA. -- 591 mi2.

PERIOD OF RECORD.--August 1904 to November 1910 estimates of monthly mean discharges are published in Washington State Water-Supply Bulletin No. 5, December 1910 to September 1950 (monthly discharges only for some periods, published in WSP 1316), October 1950 to September 1979, October 1989 to current year. Published as "near Leavenworth" 1911-31.

REVISED RECORDS.--WSP 482: 1911-14. WSP 1316: 1914(M), 1916(M), 1919(M), 1921-23(M), 1927(M).

GAGE.--Water-stage recorder. Elevation of gage is 1,805 ft above NGVD of 1929, from river-profile map. Prior to Jan. 8, 1932, nonrecording gages at site 0.2 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Wenatchee Park Land and Irrigation Company diverts water from the Chiwawa River, upstream from the station for irrigation of 1,400 acres near Plain. Natural regulation by Wenatchee Lake 8.0 mi upstream. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--82 years (water years 1911-79, 1990-2002), 2,252 ft³/s, 51.75 in/yr, 1,632,000 acre-ft/yr. Includes mean discharges for water years 1930 and 1931, which were estimated for WSP 1316.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,100 $\mathrm{ft^3/s}$ Nov. 30, 1995, gage height, 14.97 ft ; minimum daily discharge, 160 $\mathrm{ft^3/s}$ Nov. 25, 1993.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,400 $\mathrm{ft^3/s}$ June 16, gage height, 8.98 ft; minimum discharge, 217 $\mathrm{ft^3/s}$ Oct. 9-10, gage height 1.30 ft.

		DISCHA	RGE, CUBI	C FEET PE		WATER Y	EAR OCTOBER ALUES	R 2001 TO	SEPTEMB	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	283	1130	1110	632	966	1660	1250	4320	8970	6970	1910	751
2	271	1130	1080	637	921	1540	1310	5310	8500	5750	1720	730
3	258	1150	1020	620	896	1440	1300	5640	8660	5080	1530	743
4	247	1060	967	600	863	1390	1320	5200	8850	4800	1410	717
5	238	1020	920	587	836	1360	1440	4660	9090	4390	1310	659
6	235 225	982 905	932	597 911 3440 4410 3590	831	1310	1590	4190	9530	4090	1280	612
7 8	225		897 844	911	842 828	1260 1210		3720 3330	8510 6970	4240 5330	1200	584 548
9	224	838 782	811	3440	784	1160			5810	5500	1160 1140	523
10	225	736	774	3590	759	1140	2050	2870	5520	5150	1230	504
11	329	694	748	2900	756	1210	2260	2800	6310	5670	1300	493
12	351	664	729	2900 2510 2240 1970 1760	711	1300	2500		7440	6140	1240	483
13	433	681	832	2240	702	1220	3430	3440	8950	5880	1210	478
14	440	1810	992	1970	682	1150	6800	3880	10600	5950	1210	473
15	473	4510	929			1100	7310	4020	11600	5540	1230	471
16	434	4760	962	1610 1480 1380 1320 1280	658	1070		4040	12200	4830	1180	456
17	410	3590	1130	1480	649	1040		4310		4540	1120	456
18	387	2740	1060	1380	642	998		4840		4220	1030	440
19 20	387 528	2260 2200	1020	1320	652	1010 1050		5020 5720	7380	4030 3790	961 914	421 411
21	491	2190	908	1240	706 1250 2800 2920 2560	989	3500	6580	7370	3430	875	407
22	540	2100	855	1170	1250	939	3480	6440		3260	848	396
23	828	1960	825	1140	2800	920	3410		8650	3200	833	388
24	828	1740	786	1180	2920	925	3180		8520	3240	843	378
25	772	1580	757	1340	2560	954	3040		8060	3260	854	374
26 27	744 732	1440 1320	731	1290	2230 2000 1800 	988	2990	5620 6040	8330	3330 3100	858 833	368 367
28	722	1260	706	1190	2000	1010	2950	7220	8930	2700	833	360
29	675	1200	675	1050	1000	1010	3100	9100	9080	2510	813	354
30	646	1130	675	1030		1040	3440	10200	8800	2350	812	363
31	863		646	1000		1150		9870		2170	777	
TOTAL	14445	49562	26958	47204	31572 1128 2920 642 62620	35613	92490	161230	258290	134440	34451	14708
MEAN	466	1652	870	1523	1128	1149	3083	5201	8610	4337	1111	490
MAX	863	4760	1130	4410 587	2920	1660	7310	10200	12200 5520	6970	1910	751
MIN	224	664	646		642	920	1250	2800		2170	777	354
AC-FT	28650	98310	53470	93630	62620	70640	183500	319800	512300	266700	68330 1.88	29170
CFSM	0.79	2.80	1.47	2.58	1.71	1.34	3.22	8.80	14.6	7.34	1.88	0.83
IN.	0.91	3.12	1.70	2.97	1.99	2.24	5.82	10.15	16.26	8.46	2.17	0.93
STATIS	TICS OF M	ONTHLY MEA	AN DATA F	OR WATER	YEARS 1911	L - 2002	, BY WATER	YEAR (WY	")			
MEAN	891	1405	1341	1091	1080	1208		5791	6400		1215	679
MAX	2722	6702	4395	3938	3010	3719		9771	11760		3154	
(WY)	1960	1991	1976	1918	1924	1934		1956	1974	1954	1974	1959
MIN (WY)	251 1943	236 1937	296 1953	3938 1918 335 1929	306 1929			2613 1915	1861 1915	886 1941	456 1941	312 1942
SUMMAR'	Y STATIST						FOR 2002 W	ATER YEAR	2	WATER YEAR	RS 1911 -	2002
ANNUAL				457216			900963					
ANNUAL				1253			2468			2273		
	T ANNUAL	MEAN		1233			2400			3344		1934
	ANNUAL M											
TIT OTTE O				8380	May 25		12200 224 231 1787000 4.18	Jun 16	5	32900	Nov 30	1995
LOWEST	DAILY ME	AN		224	Oct 9		224	Oct 9)	160	Nov 25	1993
ANNUAL	SEVEN-DA	MUMINIM Y		231	Oct 4		231	Oct 4		205	Nov 26	1952
ANNUAL	RUNOFF (AC-FT)		906900			1787000			1647000		
ANNUAL	RUNOFF (CFSM)		2.1	2		4.18	3		3.8	5	
ANNUAL	RUNOFF (INCHES)		28.7	8		56.71	L		52.20	5	
10 PER	CENT EXCE	EDS		3020			6360			5850		
50 PER	CENT EXCE	EAN AN Y MINIMUM AC-FT) CFSM) INCHES) EEDS		767			1210			1200		
90 PER	CENT EXCE	EDS		319			476			485		

12458000 ICICLE CREEK ABOVE SNOW CREEK, NEAR LEAVENWORTH, WA

LOCATION.--Lat $47^{\circ}32^{\circ}28^{\circ}$, long $120^{\circ}43^{\circ}08^{\circ}$, in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.28, T.24 N., R.17 E., Chelan County, Hydrologic Unit 17020011, on right bank 1,000 ft upstream from Icicle Canal diversion dam, 0.4 mi upstream from Snow Creek, 4.8 mi southwest of Leavenworth, and at mile 5.8.

DRAINAGE AREA.--193 mi².

PERIOD OF RECORD.--September 1936 to September 1971, October 1993 to current year.

REVISED RECORDS.--WSP 1246: 1936-41. WSP 1286: 1948. WSP 1446: 1943(M).

GAGE.--Water-stage recorder. Elevation of gage is 1,450 ft above NGVD of 1929, from river-profile map.

REMARKS.--No estimated daily discharges. Records fair. No diversion. Some regulation in headwater lakes. Suspended sediment data are available from the district office.

 ${\tt AVERAGE \ DISCHARGE.--44 \ years \ (water \ years \ 1937-71, \ 1994-2002), \ 622 \ ft^3/s, \ 43.80 \ in/yr, \ 450,700 \ acre-ft/yr.}$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,800 ft³/s Nov. 29, 1995, gage height, 16.04 ft, from rating curve extended above 7,000 ft³/s on basis of slope-area measurement of peak flow; minimum daily discharge, 44 ft³/s Nov. 30, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft^3/s and maximum (*):

Date		Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov.	14	2100	2,700	8.96	June 16	0045	*3,970	*10.21
Apr.	14	0915	2,650	8.91	June 27	0315	2,840	9.12
May	30	0015	3,690	9.96				

Minimum discharge 65 $\mathrm{ft^3/s}$ Oct. 7, 8.

		,										
		DISCHA	RGE, CUBI	C FEET PE	R SECOND, DAILY	WATER Y		ER 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	319	340	218	295	407	309	1050	2500	1570	415	188
2	71	291	337	218	282	381	327	1350	2480	1400	377	187
3	70	290	322	211	272	378	327	1320	2540	1290	348	185
4	68	255	297	205	262	371	328	1150	2630	1220	326	184
5	67	262	284	199	255	363	357	1030	2850	1080	308	175
6	67	251	278	200	249	354	401	928	2800	1040	302	165
7	65	223	275	816	249	341	448	833	2120	1130	294	164
8	65	206	264	2010	247	322	455	765	1680	1450	278	159
9	69	195 184	251 237	1300	239	319	461	716	1430	1290	266	149 142
10	73			927	230	315	496	674	1510	1200	262	
11	116	176	229	778	225	330	553	672	1880	1370	263	136
12	138	176	219	710	199	409	618	739	2300	1410	257	131
13	238	229	264	656	218	387	909	916	2860	1330	248	125
14 15	184 183	1610 1880	353 320	590	218 212	362 342	2250 1630	1000 991	3380	1330 1150	242 239	115 111
15	183			531	212	342	1630	331	3610	1150	239	
16	141	1290	379	519	207	328	1230	1020	3360	956	232	108
17	136	861	636	469	203	317	1030	1170	2580	916	222	108
18	125	677	507	454	199	304	893	1340	2540	871	212	107
19 20	141 239	644 725	441 393	441 420	197 196	295 295	822 794	1350 1900	2160 2010	829 772	202 194	105 103
21	173	677	356	405	206	297	798	1970	2130	696	189	101
22	192	617	327	381	527	291	769	1700	2380	661	184	97
23	305	566	304	365	774	283	743	1490	2440	647	180	95
24 25	234 200	504 462	288 276	364 384	663 546	279 283	689 668	1430 1510	2220 2140	642 628	176 174	93 91
26 27	210 220	420 388	265 256	383 353	498 468	286 288	668 694	1670 1860	2420 2620	619 584	174 171	90 89
28	220	363	248	333	438	288	685	2610	2620	532	169	89
29	176	373	239	298	430	286	710	3400	2620	504	166	87
30	169	353	231	309		289	801	3310	2040	488	165	90
31	295		225	305		296		2870		457	183	
TOTAL	4704	15467	9641	15752	8774	10085	21863	44734	72500	30062	7418	3769
MEAN	152	516	311	508	313	325	729	1443	2417	970	239	126
MAX	305	1880	636	2010	774	409	2250	3400	3610	1570	415	188
MIN	65	176	219	199	196	279	309	672	1430	457	165	87
AC-FT	9330	30680	19120	31240	17400	20000	43370	88730	143800	59630	14710	7480
CFSM	0.79	2.67	1.61	2.63	1.62	1.69	3.78	7.48	12.5	5.02	1.24	0.65
IN.	0.91	2.98	1.86	3.04	1.69	1.94	4.21	8.62	13.97	5.79	1.43	0.73
STATIST	TICS OF M	ONTHLY MEA	AN DATA F	OR WATER	YEARS 1937	7 - 2002	, BY WATER	R YEAR (WY)			
MEAN	242	379	343	278	292	282	662	1708	1936	903	271	159
MAX	703	1992	1062	813	994	669	1099	2798	3429	2292	764	380
(WY)	1960	1996	1996	1968	1996	1997	1943	1956	1948	1954	1954	1959
MIN	74.5	66.2	72.9	72.4	72.5	112	275	984	736	269	121	86.3
(WY)	1994	1953	1953	1937	1937	1937	1967	1941	2001	1941	1941	2001
SUMMARY	Y STATIST	ICS	FOR	2001 CALE	NDAR YEAR		FOR 2002 W	VATER YEAR		WATER YEAR	RS 1937 -	2002
ANNUAL				125475			244769					
ANNUAL				344			671			622		
HIGHEST	T ANNUAL :	MEAN								905		1956
	ANNUAL M									299		2001
	T DAILY M			2640	May 24		3610	Jun 15		14100	Nov 29	
	DAILY ME			65	Oct 7		65 67	Oct 7		44	Nov 30	
		Y MINIMUM		67 248900	Oct 3		67 485500	Oct 3		50 450700	Nov 25	1952
	RUNOFF (AC-FT) CFSM)		248900	Ω		485500	17		3.2	2	
	RUNOFF (24.1			47.1			43.8		
	CENT EXCE			796	-		1870			1640	~	
	CENT EXCE			200			342			299		
	CENT EXCE			79			142			117		

12459000 WENATCHEE RIVER AT PESHASTIN, WA

LOCATION.--Lat $47^{\circ}35'00"$, long $120^{\circ}36'46"$, in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.8, T.24 N., R.18 E., Chelan County, Hydrologic Unit 17020011, on right bank 1.0 mi northwest of Peshastin, 3.5 mi upstream from Peshastin Creek, 4.1 mi downstream from Icicle Creek, and at mile 21.5.

DRAINAGE AREA.--1,000 \mbox{mi}^2 , approximately.

PERIOD OF RECORD. --October 1928 to February 1929 (monthly discharge only), March 1929 to current year.

REVISED RECORDS. -- WSP 1316: 1929-32(M)

Time

GAGE.--Water-stage recorder. Datum of gage is 1,028.04 ft above NGVD of 1929. Prior to Mar. 24, 1932, nonrecording gage at site 1.2 mi downstream at different datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Numerous diversions upstream for irrigation of an estimated 3,200 acres upstream from station. Diversion from Icicle Creek 5.7 mi upstream from mouth is used for irrigation of a substantial part of the 22,000 acres irrigated downstream from station. U.S. Geological Survey satellite telemeter at

AVERAGE DISCHARGE.--74 years (water years 1929-2002), 3,079 ft³/s, 2,231,000 acre-ft/yr. Includes discharge for water year 1929 which was estimated for WSP 1316.

Time

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,300 ft³/s Nov. 30, 1995, gage height, 17.89 ft; minimum discharge, 183 ft³/s Oct. 14, 1939; minimum gage height, 1.22 ft Nov. 26, 1993; minimum daily discharge, 210 ft³/s Nov. 26, 1993.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 12,000 ${\rm ft}^3/{\rm s}$ and maximum (*):

Discharge Gage height (ft³/s) (ft)

Date		TIME	(10	/5/	(IC)	Date		TIME	(10)	5)	(IC)		
May 3	0	0530	14,	400	9.83	June	16	0330	*16,	500	*10.62		
Minimu	m discha	arge, 30	3 ft ³ /s,	Oct. 10,	, gage hei	ght 1.40 f	t.						
			DISCHAR	GE, CUB	IC FEET PE	R SECOND, DAILY	WATER YE MEAN V		ER 2001 TO	SEPTEME	ER 2002		
D.	AY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
	1	438	1500	1610	958	1420	2370	1970	5800	12300	9350	2540	973
	2	417 402	1510 1540	1580 1500	962 940	1350 1310	2210 2100	2070 2010	7170 7630	11700 11800	7880 7010	2270 2040	944 937
	4	366	1440	1410	911	1260	2020	2010	7110	12100	6600	1860	939
	5	344	1370	1340	891	1220	1980	2190	6420	12700	6080	1720	867
	6	333	1340	1330	901	1210	1920	2400	5830	13000	5690	1680	807
	7	328	1240	1310	1660	1230	1850	2690	5220	11500	5850	1610	782
	8	321	1150	1240	5430	1210	1780	2820	4700	9530	7130	1520	742
	9	321	1080	1180	6360	1160	1710	2850	4340	8060	7380	1470	698
	10	330	1020	1130	5190	1120	1670	2980	4050	7700	6890	1540	673
	11	416	966	1090	4250	1110	1790	3290	3940	8780	7440	1640	656
	12	539	929	1060	3700	1050	1990	3590	4120	10300	8010	1590	641
	13	672	968	1170	3340	1040	1860	4670	4800	12200	7740	1520	631
	14 15	694 703	2990 6590	1460 1380	2940 2620	1030 998	1750 1680	9000 9790	5420 5600	14300 15700	7760 7250	1510 1540	620 614
	16	651	6590	1460	2410	980	1640	8090	5650	16200	6340	1490	609
	17	611	5070	1940	2200	968	1600	6760	6040	14300	5970	1400	593 587
	18 19	581 557	3910 3300	1730 1600	2080 1980	958 963	1520 1530	5800 5210	6730 6950	12600 11100	5610 5360	1310 1210	567
	20	767	3280	1500	1910	987	1590	4890	8130	10100	5040	1150	549
	21	738	3210	1400	1860	1040	1530	4870	9160	10100	4560	1110	543
	22	739	3060	1310	1750	1820	1460	4820	8830	10900	4290	1080	531
	23	1100	2840	1250	1690	3870	1420	4720	8100	11700	4190	1050	521
	24	1170	2530	1200	1690	4040	1450	4420	7630	11400	4210	1040	510
	25	1050	2290	1150	1910	3570	1540	4220	7600	10900	4230	1060	499
	26	1030	2090	1110	1870	3170	1590	4150	7980	11300	4310	1070	493
	27	1020	1900	1080	1740	2850	1620	4180	8570	12400	4050	1050	491
	28 29	1010 964	1820 1760	1050 1030	1650 1530	2590	1610 1650	4120 4270	10300 13000	11900 12100	3590 3300	1020 1010	524 520
	30	e904	1650	1000	1490		1690	4700	14200	11600	3120	1010	529
		=1040		981	1460		1830		13500		2870	1020	
T	OTAL 2	20556	70933	40581	70273	45524	53950	129570	224520	350270	179100	44130	19590
M	EAN	663	2364	1309	2267	1626	1740	4319	7243	11680	5777	1424	653
	AX	1170	6590	1940	6360	4040	2370	9790	14200	16200	9350	2540	973
	IN_	321	929	981	891	958	1420	1970	3940	7700	2870	1010	491
A	.C-FT 4	10770	140700	80490	139400	90300	107000	257000	445300	694800	355200	87530	38860
S	TATISTI	CS OF MO	NTHLY MEA	N DATA 1	FOR WATER	YEARS 1929	- 2002,	BY WATER	R YEAR (WY)			
	EAN	1123	1916	1814	1514	1582	1836	3752	7930	8722	4475	1492	821
	AX	3654	8800	6202	3760	4677	5607	11250	13800	16180	10350	4003	1997
	WY)	1960	1991	1976	1968	1996	1972	1934	1956	1974	1954	1954	1959
	IN WY)	331 1988	329 1930	421 1953	421 1930	476 1937	806 1929	1475 1929	3506 1977	3191 1941	1164 1941	572 1931	426 1942
S	UMMARY S	STATISTI	CS	FOR	2001 CALE	NDAR YEAR	I	FOR 2002 V	WATER YEAR		WATER YE	ARS 1929 -	2002
	NNUAL TO				636664			1248997					
	NNUAL M				1744			3422			3096		1000
		ANNUAL M NNUAL ME.									4830 1572		1972 2001
		NNUAL ME. DAILY ME.			11300	May 25		16200	Jun 16		38900	Nov 30	
		AILY MEA			321	Oct 8		321	Oct 8			Nov 26	1993
A.	NNUAL SI	EVEN-DAY	MINIMUM		321 335	Oct 8 Oct 4		335	Oct 4		210 255	Oct 26	
A	NNUAL RU	JNOFF (A	C-FT)		1263000			2477000			2243000		
		T EXCEE			4260			8800			7930		
		VT EXCEE			1060			1720			1660		
9	U PERCEI	NT EXCEE	DS		460			666			610		

e Estimated

12462500 WENATCHEE RIVER AT MONITOR, WA

LOCATION.--Lat $47^{\circ}29^{\circ}58^{\circ}$, long $120^{\circ}25^{\circ}24^{\circ}$, in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.11, T.23 N., R.19 E., Chelan County, Hydrologic Unit 17020011, on right bank 1.0 mi north of Monitor, 3.5 mi downstream from Mission Creek, and at mile 7.0.

DRAINAGE AREA.--1,301 mi².

PERIOD OF RECORD.--August to November 1897, October 1962 to current year. Published as "near Wenatchee" 1897.

GAGE.--Water-stage recorder. Elevation of gage is 680 ft above NGVD of 1929, from topographic map. Aug. 7 to Nov. 7, 1897, nonrecording gage 1 mi downstream at different datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation. Diversions for irrigation of about 25,000 acres upstream from station. Chelan County Public Utility District No. 1 telemeter at station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--40 years (water years 1963-2002), 3,281 ft³/s, 2,377,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,500 ft³/s Nov. 30, 1995, gage height, 30.02 ft; minimum discharge, 208 ft³/s Nov. 26, 1993, gage height, 16.45 ft, but may have been less during period of frozen intakes Nov. 27 to Dec. 11, 1993.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,000 ${\rm ft}^3/{\rm s}$ June 16, gage height, 24.32 ft; minimum discharge, 248 ${\rm ft}^3/{\rm s}$ Oct. 10, gage height, 16.60 ft.

		DISCHA	RGE, CUB	IC FEET PE	ER SECOND, DAILY	WATER Y MEAN V		ER 2001 TC) SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	359	1500	1810	1130	1630	2670	2330	6240	13400	9960	2600	1090
2	344	1540	1780	1140	1570	2490	2440	7800	12700	8300	2340	1050
3	331	1570	1690	1110	1510	2360	2380	8370	12800	7300	2140	1020
4	304	1490	1600	1080	1470	2270	2390	7780	13100	6830	1940	1040
5	282	1410	1530	1060	1420	2230	2550	6970	13800	6270	1800	991
6	272	1400	1510	1080	1400	2180	2760	6310	14200	5830	1740	942
7	268	1300	1500	1810	1420	2100	3030	5630	12400	5940	1660	910
8	260	1200	1420	6060	1410	2030	3160	5060	10200	7250	1570	882
9	261	1130	1360	7130	1350	1950	3160	4670	8550	7660	1500	858
10	253	1070	1300	5790	1290	1900	3270	4350	8080	7080	1530	831
11	315	1020	1260	4740	1270	2000	3550	4200	9230	7590	1640	785
12	516	975	1220	4100	1220	2310	3920	4360	10800	8250	1620	760
13	649	1000	1320	3730	1190	2200	4910	5050	13000	7980	1570	734
14	753	2870	1740	3300	1190	2060	10300	5740	15400	7990	1570	701
15	730	6900	1660	2950	1150	1970	11100	5940	17000	7470	1600	689
16	701	6940	1680	2730	1140	1920	9040	5960	17600	6470	1580	685
17	648	5390	2350	2510	1130	1860	7450	6350	15500	6050	1510	713
18	624	4170	2150	2360	1120	1760	6330	7120	13700	5670	1440	723
19	593	3520	1940	2260	1110	1720	5640	7370	12000	5390	1330	725
20	753	3480	1810	2170	1140	1840	5270	8700	10700	5090	1260	689
21	791	3420	1670	2120	1200	1780	5230	9910	10700	4620	1220	658
22	757	3290	1560	2000	2160	1700	5210	9550	11600	4340	1170	622
23	1070	3080	1480	1940	4440	1660	5090	8710	12400	4190	1140	589
24	1230	2770	1420	1910	4600	1690	4780	8160	12200	4200	1130	590
25	1100	2520	1360	2120	4000	1830	4560	8130	11600	4200	1140	618
26 27 28 29 30 31	1070 1050 1050 994 942 1080	2310 2130 2040 1970 1860	1310 1270 1240 1210 1180 1160	2140 2000 1900 1760 1720 1670	3530 3190 2920 	1920 1970 1960 2000 2040 2200	4480 4580 4510 4630 5070	8570 9200 11100 14200 e15300 14800	11900 13200 12800 13000 12500	4290 4070 3620 3310 3140 2910	1130 1130 1120 1120 1110 1110	618 618 590 572 547
TOTAL	20350	75265	47490	79520	52170	62570	143120	241600	376060	183260	46460	22840
MEAN	656	2509	1532	2565	1863	2018	4771	7794	12540	5912	1499	761
MAX	1230	6940	2350	7130	4600	2670	11100	15300	17600	9960	2600	1090
MIN	253	975	1160	1060	1110	1660	2330	4200	8080	2910	1110	547
AC-FT	40360	149300	94200	157700	103500	124100	283900	479200	745900	363500	92150	45300
STATIST	rics of	MONTHLY ME	AN DATA	FOR WATER	YEARS 1963	- 2002	, BY WATE	R YEAR (WY	")			
MEAN	1071	2132	2010	1788	1984	2353	3966	8061	9085	4559	1530	818
MAX	3095	9636	6983	4309	5447	6853	7260	12970	17020	9880	3985	1628
(WY)	1998	1991	1976	1984	1996	1972	1990	1972	1974	1974	1999	1978
MIN	346	426	556	527	518	995	1678	3565	3898	1135	576	362
(WY)	1988	1988	2001	1988	2001	2001	1967	1977	2001	1977	1994	2001
SUMMARY	Y STATIS	TICS	FOR	2001 CALE	ENDAR YEAR		FOR 2002 I	WATER YEAR	}	WATER YEA	ARS 1963 -	2002
LOWEST HIGHEST LOWEST ANNUAL ANNUAL 10 PERC 50 PERC	MEAN F ANNUAL ANNUAL F DAILY DAILY M SEVEN-D	MEAN MEAN EAN AY MINIMUM (AC-FT) EEDS EEDS		651066 1784 11900 253 271 1291000 4270 1070 403	May 25 Oct 10 Oct 4		1350705 3701 17600 253 271 2679000 9360 1970 745	Jun 16 Oct 10 Oct 4)	3281 5261 1589 45200 221 271 2377000 8140 1840 651	Nov 30 Nov 26 Oct 4	1993

e Estimated

12462600 COLUMBIA RIVER BELOW ROCK ISLAND DAM, WA

LOCATION.--Lat $47^{\circ}19^{\circ}57^{\circ}$, long $120^{\circ}04^{\circ}48^{\circ}$, in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.9, T.21 N., R.22 E., Douglas County, Hydrologic Unit 17020010, on left bank 1.0 mi downstream from Rock Island Dam, 2.0 mi downstream from Rock Island Creek, 12 mi southeast of Wenatchee, and at mile 452.4.

DRAINAGE AREA. -- 89,400 mi², approximately.

PERIOD OF RECORD.--January to December 1910 (gage heights only), May 1913 to December 1916, October 1930 to current year. Published as "at Wenatchee" January 1910 to December 1916, and as "at Trinidad" October 1930 to May 1961.

GAGE.--Daily discharge determined from flow through turbines plus spillway flow when present. Datum of gage is NGVD of 1929. Prior to Jan. 1, 1916, nonrecording gage 1.2 mi upstream from highway bridge at Wenatchee, at mile 466.3, at datum 583 ft above NGVD of 1929. Jan. 1 to Dec. 31, 1916, nonrecording gage on pier of highway bridge at Wenatchee, at mile 465.1, at datum 579.30 ft above NGVD of 1929. Oct. 1, 1930, to May 31, 1961, water-stage recorder 0.5 mi southwest of Trinidad, at mile 441.7, at datum 499.3 ft above NGVD of 1929 (river-profile survey). June 1, 1961, to July 22, 1988, water-stage recorder at present site and datum; May 21, 1963, to July 22, 1988, auxiliary water-stage recorder 2.0 mi downstream at same datum.

REMARKS.--Flow regulated by numerous reservoirs. Feeder Canal diversion (station 12435500) for Columbia Basin project is used to irrigate approximately 600,000 acres in the United States. An additional 66,500 acres in Canada are irrigated by other diversions.

COOPERATION.--Discharge records provided by Public Utility District No. 1 of Chelan County at Rock Island Dam through the Corps of Engineers, North Pacific Division, Reservoir Control Center. The U.S. Geological Survey made 6 discharge measurements at this site during the year.

AVERAGE DISCHARGE.--75 years (water years 1914-16, 1931-2002), 119,300 ft³/s, 86,430,000 acre-ft/yr, unadjusted.

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 discharge, 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 $740,000 \text{ ft}^3/\text{s}$, from floodmarks at Wenatchee.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 251,000 ${\rm ft}^3/{\rm s}$ June 20; minimum daily discharge, 31,300 ${\rm ft}^3/{\rm s}$ Mar. 31.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71400	57400	55600	80300	106000	91500	60200	132000	158000	242000	138000	51600
2	47800	51100	48900	92600	88200	81900	69700	136000	164000	250000	144000	66400
3	57600	49800	94500	113000	78000	56700	65000	136000	198000	250000	120000	93200
4	65300	52700	100000	121000	136000	76600	54800	129000	242000	218000	93400	68200
5	40100	73000	101000	102000	104000	70900	58900	114000	242000	191000	118000	72300
6	46200	80800	77200	71500	113000	87600	43100	157000	228000	188000	119000	71300
7	38400	79700	80900	80900	94800	97400	40200	158000	241000	163000	141000	54500
8	59900	79600	53200	84100	108000	105000	59600	129000	238000	144000	149000	50800
9	56000	68800	58300	75900	97000	66200	64600	152000	207000	177000	134000	93700
10	57300	55900	97700	69400	91100	60400	55100	138000	229000	207000	121000	72400
11	62000	60600	109000	77600	130000	92300	105000	114000	209000	205000	97300	64600
12	63500	72500	99000	78600	115000	89800	127000	105000	217000	210000	124000	77900
13	49400	62300	99200	70700	106000	79200	107000	142000	198000	205000	126000	76900
14	43100	69400	86800	111000	94900	74400	120000	140000	204000	168000	126000	53800
15	70700	81400	69800	119000	121000	86600	146000	134000	199000	161000	125000	45800
16	73600	89200	53200	113000	106000	71000	175000	146000	183000	210000	104000	79100
17	74900	58600	88500	117000	71600	63200	187000	136000	200000	185000	77300	74900
18	62200	69000	105000	110000	99300	91300	189000	125000	215000	179000	83900	75800
19	66300	89200	107000	99800	101000	79700	187000	125000	236000	200000	117000	96300
20	50400	89100	113000	72800	97400	102000	184000	144000	251000	182000	116000	95600
21	46300	93500	108000	110000	91500	90000	160000	133000	236000	164000	114000	88400
22	65000	60600	83000	119000	73100	52100	187000	149000	201000	169000	128000	73500
23	59800	70800	68800	116000	85200	33000	168000	157000	172000	170000	122000	99100
24	73100	76100	91900	92900	74200	42400	162000	156000	181000	156000	96000	99500
25	64500	69200	61200	117000	86400	47700	159000	131000	216000	145000	71400	96600
23	04300	69200	61200				133000			143000	71400	
26	56400	90700	106000	83200	92200	68700	148000	149000	212000	125000	114000	90300
27	44300	106000	103000	77000	99100	59800	126000	170000	239000	103000	112000	58800
28	52300	108000	96200	115000	86900	52500	116000	167000	249000	108000	119000	64700
29	74100	103000	80400	127000		55200	153000	172000	227000	127000	113000	41100
30	63700	86900	59600	130000		37600	148000	174000	202000	142000	106000	86100
31	49100		90400	132000		31300		172000		148000	96900	
TOTAL	1804700	2254900	2646300	3079300	2746900	2194000	3625200	4422000	6394000	5492000	3566200	2233200
MEAN	58220	75160	85360	99330	98100	70770	120800	142600	213100	177200	115000	74440
MAX	74900	108000	113000	132000	136000	105000	189000	174000	251000	250000	149000	99500
MIN	38400	49800	48900	69400	71600	31300	40200	105000	158000	103000	71400	41100
	3580000	4473000	5249000	6108000	5448000	4352000	7191000		12680000		7074000	4430000

CAL YR 2001 TOTAL 26897900 MEAN 73690 MAX 126000 MIN 29700 AC-FT 53350000 WTR YR 2002 TOTAL 40458700 MEAN 110800 MAX 251000 MIN 31300 AC-FT 80250000

12464770 CRAB CREEK AT ROCKY FORD ROAD, NEAR RITZVILLE, WA

LOCATION.--Lat $47^{\circ}18'10"$, long $118^{\circ}22'05"$, in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.23, T.21 N., R.35 E., Lincoln County, Hydrologic Unit 17020013, on left bank, 100 ft downstream from Rocky Ford Road bridge crossing, 13 mi north of Ritzville.

DRAINAGE AREA.--384 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1993 to September 1995, August 1997 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,660 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Several diversions for irrigation upstream from station. No regulation.

AVERAGE DISCHARGE.--7 years (water years 1994-95, 1998-2002), 53.8 ft³/s, 1.91 in/yr, 39,020 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,530 $\rm ft^3/s$ Feb. 1, 1995, gage height, 6.72 ft; minimum discharge, 2.9 $\rm ft^3/s$ Sept. 20, 1994.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, $451 \text{ ft}^3/\text{s}$ Feb. 8, gage height, 3.21 ft; minimum discharge, 8.9 ft $^3/\text{s}$ Oct. 4,5 and 8.

		DISCHAR	GE, CUBIC	FEET PER		WATER YE MEAN VA	AR OCTOBER LUES	2001 TO 8	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	10 9.8 9.5 9.3 9.4	11 12 12 12 12	17 17 17 17 18	34 34 34 33 33	51 52 52 51 53	76 75 73 72 71	71 69 69 68 67	50 49 48 47 47	28 28 27 26 25	22 22 22 22 22 22	18 17 17 17 17	12 12 12 12 12
6 7 8 9 10	9.4 9.6 9.6 9.6 9.6	12 12 12 12 12	18 19 20 20 21	50 59 52 56 54	52 58 127 113 82	71 72 71 70 70	66 65 65 65	47 48 48 45 44	24 24 24 24 24	22 22 22 22 22	17 15 15 15 15	12 12 12 11 11
11 12 13 14 15	9.6 10 9.7 9.6 9.5	13 13 13 13 13	21 22 24 26 32	52 51 51 51 51	75 69 65 63 61	70 73 73 72 71	69 68 67 68 68	43 41 40 40 39	24 24 23 23 23	22 21 21 21 21	14 14 14 14	11 11 12 11 11
16 17 18 19 20	9.5 9.5 9.7 9.9 9.8	13 14 13 14 14	34 33 36 37 37	50 50 50 51 51	60 59 58 60 107	71 72 73 74 74	68 67 65 63 62	38 38 37 37 36	23 23 23 23 22	21 21 21 21 21	14 14 14 13 13	11 11 11 11 12
21 22 23 24 25	10 10 10 10 11	14 15 15 15 15	37 36 36 36 36	51 50 49 50 54	103 101 98 87 83	75 75 75 75 75	60 59 57 56 55	36 36 36 34 33	22 23 23 23 22	20 20 20 20 20 19	13 13 13 13	12 12 12 12 12
26 27 28 29 30 31	10 11 11 11 11 12	15 15 16 16 16	35 35 35 34 34 34	54 54 53 52 52 51	81 79 78 	75 75 74 73 72 71	54 55 53 51 51	32 31 30 30 29 28	22 22 22 22 22 	19 19 18 18 18	13 12 12 12 12 12	12 12 12 12 12
TOTAL MEAN MAX MIN AC-FT CFSM IN.	309.6 9.99 12 9.3 614 0.03 0.03	404 13.5 16 11 801 0.04 0.04	874 28.2 37 17 1730 0.07 0.08	1517 48.9 59 33 3010 0.13 0.15	2078 74.2 127 51 4120 0.19 0.20	2259 72.9 76 70 4480 0.19 0.22	1889 63.0 71 51 3750 0.16 0.18	1217 39.3 50 28 2410 0.10 0.12	708 23.6 28 22 1400 0.06 0.07	640 20.6 22 18 1270 0.05 0.06	439 14.2 18 12 871 0.04 0.04	350 11.7 12 11 694 0.03 0.03
STATIST	rics of M	ONTHLY MEAI	N DATA FO	R WATER Y	EARS 1993	- 2002,	BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	14.5 24.5 1998 3.63 1995	17.8 31.4 1998 4.09 1995	43.5 155 1999 8.75 1995	138 373 1998 30.5 2001	134 266 1999 22.2 1994	113 213 1999 16.7 1994	72.4 113 2000 14.7 1994	47.7 77.7 2000 11.5 1994	27.6 47.0 2000 11.4 1994	21.9 47.6 1997 8.87 1994	15.4 27.3 1997 4.69 1994	13.0 23.7 1997 3.72 1994
SUMMARY	Y STATIST	ICS	FOR 2	001 CALEN	DAR YEAR	F	OR 2002 WA	TER YEAR		WATER YEARS	3 1993 -	2002
LOWEST HIGHEST LOWEST ANNUAL ANNUAL ANNUAL ANNUAL 10 PERC 50 PERC	MEAN F ANNUAL M ANNUAL MI F DAILY MI DAILY MEA	EAN EAN AN Y MINIMUM AC-FT) CFSM) INCHES) EDS EDS		9075.6 24.9 50 9.3 9.5 18000 0.06: 0.88 44 23 11	Mar 16 Oct 4 Oct 3		12684.6 34.8 127 9.3 9.5 25160 0.09 1.23 71 23 11			53.9 88.2 13.7 2160 3.4 3.4 39020 0.14 1.91 119 24	Jan 19 Sep 25 Sep 24	1994

12464770 CRAB CREEK AT ROCKY FORD ROAD, NEAR RITZVILLE, WA (National Water-Quality Assessment station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--August 1992 to September 1995, June 1997 to current year.

PERIOD OF DAILY RECORD. --

SPECIFIC CONDUCTANCE: October 1993 to September 1994. February to September 2002. WATER TEMPERATURE: October 1993 to September 1995. July 1997 to current year.

INSTRUMENTATION. -- Water-quality monitor.

REMARKS.--Temperature record excellent. Specific conductance record excellent except Mar. 24-26, which is good, Mar. 27-29, fair, and Mar. 30-31 is poor. In June 1997, station became a Central Columbia Plateau National Water-Quality Assessment Program (NAWQA) surface-water quality trend site.

EXTREMES FOR PERIOD OF DAILY RECORD .--

SPECIFIC CONDUCTANCE: Maximum recorded, 387 microsiemens Feb. 17, 18, 2002, but may have been higher during periods of missing record; minimum recorded, 140 microsiemens Feb. 9, 2002.

WATER TEMPERATURE: Maximum recorded, 20.5°C (rounded) July 24, 25, 1994; May 24, 1999; minimum, 0.0 (rounded) Jan. 9, 10, 1995

EXTREMES FOR CURRENT YEAR. --

SPECIFIC CONDUCTANCE: Maximum recorded, 387 microsiemens Feb. 17, 18, but may have been higher during periods of missing record; minimum recorded, 140 microsiemens Feb. 9.

WATER TEMPERATURE: Maximum, 18.6°C July 11, 12; minimum recorded, 2.2°C on Mar. 21.

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), FEBRUARY 2002 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	1	FEBRUARY	•		MARCH			APRIL			MAY	
1				334	313	325	377	364	370	379	347	365
2				344	334	339	372	364	368	378	346	365
3				355	344	350	371	364	368	378	347	364
4				372	355	370	372	364	369	377	354	367
5				373	369	371	373	365	369	377	352	365
6				371	366	368	374	364	370	376	351	366
7	380	356	375	368	365	366	374	365	370	377	351	365
8	356	180	274	368	349	361	374	361	369	376	348	364
9	281	140	193	370	367	368	372	363	368	376	346	363
10	311	192	286	370	368	369	368	359	364	375	345	362
11	374	311	348	371	369	370	370	361	365	376	342	361
12	381	362	371	372	367	369	370	358	365	377	341	360
13	378	368	374	370	366	368	370	360	366	377	345	362
14	383	377	380	371	367	369	371	361	367	376	344	362
15	385	381	382	372	367	370	373	361	368	377	348	364
16	386	382	384	372	366	369	373	362	368	376	345	363
17	387	384	385	371	364	367	372	361	367	377	347	365
18	387	384	385	370	362	366	373	361	368	377	350	366
19	386	381	383	367	362	365	374	359	368	379	347	365
20	383	329	372	369	361	365	376	358	368	379	359	371
21	329	262	277	365	359	361	377	356	369	378	354	368
22	278	230	258	367	360	362	377	356	368	379	358	370
23	294	208	259	368	361	365	376	356	368	376	351	365
24	242	179	202	371	366	368	376	355	367	378	353	367
25	275	233	260	374	367	371	378	353	367	379	354	368
26	283	270	277	371	364	367	378	353	367	380	352	367
27	304	277	298	374	368	371	375	351	365	378	351	366
28	313	294	305	378	373	375	374	349	364	380	354	368
29				378	371	375	377	348	365	380	360	371
30				378	369	373	379	348	366	379	353	368
31				377	365	371				380	355	368
MONTH				378	313	365	379	348	367	380	341	366

12464770 CRAB CREEK AT ROCKY FORD ROAD, NEAR RITZVILLE, WA--Continued (National Water-Quality Assessment station)

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

SI	PECIFIC	CONDUCTA	NCE (MI	CROSIEMENS/	CM AT 25	DEG. C)	, WATER YEA	R OCTOE	BER 2001	TO SEPTEMB	ER 2002	
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY		Δ	UGUST			SEPTEMBE	:R
1	380	355	368	374	364	370	372	354	364	377	360	370
2 3	378	358	368	374 375	363	369	371	353 357	364	375 376	362	370 370
4	380 378	357 358	369 369	373	362 359	369 368	371 373	357	364 367	376	361 361	368
5	379	356	368	374	362	369	374	358	367	374	361	370
3	313	337	300	3/4	302	305	3/1	330	307	373	301	370
6	377	358	368	374	362	369	374	358	367	374	363	370
7	375	358	367	374	363	370	373	359	367	375	362	370
8	375	362	369	375	363	370	374	358	368	375	362	370
9	376	363	370		358		375	360	369	376	363	371
10	376	358	368	371	359	366	376	360	370	376	364	371
11	376	359	369	371	353	364	375	359	369	377	363	371
12	376	361	369	368	355	363	375	360	369	377	364	371
13	376	359	369	368	355	362	376	361	370	377	364	372
14	375	359	368	369	357	364	376	360	370	377	364	371
15	375	359	369	371	356	364	375	360	369	377	363	371
16	375	361	369	370	354	363	375	359	369	377	366	372
17	375	361	370	371	353	363	374	351	361	377	368	373
18	375	365	371	371	355	364	371	350	358	375	365	371
19 20	376 375	361 361	369 369	372 374	349 355	362 363	374 375	358 347	368 364	377 377	366 366	372 373
20	373	301	303	374	333	303	373	347	304	377	300	373
21	375	361	369	372	356	365	375	359	369	376	365	372
22	375	359	368	372	354	364	375	362	369	376	360	371
23	376	365	371	372	357	366	376	360	369	376	360	371
24	376	361	369	374	355	366	376	359	369	376	366	372
25	376	361	369	374	355	366	375	359	369	377	366	373
26	376	361	370	374	353	365	375	360	369	377	368	373
27	377	361	370	371	354	363	376	361	370	378	368	374
28	377	365	371	372	354	363	376	361	370	377	368	374
29	374	362	369	371	354	364	376	361	370	378	368	374
30	376	364	370	372	354	364	376	361	370	377	358	372
31				373	355	365	375	362	370			
MONITHI	200	255	260		240		276	247	260	270	250	271
MONTH	380	355	369		349		376	347	368	378	358	371
		TEMPE	RATURE,	WATER (DEG	. C), WA	TER YEAR	OCTOBER 20	01 TO S	EPTEMBER	2002		
DΔV	мдх										MTN	MEΔN
DAY	MAX	TEMPE MIN	RATURE, MEAN	WATER (DEG	. C), WA	TER YEAR MEAN	OCTOBER 20	01 TO S	EPTEMBER MEAN	2002 MAX	MIN	MEAN
DAY	MAX		MEAN	MAX			MAX				MIN JANUARY	
		MIN OCTOBER	MEAN	MAX N	MIN	MEAN	MAX DE	MIN CEMBER	MEAN	MAX	JANUARY	
1	13.4	MIN OCTOBER 9.6	MEAN	MAX N	MIN OVEMBER 8.4	MEAN	MAX DE	MIN CEMBER 7.5	MEAN	MAX 7.7	JANUARY	6.9
1 2	13.4 12.9	MIN OCTOBER 9.6 9.5	MEAN 11.5 11.3	MAX N 10.1 11.0	MIN OVEMBER 8.4 9.0	MEAN 9.3 9.9	MAX DE 8.4 8.0	MIN CEMBER 7.5 7.2	MEAN 7.9 7.6	MAX 7.7 8.1	JANUARY 6.6 7.0	6.9 7.5
1 2 3	13.4 12.9 12.8	MIN OCTOBER 9.6 9.5 9.0	MEAN 11.5 11.3 10.9	MAX N 10.1 11.0 10.6	MIN OVEMBER 8.4 9.0 8.4	MEAN 9.3 9.9 9.5	MAX DE 8.4 8.0 8.4	MIN CCEMBER 7.5 7.2 7.5	MEAN 7.9 7.6 7.9	7.7 8.1 8.3	JANUARY 6.6 7.0 8.1	6.9 7.5 8.2
1 2 3 4	13.4 12.9 12.8 11.8	MIN OCTOBER 9.6 9.5 9.0 8.7	MEAN 11.5 11.3 10.9 10.3	MAX N 10.1 11.0 10.6 10.3	MIN OVEMBER 8.4 9.0 8.4 8.1	MEAN 9.3 9.9 9.5 9.3	MAX DE 8.4 8.0 8.4 7.6	MIN CEMBER 7.5 7.2 7.5 6.9	7.9 7.6 7.9 7.3	7.7 8.1 8.3 8.4	JANUARY 6.6 7.0 8.1 8.0	6.9 7.5 8.2 8.2
1 2 3	13.4 12.9 12.8	MIN OCTOBER 9.6 9.5 9.0	MEAN 11.5 11.3 10.9	MAX N 10.1 11.0 10.6	MIN OVEMBER 8.4 9.0 8.4	MEAN 9.3 9.9 9.5	MAX DE 8.4 8.0 8.4	MIN CCEMBER 7.5 7.2 7.5	MEAN 7.9 7.6 7.9	7.7 8.1 8.3	JANUARY 6.6 7.0 8.1	6.9 7.5 8.2
1 2 3 4 5	13.4 12.9 12.8 11.8	MIN OCTOBER 9.6 9.5 9.0 8.7	MEAN 11.5 11.3 10.9 10.3 9.9	MAX N 10.1 11.0 10.6 10.3 10.6	MIN OVEMBER 8.4 9.0 8.4 8.1	MEAN 9.3 9.9 9.5 9.3	MAX DE 8.4 8.0 8.4 7.6	MIN CEMBER 7.5 7.2 7.5 6.9	7.9 7.6 7.9 7.3	7.7 8.1 8.3 8.4	JANUARY 6.6 7.0 8.1 8.0	6.9 7.5 8.2 8.2 8.1
1 2 3 4 5	13.4 12.9 12.8 11.8 11.7	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9	9.3 9.9 9.5 9.3 9.8	MAX DE 8.4 8.0 8.4 7.6 8.0 8.0 7.8	MIN CCEMBER 7.5 7.2 7.5 6.9 7.2 7.2 6.6	7.9 7.6 7.9 7.3 7.5	7.7 8.1 8.3 8.4 8.4	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8	6.9 7.5 8.2 8.2 8.1 7.6 7.0
1 2 3 4 5	13.4 12.9 12.8 11.8 11.7 11.2 10.3 11.4	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9	9.3 9.9 9.5 9.3 9.8 8.2 7.8	MAX DE 8.4 8.0 8.4 7.6 8.0 8.0 7.8	MIN CCEMBER 7.5 7.2 7.5 6.9 7.2 7.2 6.6 7.6	7.9 7.6 7.9 7.3 7.5 7.5 7.3 8.3	7.7 8.1 8.3 8.4 8.7 8.6 8.7	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 7.8	6.9 7.5 8.2 8.2 8.1 7.6 7.0 8.4
1 2 3 4 5 6 7 8 9	13.4 12.9 12.8 11.8 11.7 11.2 10.3 11.4 10.7	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 7.8	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.9	MAX DE 8.4 8.0 8.4 7.6 8.0 7.8 8.7 8.7	MIN CCEMBER 7.5 7.2 7.5 6.9 7.2 7.2 6.6 7.6 7.8	7.9 7.6 7.9 7.3 7.5 7.5 7.3 8.3 8.2	7.7 8.1 8.3 8.4 8.4 8.7 7.8	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 7.8 6.6	6.9 7.5 8.2 8.2 8.1 7.6 7.0 8.4 7.2
1 2 3 4 5	13.4 12.9 12.8 11.8 11.7 11.2 10.3 11.4	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9	9.3 9.9 9.5 9.3 9.8 8.2 7.8	MAX DE 8.4 8.0 8.4 7.6 8.0 8.0 7.8	MIN CCEMBER 7.5 7.2 7.5 6.9 7.2 7.2 6.6 7.6	7.9 7.6 7.9 7.3 7.5 7.5 7.3 8.3	7.7 8.1 8.3 8.4 8.7 8.6 8.7	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 7.8	6.9 7.5 8.2 8.2 8.1 7.6 7.0 8.4
1 2 3 4 5 6 7 8 9	13.4 12.9 12.8 11.8 11.7 11.2 10.3 11.4 10.7 9.5	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 7.8 8.0	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3 8.8	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7 8.7 9.0	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9 6.9	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.9	MAX DE 8.4 8.0 8.4 7.6 8.0 8.0 7.8 8.7 8.7 8.7	MIN CEMBER 7.5 7.2 7.5 6.9 7.2 7.2 6.6 7.6 7.6 7.6	7.9 7.6 7.9 7.3 7.5 7.5 7.3 8.3 8.2 8.0	7.7 8.1 8.3 8.4 8.7 7.8 7.6	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 7.8 6.6 6.4	6.9 7.5 8.2 8.2 8.1 7.6 7.0 8.4 7.2
1 2 3 4 5 6 7 8 9	13.4 12.9 12.8 11.8 11.7 11.2 10.3 11.4 10.7	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 7.8	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.9	MAX DE 8.4 8.0 8.4 7.6 8.0 7.8 8.7 8.7	MIN CCEMBER 7.5 7.2 7.5 6.9 7.2 7.2 6.6 7.6 7.8	7.9 7.6 7.9 7.3 7.5 7.5 7.3 8.3 8.2	7.7 8.1 8.3 8.4 8.4 8.7 7.8	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 7.8 6.6	6.9 7.5 8.2 8.2 8.1 7.6 7.0 8.4 7.2
1 2 3 4 5 6 7 8 9 10	13.4 12.9 12.8 11.8 11.7 11.2 10.3 11.4 10.7 9.5	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 7.8 8.0 8.9	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3 8.8	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7 9.0	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9 6.9 6.9 7.2	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.9 7.9	MAX DE 8.4 8.0 8.4 7.6 8.0 8.0 7.8 8.7 8.7 8.7 8.3	MIN CCEMBER 7.5 7.2 7.5 6.9 7.2 6.6 7.6 7.6 7.8 7.6	7.9 7.6 7.9 7.3 7.5 7.5 7.3 8.3 8.2 8.0	7.7 8.1 8.3 8.4 8.4 8.7 7.8 7.6	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 7.8 6.6 6.4 6.9	6.9 7.5 8.2 8.2 8.1 7.6 7.0 8.4 7.2 7.0
1 2 3 4 5 6 7 8 9 10	13.4 12.9 12.8 11.8 11.7 11.2 10.3 11.4 10.7 9.5	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 7.8 8.0 8.9	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3 8.8	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7 8.7 9.0 9.0 9.8	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9 6.9 6.9 6.9 7.2 8.3	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.8 7.9 7.9	MAX DE 8.4 8.0 8.4 7.6 8.0 7.8 8.7 8.7 8.7 8.3 8.9 8.6	MIN CCEMBER 7.5 7.2 7.5 6.9 7.2 7.2 6.6 7.6 7.6 8.1 7.8	7.9 7.6 7.9 7.3 7.5 7.5 7.5 8.3 8.2 8.0 8.4 8.1	7.7 8.1 8.3 8.4 8.7 8.6 8.7 7.8 7.6	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 7.8 6.6 6.4 6.9 6.9	6.9 7.5 8.2 8.1 7.6 7.0 8.4 7.2 7.0
1 2 3 4 5 6 7 8 9 10	13.4 12.9 12.8 11.7 11.2 10.3 11.4 10.7 9.5 11.5 10.6 11.2	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 7.8 8.0 8.9 9.2 8.9	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3 8.8 10 9.9 10.1	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7 8.7 9.0 9.0 9.8 10.0	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9 6.9 6.9 7.2 8.3 8.9	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.9 7.9	MAX DE 8.4 8.0 8.4 7.6 8.0 7.8 8.7 8.7 8.7 8.7 8.3	MIN CCEMBER 7.5 7.2 7.5 6.9 7.2 7.2 6.6 7.8 7.6 7.8 7.8 7.8	7.9 7.6 7.9 7.3 7.5 7.5 7.5 8.3 8.2 8.0	7.7 8.1 8.3 8.4 8.7 7.8 7.6 7.6 7.8	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 7.8 6.6 6.4 6.9 6.9 5.9	6.9 7.5 8.2 8.1 7.6 7.0 8.4 7.2 7.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	13.4 12.9 12.8 11.7 11.2 10.3 11.4 10.7 9.5 11.5 10.6 11.2 12.3 11.0	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 7.8 8.0 8.9 9.2 8.9 10.1 8.4	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3 8.8 10 9.9 10.1 11.0 9.8	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7 8.7 9.0 9.0 9.8 10.0 10.6 10.6	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9 6.9 6.9 7.2 8.3 8.9 10.0 9.6	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.8 7.9 8.3 9.1 9.5 10.3	MAX DE 8.4 8.0 8.4 7.6 8.0 8.0 7.8 8.7 8.7 8.7 8.7 8.7 8.7 8.9 8.6 9.0 8.9 7.6	MIN CCEMBER 7.5 7.2 7.5 6.9 7.2 7.2 6.6 7.8 7.6 7.8 7.8 7.8 7.8 7.8 6.6	7.9 7.6 7.9 7.3 7.5 7.5 7.5 8.3 8.2 8.0 8.4 8.1 8.4 7.7 7.1	7.7 8.1 8.3 8.4 8.7 7.8 7.6 7.6 7.8 7.2 6.9	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 7.8 6.6 6.4 6.9 6.9 5.9 6.2 5.2	6.9 7.5 8.2 8.1 7.6 7.0 8.4 7.2 7.0 7.3 7.4 6.6 6.6 5.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	13.4 12.8 11.8 11.7 11.2 10.3 11.4 10.7 9.5 11.5 10.6 11.2 12.3 11.0	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 7.8 8.0 8.9 9.2 8.9 10.1 8.4	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3 8.8 10 9.9 10.1 11.0 9.8	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7 9.0 9.0 9.8 10.0 10.6 10.6	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9 6.9 6.9 7.2 8.3 8.9 10.0 9.6	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.9 7.9 8.3 9.1 9.5 10.3 10.2	MAX DE 8.4 8.0 8.4 7.6 8.0 8.0 7.8 8.7 8.7 8.3 8.9 8.6 9.0 8.9 7.6 8.6	MIN CEMBER 7.5 7.2 7.5 6.9 7.2 6.6 7.6 7.6 7.6 8.1 7.8 7.6 8.1 7.8 7.2 6.6	7.9 7.6 7.9 7.3 7.5 7.5 7.5 8.3 8.2 8.0 8.4 8.1 7.7 7.1	7.7 8.1 8.3 8.4 8.7 8.6 8.7 7.8 7.6 7.6 7.6 7.6	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 6.6 6.4 6.9 6.9 6.9 5.9 6.2 5.2	6.9 7.5 8.2 8.1 7.6 7.0 8.4 7.2 7.0 7.3 7.4 6.6 5.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	13.4 12.9 12.8 11.8 11.7 11.2 10.3 11.4 10.7 9.5 11.5 10.6 11.2 12.3 11.0	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 7.8 8.0 8.9 9.2 8.9 10.1 8.4	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3 8.8 10 9.9 10.1 11.0 9.8	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7 8.7 9.0 9.0 9.8 10.0 10.6 10.6 10.6	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9 6.9 6.9 6.9 10.3 8.9	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.9 7.9 8.3 9.1 9.5 10.3 10.2	MAX DE 8.4 8.0 8.4 7.6 8.0 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.6 9.0 8.9 7.6 8.6 8.6 8.6	MIN CCEMBER 7.5 7.2 7.5 6.9 7.2 6.6 7.6 7.6 7.6 8.1 7.8 7.8 7.8 7.8 7.8 7.9 6.6	7.9 7.6 7.9 7.3 7.5 7.5 7.3 8.3 8.2 8.0 8.4 8.1 8.4 7.7 7.1	7.7 8.1 8.3 8.4 8.4 8.7 7.6 7.6 7.6 7.6 7.6 7.6	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 7.8 6.6 6.4 6.9 6.9 5.9 6.2 5.2	6.9 7.5 8.2 8.1 7.6 7.0 8.4 7.2 7.0 7.3 7.4 6.6 6.6 6.5 8.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	13.4 12.9 12.8 11.8 11.7 11.2 10.3 11.4 10.6 11.2 12.3 11.0 11.4 10.4 10.3	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 7.8 8.0 8.9 9.2 8.9 10.1 8.4 9.3 8.6 8.4	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3 8.8 10 9.9 10.1 11.0 9.8 10.3 9.5 9.4	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7 8.7 9.0 9.0 9.0 10.6 10.6 10.6	MIN OVEMBER 8.4 9.0 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9 6.9 6.9 6.9 7.2 8.3 8.9 10.0 9.6	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.9 7.9 8.3 9.1 9.5 10.3 10.2	MAX DE 8.4 8.0 8.4 7.6 8.0 7.8 8.7 8.7 8.7 8.7 8.7 8.7 8.6 9.0 8.9 7.6 8.6 8.6 7.3	MIN CCEMBER 7.5 7.2 7.5 6.9 7.2 7.6 7.6 7.6 7.6 7.8 7.8 7.8 7.2 6.6 7.8 7.9 6.6	7.9 7.6 7.9 7.3 7.5 7.5 7.5 7.5 7.7 8.3 8.2 8.0 8.4 7.7 7.1 8.0 7.5 6.9	7.7 8.1 8.3 8.4 8.4 8.7 7.8 7.6 7.8 7.2 6.9 6.1 6.1 6.4	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 7.8 6.6 6.4 6.9 6.9 5.9 6.2 5.2 5.2 4.7	6.9 7.5 8.2 8.1 7.6 7.0 8.4 7.2 7.0 7.3 7.4 6.6 6.6 5.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	13.4 12.8 11.8 11.7 11.2 10.3 11.4 10.7 9.5 11.5 10.6 11.2 12.3 11.0	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 7.8 8.0 8.9 9.2 8.9 10.1 8.4 9.3 8.6 8.4 9.3	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3 8.8 10 9.9 10.1 11.0 9.8 10.3 9.5 9.4 10.1	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7 9.0 9.0 9.0 10.6 10.6 10.6 10.4 9.2 9.5	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9 6.9 6.9 7.2 8.3 8.9 10.0 9.6 10.3 8.9 8.1 8.1	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.9 7.9 8.3 9.1 9.5 10.3 10.2	MAX DE 8.4 8.0 8.4 7.6 8.0 8.7 8.7 8.7 8.7 8.7 8.3 8.9 8.6 9.0 8.9 7.6 8.6 7.3 7.6	MIN CCEMBER 7.5 7.2 7.5 6.9 7.2 7.2 6.6 7.8 7.6 8.1 7.8 7.2 6.6 7.5 6.9 6.6 7.5	7.9 7.6 7.9 7.3 7.5 7.5 8.3 8.2 8.0 8.4 8.1 7.7 7.1	7.7 8.1 8.3 8.4 8.6 8.7 7.8 7.6 7.6 7.8 7.6 7.2 6.9 6.4	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 6.6 6.4 6.9 6.9 6.9 5.9 6.2 5.2 5.2 5.2 5.2	6.9 7.5 8.2 8.1 7.6 7.0 8.4 7.2 7.0 7.3 7.4 6.6 5.8 5.7 5.8 5.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	13.4 12.9 12.8 11.8 11.7 11.2 10.3 11.4 10.6 11.2 12.3 11.0 11.4 10.4 10.3	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 7.8 8.0 8.9 9.2 8.9 10.1 8.4 9.3 8.6 8.4	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3 8.8 10 9.9 10.1 11.0 9.8 10.3 9.5 9.4	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7 8.7 9.0 9.0 9.0 10.6 10.6 10.6	MIN OVEMBER 8.4 9.0 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9 6.9 6.9 6.9 7.2 8.3 8.9 10.0 9.6	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.9 7.9 8.3 9.1 9.5 10.3 10.2	MAX DE 8.4 8.0 8.4 7.6 8.0 7.8 8.7 8.7 8.7 8.7 8.7 8.7 8.6 9.0 8.9 7.6 8.6 8.6 7.3	MIN CCEMBER 7.5 7.2 7.5 6.9 7.2 7.6 7.6 7.6 7.6 7.8 7.8 7.8 7.2 6.6 7.8 7.9 6.6	7.9 7.6 7.9 7.3 7.5 7.5 7.5 7.5 7.7 8.3 8.2 8.0 8.4 7.7 7.1 8.0 7.5 6.9	7.7 8.1 8.3 8.4 8.4 8.7 7.8 7.6 7.8 7.2 6.9 6.1 6.1 6.4	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 7.8 6.6 6.4 6.9 6.9 5.9 6.2 5.2 5.2 4.7	6.9 7.5 8.2 8.1 7.6 7.0 8.4 7.2 7.0 7.3 7.4 6.6 6.6 5.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	13.4 12.8 11.8 11.7 11.2 10.3 11.4 10.7 9.5 11.5 10.6 11.2 12.3 11.0	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 7.8 8.0 8.9 9.2 8.9 10.1 8.4 9.3 8.6 8.4 9.3	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3 8.8 10 9.9 10.1 11.0 9.8 10.3 9.5 9.4 10.1	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7 9.0 9.0 9.0 10.6 10.6 10.6 10.4 9.2 9.5	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9 6.9 6.9 7.2 8.3 8.9 10.0 9.6 10.3 8.9 8.1 8.1	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.9 7.9 8.3 9.1 9.5 10.3 10.2	MAX DE 8.4 8.0 8.4 7.6 8.0 8.7 8.7 8.7 8.7 8.7 8.3 8.9 8.6 9.0 8.9 7.6 8.6 7.3 7.6	MIN CCEMBER 7.5 7.2 7.5 6.9 7.2 7.2 6.6 7.8 7.6 8.1 7.8 7.2 6.6 7.5 6.9 6.6 7.5	7.9 7.6 7.9 7.3 7.5 7.5 8.3 8.2 8.0 8.4 8.1 7.7 7.1	7.7 8.1 8.3 8.4 8.6 8.7 7.8 7.6 7.6 7.8 7.6 7.2 6.9 6.4	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 6.6 6.4 6.9 6.9 6.9 5.9 6.2 5.2 5.2 5.2 5.2	6.9 7.5 8.2 8.1 7.6 7.0 8.4 7.2 7.0 7.3 7.4 6.6 5.8 5.7 5.8 5.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	13.4 12.8 11.8 11.7 11.2 10.3 11.4 10.7 9.5 11.5 10.6 11.2 12.3 11.0 11.4 10.4 10.7 9.8 10.7	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 7.8 8.0 8.9 9.2 8.9 10.1 8.4 9.3 8.6 8.4 9.3 8.6 8.7 8.7	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3 8.8 10 9.9 10.1 11.0 9.8 10.3 9.5 9.4 10.1 9.7	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7 9.0 9.0 9.8 10.0 10.6 10.6 10.6 10.4 9.2 9.5 10.0 10.0	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9 6.9 6.9 10.3 8.9 10.0 9.6 10.3 8.9 8.1 8.1 8.9	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.9 7.9 8.3 9.1 9.5 10.3 10.2	MAX DE 8.4 8.0 8.4 7.6 8.0 8.7 8.7 8.7 8.3 8.9 8.6 9.0 8.9 7.6 8.6 7.3 7.6 8.6 8.6 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7	MIN CCEMBER 7.5 7.2 7.2 6.6 7.6 7.6 8.1 7.8 7.8 7.8 7.8 7.9 6.6 7.6 7.5 6.9 6.6 7.0 7.5 7.2	7.9 7.6 7.9 7.3 7.5 7.5 7.3 8.3 8.2 8.0 8.4 8.1 8.4 7.7 7.1 8.0 7.5 6.9 7.2 7.1	7.7 8.1 8.3 8.4 8.4 8.7 7.6 7.6 7.6 7.6 7.6 7.8 7.2 6.9 6.4 6.2 6.9 7.0	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 7.8 6.6 6.4 6.9 6.9 5.9 5.2 5.2 4.7 5.9 5.8	6.9 7.5 8.2 8.1 7.6 7.0 8.4 7.2 7.0 7.3 7.4 6.6 6.6 5.8 5.7 5.8 5.5 6.3 6.0 5.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	13.4 12.9 12.8 11.8 11.7 11.2 10.3 11.4 10.6 11.2 12.3 11.0 11.4 10.3 11.4 10.3 11.4 10.3 11.4 10.3 11.4 10.3	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 7.8 8.0 8.9 9.2 8.9 10.1 8.4 9.3 8.6 8.7 8.7 7.8	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3 8.8 10 9.9 10.1 11.0 9.8 10.3 9.5 9.4 10.1 9.7	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7 9.0 9.0 9.8 10.0 10.6 10.6 10.4 9.2 9.5 10.0 10.0 10.0 9.4	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9 6.9 6.9 7.2 8.3 8.9 10.0 9.6 10.3 8.1 8.1 8.9 9.2 9.3	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.9 7.9 8.3 9.1 9.5 10.3 10.2 10.4 10.0 8.6 8.8 9.5	MAX DE 8.4 8.0 8.4 7.6 8.0 7.8 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.6 7.6 8.6 8.6 7.8 8.4 7.3	MIN CCEMBER 7.5 7.2 7.5 6.9 7.2 7.6 7.6 7.6 7.6 7.8 7.8 7.8 7.8 7.9 6.6 7.0 6.6 7.5 6.9 6.6 7.0 6.6	7.9 7.6 7.9 7.3 7.5 7.5 7.5 7.3 8.3 8.2 8.0 8.4 7.7 7.1 8.0 7.2 7.1 8.1 7.9 7.0	7.7 8.1 8.3 8.4 8.6 8.7 7.8 7.6 7.8 7.2 6.9 6.4 6.1 6.2 6.9 7.0	JANUARY 6.6 7.0 8.1 1.8 0 7.8 3.6 3.8 7.8 6.6 6.4 6.9 6.9 5.9 6.2 5.2 4.7 5.9 5.8 5.5 6.4	6.9 7.5 8.2 8.1 7.6 7.0 8.4 7.0 7.3 7.4 6.6 6.6 6.6 5.8 5.7 5.8 5.5 6.3 6.0 5.2
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	13.4 12.8 11.8 11.7 11.2 10.3 11.4 10.7 9.5 11.5 10.6 11.2 12.3 11.0 11.4 10.4 10.7 9.8 10.0 9.8	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 7.8 8.0 8.9 9.2 8.9 10.1 8.4 9.3 8.6 8.7 8.7 7.8 8.7	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3 8.8 10 9.9 10.1 11.0 9.8 10.3 9.5 10.1 9.7 9.3 9.4 10.1 9.7	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7 8.7 9.0 9.0 9.8 10.0 10.6 10.6 10.6 10.4 9.2 9.5 10.0 10.0 10.0 10.0 8.2 8.4	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9 6.9 6.9 7.2 8.3 8.9 10.0 9.6 10.3 8.9 10.0 9.6 10.3 8.9 2.7 3.7 6 8.0	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.9 8.3 9.1 9.5 10.3 10.2 10.4 10.0 8.6 8.8 9.5 9.6 8.9 7.6 8.0 8.5	MAX DE 8.4 8.0 8.4 7.6 8.0 8.7 8.7 8.7 8.7 8.7 8.7 8.6 7.6 8.6 7.6 8.6 7.3 7.6 7.8 8.4 8.4 7.3 7.2	MIN CCEMBER 7.5 7.2 7.2 7.2 6.6 7.8 7.6 7.8 7.6 7.8 7.2 6.6 7.8 7.2 6.6 7.5 6.9 7.5 7.9 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2	7.9 7.6 7.9 7.5 7.5 7.5 7.5 8.3 8.2 8.0 8.4 8.1 8.4 7.7 7.1 8.0 7.5 6.9 7.2 7.1 8.1 7.9 6.8 6.4 6.2	MAX 7.7 8.1 8.3 8.4 8.7 7.8 7.6 7.6 7.6 7.6 9 7.0 6.6 6.1 6.2 6.9 7.0 6.6 6.1 5.6 6.9 7.5	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 6.6 6.4 6.9 6.9 6.2 5.2 5.2 5.2 5.2 5.2 5.2 5.5 5.6 5.5 5.0 4.4 5.5 6.2	6.9 7.5 8.2 8.1 7.6 7.0 8.4 7.2 7.0 7.3 7.4 6.6 5.8 5.7 5.8 5.7 5.8 5.6 3 6.3 6.0 6.2 6.9 6.9 6.9 6.9 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	13.4 12.8 11.8 11.7 11.2 10.3 11.4 10.7 9.5 11.5 10.6 11.2 12.3 11.0 11.4 10.4 10.7 9.8 10.0 9.8 10.0 9.8	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 7.8 8.0 8.9 9.2 8.9 10.1 8.4 9.3 8.6 8.7 7.8 7.8 7.8 7.8 7.8	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3 8.8 10 9.9 10.1 11.0 9.8 10.3 9.5 9.4 10.1 9.7 9.3 9.4 8.6 8.2 9.6	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7 9.0 9.0 9.8 10.0 10.6 10.6 10.6 10.6 10.6 29.5 10.0 10.0 10.0 29.8 3.4	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9 6.9 6.9 7.2 8.3 8.9 10.0 9.6 10.3 8.9 8.1 8.1 8.9 9.2 9.3 8.2 7.3 7.6	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.9 7.9 8.3 9.1 9.5 10.3 10.2 10.4 10.0 8.6 8.8 9.5	MAX DE 8.4 8.0 8.4 7.6 8.0 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.6 7.6 8.6 7.6 8.6 7.8 8.4 7.6 6 7.8 6 6 7.8 6 6 7.6 6 7.7	MIN CEMBER 7.5 7.2 7.2 7.2 6.6 7.6 7.6 8.1 7.8 7.8 7.6 6.6 7.6 7.8 7.2 6.6 7.0 6.6 7.5 6.9 6.6 7.0 6.6 7.0	7.9 7.6 7.9 7.3 7.5 7.5 7.5 7.5 7.5 7.7 8.0 8.4 8.1 8.4 7.7 7.1 8.0 7.2 7.1 8.1 7.9 7.0 6.8 6.4	7.7 8.1 8.3 8.4 8.4 8.7 7.6 7.8 7.2 6.9 7.0 6.1 6.1 6.1 6.9 7.5	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 7.8 6.6 6.4 6.9 6.9 5.9 6.2 5.2 4.7 5.9 5.8 5.5 6.2	6.9 7.5 8.2 8.1 7.6 7.0 8.4 7.0 7.3 7.4 6.6 6.6 6.5 8.3 6.3 6.3 6.6 6.3
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 25 26 27	13.4 12.8 11.8 11.7 11.2 10.3 11.4 10.7 9.5 11.5 10.6 11.2 12.3 11.0 11.4 10.7 9.8 10.0 9.6 8.9 10.9 10.9 10.3 10.3 10.3	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 7.8 8.0 8.9 9.2 8.9 10.1 8.4 9.3 8.6 8.7 7.8 8.7 7.8 8.7 9.3	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3 8.8 10 9.9 10.1 11.0 9.8 10.3 9.5 9.4 10.1 19.7 9.3 9.4 8.6 8.2 9.6 9.9 9.8	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7 8.7 9.0 9.0 9.8 10.0 10.6 10.6 10.6 10.4 9.2 9.5 10.0 10.0 10.0 10.0 4.8.2 8.4 8.7 8.3 7.4 8.3	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9 6.9 10.3 8.9 8.1 8.1 8.9 9.2 9.3 8.2 7.3 7.6 8.0 7.4	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.9 7.9 8.3 9.1 9.5 10.2 10.4 10.0 8.6 8.8 9.5 9.6 8.9 7.6 8.0 8.5 7.8	MAX DE 8.4 8.0 8.4 7.6 8.0 8.7 8.7 8.3 8.9 8.6 9.0 8.9 7.6 8.6 7.3 7.6 8.6 7.3 7.6 6.6 6.7	MIN CCEMBER 7.5 7.2 7.2 6.6 7.6 7.6 8.1 7.8 7.8 7.8 7.8 7.6 6.6 7.5 6.9 6.6 7.5 6.9 6.6 7.5 6.9 6.6 7.5 7.8 7.8 7.8 7.8 7.8 7.8 7.8 7.8 7.8 7.8	7.9 7.6 7.9 7.5 7.5 7.3 8.3 8.2 8.0 8.4 8.1 8.4 7.7 7.1 8.0 7.5 6.9 7.2 7.1 8.1 7.9 7.0 6.8 6.4 6.2 6.2	7.7 8.1 8.3 8.4 8.4 8.7 7.6 7.6 7.6 7.8 7.6 7.6 7.6 7.6 7.6 7.8 7.2 6.4 6.2 6.9 7.0	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 7.8 6.6 6.4 6.9 6.9 5.2 5.2 5.2 4.7 5.9 5.8 5.5 6.2 5.5 4.4 5.5 6.2	6.9 7.5 8.2 8.1 7.6 7.0 8.4 7.2 7.0 7.3 7.4 6.6 6.6 5.8 5.7 5.8 5.5 6.3 6.3 6.9 6.1 5.4
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	13.4 12.8 11.8 11.7 11.2 10.3 11.4 10.7 9.5 11.5 10.6 11.2 12.3 11.0 11.4 10.4 10.7 9.6 8.9 10.9 10.9 10.9 10.3 10.3 9.8 10.3	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 8.0 8.9 9.2 8.9 10.1 8.4 9.3 8.6 8.7 7.8 8.7 7.8 8.7 7.8 8.7 9.3 8.4 9.6	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3 8.8 10 9.9 10.1 11.0 9.8 10.3 9.5 9.4 10.1 19.7 9.3 9.4 8.6 8.2 9.6 9.9 9.8 9.3 9.2 10	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7 9.0 9.0 9.8 10.0 10.6 10.6 10.6 10.6 10.4 9.2 9.5 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9 6.9 6.9 10.3 8.9 10.0 9.6 10.3 8.9 8.1 8.1 8.9 9.2 7.3 7.6 8.0 7.4 6.1 6.9 7.0	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.9 7.9 8.3 9.1 9.5 10.2 10.4 10.0 8.6 8.9 9.5 9.6 8.9 7.6 8.0	MAX DE 8.4 8.0 8.4 7.6 8.0 8.7 8.7 8.3 8.9 8.6 9.0 8.9 7.6 8.6 7.3 7.6 7.8 8.4 7.3 7.6 6.6 7.8 7.8 7.8	MIN CEMBER 7.5 7.2 7.2 6.6 7.6 7.6 7.6 8.1 7.8 7.8 7.8 7.8 7.8 7.9 6.6 7.5 6.9 6.6 7.5 6.9 6.6 7.5 6.9 6.6 7.5 6.9 6.6 7.5 6.9 6.6 7.8 7.2 6.6 7.5 6.9 6.6 7.5 6.9 6.6 7.8 7.2 6.6 7.5 6.9 6.6 7.5 6.9 6.6 7.8 7.2 6.6 7.5 6.9 6.6 7.8 7.2 6.6 7.8 7.8 7.8 7.8 7.8 7.8 7.8 7.8 7.8 7.8	7.9 7.6 7.9 7.5 7.3 8.3 8.3 8.2 8.0 8.4 8.1 8.4 7.7 7.1 8.0 7.5 6.9 7.0 6.8 6.4 6.2 7.0 6.9	7.7 8.1 8.3 8.4 8.4 8.7 7.6 7.6 7.8 7.2 6.9 6.4 6.1 6.2 6.9 7.0 6.6 6.9 7.5	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 7.8 6.6 6.4 6.9 6.9 5.2 5.2 5.2 5.2 4.7 5.8 5.5 6.2 5.5 4.8 4.2 3.9 5.0	6.9 7.5 8.2 8.1 7.6 7.0 8.4 7.2 7.0 7.3 7.4 6.6 6.6 5.8 5.7 5.8 5.5 6.3 6.0 6.2 6.9 6.1 5.4 4.8 5.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	13.4 12.8 11.8 11.7 11.2 10.3 11.4 10.7 9.5 11.5 10.6 11.2 12.3 11.0 11.4 10.3 11.4 10.7 9.8 10.0 9.6 8.9 10.9 10.9 10.3 10.3 10.3	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 7.8 8.0 8.9 9.2 8.9 10.1 8.4 9.3 8.6 8.7 7.8 7.3 8.7 8.7 8.7 8.7 8.7 8.4 8.4	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3 8.8 10 9.9 10.1 11.0 9.8 10.3 9.5 10.1 9.7 9.3 9.4 10.1 9.7 9.3 9.4 10.1 9.7	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7 8.7 9.0 9.0 9.8 10.0 10.6 10.6 10.6 10.4 9.2 9.5 10.0 10.0 10.0 10.0 4.8.2 8.4 8.7 8.3 7.4 8.3	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9 6.9 6.9 7.2 8.3 8.9 10.0 9.6 10.3 8.9 10.0 9.6 10.3 8.9 2.7 3.7 6 8.0 7.4 6.1 6.9	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.9 7.9 8.3 9.1 9.5 10.3 10.2 10.4 10.0 8.6 8.8 9.5 9.6 6.8 9.6 8.9 7.8 7.8	MAX DE 8.4 8.0 8.4 7.6 8.0 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.6 7.6 8.6 7.8 8.4 7.2 6.6 6.7 6.6 7.5	MIN CCEMBER 7.5 7.2 7.5 7.2 7.6 7.6 7.6 7.6 7.8 7.8 7.2 6.6 7.5 6.9 6.6 7.0 6.6 7.8 7.2 6.6 7.0 6.6 7.8 7.8 7.2 6.6 7.0 6.6 7.8 7.8 7.2 6.6 7.0 6.6 7.8 7.8 7.2 6.6 7.0 6.6 7.8 7.8 7.2 6.6 7.0 6.6 7.8 7.8 7.2 6.6 7.0 6.6 7.8 7.2 6.6 7.0 6.6 7.8 7.2 6.6 7.0 6.6 7.8 7.2 6.6 7.0 6.6 7.8 7.2 6.6 7.0 6.6 7.8 7.2 6.6 7.0 6.6 7.8 7.2 6.6 7.0 6.6 7.8 7.2 6.6 7.0 6.6 7.8 7.2 6.6 7.0 6.6 7.8 7.8 7.2 6.6 7.0 6.6 7.8 7.8 7.2 6.6 7.0 6.6 7.8 7.8 7.2 6.6 7.0 6.6 7.8 7.8 7.2 6.6 7.0 6.6 7.8 7.8 7.2 6.6 7.0 6.6 7.8 7.8 7.9 6.6 7.0 6.6 7.8 7.8 7.9 6.6 7.0 6.6 7.8 7.8 7.9 6.6 7.0 6.6 7.8 7.8 7.8 7.9 6.6 7.0 6.6 7.8 7.8 7.9 6.6 7.0 6.6 7.8 7.8 7.9 6.6 7.0 6.6 7.8 7.8 7.9 6.6 6.4 7.9 6.6 6.4 6.4	7.9 7.6 7.9 7.3 7.5 7.5 7.5 7.5 7.5 7.5 7.1 8.0 8.4 7.7 7.1 8.0 7.5 6.9 7.2 7.1 8.1 7.9 6.8 6.4 6.2 7.0 6.9	7.7 8.1 8.3 8.4 8.6 8.7 7.8 7.6 7.6 7.6 7.6 9.7 6.1 6.2 6.9 7.0 6.6 6.1 5.6 6.9 7.5	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 6.6 6.4 6.9 6.9 6.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2 5.5 6.2 5.5 6.2 5.5 4.8 4.2 3.9	7.6 7.2 8.2 8.1 7.6 7.0 8.4 7.2 7.0 7.3 7.4 6.6 6.6 5.8 5.7 5.8 5.3 6.3 6.3 6.2 6.9 6.1 4.9 4.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	13.4 12.8 11.8 11.7 11.2 10.3 11.4 10.7 9.5 11.5 10.6 11.2 12.3 11.0 11.4 10.4 10.7 9.6 8.9 10.9 10.9 10.9 10.3 10.3 9.8 10.3	MIN OCTOBER 9.6 9.5 9.0 8.7 8.3 8.1 8.3 9.3 8.0 8.9 9.2 8.9 10.1 8.4 9.3 8.6 8.7 7.8 8.7 7.8 8.7 7.8 8.7 9.3 8.4 9.6	MEAN 11.5 11.3 10.9 10.3 9.9 9.8 9.5 10.2 9.3 8.8 10 9.9 10.1 11.0 9.8 10.3 9.5 9.4 10.1 19.7 9.3 9.4 8.6 8.2 9.6 9.9 9.8 9.3 9.2 10	MAX N 10.1 11.0 10.6 10.3 10.6 8.9 8.7 8.7 9.0 9.0 9.8 10.0 10.6 10.6 10.6 10.6 10.4 9.2 9.5 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10	MIN OVEMBER 8.4 9.0 8.4 8.1 8.9 7.6 6.9 6.9 6.9 6.9 10.3 8.9 10.0 9.6 10.3 8.9 8.1 8.1 8.9 9.2 7.3 7.6 8.0 7.4 6.1 6.9 7.0	9.3 9.9 9.5 9.3 9.8 8.2 7.8 7.9 7.9 8.3 9.1 9.5 10.2 10.4 10.0 8.6 8.9 9.5 9.6 8.9 7.6 8.0	MAX DE 8.4 8.0 8.4 7.6 8.0 8.7 8.7 8.3 8.9 8.6 9.0 8.9 7.6 8.6 7.3 7.6 7.8 8.4 7.3 7.6 6.6 7.8 7.8 7.8	MIN CEMBER 7.5 7.2 7.2 6.6 7.6 7.6 7.6 8.1 7.8 7.8 7.8 7.8 7.8 7.9 6.6 7.5 6.9 6.6 7.5 6.9 6.6 7.5 6.9 6.6 7.5 6.9 6.6 7.5 6.9 6.6 7.8 7.2 6.6 7.5 6.9 6.6 7.5 6.9 6.6 7.8 7.2 6.6 7.5 6.9 6.6 7.5 6.9 6.6 7.8 7.2 6.6 7.5 6.9 6.6 7.8 7.2 6.6 7.8 7.8 7.8 7.8 7.8 7.8 7.8 7.8 7.8 7.8	7.9 7.6 7.9 7.5 7.3 8.3 8.3 8.2 8.0 8.4 8.1 8.4 7.7 7.1 8.0 7.5 6.9 7.0 6.8 6.4 6.2 7.0 6.9	7.7 8.1 8.3 8.4 8.6 8.7 7.6 7.6 7.6 7.6 7.6 7.6 7.6 7.6 7.6 6.1 6.2 6.1 5.6 6.9 7.5	JANUARY 6.6 7.0 8.1 8.0 7.8 3.6 3.8 7.8 6.6 6.4 6.9 6.9 5.2 5.2 5.2 5.2 4.7 5.8 5.5 6.2 5.5 4.8 4.2 3.9 5.0	7.5 8.2 8.1 7.6 7.0 8.4 7.2 7.0 7.3 7.4 6.6 6.6 5.8 5.7 5.8 5.5 6.3 6.3 6.6 6.6 6.6 6.6 6.6 6.6 6.6 6.6

12464770 CRAB CREEK AT ROCKY FORD ROAD, NEAR RITZVILLE, WA--Continued (National Water-Quality Assessment station)

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

D.111				WIIIDIC (DD							MIN	MEDAN
DAY	MAX	MIN	MEAN	MAX		MEAN	MAX		MEAN	MAX		MEAN
		FEBRUARY						APRIL			MAY	
1 2	6.9 6.6	5.6 4.8 4.7 5.0 4.8	6.2 5.8	6.9 6.9 7.9 7.2 8.0	3.4 3.2	5.1 4.9	11.1 10.9	7.1 6.0	8.9 8.4	15.4 14.2	9.1 9.6	12.2 12.0
3 4	5.9 6.7	4.7	5.3	7.9 7.2	3.7 4.9	5.6 6.1	12.0 12.9	5.5 6.2	8.6 9.3	13.5 11.6	8.2 8.1	10.9
	6.7	4.8	5.8	8.0	4.9	6.4	11.3	7.4	9.5	11.1	7.1	9.0
6	6.7	5.2	5.9	7.1	4.8	5.5	12.5	8.2	10.2	10.6	6.5	8.7
7 8	6.7 6.8 5.9	5.9 3.7	6.3 4.6	6.8 6.9	3.6 3.7	5.0 5.2	12.9 12.7	7.6 6.8	10.1 9.7	10.5 11.9	7.0 6.6	8.9 9.3
9	5.9 6.7	5.2 5.9 3.7 2.9 4.2	4.2 5.3	7.1 6.8 6.9 6.5 7.7	4.2	5.4 6.1	10.7 12.6	8.0 7.6	9.2 9.8	12.7 13.9	7.2 7.6	10 10.8
12	6.6 6.5 6.2	4.4 3.6 4.0 3.8 4.0	5.0	8.6 8.9 8.9	5.8	7.2	12.5	8.9	10.6	15.0 15.3 14.1 13.6 13.5	9.2	12.4
	6.2	4.0 3.8	5.1	8.9	5.7	6.9	13.6 12.4	9.5	11.5	14.1	10.2 8.9	$\frac{12.3}{11.4}$
16 17	7.5	4.3	5.8	7.7	5.4	6.6	9.8	7.1	8.3	14.9	8.7	11.9 12.5
18	8.3	5.6	7.0	6.4	5.0	5.7	11.9	7.2	9.5	13.8	10.2	12.1
19 20	7.1	4.3 5.2 5.6 6.4 5.0	6.1	7.7 7.7 6.4 7.7 7.4	4.5	5.9	13.9 14.0	7.5	10.5	14.9 14.4 13.8 16.2 14.8	11.0	13.7 12.3
22 23	8.4	4.4 6.7 6.8 5.9 3.6	7.5	6.0 8.1 9.4 8.5 11.2	3.5	5.6	12.7	8.4	10.6	12.5 11.3 13.6 15.0 14.3	9.5	10.2 11.3
24	7.5	5.9	6.7	8.5	6.8	7.7	12.7	5.8	9.2	15.0	9.5	12.4
26 27	5.1 4.9	3.3 2.3 3.0	4.1	9.8 9.6 10.2 10.7 12.0 10.4	6.9 5.6	8.4 7.6	11.9 12.8	8.6 8.6	10.3 10.6	15.6 16.3 16.0 14.6 16.4 15.8	11.4 11.5	13.7 14.1
28 29	6.7	3.0	4.7	10.2	5.9	7.8	14.4	8.0	10.9	16.0	12.8	14.6
30				12.0	6.4	9.0	14.7	9.5	12.1	16.4	10.9	13.5 13.6
31				10.4	7.3					15.8	10.9	13.6
MONTH	8.4	2.3	5.7	12.0	2.2	6.6	15.1	5.5	10.0	16.4	6.5	11.7
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY	MAX	MIN JUNE	MEAN		MIN JULY	MEAN		MIN AUGUST	MEAN		MIN SEPTEMBE	
		JUNE			JULY			AUGUST			SEPTEMBE	ER.
1 2	14.1 14.9	JUNE 11.4 10.5			JULY			AUGUST			SEPTEMBE	ER.
1 2 3 4	14.1 14.9 15.4 15.7	JUNE 11.4 10.5 10.6 11.5			JULY			AUGUST			SEPTEMBE	ER.
1 2 3 4 5	14.1 14.9 15.4 15.7 16.2	JUNE 11.4 10.5 10.6 11.5 12.4	12.8 12.8 13.2 13.7 14.0	16.0 16.4 14.9 15.5 16.1	JULY 11.1 10.7 11.8 10.6 10.7	13.5 13.6 13.4 13.0 13.4	16.1 15.7 15.8 13.9 14.2	AUGUST 11.0 11.2 10.6 11.4 10.0	13.6 13.6 13.3 12.3	14.9 15.4 13.8 13.0 13.5	12.2 10.6 11.8 9.3 10.1	13.6 13.1 12.8 11.4 11.9
1 2 3 4 5	14.1 14.9 15.4 15.7 16.2	JUNE 11.4 10.5 10.6 11.5 12.4	12.8 12.8 13.2 13.7 14.0	16.0 16.4 14.9 15.5 16.1	JULY 11.1 10.7 11.8 10.6 10.7	13.5 13.6 13.4 13.0 13.4	16.1 15.7 15.8 13.9 14.2	AUGUST 11.0 11.2 10.6 11.4 10.0	13.6 13.6 13.3 12.3	14.9 15.4 13.8 13.0 13.5	12.2 10.6 11.8 9.3 10.1	13.6 13.1 12.8 11.4 11.9
1 2 3 4 5	14.1 14.9 15.4 15.7 16.2	JUNE 11.4 10.5 10.6 11.5 12.4	12.8 12.8 13.2 13.7 14.0	16.0 16.4 14.9 15.5 16.1	JULY 11.1 10.7 11.8 10.6 10.7	13.5 13.6 13.4 13.0 13.4	16.1 15.7 15.8 13.9 14.2	AUGUST 11.0 11.2 10.6 11.4 10.0	13.6 13.6 13.3 12.3	14.9 15.4 13.8 13.0 13.5	12.2 10.6 11.8 9.3 10.1	13.6 13.1 12.8 11.4 11.9
1 2 3 4 5 6 7 8 9	14.1 14.9 15.4 15.7 16.2 14.1 12.1 10.6 12.1	JUNE 11.4 10.5 10.6 11.5 12.4 10.9 9.3 9.0 9.7	12.8 12.8 13.2 13.7 14.0 12.4 10.8 10.9 12.2	16.0 16.4 14.9 15.5 16.1 17.1 17.2 16.6 17.2	JULY 11.1 10.7 11.8 10.6 10.7 11.6 11.9 13.3 12.4	13.5 13.6 13.4 13.0 13.4 14.2 14.5 14.5	16.1 15.7 15.8 13.9 14.2	AUGUST 11.0 11.2 10.6 11.4 10.0	13.6 13.6 13.3 12.3		12.2 10.6 11.8 9.3 10.1	13.6 13.1 12.8 11.4 11.9
1 2 3 4 5 6 7 8 9 10	14.1 14.9 15.4 15.7 16.2 14.1 12.1 10.6 12.1 14.4	JUNE 11.4 10.5 10.6 11.5 12.4 10.9 9.3 9.0 9.7 10.5	12.8 12.8 13.2 13.7 14.0 12.4 10.8 10.9 12.2	16.0 16.4 14.9 15.5 16.1 17.1 17.2 16.6 17.2	JULY 11.1 10.7 11.8 10.6 10.7 11.6 11.9 13.3 12.4	13.5 13.6 13.4 13.0 13.4 14.2 14.5 14.5	16.1 15.7 15.8 13.9 14.2 13.6 14.1 15.3 16.1	AUGUST 11.0 11.2 10.6 11.4 10.0 10.4 9.9 10.1 11.0 11.6	13.6 13.6 13.3 12.3 12.2 12.0 12.2 12.8 13.6 14.1	14.9 15.4 13.8 13.0 13.5 13.0 13.8 13.4 14.7	12.2 10.6 11.8 9.3 10.1 9.3 9.4 9.0 10.2	13.6 13.1 12.8 11.4 11.9 11.4 11.6 11.4 12.4
1 2 3 4 5 6 7 8 9 10	14.1 14.9 15.4 15.7 16.2 14.1 12.1 10.6 12.1 14.4	JUNE 11.4 10.5 10.6 11.5 12.4 10.9 9.3 9.0 9.7 10.5	12.8 12.8 13.2 13.7 14.0 12.4 10.8 10.0 10.9 12.2 13.3 13.8	16.0 16.4 14.9 15.5 16.1 17.1 17.2 16.6 17.2 18.3	JULY 11.1 10.7 11.8 10.6 10.7 11.6 11.9 13.3 12.4 13.0 13.1	13.5 13.6 13.4 13.0 13.4 14.2 14.5 14.9 15.3	16.1 15.7 15.8 13.9 14.2 13.6 14.1 15.3 16.1 16.5	AUGUST 11.0 11.2 10.6 11.4 10.0 10.4 9.9 10.1 11.0 11.6 11.4 10.9	13.6 13.6 13.3 12.3 12.2 12.0 12.2 12.8 13.6 14.1	14.9 15.4 13.8 13.0 13.5 13.0 13.8 13.4 14.7 15.0	SEPTEMBE 12.2 10.6 11.8 9.3 10.1 9.3 9.4 9.0 10.2 10.1	13.6 13.1 12.8 11.4 11.9 11.4 11.6 11.4 12.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14	14.1 14.9 15.4 15.7 16.2 14.1 10.6 12.1 14.4 15.9 15.6 17.3 17.5	JUNE 11.4 10.5 10.6 11.5 12.4 10.9 9.3 9.0 9.7 10.5 11.1 11.7 12.0 12.4	12.8 12.8 13.2 13.7 14.0 10.8 10.0 10.9 12.2 13.3 13.8 14.6 15.0	16.0 16.4 14.9 15.5 16.1 17.1 17.2 18.3 18.6 18.6 18.4	JULY 11.1 10.7 11.8 10.6 10.7 11.6 11.9 13.0 13.1 13.6 14.3	13.5 13.6 13.4 13.0 13.4 14.2 14.5 14.5 15.3 15.8 15.9 16.0 16.2	16.1 15.7 15.8 13.9 14.2 13.6 14.1 15.3 16.1 16.5	AUGUST 11.0 11.2 10.6 11.4 10.0 10.4 9.9 10.1 11.0 11.6 11.4 10.9 11.9 11.2	13.6 13.6 13.3 12.3 12.2 12.0 12.2 12.8 13.6 14.1 13.7 14.5 14.5	14.9 15.4 13.8 13.0 13.5 13.0 13.8 13.4 14.7 15.0 14.9 15.1 14.8	SEPTEMBE 12.2 10.6 11.8 9.3 10.1 9.3 9.4 9.0 10.2 10.1 10.0 10.2 10.1	13.6 13.1 12.8 11.4 11.9 11.6 11.4 12.6 12.7 12.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	14.1 14.9 15.4 15.7 16.2 14.1 10.6 12.1 14.4 15.9 15.6 17.3 17.5 17.8	JUNE 11.4 10.5 10.6 11.5 12.4 10.9 9.3 9.0 9.7 10.5 11.1 11.7 12.0 12.4 12.7	12.8 12.8 13.2 13.7 14.0 10.8 10.0 10.9 12.2 13.3 13.8 14.6 15.0 15.2	16.0 16.4 14.9 15.5 16.1 17.1 17.2 16.6 17.2 18.3 18.6 18.4 18.1	JULY 11.1 10.7 11.8 10.6 10.7 11.6 11.9 13.3 12.4 13.0 13.1 13.6 14.3 12.3	13.5 13.6 13.4 13.0 13.4 14.2 14.5 14.9 15.3 15.8 15.9 16.0 16.2 14.9	16.1 15.7 15.8 13.9 14.2 13.6 14.1 15.3 16.1 16.5 15.9 16.4 17.1 17.0 16.6	AUGUST 11.0 11.2 10.6 11.4 10.0 10.4 9.9 10.1 11.0 11.6 11.4 10.9 11.9 12.2 11.6	13.6 13.3 12.3 12.2 12.0 12.2 12.8 13.6 14.1 13.7 14.5 14.7	14.9 15.4 13.8 13.0 13.5 13.0 13.8 13.4 14.7 15.0 14.9 15.1 14.8 14.3	12.2 10.6 11.8 9.3 10.1 9.3 9.4 9.0 10.2 10.1 10.0 10.2 10.1 9.9	13.6 13.1 12.8 11.4 11.9 11.4 11.6 11.4 12.6 12.7 12.6 12.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14	14.1 14.9 15.4 15.7 16.2 14.1 10.6 12.1 14.4 15.9 15.6 17.3 17.5	JUNE 11.4 10.5 10.6 11.5 12.4 10.9 9.3 9.0 9.7 10.5 11.1 11.7 12.0 12.4	12.8 12.8 13.2 13.7 14.0 10.8 10.0 10.9 12.2 13.3 13.8 14.6 15.0	16.0 16.4 14.9 15.5 16.1 17.1 17.2 16.6 17.2 18.3 18.6 18.4 18.1 17.3	JULY 11.1 10.7 11.8 10.6 10.7 11.6 11.9 13.0 13.1 13.6 14.3	13.5 13.6 13.4 13.0 13.4 14.2 14.5 14.5 15.3 15.8 15.9 16.0 16.2	16.1 15.7 15.8 13.9 14.2 13.6 14.1 15.3 16.1 16.5 15.9 16.4 17.1 17.0 16.6	AUGUST 11.0 11.2 10.6 10.4 9.9 10.1 11.0 11.6 11.4 10.9 11.9 11.9 11.9 11.10 11.6	13.6 13.6 13.3 12.3 12.2 12.0 12.2 12.8 13.6 14.1 13.7 14.5 14.5	14.9 15.4 13.8 13.0 13.5 13.0 13.8 13.4 14.7 15.0 14.9 15.1 14.8 14.3 13.7	SEPTEMBE 12.2 10.6 11.8 9.3 10.1 9.3 9.4 9.0 10.2 10.1 10.0 10.2 10.1 10.0 10.2 10.1 9.9 10.5	13.6 13.1 12.8 11.4 11.9 11.6 11.4 12.6 12.7 12.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	14.1 14.9 15.4 15.7 16.2 14.1 12.1 10.6 12.1 14.4 15.9 15.6 17.3 17.5 17.8	JUNE 11.4 10.5 10.6 11.5 12.4 10.9 9.3 9.0 9.7 10.5 11.1 11.7 12.0 12.4 12.7 12.8 11.7 11.8	12.8 12.8 13.2 13.7 14.0 12.4 10.8 10.0 10.9 12.2 13.3 13.8 14.6 15.0 15.0 14.7 13.0 12.9	16.0 16.4 14.9 15.5 16.1 17.1 17.2 16.6 17.2 18.3 18.6 18.4 18.1 17.3	JULY 11.1 10.7 11.8 10.6 10.7 11.6 11.9 13.3 12.4 13.0 13.1 13.6 14.3 12.3 12.0 12.5 12.6	13.5 13.6 13.4 13.0 13.4 14.2 14.5 14.9 15.3 15.8 15.9 16.0 16.2 14.9	16.1 15.7 15.8 13.9 14.2 13.6 14.1 15.3 16.1 16.5 15.9 16.4 17.1 17.0 16.6	AUGUST 11.0 11.2 10.6 11.4 10.0 10.4 9.9 10.1 11.0 11.6 11.4 10.9 11.9 12.2 11.6 11.4 10.3 10.8	13.6 13.6 13.3 12.3 12.2 12.0 12.2 12.8 13.6 14.1 13.7 14.5 14.7 14.5 14.7	14.9 15.4 13.8 13.0 13.5 13.0 13.8 13.4 14.7 15.0 14.9 15.1 14.8 14.3 13.7	SEPTEMBE 12.2 10.6 11.8 9.3 10.1 9.3 9.4 9.0 10.2 10.1 10.0 10.2 10.1 10.0 10.2 10.1 9.9 10.5	13.6 13.1 12.8 11.4 11.9 11.4 11.6 11.4 12.4 12.6 12.7 12.6 12.7 12.6 12.7 12.6 12.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	14.1 14.9 15.4 15.7 16.2 14.1 12.1 10.6 12.1 14.4 15.9 15.6 17.3 17.5 17.8	JUNE 11.4 10.5 10.6 11.5 12.4 10.9 9.3 9.0 9.7 10.5 11.1 11.7 12.0 12.4 12.7 12.8 11.7	12.8 12.8 13.2 13.7 14.0 12.4 10.8 10.0 10.9 12.2 13.3 13.8 14.6 15.0 15.2	16.0 16.4 14.9 15.5 16.1 17.1 17.2 16.6 17.2 18.3 18.6 18.4 18.1 17.3	JULY 11.1 10.7 11.8 10.6 10.7 11.6 11.9 13.3 12.4 13.0 13.1 13.6 14.3 12.3 12.0 12.5	13.5 13.6 13.4 13.0 13.4 14.2 14.5 14.9 15.3 15.8 15.9 16.0 16.2 14.9	16.1 15.7 15.8 13.9 14.2 13.6 14.1 15.3 16.1 16.5 15.9 16.4 17.1 17.0 16.6	AUGUST 11.0 11.2 10.6 11.4 10.0 10.4 9.9 10.1 11.0 11.6 11.4 10.9 11.9 11.9 11.9 11.0 11.6	13.6 13.6 13.3 12.3 12.2 12.0 12.2 12.8 13.6 14.1 13.7 14.5 14.7 14.5	14.9 15.4 13.8 13.0 13.5 13.0 13.8 13.4 14.7 15.0 14.9 15.1 14.8 14.3 13.7	SEPTEMBE 12.2 10.6 11.8 9.3 10.1 9.3 9.4 9.0 10.2 10.1 10.0 10.2 10.1 10.0 10.2 10.1 10.1	13.6 13.1 12.8 11.4 11.9 11.4 11.6 11.4 12.6 12.7 12.6 12.7 12.6 12.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	14.1 14.9 15.4 15.7 16.2 14.1 12.1 10.6 12.1 14.4 15.9 15.6 17.3 17.5 17.8 16.7 14.6 14.3 16.1 16.8	JUNE 11.4 10.5 10.6 11.5 12.4 10.9 9.3 9.0 9.7 10.5 11.1 11.7 12.0 12.4 12.7 12.8 11.7 11.8 10.4 11.2	12.8 12.8 13.2 13.7 14.0 12.4 10.0 10.9 12.2 13.3 13.8 14.6 15.0 15.2 14.7 13.0 12.2 14.7	16.0 16.4 14.9 15.5 16.1 17.1 17.2 16.6 17.2 18.3 18.6 18.6 18.4 18.1 17.3 17.1 17.4 17.5 17.0 16.9	JULY 11.1 10.7 11.8 10.6 10.7 11.6 11.9 13.3 12.4 13.0 13.1 13.6 14.3 12.3 12.0 12.5 12.6 12.7 12.0	13.5 13.6 13.4 13.0 13.4 14.2 14.5 14.9 15.3 15.8 15.9 16.0 16.2 14.9 14.6 15.0 14.6	16.1 15.7 15.8 13.9 14.2 13.6 14.1 15.3 16.1 16.5 15.9 16.4 17.0 16.6 15.8 15.4 15.4 15.9	AUGUST 11.0 11.2 10.6 11.4 10.0 10.4 9.9 10.1 11.0 11.6 11.4 10.9 11.9 11.9 12.2 11.6 11.4 10.3 10.8 11.3	13.6 13.6 13.3 12.3 12.2 12.0 12.2 12.8 13.6 14.1 13.7 14.5 14.7 14.5 14.7 14.2	14.9 15.4 13.8 13.0 13.5 13.0 13.8 13.4 14.7 15.0 14.9 15.1 14.8 14.3 13.7 12.8 13.6 14.1 13.5	SEPTEMBE 12.2 10.6 11.8 9.3 10.1 9.3 9.4 9.0 10.2 10.1 10.0 10.2 10.1 9.9 10.5 10.9 11.1 9.9 10.5	13.6 13.1 12.8 11.4 11.9 11.4 11.6 11.4 12.4 12.6 12.7 12.6 12.7 12.6 12.7 12.6 12.7 12.6 12.7 12.9 11.9 11.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	14.1 14.9 15.4 15.7 16.2 14.1 12.1 10.6 12.1 14.4 15.9 15.6 17.3 17.5 17.8 16.7 14.6 14.3 16.1 16.8	JUNE 11.4 10.5 10.6 11.5 12.4 10.9 9.3 9.0 9.7 10.5 11.1 11.7 12.0 12.4 12.7 12.8 11.7 11.8 10.4 11.2	12.8 12.8 13.2 13.7 14.0 12.4 10.8 10.0 10.9 12.2 13.3 13.8 14.6 15.0 15.2 14.7 13.0 12.9 13.2 14.0	16.0 16.4 14.9 15.5 16.1 17.1 17.2 16.6 17.2 18.3 18.6 18.4 18.1 17.3 17.1 17.4 17.5 17.0 16.9	JULY 11.1 10.7 11.8 10.6 10.7 11.6 11.9 13.3 12.4 13.6 14.3 12.3 12.0 12.5 12.6 12.7 12.0 12.0 12.1	13.5 13.6 13.4 13.0 13.4 14.2 14.5 14.9 15.3 15.8 15.9 16.0 16.2 14.9 14.6 15.0 15.1 14.6	16.1 15.7 15.8 13.9 14.2 13.6 14.1 15.3 16.1 16.5 15.9 16.4 17.1 17.0 16.6 15.8 15.4 15.8 15.1 15.3 14.9 16.2	AUGUST 11.0 11.2 10.6 11.4 10.0 10.4 9.9 10.1 11.0 11.6 11.4 10.9 11.9 11.9 12.2 11.6 11.4 10.3 10.8 11.3	13.6 13.6 13.3 12.3 12.2 12.0 12.2 12.8 13.6 14.1 13.7 14.5 14.7 14.7 14.7 14.7 14.7 14.7 14.5 13.6 13.6 13.6 13.6 13.6 13.6 14.1	14.9 15.4 13.8 13.0 13.5 13.0 13.8 13.4 14.7 15.0 14.9 15.1 14.8 14.3 13.7 12.8 13.0 13.6 14.1 13.5	12.2 10.6 11.8 9.3 10.1 9.3 9.4 9.0 10.2 10.1 10.0 10.2 10.1 9.9 10.5	13.6 13.1 12.8 11.4 11.9 11.4 11.6 11.4 12.6 12.7 12.6 12.7 12.6 12.7 12.6 12.7 12.6 12.7 12.6 12.7 12.7 12.7 12.7 12.7 12.7 12.7 12.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	14.1 14.9 15.7 16.2 14.1 12.1 10.6 12.1 14.4 15.9 15.6 17.3 17.5 17.8 16.7 14.6 14.3 16.1 16.8	JUNE 11.4 10.5 10.6 11.5 12.4 10.9 9.3 9.0 9.7 10.5 11.1 11.7 12.0 12.4 12.7 12.8 11.7 11.8 10.4 11.2	12.8 12.8 13.2 13.7 14.0 12.4 10.0 10.9 12.2 13.3 13.8 14.6 15.0 15.2 14.7 13.0 12.9 14.0 14.2 14.6 13.8 14.6	16.0 16.4 14.9 15.5 16.1 17.1 17.2 16.6 17.2 18.3 18.6 18.6 18.4 18.1 17.3 17.1 17.4 17.5 17.0 16.9	JULY 11.1 10.7 11.8 10.6 10.7 11.6 11.9 13.3 12.4 13.0 13.1 13.6 14.3 12.3 12.0 12.5 12.6 12.7 12.0 12.0 12.1	13.5 13.6 13.4 13.0 13.4 14.2 14.5 14.9 15.3 15.8 15.9 16.0 16.2 14.9 14.6 15.0 14.6 15.1 14.9	16.1 15.7 15.8 13.9 14.2 13.6 14.1 15.3 16.1 16.5 15.9 16.4 17.0 16.6 15.8 15.4 15.1 15.9	AUGUST 11.0 11.2 10.6 11.4 10.0 10.4 9.9 10.1 11.0 11.6 11.4 10.9 11.9 11.9 11.3 11.8 11.3 11.8 11.9 11.3	13.6 13.6 13.3 12.3 12.2 12.0 12.2 12.8 13.6 14.1 13.7 14.5 14.7 14.5 14.7 14.5 14.7 13.0 13.6 13.6	14.9 15.4 13.8 13.0 13.5 13.0 13.8 13.4 14.7 15.0 14.9 15.1 14.8 14.3 13.7 12.8 13.6 14.1 13.5	SEPTEMBE 12.2 10.6 11.8 9.3 10.1 9.3 9.4 9.0 10.2 10.1 10.0 10.2 10.1 9.9 10.5 10.9 11.1 9.9 10.5 8.5 8.1 8.6 8.9	13.6 13.1 12.8 11.4 11.9 11.4 11.6 11.4 12.4 12.6 12.7 12.6 12.7 12.6 12.7 12.6 12.7 12.6 12.7 12.7 12.6 12.7 12.7 12.8 11.9 11.9 11.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	14.1 14.9 15.4 15.7 16.2 14.1 12.1 10.6 12.1 14.4 15.9 15.6 17.3 17.5 17.8 16.7 14.6 14.3 16.1 16.8	JUNE 11.4 10.5 10.6 11.5 12.4 10.9 9.3 9.0 9.7 10.5 11.1 11.7 12.0 12.4 12.7 11.8 10.4 11.2 11.8 10.4 11.2 11.8 11.9	12.8 12.8 13.2 13.7 14.0 12.4 10.8 10.0 11.2 13.3 13.8 14.6 15.0 15.2 14.7 13.0 12.9 13.2 14.6 15.0 14.7	16.0 16.4 14.9 15.5 16.1 17.1 17.2 16.6 17.2 18.3 18.6 18.4 18.1 17.3 17.1 17.4 17.5 17.0 16.9 17.1 17.6 15.9 17.5 16.8	JULY 11.1 10.7 11.6 10.7 11.6 11.9 13.3 12.4 13.0 13.1 13.6 14.3 12.3 12.0 12.5 12.6 12.7 12.0 12.4 13.0 12.5 13.0	13.5 13.6 13.4 13.0 13.4 14.2 14.5 14.9 15.3 15.8 15.9 16.0 16.2 14.9 14.6 15.0 15.1 14.6 15.1 14.6 15.0 14.6	16.1 15.7 15.8 13.9 14.2 13.6 14.1 15.3 16.1 16.5 15.9 16.4 17.1 17.0 16.6 15.8 15.4 15.8 15.1 15.9	AUGUST 11.0 11.2 10.6 11.4 10.0 10.4 9.9 10.1 11.0 11.6 11.4 10.9 11.9 11.9 11.2 11.6 11.4 10.3 10.8 10.6 11.3 11.8 11.3 11.8	13.6 13.6 13.3 12.3 12.2 12.0 12.2 12.8 13.6 14.1 13.7 14.5 14.7 14.7 14.7 14.7 14.7 13.0 13.4 13.0 13.6 13.6 13.6	14.9 15.4 13.8 13.0 13.5 13.0 13.8 13.4 14.7 15.0 14.9 15.1 14.8 14.3 13.7 12.8 13.0 13.6 14.1 13.5 13.5	SEPTEMBE 12.2 10.6 11.8 9.3 10.1 9.3 9.4 9.0 10.2 10.1 10.0 10.2 10.1 10.9 11.1 9.2 9.4 9.8 8.5 8.1 8.6 8.9 9.4	13.6 13.1 12.8 11.4 11.9 11.4 11.6 11.4 12.6 12.7 12.7 12.6 12.7 12.7 12.7 12.7 12.7 12.7 12.7 12.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 25 26 27	14.1 14.9 15.4 15.7 16.2 14.1 12.1 10.6 12.1 14.4 15.9 15.6 17.3 17.5 17.8 16.7 14.6 14.3 16.1 16.8	JUNE 11.4 10.5 10.6 11.5 12.4 10.9 9.3 9.0 9.7 10.5 11.1 11.7 12.0 12.4 12.7 12.8 11.7 11.8 11.2 11.8 12.7 11.8 11.9 12.1 11.9	12.8 12.8 13.2 13.7 14.0 12.4 10.8 10.0 10.9 12.2 13.3 13.8 14.6 15.0 15.2 14.7 13.0 12.9 14.0 14.2 14.6 13.8 14.6 15.5 15.5	16.0 16.4 14.9 15.5 16.1 17.1 17.2 18.3 18.6 18.6 18.4 17.3 17.1 17.4 17.5 17.0 16.9 17.1 17.6 15.9 17.1	JULY 11.1 10.7 11.6 10.7 11.6 11.9 13.3 12.4 13.0 13.1 13.6 14.3 12.3 12.0 12.5 12.6 12.7 12.0 12.1 13.0 12.5 12.6 12.6	13.5 13.6 13.4 13.0 13.4 14.2 14.5 14.9 15.3 15.8 15.9 16.0 16.2 14.9 14.6 15.0 14.6 15.1 14.9 14.6	16.1 15.7 15.8 13.9 14.2 13.6 14.1 15.3 16.1 16.5 15.9 16.4 17.1 17.0 16.6 15.8 15.4 15.8 15.1 15.9 16.2 15.3	AUGUST 11.0 11.2 10.6 11.4 10.0 10.4 9.9 10.1 11.0 11.6 11.4 10.9 11.9 11.9 11.3 11.8 11.9 11.3 11.3 11.2 11.5 11.9	13.6 13.6 13.3 12.3 12.2 12.0 12.2 12.8 13.6 14.1 13.7 14.5 14.7 14.2 13.7 13.0 13.4 13.0 13.6 13.3 13.8 13.8	14.9 15.4 13.8 13.0 13.5 13.0 13.8 13.4 14.7 15.0 14.9 15.1 14.8 13.7 12.8 13.0 13.6 14.1 13.5	SEPTEMBE 12.2 10.6 11.8 9.3 10.1 9.3 9.4 9.0 10.2 10.1 10.0 10.2 10.1 9.9 10.5 10.9 11.1 9.2 9.4 9.8 8.5 8.1 8.6 8.9 9.4 8.8 10.1	13.6 13.1 12.8 11.4 11.9 11.4 11.6 11.4 12.4 12.6 12.7 12.6 12.7 12.6 12.7 12.7 12.7 12.7 12.7 12.7 12.7 12.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	14.1 14.9 15.7 16.2 14.1 12.1 10.6 12.1 14.4 15.9 15.6 17.3 17.5 17.8 16.7 14.6 14.3 15.1 16.8	JUNE 11.4 10.5 10.6 11.5 12.4 10.9 9.3 9.0 9.7 10.5 11.1 11.7 12.0 12.4 12.7 12.8 11.7 11.8 10.4 11.2 11.8 12.0 12.1.1 11.2	12.8 12.8 13.2 13.7 14.0 12.4 10.0 10.9 12.2 13.3 13.8 14.6 15.0 15.2 14.7 13.0 12.2 14.0 14.2 14.6 13.8 14.6 13.8	16.0 16.4 14.9 15.5 16.1 17.1 17.2 16.6 17.2 18.3 18.6 18.6 18.4 18.1 17.3 17.1 17.5 17.0 16.9 17.1 17.6 15.9 17.1 17.6 15.9 17.1 17.5 17.0 16.9	JULY 11.1 10.7 11.8 10.6 10.7 11.6 11.9 13.3 12.4 13.0 13.1 13.6 14.3 12.3 12.0 12.5 12.6 12.7 12.0 12.4 13.0 12.5 13.0 12.5 13.0 12.6	13.5 13.6 13.4 13.0 13.4 14.2 14.5 14.9 15.3 15.8 15.9 16.0 16.2 14.9 14.6 15.0 14.6 15.1 14.9 14.6	16.1 15.7 15.8 13.9 14.2 13.6 14.1 15.3 16.1 16.5 15.9 16.4 17.0 16.6 15.8 15.8 15.1 15.9 15.3 14.9 16.1 15.9	AUGUST 11.0 11.2 10.6 11.4 10.0 10.4 9.9 10.1 11.0 11.6 11.4 10.9 11.9 11.9 11.9 11.3 11.8 11.8 11.9 11.3 11.8 11.5	13.6 13.6 13.3 12.3 12.2 12.0 12.2 12.8 13.6 14.1 13.7 14.5 14.7 14.5 14.7 14.5 14.7 13.0 13.6 13.6 13.3 13.4 13.3 13.8	14.9 15.4 13.8 13.0 13.5 13.0 13.8 13.4 14.7 15.0 14.9 15.1 14.8 14.3 13.7 12.8 13.6 14.1 13.5 12.8 13.5 13.5	SEPTEMBE 12.2 10.6 11.8 9.3 10.1 9.3 9.4 9.0 10.2 10.1 10.0 10.2 10.1 9.9 10.5 10.9 11.1 9.9 10.5 8.5 8.1 8.6 8.9 9.4 8.8	13.6 13.1 12.8 11.4 11.9 11.4 11.6 11.4 12.4 12.6 12.7 12.6 12.7 12.6 12.7 12.6 12.7 12.6 12.7 12.7 12.6 12.7 12.7 12.8 11.9 11.9 11.9 11.9 11.9 11.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	14.1 14.9 15.7 16.2 14.1 12.1 10.6 12.1 14.4 15.9 15.6 17.3 17.5 17.8 16.7 14.6 14.3 16.1 16.8 16.6 17.3 15.1 16.7	JUNE 11.4 10.5 10.6 11.5 12.4 10.9 9.3 9.0 9.7 10.5 11.1 11.7 12.0 12.4 12.7 12.8 11.7 11.8 11.2 11.8 12.0 12.7 11.9 12.5 13.9 13.3 12.6 11.6	12.8 12.8 13.2 13.7 14.0 12.4 10.8 10.9 12.2 13.3 13.8 14.6 15.0 15.2 14.7 13.0 12.9 14.0 14.2 14.6 13.8 14.6 13.8 14.6 15.7 14.5 14.5 14.5	16.0 16.4 14.9 15.5 16.1 17.1 17.2 18.3 18.6 18.6 18.4 17.3 17.1 17.4 17.5 17.0 16.9 17.1 17.6 15.9 17.1 17.6 16.8 16.6	JULY 11.1 10.7 11.6 10.7 11.6 11.9 13.3 12.4 13.0 12.5 12.6 12.7 12.0 12.1 13.0 12.5 12.6 12.7 12.0	13.5 13.6 13.4 13.0 13.4 14.2 14.5 14.9 15.3 15.8 15.9 16.2 14.9 14.6 15.0 14.6 15.1 14.6 15.1 14.6 15.0 14.9	16.1 15.7 15.8 13.9 14.2 13.6 14.1 15.3 16.1 16.5 15.9 16.4 17.1 17.0 16.6 15.8 15.4 15.8 15.1 15.9 15.3 14.9 16.2 15.2 15.2 15.2 16.5	AUGUST 11.0 11.2 10.6 11.4 10.0 10.4 9.9 10.1 11.0 11.6 11.4 10.9 11.9 11.3 11.3 11.3 11.3 11.3 11.3 11	13.6 13.6 13.3 12.3 12.2 12.0 12.2 12.8 13.6 14.1 13.7 14.5 14.7 14.2 13.7 13.0 13.4 13.0 13.6 13.3 13.4 13.3 13.8 13.8 13.8	14.9 15.4 13.8 13.0 13.5 13.0 13.8 13.4 14.7 15.0 14.9 15.1 14.8 13.7 12.8 13.0 13.6 14.1 13.5 12.8 13.1 13.5 12.8 13.1 13.5	SEPTEMBE 12.2 10.6 11.8 9.3 10.1 9.3 9.4 9.0 10.2 10.1 10.0 10.2 10.1 9.9 10.5 10.9 11.1 9.2 9.4 9.8 8.5 8.1 8.6 9.9 9.4 8.8 10.1 8.8 10.1 8.8	13.6 13.1 12.8 11.4 11.9 11.4 11.6 11.4 12.6 12.7 12.6 12.7 12.6 12.7 12.6 12.7 12.7 12.6 12.7 12.7 12.7 12.7 12.1 11.9 11.9 11.9 11.9 11.9 11.9 11.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	14.1 14.9 15.7 16.2 14.1 12.1 12.1 14.4 15.9 15.6 17.3 17.5 17.8 16.7 14.6 16.8 16.6 17.3 15.7 17.7	JUNE 11.4 10.5 10.6 11.5 12.4 10.9 9.3 9.0 9.7 10.5 11.1 11.7 12.0 12.4 12.7 11.8 10.4 11.2 11.8 12.0 12.7 11.18 12.0 12.6 11.6	12.8 12.8 13.2 13.7 14.0 12.4 10.0 10.9 12.2 13.3 13.8 14.6 15.0 15.2 14.7 13.0 12.2 14.0 14.2 14.6 13.8 14.6 13.8 14.6 15.7 14.5 15.7	16.0 16.4 14.9 15.5 16.1 17.1 17.2 16.6 17.2 18.3 18.6 18.6 18.4 18.1 17.3 17.1 17.4 17.5 17.0 16.9 17.1 17.6 15.9 16.8 16.7 16.8 16.7 16.8	JULY 11.1 10.7 11.8 10.6 10.7 11.6 11.9 13.3 12.4 13.0 13.1 13.6 14.3 12.3 12.0 12.5 12.6 12.7 12.0 12.4 13.0 12.5 13.0 12.6 12.7 12.0 12.1 11.4	13.5 13.6 13.4 13.0 13.4 14.2 14.5 14.9 15.3 15.8 15.9 16.0 16.2 14.9 14.6 15.0 14.9 14.6 15.1 14.9 14.6 15.1 14.9 14.6 15.1 14.6 15.0 14.6 15.1 14.6 15.0 15.0 15.0 15.0 15.0 15.0 15.0 15.0	16.1 15.7 15.8 13.9 14.2 13.6 14.1 15.3 16.1 16.5 15.9 16.4 17.0 16.6 15.8 15.8 15.1 15.9 15.3 14.9 16.2 15.2 15.2 15.2 15.2	AUGUST 11.0 11.2 10.6 11.4 10.0 10.4 9.9 10.1 11.0 11.6 11.4 10.9 11.9 11.9 11.3 11.8 11.3 11.3 11.2 11.5 11.9 11.9 11.9	13.6 13.6 13.3 12.2 12.0 12.2 12.8 13.6 14.1 13.7 14.5 14.7 14.2 13.7 13.0 13.6 13.6 13.1 13.9 13.1	14.9 15.4 13.8 13.0 13.5 13.0 13.8 13.4 14.7 15.0 14.9 15.1 14.8 14.3 13.7 12.8 13.0 13.6 14.1 13.5 12.8 13.1 13.5 12.8 13.1 13.5 12.8 13.1 13.5	SEPTEMBE 12.2 10.6 11.8 9.3 10.1 9.3 9.4 9.0 10.2 10.1 10.0 10.2 10.1 9.9 11.1 9.9 10.5 10.9 11.1 9.2 9.4 9.8 8.5 8.1 8.6 8.9 9.4 8.8 10.1 8.6	13.6 13.1 12.8 11.4 11.9 11.4 11.6 11.4 12.4 12.6 12.7 12.6 12.7 12.6 12.7 12.6 12.7 12.6 12.7 12.6 12.7 12.7 12.6 12.7 12.8 11.9 11.9 11.9 11.9 11.9 11.9 11.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	14.1 14.9 15.7 16.2 14.1 12.1 10.6 12.1 14.4 15.9 15.6 17.3 17.5 17.8 16.7 14.6 14.3 16.1 16.8 16.6 17.3 15.1 16.7	JUNE 11.4 10.5 10.6 11.5 12.4 10.9 9.3 9.0 9.7 10.5 11.1 11.7 12.0 12.4 12.7 12.8 11.7 11.8 11.2 11.8 12.0 12.7 11.9 12.5 13.9 13.3 12.6 11.6	12.8 12.8 13.2 13.7 14.0 12.4 10.8 10.9 12.2 13.3 13.8 14.6 15.0 15.2 14.7 13.0 12.9 14.0 14.2 14.6 13.8 14.6 13.8 14.6 15.7 14.5 14.5 14.5	16.0 16.4 14.9 15.5 16.1 17.1 17.2 18.3 18.6 18.6 18.4 17.3 17.1 17.4 17.5 17.0 16.9 17.1 17.6 15.9 17.1 17.6 16.8 16.6	JULY 11.1 10.7 11.6 10.7 11.6 11.9 13.3 12.4 13.0 12.5 12.6 12.7 12.0 12.1 13.0 12.5 12.6 12.7 12.0	13.5 13.6 13.4 13.0 13.4 14.2 14.5 14.9 15.3 15.8 15.9 16.2 14.9 14.6 15.0 14.6 15.1 14.6 15.1 14.6 15.0 14.9	16.1 15.7 15.8 13.9 14.2 13.6 14.1 15.3 16.1 16.5 15.9 16.4 17.1 17.0 16.6 15.8 15.4 15.8 15.1 15.9 15.3 14.9 16.2 15.2 15.2 15.2 16.5	AUGUST 11.0 11.2 10.6 11.4 10.0 10.4 9.9 10.1 11.0 11.6 11.4 10.9 11.9 11.3 11.3 11.3 11.3 11.3 11.3 11	13.6 13.6 13.3 12.3 12.2 12.0 12.2 12.8 13.6 14.1 13.7 14.5 14.7 14.2 13.7 13.0 13.4 13.0 13.6 13.3 13.4 13.3 13.8 13.8 13.8	14.9 15.4 13.8 13.0 13.5 13.0 13.8 13.4 14.7 15.0 14.9 15.1 14.8 13.7 12.8 13.0 13.6 14.1 13.5 12.8 13.1 13.5 12.8 13.1 13.5	SEPTEMBE 12.2 10.6 11.8 9.3 10.1 9.3 9.4 9.0 10.2 10.1 10.0 10.2 10.1 9.9 10.5 10.9 11.1 9.2 9.4 9.8 8.5 8.1 8.6 9.9 9.4 8.8 10.1 8.8 10.1 8.8	13.6 13.1 12.8 11.4 11.9 11.4 11.6 11.4 12.6 12.7 12.6 12.7 12.6 12.7 12.6 12.7 12.7 12.6 12.7 12.7 12.7 12.1 11.9 11.9 11.9 11.9 11.9 11.9 11.9

12464770 CRAB CREEK AT ROCKY FORD ROAD, NEAR RITZVILLE, WA--Continued (National Water-Quality Assessment station)

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
OCT 02	1110	9.7	721	11.5	110	8.1	396	12.9	10.8	152	187	0	15.0
NOV 06	0940	12	717	10.0	89	7.9	404	3.3	7.7	150	183	0	14.7
DEC 11	1030	22	714	11.2	102	8.1	403	.8	8.5	148	179	0	11.8
JAN 03	1050	34	721	10.6	95		400	2.9	8.2	151	184	0	14.6
FEB	1040	52	716	11.5	97	8.0	374	.0	5.5	148	180	0	11.1
06 MAR													
05 APR	1230	70	712	11.8	103	8.4	365	4.7	6.4	149	179	1	11.3
01 MAY	1210	70	720	12.3	112	8.6	371	11.1	8.7	148	175	3	10.6
07 JUN	1020	48	718	13.4	119	8.6	372	3.3	7.6	148	176	2	11.2
03 JUL	1030	27	721	12.6	125	8.5	376	17.1	12.5	146	175	2	11.8
09 AUG	1020	22	728	11.7	116	8.3	376	26.1	13.0	149	179	0	12.0
05 SEP	1110	16	721	10.9	106	8.3	385	19.0	11.5	152	182	0	12.5
09	0930	11	725	11.1	105	8.0	384	21.1	10.8	147	178	0	13.2
Date	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	CARBON, INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)
OCT 02	DIS- SOLVED (MG/L AS SO4)	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	GEN, NITRITE DIS- SOLVED (MG/L AS N)	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N)	GEN, TOTAL (MG/L AS N)	PHOS- PHATE, DIS- SOLVED (MG/L AS P)	PHORUS TOTAL (MG/L AS P)	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C)	INOR- GANIC, PARTIC. TOTAL (MG/L AS C)	ORGANIC DIS- SOLVED (MG/L AS C)	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C)
OCT 02 NOV 06	DIS- SOLVED (MG/L AS SO4) (00945)	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570)	GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665)	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	ORGANIC DIS- SOLVED (MG/L AS C) (00681)	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)
OCT 02 NOV 06 DEC 11	DIS- SOLVED (MG/L AS SO4) (00945)	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570)	GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665)	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	ORGANIC DIS- SOLVED (MG/L AS C) (00681)	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)
OCT 02 NOV 06 DEC 11 JAN 03	DIS- SOLVED (MG/L AS SO4) (00945)	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570)	GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665) .102	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	ORGANIC DIS- SOLVED (MG/L AS C) (00681)	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06	DIS- SOLVED (MG/L AS SO4) (00945) 22.3 22.1 13.7	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 <.04 <.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .84 .97	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .019 .011	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .04 .09	GEN, TOTAL (MG/L AS N) (00600) 1.1 1.1	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .07	PHORUS TOTAL (MG/L AS P) (00665) .102 .098	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 2.0 2.1	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)5
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06 MAR 05	DIS- SOLVED (MG/L AS SO4) (00945) 22.3 22.1 13.7 24.8	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 <.04 <.04 E.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .22 .16 .37 .23	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .84 .97 2.57	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .019 .011 .009 <.008	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .04 .09 .06	GEN, TOTAL (MG/L AS N) (00600) 1.1 1.1 2.9	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .07 .09 .13	PHORUS TOTAL (MG/L AS P) (00665) .102 .098 .177	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 2.0 2.1 3.2 1.7	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689) 5 .5
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06 MAR 05 APR 01	DIS- SOLVED (MG/L AS SO4) (00945) 22.3 22.1 13.7 24.8 22.0	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 <.04 <.04 E.04 <.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .22 .16 .37 .23	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .84 .97 2.57 1.58 1.98	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .019 .011 .009 <.008	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .04 .09 .06 .04	GEN, TOTAL (MG/L AS N) (00600) 1.1 1.1 2.9 1.8	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .07 .09 .13	PHORUS TOTAL (MG/L AS P) (00665) .102 .098 .177 .112	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) .4 .5 .5 .5	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688) <.1 <.1 <.1	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 2.0 2.1 3.2 1.7	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689) 5 .5 .2 .6
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06 MAR 05 APR 01 MAY 07	DIS- SOLVED (MG/L AS SO4) (00945) 22.3 22.1 13.7 24.8 22.0 21.7	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 <.04 <.04 <.04 <.04 <.04	GEN, AM- MONITA + ORGANIC TOTAL (MG/L AS N) (00625) .22 .16 .37 .23 .22 .29	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .84 .97 2.57 1.58 1.98 2.10	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .019 .011 .009 <.008 <.008	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .04 .09 .06 .04 .06	GEN, TOTAL (MG/L AS N) (00600) 1.1 1.1 2.9 1.8 2.2	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .07 .09 .13 .11	PHORUS TOTAL (MG/L AS P) (00665) .102 .098 .177 .112 .107	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) .4 .5 .5 .2 .6	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688) <.1 <.1 <.1 <.1 <.1	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 2.0 2.1 3.2 1.7 2.2	ORGANIC PARTIC-ULATE TOTAL (MG/L AS C) (00689)
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06 MAR 05 APR 01 MAY 07 JUN 03	DIS- SOLVED (MG/L AS SO4) (00945) 22.3 22.1 13.7 24.8 22.0 21.7	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 <.04 <.04 <.04 <.04 <.04 <.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .22 .16 .37 .23 .22 .29 .29	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .84 .97 2.57 1.58 1.98 2.10 1.68	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .019 .011 .009 <.008 <.008 <.008	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .04 .09 .06 .04 .06 .03 .04	GEN, TOTAL (MG/L AS N) (00600) 1.1 1.1 2.9 1.8 2.2 2.4	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .07 .09 .13 .11 .09 .07	PHORUS TOTAL (MG/L AS P) (00665) .102 .098 .177 .112 .107 .105	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) .4 .5 .5 .2 .6 .5	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688) <.1 <.1 <.1 <.1 <.1 <.1	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 2.0 2.1 3.2 1.7 2.2 2.8 3.4	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689) 5 .5 .2 .6 .5 .4
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06 MAR 05 APR 01 MAY 07 JUN 03 JUL 09	DIS- SOLVED (MG/L AS SO4) (00945) 22.3 22.1 13.7 24.8 22.0 21.7 21.8	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.0	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .22 .16 .37 .23 .22 .29 .29	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .84 .97 2.57 1.58 1.98 2.10 1.68 1.17	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .019 .011 .009 <.008 <.008 <.008 E.004 E.005	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .04 .09 .06 .04 .06 .03 .04	GEN, TOTAL (MG/L AS N) (00600) 1.1 1.1 2.9 1.8 2.2 2.4 2.0	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .07 .09 .13 .11 .09 .07	PHORUS TOTAL (MG/L AS P) (00665) .102 .098 .177 .112 .107 .105 .079	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) .4 .5 .5 .2 .6 .5 .4	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688) <.1 <.1 <.1 <.1 <.1	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 2.0 2.1 3.2 1.7 2.2 2.8 3.4 2.7	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689) 5 .5 .2 .6 .5 .4
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06 MAR 05 APR 01 MAY 07 JUN 03 JUL 09	DIS- SOLVED (MG/L AS SO4) (00945) 22.3 22.1 13.7 24.8 22.0 21.7 21.8 21.6 21.3 20.5	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.0	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .22 .16 .37 .23 .22 .29 .29 .22 .22	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .84 .97 2.57 1.58 1.98 2.10 1.68 1.17 .96	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .019 .011 .009 <.008 <.008 <.008 E.004 E.005 .008	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .04 .09 .06 .04 .06 .03 .04 .09	GEN, TOTAL (MG/L AS N) (00600) 1.1 1.1 2.9 1.8 2.2 2.4 2.0 1.4 1.2	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .07 .09 .13 .11 .09 .07 .06 .04	PHORUS TOTAL (MG/L AS P) (00665) .102 .098 .177 .112 .107 .105 .079 .051 .096	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) .4 .5 .5 .2 .6 .5 .4 .4 .6 .2	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688) <.1 <.1 <.1 <.1 <.1 <.1 <.1 <.1 <.1 <.1	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 2.0 2.1 3.2 1.7 2.2 2.8 3.4 2.7 2.4	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689) 5 .5 .2 .6 .5 .4 .4 .4 .6 .2

12464770 CRAB CREEK AT ROCKY FORD ROAD, NEAR RITZVILLE, WA--Continued (National Water-Quality Assessment station)

Date	2,4-D METHYL ESTER, WATER FLTRD REC (UG/L) (50470)	2,4-D, DIS- SOLVED (UG/L) (39732)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	3HYDRXY CARBO- FURAN WAT,FLT GF 0.7U REC (UG/L) (49308)	3-KETO CARBO- FURAN WATER FLTRD REC (UG/L) (50295)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ACIFL- UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALDI- CARB SULFONE WAT,FLT GF 0.7U REC (UG/L) (49313)	ALDICA- RB SUL- FOXIDE, WAT,FLT GF 0.7U REC (UG/L) (49314)	ALDI- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ALPHA BHC DIS- SOLVED (UG/L) (34253)
OCT													
02 NOV													
06 DEC							==						
11 JAN	==	==		==	==				==			==	
03 FEB	<.009	<.02	<.02	<.002	<.006	<2	<.004	<.007	<.002	<.02	<.008	<.04	<.005
06 MAR	<.009	<.02	<.02	<.006	<.006	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005
05 APR	<.009	<.02	<.02	<.006	<.006	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005
01	<.009	<.02	<.02	<.006	<.006	<2	<.006	<.130	<.004	<.02	<.008	<.04	<.005
MAY 07	<.009	<.02	<.02	<.006	<.006	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005
JUN 03	<.009	E.02	<.02	<.006	<.006	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005
JUL 09	.015	.24	<.02	<.006	<.006	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005
AUG 05	<.009	<.02	<.02	<.006	<.006	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005
SEP 09													
Date	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	BENDIO- CARB, WATER FLTRD REC (UG/L) (50299)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BENOMYL WATER FLTRD REC (UG/L) (50300)	BEN- SUL- FURON METHYL WAT FLT REC (UG/L) (61693)	BENTA- ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	BRO- MACIL, WATER, DISS, REC (UG/L) (04029)	BRO- MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAF- FEINE, WATER FLTRD REC (UG/L) (50305)	CAR- BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)
OCT	ZINE, WATER, DISS, REC (UG/L)	CARB, WATER FLTRD REC (UG/L)	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L)	WATER FLTRD REC (UG/L)	SUL- FURON METHYL WAT FLT REC (UG/L)	ZON, WATER, FLTRD, GF 0.7U REC (UG/L)	MACIL, WATER, DISS, REC (UG/L)	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L)	ATE, WATER, DISS, REC (UG/L)	FEINE, WATER FLTRD REC (UG/L)	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L)	BARYL WATER FLTRD 0.7 U GF, REC (UG/L)	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L)
OCT 02 NOV	ZINE, WATER, DISS, REC (UG/L) (39632)	CARB, WATER FLTRD REC (UG/L) (50299)	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	WATER FLTRD REC (UG/L) (50300)	SUL- FURON METHYL WAT FLT REC (UG/L) (61693)	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	MACIL, WATER, DISS, REC (UG/L)	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	ATE, WATER, DISS, REC (UG/L) (04028)	FEINE, WATER FLTRD REC (UG/L) (50305)	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)
OCT 02 NOV 06 DEC	ZINE, WATER, DISS, REC (UG/L) (39632)	CARB, WATER FLTRD REC (UG/L) (50299)	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	WATER FLTRD REC (UG/L) (50300)	SUL- FURON METHYL WAT FLT REC (UG/L) (61693)	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	MACIL, WATER, DISS, REC (UG/L)	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	ATE, WATER, DISS, REC (UG/L) (04028)	FEINE, WATER FLTRD REC (UG/L) (50305)	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)
OCT 02 NOV 06 DEC 11 JAN	ZINE, WATER, DISS, REC (UG/L) (39632)	CARB, WATER FLIRD REC (UG/L) (50299)	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	WATER FLTRD REC (UG/L) (50300)	SUL- FURON METHYL WAT FLT REC (UG/L) (61693)	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	MACIL, WATER, DISS, REC (UG/L) (04029)	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	ATE, WATER, DISS, REC (UG/L) (04028)	FEINE, WATER FLTC (UG/L) (50305)	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)
OCT 02 NOV 06 DEC 11 JAN 03	ZINE, WATER, DISS, REC (UG/L) (39632)	CARB, WATER FLITRD REC (UG/L) (50299)	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	WATER FLTRD REC (UG/L) (50300)	SUL- FURON METHYL WAT FLT REC (UG/L) (61693)	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	MACIL, WATER, DISS, REC (UG/L) (04029)	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	ATE, WATER, DISS, REC (UG/L) (04028)	FEINE, WATER FLITRD REC (UG/L) (50305)011	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06	ZINE, WATER, DISS, REC (UG/L) (39632)	CARB, WATER FLTRD REC (UG/L) (50299)	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	WATER FLITRD REC (UG/L) (50300) <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693)	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	MACIL, WATER, DISS, REC (UG/L) (04029)	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	ATE, WATER, DISS, REC (UG/L) (04028)	FEINE, WATER FLTRD REC (UG/L) (50305)	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	BARYL WATER FLITED 0.7 U GF, REC (UG/L) (82680)	FURAN, WATER, FLITRD, GF 0.7U REC (UG/L) (49309)
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06 MAR 05	ZINE, WATER, DISS, REC (UG/L) (39632) E.004 <.007	CARB, WATER FLITRD REC (UG/L) (50299) <.03 <.03	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673) <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693)	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711) E.02 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 M	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311) <.02 <.02 <.02	ATE, WATER, DISS, REC (UG/L) (04028) <.002 <.002	FEINE, WATER FLIRD REC (UG/L) (50305) 011 <.010 E.006	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) <.03 <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) <.041 <.041	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06 MAR 05	ZINE, WATER, DISS, REC (UG/L) (39632)	CARB, WATER FLTRD REC (UG/L) (50299)	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	WATER FLITRD REC (UG/L) (50300) <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693)	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 M <.03	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	ATE, WATER, DISS, REC (UG/L) (04028)	FEINE, WATER FLTRD REC (UG/L) (50305)	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	BARYL WATER FLITED 0.7 U GF, REC (UG/L) (82680)	FURAN, WATER, FLITRD, GF 0.7U REC (UG/L) (49309)
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06 MAR 05	ZINE, WATER, DISS, REC (UG/L) (39632) E.004 <.007	CARB, WATER FLITRD REC (UG/L) (50299) <.03 <.03	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673) <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693)	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711) E.02 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 M	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311) <.02 <.02 <.02	ATE, WATER, DISS, REC (UG/L) (04028) <.002 <.002	FEINE, WATER FLIRD REC (UG/L) (50305) 011 <.010 E.006	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) <.03 <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) <.041 <.041	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06 MAR 05 APR 01 MAY	ZINE, WATER, DISS, REC (UG/L) (39632) E.004 <.007 <.007	CARB, WATER FLITRD REC (UG/L) (50299)	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673) <.010 <.010 <.010 <.010	WATER FLTRD REC (UG/L) (50300) <-004 <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693) <.02 <.02 <.02 <.02	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711) E.02 <.01 <.01 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 M <.03	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311) <.02 <.02 <.02 <.02	ATE, WATER, DISS, REC (UG/L) (04028)	FEINE, WATER FLTRD REC (UG/L) (50305)011 <.010 E.006 <.010	BARYL, WATER, FLITRD, GF 0.7U REC (UG/L) (49310) <.03 <.03 <.03	BARYL WATER FLITRD 0.7 U GF, REC (UG/L) (82680) <.041 <.041 <.041	FURAN, WATER, FLITRD, GF 0.7U REC (UG/L) (49309)
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06 MAR 05 APR 01 MAY 07 JUN 03 JUN 03	ZINE, WATER, DISS, REC (UG/L) (39632) E.004 <.007 <.007	CARB, WATER FLTRD REC (UG/L) (50299) <.03 <.03 <.03 <.03	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673) <.010 <.010 <.010 <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004 <.004 <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693)	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711) E.02 <.01 <.01 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <-03 M <.03 <.03	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311) <.02 <.02 <.02 <.02 <.02	ATE, WATER, DISS, REC (UG/L) (04028) <.002 <.002 <.002 <.002 <.002	FEINE, WATER FLTRD REC (UG/L) (50305) 011 <.010 E.006 <.010 <.010	BARYL, WATER, FLITRD, GF 0.7U REC (UG/L) (49310) <.03 <.03 <.03 <.03	BARYL WATER FLITRD 0.7 U GF, REC (UG/L) (82680) <.041 <.041 <.041 <.041 <.041	FURAN, WATER, FLITRD, GF 0.7U REC (UG/L) (49309)
OCT	ZINE, WATER, DISS, REC (UG/L) (39632) E.004 <.007 <.007 <.007	CARB, WATER FLTRD REC (UG/L) (50299) <.03 <.03 <.03 <.03 <.03 <.03 <.03	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693)	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711) E.02 <.01 <.01 <.01 <.01 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 M <.03 <.03 <.03	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02	ATE, WATER, DISS, REC (UG/L) (04028)	FEINE, WATER FLTRD REC (UG/L) (50305) 011 <.010 E.006 <.010 <.010 <.010	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	BARYL WATER FLITED 0.7 U GF, REC (UG/L) (82680) <.041 <.041 <.041 <.041 <.041 <.041	FURAN, WATER, FLITRD, GF 0.7U REC (UG/L) (49309)

12464770 CRAB CREEK AT ROCKY FORD ROAD, NEAR RITZVILLE, WA--Continued (National Water-Quality Assessment station)

Date	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR- AMBEN, METHYL ESTER WATER FLTRD (UG/L) (61188)	CHLORI- MURON, WATER FLTRD REC (UG/L) (50306)	CHLORO- THALO- NIL, WAT, FLT GF 0.7U REC (UG/L) (49306)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CLOPYR- ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	CY- CLOATE, WATER, DISS, REC (UG/L) (04031)	DACTHAL MONO- ACID, WAT, FLT GF 0.7U REC (UG/L) (49304)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DEETHYL DEISO- PROPYL ATRAZIN DISS, REC (UG/L) (04039)	DEISO- PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)
OCT 02													
NOV 06													
DEC 11													
JAN 03	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01	<.003	E.003	<.01	<.04
FEB 06	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01	<.003	E.003	<.01	<.04
MAR 05	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01	<.003	<.006	<.01	<.04
APR 01	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01	<.003	E.002	<.01	<.04
MAY 07 JUN	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01	<.003	<.006	<.01	<.04
03 JUL	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01	<.003	<.006	<.01	<.04
09 AUG	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01	<.003	<.006	<.01	<.04
05 SEP	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01	<.003	<.006	<.01	<.04
09													
Date	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	DICHLOR PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DINOSEB WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	DIPHEN- AMID, WATER, DISS, REC (UG/L) (04033)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	DIURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FEN- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	FLUMET- SULAM WATER FLTRD REC (UG/L) (61694)
OCT	AZINON, DIS- SOLVED (UG/L)	WATER, FLTRD, GF 0.7U REC (UG/L)	PROP, WATER, FLTRD, GF 0.7U REC (UG/L)	ELDRIN DIS- SOLVED (UG/L)	WATER, FLTRD, GF 0.7U REC (UG/L)	AMID, WATER, DISS, REC (UG/L)	FOTON WATER FLTRD 0.7 U GF, REC (UG/L)	WATER, FLTRD, GF 0.7U REC (UG/L)	WATER FLTRD 0.7 U GF, REC (UG/L)	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L)	PROP WATER FLTRD 0.7 U GF, REC (UG/L)	URON, WATER, FLTRD, GF 0.7U REC (UG/L)	SULAM WATER FLTRD REC (UG/L)
	AZINON, DIS- SOLVED (UG/L) (39572)	WATER, FLTRD, GF 0.7U REC (UG/L)	PROP, WATER, FLTRD, GF 0.7U REC (UG/L)	ELDRIN DIS- SOLVED (UG/L)	WATER, FLTRD, GF 0.7U REC (UG/L)	AMID, WATER, DISS, REC (UG/L)	FOTON WATER FLTRD 0.7 U GF, REC (UG/L)	WATER, FLTRD, GF 0.7U REC (UG/L)	WATER FLTRD 0.7 U GF, REC (UG/L)	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L)	PROP WATER FLTRD 0.7 U GF, REC (UG/L)	URON, WATER, FLTRD, GF 0.7U REC (UG/L)	SULAM WATER FLTRD REC (UG/L)
OCT 02 NOV	AZINON, DIS- SOLVED (UG/L) (39572)	WATER, FLTRD, GF 0.7U REC (UG/L)	PROP, WATER, FLTRD, GF 0.7U REC (UG/L)	ELDRIN DIS- SOLVED (UG/L)	WATER, FLTRD, GF 0.7U REC (UG/L)	AMID, WATER, DISS, REC (UG/L)	FOTON WATER FLTRD 0.7 U GF, REC (UG/L)	WATER, FLTRD, GF 0.7U REC (UG/L)	WATER FLTRD 0.7 U GF, REC (UG/L)	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L)	PROP WATER FLTRD 0.7 U GF, REC (UG/L)	URON, WATER, FLTRD, GF 0.7U REC (UG/L)	SULAM WATER FLTRD REC (UG/L)
OCT 02 NOV 06 DEC	AZINON, DIS- SOLVED (UG/L) (39572)	WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	PROP, WATER, FLITRD, GF 0.7U REC (UG/L) (49302)	ELDRIN DIS- SOLVED (UG/L) (39381)	WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	AMID, WATER, DISS, REC (UG/L) (04033)	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	URON, WATER, FLITRD, GF 0.7U REC (UG/L) (49297)	SULAM WATER FLTRD REC (UG/L) (61694)
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06	AZINON, DIS- SOLVED (UG/L) (39572)	WATER, FLITED, GF 0.7U REC (UG/L) (38442)	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	ELDRIN DIS- SOLVED (UG/L) (39381)	WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	AMID, WATER, DISS, REC (UG/L) (04033)	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	WATER, FLIRD, GF 0.7U REC (UG/L) (49300)	WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	SULAM WATER FLTRD REC (UG/L) (61694)
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06 MAR 05	AZINON, DIS- SOLVED (UG/L) (39572) <.005	WATER, FLITRD, GF 0.7U REC (UG/L) (38442)	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	ELDRIN DIS- SOLVED (UG/L) (39381)	WATER, FLITRD, GF 0.7U REC (UG/L) (49301)	AMID, WATER, DISS, REC (UG/L) (04033)	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	WATER, FLIRD, GF 0.7U REC (UG/L) (49300)	WATER FLITRD 0.7 U GF, REC (UG/L) (82668)	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	SULAM WATER FLTRD REC (UG/L) (61694) <.01
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06 MAR 05	AZINON, DIS- SOLVED (UG/L) (39572) <.005	WATER, FLIRD, GF 0.7U REC (UG/L) (38442) <.01 <.01	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	ELDRIN DIS- SOLVED (UG/L) (39381) <.005	WATER, FLTRD, GF 0.7U REC (UG/L) (49301) <.01	AMID, WATER, DISS, REC (UG/L) (04033)	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	WATER, FLIRD, GF 0.7U REC (UG/L) (49300)	WATER FLTRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	URON, WATER, FLITRD, GF 0.7U REC (UG/L) (49297)	SULAM WATER FLTRD REC (UG/L) (61694) <.01 <.01
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06 MAR 05 APR 01 MAY	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005	WATER, FLITRD, GF 0.7U REC (UG/L) (38442) <.01 <.01	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005	WATER, FLTRD, GF 0.7U REC (UG/L) (49301) <.01 <.01	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03 <.03	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	WATER, FLIRD, GF 0.7U REC (UG/L) (49300) <.01 <.01 M	WATER FLTRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03	SULAM WATER FLTRD REC (UG/L) (61694) <.01 <.01
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06 MAR 05 APR 01 MAY 07 JUN 03	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005	WATER, FLITRD, GF 0.7U REC (UG/L) (38442) <.01 <.01 <.01	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005	WATER, FLIRD, GF 0.7U REC (UG/L) (49301) <.01 <.01 <.01 <.01	AMID, WATER, DISS, REC (UG/L) (04033) <-03 <.03 <.03 <.03	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677) <.02 <.02 <.02 <.02	WATER, FLITRD, GF 0.7U REC (UG/L) (49300) <.01 <.01 M	WATER FLITRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002 <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005	URON, WATER, FLITRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03	SULAM WATER FLITRD REC (UG/L) (61694) <.01 <.01 <.01
OCT	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 <.005	WATER, FLIRD, GF 0.7U REC (UG/L) (38442) <.01 <.01 <.01 <.01 <.01	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005 <.005	WATER, FLTRD, GF 0.7U REC (UG/L) (49301) <.01 <.01 <.01 <.01 <.01	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03 <.03 <.03 <.03	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677) <.02 <.02 <.02 <.02 <.02 <.02	WATER, FLIRD, GF 0.7U REC (UG/L) (49300) <.01 <.01 M <.01	WATER FLTRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002 <.002 <.002 <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009 <.009	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005	URON, WATER, FLITRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03 <.03	SULAM WATER FLTRD REC (UG/L) (61694) <.01 <.01 <.01 <.01 <.01
OCT	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLIRD, GF 0.7U REC (UG/L) (38442) <- 01 <.01 <.01 <.01 <.01 <.01 <.11 <.01 <.0	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01 <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <-005 <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLTRD, GF 0.7U REC (UG/L) (49301) (.01 (.01 (.01 (.01 (.01 (.01 (.01 (.01	AMID, WATER, DISS, REC (UG/L) (04033)	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02	WATER, FLIRD, GF 0.7U REC (UG/L) (49300)	WATER FLITRD 0.7 U GF, REC (UG/L) (82668)	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009 <.009 <.009 <.009 <.009	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	SULAM WATER FLITRD REC (UG/L) (61694) (.01 (.01 (.01 (.01 (.01 (.01 (.01 (.01

12464770 CRAB CREEK AT ROCKY FORD ROAD, NEAR RITZVILLE, WA--Continued (National Water-Quality Assessment station)

Date	FLUO- METURON WATER, FLTRD, GF 0.7U REC	FONOFOS WATER DISS REC	HYDROXY ATRA- ZINE WATER FLTRD REC	IMAZ- AQUIN WATER FLTRD REC	IMAZE- THAPYR WATER FLTRD REC	IMID- ACLOP- RID WATER FLTRD REC	LINDANE DIS- SOLVED	LINURON WATER, FLTRD, GF 0.7U REC	LIN- URON WATER FLTRD 0.7 U GF, REC	MALA- THION, DIS- SOLVED	MCPA, WATER, FLTRD, GF 0.7U REC	MCPB, WATER, FLTRD, GF 0.7U REC	METAL- AXYL WATER FLTRD REC
	(UG/L) (38811)	(UG/L) (04095)	(UG/L) (50355)	(UG/L) (50356)	(UG/L) (50407)	(UG/L) (61695)	(UG/L) (39341)	(UG/L) (38478)	(UG/L) (82666)	(UG/L) (39532)	(UG/L) (38482)	(UG/L) (38487)	(UG/L) (50359)
OCT 02 NOV													
06 DEC													
11 JAN													
03 FEB	<.03	<.003	<.008	<.02	<.02	<.007	E.002	<.01	<.035	<.027	<.02	<.01	<.02
06 MAR	<.03	<.003	<.008	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02
05 APR	<.03	<.003	<.008	<.02	E.04	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02
01 MAY	<.03	<.003	<.008	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.11	<.01	<.02
07 JUN	<.03	<.003	<.008	<.02	E.01	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02
03 JUL	<.03	<.003	<.008	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02
09 AUG	<.03	<.003	<.008	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02
05 SEP	<.03	<.003	<.008	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02
09													
Date	METHIO- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	METH- OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MET- SUL- FURON METHYL WAT FLT REC (UG/L) (61697)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	NEB- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	NICOSUL FURON WATER FLTRD REC (UG/L) (50364)	NORFLUR AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	ORY- ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)
Date OCT 02	CARB, WATER, FLTRD, GF 0.7U REC (UG/L)	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L)	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L)	PARA- THION WAT FLT 0.7 U GF, REC (UG/L)	LACHLOR WATER DISSOLV (UG/L)	BUZIN SENCOR WATER DISSOLV (UG/L)	SUL- FURON METHYL WAT FLT REC (UG/L)	INATE WATER FLTRD 0.7 U GF, REC (UG/L)	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L)	URON, WATER, FLTRD, GF 0.7U REC (UG/L)	FURON WATER FLTRD REC (UG/L)	AZON, WATER, FLTRD, GF 0.7U REC (UG/L)	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L)
OCT 02 NOV 06	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	LACHLOR WATER DISSOLV (UG/L) (39415)	BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	SUL- FURON METHYL WAT FLT REC (UG/L) (61697)	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	FURON WATER FLTRD REC (UG/L) (50364)	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)
OCT 02 NOV 06 DEC 11	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	LACHLOR WATER DISSOLV (UG/L) (39415)	BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	SUL- FURON METHYL WAT FLT REC (UG/L) (61697)	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	FURON WATER FLTRD REC (UG/L) (50364)	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)
OCT 02 NOV 06 DEC 11 JAN 03	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	LACHLOR WATER DISSOLV (UG/L) (39415)	BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	SUL- FURON METHYL WAT FLT REC (UG/L) (61697)	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	FURON WATER FLTRD REC (UG/L) (50364)	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06	CARB, WATTER, FLTRD, GF 0.7U REC (UG/L) (38501)	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	LACHLOR WATER DISSOLV (UG/L) (39415)	BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	SUL- FURON METHYL WAT FLT REC (UG/L) (61697)	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	FURON WATER FLTR REC (UG/L) (50364)	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06 MAR 05	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	LACHLOR WATER DISSOLV (UG/L) (39415)	BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	SUL- FURON METHYL WAT FLT REC (UG/L) (61697)	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01	FURON WATER FLITRD REC (UG/L) (50364) <.01	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293) <.02	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06 MAR 05 APR 01	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	LACHLOR WATER DISSOLV (UG/L) (39415)	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) .007 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697)	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002	AMIDE WATER FLITED 0.7 U GF, REC (UG/L) (82684) <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01	FURON WATER FLTRD REC (UG/L) (50364) <.01 <.01	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	ZALIN, WATER, FITRD, GF 0.7U REC (UG/L) (49292)
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06 MAR 05 APR 01	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296) <.004 <.004	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) .007 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01	FURON WATER FLITRD REC (UG/L) (50364) <.01 <.01 <.01	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02
OCT 02 NOV 06 DEC 11 JAN 03 FEB 06 MAR 05 APR 01 MAY 07 JUN	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296) <.004 <.004 <.004	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050 <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006 <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) .007 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002	AMIDE WATER FITTED 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01	FURON WATER FLITRD REC (UG/L) (50364) <.01 <.01 <.01 <.01	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)
OCT	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501) <.008 <.008 <.008 <.008	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296) <.004 <.004 <.004 <.004	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050 <.050 <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006 <.006 <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) .007 <.006 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLITED 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01 <.01	FURON WATER FLTRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02 <.02	ZALIN, WATER, FITRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02 <.02 <.02 <.02 <.02
OCT	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296) 	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050 <.050 <.050 <.050 <.050 E.026	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) 	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) .007 <.006 <.006 <.006 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03 <.03 <.03	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLITED 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	FURON WATER FLITRD REC (UG/L) (50364) (.01 (.01 (.01 (.01 (.01 (.01 (.01 (.01	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02	ZALIN, WATER, FITRD, GF 0.7U REC (UG/L) (49292)

12464770 CRAB CREEK AT ROCKY FORD ROAD, NEAR RITZVILLE, WA--Continued (National Water-Quality Assessment station)

DEB- PENDI- PER-	AM, PRO- AMIDE PROPA- PANIL PARGITE ER, METON, WATER CHLOR, WATER WATER RD, WATER, FLIRD WATER, FLIRD JOISS, 0.7 U 0.7 U CREC GF, REC GF, REC GF, REC LUG/L) (UG/L) (UG/L) (UG/L)
OCT 02	
NOV	
DEC	
JAN 03 <.01 <.003 <.007 <.002 <.010 <.006 <.011 <.	
FEB 06 <.01 <.003 <.010 <.004 <.022 <.006 <.011 <.	
MAR	
05 <.01 <.003 <.010 <.004 <.022 <.006 <.011 <.	
01 <.01 <.003 <.010 <.004 <.022 <.006 <.011 <.	
07 <.01 <.003 <.010 <.004 <.022 <.006 <.011 <.	
03 <.01 <.003 <.010 <.004 <.022 <.006 <.011 <.	
09 <.01 <.003 <.010 <.004 <.022 <.006 <.011 <.	
05 <.01 <.003 <.010 <.004 <.022 <.006 <.011 <.	02 <.01 <.004 <.010 <.011 <.02
09	
PRO- PROP- PRO- PRO- SI- MET- THIURON TER WATER, ZOLE, WATER, SIDURON MAZINE, RURON WATER BAC FLTRD, WATER FLTRD, WATER WATER, METHYL FLTRD WAT GF 0.7U FLTRD GF 0.7U FLTRD DISS, WTR FLT 0.7 U DIS DATE REC REC REC REC REC REC GF, REC REC (UG/L) (UG	IL, WATER WATER AZINE, WATER WATER ER, FLTRD FLTRD WATER, FLTRD FLTRD S, 0.7 U 0.7 U DISS, 0.7 U 0.7 U GF, REC GF, REC GF, REC L) (UG/L) (UG/L) (UG/L) (UG/L)
OCT 02	
NOV 06	
DEC	
JAN 03 <.010 <.02 <.008 <.02 E.005 <.009 <.02 <.0	
FEB 06 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0	
FEB 06 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 MAR 05 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0	
FEB 06 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 MAR 05 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 APR 01 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0	10 <.034 <.02 U <.005 .011 10 <.034 <.02 U <.005 .003 10 <.034 <.02 U <.005 .007
FEB 06 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 MAR 05 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 APR 01 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 MAY 07 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0	10 <.034 <.02 U <.005 .001 10 <.034 <.02 U <.005 .003 10 <.034 <.02 U <.005 .007 10 <.034 <.02 U <.005 .007
FEB 06 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 MAR 05 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 APR 01 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 APR 01 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 MAY 07 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 JUN 03 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0	10 <.034 <.02 U <.005 .011 10 <.034 <.02 U <.005 .003 10 <.034 <.02 U <.005 .007 10 <.034 <.02 U <.005 .007 10 <.034 <.02 U <.005 .003 10 <.034 <.02 U <.005 .003
FEB 06 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 MAR 05 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 APR 01 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 APR 01 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 MAY 07 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 JUN 03 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 JUL 09 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0	10
FEB 06 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 MAR 05 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 APR 01 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 APR 01 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 MAY 07 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 JUN 03 <.010 <.02 <.008 <.02 <.005 <.009 <.02 <.0 JUL	10

12464770 CRAB CREEK AT ROCKY FORD ROAD, NEAR RITZVILLE, WA--Continued (National Water-Quality Assessment station)

	Date	TRI- BENURON METHYL WATER FLTRD (UG/L) (61159)	FLTRD, GF 0.7U REC (UG/L)	ALIN WAT FLT 0.7 U GF, REC (UG/L)	4-CHLOR OPHENYL METHYL WAT FLT REC (UG/L)	PENDED (MG/L)	SUS- PENDED (T/DAY)	
	OCT 02					3.0	.08	
	NOV 06					5.0	.16	
	DEC 11					6.0	.36	
	JAN 03		<.02	<.009	<.02	5.0	.46	
	FEB 06		<.02	<.009	<.02	16	2.2	
	MAR 05		<.02	<.009	<.02	17	3.2	
	APR 01		<.02	<.009	<.02	7.0	1.3	
	MAY 07	<.009	<.02	<.009	<.02	3.0	.39	
	JUN 03		<.02	<.009	<.02	3.0	.22	
	JUL 09		<.02	<.009	<.02	1.0	.06	
	AUG 05		<.02	<.009	<.02	1.0	.04	
	SEP 09	-,-,				2.0	.06	
Date	Time	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	ATURE WATER (DEG C)	BIOMASS ASH WEIGHT G/SQ M	G/SQ M	PHYTON BIOMASS ASH FREE DRY G/SQ M	PHYLL RATIO PERI- PHYTON (UNITS)	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70957)
JUL 22	1840	354	17.6	11	255.5	244.20	1700	144

12465000 CRAB CREEK AT IRBY, WA

LOCATION.--Lat $47^{\circ}21'38"$, long $118^{\circ}50'56"$, in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.31, T.22 N., R.32 E., Lincoln County, Hydrologic Unit 17020013, on right bank 8 ft upstream from highway bridge at Irby, 5.4 mi downstream from Lake Creek, 7.5 mi west of Odessa, and at mile 111.5.

DRAINAGE AREA. -- 1,042 mi².

Date Feb. 09

PERIOD OF RECORD. -- September 1942 to current year.

Time

0315

REVISED RECORDS.--WSP 1446: 1949-51. WSP 1933: Drainage area.

*252

 ${\tt GAGE.--Water-stage}$ recorder. Datum of gage is 1,386.30 ft above NGVD of 1929.

REMARKS.--Records good except for estimated daily discharges, which are fair. Pumpage from ground-water wells for irrigation has been on the increase upstream from station since 1964. U.S. Geological Survey satellite telemeter at station. Some diversions for irrigation upstream from station. No regulation.

AVERAGE DISCHARGE.--60 years (water years 1943-2002), 66.3 ft $^3/s$, 48,020 acre-ft/yr.

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,370 ft³/s Feb. 27, 1957, gage height, 11.94 ft; no flow several days during 1969, 1977, 1978, 1979, 1980, 1989, 1991.

 $\hbox{\it EXTREMES FOR CURRENT YEAR.$^{--}$ Peak discharges greater than base discharge of 300 ft}^3/s \ \hbox{\it and maximum} \ \ (\star): \\$

*3.20

reb. 09	0315	^2	52	*3.20								
Minimum dis	charge, 1	L.4 ft ³ /s :	Sept. 22-2	25, gage h	eight, 1	.77 ft.						
		DISCHA	RGE, CUBI	C FEET PER		. WATER YE LY MEAN VA	EAR OCTOBER	R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	4.2	4.8	11	53	84	78	60	28	e11	6.3	2.7
2	2.8	4.0	4.0	12	53	85	79	59	27	11	6.6	3.1
3	2.3	4.3	4.0	14	53	83	79	54	27	11	6.3	3.0
4	2.3	4.5	3.7	15	54	82	77	50	26	11	5.8	2.7
5	2.5	4.4	3.9	16	55	82	77	48	24	11	5.7	2.7
6	2.5	4.0	3.9	18	55	85	77	47	22	10	5.6	2.7
7	2.3	4.3	3.7	19	57	84	77	49	22	10	5.0	2.6
8	2.5	4.8	3.6	21	60	83	78	52	22	11	4.5	2.6
9	2.8	4.7	3.6	23	138	83	81	52	23	11	4.3	2.8
10	3.0	4.6	3.8	28	87	81	80	50	23	10	4.5	2.7
11	2.8	4.5	3.8	32	79	77	79	49	22	9.4	4.5	2.7
12	2.8	4.5	3.7	34	78	75	82	48	21	9.1	4.3	2.6
13	2.4	4.5	4.1	34	75	77	83	47	19	8.8	4.5	2.3
14	2.5	4.7	3.7	37	73 72	79	83	44	18	9.1	4.2	2.3
15	2.6	4.5	3.7	39	12	79	82	42	16	9.0	3.8	2.3
16	2.6	4.7	3.7	40	72	77	83	39	16	9.0	4.5	2.7
17	2.3	5.1	3.6	43	73	79	83	38	15	8.7	4.7	2.7
18	2.3	3.8	4.0	44	70	78	83	37	15	8.6	4.9	2.6
19	2.3	3.6	3.9	44	68	77	80	37	15	7.8	4.8	2.3
20	2.5	3.6	4.0	43	65	79	73	38	13	e8.0	4.4	2.0
21	2.8	3.7	4.0	43	68	80	74	37	12	e8.0	3.7	1.9
22	2.9	4.1	4.0	44	71	79	73	36	12	e7.0	3.3	1.5
23	2.7	3.8	4.3	43	77	79	71	35	12	e7.0	3.7	1.5
24	3.0	3.7	4.5	48	83	78	73	35	12	6.7	3.6	1.4
25	3.1	3.7	6.4	46	84	78	72	35	e11	6.9	3.1	1.5
26	3.3	3.7	7.4	47	85	79	66	36	e11	7.0	3.3	2.0
27	3.8	3.4	7.1	48	86	78	67	35	e11	6.5	3.6	2.0
28	4.0	4.5	6.9	49	86	78	68	34	e11	6.4	3.3	1.7
29 30	4.2	4.1	7.2 7.9	49 52		77 78	66 62	32 30	e11	6.3 6.1	3.0 2.6	2.0
31	4.8	4.3	8.9	54		78 78		29	e11	6.2	2.7	
TOTAL	90.1	126.3	145.8	1090	2030	2471	2286	1314	528	268.6	135.1	69.7
MEAN	2.91	4.21	4.70	35.2	72.5	79.7	76.2	42.4	17.6	8.66	4.36	2.32
MAX MIN	4.8 2.3	5.1 3.4	8.9 3.6	54 11	138 53	85 75	83 62	60 29	28 11	11 6.1	6.6 2.6	3.1 1.4
AC-FT	179	251	289	2160	4030	4900	4530	2610	1050	533	268	138
										555	200	130
STATIS	TICS OF N	MONTHLY ME	AN DATA F	OR WATER Y	EARS 194	12 - 2002,	BY WATER	YEAR (WY)				
MEAN	7.72	8.03	18.6	109	227	205	104	49.9	35.7	20.2	12.8	8.92
MAX	34.7	47.8	295	1163	744	1141	441	189	451	109	61.2	41.9
(WY)	1949	1998	1956	1956	1949	1956	1969	1997	1948	1948	1948	1948
MIN	0.33	0.58	0.27	0.26	0.63	4.26	8.61	5.46	3.06	1.49	0.54	0.27
(WY)	1993	1993	1993	1993	1992	1992	1992	1990	1992	1990	1992	1992
SUMMAR	Y STATIST	rics	FOR :	2001 CALEN	IDAR YEAF	R F	FOR 2002 W	ATER YEAR		WATER YEAR	S 1942	- 2002
ANNUAL	TOTAL			6687.9			10554.6					
ANNUAL				18.3			28.9			66.3		
	r annual	MEAN								299		1956
	ANNUAL N									2.73		1992
UTCUPC	א ע.דד.ע ח	ארים א		55	Anr 4	1	138	Feb 9		7470	Feb 2	7 1057

55 2.3 2.4

3.3

13270

45 11

Apr 4 Oct 3 Oct 13

138 1.4 1.7

79 11 2.7

20940

Feb 9

Sep 24 Sep 22 70 Feb 27 1957 0.00 Jan 3 1969 0.00 Jan 15 1969

7470

48020

147

2.7

ANNUAL RUNOFF (AC-1 10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS

LOWEST ANNUAL MEAN
HIGHEST DAILY MEAN
LOWEST DAILY MEAN
ANNUAL SEVEN-DAY MINIMUM
ANNUAL RUNOFF (AC-FT)

e Estimated

12467000 CRAB CREEK NEAR MOSES LAKE, WA

LOCATION.--Lat $47^{\circ}11'22''$, long $119^{\circ}15'53''$, in NW $\frac{1}{4}$ sec.35, T.20 N., R.28 E., Grant County, Hydrologic Unit 17020015, on left bank at downstream side of highway bridge, 3.0 mi upstream from Parker Horn, 4.0 mi north of town of Moses Lake, and at mile 63.0.

DRAINAGE AREA.--2,228 mi², of which 219 mi² in the vicinity of Long Lake Reservoir is noncontributing.

PERIOD OF RECORD. -- September 1942 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,070.39 ft above Bureau of Reclamation datum. Prior to July 14, 1956, at site 300 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good except for period April 20 to Sept. 30 which is fair. Numerous small diversions for irrigation and domestic use upstream from station. Most natural flow from upper basin passes this station underground. No known regulation. Since 1952, return flow from irrigation on Columbia Basin project has increased runoff during summer months. Bureau of Reclamation satellite telemeter at station.

AVERAGE DISCHARGE.--51 years (water years 1952-2002), 70.0 ft³/s, 50,740 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,400 ft^3/s Feb. 28, 1957, gage height, 6.81 ft ; no flow for several months each year prior to 1952 and part of each day Jan. 14, 15, 1953.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 53 $\rm ft^3/s$ Oct. 30 and 31, gage height, 2.86 ft, maximum gage height, 3.32 ft Aug. 31; minimum discharge, 2.0 $\rm ft^3/s$ Mar. 21.

		DISCHAR	GE, CUBI	C FEET PER		WATER YE MEAN V	ZAR OCTOBER LUES	2001 TO 8	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	39 41 40 38 39	32 29 27 26 24	24 20 22 17 16	11 15 17 13 12	7.9 7.8 7.8 7.8 7.9	7.7 7.5 7.2 7.2 7.6	5.1 4.8 4.9 4.7 4.8	25 27 27 27 24	33 33 33 33 32	43 44 40 40 39	44 46 47 50 49	46 47 45 45
6 7 8 9 10	38 38 39 36 37	23 22 21 21 20	17 17 15 14 13	13 14 12 11	8.0 8.4 13 10 9.1	7.4 7.7 8.6 9.0	5.1 4.6 4.2 4.4 4.6	23 24 26 27 27	29 31 32 33 31	38 38 39 41 40	50 49 48 49 50	47 46 44 44
11 12 13 14 15	37 38 39 39 38	19 19 19 20 18	14 14 16 16 13	10 10 9.9 10 9.5	8.8 8.1 7.8 7.7 7.5	12 8.7 7.7 7.1 7.0	5.3 15 11 15 15	27 26 25 27 28	34 34 35 34 33	40 39 40 40 40	48 47 46 45 46	46 46 45 48
16 17 18 19 20	39 37 36 37 36	20 29 20 19 20	13 13 11 12 12	9.4 9.0 8.7 9.2	8.3 9.6 9.8 10	6.8 6.4 6.4 6.7 6.5	15 12 14 14 14	29 29 29 30 32	33 33 34 32 32	39 39 39 39 38	46 48 48 47 47	48 48 47 47 45
21 22 23 24 25	37 37 38 36 38	21 20 18 16 16	12 12 11 11 11	10 9.3 8.7 9.0 9.9	9.6 11 9.7 9.4 7.8	5.9 6.1 6.1 6.2 6.2	16 17 18 18 17	32 33 33 32 32	33 34 36 36 34	43 44 44 42 43	47 46 45 45 46	45 45 45 44 43
26 27 28 29 30 31	39 37 36 37 45 43	15 14 16 20 20	11 10 11 11 11	9.4 8.9 8.4 7.7 7.6 7.8	7.7 7.8 7.9 	6.0 6.0 5.8 5.5 5.5	19 22 22 20 22	33 32 32 32 32 32 33	32 34 36 37 41	43 44 44 43 45	47 46 47 48 48 50	44 45 47 48 47
TOTAL MEAN MAX MIN AC-FT	1184 38.2 45 36 2350	624 20.8 32 14 1240	431 13.9 24 10 855	321.4 10.4 17 7.6 637	246.2 8.79 13 7.5 488	220.9 7.13 12 5.4 438	368.5 12.3 22 4.2 731	895 28.9 33 23 1780	1007 33.6 41 29 2000	1274 41.1 45 38 2530	1465 47.3 50 44 2910	1378 45.9 48 43 2730
STATIST	TICS OF MC	ONTHLY MEA	N DATA F	OR WATER Y	EARS 1952	- 2002,	BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	59.4 111 1975 0.28 1952	36.2 68.9 1974 0.19 1952	23.3 43.8 1974 0.13 1952	60.9 779 1959 0.029 1952	124 490 1970 4.31 1953	160 1012 1956 3.60 1953	84.8 582 1969 6.30 1964	50.1 222 1997 13.4 1962	47.6 163 1997 16.7 1960	58.1 113 1974 25.4 1959	68.0 130 1972 35.2 1957	70.7 136 1971 35.6 1957
SUMMARY	STATISTI	CS	FOR	2001 CALEN	DAR YEAR	I	OR 2002 WA	TER YEAR		WATER YEARS	1952 -	2002
LOWEST HIGHEST LOWEST ANNUAL ANNUAL 10 PERC 50 PERC		EAN EAN AN MINIMUM AC-FT) EDS EDS		9265.4 25.4 54 6.0 6.5 18380 40 28 9.4	May 15 Apr 10 Apr 4		9415.0 25.8 50 4.2 4.6 18670 46 26 7.7	Aug 4 Apr 8 Apr 4		70.0 183 25.8 6960 0.00 0.00 50740 118 42 13	Mar 1 Dec 21 Dec 21	1951

12469500 LENORE LAKE NEAR SOAP LAKE, WA

LOCATION.--Lat $47^{\circ}30^{\circ}52^{\circ}$, long $119^{\circ}30^{\circ}06^{\circ}$, in SE $\frac{1}{4}$ Sec.1, T.23 N., R.26 E., Grant County, Hydrologic Unit 17020014, on east shore 1,000 ft downlake from outlet gate on Alkali Lake, and 8.8 mi north of town of Soap Lake.

DRAINAGE AREA.--367 mi^2 , of which 281 mi^2 in the vicinity of Banks Lake is noncontributing.

PERIOD OF RECORD.--July 1936, March 1938 to December 1956 (fragmentary), January 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929, adjustment of 1937 (Bureau of Reclamation datum). Prior to Dec. 20, 1956, nonrecording gages 0.90 mi uplake at same datum.

REMARKS.--Some diversion from tributaries for irrigation. During extreme high stages of Soap Lake, water is pumped from Soap Lake into Lenore Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 1,087.73 ft June 12, 1953; minimum, 1,072.72 ft Jan. 2, 1959 (affected by wind).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation known, 1,092.2 ft, from well-defined alkali line at gage, date unknown.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,077.19 ft Apr. 13, 14; minimum, 1,074.12 ft Sept. 29.

ELEVATION (FEET USBR DATUM), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	1074.69 1074.68 1074.65 1074.60 1074.63	1074.69 1074.69 1074.70 1074.71 1074.72	1075.06 1075.06 1075.09 1075.10 1075.11	1075.43 1075.46 1075.49 1075.50 1075.52	1075.97 1075.98 1076.01 1076.03 1076.05	1076.50 1076.52 1076.53 1076.55 1076.56	1076.91 1076.92 1076.94 1076.95 1076.97	1076.63 1076.60 1076.55 1076.52 1076.49	1075.82 1075.81 1075.81 1075.81 1075.81	1075.24 1075.21	1074.78 1074.77 1074.74 1074.75 1074.72	1074.43 1074.41 1074.40 1074.38 1074.37
6 7 8 9 10	1074.63 1074.63 1074.63 1074.62 1074.62	1074.71 1074.72 1074.72 1074.73 1074.73	1075.14 1075.13 1075.14 1075.14 1075.16	1075.54 1075.57 1075.59 1075.60 1075.62	1076.07 1076.09 1076.16 1076.16 1076.18	1076.56 1076.59 1076.61 1076.62 1076.64	1076.98 1076.99 1076.99 1077.01 1077.05	1076.44 1076.40 1076.38 1076.34 1076.30	1075.78 1075.75 1075.72 1075.72 1075.74	1075.18 1075.18 1075.21 1075.20 1075.20	1074.69 1074.68 1074.68	1074.35 1074.34 1074.32 1074.32
11 12 13 14 15	1074.62 1074.62 1074.60 1074.60 1074.61	1074.74 1074.74 1074.76 1074.77 1074.78	1075.18 1075.19 1075.21 1075.22 1075.22	1075.64 1075.65 1075.67 1075.66 1075.68	1076.20 1076.22 1076.24 1076.26 1076.27	1076.68 1076.68 1076.69 1076.70 1076.72	1077.06 1077.08 1077.10 1077.15 1077.14	1076.28 1076.25 1076.23 1076.19 1076.16	1075.78 1075.76 1075.74 1075.72 1075.71	1075.20 1075.20 1075.18 1075.18 1075.16	1074.63 1074.62 1074.62 1074.60 1074.59	1074.32 1074.32 1074.31 1074.31
16 17 18 19 20	1074.61 1074.60 1074.60 1074.60 1074.60	1074.79 1074.79 1074.80 1074.81 1074.83	1075.25 1075.27 1075.27 1075.28 1075.28	1075.70 1075.72 1075.74 1075.76 1075.78	1076.29 1076.31 1076.33 1076.36 1076.37	1076.73 1076.72 1076.75 1076.77 1076.74	1077.13 1077.10 1077.05 1077.01 1076.99	1076.14 1076.13 1076.10 1076.08 1076.08	1075.68 1075.65 1075.60 1075.57 1075.53	1075.15 1075.14 1075.12 1075.09 1075.05	1074.56 1074.56 1074.53 1074.54 1074.53	1074.30 1074.28 1074.27 1074.26 1074.23
21 22 23 24 25	1074.61 1074.62 1074.61 1074.61 1074.61	1074.85 1074.88 1074.89 1074.88 1074.90	1075.30 1075.31 1075.32 1075.33 1075.34	1075.80 1075.81 1075.82 1075.85 1075.87	1076.41 1076.43 1076.42 1076.40 1076.44	1076.78 1076.80 1076.81 1076.83 1076.85	1076.95 1076.92 1076.87 1076.83 1076.80	1076.05 1076.01 1076.00 1075.98 1075.96	1075.52 1075.50 1075.48 1075.45 1075.43	1075.01 1074.98 1074.99 1074.98 1074.96	1074.51 1074.50 1074.50 1074.50 1074.49	1074.23 1074.23 1074.23 1074.21 1074.18
26 27 28 29 30 31	1074.62 1074.63 1074.62 1074.63 1074.66 1074.69	1074.92 1074.92 1074.96 1075.00 1075.01		1075.88 1075.89 1075.90 1075.92 1075.93 1075.95	1076.46 1076.47 1076.47 	1076.87 1076.88 1076.88 1076.89 1076.90 1076.92	1076.76 1076.75 1076.72 1076.69 1076.65	1075.95 1075.93 1075.93 1075.90 1075.87 1075.84	1075.41 1075.38 1075.36 1075.34 1075.31	1074.86 1074.83 1074.81	1074.47 1074.47 1074.47 1074.47 1074.46 1074.45	1074.20 1074.17 1074.19 1074.19 1074.18
MEAN MAX MIN	1074.62 1074.69 1074.60	1074.81 1075.01 1074.69	1075.42	1075.71 1075.95 1075.43	1076.25 1076.47 1075.97	1076.72 1076.92 1076.50	1076.95 1077.15 1076.65	1076.18 1076.63 1075.84	1075.62 1075.82 1075.31	1075.09 1075.26 1074.79	1074.59 1074.78 1074.45	1074.29 1074.43 1074.17

CAL YR 2001 MEAN 1075.70 MAX 1077.36 MIN 1074.60 WTR YR 2002 MEAN 1075.50 MAX 1077.15 MIN 1074.17

12470000 SOAP LAKE NEAR SOAP LAKE, WA

LOCATION.--Lat $47^{\circ}24'11"$, long $119^{\circ}29'11"$, in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.18, T.22 N., R.27 E., Grant County, Hydrologic Unit 17020014, on east shore 0.9 mi north of town of Soap Lake.

DRAINAGE AREA.--413 mi^2 , of which 281 mi^2 in the vicinity of Banks Lake is noncontributing.

PERIOD OF RECORD.--May to August 1936, March 1938 to February 1957 (fragmentary), March 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929, adjustment of 1937 (Bureau of Reclamation datum). Prior to Feb. 4, 1953, nonrecording gage at site 0.2 mi uplake. Feb. 4, 1953, to June 8, 1954, nonrecording gage at site 1.5 mi uplake and June 9, 1954, to June 21, 1957, water-stage recorder at site 0.2 mi uplake.

REMARKS.--Some diversion from tributaries for irrigation. During extreme high stages of Soap Lake, water is pumped from Soap Lake into Lenore Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 1,079.20 ft Jan. 28, 1953; minimum observed, 1,070.87 ft Oct. 21, 1939.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation known, 1,083.1 ft, from well-defined alkali line at gage, date unknown.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1073.30 ft Apr. 14; minimum daily, 1,071.58 ft Sept. 30.

ELEVATION (FEET USBR DATUM), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2	1072.71 1072.70	1072.53 1072.54	1072.78 1072.79	1072.96 1072.98	1073.11 1073.11	1073.23 1073.23	1073.25 1073.25	1073.22 1073.22	1073.02 1073.01	1072.70 1072.68		1071.86 1071.82
3	1072.69	1072.54	1072.82	1073.00	1073.12	1073.23	1073.25	1073.20	1073.00	1072.67		1071.81
4	1072.66	1072.55	1072.82	1073.00	1073.12	1073.24	1073.25	1073.18	1072.99	1072.65		1071.79
5	1072.64	1072.54	1072.83	1073.01	1073.12	1073.24	1073.25	1073.17	1072.98	1072.62		1071.79
6	1072.63	1072.54	1072.84	1073.02	1073.13	1073.24	1073.25	1073.16	1072.96	1072.62		1071.77
7	1072.62	1072.54	1072.85	1073.03	1073.14	1073.24	1073.25	1073.15	1072.92	1072.62		1071.76
8	1072.61	1072.54	1072.85	1073.04	1073.18	1073.24	1073.24	1073.14	1072.90	1072.63		1071.74
9 10	1072.59 1072.59	1072.54 1072.54	1072.85 1072.86	1073.04 1073.05	1073.19 1073.19	1073.24 1073.24	1073.25 1073.26	1073.14 1073.14	1072.89 1072.90	1072.62 1072.62		1071.74 1071.73
10	1072.59	1072.54	10/2.86	10/3.05	10/3.19	10/3.24	10/3.26	10/3.14	1072.90	1072.62		10/1./3
11	1072.58	1072.54	1072.87	1073.06	1073.19	1073.25	1073.26	1073.13	1072.94	1072.61		1071.73
12	1072.56	1072.54	1072.87	1073.06	1073.20	1073.25	1073.27	1073.13	1072.94	1072.61		1071.73
13	1072.55	1072.55	1072.89	1073.06	1073.20	1073.25	1073.27	1073.12	1072.94	1072.60		1071.72
14	1072.55	1072.56	1072.89	1073.06	1073.20	1073.25	1073.27	1073.11	1072.94	1072.59		1071.72
15	1072.54	1072.57	1072.89	1073.06	1073.20	1073.25	1073.27	1073.10	1072.93	1072.57		1071.72
16	1072.54	1072.59	1072.90	1073.06	1073.21	1073.26	1073.26	1073.09	1072.92	1072.56		1071.70
17	1072.52	1072.60	1072.90	1073.07	1073.21	1073.26	1073.26	1073.09	1072.90	1072.55		1071.70
18	1072.51	1072.60	1072.91	1073.07	1073.21	1073.25	1073.26	1073.09	1072.89	1072.54		1071.69
19	1072.51	1072.60	1072.92	1073.08	1073.22	1073.25	1073.25	1073.09	1072.86	1072.51		1071.67
20	1072.50	1072.62	1072.92	1073.08	1073.23	1073.25	1073.25	1073.10	1072.84	1072.48		1071.66
21	1072.51	1072.64	1072.92	1073.08	1073.23	1073.24	1073.24	1073.09	1072.81	1072.47		1071.65
22	1072.51	1072.66	1072.92	1073.08	1073.23	1073.24	1073.24	1073.07	1072.81	1072.46		1071.64
23	1072.50	1072.66	1072.93	1073.08	1073.25	1073.25	1073.22	1073.06	1072.80	1072.45		1071.64
24	1072.49	1072.66	1072.93	1073.09	1073.24	1073.25	1073.21	1073.06	1072.79	1072.44		1071.64
25	1072.50	1072.68	1072.93	1073.09	1073.23	1073.26	1073.21	1073.06	1072.78	1072.42		1071.62
26	1072.50	1072.68	1072.94	1073.10	1073.23	1073.26	1073.21	1073.06	1072.78	1072.40		1071.61
27	1072.50	1072.68	1072.94	1073.10	1073.23	1073.26	1073.22	1073.06	1072.77	1072.36		1071.60
28	1072.49	1072.72	1072.94	1073.10	1073.23	1073.26	1073.23	1073.06	1072.76	1072.33		1071.60
29	1072.49	1072.75	1072.95	1073.10		1073.25	1073.23	1073.06	1072.76	1072.29		1071.60
30	1072.51	1072.76	1072.95	1073.10		1073.25	1073.23	1073.05	1072.73		1071.88	1071.58
31	1072.53		1072.96	1073.10		1073.25		1073.03			1071.88	
MEAN	1072.56	1072.60	1072.89	1073.06	1073.19	1073.25	1073.24	1073.11	1072.88	1072.54	1071.88	1071.70
MAX	1072.71	1072.76	1072.96	1073.10	1073.25	1073.26	1073.27	1073.22	1073.02	1072.70	1071.88	1071.86
MIN	1072.49	1072.53	1072.78	1072.96	1073.11	1073.23	1073.21	1073.03	1072.73	1072.29	1071.88	1071.58

12471000 MOSES LAKE AT MOSES LAKE, WA

LOCATION.--Lat $47^{\circ}06^{\circ}11^{\circ}$, long $119^{\circ}19^{\circ}02^{\circ}$, in SW $\frac{1}{4}$ sec.28, T.19 N., R.28 E., Grant County, Hydrologic Unit 17020015, on east shore 35 ft north of Interstate 90, 1.7 mi upstream from outlet, at town of Moses Lake, and at mile 55.9.

DRAINAGE AREA. -- 3,080 mi², of which 665 mi² is noncontributing.

PERIOD OF RECORD.--June 1909 to September 1914 and November 1936 to September 1945 (fragmentary), October 1945 to current year. Published as "at Neppel" 1912-14.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929, adjustment of 1937 (Bureau of Reclamation datum). Prior to Apr. 3, 1910, nonrecording gage at site 0.6 mi northeast at different datum. Apr. 3, 1910, to Sept. 30, 1914, and Nov. 19, 1936, to Nov. 24, 1944, nonrecording gages at site 2.8 mi northeast at Parker Horn at various datums. Oct. 30, 1945, to Mar. 12, 1955, water-stage recorder at site near west shore on downstream side of bridge on U.S. Highway 10 at present datum.

REMARKS.--Elevation controlled between 1,041 ft and 1,047 ft by two outlet structures at south end of lake. Many small diversions for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 1,048.29 ft Mar. 10, 1950; minimum observed, 1,038.17 ft Aug. 27, 1910.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,047.11 ft Apr. 14; minimum, 1,042.63 ft Jan. 24.

ELEVATION (FEET USBR DATUM), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	1046.73 1046.73 1046.73 1046.71 1046.70	1046.73 1046.73 1046.73 1046.77 1046.67	1043.29 1043.30 1043.28 1043.23 1043.21	1042.79 1042.80 1042.81 1042.80 1042.79	1042.88 1042.92 1042.96 1043.00 1043.03	1043.45 1043.45 1043.45 1043.45 1043.46	1045.46 1045.59 1045.64 1045.70 1045.77	1046.74 1046.74 1046.71 1046.68 1046.67	1046.79 1046.78 1046.78 1046.77 1046.77	1046.74 1046.71 1046.68 1046.64 1046.64	1046.77 1046.78	1046.64 1046.60 1046.68 1046.75 1046.75
6 7 8 9 10		1046.32 1045.99 1045.70 1045.45 1045.23	1043.20 1043.17 1043.14 1043.11 1043.09	1042.80 1042.79 1042.79 1042.79 1042.77	1043.07 1043.12 1043.18 1043.21 1043.24	1043.50 1043.46 1043.40 1043.34 1043.26	1045.84 1045.91 1045.96 1046.10 1046.37	1046.65 1046.63 1046.62 1046.65 1046.67	1046.75 1046.72 1046.72 1046.69 1046.67		1046.76 1046.75 1046.76 1046.77 1046.80	1046.70 1046.70 1046.72 1046.77 1046.83
11	1046.71	1045.02	1043.07	1042.77	1043.27	1043.20	1046.63	1046.68	1046.71	1046.70		1046.92
12	1046.68	1044.84	1043.05	1042.76	1043.29	1043.15	1046.84	1046.70	1046.73	1046.71		1046.98
13	1046.71	1044.66	1043.03	1042.75	1043.25	1043.11	1046.96	1046.71	1046.75	1046.74		1047.03
14	1046.75	1044.50	1043.02	1042.76	1043.27	1043.07	1047.04	1046.71	1046.77	1046.75		1047.05
15	1046.77	1044.38	1042.99	1042.74	1043.30	1043.03	1046.87	1046.70	1046.79	1046.76		1047.02
16	1046.77	1044.27	1042.95	1042.75	1043.32	1042.99	1046.71	1046.70	1046.81	1046.77	1046.81	1046.92
17	1046.76	1044.20	1042.95	1042.73	1043.34	1042.98	1046.66	1046.74	1046.81	1046.78	1046.82	1046.81
18	1046.72	1044.07	1042.95	1042.73	1043.37	1042.92	1046.70	1046.79	1046.84	1046.78	1046.83	1046.75
19	1046.67	1043.97	1042.94	1042.72	1043.39	1042.89	1046.71	1046.80	1046.82	1046.78	1046.84	1046.73
20	1046.64	1043.88	1042.93	1042.70	1043.41	1042.91	1046.74	1046.83	1046.83	1046.77	1046.83	1046.73
21	1046.68	1043.81	1042.90	1042.70	1043.41	1042.83	1046.78	1046.80	1046.84	1046.79	1046.82	1046.73
22	1046.71	1043.75	1042.89	1042.70	1043.42	1042.81	1046.82	1046.76	1046.85	1046.80	1046.81	1046.74
23	1046.72	1043.67	1042.87	1042.69	1043.45	1042.94	1046.80	1046.79	1046.85	1046.81	1046.78	1046.74
24	1046.73	1043.61	1042.86	1042.66	1043.47	1043.13	1046.77	1046.85	1046.86	1046.81	1046.77	1046.71
25	1046.74	1043.56	1042.85	1042.70	1043.43	1043.27	1046.76	1046.90	1046.84	1046.80	1046.78	1046.68
26 27 28 29 30 31		1043.49 1043.43 1043.41 1043.39 1043.35		1042.73 1042.74 1042.76 1042.76 1042.80 1042.84	1043.43 1043.43 1043.45 	1043.37 1043.47 1043.83 1044.28 1044.71 1045.12	1046.76 1046.77 1046.76 1046.75 1046.75	1046.91 1046.92 1046.94 1046.87 1046.84 1046.89	1046.81 1046.78 1046.76 1046.77 1046.76		1046.77 1046.76 1046.76 1046.76 1046.73 1046.69	1046.72 1046.74 1046.77 1046.79 1046.78
MEAN	1046.73	1044.72	1043.01	1042.76	1043.26	1043.36	1046.46	1046.76	1046.78	1046.74	1046.78	1046.78
MAX	1046.78	1046.77	1043.30	1042.84	1043.47	1045.12	1047.04	1046.94	1046.86	1046.81	1046.84	1047.05
MIN	1046.64	1043.35	1042.80	1042.66	1042.88	1042.81	1045.46	1046.62	1046.67	1046.64	1046.69	1046.60

CAL YR 2001 MEAN 1045.38 MAX 1046.94 MIN 1042.80 WTR YR 2002 MEAN 1045.35 MAX 1047.05 MIN 1042.66

12472600 CRAB CREEK NEAR BEVERLY, WA

LOCATION.--Lat $46^{\circ}49^{\circ}48^{\circ}$, long $119^{\circ}49^{\circ}48^{\circ}$, in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 33, T.16 N., R.24 E., Grant County, Hydrologic Unit 17020015, on right bank 4.9 mi east of Beverly, and at mile 4.5.

DRAINAGE AREA.--4,842 mi², of which 665 mi² in the vicinity of Soap Lake is noncontributing.

PERIOD OF RECORD. -- February 1959 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 500 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good except those below 130 ft³/s, which are poor. Many diversions upstream from station for irrigation. Flow largely regulated by Potholes Reservoir 41.3 mi upstream. A major portion of flow is return flows, including transbasin diversions, from parts of the Columbia Basin project. Chemical analyses water years 1959-72, 1975-80. Daily water temperatures August 1959 to September 1962, July 1968 to August 1970.

AVERAGE DISCHARGE.--42 years (water years 1960-99, 2002), 201 ft³/s, 145,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 936 ${\rm ft^3/s~Mar.~3}$, 1980, gage height, 6.46 ft; minimum discharge, 10 ${\rm ft^3/s~Jan.~10}$, 1963, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 337 ft³/s Sept. 25, gage height, 3.66 ft; minimum discharge, 93 ft³/s Sept. 16.

		DISCHAF	RGE, CUB	IC FEET PEI	R SECOND, W DAILY	MEAN VA		R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	269	322	241	175	186	148	228	271	202	209	203	261
2	264	300	235	188	191	149	199	270	202	209	215	253
3	254	285	236	200	178	149	213	252	202	170	223	261
4	258	281	225	197	172	148	227	244	200	179	229	268
5	258	274	218	190	170	150	215	243	187	200	244	289
6	249	265	220	187	188	154	203	239	167	225	204	295
7	277	252	217	188	181	160	197	263	159	228	197	295
8	293	244	210	190	207	166	195	281	161	213	226	300
9 10	307 317	237 233	198 193	188 184	203 197	162 150	193 209	279 270	185 204	204 206	226 220	309 322
11	315	227	192	182	188	152	235	255	251	179	204	332
12	319	220	179	178	176	154	230	244	207	174	208	319
13	303	218	181	174	171	154	229	234	191	167	229	311
14	277	220	186	169	173	150	234	211	195	147	220	313
15	273	197	186	166	171	139	232	219	199	135	165	313
16	280	187	192	167	175	130	231	219	199	103	184	314
17	293	220	190	169	164	132	230	221	187	162	186	320
18	310	227	188	165	159	126	237	228	207	149	191	318
19	311	163	185	168	174	121	232	250	236	144	197	330
20	290	234	183	178	178	120	231	267	231	142	206	317
21	287	193	185	207	166	116	238	279	200	140	209	303
22	305	232	183	220	181	114	246	260	188	150	185	303
23	313	218	179	194	166	116	245	219	190	158	199	316
24	333	207	175	183	168	116	241	226	206	171	219	330
25	332	208	172	178	161	127	241	234	199	159	236	336
26	314	210	171	180	155	131	247	259	183	143	241	326
27	302	210	171	178	152	136	253	263	174	139	257	305
28	300	213	172	174	153	166	261	251	161	179	273	294
29	305	231	173	168		218	268	240	175	190	273	292
30	317	244	176	170		226	269	224	191	198	273	280
31	328		174	186		225		204		191	269	
TOTAL	9153	6972	5986	5641	4904	4605	6909	7619	5839	5363	6811	9125
MEAN	295	232	193	182	175	149	230	246	195	173	220	304
MAX	333	322	241	220	207	226	269	281	251	228	273	336
MIN	249 18150	163 13830	171 11870	165 11190	152 9730	114 9130	193 13700	204	159	103	165	253 18100
AC-FT								15110	11580	10640	13510	10100
STATIST	CICS OF M	ONTHLY MEA	AN DATA I	FOR WATER	YEARS 1959	- 2002,	BY WATER	YEAR (WY)				
MEAN	264	203	184	180	187	169	193	189	181	181	210	253
MAX	365	310	274	307	358	409	335	297	301	284	303	364
(WY)	1996	1974	1974	1997	1984	1980	1984	1997	1997	1997	1997	1997
MIN	64.4	64.8	58.4	61.9	71.8	55.0	51.6	50.8	48.4	32.5	48.9	66.9
(WY)	1961	1961	1961	1961	1962	1960	1959	1960	1959	1959	1959	1961
SUMMARY	STATIST	ICS	FOR	2001 CALE	NDAR YEAR	F	FOR 2002 W	ATER YEAR		WATER YEAR	RS 1959 -	- 2002
ANNUAL	TOTAL			73746			78927					
ANNUAL				202			216			201		
	ANNUAL	MEAN								293		1997
	ANNUAL M									62.2		1961
HIGHEST	DAILY M	EAN		333	Oct 24		336	Sep 25		848	Mar 3	1980
	DAILY ME			105	Mar 22		103	Jul 16		14	Aug 2	
		MUMINIM Y		115	Mar 19		118	Mar 18		20	Jul 28	3 1962
	RUNOFF (146300			156600			145500		
	ENT EXCE			274			301			302		
	ENT EXCE			188			207			204		
90 PERC	ENT EXCE	EDS		150			155			80		

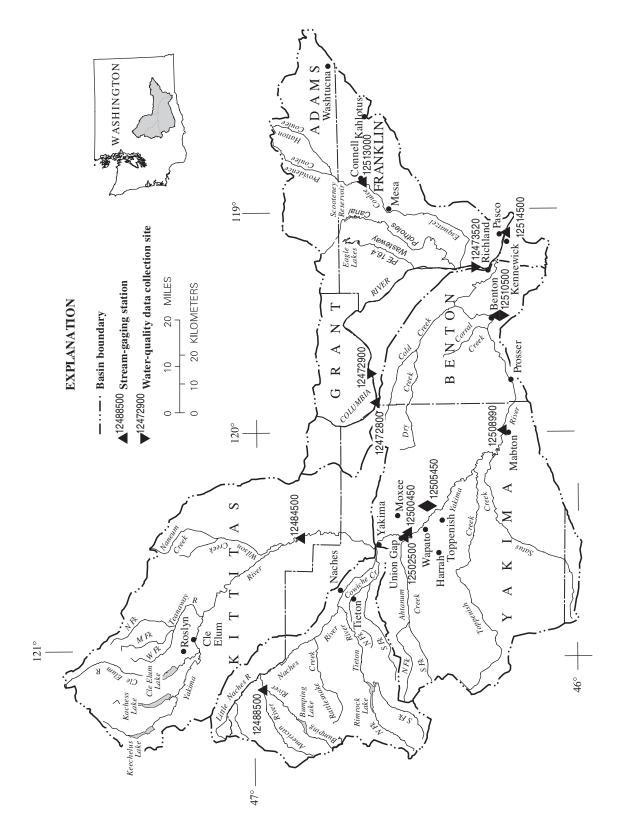


Figure 43. Location of surface-water and water-quality stations in the Columbia River Basin from Priest Rapids Dam to Kennewick including Yakima River and Esquatzel Coulee Basins.

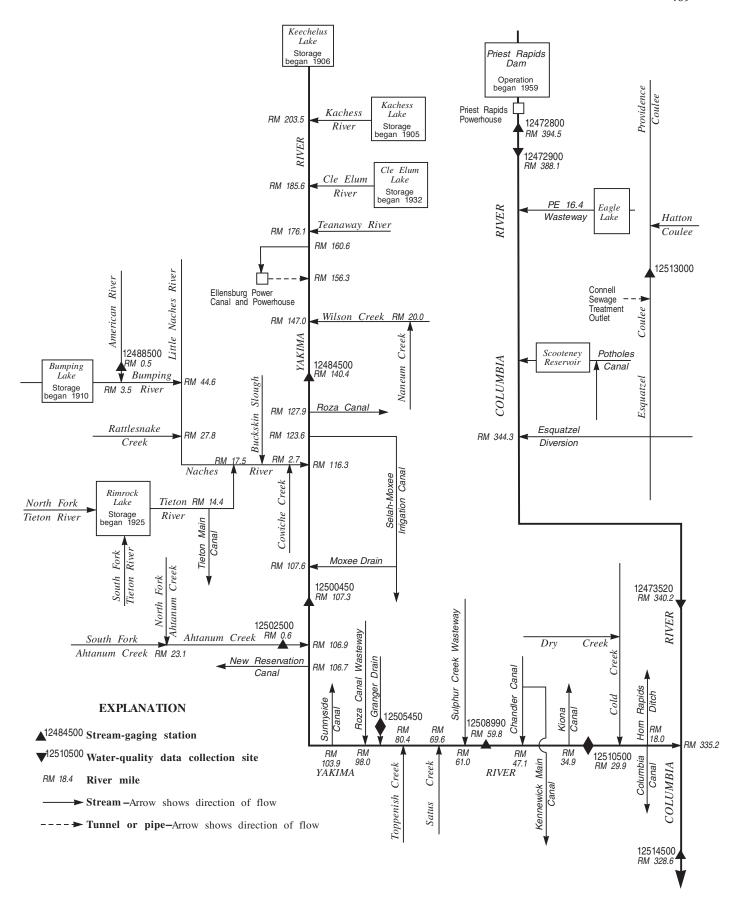


Figure 44. Schematic diagram showing surface-water and water-quality stations in the Columbia River Basin from Priest Rapids Dam to Kennewick including Yakima River and Esquatzel Coulee Basins.

410 COLUMBIA RIVER MAIN STEM

12472800 COLUMBIA RIVER BELOW PRIEST RAPIDS DAM, WA

LOCATION.--Lat $46^{\circ}37^{\circ}44^{\circ}$, long $119^{\circ}51^{\circ}49^{\circ}$, in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.7, T.13 N., R.24 E., Grant County, Hydrologic Unit 17020016, on left bank 2.6 mi downstream from Priest Rapids Dam, 14.7 mi south of Beverly, and at mile 394.5.

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

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

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

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

REMARKS.--No estimated daily discharges. Records good. Diversions for irrigation of about 600,000 acres upstream from station. Flow regulated by 10 major reservoirs and numerous smaller reservoirs and powerplants. U.S. Geological Survey satellite telemeter at station. Water temperatures March 1980 to April 1993. Temperature records for site "at Vernita Bridge, near Priest Rapids Dam" (station 12472900) for period July 1974 to September 1980 are equivalent.

AVERAGE DISCHARGE.--85 years (water years 1918-2002), $119,400 \text{ ft}^3/\text{s}$, 86,490,000 acre-ft/yr, unadjusted. 43 years (water years 1960-2002), $119,600 \text{ ft}^3/\text{s}$, 86,660,000 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 692,600 ft³/s June 12, 1948, gage height, 59.35 ft, site and datum then in use; minimum discharge, 4,120 ft³/s Feb. 10, 1932, due to construction at Rock Island Dam, site and datum then in use; minimum daily discharge prior to construction of Rock Island Dam (1932), 22,000 ft³/s Feb. 1-7, 1930, site and datum then in use; minimum daily discharge after completion of Rock Island Dam (1932), 20,000 ft³/s Jan. 31 to Feb. 10, 1937, site and datum then in use; minimum discharge since completion of Priest Rapids Dam (1959), 16,300 ft³/s Nov. 7. 1998, due to emergency flow reduction from Priest Rapids Dam.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1894, reached a discharge of about 740,000 ft³/s, based on a rating extension for a Weather Bureau gage at Wenatchee.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 318,000 ft^3/s Jul. 1, elevation, 418.11 ft; minimum discharge, 36,400 ft^3/s Nov. 18, elevation, 396.40 ft; minimum daily discharge, 39,900 ft^3/s Oct. 6.

12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA

LOCATION.--Lat $46^\circ38'34"$, long $119^\circ43'54"$, in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.6, T.13 N., R.25 E., Grant County, Hydrologic Unit 17020016, at State Highway 24 Vernita Bridge crossing, 9.0 mi downstream from Priest Rapids Dam, and at mile 388.1.

DRAINAGE AREA.--96,000 \mbox{mi}^2 , approximately.

PERIOD OF RECORD.--Water years 1962-63, 1972, 1974 to current year.

PERIOD OF DAILY RECORD. --

WATER TEMPERATURES: July 1974 to September 1980.

REMARKS.--October 1971 to September 1972, at site 6.4 mi upstream, published as 12472800 "below Priest Rapids Dam." Prior to October 1971 published as 12472800 "at Vernita Ferry." Discharge determined by routing flows from the gaging station below Priest Rapids Dam (station 12472800) 6.4 miles upstream. National Stream Quality Accounting Network (NASQAN) 1975-2000.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TURBID- ITY LAB HACH 2100AN (NTU) (99872)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
DEC													
11 MAR	1130	75700	1.3	753	11.2	98	8.0	144	4.0	9.0	4	64	18.3
06	1155	62100	1.6	749	13.0	101	8.2	150	1.0	4.0	1	65	18.2
JUN 26	1300	209000	3.0	751	11.0	113	7.7	110	40.0	15.8		47	13.4
SEP 25	1220	21000	1.6	756	9.2	99	7.6	130	27.0	18.6	11	61	17.5
Date	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
DEC 11	4.53	60	73	0	.91	<.1	8.6	<10	80	<.04	.13	.10	E.004
MAR 06	4.79	64	78	0	1.32	E.1	10.0	<10	90	<.04	E.06	.14	<.008
JUN 26	3.36	50	60	0	1.78	E.10	5.9	<10	58	<.04	.13	.05	<.008
SEP 25	4.20	50	61	0	1.29	E.06	8.5	<10	74	<.04	.13	E.04	<.008

		ORTHO-						SEDI-
		PHOS-		CARBON,	CHRO-			MENT,
	NITRO-	PHATE,	PHOS-	ORGANIC	MIUM,	IRON,	SEDI-	DIS-
	GEN,	DIS-	PHORUS	DIS-	DIS-	DIS-	MENT,	CHARGE,
	TOTAL	SOLVED	TOTAL	SOLVED	SOLVED	SOLVED	SUS-	SUS-
Date	(MG/L	(MG/L	(MG/L	(MG/L	(UG/L	(UG/L	PENDED	PENDED
	AS N)	AS P)	AS P)	AS C)	AS CR)	AS FE)	(MG/L)	(T/DAY)
	(00600)	(00671)	(00665)	(00681)	(01030)	(01046)	(80154)	(80155)
DEC								
11	.23	E.01	<.06	1.3	<.8	<10	2.0	409
MAR								
06		<.02	<.06	1.2	<.8	<10	2.0	335
JUN								
26	.18	<.02	<.06	2.0	<.8	10	4.0	2260
SEP								
25		<.02	<.06	1.4	<.8	<10	3.0	170

412 COLUMBIA RIVER MAIN STEM

12473520 COLUMBIA RIVER AT RICHLAND, WA

LOCATION.--Lat $46^{\circ}18^{\circ}46^{\circ}$, long $119^{\circ}15^{\circ}28^{\circ}$, in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.36, T.10 N., R.28 E., Benton County, Hydrologic Unit 17020016, at city of Richland pumping plant, 4.8 mi upstream from Yakima River, and at mile 340.2. Columbia River at Richland

DRAINAGE AREA.--96,900 mi², approximately.

PERIOD OF RECORD. -- October 1978 to current year.

PERIOD OF DAILY RECORD. --

WATER TEMPERATURE: July 1974 to March 1993.

REMARKS.--Water temperatures as recorded for the period July 1974 to January 1977 did not represent mean stream temperatures (see previous state reports for correlation between thermal load measurements and recorded temperatures). Temperature probe, relocated January 1977, represents both horizontal and vertical cross section of the river. Unpublished records of stage at site 2.3 miles downstream are available in files of the Geological Survey and U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF DAILY RECORD.-WATER TEMPERATURE: Maximum, 22.0°C July 21, Aug. 4, 5, 1985; minimum, 0.0°C Feb. 3, 6-9, 1989.

ORTHO-

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	TURBID- ITY LAB HACH 2100AN (NTU) (99872)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
DEC 12 MAR	1110	1.9	760	11.2	96	7.9	147	4.0	8.5	5	65	18.5	4.66
08 JUN	1020	2.3	764	13.6	103	8.3	152	7.5	4.0	4	68	19.0	4.98
27	1120	2.5	752	10.6	110	7.4	112	33.4	16.3		48	13.4	3.40
SEP 26	1110	3.7	751	8.7	94	7.6	133	17.5	18.2	7	60	17.3	4.17
Date	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, TOTAL (MG/L AS N) (00600)
DEC 12 MAR	60	73	0	1.02	.1	9.3	<10	84	<.04	.13	.11	<.008	.23
08	64	78	0	1.31	E.1	10.1	<10	78	<.04	E.09	.17	<.008	
JUN 27	50	60	0	1.74	.14	6.1	<10	60	<.04	.21	.06	<.008	.27
SEP 26	54	65	0	1.50	E.07	8.7	<10	73	<.04	.17	.08	<.008	.25

Date	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
DEC 12 MAR	E.01	<.06	1.1	<.8	<10	3.0
08	<.02	<.06	1.2	<.8	<10	3.0
27 SEP	<.02	<.06	2.1	<.8	E7	8.0
26	<.02	<.06	1.4	E.5	31	2.0

YAKIMA RIVER BASIN 413

12484500 YAKIMA RIVER AT UMTANUM, WA

LOCATION.--Lat $46^{\circ}51'46"$, long $120^{\circ}28'44"$, in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.20, T.16 N., R.19 E., Kittitas County, Hydrologic Unit 17030001, on right bank at Umtanum railway siding, 0.5 mi upstream from Umtanum Creek, 4.2 mi upstream from McPherson Canyon, 10 mi south of Ellensburg, and at mile 140.4.

DRAINAGE AREA. -- 1,594 mi².

PERIOD OF RECORD.--August 1906 to current year. Monthly discharge for some months during the 1907, 1908, 1916-31 water years, published in WSP 1316.

REVISED RECORDS.--WSP 412: 1914. WSP 1286: 1910. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,300.00 ft above NGVD of 1929. Prior to Sept. 28, 1911, nonrecording gage at approximately same site at various datums. Sept. 28, 1911, to Nov. 23, 1936, water-stage recorder at site about 300 ft upstream at datum 26.70 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow partly regulated by Keechelus, Kachess, and Cle Elum Lakes.
Diversions upstream from station for irrigation of about 105,000 acres. Bureau of Reclamation satellite telemeter at station.

COOPERATION.--2 discharge measurements were provided by the Bureau of Reclamation.

AVERAGE DISCHARGE.--69 years (water years 1934-2002), 2,450 ft³/s, 1,775,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $41,000~{\rm ft}^3/{\rm s}$ Nov. 15 or 16, 1906, gage height, $41.1~{\rm ft}$, from floodmarks, present datum; minimum recorded discharge, 138 ${\rm ft}^3/{\rm s}$ Oct. 3, 1915, gage height, 2.86 ft, datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, $8,550~{\rm ft}^3/{\rm s}$ Apr. 14, gage height, 34.58 ft; minimum discharge, $532~{\rm ft}^3/{\rm s}$ Oct. 2-6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4	567 557 539 543	1020 1050 1030 987	980 993 947 905	840 850 833 815	1130 1080 1050 1010	1600 1500 1420 1380	2180 2390 2310 2240	3050 3800 3850 3330	5440 5450 5400 5580	4810 3520 2680 2760	4260 4190 4210 4180	3820 3620 3290 2870
5	536	948	884	805	993 977	1370	2340	2930	5590	3180	4150	2560
6 7 8 9 10	557 616 639 638 629	926 891 850 822 792	881 913 907 865 852	818 945 2600 3130 2580	987 1020 987 955	1400 1370 1290 1260 1230	2460 2680 2680 2690 2800	2640 2360 2120 2010 1960	5560 5340 5100 4510 3970	3040 2990 3120 3050 3110	4090 4060 3980 4040 4110	2310 2080 1840 1730 1610
11 12 13 14 15	630 637 645 656 678	762 744 741 997 2200	834 818 847 1380 1430	2190 1970 1960 1800 1620	939 900 894 894 876	1240 1710 1750 1630 1540	3010 3200 3740 6710 7130	1880 2040 2440 2810 2770	3820 3900 4360 5300 6510	3140 3150 3260 3370 3420	4140 4080 4020 4110 4120	1490 1460 1440 1410 1410
16 17 18 19 20	671 645 630 625 624	1890 1580 1370 1250 1190	1290 1570 1720 1530 1370	1500 1420 1330 1290 1270	872 878 871 888 924	1490 1440 1360 1360 1480	5020 3870 3140 2760 2650	2630 2590 2780 2900 3580	6810 6490 5210 4770 4480	3460 3570 3750 3860 3980	4120 4160 4170 4210 4190	1420 1410 1370 1360 1350
21 22 23 24 25	631 651 699 891 962	1150 1200 1250 1290 1210	1250 1160 1090 1030 987	1300 1220 1160 1170 1440	948 1250 2640 2780 2430	1460 1350 1320 1410 1620	2690 2610 2500 2300 2090	4010 3680 3380 3100 3050	4150 4310 4580 5000 4690	3940 3950 3980 4170 4190	4120 4070 3950 3880 3870	1350 1360 1360 1340 1320
26 27 28 29 30 31	895 804 789 768 770 837	1120 1050 1060 1020 974	949 923 911 889 866 858	1500 1370 1280 1190 1170 1150	2100 1890 1740 	1720 1760 1730 1800 1850 1990	2070 2270 2350 2390 2540	3220 3460 3930 4590 4860 5050	4490 4570 5050 4800 5270	4230 4260 4270 4270 4230 4260	3850 3850 3900 3850 3870 3890	1320 1340 1370 1390 1420
TOTAL MEAN MAX MIN AC-FT	20959 676 962 536 41570	33364 1112 2200 741 66180	32829 1059 1720 818 65120	44516 1436 3130 805 88300	34903 1247 2780 871 69230	46830 1511 1990 1230 92890	89810 2994 7130 2070 178100	96800 3123 5050 1880 192000	150500 5017 6810 3820 298500	112970 3644 4810 2680 224100	125690 4055 4260 3850 249300	53420 1781 3820 1320 106000
STATIST	rics of M	ONTHLY ME	AN DATA	FOR WATER	YEARS 1934	- 2002	, BY WATER	R YEAR (WY	")			
MEAN MAX (WY) MIN (WY)	1158 3197 1950 412 1974	1074 3596 1960 352 1953	1725 9214 1934 331 1953	1620 7166 1934 337 1979	1848 8547 1996 463 1944	2127 8355 1972 541 1977	3225 8831 1972 1370 2001	3979 8215 1997 1493 2001	3882 9077 1948 1556 1941	3278 4485 1985 2075 1941	3330 4221 1978 1521 1979	2113 3235 1950 1053 1994
SUMMARY	Y STATIST	CICS	FOR	2001 CALE	NDAR YEAR	:	FOR 2002 W	ATER YEAR	!	WATER YEA	ARS 1934 -	2002
ANNUAL TOTAL ANNUAL MEAN HIGHEST ANNUAL MEAN LOWEST ANNUAL MEAN HIGHEST DAILY MEAN LOWEST DAILY MEAN ANNUAL SEVEN-DAY MINIMUM ANNUAL RUNOFF (AC-FT) 10 PERCENT EXCEEDS 50 PERCENT EXCEEDS 90 PERCENT EXCEEDS			533850 1463 3110 536 552 1059000 2860 1200 719	Aug 18 Oct 5 Sep 30		842591 2308 7130 536 559 1671000 4260 1730 829	Apr 15 Oct 5 Oct 1		2450 4204 1335 29600 151 217 1775000 4380 2170 640	Dec 23 Apr 16 Dec 31	1944	

414 YAKIMA RIVER BASIN

12488500 AMERICAN RIVER NEAR NILE, WA

LOCATION.--Lat $46^{\circ}58^{\circ}40^{\circ}$, long 121 $^{\circ}10^{\circ}03^{\circ}$, in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.12, T.17 N., R.13 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, on right bank 300 ft upstream from Bumping Lake Road bridge, 4.9 mi downstream from Hall Creek, 16.0 mi northwest of Nile, and at mile 0.5.

DRAINAGE AREA. -- 78.9 mi².

PERIOD OF RECORD.--April 1909 to March 1912, July to September 1913, June to September 1914, June to September 1915, October 1939 to current year. Monthly discharge only for period 1909 to 1915, published in WSP 1316.

REVISED RECORDS.--WSP 982: 1940-42. WSP 1216: Drainage area. WSP 1286: 1911.

GAGE.--Water-stage recorder. Datum of gage is 2,700.00 ft above NGVD of 1929 (Washington State Highway Department benchmark). Prior to Sept. 12, 1915, nonrecording gage at site 300 ft downstream at different datum. Oct. 12 to Dec. 7, 1939, nonrecording gage at present site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,230 ft³/s Dec. 26, 1980, gage height, 77.99 ft; minimum discharge, 20 ft³/s Nov. 22, 1940, Jan. 7, 1993, but may have been lower during period of ice effect that day.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,680 ${
m ft}^3/{
m s}$ Jan 8, gage height, 75.39 ft, but may have been higher during period of missing record that day; minimum discharge, 30 ${
m ft}^3/{
m s}$ Oct. 6, 7.

		DISCHARGE	, CUBIC	FEET PER			YEAR OCTOBER VALUES	2001 TO	SEPTEMBE	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	78	147	104	121	185	137 151 154 170 193	431	1050	556	131	72
2	32	74	137	103	117	175	151	560	981	491	126	72
3	31	73	131	98	114	169	154	594	e960	453	123	71
4	31	66	127	95	110	164	170	545	e1000	431	119	70
5	31	65	123	95	108	160			e970	396	120	70
6 7	31 31	62 58	120 113	111 782 e1560 1170 788	107	157 151 144 139 138	207 227 231 243 270	445	1020 878	378 406 528 426 396	120 115	72 78
8	31	55	109	e1560	107	144	. 227	357	721	528	111	74
9	31	52	105	1170	99	139	243	333	606	426	109	70
10	31	50	102	788	97	138	207 227 231 243 270	312			106	68
11	35	48	100	e600 e560 e460 e360 e300	95	165 187 169 159	301 343 495 1220 1130	303	697 808	424 428 408 382 332	104	66
12	36	52	97	e560	89	187	343	318	808	428	101	64
13	35	72	134	e460	92	169	495	370	940	408	99	64
14 15	35 34	584 633	191	e360	91	159	1220	399	1080 1150	382	97 95	64 62
16 17	34 34	441 305	199 322	259 235 218 208 197	88 87	147 140	830	423	1110 949	297 282	93 91	61 62
18	33	237	260	233	87	135	500	533	854	270	90	61
19	33	255	224	208	89	133	432	551	743	255	88	59
20	33	343	201	197	86	147 140 135 133 130	830 626 500 432 394	667	743 683	234	87	57
21	33	319	180 165 153 143 135	187 176 166 161 161	111	124	379 369 349 330 323	739	712	213	87	56
22	36	292	165	176	260	120	369	697	790	213 201 194 185 178	85	56
23	45	263	153	166	297	117	349	641	848	194	84	55
24 25	42	228	143	161	265	115	330	638	780	185	82 81	54
	41											53
26 27	41	183	129	152	221	118	325 330 319 319 345	761	787 845 785 978 766	172 164 154 147 143 137	79 78	52 51
28	42	167 157	124	144	208 109	117	330	1010	705	164	78 76	51
29	41	160	115	126	190	118	319	1310	978	147	75	51
30	42 42 41 45	154	111	130		119	345	1370	766	143	74	50
31	86		108	152 144 135 126 130 126		127	325 330 319 319 345	1210		137	73	
TOTAL	1148	5731 191 633 48 11370	4586	9967	3772	4407	11642	18820	25813	9661	2999	1866
MEAN	37.0	191	148	322	135	142	11642	607	860	9661 312	96.7	62.2
MAX	86 31	633	322	1560	297	187	1220	13/0	1120	556	131	78 50
MIN	31	48	97	95	86	115	137	303	596	137	73	
AC-FT CFSM	2280 0.47	2.42	1.87	4.07	1.71	8740 1.80	23090	37330 7.69	51200 10.9	19160 3.95	5950 1.23	3700 0.79
IN.	0.54		2.16	4.70	1.78	2.08	5.49	8.87	12.17	4.55	1.41	0.73
QTATT QT	PTCS OF MO	ME'AN V.TH'T'MC	חם מידעם	D MYTTD V		- 200	2, BY WATER Y	TEAR (WV)				
MEAN MAX	70.4 248	132	168 532	138 464	155 718	156 501		632 1172	635 1312	284 852	93.4 343	58.0 104
(WY)	1948	1996	1976	1974	1996	1972		1956	1974	1999	1999	1997
MIN	28.4	30.3	33.2	31.2	37.7	46.6		203	189	67.8	41.1	34.5
(WY)	1988		1953	1979	1985	1977		1977	1992	1977	1941	1987
SUMMARY	STATIST:		FOR 2	001 CALEN	DAR YEAR		FOR 2002 WAT	TER YEAR		WATER YEARS	1940 -	2002
ANNUAL				46103			100412					
ANNUAL				126			275			235		
HIGHEST	ANNUAL 1	MEAN								379 94.2		1974
TOMESI	ANNUAL MI	SAIN ZAN		707	Marr 24		1560	.Tan 0		2070	Dog 26	19//
LOWEST	DATLY ME	7M		31	Sen 25		31	Oct 3		20	Jan 7	1993
ANNUAL	SEVEN-DAY	MINIMUM		31	Oct 3		1560 31 31 199200	Oct 3		24	Nov 23	1993
ANNUAL	RUNOFF (AC-FT)		91450			199200			170300		
ANNUAL	RUNOFF (CFSM)		1.60			3.49 47.34			2.90		
ANNUAL	KUNOFF (INCHES)		21.74						40.47		
TO PERC	LENT EXCE	בעב פתק		303 71			741 151			589 122		
90 PERC	CENT EXCE	EAN EAN W M MINIMUM AC-FT) CFSM) CNCHES) EDS EDS EDS		35			52			46		
50 12110							52					

e Estimated

yakima river basin 415

12500450 YAKIMA RIVER ABOVE AHTANUM CREEK, AT UNION GAP, WA

LOCATION.--Lat $46^{\circ}32^{\circ}04^{\circ}$, long $120^{\circ}27^{\circ}58^{\circ}$, in NW $\frac{1}{4}$ Sec.17, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, on left bank 2,200 ft upstream from Ahtanum Creek, 0.8 mi upstream from Wapato Dam, 1.4 mi southeast of Union Gap, and at about mile 107.3.

DRAINAGE AREA. -- 3,479 mi².

PERIOD OF RECORD. -- October 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 900.00 ft above NGVD of 1929; gage readings have been reduced to elevations above NGVD of 1929. Prior to Apr. 4, 1967, at site 1,200 ft downstream at same datum.

REMARKS.--Records fair. Diversions upstream from station for irrigation of about 212,000 acres. Flow partly regulated by Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes. Records at this site plus those for Ahtanum Creek at Union Gap (station 12502500) are equivalent to discontinued station 12503000, Yakima River at Union Gap. Chemical analyses, water years 1969, 1971, March 1975 to September 1993. Water temperature, March 1981 to December 1981.

AVERAGE DISCHARGE.--36 years (water years 1967-2002), 3,617 ft³/s, 2,621,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $53,300~{\rm ft}^3/{\rm s}$ Feb. 9, 1996, elevation, $953.88~{\rm ft}$, from high-water mark, from rating curve extended above $18,000~{\rm ft}^3/{\rm s}$ on basis of discharge information provided by the Bureau of Reclamation for their station on the Yakima River near Parker; minimum daily discharge, $300~{\rm ft}^3/{\rm s}$ Jan. 1, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,900 ft³/s April 15, elevation, 945.73 ft; minimum discharge, 888 ft³/s Oct. 21, 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		DISCHA	RGE, CUE	OIC PEEL PI	DAIL	MAIER I MEAN V		ER 2001 10) SEPIEME	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1840	1140	1380	1220	2010	2850	2930	5070	e11800	8200	3900	3380
2	1870	1260	1410	1220	1970	2680	3280	6400	e11800	6040	3810	3490
3	1850	1270	1380	1220	1910	2540	3270	6850	e11600	4240	3800	3270
4	1840	1250	1300	1190	1870	2490	3090	6220	e11200	3880	3810	3080
5	1850	1220	1250	1170	1830	2450	3300	5540	10900	4400	3820	2970
6	1810	1190	1240	1180	1820	2470	3630	4850	11100	4110	3790	2970
7	1800	1160	1240	1590	1830	2430	4040	4210	10700	3960	3730	2960
8	1860	1140	1240	5790	1900	2300	4180	3690	9940	4220	3610	2870
9	1880	1110	1210	7310	1850	2240	4110	3490	9190	4150	3530	2830
10	1850	1090	1190	5920	1790	2210	4280	3430	8360	4000	3680	2750
11	1830	1070	1180	5080	1750	2220	4620	3290	7760	3930	3680	2620
12	1850	1040	1160	4550	1710	2830	5060	3440	7360	3890	3630	2580
13	1830	1030	1160	4290	1660	3070	5870	4030	7570	3910	3460	2620
14	1820	1110	1610	4000	1650	2860	11500	4650	9130	4000	3490	2640
15	1790	2790	1880	3630	1640	2690	13800	4740	11300	3960	3470	2720
16	1770	2720	1690	3350	1630	2590	9240	4630	12100	3810	3520	2770
17	1420	2260	1950	3180	1620	2460	6970	4550	11600	3810	3560	2770
18	1100	1900	2310	2860	1620	2200	5520	4920	9650	3980	3600	2680
19	989	1710	2040	2670	1630	2010	4770	5230	8520	4000	3670	2660
20	926	1730	1880	2560	1650	2070	4390	6160	7560	3990	3720	2640
21	893	1760	1720	2550	1680	2140	4380	7240	6810	3890	3680	2620
22	913	1770	1600	2430	2180	2030	4350	6890	6830	3940	3660	2630
23	984	1770	1510	2340	4090	2000	4120	6340	7220	3810	3530	2620
24	1050	1760	1460	2320	4700	2020	3770	6010	7740	4020	3390	2590
25	1140	1650	1410	2470	4270	2130	3420	6220	7880	3970	3380	2610
26	1140	1550	1360	2660	3750	2270	3460	6660	7420	3870	3360	2640
27	1100	1460	1330	2470	3360	2410	4010	7350	7720	3920	3320	2670
28	1050	1470	1300	2330	3100	2370	4140	8090	8200	3920	3380	2600
29	1040	1430	1280	2200		2390	4080	9580	8150	3930	3350	2610
30	1050	1370	1260	2130		2480	4320	10800	8800	3840	3350	2620
31	1050		1230	2060		2620		e11200		3870	3430	
TOTAL	45185	45180	45160	89940	62470	74520	147900	181770	275910	129460	111110	83480
MEAN	1458	1506	1457	2901	2231	2404	4930	5864	9197	4176	3584	2783
MAX	1880	2790	2310	7310	4700	3070	13800	11200	12100	8200	3900	3490
MIN	893	1030	1160	1170	1620	2000	2930	3290	6810	3810	3320	2580
AC-FT	89620	89610	89570	178400	123900	147800	293400	360500	547300	256800	220400	165600
STATIST	rics of M	ONTHLY ME	AN DATA	FOR WATER	YEARS 1967	7 - 2002	, BY WATE	R YEAR (WY	<u>(</u>)			
MEAN	1710	1915	2892	2928	3540	3895	4720	6114	5888	3792	3349	2683
MAX	2574	5354	11200	7490	14290	14340	12780	15160	13410	6878	4123	3355
(WY)	1998	1991	1976	1976	1996	1972	1972	1997	1974	1974	1974	1974
MIN	896	710	882	540	889	752	1608	2475	2480	2650	2351	1411
(WY)	1980	1988	1994	1979	1977	1977	1977	1977	2001	2001	1979	1979
SUMMARY	Y STATIST	'ICS	FOR	2001 CAL	ENDAR YEAR		FOR 2002 I	WATER YEAR	2	WATER YE	ARS 1967	- 2002
ANNUAL	TOTAL			683224			1292085					
ANNUAL	MEAN			1872			3540			3617		
	r annual									6622		1972
	ANNUAL M							_		1884		2001
HIGHEST	r daily M	IEAN		3820	May 25		13800	Apr 15 Oct 21)	44000		9 1996
LOWEST	DAILY ME	AN		893	Oct 21		893			300		1 1979
ANNUAL	SEVEN-DA	yc em) y mtntmnw		979	Oct 18		979 2563000	Oct 18	5	387 2621000	Dec 3	1 1978
10 DED	CENT EXCE	AN Y MINIMUM AC-FT) EDS		2740			7330			6910		
	CENT EXCE			1770			2830			3000		
	CENT EXCE			1050			1230			1250		
20 L DICC				2000						1230		

e Estimated

416 YAKIMA RIVER BASIN

12502500 AHTANUM CREEK AT UNION GAP, WA

LOCATION.--Lat $46^{\circ}32^{\circ}08^{\circ}$, long $120^{\circ}28^{\circ}20^{\circ}$, in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.8, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, on right downstream wingwall of Union Pacific Railway bridge at Union Gap, 1.0 mi south of town of Union Gap, and at mile 0.6.

DRAINAGE AREA. -- 173 mi².

PERIOD OF RECORD.--May to November 1904, August 1907 to July 1908, March to October 1910, April 1911 to September 1914, May 1951 to April 1953, August 1960 to current year. Published as "near Yakima" 1904, 1907-08, 1910-12. Records for water years 1913-14 are published in WSP 1286.

REVISED RECORDS .-- WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 940 ft above NGVD of 1929, from topographic map. Prior to Sept. 30, 1914, nonrecording gage at approximately same site at various datums. May 12, 1951, to Sept. 30, 1972, water-stage recorder at present site at datum 3.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. Extreme high flows may include transbasin flow from Wide Hollow Creek.

Diversions and ground-water withdrawals for irrigation of about 9,000 acres upstream from station. Return from transbasin irrigation flows contribute to base flow. Chemical data (irrigation seasons only) for 1975-76 water years. Water temperature records March to December 1981. Bureau of Reclamation satellite telemeter at station.

AVERAGE DISCHARGE.--42 years (water years 1961-2002), 78.1 ft³/s, 56,610 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,100 ft^3/s Jan. 16, 1974, gage height, 10.36 ft; maximum gage height, 13.5 ft, from high-water mark, backwater from Yakima River; no flow many days during September and October 1904.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 380 ft³/s Apr. 15, gage height, 5.78 ft; minimum discharge, 9.2 ft³/s Oct. 1, 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.8	22	36	25	35	75	82	100	227	46	18	27
2	10	23	41	27	32	71	88	112	209	35	20	28
3	10	23	35	25	30	72	82	134	208	28	23	28
4	11	24	29	24	28	73	80	139	201	26	28	28
5	14	22	27	26	32	73	79	132	206	23	28	29
6 7	13 14	22 24	26 26	28 35	32 35	71 68	87 104	121 105	215 187	21 18	27 28	29 29
8	13	25	25	151	39	60	108	91	171	18	24	30
9	13	25	24	151	35	66	112	86	164	18	21	29
10	16	24	23	89	34	62	111	82	153	23	23	27
11	16	25	22	73	34	59	108	76	145	15	21	26
12	15	26	22	69	31	73	114	75	135	16	19	24
13	15	26	22	67	30	73	120	74	130	18	19	19
14 15	15 15	26 27	28 24	65 57	33 33	74 83	250 346	76 80	136 138	16 16	16 18	20 24
16	16	26	20	51	32	78	267	78	141	16	19	26
17	16	25	22	50	34	76	211	83	129	17	19	29
18	15	26	24	43	34	71	163	96	120	16	21	32
19	15	31	21	48	35	72	140	103	107	15	26	31
20	15	34	20	46	38	68	123	131	87	31	25	29
21	16	34	22	43	37	68	118	163	81	41	26	29
22	16	34	20	40	53	67	112	162	73	37	28	31
23	16	30	18	43	95	67	105	154	71	17	28	31
24 25	17 17	29 29	20 21	38 39	117 106	64 66	92 91	149 153	68 56	14 13	27 26	29 26
26	17	29	24	38	95	67	89	169	50	12	25	26
27 28	17 17	27 32	25 25	34 34	89 84	69 68	103 103	187 212	46 46	11 12	30 30	30 32
28 29	17	32	25 25	34 29	84	68 69	96	212	58	13	27	32
30	18	30	26	31		69	103	258	53	16	26	34
31	19		26	34		74		244		12	27	
TOTAL	463.8	811	769	1553	1342	2166	3787	4066	3811	630	743	843
MEAN	15.0	27.0	24.8	50.1	47.9	69.9	126	131	127	20.3	24.0	28.1
MAX	19	34	41	151	117	83	346	258	227	46	30	34
MIN	9.8	22	18	24	28	59	79	74	46	11	16	19
AC-FT	920	1610	1530	3080	2660	4300	7510	8060	7560	1250	1470	1670
STATIST	rics of M	ONTHLY MEA	N DATA F	OR WATER Y	EARS 1961	- 2002,	BY WATER	YEAR (WY)				
MEAN	20.8	29.5	51.7	75.0	122	136	135	164	139	33.9	15.7	20.1
MAX	34.4	96.7	210	413	564	408	270	383	438	124	26.7	31.8
(WY)	1983	1963	1978	1974	1996	1972	1974	1995	1972	1974	1999	1978
MIN	9.30	8.99	8.64	10.3	15.7	21.5	16.5	22.8	12.2	8.31	7.33	9.34
(WY)	1978	1995	1989	1993	1994	1994	1977	1977	1992	1994	1977	1981
SUMMARY	Y STATIST	ICS	FOR	2001 CALEN	DAR YEAR	F	OR 2002 WA	TER YEAR		WATER YEARS	1961 -	2002
ANNUAL	TOTAL			8211.0			20984.8					
ANNUAL				22.5			57.5			78.1		
	r annual i									171		1974
	ANNUAL MI						2.5	3		20.2	T	1994
	DAILY ME			50	Apr 28		346 9.8	Apr 15 Oct 1		2560	Jan 16	
	DAILY MEZ	AN Y MINIMUM		7.1 7.5	Aug 14 Aug 12		9.8 12	Oct 1 Oct 1		3.5 5.1	Aug 7 Aug 6	
	RUNOFF (16290	Aug 12		41620	OCC 1		56610	Aug 6	10/0
	CENT EXCE			34			133			199		
	CENT EXCE			22			32			35		
90 PERC	CENT EXCE	EDS		12			16			12		

YAKIMA RIVER BASIN 417

12505450 GRANGER DRAIN AT GRANGER, WA

LOCATION.--Lat $46^{\circ}20^{\circ}37^{\circ}$, long $120^{\circ}11^{\circ}09^{\circ}$, in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.22, T.10 N., R.21 E., Yakima County, Hydrologic Unit 17030003, on right bank, 330 ft upstream from E Street, at Granger, WA.

DRAINAGE AREA. -- Not determined.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1975 to September 1976, August to September 1981 (discharge measurements only), May to September 1991, August 1999 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 720 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. Most flow is return and waste from irrigation.

COOPERATION.--Gage-height records and nineteen discharge measuements were provided by Sunnyside Valley Irrigation District.

AVERAGE DISCHARGE.--3 years (water years 2000-2002), 34.1 ft³/s, 24,730 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 175 ${\rm ft}^3/{\rm s}$ June 20, 1991, gage height, 4.62 ft; minimum discharge, 15 ${\rm ft}^3/{\rm s}$ part or all of each day Mar. 26-29, 2002.

 $\hbox{\it EXTREMES FOR CURRENT YEAR.--Maximum discharge, 73 ft}^3/s \hbox{\it Sept. 3; minimum discharge, 15 ft}^3/s \hbox{\it part or all of each day Mar. 26-29.}$

									-			-
		DISCHARG	GE, CUBIC	C FEET PER		VATER YE MEAN VA	AR OCTOBER	2001 TO	SEPTEME	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	19	22	20	18	19	16	44	47	58	49	63
2	29	19	22	23	17	19	17	49	46	54	49	64
3	27	19	23	22	17	19	18	43	48	54	51	66
4	29	19	21	21	16	19	19	43	45	54	56	63
5	30	20	21	22	17	19	25	45	46	53	55	58
6	31	20	24	22	e17	20	27	43	47	50	50	55
7	33	19	21	22	e17	19	23	42	48	50	51	55
8	35	19	20	23	e18	19	26	43	50	51	50	58
9	33	19	20	22	18	19	31	44	57	46	50	59
10	38	19	21	22	18	19	36	44	51	48	48	53
11	36	19	21	21	18	19	42	43	48	48	53	54
12	35	19	20	20	19	19	39	45	43	48	50	53
13	31	19	21	19	20	19	41	44	43	48	48	55
14	31	19	20	19	19	19	45	44	43	52	50	57
15	31	20	20	19	18	18	41	42	42	54	49	61
16	32	21	20	19	18	18	35	42	45	49	47	61
17	33	21	20	19	19	17	34	44	48	47	50	61
18	23	20	21	19	19	18	30	46	51	47	55	58
19	19	21	22	20	19	17	33	50	51	48	55	56
20	17	21	20	23	18	17	38	54	48	52	52	57
21	18	22	20	23	18	16	40	50	45	53	53	56
22	25	22	23	20	18	17	37	50	45	50	55	58
23	21	20	20	20	19	17	32	48	45	47	56	59
24	19	21	20	21	19	17	29	47	44	47	58	55
25	19	20	20	20	18	16	36	46	43	48	63	54
26	21	19	20	18	19	16	41	50	43	48	61	55
27	21	19	20	17	20	15	45	49	45	46	53	59
28	20	20	20	16	20	16	44	50	47	50	55	60
29	19	21	20	16		16	44	50	58	54	56	61
30	20	20	21	17		16	44	47	61	50	55	60
31	20		20	17		16		46		48	56	
TOTAL	821	596	644	622	511	550	1008	1427	1423	1552	1639	1744
MEAN	26.5	19.9	20.8	20.1	18.2	17.7	33.6	46.0	47.4	50.1	52.9	58.1
MAX	38	22	24	23	20	20	45	54	61	58	63	66
MIN	17	19	20	16	16	15	16	42	42	46	47	53
AC-FT	1630	1180	1280	1230	1010	1090	2000	2830	2820	3080	3250	3460
STATIST	ICS OF MC	NTHLY MEAN	I DATA FO	OR WATER Y	EARS 2000	- 2002,	BY WATER	YEAR (WY)				
MEAN	40.9	22.7	21.5	21.5	21.3	20.6	31.9	41.5	44.5	45.9	48.1	48.4
MAX	49.9	24.2	22.1	23.0	24.5	23.8	36.0	46.2	55.1	58.7	59.2	61.4
(WY)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
MIN	26.5	19.9	20.8	20.1	18.2	17.7	26.0	32.3	30.9	28.8	32.2	25.8
(WY)	2002	2002	2002	2002	2002	2002	2001	2001	2001	2001	2001	2001
SUMMARY	STATISTI	CS	FOR 2	2001 CALEN	DAR YEAR	F	OR 2002 WA	TER YEAR		WATER YEARS	3 2000 -	2002
ANNUAL '	ΤΟΤΔΤ.			9313			12537					
ANNUAL I				25.5			34.3			34.1		
	ANNUAL M	IEAN		25.5			31.3			40.4		2000
	ANNUAL ME									27.6		2001
	DAILY ME			40	Jun 4		66	Sep 3		66	Sep 4	
LOWEST 1	DAILY MEA	N		17	Oct 20		15	Mar 27		15	Mar 27	
		MINIMUM		18	Sep 20		16	Mar 25		16	Mar 25	2002
	RUNOFF (A			18470			24870			24730		
	ENT EXCEE			35			55			58		
	ENT EXCEE			23			31			27		
90 PERC	ENT EXCEE	.DS		19			18			19		

e Estimated

(National Water-Quality Assessment Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1990 to September 1991, August 1999 to June 2000, November 2000 to current year.

PERIOD OF DAILY RECORD. --

SPECIFIC CONDUCTANCE: August 1999 to June 2000, October 2001 to September 2002. WATER TEMPERATURE: August 1999 to June 2000, October 2001 to September 2002.

REMARKS.--Specific conductance records excellent except those for Oct. 10 to Jan. 8, Apr. 16-17, and June 4-28, which are good. Water temperature records excellent. Interruptions in the record were caused by instrument malfunction.

EXTREMES FOR PERIOD OF RECORD.--SPECIFIC CONDUCTANCE: Maximum, 883 microsiemens Nov. 29, 2001; minimum, 268 microsiemens July 1, 2002. WATER TEMPERATURE: Maximum, 24.7°C July 13, 2002; minimum 7.2°C Jan. 29, 2002.

EXTREMES FOR CURRENT YEAR. --

SPECIFIC CONDUCTANCE: Maximum recorded, 883 microsiemens Nov. 29; minimum, 263 microsiemens July 1. WATER TEMPERATURE: Maximum, 24.7°C July 13; minimum, 7.2°C Jan. 29.

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN									
		OCTOBER	-	No	OVEMBER		DE	ECEMBER			JANUARY	7
1				624	620	622	717	684	698	672	666	670
2				649	618	625	753	643	680	801	663	712
3				623	615	618	815	661	704	708	688	693
4				621	617	619	677	666	670	690	681	685
5	504	460	476	622	617	620	670	659	665	712	673	686
6	479	446	462	624	619	621	701	663	684	715	687	698
7	480	442	455	622	616	619	701	672	683	734	696	707
8	451	436	444	623	617	620	674	671	673	749	695	719
9	455	432	446	625	619	622	674	661	666	730	695	703
10	441	417	428	624	620	622	670	660	664	703	684	692
11	442	429	437	625	621	623	671	663	667	700	694	696
12	447	423	435				684	661	669	701	694	698
13	450	433	442				684	677	680	702	691	695
14	442	426	435				682	667	674	733	691	700
15	439	419	432	631	625	628	668	663	666	707	684	692
16	447	425	435				787	667	750	705	692	697
17	462	415	433				799	659	742	700	693	696
18	518	462	492				684	656	668	697	689	692
19	565	514	543				682	676	678	696	692	694
20	588	552	573				682	675	678	699	689	693
21	586	570	581				712	678	682	708	688	695
22	719	459	558	701	671	688	730	680	705	710	684	696
23	571	513	549	671	650	658	695	684	687	709	700	704
24	587	571	580	654	649	651	684	675	680	705	699	702
25	612	587	598	653	645	649	676	671	673	707	700	702
26	615	565	576	648	642	644	676	671	673	704	695	698
27	577	568	571	646	639	642	676	671	673	700	692	695
28	577	570	572	652	629	641	675	671	673	695	688	691
29	608	577	599	883	652	677	673	671	672	696	685	690
30	658	607	629	805	668	689	674	669	671	693	686	690
31	655	624	637				673	670	671	692	685	688
MONTH	719	415	512	883	615	638	815	643	681	801	663	696

(National Water-Quality Assessment Station) -- Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1 2 3 4	691 692 686 683	682 680 680 674 677	687 684 682 678	708 707 703 702 698	694 692 689 678	701 700 696 694	640 640 571 562 517	573 530 526 517	589 571 548 540	384 370 360 359	327 311 321 327	341 335 341 341
5 6 7 8		677 676 665 683 682 684		698 697 696 694 692 692			517 470 477 509 477 437		471 446 462 461	379 364 364 381 373	316 318 334 336	331 340 351 347
9 10			692 687	692 692	676 671							352 347
11 12 13 14 15	687 688 704 685 681	678 678 685 675 674	683 683 691 680 678	685 682 676 671 670	670 664 657 655 653	678 674 668 663 661	397 407 390 370 387	361 378 358 330 339	379 391 373 346 362	371 360 361 381 387	329 328 335 326 346	351 340 347 350 363
16 17 18 19 20		678 678 678 542 690	680 682 683 689 695	668 666 687 689 688	649 649 652 672 673	659 658 669 681 680	409 414 425 398 396	362 371 378 368 366	385 390 400 383 375	384 372 363 362 399	346 327 335 326 335	364 344 344 334 352
21 22 23 24 25	701 700 736 716 702	690 693 688 696 694	694 697 711 702 699	700 728 681 668 673	661 665 663 653 643	681 679 669 660 655	380 545 452 430 391	358 360 350 378 364		351 342 368 374 380		340 333 344 354 359
26 27 28 29 30 31	703 703 709 	694 691 683 	699 697 700 	659 656 659 635 605 601	626 639 617 592 573 570	642 647 633 614 589 582	375 355 362 425 365	337 335 339 342 329	359 345 347 373 348	355 370 355 358 397 380	335 331 334 324 332 338	342 349 342 338 360 356
MONTH	736	542	689	728	570	666	640	329	415	399	311	346
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY		JUNE			JULY			AUGUST			SEPTEMBE	IR.
DAY 1 2 3 4 5	372 359 390 377 361	JUNE 334 316 307 328 324	349 337 339 352 341	314 325 325 328 345	JULY 268 287 292 287 293	289 307 309 309 317	349 347 341 327 369	314 314 312 300 297	334 334 323 306 325	353 335 337 343 349	319 311 308 305 318	IR.
1 2 3 4 5 6 7 8 9	372 359 390 377 361 350 352 341 318 363	JUNE 334 316 307 328 324	349 337 339 352 341 334 332 320 304 333	314 325 325 328 345 345 350 371 374 370	JULY 268 287 292 287 293 308 319 290 331 317	289 307 309 317 328 334 331 356 347	349 347 341 327 369 367 376 370 370	314 314 312 300 297 329 328 336 334 339	334 334 323 306 325		319 311 308 305 318	IR.
1 2 3 4 5 6 7 8 9 10	372 359 390 377 361 350 352 341 318 363	JUNE 334 316 307 328 324 316 314 303 288 309 312 334	349 337 339 352 341 334 332 320 304 333	314 325 325 328 345 343 350 371 374 370	JULY 268 287 292 287 293 308 319 290 331 317	289 307 309 309 317 328 334 331 356 347	349 347 341 327 369	314 314 312 300 297 329 328 336 334 339	334 334 323 306 325 347 352 351 354 358	353 335 337 343 349	319 311 308 305 318	328 323 324 323 335 352 348 332 337
1 2 3 4 5 6 7 8 9 10 11 12 13 14	372 359 390 377 361 350 352 341 318 363 372 376 364 363	JUNE 334 316 307 328 324 316 314 303 288 309 312 334 321 320	349 337 339 352 341 334 332 320 304 333 339 356 343 340	314 325 328 345 343 350 371 374 370 383 372 373 345	JULY 268 287 292 287 293 308 319 290 331 317 324 317 321 309	289 307 309 309 317 328 334 331 356 347 352 350 351 321	349 347 341 327 369 367 370 370 370 376 360 365 361 359	314 314 312 300 297 329 328 336 334 339 320 318 329 320	334 334 323 306 325 347 352 351 354 358 327 338 349 341	353 335 337 343 349 377 367 349 362 365	319 311 308 305 318 326 334 325 322 336 333	328 323 324 323 335 352 348 332 337 351 350
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	372 359 390 377 361 350 352 341 318 363 372 376 364 363 352 378 311 302 308	JUNE 334 316 307 328 324 316 314 303 288 309 312 334 321 320 324 307 291 285 282	349 337 339 352 341 334 332 320 304 333 340 338 319 302 291 294	314 325 328 345 343 350 371 374 370 383 372 373 345 319 341 341 350 351	JULY 268 287 292 287 293 308 319 290 331 317 324 317 324 317 329 284 310 295 312 301	289 307 309 309 317 328 334 331 356 347 352 350 351 321 305	349 347 341 327 369 367 376 370 376 360 365 361 359 361 367 349 330 336	314 314 312 300 297 329 328 336 334 339 320 318 320 314 320 316 300 314	334 334 323 306 325 347 352 351 354 358 327 338 349 341 338 344 331 331 332	353 335 337 343 349 377 367 362 365 364 379	319 311 308 305 318 326 334 325 322 336 333 3339	328 323 324 323 335 352 348 332 337 351 350 360
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	372 359 390 377 361 350 352 341 318 363 372 376 364 363 352 338 311 308 325 348 348 348 348 348	JUNE 334 316 307 328 324 316 314 303 288 309 312 334 321 320 324 307 291 285 282 295 300 287 302 292	349 337 339 352 341 334 332 320 304 333 340 338 319 302 291 294 308	314 325 328 345 343 350 371 374 370 383 372 373 345 319 341 350 351 306	JULY 268 287 292 287 293 308 319 290 331 317 324 317 324 317 329 284 310 295 311 296 288 289 311 316	289 307 309 309 317 328 334 331 356 347 352 350 351 321 305 323 330 321 300 298 306 323 323 327	349 347 341 327 369 367 376 370 376 360 365 361 359 361 367 349 330 336 346	314 314 312 310 297 329 328 336 334 339 320 314 320 314 320 314 319 321 321 321 328	334 334 323 306 325 347 352 351 354 358 327 338 349 341 338 344 331 316 323 332 337 331 332	353 335 337 343 349 377 367 362 365 364 379 371 368 364 364 372 372	319 311 308 305 318 326 334 325 322 336 333 339 340 338 339 334 357	328 323 324 323 335 352 348 332 337 351 350 360 356 355 351 349 369
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	372 359 390 377 361 352 341 318 363 372 376 364 363 352 338 311 302 325 348 348 333 347 345 346 346 346 346 346 352 390	JUNE 334 316 307 328 324 316 314 303 288 309 312 334 321 320 324 307 291 285 282 295 300 287 302 292 301 310 302 303 286 270	349 337 339 352 341 334 332 320 304 333 340 338 319 302 291 308 324 320 317 320 327	314 325 328 345 343 350 371 374 370 383 372 373 345 319 341 350 351 306 308 335 336 342 377	JULY 268 287 292 287 293 308 319 290 331 317 324 317 321 309 284 310 295 312 301 296 288 289 311 316 313 305 318 294 283 308	289 307 309 309 317 328 334 331 356 347 352 350 351 321 305 323 330 321 300 298 306 323 327 330 331 321 300	349 347 341 327 369 367 370 370 376 360 365 361 359 361 367 349 330 336 346 360 339 356 352 328	314 314 312 300 297 329 328 336 334 339 320 314 320 314 320 314 320 314 321 321 321 328 319 321 328 319	334 334 334 323 306 325 347 352 351 354 358 327 338 341 338 341 331 332 337 331 342 339 324 337 336 357 357 357 357 357 357 357 357 357 357	353 335 349 377 367 349 362 365 364 379 371 368 364 372 383 378 384 365 364 378	319 311 308 305 318 326 334 325 322 336 333 339 340 338 339 3340 338 339 3340 338 339 331 335 339	328 323 324 323 335 352 348 332 337 351 350 360 356 355 351 349 369 362 367 355 351 344 344

(National Water-Quality Assessment Station) -- Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAV	M2 37			WAIER (DEC							MIN	MUZZZ
DAY	MAX	MIN	MEAN	MAX			MAX			MAX		MEAN
		OCTOBER		1			D				JANUARY	
1 2				13.7 13.9 13.6 12.8 13.2	12.1 12.0	12.8 12.8	11.6 10.5	10.3 9.2	10.8 9.9 9.7 10.0 10.2	10.6 10.3	9.8 9.4 10.1 10.1	10.2 9.9
3 4				13.6 12.8	11.4 11.5	12.3 12.2	10.4 10.6	8.6 9.3	9.7 10.0	11.0 10.6	10.1 10.1	10.5 10.4
5	15.0	11.7	13.3	13.2	11.3	12.5	10.4	9.7	10.2	10.9	9.9	10.4
6	14.8	11.8	13.2	12.3	10.6	11.2	10.2	9.0	9.6	10.7	10.2 10.5	10.4
7 8	13.5 14.1	11.7 11.8	12.7 12.8 12.5	11.5 11.4	9.5	10.4	10.9	8.8 9.9	10.3	11.7	10.5	$\frac{11.0}{11.1}$
9 10	14.1 12.7	11.2 10.9	12.5 11.8	11.4 11.3	9.3 9.5	10.2 10.3	10.2 10.9 11.0 10.3 10.4	9.0 9.2	9.6 9.7 10.3 9.6 9.9	10.6 10.6	10.1 9.2 9.6	9.9 10.1
	13.8			11 3	9.8	10 5					10 3	
12	14.2	11.7	12.4 12.8 12.9 13.4	11.3 13.2			10.5	9.9	10.1	11.3 10.6 10.6 10.3	9.4	10.0
14	14.2 15.0	11.6 12.5	13.4				10.8	8.9	9.4	10.6	8.8	9.6
	14.0	11.1										
16 17	14.1 13.0	11.8 10.5	12.8 11.7 12.0 12.8				11.7 11.3 9.8 9.7 10.3	10.3 9.1	11.0 9.9	9.9 9.9	8.0 8.5	8.9 9.1 8.9 9.4 9.4
18	13.4 14.5	10.7 11.7	12.0				9.8	9.1	9.4	9.9	8.0	8.9
20	13.8	10.9	12.3				10.3	9.2	9.8	10.1	9.0	9.4
21	13.4 13.2	11.8	12.5				10.6	9.8	10.2	10.2	8.5	9.4 9.4 8.7 9.0 10
	13.2 12.1	11.6 10.7	12.4 11.3	12.8 11.5	11.3 10.4	11.9 11.0	10.0 11.2	9.5 9.4	9.8 10.3	9.7 9.9	8.1 8.2	8.7 9.0
24 25	12.8 13.9	10.4 11.5	12.5 12.4 11.3 11.5 12.5	11.2 12.0	10.1	10.6 11.2	10.6 10.0 11.2 9.9 9.8	9.0 8.5	9.5 9.1	10.8 11.3	8.5 8.1 8.2 9.2 9.4	10 10.3
			12.4		9.3	9 9	10 4					
27	13.6 12.9	11.8	12.4	10.5	8.8	9.6	10.4 10.0	9.2	9.7 9.6 9.5 9.7 9.8	10.1	8.2	9.4
28 29	12.2	10.1 10.7	12.4 11.3 11.5	10.0	9.4	9.4	10.1	9.1	9.5	9.7	7.9 7.2	8.9 8.5
30 31	12.4 13.4	11.0	12.1 12.5	10.7 10.5 10.0 10.7 11.1	9.3	10.2	9.9 10.1 10.4 10.5	9.5 9.6	9.8 10.0	10.3 10.1 9.7 9.8 10.3	8.8 9.1	9.5 9.7
MONTH	15.0	10.1			8.1	11.0	9.8 10.4 10.0 9.9 10.1 10.4 10.5		9.9			9.7
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY		FEBRUARY			MARCH			APRIL			MAY	MEAN
1		FEBRUARY	10.0		MARCH			APRIL			MAY	14.2
1 2 3	11.2 10.6 10.9	FEBRUARY 9.3 8.3 8.5	10.0 9.3 9.5	11.9 12.3 12.5	MARCH 7.6 8.0 7.9	9.4 9.7 9.8	15.7 14.2 16.0	APRIL 10.1 9.8 8.7	12.4 11.7 11.8	17.9 17.2 16.8	MAY 11.2 11.8 10.7	14.2 13.9 13.2
1 2	11.2 10.6	FEBRUARY 9.3 8.3 8.5	10.0 9.3	11.9 12.3 12.5	MARCH 7.6 8.0 7.9		15.7 14.2 16.0	APRIL 10.1 9.8 8.7			MAY 11.2 11.8 10.7	14.2 13.9
1 2 3 4 5	11.2 10.6 10.9 10.4 10.1	9.3 8.3 8.5 7.7 8.0	10.0 9.3 9.5 9.0	11.9 12.3 12.5 12.1 11.7	7.6 8.0 7.9 8.5 9.3	9.4 9.7 9.8 10.1 10.4	15.7 14.2 16.0 16.6 14.0	10.1 9.8 8.7 8.8 9.5	12.4 11.7 11.8 12.2 11.5	17.9 17.2 16.8 14.1 13.7	MAY 11.2 11.8 10.7 10.6 10.0	14.2 13.9 13.2 12.0 11.8
1 2 3 4 5	11.2 10.6 10.9 10.4 10.1	9.3 8.3 8.5 7.7 8.0	10.0 9.3 9.5 9.0	11.9 12.3 12.5 12.1 11.7	7.6 8.0 7.9 8.5 9.3	9.4 9.7 9.8 10.1 10.4	15.7 14.2 16.0 16.6 14.0	10.1 9.8 8.7 8.8 9.5	12.4 11.7 11.8 12.2 11.5	17.9 17.2 16.8 14.1 13.7	MAY 11.2 11.8 10.7 10.6 10.0 9.0 8.7 8.6	14.2 13.9 13.2 12.0 11.8
1 2 3 4 5 6 7 8 9	11.2 10.6 10.9 10.4 10.1	9.3 8.3 8.5 7.7 8.0	10.0 9.3 9.5 9.0	11.9 12.3 12.5 12.1 11.7	7.6 8.0 7.9 8.5 9.3	9.4 9.7 9.8 10.1 10.4	15.7 14.2 16.0 16.6 14.0	10.1 9.8 8.7 8.8 9.5	12.4 11.7 11.8 12.2 11.5	17.9 17.2 16.8 14.1 13.7	MAY 11.2 11.8 10.7 10.6 10.0 9.0 8.7 8.6	14.2 13.9 13.2 12.0 11.8
1 2 3 4 5 6 7 8 9	11.2 10.6 10.9 10.4 10.1 10.5 10.6 10.8 10.9	9.3 8.3 8.5 7.7 8.0 8.4 9.1 8.2 8.2 8.5	10.0 9.3 9.5 9.0 9.0 9.4 9.9 9.2 9.3 9.6	11.9 12.3 12.5 12.1 11.7 10.9 12.5 11.4 12.0	7.6 8.0 7.9 8.5 9.3 8.8 9.0 7.6 9.0 9.1	9.4 9.7 9.8 10.1 10.4 10 10.2 9.3 10.1 10.4	15.7 14.2 16.0 16.6 14.0 15.2 15.8 16.2 13.3 15.5	APRIL 10.1 9.8 8.7 8.8 9.5 9.3 9.9 8.9 10.8 10.2	12.4 11.7 11.8 12.2 11.5 12.0 12.3 12.1 11.7	17.9 17.2 16.8 14.1 13.7 13.0 14.1 15.1 14.5	MAY 11.2 11.8 10.7 10.6 10.0 9.0 8.7 8.6 10.2 10.1	14.2 13.9 13.2 12.0 11.8 10.9 10.9 11.5 12.0 12.9
1 2 3 4 5 6 7 8 9 10	11.2 10.6 10.9 10.4 10.1 10.5 10.6 10.8 10.9	9.3 8.3 8.5 7.7 8.0 8.4 9.1 8.2 8.5 8.4 7.6	10.0 9.3 9.5 9.0 9.0 9.4 9.9 9.2 9.3 9.6	11.9 12.3 12.5 12.1 11.7 10.9 12.5 11.4 12.0 12.1	7.6 8.0 7.9 8.5 9.3 8.8 9.0 7.6 9.0 9.1	9.4 9.7 9.8 10.1 10.4 10 10.2 9.3 10.1 10.4 11.3	15.7 14.2 16.0 16.6 14.0 15.2 15.8 16.2 13.3 15.5	10.1 9.8 8.7 8.8 9.5 9.3 9.9 10.8 10.2	12.4 11.7 11.8 12.2 11.5 12.0 12.3 12.1 11.7 12.1	17.9 17.2 16.8 14.1 13.7 13.0 14.1 15.1 14.5 16.5	MAY 11.2 11.8 10.7 10.6 10.0 9.0 8.7 8.6 10.2 10.1	14.2 13.9 13.2 12.0 11.8 10.9 11.5 12.0 12.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14	11.2 10.6 10.9 10.4 10.1 10.5 10.6 10.8 10.9	9.3 8.3 8.5 7.7 8.0 8.4 9.1 8.2 8.2 8.5 8.4 7.6 7.5	10.0 9.3 9.5 9.0 9.4 9.9 9.2 9.3 9.6 9.4 8.9	11.9 12.3 12.5 12.1 11.7 10.9 12.5 11.4 12.0 12.1 13.0 13.3 12.6 13.7	7.6 8.0 7.9 8.5 9.3 8.8 9.0 7.6 9.0 9.1 10.4 9.2 9.6 8.3	9.4 9.7 9.8 10.1 10.4 10 10.2 9.3 10.1 10.4 11.3 10.7 10.8	15.7 14.2 16.0 16.6 14.0 15.2 15.8 16.2 13.3 15.5 14.8 16.0 16.3 13.8	APRIL 10.1 9.8 8.7 8.8 9.5 9.3 9.9 10.8 10.2 10.6 10.3 11.5 10.4	12.4 11.7 11.8 12.2 11.5 12.0 12.3 12.1 11.7 12.1 12.3 12.6 13.6 12.1	17.9 17.2 16.8 14.1 13.7 13.0 14.1 15.1 14.5 16.5	MAY 11.2 11.8 10.7 10.6 10.0 9.0 8.7 8.6 10.2 10.1 10.2 10.9	14.2 13.9 13.2 12.0 11.8 10.9 10.5 12.0 12.9 13.4 14.1 13.6 13.8
1 2 3 4 5 6 7 8 9 10	11.2 10.6 10.9 10.4 10.1 10.5 10.6 10.8 10.9	9.3 8.3 8.5 7.7 8.0 8.4 9.1 8.2 8.2 8.5	10.0 9.3 9.5 9.0 9.4 9.9 9.2 9.3 9.6	11.9 12.3 12.5 12.1 11.7 10.9 12.5 11.4 12.0 12.1	7.6 8.0 7.9 8.5 9.3 8.8 9.0 7.6 9.0 9.1	9.4 9.7 9.8 10.1 10.4 10 10.2 9.3 10.1 11.3 10.7 10.8	15.7 14.2 16.0 16.6 14.0 15.2 15.8 16.2 13.3 15.5	10.1 9.8 8.7 8.8 9.5 9.3 9.9 8.9 10.2 10.6 10.3 11.5	12.4 11.7 11.8 12.2 11.5 12.0 12.3 12.1 11.7 12.1	17.9 17.2 16.8 14.1 13.7 13.0 14.1 15.1 14.5 16.5	MAY 11.2 11.8 10.7 10.6 10.0 9.0 8.7 8.6 10.2 10.1 10.2 10.9 12.0	14.2 13.9 13.2 12.0 11.8 10.9 11.5 12.0 12.9 13.4 14.1 13.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	11.2 10.6 10.9 10.4 10.1 10.5 10.6 10.8 10.9 10.8 10.5 10.4	9.3 8.3 8.5 7.7 8.0 8.4 9.1 8.2 8.2 8.5 8.4 7.6 7.5 7.8 7.8	10.0 9.3 9.5 9.0 9.0 9.4 9.9 9.2 9.3 9.6 9.4 8.9 8.9 8.2 9.1	11.9 12.3 12.5 12.1 11.7 10.9 12.5 11.4 12.0 12.1 13.0 13.3 12.6 13.7 13.7	7.6 8.0 7.9 8.5 9.3 8.8 9.0 7.6 9.0 9.1 10.4 9.2 9.6 8.3 8.8	9.4 9.7 9.8 10.1 10.4 10 10.2 9.3 10.1 10.4 11.3 10.7 10.8 10.8	15.7 14.2 16.0 16.6 14.0 15.2 15.8 16.2 13.3 15.5 14.8 16.0 16.3 13.8 14.1	APRIL 10.1 9.8 8.7 8.8 9.5 9.3 9.9 10.8 10.2 10.6 10.3 11.5 10.4 9.4	12.4 11.7 11.8 12.2 11.5 12.0 12.3 12.1 11.7 12.1 12.3 12.6 13.6 12.1 11.4	17.9 17.2 16.8 14.1 13.7 13.0 14.1 15.1 14.5 16.5 17.6 17.8 15.8 17.6 18.0	MAY 11.2 11.8 10.7 10.6 10.0 9.0 8.7 8.6 10.2 10.1 10.2 10.9 10.9 10.9	14.2 13.9 13.2 12.0 11.8 10.9 10.9 11.5 12.0 12.9 13.4 14.1 13.6 13.8 13.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	11.2 10.6 10.9 10.4 10.1 10.5 10.6 10.8 10.9 10.8 10.5 10.4 10.9 11.6 11.9 11.6	9.3 8.3 8.5 7.7 8.0 8.4 9.1 8.2 8.5 7.6 7.5 7.8 8.8 8.8	10.0 9.3 9.5 9.0 9.0 9.4 9.9 9.2 9.3 9.6 9.4 8.9 8.8 9.2 9.1	11.9 12.3 12.5 12.1 11.7 10.9 12.5 11.4 12.0 12.1 13.0 13.3 12.6 13.7 13.6 12.7 10.8	7.6 8.0 7.9 8.5 9.3 8.8 9.0 7.6 9.0 9.1 10.4 9.2 9.6 8.3 8.8 8.8	9.4 9.7 9.8 10.1 10.4 10 10.2 9.3 10.1 10.4 11.3 10.7 10.8 10.4 10.8	15.7 14.2 16.0 16.6 14.0 15.2 15.8 16.2 13.3 15.5 14.8 16.0 16.3 13.8 14.1	APRIL 10.1 9.8 8.7 8.8 9.5 9.3 9.9 8.0 10.2 10.6 10.3 11.5 10.4 9.4 8.3 8.1	12.4 11.7 11.8 12.2 11.5 12.0 12.3 12.1 11.7 12.1 12.3 12.6 13.6 12.1 11.4	17.9 17.2 16.8 14.1 13.7 13.0 14.1 15.1 14.5 16.5 17.6 17.8 15.8 17.6 18.0	MAY 11.2 11.8 10.7 10.6 10.0 9.0 8.7 8.6 10.2 10.1 10.2 10.9 12.0 10.9 10.9 10.8 12.7 13.0	14.2 13.9 13.2 12.0 11.8 10.9 11.5 12.0 12.9 13.4 14.1 13.6 13.8 13.9 14.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	11.2 10.6 10.9 10.4 10.1 10.5 10.6 10.8 10.9 10.8 10.5 10.4 10.9	9.3 8.3 8.5 7.7 8.0 8.4 9.1 8.2 8.5 7.6 7.5 7.8 7.8	10.0 9.3 9.5 9.0 9.0 9.4 9.9 9.3 9.6 9.4 8.9 8.8 9.2 9.1	11.9 12.3 12.5 12.1 11.7 10.9 12.5 11.4 12.0 12.1 13.0 13.3 12.6 13.7 13.7	MARCH 7.6 8.0 7.9 8.5 9.3 8.8 9.0 7.6 9.0 9.1 10.4 9.2 9.6 8.3 8.8 8.8 8.8	9.4 9.7 9.8 10.1 10.4 10 10.2 9.3 10.1 10.4 11.3 10.7 10.8 10.4 10.8	15.7 14.2 16.0 16.6 14.0 15.2 15.8 16.2 13.3 15.5 14.8 16.0 16.3 13.8 14.1	APRIL 10.1 9.8 8.7 8.8 9.5 9.3 9.9 8.9 10.2 10.6 10.3 11.5 10.4 9.4 9.4 8.3	12.4 11.7 11.8 12.2 11.5 12.0 12.3 12.1 11.7 12.1 12.3 12.6 13.6 13.6 12.1 11.4	17.9 17.2 16.8 14.1 13.7 13.0 14.1 15.1 14.5 16.5 17.6 17.8 15.8 15.8 17.6 18.0	MAY 11.2 11.8 10.7 10.6 10.0 9.0 8.7 8.6 10.2 10.1 10.2 10.9 12.0 10.9 10.9 10.8 12.7	14.2 13.9 13.2 12.0 11.8 10.9 10.9 11.5 12.0 12.9 13.4 14.1 13.6 13.8 13.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	11.2 10.6 10.9 10.4 10.1 10.5 10.6 10.8 10.9 10.8 10.5 10.4 10.9 11.0 11.6 11.9 12.3 12.3 12.8 12.2	9.3 8.3 8.5 7.7 8.0 8.4 9.1 8.2 8.2 8.5 8.4 7.6 7.5 7.8 7.8 8.8 8.8 9.0 9.6 8.7	10.0 9.3 9.5 9.0 9.0 9.4 9.9 9.2 9.3 9.6 9.4 8.9 8.9 9.1 10.1 10.5 10.9	11.9 12.3 12.5 12.1 11.7 10.9 12.5 11.4 12.0 12.1 13.0 13.3 12.6 13.7 13.7 13.6 12.7 10.8 13.3 10.8	MARCH 7.6 8.0 7.9 8.5 9.3 8.8 9.0 7.6 9.0 9.1 10.4 9.2 9.6 8.3 8.8 8.8 9.2 8.6 8.2 7.6	9.4 9.7 9.8 10.1 10.4 10 10.2 9.3 10.1 10.4 11.3 10.7 10.8 10.4 10.8 10.4 9.6 10.6 9.6 8.8	15.7 14.2 16.0 16.6 14.0 15.2 15.8 16.2 13.3 15.5 14.8 16.0 16.3 13.8 14.1 12.7 14.5 14.2 15.9 16.2	APRIL 10.1 9.8 8.7 8.8 9.5 9.3 9.9 10.8 10.2 10.6 10.3 11.5 10.4 9.4 8.3 8.1 9.4 9.4 9.4 9.4 9.4 9.9	12.4 11.7 11.8 12.2 11.5 12.0 12.3 12.1 11.7 12.1 12.3 12.6 13.6 12.1 11.4 10.6 10.9 10.8 11.9 12.2	17.9 17.2 16.8 14.1 13.7 13.0 14.1 15.1 14.5 16.5 17.6 17.8 15.8 17.6 18.0	MAY 11.2 11.8 10.7 10.6 10.0 9.0 8.7 8.6 10.2 10.1 10.2 10.9 10.9 10.9 10.9 11.3 12.7 13.1 13.2	14.2 13.9 13.2 12.0 11.8 10.9 10.9 11.5 12.0 12.9 13.4 14.1 13.8 13.9 14.1 15.2 14.1 14.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	11.2 10.6 10.9 10.4 10.1 10.5 10.6 10.8 10.9 10.8 10.5 10.4 10.9 11.0 11.6 11.9 12.3 12.8 12.8 13.3	9.3 8.3 8.5 7.7 8.0 8.4 9.1 8.2 8.5 7.6 7.5 7.8 7.8 8.8 8.8 9.0 9.6 8.7	10.0 9.3 9.5 9.0 9.0 9.4 9.9 9.2 9.3 9.6 9.4 8.9 9.2 9.1 10.5 10.9 10.1	11.9 12.3 12.5 12.1 11.7 10.9 12.5 11.4 12.0 12.1 13.0 13.3 12.6 13.7 13.7 10.8 13.6 10.3	MARCH 7.6 8.0 7.9 8.5 9.3 8.8 9.0 7.6 9.1 10.4 9.2 9.6 8.3 8.8 8.8 8.8 8.2 7.6 8.2	9.4 9.7 9.8 10.1 10.4 10 10.2 9.3 10.1 10.4 11.3 10.7 10.8 10.4 10.6 10.6 9.6 8.8 10.1 10.1	15.7 14.2 16.0 16.6 14.0 15.2 15.8 16.2 13.3 15.5 14.8 16.0 16.3 14.1 12.7 14.5 14.2 15.9 16.2	APRIL 10.1 9.8 8.7 8.8 9.5 9.3 9.9 8.9 10.2 10.6 10.3 11.5 10.4 9.4 9.4 8.3 8.1 9.3 9.1 9.9 9.8 9.9 9.8	12.4 11.7 11.8 12.2 11.5 12.0 12.3 12.1 11.7 12.1 12.3 12.6 13.6 12.1 11.4 10.6 10.9 10.8 11.9 12.2	17.9 17.2 16.8 14.1 13.7 13.0 14.1 15.1 14.5 16.5 17.6 17.8 15.8 15.8 17.6 18.0 18.1 18.8 15.4 17.0 16.8	MAY 11.2 11.8 10.7 10.6 10.0 9.0 8.7 8.6 10.2 10.1 10.2 10.9 12.0 10.9 12.7 13.0 13.1 13.2 12.5 11.7 11.7	14.2 13.9 13.2 12.0 11.8 10.9 10.9 11.5 12.0 12.9 13.4 14.1 13.6 13.8 14.1 15.2 14.1 14.8 14.6 14.6 14.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	11.2 10.6 10.9 10.4 10.1 10.5 10.6 10.8 10.9 10.8 10.5 10.4 11.0 11.6 11.9 12.3 12.3 12.3 12.2	9.3 8.3 8.5 7.7 8.0 8.4 9.1 8.2 8.2 8.5 8.4 7.6 7.8 7.8 8.8 9.0 9.6 8.7	10.0 9.3 9.5 9.0 9.0 9.4 9.9 9.2 9.3 9.6 9.4 8.9 8.2 9.1 10.5 10.5 10.5 11.4 12.2	11.9 12.3 12.5 12.1 11.7 10.9 12.5 11.4 12.0 12.1 13.0 13.3 12.6 13.7 13.7	7.6 8.0 7.9 8.5 9.3 8.8 9.0 7.6 9.1 10.4 9.2 9.6 8.3 8.8 9.2 8.2 8.2 7.6 8.4	9.4 9.7 9.8 10.1 10.4 10 10.2 9.3 10.1 10.4 11.3 10.7 10.8 10.4 10.8 10.6 9.6 10.6 9.6 8.8 10.1	15.7 14.2 16.0 16.6 14.0 15.2 15.8 16.2 13.3 15.5 14.8 16.0 16.3 13.8 14.1 12.7 14.5 14.2 15.9 16.2	APRIL 10.1 9.8 8.7 8.8 9.5 9.3 9.9 10.8 10.2 10.6 10.3 11.5 10.4 9.4 8.3 8.1 9.3 9.1 9.9 9.8	12.4 11.7 11.8 12.2 11.5 12.0 12.3 12.1 11.7 12.1 12.3 12.6 13.6 13.6 13.6 13.1 11.4	17.9 17.2 16.8 14.1 13.7 13.0 14.1 15.1 14.5 16.5 17.6 17.8 17.6 18.0 18.1 18.8 15.4 17.0 16.8	MAY 11.2 11.8 10.7 10.6 10.0 9.0 8.7 8.6 10.2 10.1 10.2 10.9 12.0 10.9 10.9 11.1 13.2 12.5 11.7	14.2 13.9 13.2 12.0 11.8 10.9 10.9 11.5 12.0 12.9 13.4 14.1 13.6 13.8 13.9 14.1 14.1 14.6 14.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	11.2 10.6 10.9 10.4 10.1 10.5 10.6 10.8 10.5 10.4 10.9 11.0 11.6 11.9 12.3 12.8 12.2 13.3 12.9 13.0 11.3	9.3 8.3 8.5 7.7 8.0 8.4 9.1 8.2 8.5 8.4 7.6 7.5 7.8 7.8 8.8 8.9 9.0 9.6 8.7	10.0 9.3 9.5 9.0 9.0 9.4 9.9 9.3 9.6 9.4 8.9 8.8 9.1 10.5 10.9 10.1 11.4 12.2 11.6 10.1 9.2	11.9 12.3 12.5 12.1 11.7 10.9 12.5 11.4 12.0 12.1 13.0 13.3 12.6 13.7 13.7 10.8 13.6 10.3 10.5 12.4 11.3 14.8 15.7	MARCH 7.6 8.0 7.9 8.5 9.3 8.8 9.0 7.6 9.1 10.4 9.2 9.6 8.3 8.8 8.8 9.2 8.6 8.2 7.6 8.4 8.7 9.8 9.1	9.4 9.7 9.8 10.1 10.4 10 10.2 9.3 10.1 10.4 11.3 10.7 10.8 10.4 10.6	15.7 14.2 16.0 16.6 14.0 15.2 15.8 16.2 13.3 15.5 14.8 16.0 16.3 13.8 14.1 12.7 14.5 14.2 15.9 16.2	10.1 9.8 8.7 9.5 9.3 9.9 8.9 10.2 10.6 10.3 11.5 10.4 9.4 9.4 9.3 9.1 9.9 9.9 9.8 9.9	12.4 11.7 11.8 12.2 11.5 12.0 12.3 12.1 11.7 12.1 12.3 12.6 13.6 12.1 11.4 10.6 10.9 10.8 11.9 12.2	17.9 17.2 16.8 14.1 13.7 13.0 14.1 15.1 15.5 16.5 17.6 17.8 15.8 15.8 15.8 16.0 18.1 18.8 15.4 17.0 16.8	MAY 11.2 11.8 10.7 10.6 10.0 9.0 8.7 8.6 10.2 10.1 10.2 10.9 12.0 10.9 12.7 13.0 13.1 13.2 12.5 11.7 11.8 12.9	14.2 13.9 13.2 12.0 11.8 10.9 10.9 11.5 12.0 12.9 13.4 14.1 13.6 13.8 14.1 14.8 14.6 14.6 14.6 14.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 25 26 27	11.2 10.6 10.9 10.4 10.1 10.5 10.6 10.8 10.9 10.8 10.9 11.0 11.6 11.9 12.3 12.3 12.9 13.3 11.4 11.7 11.5	9.3 8.3 8.5 7.7 8.0 8.4 9.1 8.2 8.2 8.5 8.4 7.6 7.5 7.8 7.8 8.8 8.8 9.0 9.6 8.7	10.0 9.3 9.5 9.0 9.0 9.4 9.9 9.2 9.3 9.6 9.4 8.9 8.9 9.1 10.5 10.5 10.1 11.4 12.2 11.6 10.1 9.2	11.9 12.3 12.5 12.1 11.7 10.9 12.5 11.4 12.0 12.1 13.0 13.3 12.6 13.7 13.7 13.6 12.7 10.8 12.4 11.3 14.8 15.7	MARCH 7.6 8.0 7.9 8.5 9.3 8.8 9.0 7.6 9.0 9.1 10.4 9.2 9.6 8.3 8.8 8.8 9.2 8.2 8.2 8.2 7.6 8.4 8.7 9.8 9.1	9.4 9.7 9.8 10.1 10.4 10 10.2 9.3 10.1 10.4 11.3 10.7 10.8 10.6 10.6 9.6 8.8 10.1 10.1 11.6 11.9	15.7 14.2 16.0 16.6 14.0 15.2 15.8 16.2 13.3 15.5 14.8 16.0 16.3 13.8 14.1 12.7 14.5 14.2 15.9 16.2 16.6 15.3 15.7	APRIL 10.1 9.8 8.7 8.8 9.5 9.3 9.9 10.8 10.2 10.6 10.3 11.5 10.4 9.4 8.3 8.1 9.4 9.4 8.3 8.1 9.5 9.7 10.3	12.4 11.7 11.8 12.2 11.5 12.0 12.3 12.1 11.7 12.1 12.3 12.6 13.6 13.6 12.1 11.4 10.6 10.9 10.8 11.9 12.2 12.6 12.1 11.7 11.7	17.9 17.2 16.8 14.1 13.7 13.0 14.1 15.1 14.5 16.5 17.6 17.8 17.6 18.0 18.1 18.8 17.0 16.8	MAY 11.2 11.8 10.7 10.6 10.0 9.0 8.7 8.6 10.2 10.1 10.2 10.9 10.9 10.9 11.7 13.0 13.1 13.2 12.5 11.7 11.7 11.8 12.9	14.2 13.9 13.2 12.0 11.8 10.9 11.5 12.0 12.9 13.4 14.1 13.8 13.9 14.1 15.2 14.1 14.6 14.6 14.6 14.6 14.6 14.6 15.1 15.2
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	11.2 10.6 10.9 10.4 10.1 10.5 10.6 10.8 10.9 10.8 10.5 11.0 11.0 11.6 11.9 12.3 12.8 12.2 13.3 12.9 13.0 11.3 11.4	9.3 8.3 8.5 7.7 8.0 8.4 9.1 8.2 8.2 8.5 8.4 7.6 7.5 7.8 7.8 8.8 9.0 9.6 8.7	10.0 9.3 9.5 9.0 9.0 9.4 9.9 9.2 9.3 9.6 9.4 8.8 8.9.2 9.1 10.5 10.9 10.1 11.4 12.2 11.6 10.1 19.2	11.9 12.3 12.5 12.1 11.7 10.9 12.5 11.4 12.0 12.1 13.0 13.3 12.6 13.7 13.7 13.6 12.7 13.6 12.7 13.6 12.7 13.6 12.7 13.6 12.5 14.8 15.7	MARCH 7.6 8.0 7.9 8.5 9.3 8.8 9.0 7.6 9.0 9.1 10.4 9.2 9.6 8.3 8.8 8.8 9.2 7.6 8.4 8.7 9.8 9.1	9.4 9.7 9.8 10.1 10.2 9.3 10.1 10.4 11.3 10.7 10.8 10.4 10.6 10.6 10.6 9.6 8.8 10.1 11.6 11.9 10.7 11.1	15.7 14.2 16.0 16.6 14.0 15.2 15.8 16.2 13.3 15.5 14.8 16.0 16.3 13.8 14.1 12.7 14.5 14.2 15.9 16.2 16.6 15.3 15.7 16.0 14.7	10.1 9.8 8.7 8.8 9.5 9.3 9.9 10.8 10.2 10.6 10.3 11.5 10.4 9.4 8.3 8.1 9.3 9.1 9.9 9.8 9.3 9.1 9.3 9.3 9.1	12.4 11.7 11.8 12.2 11.5 12.0 12.3 12.1 11.7 12.1 12.6 13.6 12.1 11.4 10.6 10.9 10.8 11.9 12.2 12.6 12.1 11.7 11.9 12.0 12.1	17.9 17.2 16.8 14.1 13.7 13.0 14.1 15.1 14.5 16.5 17.6 18.0 18.1 18.8 15.4 17.0 16.8 18.0 16.9	MAY 11.2 11.8 10.7 10.6 10.0 9.0 8.7 8.6 10.2 10.1 10.2 10.9 10.9 12.0 10.9 11.7 13.1 13.2 12.5 11.7 11.8 12.9 13.5 13.5 13.9	14.2 13.9 13.2 12.0 11.8 10.9 10.5 12.0 12.9 13.4 14.1 13.6 13.8 13.9 14.1 14.2 14.6 14.6 14.6 14.6 14.6 14.6 14.6 14.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	11.2 10.6 10.9 10.4 10.1 10.5 10.6 10.8 10.9 10.8 10.5 10.4 10.9 11.0 11.6 11.9 12.3 12.3 12.3 12.1 13.3 11.4 11.5 11.5	9.3 8.3 8.5 7.7 8.0 8.4 9.1 8.2 8.5 8.4 7.6 7.5 7.8 7.8 9.0 9.6 8.7	10.0 9.3 9.5 9.0 9.0 9.4 9.9 9.3 9.6 9.4 8.9 8.9 10.1 10.5 10.5 10.1 11.4 12.2 11.6 10.1 9.2	11.9 12.3 12.5 12.1 11.7 10.9 12.5 11.4 12.0 12.1 13.0 13.3 12.6 13.7 13.7 13.7 10.8 13.6 10.3 10.5 12.4 11.3 14.8 15.7	MARCH 7.6 8.0 7.9 8.5 9.3 8.8 9.0 7.6 9.1 10.4 9.2 9.6 8.3 8.8 8.8 9.2 8.6 8.7 9.8 9.1 9.2 9.6 9.1	9.4 9.7 9.8 10.1 10.4 10 10.2 9.3 10.1 10.4 11.3 10.7 10.8 10.6 10.6 10.6 10.6 10.6 10.6 10.6 10.6 10.7 11.1 11.9	15.7 14.2 16.0 16.6 14.0 15.2 15.8 16.0 16.3 13.8 14.1 12.7 14.5 14.2 15.9 16.2 16.6 15.3 15.7 16.0 14.7	10.1 9.8 8.7 8.8 9.5 9.3 9.9 8.9 10.2 10.6 10.3 11.5 10.4 9.4 9.4 8.3 8.1 9.3 9.1 9.9 9.9 9.9 9.9 9.9 9.9	12.4 11.7 11.8 12.2 11.5 12.0 12.3 12.1 11.7 12.1 12.3 12.6 13.6 13.6 13.1 11.4 10.6 10.9 10.8 11.9 12.2 12.6 12.1 11.7 11.9 12.0	17.9 17.2 16.8 14.1 13.7 13.0 14.1 15.1 15.5 16.5 17.6 17.8 15.8 15.8 15.8 16.0 18.0 18.1 18.0 16.8 18.0 16.9 18.4 18.3 16.8	MAY 11.2 11.8 10.7 10.6 10.0 9.0 8.7 8.6 10.2 10.1 10.2 10.9 12.0 10.9 11.7 13.0 13.1 13.2 12.5 11.7 11.8 12.9 13.5 13.5	14.2 13.9 13.2 12.0 11.8 10.9 10.9 11.5 12.0 12.9 13.4 14.1 13.6 13.8 13.9 14.1 14.6 14.6 14.6 14.6 14.6 14.6 14.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	11.2 10.6 10.9 10.4 10.1 10.5 10.6 10.8 10.9 10.8 10.9 11.0 11.6 11.9 12.3 12.3 12.9 13.3 11.4 11.7 11.5 11.5	9.3 8.3 8.5 7.7 8.0 8.4 9.1 8.2 8.2 8.5 8.4 7.6 7.8 7.8 8.8 8.9 9.0 9.6 8.7	10.0 9.3 9.5 9.0 9.0 9.4 9.9 9.3 9.6 9.4 8.9 8.2 9.1 10.5 10.9 10.1 11.4 12.2 11.6 10.1 9.2	11.9 12.3 12.5 12.1 11.7 10.9 12.5 11.4 12.0 12.1 13.0 13.3 12.6 13.7 13.7 13.6 12.7 10.8 13.6 10.3 10.5 12.4 11.3 14.8 15.7	7.6 8.0 7.9 8.5 9.3 8.8 9.0 7.6 9.0 9.1 10.4 9.2 9.6 8.3 8.8 9.2 8.2 8.2 7.6 8.4 8.7 9.9 9.1	9.4 9.7 9.8 10.1 10.2 9.3 10.1 10.4 11.3 10.7 10.8 10.6 10.6 10.6 9.6 8.8 10.1 11.6 11.9 10.7 11.1 11.9 12.1 12.8	15.7 14.2 16.0 16.6 14.0 15.2 15.8 16.2 13.3 15.5 14.8 16.0 16.3 13.8 14.1 12.7 14.5 14.2 15.9 16.2 16.6 15.3 15.7 16.0 14.7	APRIL 10.1 9.8 8.7 8.8 9.5 9.3 9.9 10.8 10.2 10.6 10.3 11.5 10.4 9.4 8.3 8.1 9.4 9.4 8.3 8.1 9.7 10.9	12.4 11.7 11.8 12.2 11.5 12.0 12.3 12.1 11.7 12.1 12.3 12.6 13.6 13.6 12.1 11.4 10.6 10.9 10.8 11.9 12.2 12.6 12.1 11.7 11.7 11.9 12.2	17.9 17.2 16.8 14.1 13.7 13.0 14.1 15.1 14.5 16.5 17.6 17.8 15.8 17.6 18.0 18.1 18.8 17.0 16.8 18.0 16.9 18.4 17.0 16.8	MAY 11.2 11.8 10.7 10.6 10.0 9.0 8.7 8.6 10.2 10.1 10.2 10.9 10.9 10.9 11.7 13.0 13.1 13.2 12.5 11.7 11.7 11.8 12.9 13.5 13.9 13.2	14.2 13.9 13.2 12.0 11.8 10.9 11.5 12.0 12.9 13.4 14.1 13.8 13.9 14.1 15.2 14.1 14.6 14.6 14.6 14.6 14.6 15.1 15.2 15.2

(National Water-Quality Assessment Station)--Continued TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

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DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBE	IR.
1	18.4	13.6	15.6	20.2	14.7	17.2	20.6	15.3	17.8	20.3	17.7	18.9
2	19.6	13.0	15.9	20.3	14.7	17.2	20.3	15.7	17.8	20.4	16.8	18.5
3	19.2	13.2	16.0	19.7	15.7	17.3	20.2	15.1	17.5	19.6	17.2	18.3
4	20.8	14.1	17.0	19.9	14.6	17.0	18.4	15.8	17.1	18.6	15.4	16.9
5	19.6	14.4	16.4	20.1	14.7	17.3	18.9	14.7	16.6	18.0	15.3	16.5
6	17.1	12.8	14.8	20.5	15.3	17.9	19.2	14.5	16.7	17.4	14.5	15.9
7	16.8	11.9	13.9	21.9	16.0	18.7	19.4	14.5	16.8	17.5	14.0	15.7
8	15.9	10.8	13.0	22.0	17.1	19.1	19.8	14.9	17.2	17.1	13.7	15.5
9	14.8	11.8	13.2	22.1	16.1	18.9	20.5	15.3	17.8	18.0	14.3	16.0
10	18.6	12.1	14.9	22.9	16.6	19.5	21.2	16.5	18.6	18.5	14.3	16.3
11	19.9	12.9	16.1	23.6	17.7	20.4	20.9	16.2	18.4	19.1	15.1	17.0
12	20.9	13.9	17.0	24.4	18.6	21.3	20.9	16.3	18.4	19.4	15.5	17.3
13	21.5	14.8	17.7	24.7	20.1	22.1	21.3	16.4	18.7	19.4	15.8	17.5
14	21.7	15.6	18.1	23.9	19.6	21.4	21.7	17.0	19.1	18.6	15.8	17.2
15	22.0	15.8	18.4	22.8	17.6	20.0	21.4	17.1	19.0	18.6	16.1	17.2
16	19.0	15.2	17.0	22.5	17.2	19.7	21.1	17.2	18.9	17.7	15.7	16.6
17	16.8	14.4	15.5	23.2	17.9	20.2	20.6	16.1	18.2	18.2	15.7	16.7
18	17.9	13.9	15.5	23.4	17.8	20.3	20.2	16.0	18.0	17.6	14.1	15.8
19	19.3	12.6	15.6	23.0	18.0	20.2	19.8	15.8	17.8	17.9	14.6	16.2
20	19.8	13.3	16.3	22.4	17.1	19.5	20.0	15.9	17.8	17.7	14.8	16.1
21	20.5	14.3	17.2	22.2	17.1	19.5	19.8	15.9	17.7	17.2	13.9	15.3
22	20.7	15.1	17.7	22.7	17.1	19.7	20.0	15.8	17.8	16.5	13.2	14.8
23	21.3	16.0	18.1	22.6	18.0	19.9	20.9	17.3	18.8	16.7	13.0	14.7
24	21.6	15.3	18.2	23.0	17.9	20.1	21.1	16.9	18.9	17.0	13.4	15.1
25	22.2	15.8	18.6	23.0	18.1	20.3	21.1	17.3	19.1	17.2	14.2	15.5
26 27 28 29 30 31	22.8 22.1 18.5 20.6 20.3	16.1 17.7 16.9 16.1 15.0	19.2 19.4 17.6 17.8 17.3	22.8 22.3 22.1 22.2 21.9 20.8	17.8 17.3 17.1 17.2 17.2	20.0 19.5 19.3 19.5 19.2	20.9 21.1 21.2 21.3 21.0 20.9	17.5 17.1 17.2 17.5 17.6	19.1 18.9 19.1 19.3 19.2	16.1 16.7 16.5 15.8 15.0	13.8 14.5 13.4 13.8 12.8	15.0 15.4 14.9 14.8 13.7
MONTH	22.8	10.8	16.6	24.7	14.6	19.4	21.7	14.5	18.2	20.4	12.8	16.2

WATER-QUALITY	DATA,	WATER	YEAR	OCTOBER	2001	TO	SEPTEMBER	2002
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YEAR 24.7 7.2 13.4

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
OCT													
17 NOV	1140	32	754	9.6	89	8.0	465	13.4	11.6	162	197	0	10.4
21 DEC	1240	22	741	9.1	88	8.3	716		12.4	231	278	0	18.9
18 JAN	1140	20	743	10.2	92	8.3	715	-5.0	9.6	238	286	0	18.3
22 FEB	1120	20	744	9.4	83	8.3	713	1.1	9.0	237	285	0	16.9
19 MAR	1120	19	741	10.6	100	8.4	700	11.0	11.3	235	281	2	18.3
04	1130	19	749	11.6	106	8.4	692	9.8	10.5				
18	1140	18	751	11.8	108	8.4	680	7.2	10.5	228	273	3	17.1
25	1130	16	748	10.8	105	8.4	667	15.1	13.0				
APR													
01	1110	16	750	10.9	106	8.3	589	18.8	13.5				
17	1120	39	742	10.2	95	8.1	364	13.0	11.0	128	154	0	7.52
MAY												-	
01	1210	45	746	9.7	99	8.2	336	24.2	15.1				
07	1110	45	750	11.2	103	8.0	338	16.1	11.0				
14	1050	48	750	9.7	95	7.9	328	18.5	13.5				
21	1150	52	741	9.3	95	8.0	332	20.2	15.0	126	152	0	8.33
29	1050	53	744	9.0	92	7.9	324	25.7	15.0				
JUN	1000	55	,	3.0	,2	,.,	321	23.7	13.0				
04	1130	47	747	9.0	93	8.1	342	29.0	16.0				
19	1340	54	749	9.4	100	8.1	294	26.0	17.5	114	137	0	6.02
25	1110	49	747	9.0	98	8.0	314	28.3	18.3				
JUL	1110		, . ,	3.0	50	0.0	311	20.5	10.5				
10	1210	55	748	8.8	98	8.0	328	37.0	19.8				
24	1250	48	746	8.4	95	8.1	326	37.8	20.5	128	152	0	7.42
31	1150	54	752	9.0	96	8.0	317	31.9	18.0				
AUG	1130	J.	, 52	5.0	20	0.0	51,	51.5	10.0				
07	1210	57	752	9.6	101	8.0	332	26.2	17.0				
20	1040	55	743	8.7	92	8.0	327	23.5	17.0	112	135	0	7.65
26	1130	65	750	8.8	96	8.0	319	25.8	18.8				7.05
SEP	1100		.50		20	0.0	222	20.0	20.0				
18	1130	62	749	8.9	90	8.0	337	19.6	15.3	116	140	0	7.01
		٥2		0.5	20	0.0	55.		10.0			-	

(National Water-Quality Assessment Station) -- Continued

Date	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	CARBON, INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)
OCT 17	47.3	E.03	.40	2.73	.024	.12	3.1	.09	.20	1.2		7.0	
NOV 21	86.9	.04	.66	5.36	.040	.10	6.0	.10	.20	1.1	<.1	8.3	1.0
DEC 18	83.2	.05	.55	6.27	.033	.16	6.8	.10	.20	1.5	<.1	9.9	1.4
JAN 22	82.6	.05	.47	6.35	.028	.13	6.8	.12	.164	1.1	<.1	2.0	1.1
FEB 19 MAR	81.1	<.04	.31	5.80	.021	.06	6.1	.08	.117	.5	М	2.3	E.4
04 18 25 APR	 77.7 	<.04 <.04 E.02	.26 .54 .31	5.45 5.34 5.23	.021 .022 .029	 .07 	5.7 5.9 5.5	.07 .07 .08	.115 .110 .128	 .6 	 <.1 	2.2 	 .6
01 17 MAY	 34.1	<.04 E.02	.33	4.18 2.31	.020 .011	.11	4.5 2.8	.08	.152 .40	1.2	<.1	 7.0	1.2
01 07 14 21 29	 30.1 	E.04 E.02 <.04 E.03 <.04	1.0 .61 .59 .62	1.97 2.14 1.86 1.97 1.93	.013 .012 .013 .018	 .21	3.0 2.7 2.4 2.6 2.5	.11 .10 .11 .11	.38 .34 .36 .30	 2.0	 <.1	 9.9 	 2.0
JUN 04 19 25 JUL	25.9 	<.04 <.04 <.04	.61 .64 .47	2.14 1.84 1.96	.017 .010 .019	.18	2.7 2.5 2.4	.15 .11 .10	.39 .27 .21	1.7 	 <.1 	3.1	1.7
10 24 31	28.4 	<.04 <.04 <.04	.44 .51 .56	2.21 2.02 2.33	.020 .022 .020	.24	2.7 2.5 2.9	.11 .11 .10	.24 .28 .20	1.7 	 <.1 	3.1	1.7
07 20 26	28.2 	<.04 <.04 <.04	.39 .34 .34	2.24 .87 2.12	.017 E.007 .014	.08	2.6 1.2 2.5	.11 .10 .10	.22 .188 .188	 .7 	 <.1 	2.8	 .7
SEP 18	28.9	<.04	.37	1.95	.034	.10	2.3	.12	.21	.7	<.1	3.8	.7
Date	2,4-D METHYL ESTER, WATER FLTRD REC (UG/L) (50470)	2,4-D, DIS- SOLVED (UG/L) (39732)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	3HYDRXY CARBO- FURAN WAT,FLT GF 0.7U REC (UG/L) (49308)	3-KETO CARBO- FURAN WATER FLTRD REC (UG/L) (50295)	ACETO- CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029)	ACETO- CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61030)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ACIFL- UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315)	ALA- CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61031)	ALA- CHLOR ESA WAT FLT GF 0.7U REC (UG/L) (50009)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)
OCT 17	METHYL ESTER, WATER FLTRD REC (UG/L)	DIS- SOLVED (UG/L)	WATER, FLTRD, GF 0.7U REC (UG/L)	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L)	CARBO- FURAN WAT,FLT GF 0.7U REC (UG/L)	CARBO- FURAN WATER FLTRD REC (UG/L)	CHLOR ESA FLTRD 0.7 UM GF REC (UG/L)	CHLOR OA FLTRD 0.7 UM GF REC (UG/L)	CHLOR, WATER FLTRD REC (UG/L)	UORFEN WATER, FLTRD, GF 0.7U REC (UG/L)	CHLOR OA FLTRD 0.7 UM GF REC (UG/L)	CHLOR ESA WAT FLT GF 0.7U REC (UG/L)	CHLOR, WATER, DISS, REC, (UG/L)
OCT 17 NOV 21	METHYL ESTER, WATER FLTRD REC (UG/L) (50470)	DIS- SOLVED (UG/L) (39732)	WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	CARBO- FURAN WAT,FLT GF 0.7U REC (UG/L) (49308)	CARBO- FURAN WATER FLTRD REC (UG/L) (50295)	CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029)	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61030)	CHLOR, WATER FLTRD REC (UG/L) (49260)	UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315)	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61031)	CHLOR ESA WAT FLT GF 0.7U REC (UG/L) (50009)	CHLOR, WATER, DISS, REC, (UG/L) (46342)
OCT 17 NOV 21 DEC 18	METHYL ESTER, WATER FLTRD REC (UG/L) (50470)	DIS- SOLVED (UG/L) (39732)	WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	CARBO- FURAN WAT, FLT GF 0.7U REC (UG/L) (49308)	CARBO- FURAN WATER FLTRD REC (UG/L) (50295)	CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029)	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61030)	CHLOR, WATER FLTRD REC (UG/L) (49260)	UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315)	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61031)	CHLOR ESA WAT FLT GF 0.7U REC (UG/L) (50009)	CHLOR, WATER, DISS, REC, (UG/L) (46342)
OCT 17 NOV 21 DEC	METHYL ESTER, WATER FLITRD REC (UG/L) (50470) <.009	DIS- SOLVED (UG/L) (39732) .02	WATER, FLTRD, GF 0.7U REC (UG/L) (38746) <.02	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002	CARBO- FURAN WAT, FLT GF 0.7U REC (UG/L) (49308) <.006	CARBO- FURAN WATER FLIRD REC (UG/L) (50295)	CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029)	CHLOR	CHLOR, WATER FLTRD REC (UG/L) (49260) <.004	UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315) <.007 <.007	CHLOR	CHLOR ESA WAT FLT GF 0.7U REC (UG/L) (50009)	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19	METHYL ESTER, WATER FLTRD REC (UG/L) (50470) <.009 <.009 <.009	DIS- SOLVED (UG/L) (39732) .02 .04 <.02 <.02	WATER, FLITRD, GF 0.7U REC (UG/L) (38746) <.02 <.02 <.02 <.02	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002 <.002 <.002 <.006 <.006	CARBO- FURAN WAT, FLT GF 0.7U REC (UG/L) (49308) <.006 <.006 <.006 <.006	CARBO- FURAN WATER FLTRD REC (UG/L) (50295)	CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029) <.05 .06	CHLOR OA FLITRD 0.7 UM GF REC (UG/L) (61030) <.05 .05 .05 <.05	CHLOR, WATER FLITRD REC (UG/L) (49260) <.004 <.004 <.004 <.006	UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315) <.007 <.007 <.007 <.007	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61031) <.05 <.05 <.05	CHLOR ESA WAT FLT GF 0.7U REC (UG/L) (50009) 19 .18 .22	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002 <.002 <.002 <.004
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25	METHYL ESTER, WATER FLTRD REC (UG/L) (50470) <.009 <.009 <.009	DIS- SOLVED (UG/L) (39732) .02 .04 <.02 <.02	WATER, FLTRD, GF 0.7U REC (UG/L) (38746) <.02 <.02 <.02	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002 <.002 <.002 <.006	CARBO- FURAN WAT, FLT GF 0.7U REC (UG/L) (49308) <.006 <.006	CARBO- FURAN WATER FLTRD REC (UG/L) (50295)	CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029) <.05 .06	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61030) <.05 .05	CHLOR, WATER FLITRD REC (UG/L) (49260) <.004 <.004 <.006	UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315) <.007 <.007	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61031) <.05 <.05	CHLOR ESA WAT FLT GF 0.7U REC (UG/L) (50009) 19 .18	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002 <.002 <.002
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01	METHYL ESTER, WATER FLTRD REC (UG/L) (50470) <.009 <.009 <.009 .137 <.009 <.009	DIS- SOLVED (UG/L) (39732) .02 .04 <.02 <.02 .81 .03 <.02	WATER, FLITRD, GF 0.7U REC (UG/L) (38746) <.02 <.02 <.02 <.02 <.02 <.02 <.02	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002 <.002 <.002 <.006 <.006 <.006	CARBO-FURAN WAT, FLT GF 0.7U REC (UG/L) (49308) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	CARBO-FURAN WATER FLTRD REC (UG/L) (50295)	CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029) <.05 .06 .05 <.05	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61030) <.05 .05 .05 <.05 <.05 <.05 <.05	CHLOR, WATER FLITRD REC (UG/L) (49260) <.004 <.004 <.006 <.006 <.006 <.006	UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315) <.007 <.007 <.007 <.007 <.007	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61031) <.05 <.05 <.05 <.05 <.05 <.05 <.05	CHLOR ESA WAT FLT GF 0.7U REC (UG/L) (50009) .19 .18 .22 .18 <.05 <.05	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002 <.002 <.002 <.004 <.004 <.004 <.004
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 07 14 29	METHYL ESTER, WATER FLTRD REC (UG/L) (50470) <.009 <.009 <.009 .137 <.009 <.009 <.009 <.009	DIS- SOLVED (UG/L) (39732) .02 .04 <.02 <.02 .81 .03 <.02 <.02 <.02	WATER, FLIRD, GF 0.7U REC (UG/L) (38746) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002 <.002 <.002 <.006 <.006 <.006 <.006 <.006 <.006	CARBO-FURAN WAT, FLT GF 0.7U REC (UG/L) (49308) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	CARBO-FURAN WATER FLTRD REC (UG/L) (50295) <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <	CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029) <.05 .06 .05 <.05 .22 .14 <.05 <.05	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61030) <.05 .05 .05 <.05 <.05 <.05 <.05 <.05 <	CHLOR, WATER FLITRD REC (UG/L) (49260) <.004 <.004 <.006 <.006 <.006 <.006 <.006 <.006	UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315) <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61031) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	CHLOR ESA WAT FLT GF 0.7U REC (UG/L) (50009) 19 .18 .22 .18 <.05 <.05 .13	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002 <.002 <.002 <.004 <.004 <.004 <.004 <.004 <.004 <.004
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 14 21 29 JUN 04 19	METHYL ESTER, WATER FLTRD REC (UG/L) (50470) <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009	DIS- SOLVED (UG/L) (39732) .02 .04 <.02 <.02 .81 .03 <.02 <.02 .04 .10 .21 E1.59 .80	WATER, FLTRD, GF 0.7U REC (UG/L) (38746) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002 <.002 <.002 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	CARBO-FURAN WAT, FLT GF 0.7U REC (UG/L) (49308) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	CARBO-FURAN WATER FLTRD REC (UG/L) (50295) <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <	CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029) <.05 .06 .05 <.05 .22 .14 <.05 <.05 <.05 <.05 <.05 <.05 <.05	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61030) <.05 .05 .05 <.05 <.05 <.05 <.05 <.05 <	CHLOR, WATER FLITRD REC (UG/L) (49260) <.004 <.004 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315) <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61031) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	CHLOR ESA WAT FLT GF 0.7U REC (UG/L) (50009) 19 .18 .22 .18 <.05 <.05 .13 .12 .08 .05 <.05 <.05 <.05	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002 <.002 <.002 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 07 14 29 JUN 04 19 19 JUN 19 JUL 10 24 31	METHYL ESTER, WATER FLTRD REC (UG/L) (50470) <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009	DIS- SOLVED (UG/L) (39732) .02 .04 <.02 <.02 <.02 <.02 <.02 <.02 <.02 .04 .10 .21 E1.59 .80 .07	WATER, FLITRD, GF 0.7U REC (UG/L) (38746) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002 <.002 <.002 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	CARBO-FURAN WAT,FLT GF 0.7U REC (UG/L) (49308) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	CARBO-FURAN WATER FLTRD REC (UG/L) (50295) <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <	CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029) <.05 .06 .05 <.05 .22 .14 <.05 <.05 <.05 <.05 .06 <.05 .06 <.05 .06 <.05 .06 <.05 .06 <.05 .06 <.05 .06 <.05 .06 <.05 .06 <.05 .06 <.05 .06 <.05 .09 .09	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61030) <.05 .05 .05 <.05 <.05 <.05 <.05 <.05 <	CHLOR, WATER FLITRD REC (UG/L) (49260) <.004 <.004 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315) <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61031) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	CHLOR ESA WAT FLT GF 0.7U REC (UG/L) (50009) 19 .18 .22 .18 <.05 <.05 .13 .12 .08 .05 <.05 <.05 <.05 <.05 <.05	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002 <.002 <.002 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 14 29 JUN 04 19 21 29 JUN 04 19 19 25 JUL 10 24	METHYL ESTER, WATER FLTRD REC (UG/L) (50470) <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009	DIS- SOLVED (UG/L) (39732) .02 .04 <.02 <.02 <.02 <.02 <.02 <.02 .04 .10 .21 E1.59 .80 .07 .13 .04 .04 .09	WATER, FLTRD, GF 0.7U REC (UG/L) (38746) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660) <.002 <.002 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	CARBO-FURAN WAT, FLT GF 0.7U REC (UG/L) (49308) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	CARBO-FURAN WATER FLITRD REC (UG/L) (50295) <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <	CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029) <.05 .06 .05 <.05 <.05 <.05 <.05 .09 .09 .09 .09 .09 .05 .05 .05 .06 .05 .09 .09	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61030) <.05 .05 .05 <.05 <.05 <.05 <.05 <.05 <	CHLOR, WATER FLITRD REC (UG/L) (49260) <.004 <.004 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315) <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007	CHLOR OA FLITRD 0.7 UM GF REC (UG/L) (61031) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	CHLOR ESA WAT FLT GF 0.7U REC (UG/L) (50009) 19 .18 .22 .18 <.05 <.05 .13 .12 .08 .05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	CHLOR, WATER, DISS, REC, (UG/L) (46342) <.002 <.002 <.002 <.004 <.004 <.004 <.004 <.004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004 <.0004

(National Water-Quality Assessment Station) -- Continued

Date	ALDI- CARB SULFONE WAT,FLT GF 0.7U REC (UG/L) (49313)	ALDICA- RB SUL- FOXIDE, WAT,FLT GF 0.7U REC (UG/L) (49314)	ALDI- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	BENDIO- CARB, WATER FLTRD REC (UG/L) (50299)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BENOMYL WATER FLTRD REC (UG/L) (50300)	BEN- SUL- FURON METHYL WAT FLT REC (UG/L) (61693)	BENTA- ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	BRO- MACIL, WATER, DISS, REC (UG/L) (04029)	BRO- MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)
OCT 17	<.02	<.008	<.04	<.005	.009	<.03	<.010	<.004	<.02	М	<.03	<.02	<.002
NOV 21	<.02	<.008	<.04	<.005	.013	<.03	<.010	<.004	<.02	<.01	E.32	<.02	<.002
DEC 18	<.02	<.008	<.04	<.005	.012	<.03	<.010	<.004	<.02	E.01	E.03	<.02	<.002
JAN 22	<.02	<.008	<.04	<.005	.010	<.03	<.010	<.004	<.02	М	E.02	<.02	<.002
FEB 19	<.02	<.008	<.04	<.005	.012	<.03	<.010	<.004	<.02	E.01	E.03	<.02	<.002
MAR 04	<.02	<.008	<.04	<.005	.011	<.03	<.010	<.004	<.02	E.01	E.03	<.02	<.002
18 25	<.02 <.02	<.008 <.008	<.04 <.04	<.005 <.005	.008	<.03 <.03	<.010 <.010	<.004 <.004	<.02 <.02	.01 E.01	.03 E.02	<.02 <.02	<.002 <.002
APR 01	<.02	<.008	<.04	<.005	.007	<.03	<.010	<.004	<.02	E.01	E.02	<.02	<.002
17 MAY	<.02	<.008	<.04	<.005	.012	<.03	<.010	<.004	<.02	М	E.03	<.02	<.002
01 07	<.02 <.02	<.008 <.008	<.04 <.04	<.005 <.005	.010 .014	<.03 <.03	<.010 <.010	<.004 <.004	<.02 <.02	<.01 <.01	E.02 <.03	<.02 <.0028	<.002 <.002
14	< .02	<.008	< . 04	<.005	.022	< . 03	<.010	<.004	<.02	<.01	< .03	< .02	<.002
21 29	<.02 <.02	<.008 <.008	<.04 <.04	<.005 <.005	.031	<.03 <.03	<.010 <.010	<.004 <.004	<.02 <.02	<.01 <.01	E.02 E.02	<.02 <.02	<.002 <.002
JUN 04	<.02	<.008	<.04	<.005	.041	<.03	<.010	<.004	<.02	<.01	E.02	<.02	<.002
19	<.02	<.008	<.04	<.005	.028	<.03	<.010	<.004	<.02	<.01	<.03	E.02	<.002
25 JUL	<.02	<.008	<.04	<.005	.093	<.03	<.010	<.004	<.02	E.01	<.03	E.02	<.002
10	<.02	<.008	<.04	<.005	.049	<.03	<.010	<.004	<.02	<.01	E.01	<.02	<.002
24 31	<.02 <.02	<.008 <.008	<.04 <.04	<.005 <.005	.027	<.03 <.03	<.010 <.010	<.004 <.004	<.02 <.02	<.01 <.01	E.01 <.03	<.02 <.02	<.002 <.002
AUG													
07 20	<.02 <.02	<.008 <.008	<.04 <.04	<.005 <.005	.022 .019	<.03 <.03	<.010 <.010	<.004 <.004	<.02 <.02	E.03 E.02	E.01 E.01	<.02 <.02	<.002 <.002
26 SEP	<.02	<.008	<.04	<.005	.013	<.03	<.010	<.004	<.02	<.01	E.01	<.02	<.002
18	<.02	<.008	<.04	<.005	.008	<.03	<.010	<.004	<.02	<.01	<.03	<.02	<.002
Date	CAF- FEINE, WATER FLTRD REC (UG/L) (50305)	CAR- BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR- AMBEN, METHYL ESTER WATER FLTRD (UG/L) (61188)	CHLORI- MURON, WATER FLTRD REC (UG/L) (50306)	CHLORO- THALO- NIL, WAT,FLT GF 0.7U REC (UG/L) (49306)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CLOPYR- ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	CY- CLOATE, WATER, DISS, REC (UG/L) (04031)	DACTHAL MONO- ACID, WAT, FLT GF 0.7U REC (UG/L) (49304)
OCT 17	FEINE, WATER FLTRD REC (UG/L)	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L)	BARYL WATER FLTRD 0.7 U GF, REC (UG/L)	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L)	FURAN WATER FLTRD 0.7 U GF, REC (UG/L)	AMBEN, METHYL ESTER WATER FLTRD (UG/L)	MURON, WATER FLTRD REC (UG/L)	THALO- NIL, WAT,FLT GF 0.7U REC (UG/L)	PYRIFOS DIS- SOLVED (UG/L)	ALID, WATER, FLTRD, GF 0.7U REC (UG/L)	ZINE, WATER, DISS, REC (UG/L)	CLOATE, WATER, DISS, REC (UG/L)	MONO- ACID, WAT, FLT GF 0.7U REC (UG/L)
OCT 17 NOV 21	FEINE, WATER FLTRD REC (UG/L) (50305)	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)	FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	AMBEN, METHYL ESTER WATER FLTRD (UG/L) (61188)	MURON, WATER FLTRD REC (UG/L) (50306)	THALO- NIL, WAT,FLT GF 0.7U REC (UG/L) (49306)	PYRIFOS DIS- SOLVED (UG/L) (38933)	ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	ZINE, WATER, DISS, REC (UG/L) (04041)	CLOATE, WATER, DISS, REC (UG/L) (04031)	MONO- ACID, WAT, FLT GF 0.7U REC (UG/L) (49304)
OCT 17 NOV 21 DEC 18	FEINE, WATER FLTRD REC (UG/L) (50305)	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) E.008	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)	FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	AMBEN, METHYL ESTER WATER FLIRD (UG/L) (61188)	MURON, WATER FLTRD REC (UG/L) (50306)	THALO- NIL, WAT,FLT GF 0.7U REC (UG/L) (49306)	PYRIFOS DIS- SOLVED (UG/L) (38933)	ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	ZINE, WATER, DISS, REC (UG/L) (04041)	CLOATE, WATER, DISS, REC (UG/L) (04031)	MONO- ACID, WAT, FLT GF 0.7U REC (UG/L) (49304)
OCT 17 NOV 21 DEC 18 JAN 22	FEINE, WATER FLITRD REC (UG/L) (50305) <.010	BARYL, WATER, FLITRD, GF 0.7U REC (UG/L) (49310) M	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) E.008	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309) <.006	FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674) < .020	AMBEN, METHYL ESTER WATER FLTRD (UG/L) (61188) <.02	MURON, WATER FLTRD REC (UG/L) (50306) <.010	THALO- NIL, WAT, FLT GF 0.7U REC (UG/L) (49306) <.04	PYRIFOS DIS- SOLVED (UG/L) (38933) <.005	ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305) <.01	ZINE, WATER, DISS, REC (UG/L) (04041) <.018	CLOATE, WATER, DISS, REC (UG/L) (04031) <.01	MONO- ACID, WAT, FLT GF 0.7U REC (UG/L) (49304) <.01
OCT 17 NOV 21 DEC 18 JAN 22 FEB	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) M <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) E.008 <.041	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309) <.006 <.006	FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674) < .020 < .020 < .020	AMBEN, METHYLL ESTER WATER FLITRD (UG/L) (61188) <.02 <.02	MURON, WATER FLTRD REC (UG/L) (50306) <.010 <.010	THALO- NIL, WAT, FLT GF 0.7U REC (UG/L) (49306) <.04 <.04	PYRIFOS DIS- SOLVED (UG/L) (38933) <.005 <.005	ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305) <.01 <.01	ZINE, WATER, DISS, REC (UG/L) (04041) <.018 <.018	CLOATE, WATER, DISS, REC (UG/L) (04031) <.01 <.01	MONO- ACID, WAT,FLT GF 0.7U REC (UG/L) (49304) <.01 <.01
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 <.010 <.010 E.007 <.010	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) M <.03 <.03 <.03 <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) E.008 <.041 <.041 <.041	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006	FURAN WATER FLITRD 0.7 U GF, REC (UG/L) (82674) <.020 <.020 <.020 <.020 <.020 <.020 <.020	AMBEN, METHYLL ESTER WATER FLTRD (UG/L) (61188) <.02 <.02 <.02 <.02 <.02 <.02 <.02	MURON, WATER FLTRD REC (UG/L) (50306) <.010 <.010 <.010 <.010 <.010 <.010 <.010	THALO-NIL, WAT, FLT GF 0.7U REC (UG/L) (49306) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04	PYRIFOS DIS- SOLVED (UG/L) (38933) <.005 <.005 <.005 <.005 <.005 <.005	ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305) <.01 <.01 <.01 <.01 <.01	ZINE, WATER, DISS, REC (UG/L) (04041) <.018 <.018 <.018 <.018 <.018	CLOATE, WATER, DISS, REC (UG/L) (04031) <.01 <.01 <.01 <.01 <.01	MONO-ACID, ACID, WAT, FLT GF 0.7U REC (UG/L) (49304) <.01 <.01 <.01 <.01 <.01 <.01 <.01
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 <.010 <.010 E.007 <.010	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) M <.03 <.03 <.03 <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) E.008 <.041 <.041 <.041 <.041 <.041	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006 <.006	FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674) <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020	AMBEN, METHYLL ESTER WATER FLTRD (UG/L) (61188) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	MURON, WATER FLTRD REC (UG/L) (50306) <.010 <.010 <.010 <.010 <.010 <.010 <.010	THALO-NIL, WAT, FLT GF 0.7U REC (UG/L) (49306) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04	PYRIFOS DIS- SOLVED (UG/L) (38933) <.005 <.005 <.005 <.005 <.005 <.005	ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305) <.01 <.01 <.01 <.01 <.01	ZINE, WATER, DISS, REC (UG/L) (04041) <.018 <.018 <.018 <.018 <.018 <.018 <.018	CLOATE, WATER, DISS, REC (UG/L) (04031) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	MONO-ACID, WAT,FLT GF 0.7U REC (UG/L) (49304) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) M <.03 <.03 <.03 <.03 <.03 <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) E.008 <.041 <.041 <.041 <.041 <.041 <.041 E.004	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	FURAN WATER FLITRD 0.7 U GF, REC (UG/L) (82674) <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020	AMBEN, METHYLL ESTER WATER FLTRD (UG/L) (61188) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	MURON, WATER FLTRD REC (UG/L) (50306) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	THALO-NIL, WAT, FLT GF 0.7U REC (UG/L) (49306) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.0	PYRIFOS DIS- SOLVED (UG/L) (38933) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ALID, WATER, FITRD, GF 0.7U REC (UG/L) (49305) <.01 <.01 <.01 <.01 <.01 <.01 <.01	ZINE, WATER, DISS, REC (UG/L) (04041) <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018	CLOATE, WATER, DISS, REC (UG/L) (04031) <.01 <.01 <.01 <.01 <.01 <.01 <.01	MONO-ACID, WAT, FLT GF 0.7U REC (UG/L) (49304) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 <.010 <.010 E.007 <.010	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) M <.03 <.03 <.03 <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) E.008 <.041 <.041 <.041 <.041 <.041	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006 <.006	FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674) <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020	AMBEN, METHYLL ESTER WATER FLTRD (UG/L) (61188) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	MURON, WATER FLTRD REC (UG/L) (50306) <.010 <.010 <.010 <.010 <.010 <.010 <.010	THALO-NIL, WAT, FLT GF 0.7U REC (UG/L) (49306) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04	PYRIFOS DIS- SOLVED (UG/L) (38933) <.005 <.005 <.005 <.005 <.005 <.005	ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305) <.01 <.01 <.01 <.01 <.01	ZINE, WATER, DISS, REC (UG/L) (04041) <.018 <.018 <.018 <.018 <.018 <.018 <.018	CLOATE, WATER, DISS, REC (UG/L) (04031) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	MONO-ACID, WAT,FLT GF 0.7U REC (UG/L) (49304) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) M <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) E.008 <.041 <.041 <.041 <.041 <.041 <.041 <.041 E.004	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674) <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020	AMBEN, METHYLL ESTER WATER FLTRD (UG/L) (61188) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	MURON, WATER FLTRD REC (UG/L) (50306) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	THALO-NIL, WAT, FLT GF 0.7U REC (UG/L) (49306) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.0	PYRIFOS DIS- SOLVED (UG/L) (38933) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	ZINE, WATER, DISS, REC (UG/L) (04041) <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018	CLOATE, WATER, DISS, REC (UG/L) (04031) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	MONO-ACID, ACID, WAT, FLT GF 0.7U REC (UG/L) (49304) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 MAY	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 <.010 <.010 E.007 <.010 0.019 <.010 <.010 <.010 <.010 <.010 <.010	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) M <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) E.008 <.041 <.041 <.041 <.041 E.004 <.041 E.004 E.004 E.004 E.004 E.004	FURAN, WATER, FLITRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	FURAN WATER FLITRD 0.7 U GF, REC (UG/L) (82674) <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020	AMBEN, METHYLL ESTER WATER FLITRD (UG/L) (61188) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	MURON, WATER FLTRD REC (UG/L) (50306) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	THALO-NIL, WAT, FLT GF 0.7U REC (UG/L) (49306) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.0	PYRIFOS DIS- SOLVED (UG/L) (38933) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ALID, WATER, FETRED, GF 0.7U REC (UG/L) (49305) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	ZINE, WATER, DISS, REC (UG/L) (04041) <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018	CLOATE, WATER, DISS, REC (UG/L) (04031) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	MONO-ACID, WAT, FLIT GF 0.7U REC (UG/L) (49304) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) M <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) E.008 <.041 <.041 <.041 <.041 <.041 <.041 <.041 E.004	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674) <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020	AMBEN, METHYLL ESTER WATER FLTRD (UG/L) (61188) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	MURON, WATER FLTRD REC (UG/L) (50306) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	THALO-NIL, WAT, FLT GF 0.7U REC (UG/L) (49306) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.0	PYRIFOS DIS- SOLVED (UG/L) (38933) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	ZINE, WATER, DISS, REC (UG/L) (04041) <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018	CLOATE, WATER, DISS, REC (UG/L) (04031) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	MONO-ACID, ACID, WAT, FLT GF 0.7U REC (UG/L) (49304) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 07 14 21	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) M <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) E.008 <.041 <.041 <.041 <.041 <.041 <.041 <.041 <.041 <.041 <.041 E.004 <.041 <.041 E.004	FURAN, WATER, FLITRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	FURAN WATER FLITRD 0.7 U GF, REC (UG/L) (82674) <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020	AMBEN, METHYLL ESTER WATER FLTRD (UG/L) (61188) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	MURON, WATER FLTRD REC (UG/L) (50306) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	THALO-NIL, WAT, FLT GF 0.7U REC (UG/L) (49306) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.0	PYRIFOS DIS- SOLVED (UG/L) (38933) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ALID, WATER, FITRD, GF 0.7U REC (UG/L) (49305) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	ZINE, WATER, DISS, REC (UG/L) (04041) <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018	CLOATE, WATER, DISS, REC (UG/L) (04031) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	MONO-ACID, WAT, FLT GF 0.7U REC (UG/L) (49304) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 21 29 JUN 04	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) M <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) E.008 <.041 <.041 <.041 <.041 <.041 <.041 <.041 E.004 <.041 E.004 E.004 E.004 E.004 E.004 E.004 E.004 E.004 E.004 E.004 E.005 E.003 E.003 E.003 E.003	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	FURAN WATER FLITRD 0.7 U GF, REC (UG/L) (82674) <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020	AMBEN, METHYLL ESTER WATER FLTRD (UG/L) (61188) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	MURON, WATER FLTRD REC (UG/L) (50306) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	THALO-NIL, WAT, FLT GF 0.7U REC (UG/L) (49306) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.0	PYRIFOS DIS- SOLVED (UG/L) (38933) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ALID, WATER, FLTRE, FLTRE, GF 0.7U REC (UG/L) (49305) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	ZINE, WATER, DISS, REC (UG/L) (04041) <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018	CLOATE, WATER, DISS, REC (UG/L) (04031) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	MONO-ACID, ACID, WAT, FLT GF 0.7U REC (UG/L) (49304) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 21 29 JUN 04 19	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	BARYL, WATER, FLITRD, GF 0.7U REC (UG/L) (49310) M <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) E.008 <.041 <.041 <.041 <.041 <.041 <.041 E.004 <.041 E.004 E.004 E.003 E.003 E.003 E.003 E.003 E.003 E.003 E.004 <.041	FURAN, WATER, FLITRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	FURAN WATER FLITRD 0.7 U GF, REC (UG/L) (82674) <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020	AMBEN, METHYLL ESTER WATER FLITRD (UG/L) (61188) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	MURON, WATER FLTRD REC (UG/L) (50306) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	THALO-NIL, WAT, FLT GF 0.7U REC (UG/L) (49306) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.0	PYRIFOS DIS- SOLVED (UG/L) (38933) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ALID, WATER, FETRED, GF 0.7U REC (UG/L) (49305) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	ZINE, WATER, DISS, REC (UG/L) (04041) <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018	CLOATE, WATER, DISS, REC (UG/L) (04031) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	MONO-ACID, WAT, FLIT GF 0.7U REC (UG/L) (49304) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 21 29 JUN 04 19 25 JUN 04 19 25 JUL	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) M <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) E.008 <.041 <.041 <.041 <.041 <.041 <.041 <.041 E.004 <.041 E.005 E.098 E.023 E.013 E.013 E.004 <.041 E.005	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	FURAN WATER FLITRD 0.7 U GF, REC (UG/L) (82674) <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020	AMBEN, METHYLL ESTER WATER FLTRD (UG/L) (61188) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	MURON, WATER FLTRD REC (UG/L) (50306) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	THALO-NII, WAT,FIT GF 0.7U REC (UG/L)(49306) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.0	PYRIFOS DIS- SOLVED (UG/L) (38933) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ALID, WATER, FLTREN, GF 0.7U REC (UG/L) (49305) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	ZINE, WATER, DISS, REC (UG/L) (04041) <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018	CLOATE, WATER, DISS, REC (UG/L) (04031) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	MONO-ACID, ACID, WAT, FLT GF 0.7U REC (UG/L) (49304) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
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OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 07 14 21 29 JUN 04 19 19 JUN 04 19 25 JUL 10 24	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) M <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) E.008 <.041 <.041 <.041 <.041 <.041 <.041 <.041 <.041 E.004 <.041 E.005 E.098 E.023 E.031 E.013 E.013 E.004 <.041 E.005 E.007 E.007	FURAN, WATER, FLITRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	FURAN WATER FLITRD 0.7 U GF, REC (UG/L) (82674) <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020	AMBEN, METHYLL ESTER WATER FLTRD (UG/L) (61188) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	MURON, WATER FLTRD REC (UG/L) (50306) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	THALO-NIL, WAT,FLT GF 0.7U REC (UG/L) (49306) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.0	PYRIFOS DIS- SOLVED (UG/L) (38933) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ALID, WATER, FLTREN, GF 0.7U REC (UG/L) (49305) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	ZINE, WATER, DISS, REC (UG/L) (04041) <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018	CLOATE, WATER, PISS, REC (UG/L) (04031) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	MONO-ACID, WAT, FLT GF 0.7U REC (UG/L) (49304) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 21 29 JUN 04 19 25 JUL 10 24 31 AUG 07 20	FEINE, WATER FLITED REC (UG/L) (50305) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) M <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) E.008 <.041 <.041 <.041 <.041 <.041 <.041 <.041 <.041 <.041 <.041 <.041 E.004 <.041 E.004 <.041 E.004 C.041 E.004 C.041 E.005 E.007 E.001 E.007 E.001 E.007 E.001 E.004 E.005	FURAN, WATER, FLITRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	FURAN WATER FLITRD 0.7 U GF, REC (UG/L) (82674) <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020	AMBEN, METHYLL ESTER WATER FLTRD (UG/L) (61188) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	MURON, WATER FLTRD REC (UG/L) (50306) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	THALO-NIL, WAT, FLT GF 0.7U REC (UG/L) (49306) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.0	PYRIFOS DIS- SOLVED (UG/L) (38933) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ALID, WATER, FETRER, FETRER, FETRER, FETRER, FETRER, GF 0.7U REC (UG/L) (49305) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	ZINE, WATER, DISS, REC (UG/L) (04041) <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018	CLOATE, WATER, DISS, REC (UG/L) (04031) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	MONO-ACID, WAT, FLT GF 0.7U REC (UG/L) (49304) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 17 MAY 01 21 UT 14 21 JUN 04 19 25 JUN 19 25 JUL 10 24 31 AUG 07	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) M <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) E.008 <.041 <.041 <.041 <.041 <.041 <.041 <.041 E.004 <.041 E.004 <.041 E.005 E.003 E.013 E.013 E.004 <.041 E.005 E.007 E.011 <.041 E.005	FURAN, WATER, FLITRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	FURAN WATER FLITRD 0.7 U GF, REC (UG/L) (82674) <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020 <.020	AMBEN, METHYLL ESTER WATER FLTRD (UG/L) (61188) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	MURON, WATER FLTRD REC (UG/L) (50306) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	THALO-NIL, WAT, FLT GF 0.7U REC (UG/L) (49306) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.0	PYRIFOS DIS- SOLVED (UG/L) (38933) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ALID, WATER, FETRER, FETRER, FETRER, FETRER, FETRER, FETRER, GF 0.7U REC (UG/L) (49305) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	ZINE, WATER, DISS, REC (UG/L) (04041) <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018 <.018	CLOATE, WATER, PISS, PIS	MONO-ACID, WAT, FLIT GF 0.7U REC (UG/L) (49304) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0

(National Water-Quality Assessment Station) -- Continued

Date	DCPA WATER FLITRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DEETHYL DEISO- PROPYL ATRAZIN DISS, REC (UG/L) (04039)	DEISO- PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	DICHLOR PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DIMETH- ENAMID OA, WATER FLT, REC (UG/L) (62482)	DIMETH- ENAMID, ESA, WAT FLT (UG/L) (61951)	DINOSEB WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	DIPHEN- AMID, WATER, DISS, REC (UG/L) (04033)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)
OCT 17	<.003	E.008	E.01	<.04	.025	<.01	<.01	<.005			<.01	<.03	<.02
NOV 21	<.003	E.013	M	<.04	<.005	<.01	<.01	<.005	<.05	<.05	<.01	<.03	<.02
DEC 18	<.003	E.012	M	<.04	<.005	<.01	<.01	<.005	<.05	<.05	<.01	<.03	<.02
JAN 22 FEB	<.003	E.011	E.01	<.04	<.005	<.01	<.01	<.005	<.05	<.05	<.01	<.03	<.02
19 MAR	<.003	E.011	<.01	<.04	<.005	<.01	<.01	<.005	<.05	<.05	<.01	<.03	<.02
04 18 25 APR	<.003 <.003 <.003	E.013 E.010 E.010	<.01 <.01 <.01	<.04 <.04 <.04	<.005 <.005 <.005	<.01 <.01 <.01	<.01 <.01 <.01	<.005 <.005 <.005	<.05 <.05 <.05	<.05 <.05 <.05	<.01 <.01 <.01	<.03 <.03 <.03	<.02 <.02 <.02
01 17 MAY	<.003 <.003	E.007 E.008	<.01 <.01	<.04 <.04	<.005 <.005	<.01 <.01	<.01 <.01	<.005 <.005	<.05 <.05	<.05 <.05	<.01 <.01	<.03 <.03	<.02 <.02
01 07 14 21 29	<.003 <.003 <.003 <.003 <.003	E.006 E.005 E.006 E.008 E.009	<.01 <.01 <.01 <.01 <.01	<.04 <.04 E.09 <.04 M	<.005 <.005 <.005 E.004 <.005	<.01 E.02 .19 <.01 .03	.01 <.01 <.01 <.01	<.005 <.005 <.005 <.005 <.005	<.05 <.05 <.05 <.05 <.05	<.05 <.05 <.05 <.05 <.05	<.01 <.01 <.01 <.01 <.01	<.03 <.03 <.03 <.03 <.03	<.02 <.02 <.02 <.02 <.02
04 19 25 JUL	<.003 <.003 <.003	E.009 E.009 E.018	<.01 <.01 <.01	<.04 <.04 <.04	<.005 <.005 <.005	<.01 <.01 .03	<.01 <.01 <.01	<.005 <.005 <.005	<.05 <.05 <.05	<.05 <.05 <.05	<.01 <.01 <.01	<.03 <.03 <.03	<.02 <.02 <.02
10 24 31	<.003 <.003 <.003	E.024 E.016 E.019	<.01 <.01 <.01	E.01 <.04 <.04	<.005 <.005 <.005	<.01 .16 <.01	<.01 <.01 <.01	<.005 <.005 <.005	<.05 <.05 <.05	<.05 <.05 <.05	<.01 <.01 <.01	<.03 <.03 <.03	<.02 <.02 <.02
07 20 26 SEP	<.003 <.003 <.003	E.017 E.016 E.012	<.01 <.01 <.01	M <.04 <.04	<.005 <.005 <.005	<.01 <.01 <.01	<.01 <.01 <.01	<.005 <.005 <.005	<.05 <.05 <.05	<.05 <.05 <.05	<.01 <.01 <.01	<.03 <.03 <.03	E.49 <.02 <.02
18	<.003	E.008	<.01	<.04	<.005	.05	<.01	<.005	<.05	<.05	<.01	<.03	<.02
Date	DIURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FEN- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	FLUFEN- ACET, ESA, WAT FLT (UG/L) (61952)	FLUFE- NACET OA, WATER FLT, REC (UG/L) (62483)	FLUMET- SULAM WATER FLTRD REC (UG/L) (61694)	FLUO- METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811)	FONOFOS WATER DISS REC (UG/L) (04095)	HYDROXY ATRA- ZINE WATER FLTRD REC (UG/L) (50355)	IMAZ- AQUIN WATER FLTRD REC (UG/L) (50356)	IMAZE- THAPYR WATER FLITRD REC (UG/L) (50407)
OCT 17	WATER, FLTRD, GF 0.7U REC (UG/L)	WATER FLTRD 0.7 U GF, REC (UG/L)	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L)	PROP WATER FLTRD 0.7 U GF, REC (UG/L)	URON, WATER, FLTRD, GF 0.7U REC (UG/L)	ACET, ESA, WAT FLT (UG/L)	NACET OA, WATER FLT, REC (UG/L)	SULAM WATER FLTRD REC (UG/L)	METURON WATER, FLTRD, GF 0.7U REC (UG/L)	WATER DISS REC (UG/L)	ATRA- ZINE WATER FLTRD REC (UG/L)	AQUIN WATER FLTRD REC (UG/L)	THAPYR WATER FLTRD REC (UG/L)
OCT 17 NOV 21	WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	ACET, ESA, WAT FLT (UG/L) (61952)	NACET OA, WATER FLT, REC (UG/L) (62483)	SULAM WATER FLTRD REC (UG/L) (61694)	METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811)	WATER DISS REC (UG/L) (04095)	ATRA- ZINE WATER FLTRD REC (UG/L) (50355)	AQUIN WATER FLTRD REC (UG/L) (50356)	THAPYR WATER FLTRD REC (UG/L) (50407)
OCT 17 NOV 21 DEC 18	WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	ACET, ESA, WAT FLT (UG/L) (61952)	NACET OA, WATER FLT, REC (UG/L) (62483)	SULAM WATER FLTRD REC (UG/L) (61694)	METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811)	WATER DISS REC (UG/L) (04095)	ATRA- ZINE WATER FLTRD REC (UG/L) (50355)	AQUIN WATER FLTRD REC (UG/L) (50356)	THAPYR WATER FLTRD REC (UG/L) (50407)
OCT 17 NOV 21 DEC 18 JAN 22	WATER, FLTRD, GF 0.7U REC (UG/L) (49300) E.01	WATER FLTRD 0.7 U GF, REC (UG/L) (82668) <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	ACET, ESA, WAT FLT (UG/L) (61952)	NACET OA, WATER FLT, REC (UG/L) (62483)	SULAM WATER FLTRD REC (UG/L) (61694) <.01	METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811) <.03 <.03	WATER DISS REC (UG/L) (04095) <.003	ATRA- ZINE WATER FLITED REC (UG/L) (50355) E.011	AQUIN WATER FLTRD REC (UG/L) (50356) <.02	THAPYR WATER FLTRD REC (UG/L) (50407) <.02
OCT 17 NOV 21 DEC 18 JAN	WATER, FLITRD, GF 0.7U REC (UG/L) (49300) E.01 .43 E.01	WATER FLTRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03	ACET, ESA, WAT FLT (UG/L) (61952) <.05	NACET OA, WATER FLT, REC (UG/L) (62483) <.05	SULAM WATER FLTM REC (UG/L) (61694) <.01 <.01 <.01	METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811) <.03 <.03	WATER DISS REC (UG/L) (04095) <.003 <.003	ATRA- ZINE WATER FLTRD REC (UG/L) (50355) E.011 <.008 E.005	AQUIN WATER FLTRD REC (UG/L) (50356) <.02 <.02 <.02	THAPYR WATER FLTRD REC (UG/L) (50407) <.02 <.02 <.02
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25	WATER, FLITRD, GF 0.7U REC (UG/L) (49300) E.01 .43 E.01	WATER FLIRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03	ACET, ESA, WAT FLT (UG/L) (61952) <.05 <.05	NACET OA, WATER FLT, REC (UG/L) (62483) <.05 <.05	SULAM WATER FLIRD REC (UG/L) (61694) <.01 <.01 <.01 <.01	METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811) <.03 <.03 <.03 <.03	WATER DISS REC (UG/L) (04095) <.003 <.003 <.003	ATRA- ZINE WATER FLTRD REC (UG/L) (50355) E.011 <.008 E.005 <.008	AQUIN WATER FLTRD REC (UG/L) (50356) <.02 <.02 <.02 <.02	THAPYR WATER FLTRD REC (UG/L) (50407) <.02 <.02 <.02 <.02
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01	WATER, FLITRD, GF 0.7U REC (UG/L) (49300) E.01 .43 E.01 .02 .02	WATER FLIRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002 <.002 <.002 <.002 <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009 <.009 <.009 <.009	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	ACET, ESA, WAT FLT (UG/L) (61952) <.05 <.05 <.05 <.05 <.05	NACET OA, WATER FLT, REC (UG/L) (62483) <.05 <.05 <.05 <.05 <.05	SULAM WATER FLITRD REC (UG/L) (61694) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811) <.03 <.03 <.03 <.03 <.03 <.03	WATER DISS REC (UG/L) (04095) <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003	ATRA- ZINE WATER FLTRD REC (UG/L) (50355) E.011 <.008 E.005 <.008 E.003	AQUIN WATER FLITRD REC (UG/L) (50356) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	THAPYR WATER FLTRD REC (UG/L) (50407) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 07 14 21	WATER, FLITRD, GF 0.7U REC (UG/L) (49300) E.01 .43 E.01 .02 .02	WATER FLIRD 0.7 U GF, REC (UG/L) (82668)	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	ACET, ESA, WAT FLT (UG/L) (61952) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	NACET OA, WATER FLT, REC (UG/L) (62483) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	SULAM WATER FLITRD REC (UG/L) (61694) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	WATER DISS REC (UG/L) (04095) <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003	ATRA- ZINE WATER FLTRD REC (UG/L) (50355) E.011 <.008 E.005 <.008 E.003 <.008 <.008 E.007	AQUIN WATER FLITRD REC (UG/L) (50356) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	THAPYR WATER FLTRD REC (UG/L) (50407) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 07 14 21 29 JUN 04	WATER, FLITRD, GF 0.7U REC (UG/L) (49300) E.01 .43 E.01 .02 .02 .03 .01 .02 .02 E.02 E.06 .35 .05	WATER FLIRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	ACET, ESA, WAT FLT (UG/L) (61952) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	NACET OA, WATER FLT, REC (UG/L) (62483) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	SULAM WATER FLITRD REC (UG/L) (61694) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	WATER DISS REC (UG/L) (04095) <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003	ATRA- ZINE WATER FLTRD REC (UG/L) (50355) E.011 <.008 E.005 <.008 E.003 <.008 <.008 E.007 <.008 <.008 E.007	AQUIN WATER FLITRD REC (UG/L) (50356) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	THAPYR WATER FLTRD REC (UG/L) (50407) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0
OCT	WATER, FLITRD, GF 0.7U REC (UG/L) (49300) E.01 .43 E.01 .02 .02 .03 .01 .02 .02 E.02 E.06 .35 .05 .05 .07 .05 .07 .05	WATER FLIRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .005 < .00	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	ACET, ESA, WAT FLT (UG/L) (61952) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	NACET OA, WATER FLT, REC (UG/L) (62483) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	SULAM WATER FLITRD REC (UG/L) (61694) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	METURON WATER, FLITRD, GF 0.7U REC (UG/L) (38811) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	WATER DISS REC (UG/L) (04095) <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003	ATRA-ZINE WATER FLTRD REC (UG/L) (50355) E.011 <.008 E.005 <.008 E.003 <.008 E.007 <.008 <.008 E.007 <.008 E.007 <.008 E.007 <.008 E.007 <.008 E.007	AQUIN WATER FLITRD REC (UG/L) (50356) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	THAPYR WATER FLTRD REC (UG/L) (50407) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0
OCT	WATER, FLITRD, GF 0.7U REC (UG/L) (49300) E.01 .43 E.01 .02 .02 .03 .01 .02 E.02 E.06 .35 .05 .07 .05 .04 .03 .02 .02 .04	WATER FLIRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	FLUR- ALIN WAT FIT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	ACET, ESA, WAT FLT (UG/L) (61952) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	NACET OA, WATTER FLT, REC (UG/L) (62483) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	SULAM WATER FLITRD REC (UG/L) (61694) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	METURON WATER, FLITRD, GF 0.7U REC (UG/L) (38811) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	WATER DISS REC (UG/L) (04095) <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003	ATRA- ZINE WATER FLTRD REC (UG/L) (50355) E.011 <.008 E.005 <.008 E.003 <.008 E.003 <.008 E.007 <.008 E.007 <.008 E.001 <.008 E.007 <.008 E.008 E.007	AQUIN WATER FLITRD REC (UG/L) (50356) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	THAPYR WATER FLTRD REC (UG/L) (50407) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0

(National Water-Quality Assessment Station) -- Continued

WATER-OHALLTY	בדבת	MATER	VEAR	OCTORER	2001	TO	SEPTEMBER	2002

Date	IMID- ACLOP- RID WATER FLTRD REC (UG/L) (61695)	LINDANE DIS- SOLVED (UG/L) (39341)	LINURON WATER, FLTRD, GF 0.7U REC (UG/L) (38478)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	MCPA, WATER, FLTRD, GF 0.7U REC (UG/L) (38482)	MCPB, WATER, FLTRD, GF 0.7U REC (UG/L) (38487)	METAL- AXYL WATER FLTRD REC (UG/L) (50359)	METHIO- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	METH- OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METOLA- CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61043)
OCT	. 007	. 004	. 01	. 025	. 007	. 00	. 01	. 00	. 000	. 004	. 050	. 006	
17 NOV	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02	<.008	<.004	<.050	<.006	
21 DEC	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02	<.008	<.004	<.050	<.006	<.05
18 JAN	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02	<.008	<.004	<.050	<.006	<.05
22 FEB	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02	<.008	<.004	<.050	<.006	<.05
19 MAR	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02	<.008	<.004	<.050	<.006	<.05
04 18	<.007 <.007	<.004 <.004	<.01 <.01	<.035 <.035	<.027 <.027	<.02 <.20	<.01 <.01	<.02 <.02	<.008 <.008	<.004 <.004	<.050 <.050	<.006 <.006	<.05 <.05
25 APR	<.007	<.004	<.01	<.035	<.027	<.09	<.01	<.02	<.008	<.004	<.050	<.006	<.05
01 17	<.007 <.007	<.004 <.004	<.01 <.01	<.035 <.035	<.027 <.027	<.02 <.02	<.01 <.01	<.02 <.02	<.008 <.008	<.004 <.004	<.050 <.050	<.006 <.006	<.05 <.05
MAY 01	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02	<.008	<.004	<.050	<.006	<.05
07	< .007	<.004	<.01	<.035 <.035	<.027	M	<.01	<.02	<.008	<.004	<.050	<.006	<.05
14 21	<.007 <.007	<.004 <.004	<.01 <.01	<.035	<.027 <.027	<.02 <.02	<.01 <.01	<.02 <.02	<.008 <.008	<.004 <.004	<.050 E.019	<.006 <.006	<.05 <.05
29	<.007	<.004	<.01	<.035	<.027	<.02	<.01	E.01	<.008	<.004	E.035	<.006	<.05
JUN 04	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02	<.008	<.004	E.045	<.006	<.05
19	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02	<.008	<.004	E.170	<.006	<.05
25 JUL	<.007	<.004	<.01	<.035	.125	<.02	<.01	<.02	<.008	<.004	E.045	<.006	<.05
10	<.007	<.004	<.01	<.035	E.007	<.02	<.01	<.02	<.008	<.004	E.054	<.006	<.05
24 31	<.007 <.007	<.004 <.004	<.01 <.01	<.035 <.035	<.027 <.027	<.02 <.02	<.01 <.01	<.02 <.02	<.008 <.008	<.004 <.004	E.061 E.049	<.006 <.006	<.05 <.05
AUG													
07 20	<.007 <.007	<.004 <.004	<.01 <.01	<.035 <.035	<.027 <.027	<.02 <.02	<.01 <.01	<.02 <.02	<.008 <.008	<.004 <.004	E.037 E.025	<.006 <.006	<.05 <.05
26	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02	<.008	<.004	E.018	<.006	<.05
SEP 18	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02	<.008	<.004	<.050	<.006	<.05
Date	METOLA- CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61044)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MET- SUL- FURON METHYL WAT FLT REC (UG/L) (61697)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	NEB- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	NICOSUL FURON WATER FLIRD REC (UG/L) (50364)	NORFLUR AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	ORY- ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)	OXAMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (38866)	P,P' DDE DISSOLV (UG/L) (34653)	PARA- THION, DIS- SOLVED (UG/L) (39542)
OCT	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61044)	LACHLOR WATER DISSOLV (UG/L) (39415)	BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	SUL- FURON METHYL WAT FLT REC (UG/L) (61697)	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	FURON WATER FLTRD REC (UG/L) (50364)	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)	WATER, FLTRD, GF 0.7U REC (UG/L) (38866)	DDE DISSOLV (UG/L) (34653)	THION, DIS- SOLVED (UG/L) (39542)
OCT 17 NOV	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61044)	LACHLOR WATER DISSOLV (UG/L) (39415)	BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	SUL- FURON METHYL WAT FLT REC (UG/L) (61697)	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	FURON WATER FLTRD REC (UG/L) (50364)	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)	WATER, FLTRD, GF 0.7U REC (UG/L) (38866)	DDE DISSOLV (UG/L) (34653)	THION, DIS- SOLVED (UG/L) (39542)
OCT 17 NOV 21 DEC	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61044)	LACHLOR WATER DISSOLV (UG/L) (39415) <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01	FURON WATER FLTRD REC (UG/L) (50364) <.01	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02	WATER, FLTRD, GF 0.7U REC (UG/L) (38866) <.01	DDE DISSOLV (UG/L) (34653) <.003	THION, DIS- SOLVED (UG/L) (39542) <.007
OCT 17 NOV 21 DEC 18 JAN	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61044) <.05 <.05	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01	FURON WATER FLTRD REC (UG/L) (50364) <.01 <.01 <.01	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293) <.02 <.02	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02	WATER, FLTRD, GF 0.7U REC (UG/L) (38866) <.01 <.01	DDE DISSOLV (UG/L) (34653) <.003 .003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.007
OCT 17 NOV 21 DEC 18 JAN 22 FEB	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61044) <.05 <.05	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01	FURON WATER FLITRD REC (UG/L) (50364) <.01 <.01 <.01 <.01	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02	WATER, FLITRD, GF 0.7U REC (UG/L) (38866) <.01 <.01 <.01	DDE DISSOLV (UG/L) (34653) <.003 .003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.007 <.007
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR	CHLOR OA FLITRD 0.7 UM GF REC (UG/L) (61044) <.05 <.05 <.05 <.05	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01	FURON WATER FLTRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01	AZON, WATER, FLITRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02 <.02	WATER, FLIRD, GF 0.7U REC (UG/L) (38866) <.01 <.01 <.01 <.01	DDE DISSOLV (UG/L) (34653) <.003 .003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.007 <.007 <.010 <.010
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04	CHLOR OA FLITRD 0.7 UM GF REC (UG/L) (61044) <.05 <.05 <.05 <.05 <.05	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01 <.01	FURON WATER FLITRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01 <.01 <.01	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02 <.02	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02 <.02 <.02 <.02	WATER, FLITRD, GF 0.7U REC (UG/L) (38866) <.01 <.01 <.01 <.01	DDE DISSOLV (UG/L) (34653) <.003 .003 <.003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.007 <.007 <.010 <.010 <.010
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25	CHLOR OA FLITRD 0.7 UM GF REC (UG/L) (61044) <.05 <.05 <.05 <.05	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01	FURON WATER FLTRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01	AZON, WATER, FLITRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02 <.02	WATER, FLIRD, GF 0.7U REC (UG/L) (38866) <.01 <.01 <.01 <.01	DDE DISSOLV (UG/L) (34653) <.003 .003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.007 <.007 <.010 <.010
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61044) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03 <.03 <.03 <.03	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.0002 <.0002 <.0002 <.0002 <.0002 <.0002 <.0002 <.0002 <.0002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	FURON WATER FLITRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02	WATER, FLITRD, GF 0.7U REC (UG/L) (38866) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	DDE DISSOLV (UG/L) (34653) <.003 .003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.007 <.007 <.010 <.010 <.010 <.010 <.010 <.010 <.010
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01	CHLOR OA FLITRD 0.7 UM GF REC (UG/L) (61044) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	FURON WATER FLITRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	AZON, WATER, FLITRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	WATER, FLITRD, GF 0.7U REC (UG/L) (38866) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	DDE DISSOLV (UG/L) (34653) <.003 .003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.007 <.007 <.010 <.010 <.010 <.010 <.010 <.010 <.010
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61044) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	FURON WATER FLITRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.03	WATER, FLITRD, GF 0.7U REC (UG/L) (38866) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	DDE DISSOLV (UG/L) (34653) <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.007 <.007 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01	CHLOR OA FLITRD 0.7 UM GF REC (UG/L) (61044) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	FURON WATER FLITRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	AZON, WATER, FLITRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	WATER, FLITRD, GF 0.7U REC (UG/L) (38866) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	DDE DISSOLV (UG/L) (34653) <.003 .003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.007 <.007 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 07 14 21	CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61044) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	FURON WATER FLITRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	WATER, FLITRD, GF 0.7U REC (UG/L) (38866) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	DDE DISSOLV (UG/L) (34653) <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.007 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010
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OCT 17 NOV 21 DEC 18 JAN 222 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 07 14 29 JUN 04 19 25 JUL	CHLOR OA FLITRD 0.7 UM GF REC (UG/L) (61044) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	FURON WATER FLTRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	WATER, FLITRD, GF 0.7U REC (UG/L) (38866) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	DDE DISSOLV (UG/L) (34653) <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.007 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 07 14 29 JUN 04 19 25 JUN 04 19 19 25 JUL 10 24	CHLOR OA FLITRD 0.7 UM GF REC (UG/L) (61044) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLITRD 0.7 U GF, REC (UG/L) (82684)	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	FURON WATER FLITRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	AZON, WATER, FLITRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	WATER, FLITRD, GF 0.7U REC (UG/L) (38866) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	DDE DISSOLV (UG/L) (34653) <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.004	THION, DIS- SOLVED (UG/L) (39542) <.007 <.007 <.007 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 07 14 29 JUN 04 19 25 JUL 10	CHLOR OA FLITRD 0.7 UM GF REC (UG/L) (61044) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLITRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	FURON WATER FLITRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	AZON, WATER, FLITRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	WATER, FLITRD, GF 0.7U REC (UG/L) (38866) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	DDE DISSOLV (UG/L) (34653) <.003 .003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.007 <.007 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 07 14 29 JUN 04 19 25 JUL 10 24 31 AUG 07	CHLOR OA FLITRD 0.7 UM GF REC (UG/L) (61044) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLITRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	FURON WATER FLITRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	AZON, WATER, FLITRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	WATER, FLITRD, GF 0.7U REC (UG/L) (38866) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	DDE DISSOLV (UG/L) (34653) <.003 .003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.004 .004	THION, DIS- SOLVED (UG/L) (39542) <.007 <.007 <.007 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010
OCT 17 NOV 21 DEC 18 JAN 222 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 07 29 JUN 04 19 29 JUN 19 25 JUL 10 24 31 AUG 07 20	CHLOR OA FLITRD 0.7 UM GF REC (UG/L) (61044) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLITRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	FURON WATER FLITRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	AZON, WATER, FLITRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	WATER, FLITRD, GF 0.7U REC (UG/L) (38866) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	DDE DISSOLV (UG/L) (34653) <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.004 <.004 <.003	THION, DIS- SOLVED (UG/L) (39542) <.007 <.007 <.007 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010
OCT 17 NOV 21 DEC 18 JAN 22 FEB 19 MAR 04 18 25 APR 01 17 MAY 01 07 14 29 JUN 04 19 25 JUL 10 24 31 AUG 07	CHLOR OA FLITRD 0.7 UM GF REC (UG/L) (61044) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLITRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	FURON WATER FLITRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	AZON, WATER, FLITRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	WATER, FLITRD, GF 0.7U REC (UG/L) (38866) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	DDE DISSOLV (UG/L) (34653) <.003 .003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.004 .004	THION, DIS- SOLVED (UG/L) (39542) <.007 <.007 <.007 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010

(National Water-Quality Assessment Station) -- Continued

	WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
Date	PEB- ULLATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PIC- LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PRO- PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236)	PROP- ICONA- ZOLE , WATER FLTRD REC (UG/L) (50471)	PRO- POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538)
OCT 17	<.002	<.010	<.006	<.011	<.02	<.01	<.004	<.010	<.011	<.02	<.010	<.02	<.008
NOV		<.010											
21 DEC	<.002		<.006	<.011	<.02	<.01	<.004	<.010	<.011	<.02	<.010	<.02	<.008
18 JAN	<.002	<.010	<.006	<.011	<.02	<.01	<.004	<.010	<.011	<.02	<.010	<.02	<.008
22 FEB	<.004	<.022	<.006	<.011	<.02	<.01	<.004	<.010	<.011	<.02	<.010	<.02	<.008
19 MAR	<.004	<.022	<.006	<.011	<.02	<.01	<.004	<.010	<.011	<.02	<.010	<.02	<.008
04 18 25	<.004 <.004 <.004	<.022 <.022 <.022	<.006 <.006 <.006	<.011 <.011 <.011	<.02 <.02 <.02	<.01 <.01 <.01	<.004 <.004 <.004	<.010 <.010 <.010	<.011 <.011 <.011	<.02 <.02 <.02	<.010 <.010 <.010	<.02 <.02 <.02	<.008 <.008 <.008
APR 01	<.004	<.022	<.006	<.011	<.02	<.01	<.004	<.010	<.011	<.02	<.010	<.02	<.008
17 MAY	<.004	<.022	<.006	<.011	<.02	<.01	<.004	<.010	<.011	<.02	<.010	<.02	<.008
01 07	<.004 <.004	<.022 <.022	<.006 <.006	<.011 <.011	<.02 <.02	<.01 <.01	<.004 <.004	<.010 <.010	<.011 <.011	<.02 <.02	<.010 <.010	<.02 <.02	<.008 <.008
14 21	<.004 <.004	<.022 <.022	<.006 <.006	<.011 <.011	<.02 <.02	<.01 M	<.004 <.004	<.010 <.010	<.011 <.011	<.02 <.02	<.010 <.010	<.02 <.02	<.008
29	<.004	<.022	<.006	<.011	<.02	M	<.004	<.010	<.011	<.02	<.010	<.02	<.008
JUN 04	<.004	<.022	<.006	<.011	<.02	<.01	<.004	<.010	<.011	<.02	<.010	<.02	<.008
19 25	<.004 <.004	<.022 <.022	<.006 <.006	<.011 <.011	<.02 <.02	<.01 <.01	<.004 <.004	<.010 <.010	<.011 <.011	<.02 <.02	<.010 <.010	<.02 <.02	<.008 <.008
JUL 10	<.004	<.022	<.006	<.011	<.02	<.01	<.004	<.010	<.011	<.02	<.010	<.02	<.008
24	<.004	<.022	<.006	<.011	<.02	M	< .004	<.010	<.011	<.02	<.010	<.02	<.008
31 AUG	<.004	<.022	<.006	<.011	<.02	<.01	<.004	<.010	<.011	<.02	<.010	<.02	<.008
07 20 26	<.004 <.004 <.004	<.022 <.022 <.022	<.006 <.006 <.006	<.011 <.011 <.011	<.02 <.02 <.02	<.01 <.01 <.01	<.004 <.004 <.004	<.010 <.010 <.010	<.011 <.011 <.011	<.02 <.02 <.02	<.010 <.010 <.010	<.02 <.02 <.02	<.008 <.008 <.008
SEP 18	<.004	<.022	<.006	<.011	<.02	<.01	<.004	<.010	<.011	<.02	<.010	<.02	<.008
Date	SIDURON WATER FLTRD REC (UG/L) (38548)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	SULFO- MET- RURON METHYL WTR FLT REC (UG/L) (50337)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL, WATER, DISS, REC (UG/L) (04032)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	TER- BUTHYL- AZINE, WATER, DISS, REC (UG/L) (04022)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- BENURON METHYL WATER FLTRD (UG/L) (61159)	TRI- CLOPYR, WATER, FLTRD, GF 0.7U REC (UG/L) (49235)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)
OCT 17	<.02	<.011	<.009	<.02	<.010	<.034	<.02	Ū	<.005	<.002	<.009	<.02	E.003
NOV 21	<.02	<.011	.053	<.02	<.010	<.034	<.02	U	<.005	<.002	<.009	<.02	<.009
DEC 18	<.02	<.010	E.003	<.02	<.010	<.034	<.02	U	<.005	<.002		<.02	<.009
JAN 22	<.02	<.010	E.004	<.02	<.010	<.034	<.02	U	<.005	<.002		<.02	<.009
FEB 19	<.02	<.010	E.004	<.02	<.010	<.034	<.02	U	<.005	<.002		<.02	<.009
MAR 04 18	<.02 <.02	<.005 <.005	<.009 <.009	<.02 <.02	<.010 <.010	<.034 <.034	<.02 <.02	U	<.005 <.005	<.002 <.002		<.02 <.02	<.009 <.009
25 APR 01	<.02	.008	<.009	<.02	<.010	<.034	<.02	U U	<.005	<.002		<.02	<.009
17 MAY	<.02	<.010	<.009	<.02	<.010	<.034	<.02		<.005	<.002		<.02	<.009
01 07	<.02 <.02	.017 <.010	<.009 <.009	<.02 <.02	<.010 E.015	<.034 E.069	<.02 <.02		<.005 <.005	<.002 <.002		<.02 <.02	E.007 .052
14 21	<.02	.005 <.005	<.009 <.009	<.02 <.02	<.010 <.010	E.065 E.016	<.02 <.02		<.005 <.005	<.002 <.002		<.02 <.02	.029 E.007
29				<.02	E.005	E.015	<.02		<.005	<.002		<.02	E.007
	<.02	.007	<.009	<.02									
JUN 04 19 25	<.02 <.02 <.02 <.02	<.007 <.005 <.005 <.005	<.009 <.009 <.009 <.009	<.02 <.02 <.02 <.02	<.010 <.010 <.010	<.034 <.034 <.034	<.02 <.02 <.02	 	<.005 <.005 <.005	<.002 <.002 <.002	 <.009	<.02 <.02 <.02	.019 .015 <.009
04 19	<.02 <.02	<.005 <.005	<.009 <.009	<.02 <.02	<.010 <.010	<.034 <.034	<.02		<.005	<.002	<.009	<.02	.015
04 19 25 JUL	<.02 <.02 <.02	<.005 <.005 <.005	<.009 <.009 <.009	<.02 <.02 <.02	<.010 <.010 <.010	<.034 <.034 <.034	<.02 <.02		<.005 <.005	<.002 <.002	<.009	<.02 <.02	.015 <.009
04 19 25 JUL 10 24 31	<.02 <.02 <.02 <.02 <.02	<.005 <.005 <.005 .007 <.005	<.009 <.009 <.009 <.009 <.009	<.02 <.02 <.02 <.02 <.02	<.010 <.010 <.010 <.010 <.010	<.034 <.034 <.034 <.034 <.034	<.02 <.02 <.02 <.02	 	<.005 <.005 <.005 <.005	<.002 <.002 <.002 <.002	<.009 	<.02 <.02 <.02 <.02	.015 <.009 E.009 <.009

CHLOR-A PERI-PHYTON CHROMO-GRAPHIC

FLUOROM (MG/M2)

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(31633)

300

12505450 GRANGER DRAIN AT GRANGER, WA

(National Water-Quality Assessment Station) -- Continued

DIS-

CHARGE, INST. CUBIC FEET PER

SECOND

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WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

	Date	UREA 4-CH OPHE METH WAT RE (UG/ (616	LOR SUNYL SIE YL DI. FLT % FIT C TH L) .062	SP. VE SEDI AM. MENT NER SUS- AN PENI MM (MG,	r, char - su Ded pen /L) (T/D	T, S- SE, S- IDED DAY)			
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	NOV	<.0	2 92	64	1 5.	5			
	21 DEC	< . 0	2 86	59	9 3.	5			
	18	<.0	2 86	79	9 4.	3			
	JAN 22	< .0	2 90	49	9 2.	6			
	FEB								
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	25	< . 0		60					
	APR								
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	17	< . 0		283	1 29.	6			
	MAY								
	01	< . 0	2 71	243	1 29.	3			
	07	< . 0		218					
	14	<.0		176					
	21	< . 0		163					
	29	< . 0	2 79	180	25.	8			
	JUN					_			
	04	< . 0		170					
	19	< . 0		11(
	25	< . 0	2 88	103	3 13.	6			
	JUL								
	10	< . 0							
	24	< . 0							
	31	< . 0	2 67	54	1 7.	9			
	AUG								
	07	< . 0							
	20	< . 0	2 70	52		7			
	26	< . 0	2 65	30	5.	3			
	SEP								
	18	< . 0	2 83	30	5.	0			
SPE-		PERI-	PERI- PHYTON	PERI- PHYTON	BIOMASS CHLORO-		COLI- PHAGE,	COLI- PHAGE,	
CIFIC			BIOMASS		PHYLL		E. COLI		E COLI,
CON-	TEMPER-	BIOMASS	TOTAL	ASH	RATIO	MCP MF,	C13,	F-AMP,	MTEC MF
DUCT-	ATURE	ASH	DRY	FREE	PERI-	WATER	1-AGAR	1-AGAR,	WATER
ANCE	WATER	WEIGHT	WEIGHT	DRY	PHYTON	(COL/	(PLAQUE	(PLAQUE	(COL/
(US/CM)	(DEG C)	G/SQ M	G/SQ M	G/SQ M	(UNITS)	100 ML)	100 ML)	100 ML)	100 ML)
	(00010)			(49954)		(90915)		(90904)	(31633)

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12508990 YAKIMA RIVER AT MABTON, WA

LOCATION.--Lat $46^{\circ}13^{\circ}53^{\circ}$, long $119^{\circ}59^{\circ}54^{\circ}$, in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.30, T.9 N., R.23 E., Yakima County, Hydrologic Unit 17030003, on right bank at highway bridge, at east boundary of Yakama Nation Reservation, 1.1 mi north of Mabton, and at mile 59.8.

DRAINAGE AREA. -- 5,359 mi².

PERIOD OF RECORD. -- October 1970 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 643 ft above NGVD of 1929, from topographic map. Prior to Oct. 1, 1976, at datum 10 ft higher.

REMARKS.--Records fair. Flow affected by storage in five reservoirs, by diversions upstream from station for irrigation upstream and downstream from station of about 424,000 acres, and by return flow. Water temperatures March 1981 to February 1982.

AVERAGE DISCHARGE.--32 years (water years 1971-2002), 3,408 ft³/s, 2,469,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,500 ft³/s Feb. 10, 1996, gage height, 28.18 ft present datum, from high-water mark; minimum daily discharge, 320 ft³/s Mar. 25, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,100 ft³/s Apr. 16, gage height, 17.07 ft; minimum discharge, 840 ft³/s Oct. 5.

DAY OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP			DISCHAF	RGE, CUBI	C FEET I		D, WATER ILY MEAN		ER 2001 TO	SEPTEMBER	2002		
1	DAY	OCT	NOV	DEC	JAN	FEB	MAR	R APR	MAY	JUN	JUL	AUG	SEP
1	2	955	1710	1960	1930	2690	3910	3490	4240	9880	5220	1530	1500
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(WY) 1980 1988 1994 1979 1977 1977 1977 1994 1994 1979 1979 SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1971 - 2002 ANNUAL TOTAL 533075 1130271 3408 111000 11000 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>													
SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1971 - 2002 ANNUAL TOTAL 533075 1130271 ANNUAL MEAN 1460 3097 3408 HIGHEST ANNUAL MEAN 6566 1972 LOWEST ANNUAL MEAN 3300 Dec 18 13200 Apr 16 44000 Feb 10 1996 LOWEST DAILLY MEAN 693 Jul 26 854 Oct 7 320 Mar 25 1977 ANNUAL SEVEN-DAY MINIMUM 758 Jul 24 882 Oct 3 344 Mar 23 1977 ANNUAL RUNOFF (AC-FT) 1057000 2242000 2469000 10 PERCENT EXCEEDS 2120 5940 7220 50 PERCENT EXCEEDS 1520 2310 2200													
ANNUAL TOTAL 533075 1130271 ANNUAL MEAN 1460 3097 3408 HIGHEST ANNUAL MEAN 6566 1972 LOWEST ANNUAL MEAN 1215 1977 HIGHEST DAILY MEAN 3300 Dec 18 13200 Apr 16 44000 Feb 10 1996 LOWEST DAILY MEAN 693 Jul 26 884 Oct 7 320 Mar 25 1977 ANNUAL SEVEN-DAY MINIMUM 758 Jul 24 882 Oct 3 344 Mar 23 1977 ANNUAL RUNOFF (AC-FT) 1057000 2242000 2469000 10 PERCENT EXCEEDS 2120 5940 7220 50 PERCENT EXCEEDS 1520 2310 2200	(WY)	1980	1988	1994	1979	1977	1977	1977	1977	1994	1994	1979	1979
ANNUAL MEAN 1460 3097 3408 HIGHEST ANNUAL MEAN 6566 1972 LOWEST ANNUAL MEAN 3300 Dec 18 13200 Apr 16 44000 Feb 10 1996 LOWEST DAILY MEAN 693 Jul 26 854 Oct 7 320 Mar 25 1977 ANNUAL SEVEN-DAY MINIMUM 758 Jul 24 882 Oct 3 344 Mar 23 1977 ANNUAL RUNOFF (AC-FT) 1057000 2242000 246900 50 PERCENT EXCEEDS 2120 5940 7220 50 PERCENT EXCEEDS 1520 2310 2200	SUMMARY	STATIS'	rics	FOR	2001 CAI	LENDAR YE	AR	FOR 2002	WATER YEAR	W	ATER YEA	ARS 1971 -	2002
HIGHEST ANNUAL MEAN LOWEST ANNUAL MEAN 1215 1977 HIGHEST DAILY MEAN 3300 Dec 18 13200 Apr 16 44000 Feb 10 1996 LOWEST DAILY MEAN 693 Jul 26 854 Oct 7 320 Mar 25 1977 ANNUAL SEVEN-DAY MINIMUM 758 Jul 24 882 Oct 3 344 Mar 23 1977 ANNUAL RUNOFF (AC-FT) 1057000 2242000 10 ERCENT EXCEEDS 2120 50 PERCENT EXCEEDS 1520 2310 25940 2210 2220	ANNUAL	TOTAL			533075			1130271					
LOWEST ANNUAL MEAN 1215 1977 HIGHEST DAILY MEAN 3300 Dec 18 13200 Apr 16 44000 Feb 10 1996 LOWEST DAILY MEAN 693 Jul 26 884 Oct 7 320 Mar 25 1977 ANNUAL SEVEN-DAY MINIMUM 758 Jul 24 882 Oct 3 344 Mar 23 1977 ANNUAL RUNOFF (AC-FT) 1057000 2242000 2469000 10 PERCENT EXCEEDS 2120 5940 7220 50 PERCENT EXCEEDS 1520 2310 2200					1460			3097			3408		
HIGHEST DAILY MEAN 3300 Dec 18 13200 Apr 16 44000 Feb 10 1996 LOWEST DAILY MEAN 693 Jul 26 854 Oct 7 320 Mar 25 1977 ANNUAL SEVEN-DAY MINIMUM 758 Jul 24 882 Oct 3 344 Mar 23 1977 ANNUAL RUNOFF (AC-FT) 1057000 2242000 2469000 10 PERCENT EXCEEDS 2120 5940 7220 50 PERCENT EXCEEDS 1520 2310 2200													
LOWEST DAILY MEAN 693 Jul 26 854 Oct 7 320 Mar 25 1977 ANNUAL SEVEN-DAY MINIMUM 758 Jul 24 882 Oct 3 344 Mar 23 1977 ANNUAL RUNOFF (AC-FT) 1057000 2242000 246900 10 PERCENT EXCEEDS 2120 5940 7220 50 PERCENT EXCEEDS 1520 2310 2200													
ANNUAL SEVEN-DAY MINIMUM 758 Jul 24 882 Oct 3 344 Mar 23 1977 ANNUAL RUNOFF (AC-FT) 1057000 2242000 2469000 10 PERCENT EXCEEDS 2120 5940 7220 50 PERCENT EXCEEDS 1520 2310 2200													
ANNUAL RUNOFF (AC-FT) 1057000 2242000 2469000 10 PERCENT EXCEEDS 2120 5940 7220 50 PERCENT EXCEEDS 1520 2310 2200													
10 PERCENT EXCEEDS 2120 5940 7220 50 PERCENT EXCEEDS 1520 2310 2200						Jul	24		OCT 3			Mar 23	19//
50 PERCENT EXCEEDS 1520 2310 2200										2			

e Estimated

12510500 YAKIMA RIVER AT KIONA, WA

LOCATION.--Lat $46^{\circ}15^{\circ}13^{\circ}$, long $119^{\circ}28^{\circ}37^{\circ}$, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.19, T.9 N., R.27 E., Benton County, Hydrologic Unit 17030003, on left bank just upstream from abandoned highway bridge pier at Kiona, 0.1 mi upstream from highway bridge, 3.6 mi downstream from Corral Canyon Creek, 5.0 mi downstream from intake of Kiona Canal, and at mile 29.9.

DRAINAGE AREA. -- 5.615 mi2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August to December 1895 (gage heights only, fragmentary), August 1896 to March 1915, February 1933 to current year. Monthly discharge only 1887 to 1933, published in WSP 1316 and are available at the Pasco, Washington, field office.

REVISED RECORDS.--WSP 214: 1905. WSP 1122: 1934(M). WSP 1216: 1949-50. WSP 1286: 1907(M), 1909, 1936. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 454.41 ft above NGVD of 1929. Prior to Mar. 31, 1915, nonrecording gages at approximately same site and datum. Feb. 6, 1933, to July 26, 1934, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Diversion upstream from station for irrigation of about 424,000 acres. Flow affected by diversions and by Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes. The Kiona Canal bypasses station with a mean flow of approximately 23 ft³/s for irrigation of about 1,100 acres downstream from station. Diversion by the Kennewick Canal, which bypasses station, began in August 1956, and diverts about 96,000 acre-ft per year. Bureau of Reclamation satellite telemeter at station.

AVERAGE DISCHARGE.--69 years (water years 1934-2002), 3,537 ft³/s, 2,563,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 67,000 ft³/s Dec. 23, 1933, gage height, 21.57 ft, from high-water marks; minimum discharge observed, 105 ft³/s Sept. 11, 1906.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,800 ft³/s Apr. 16, gage height, 11.09 ft; minimum discharge, 724 ft³/s Oct.

		DISCHAF	RGE, CUBI	C FEET PE		WATER :	YEAR OCTOBER	R 2001 TO	SEPTEMBE	R 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1120	1800	2410	2170	2940	4550	3230	3150	9340	6220	1210	1410
2	1080	1990	2400	2210	2880	4200	3460	3660	9460	5960	1320	1600
3	950	2120	2570	2170	2790	3910	3690	4860	9380	4100	1370	1710
4	866	2090	2510	2160	2690	3690	3720	5570	9080	2680	1380	1830
5	804	2060	2420	2150	2640	3550	3610	5250	8900	2070	1460	1840
6	839	2000	2330	2120	2560	3480	3830	4640	8850	2050	1490	1790
7	868	1940	2270	2460	2550	3490	4140	4020	8960	2050	1430	1810
8 9	847 927	1910 1830	2270 2270	5350 8890	2630 2640	3410 3250	4510 4630	3390 2920	8850 8350	1870 1790	1360 1290	1820 1830
10	938	1790	2270	9180	2580	3160	4460	2610	7790	1800	1170	1720
11	871	1770	2200	7930	2510	3090	4620	2430	7010	1630	1400	1510
12	872	1690	2150	7190	2450	3370	4920	2250	6340	1360	1600	1360
13 14	880 971	1680 1640	2120 2290	6680 6330	2400 2310	4410 4470	5350 6140	2160 2360	5790	1360 1290	1400	1170
15	989	1680	3150	5890	2310	4240	9740	2360	5670 6540	1270	1150 893	1260 1370
16	1330	3750	3340	5420	2320	4020	13300	3220	8150	1280	950	1510
17	1670	4410	3300	5020	2290	3840	10400	3200	9270	1240	999	1690
18	1860	3750	4100	4660	2280	3690	7810	3120	9240	1110	1100	1800
19 20	1850 1840	3250 2990	4190 3810	4230 3930	2290 2280	3210 2710	6270 5450	3280 3900	7580 6490	1260 1330	1320 1370	1770 1720
21	1820	2930	3450	3740	2420	2770	4870	4710	5670	1360	1400	1770
22 23	1680	3020 2980	3140 2900	3630	2510 3610	2950	4650	5970	4890	1390	1390	1800
23	1770 1700	2980	2740	3480 3330	5860	2910 2840	4130 3660	5780 5290	4700 4940	1370 1320	1370 1400	1830 1880
25	1860	2980	2610	3230	6250	2800	3260	4930	5310	1290	1350	1810
26	2060	2840	2540	3340	5800	2740	2950	5020	5420	1370	1320	1760
27 28	2020 1920	2680 2590	2440 2380	3580 3430	5300 4900	2810 3030	2810 3020	5490 6100	5010 5070	1200 1170	1350 1290	1820 1880
28 29	1830	2560	2380	3430	4900	2990	3300	6730	5530	1250	1260	1910
30	1860	2480	2260	3080		3000	3150	8000	5780	1290	1270	1900
31	1850		2220	3000		3120		9040		1240	1260	
TOTAL	42742	74150	83320	133220	87010	105700	149080	136030	213360	57970	40322	50880
MEAN	1379	2472	2688	4297	3108	3410	4969	4388	7112	1870	1301	1696
MAX	2060	4410	4190	9180	6250	4550	13300	9040	9460	6220	1600	1910
MIN	804	1640	2120	2120	2280	2710	2810	2160	4700	1110	893	1170
AC-FT	84780	147100	165300	264200	172600	209700	295700	269800	423200	115000	79980	100900
STATIST	rics of M	ONTHLY MEA	N DATA I	OR WATER	YEARS 193	34 - 2002	2, BY WATER	YEAR (WY	.)			
MEAN	2256	2870	4012	3995	4521	4649	4710	5287	4886	1950	1575	1828
MAX	4252	6293	17330	14100	17570	16750	13190	13930	16470	5398	2333	2549
(WY)	1950	1960	1934	1934	1996	1972	1956	1997	1948	1954	1976	1978
MIN	1021	1462	1546	1335	1163	486	493	902	869	598	751	784
(WY)	1980	1988	1936	1937	1977	1977	1977	1977	1994	1994	1979	1979
SUMMAI	RY STATIS	STICS	FOF	2 2001 CAI	ENDAR YEA	I R	FOR 2002 W	VATER YEA	R	WATER YE	ARS 1934	- 2002
ANNUAL	TOTAL			561651			1173784					
ANNUAL				1539			3216			3537		
	r annual									7055		1956
	ANNUAL M			443.0			12200			1293		1977
	DAILY ME			4410	Nov 17 Jul 26		13300 804	Apr 16		59400	Dec 24	
		AN Y MINIMUM		572 678	Aug 9		804 870	Oct 5		225 263	Apr 4	
		AC-FT)		1114000	Aug S	,	2328000	OCL 4		2563000	Whi I?	, 17//
	CENT EXCE			2410			6020			7230		
	CENT EXCE			1650			2590			2420		
90 PERG	CENT EXCE	EDS		739			1290			1360		

12510500 YAKIMA RIVER AT KIONA, WA

National Water-Quality Assessment Station

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1953-94, 1999 to current year.

PERIOD OF DAILY RECORD . --

SPECIFIC CONDUCTANCE: December 1952 to September 1969 (composite samples), October 1969 to September 1977, July 1999 to June 2000, February to September 1952 to September 1980, March 1981 to February 1982, July 1999 to June 2000, October 2000 to

current year.

SUSPENDED SEDIMENT: June 1977 to October 1980.

INSTRUMENTATION.--Water-quality monitor since July 1999. Electronic data logger, with 15-minute logging interval. Bureau of Reclamation satellite telemeter at station.

REMARKS.--Specific conductance records excellent except those for Mar. 14-20, Mar. 30 to Apr. 11, Apr. 17-24, May 7-22, and June 4 to Sept. 17, which are good; Apr. 25 to May 6, and May 23-25, which are fair; and Apr. 12-13 and May 26 to June 3, which are poor. Interruptions in the record were due to malfunction of the instrument.

EXTREMES FOR PERIOD OF RECORD.-SPECIFIC CONDUCTANCE: Maximum observed, 674 microsiemens Dec. 3, 1970; minimum recorded, 82 microsiemens June 17, 2002.
WATER TEMPERATURE: Maximum 30.8°C July 9, 2001; minimum, 0.0°C on several days during winter months most years.

EXTREMES FOR CURRENT YEAR . - -

SPECIFIC CONDUCTANCE: Maximum recorded, 300 microsiemens May 27; minimum recorded, 82 microsiemens June 17. WATER TEMPERATURE: Maximum, 30.2°C July 13; minimum recorded, 3.5°C Feb. 27.

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	1	FEBRUARY	•		MARCH			APRIL			MAY	
1				163	155	159	183	176	179	173	163	168
2				168	162	165	177	170	173	177	170	175
3				174	168	170	171	164	167	170	149	161
4				179	174	176	164	160	161	149	135	141
5				183	179	181	164	159	161	136	132	135
6				184	182	183	164	160	161	137	129	132
7				185	183	184	162	155	158	148	137	141
8				187	183	185	155	150	151	160	148	153
9				191	187	188	150	145	146	172	160	165
10				195	191	192	146	138	143	183	172	177
11				198	194	196	138	128	132	191	183	189
12				199	197	198	129	115	121	197	191	194
13				199	170	183	116	103	110	200	196	198
14				174	169	171				204	198	201
15				170	167	168				198	174	186
16				172	168	170				174	162	166
17				174	172	173	131	123	128	164	159	162
18				175	173	174	133	125	129	167	163	165
19				180	174	177	141	133	136	169	163	166
20				189	180	184	148	140	144	163	152	157
21				199	189	193	148	145	146	158	142	152
22				190	184	187	149	143	147	142	136	140
23	225	185	212	191	184	186	153	148	151	179	135	147
24	185	136	161	189	186	188	158	152	154	228	179	203
25	136	133	134	191	187	189	158	153	156	264	228	245
26	140	133	136	195	191	193	162	157	159	288	264	277
27	148	140	145	195	192	194	164	159	161	300	288	295
28	155	148	151	194	190	193	166	163	164	299	217	260
29				190	180	182	163	158	160	217	128	174
30				185	181	183	163	155	158	128	97	112
31				186	181	184				97	86	91
MONTH	225	133	156	199	155	182	183	103	150	300	86	175

YAKIMA RIVER BASIN

12510500 YAKIMA RIVER AT KIONA, WA--Continued

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	SPECIFIC	CONDUCTA	ANCE (MICE	ROSIEMENS/	CM AT 25	DEG. C),	WATER YEA	AR OCTOB	ER 2001	TO SEPTEMBE	R 2002	
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY		P	AUGUST		S	EPTEMBE	R
1	86	84	85	112	105	109	257	250	254	263	253	258
2	88	84	86	112	105	109	255	248	252	260	249	254
3	99	88	94	137	112	124	257	251	254	252	241	246
4	104	99	102	164	137	151	254	233	247	243	235	239
5	103	98	102	194	164	180	243	235	239	240	232	236
6	101	96	99	211	194	205	241	231	237	240	221	230
7	98	94	96	215	205	210	237	231	233	271	239	256
8	100	94	97	208	204	206	239	233	236	259	247	252
9	104	99	102	215	207	211	244	235	238	266	254	261
10	125	104	114	222	213	218	250	241	244	263	249	258
11	142	125	134	225	217	221	250	244	247	256	244	252
12	163	139	151	233	223	227	252	246	250	264	255	261
13	182	156	168	245	231	236	246	229	236	281	264	274
14	178	165	169	250	237	244	248	231	237	282	272	277
15	182	166	177	253	242	248	256	243	247	283	272	277
16	166	100	126	253	245	250	258	250	254	278	270	274
17	103	82	90	253	244	250	265	247	252	283	270	277
18	93	83	88	253	242	248	262	251	256	282	273	277
19	105	93	99	253	245	250	255	244	249	275	268	272
20	111	105	108	256	250	254	248	235	241	273	266	270
21	121	111	116	257	234	248	245	234	240	272	266	269
22	131	120	126	243	228	236	246	239	243	273	266	269
23	133	130	132	245	232	238	247	239	243	271	264	268
24	130	122	126	243	233	237	247	238	243	269	263	267
25	122	117	120	247	238	243	247	237	242	270	265	267
26	118	115	117	251	243	247	249	238	243	271	265	269
27	123	117	120	252	244	249	255	243	248	274	268	270
28	122	117	120	254	245	250	260	248	253	273	267	270
29	117	112	115	257	248	253	263	250	257	269	262	265
30	114	111	113	257	251	254	264	253	260	265	258	262
31				256	250	254	265	254	260			
MONTE	H 182	82	116	257	105	221	265	229	246	283	221	263
YEAR	300	82	193									

TEMPERATURE,	WATER	(DEG.	C),	WATER	YEAR	OCTOBER	2001	TO	SEPTEMBER	2002
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DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER	2	N	OVEMBER		DE	ECEMBER			JANUARY	
1	18.6	14.9	16.6	10.2	9.3	9.8						
2	18.6	15.2	16.8	11.5	9.7	10.6						
3	18.5	15.0	16.5	11.3	10.1	10.6						
4	17.4	14.4	15.7	11.0	9.8	10.3						
5	17.1	13.1	14.7	10.8	9.7	10.1						
6				9.8	8.5	9.2						
7				9.1	7.8	8.4						
8				8.4	7.1	7.7						
9				7.3	6.3	6.8						
10				6.5	5.9	6.2						
11				6.3	5.5	5.9						
12				6.8	5.7	6.2						
13				7.8	6.1	6.9						
14				9.0	7.7	8.4						
15				9.3	8.5	8.9						
16				10.1	9.2	9.6						
17				10.1	9.2	9.8						
18				9.3	8.3	8.7						
19				8.3	7.6	8.0						
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31	10.5	9.2	9.7									
MONTH	18.6	9.2	15.0	11.5	5.5	8.5						

12510500 YAKIMA RIVER AT KIONA, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		IEMPE	RAIORE,	WATER (DEC	. C/, W.	TIER TEAR	OCIOBER 2	001 10 2	DEF TEMBER	2002		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY	•		MARCH			APRIL			MAY	
1				5.0	3.7	4.4	13.4	11.1	12.1	16.8	13.5	15.0
2				5.6	4.2	4.9	12.0	10.7	11.3	16.9	14.4	15.5
3 4				5.9 5.8	4.4 5.0	5.1 5.4	12.1 12.1	10.0 9.9	11.0 10.9	15.5 14.7	13.9 12.5	14.8 13.0
5				6.2	5.3	5.8	11.7	10.4	11.0	12.7	11.3	12.0
6				5.8	5.1	5.4	12.8	10.6	11.6	11.9	10.6	11.3
7				6.6	5.1	5.7	12.5	10.9	11.6	11.5	10.3	10.8
8 9				6.2 6.0	4.8 5.1	5.5 5.4	12.4 11.7	10.5 11.1	11.4 11.5	13.2 13.9	10.3 11.1	11.5 12.5
10				5.7	4.9	5.3	12.7	10.8	11.5	15.1	11.9	13.6
11				7.3	5.4	6.2	12.4	11.2	11.8	16.9	13.1	15.0
12 13				7.7 7.6	5.9 6.7	6.9 7.1	13.0 13.9	11.4 12.3	12.2 13.1	17.7 17.5	14.0 15.2	15.8 16.2
14				7.7	6.8	7.1	13.6	12.1	13.1	17.4	13.9	15.7
15				7.2	6.4	6.9	12.8	8.9	11.2	17.3	14.5	15.9
16				7.2	6.3	6.7	8.9	7.8	8.3	17.2	14.2	15.7
17 18				7.1 6.2	6.1 4.9	6.4 5.8	9.3 9.9	7.3 7.3	8.2 8.7	18.1 17.3	15.0 15.7	16.4 16.4
19				7.4	4.8	6.1	11.3	8.4	9.9	17.5	15.6	16.5
20				6.4	4.9	5.7	12.9	10.1	11.4	16.6	15.6	16.0
21				5.3	4.1	4.7	13.7	11.4	12.5	16.7	15.0	15.8
22 23	9.3	8.3	8.8	5.8 5.3	4.3 4.6	5.0 5.0	13.8 13.2	12.2 11.7	13.0 12.5	15.5 15.9	13.9 13.6	14.8 14.7
24	8.6	6.8	7.8	6.9	4.8	5.7	13.4	11.0	12.2	16.6	13.7	15.1
25	6.8	5.2	5.8	9.0	6.1	7.6	13.4	11.3	12.4	16.2	15.0	15.7
26	5.2	4.1	4.8	9.2	7.6	8.4	14.1	11.3	12.7	16.5	15.2	15.8
27 28	4.6 4.5	3.5 3.7	4.1 4.1	10.2 11.0	7.8 8.6	9.0 9.7	13.6 14.7	11.8 11.3	12.7 13.0	17.3 16.9	15.4 15.2	16.3 16.1
29				10.9	8.8	9.8	14.4	11.8	13.1	16.6	15.1	15.8
30 31				12.4 13.2	9.6 10.4	11.0 11.8	15.5	12.3	13.8	16.8 16.9	14.2 14.2	15.4 15.5
	0 2	2 5	F 0									
MONTH	9.3	3.5	5.9	13.2	3.7	6.6	15.5	7.3	11.7	18.1	10.3	14.9
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY	MAX	MIN JUNE	MEAN	MAX	MIN JULY	MEAN		MIN AUGUST	MEAN		MIN SEPTEMBE	
		JUNE			JULY			AUGUST			SEPTEMBE	IR.
1 2	16.5 16.6	JUNE 14.7 14.2	15.5 15.4	20.0 19.7	JULY 17.4 17.0	18.7 18.4	25.7 24.4	AUGUST 20.7 21.1	23.0 22.5	23.8 23.7	SEPTEMBE 21.8 20.9	22.6 22.2
1	16.5 16.6 16.5	JUNE 14.7 14.2 14.3	15.5 15.4 15.5	20.0 19.7 19.6	JULY 17.4 17.0 18.0	18.7 18.4 18.8	25.7 24.4 24.4	20.7 21.1 20.1	23.0 22.5 22.1	23.8 23.7 22.2	21.8 20.9 20.3	22.6 22.2 21.5
1 2 3	16.5 16.6	JUNE 14.7 14.2	15.5 15.4	20.0 19.7	JULY 17.4 17.0	18.7 18.4	25.7 24.4	AUGUST 20.7 21.1	23.0 22.5	23.8 23.7	SEPTEMBE 21.8 20.9	22.6 22.2
1 2 3 4	16.5 16.6 16.5 17.1	JUNE 14.7 14.2 14.3 14.5	15.5 15.4 15.5 15.8	20.0 19.7 19.6 20.9	JULY 17.4 17.0 18.0 17.8	18.7 18.4 18.8 19.3	25.7 24.4 24.4 21.9	20.7 21.1 20.1 20.1	23.0 22.5 22.1 20.9	23.8 23.7 22.2 21.2	21.8 20.9 20.3 18.8	22.6 22.2 21.5 20.0 19.9
1 2 3 4 5	16.5 16.6 16.5 17.1 17.5	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0	15.5 15.4 15.5 15.8 16.2	20.0 19.7 19.6 20.9 21.8 23.1 23.9	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5	18.7 18.4 18.8 19.3 19.9 21.1 22.0	25.7 24.4 24.4 21.9 22.2 22.2	20.7 21.1 20.1 20.1 19.2 19.0 18.6	23.0 22.5 22.1 20.9 20.6	23.8 23.7 22.2 21.2 21.1 20.1 19.7	21.8 20.9 20.3 18.8 18.7	22.6 22.2 21.5 20.0 19.9
1 2 3 4 5	16.5 16.6 16.5 17.1 17.5	JUNE 14.7 14.2 14.3 14.5 15.1	15.5 15.4 15.5 15.8 16.2	20.0 19.7 19.6 20.9 21.8	JULY 17.4 17.0 18.0 17.8 18.1	18.7 18.4 18.8 19.3 19.9	25.7 24.4 24.4 21.9 22.2	20.7 21.1 20.1 20.1 19.2	23.0 22.5 22.1 20.9 20.6	23.8 23.7 22.2 21.2 21.1	21.8 20.9 20.3 18.8 18.7	22.6 22.2 21.5 20.0 19.9
1 2 3 4 5	16.5 16.6 16.5 17.1 17.5 16.3 15.1 13.6	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0 11.7	15.5 15.4 15.5 15.8 16.2 15.6 13.9 12.6	20.0 19.7 19.6 20.9 21.8 23.1 23.9 24.5	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5 20.8	18.7 18.4 18.8 19.3 19.9 21.1 22.0 22.5	25.7 24.4 24.4 21.9 22.2 22.2 22.8 23.2	20.7 21.1 20.1 20.1 19.2 19.0 18.6 19.2	23.0 22.5 22.1 20.9 20.6 20.4 20.6 21.1	23.8 23.7 22.2 21.2 21.1 20.1 19.7 19.5	21.8 20.9 20.3 18.8 18.7 18.0 17.4	22.6 22.2 21.5 20.0 19.9 19.0 18.5 18.2
1 2 3 4 5 6 7 8 9 10	16.5 16.6 16.5 17.1 17.5 16.3 15.1 13.6 13.3 15.1	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0 11.7 11.6	15.5 15.4 15.5 15.8 16.2 15.6 13.9 12.6 12.5	20.0 19.7 19.6 20.9 21.8 23.1 23.9 24.5 24.6 25.9	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5 20.8 21.1 21.5	18.7 18.4 18.8 19.3 19.9 21.1 22.0 22.5 22.8 23.6	25.7 24.4 24.4 21.9 22.2 22.8 23.2 24.0 25.5	20.7 21.1 20.1 20.1 19.2 19.0 18.6 19.2 19.6 20.7	23.0 22.5 22.1 20.9 20.6 20.4 20.6 21.1 21.7 22.9	23.8 23.7 22.2 21.2 21.1 20.1 19.7 19.5 20.2 20.8	21.8 20.9 20.3 18.8 18.7 18.0 17.4 17.1 17.2 17.7	22.6 22.2 21.5 20.0 19.9 19.0 18.5 18.2 18.6 19.1
1 2 3 4 5 6 7 8 9 10	16.5 16.6 16.5 17.1 17.5 16.3 15.1 13.6 13.3 15.1	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0 11.7 11.6 12.2 13.6 15.7	15.5 15.4 15.5 15.8 16.2 15.6 13.9 12.5 13.6	20.0 19.7 19.6 20.9 21.8 23.1 23.9 24.5 24.6 25.9	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5 20.8 21.1 21.5 22.9 24.2	18.7 18.4 18.8 19.3 19.9 21.1 22.0 22.5 22.8 23.6	25.7 24.4 24.4 21.9 22.2 22.8 23.2 24.0 25.5	20.7 21.1 20.1 20.1 19.2 19.0 18.6 19.2 19.6 20.7 21.0 21.3	23.0 22.5 22.1 20.9 20.6 20.4 20.6 21.1 21.7 22.9 22.8 23.0	23.8 23.7 22.2 21.2 21.1 20.1 19.7 19.5 20.2 20.8	21.8 20.9 20.3 18.8 18.7 18.0 17.4 17.1 17.2 17.7	22.6 22.2 21.5 20.0 19.9 19.0 18.5 18.2 18.6 19.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14	16.5 16.6 16.5 17.1 17.5 16.3 15.1 13.6 13.3 15.1 17.4 19.2 20.4 21.0	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0 11.7 11.6 12.2 13.6 15.7	15.5 15.4 15.5 15.8 16.2 15.6 13.6 12.5 13.6 15.4 17.4 18.8	20.0 19.7 19.6 20.9 21.8 23.1 23.9 24.5 24.6 25.9 27.8 29.1 30.2 28.8	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5 20.8 21.1 21.5 22.9 24.2 25.4 24.5	18.7 18.4 18.8 19.3 19.9 21.1 22.0 22.5 22.8 23.6 25.1 26.4 27.3 26.4	25.7 24.4 24.4 21.9 22.2 22.8 23.2 24.0 25.5 24.7 25.8 26.8	20.7 21.1 20.1 20.1 19.2 19.0 18.6 19.6 20.7 21.0 21.3 21.6 21.7	23.0 22.5 22.1 20.9 20.6 20.4 20.6 21.1 21.7 22.9 22.8 23.0 23.5 24.1	23.8 23.7 22.2 21.2 21.1 20.1 19.7 19.5 20.2 20.8 21.4 22.1 22.5 21.6	21.8 20.9 20.3 18.8 18.7 18.0 17.4 17.2 17.7	22.6 22.2 21.5 20.0 19.9 19.0 18.5 18.2 18.6 19.1 19.6 20.2 20.6 20.4
1 2 3 4 5 6 7 8 9 10	16.5 16.6 16.5 17.1 17.5 16.3 15.1 13.6 13.3 15.1 17.4 19.2 20.4	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0 11.7 11.6 12.2 13.6 15.7 17.3	15.5 15.4 15.5 15.8 16.2 15.6 13.9 12.6 12.5 13.6 15.4 17.4 18.8	20.0 19.7 19.6 20.9 21.8 23.1 23.9 24.5 24.6 25.9 27.8 29.1 30.2	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5 20.8 21.1 21.5 22.9 24.2 25.4 24.5	18.7 18.4 18.8 19.3 19.9 21.1 22.0 22.5 22.8 23.6 25.1 26.4 27.3	25.7 24.4 24.4 21.9 22.2 22.8 23.2 24.0 25.5 24.7 25.0 25.8	20.7 21.1 20.1 20.1 19.2 19.0 18.6 19.6 20.7 21.0 21.3 21.6 21.7	23.0 22.5 22.1 20.9 20.6 20.4 20.6 21.1 21.7 22.9 22.8 23.0 23.5	23.8 23.7 22.2 21.2 21.1 20.1 19.7 19.5 20.2 20.8 21.4 22.1 22.5	21.8 20.9 20.3 18.8 18.7 18.0 17.4 17.2 17.7	22.6 22.2 21.5 20.0 19.9 19.0 18.5 18.2 18.6 19.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	16.5 16.6 16.5 17.1 17.5 16.3 15.1 13.6 13.3 15.1 17.4 19.2 20.4 21.0 20.9	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0 11.7 11.6 12.2 13.6 15.7 17.3 18.5 18.6	15.5 15.4 15.5 15.8 16.2 15.6 13.9 12.6 13.6 12.5 13.6 15.4 17.4 18.8 19.7 19.8	20.0 19.7 19.6 20.9 21.8 23.1 23.9 24.5 25.9 27.8 29.1 30.2 28.8 28.4	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5 20.8 21.1 21.5 22.9 24.2 25.4 24.5 23.6	18.7 18.4 18.8 19.3 19.9 21.1 22.0 22.5 22.8 23.6 25.1 26.4 27.3 26.4 25.9	25.7 24.4 24.4 21.9 22.2 22.8 23.2 24.0 25.5 24.7 25.0 25.8 26.8 27.0	20.7 21.1 20.1 20.1 19.2 19.0 18.6 19.2 19.6 20.7 21.0 21.3 21.6 21.7	23.0 22.5 22.1 20.9 20.6 20.4 20.6 21.1 21.7 22.9 22.8 23.0 23.5 24.1 24.2	23.8 23.7 22.2 21.2 21.1 20.1 19.7 19.5 20.2 20.8 21.4 22.1 22.5 21.6 21.4	21.8 20.9 20.3 18.8 18.7 18.0 17.4 17.2 17.7 18.1 18.6 18.9 19.0 19.3	22.6 22.2 21.5 20.0 19.9 19.0 18.5 18.2 18.6 19.1 19.6 20.2 20.6 20.4 20.3
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	16.5 16.6 16.5 17.1 17.5 16.3 15.1 13.6 13.3 15.1 17.4 19.2 20.4 21.0 20.9	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0 11.7 11.6 12.2 13.6 15.7 17.3 18.5 18.6	15.5 15.4 15.5 15.8 16.2 15.6 13.9 12.6 13.6 12.5 13.6 15.4 17.4 18.8 19.7 19.8	20.0 19.7 19.6 20.9 21.8 23.1 23.9 24.5 25.9 27.8 29.1 30.2 28.8 28.4	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5 20.8 21.1 21.5 22.9 24.2 25.4 24.5 23.6	18.7 18.4 18.8 19.3 19.9 21.1 22.0 22.5 22.8 23.6 25.1 26.4 27.3 26.4 25.9	25.7 24.4 24.4 21.9 22.2 22.8 23.2 24.0 25.5 24.7 25.0 25.8 26.8 27.0	20.7 21.1 20.1 20.1 19.2 19.0 18.6 19.2 19.6 20.7 21.0 21.3 21.6 21.7	23.0 22.5 22.1 20.9 20.6 20.4 20.6 21.1 21.7 22.9 22.8 23.0 23.5 24.1 24.2	23.8 23.7 22.2 21.2 21.1 20.1 19.7 19.5 20.2 20.8 21.4 22.1 22.5 21.6 21.4	21.8 20.9 20.3 18.8 18.7 18.0 17.4 17.1 17.2 17.7 18.1 18.6 18.9 19.0 19.3	22.6 22.2 21.5 20.0 19.9 19.0 18.5 18.6 19.1 19.6 20.2 20.6 20.4 20.3
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	16.5 16.6 16.5 17.1 17.5 16.3 15.1 13.6 13.3 15.1 17.4 19.2 20.4 21.0 20.9	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0 11.7 11.6 12.2 13.6 15.7 17.3 18.5 18.6	15.5 15.4 15.5 15.8 16.2 15.6 13.9 12.6 13.6 12.5 13.6 15.4 17.4 18.8 19.7 19.8	20.0 19.7 19.6 20.9 21.8 23.1 23.9 24.5 25.9 27.8 29.1 30.2 28.8 28.4	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5 20.8 21.1 21.5 22.9 24.2 25.4 24.5 23.6	18.7 18.4 18.8 19.3 19.9 21.1 22.0 22.5 22.8 23.6 25.1 26.4 27.3 26.4 25.9	25.7 24.4 24.4 21.9 22.2 22.8 23.2 24.0 25.5 24.7 25.8 26.8 27.0 25.4 24.4	20.7 21.1 20.1 20.1 19.2 19.0 18.6 19.2 19.6 20.7 21.0 21.3 21.6 21.7	23.0 22.5 22.1 20.9 20.6 20.4 20.6 21.1 21.7 22.9 22.8 23.0 23.5 24.1 24.2	23.8 23.7 22.2 21.2 21.1 20.1 19.7 19.5 20.2 20.8 21.4 22.1 22.5 21.6 21.4	21.8 20.9 20.3 18.8 18.7 18.0 17.4 17.1 17.2 17.7 18.1 18.6 18.9 19.0 19.3	22.6 22.2 21.5 20.0 19.9 19.0 18.5 18.6 19.1 19.6 20.2 20.6 20.4 20.3
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	16.5 16.6 16.5 17.1 17.5 16.3 15.1 13.6 13.3 15.1 17.4 19.2 20.4 21.0 20.9	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0 11.6 12.2 13.6 15.7 17.3 18.5 18.6 17.4 15.7 14.5 13.6 14.9	15.5 15.4 15.5 15.8 16.2 15.6 13.9 12.5 13.6 12.5 13.6 15.4 17.4 19.7 19.8 18.4 16.5 15.2 15.3 16.5	20.0 19.7 19.6 20.9 21.8 23.1 23.9 24.5 24.6 25.9 27.8 29.1 30.2 28.8 28.4	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5 20.8 21.1 21.5 22.9 24.2 25.4 24.5 23.6 23.6 23.8 23.1	18.7 18.4 18.8 19.3 19.9 21.1 22.0 22.5 22.8 23.6 25.1 26.4 27.3 26.4 25.9 25.9 25.9 25.9 26.1 25.8 25.0 25.1	25.7 24.4 21.9 22.2 22.8 23.2 24.0 25.5 24.7 25.8 26.8 27.0 25.4 24.4 24.4 23.5 22.9	20.7 21.1 20.1 20.1 20.1 19.2 19.0 18.6 20.7 21.0 21.3 21.6 21.7 21.7 22.0 20.3 20.2 20.5 20.0	23.0 22.5 22.1 20.9 20.6 20.4 20.6 21.1 21.7 22.9 22.8 23.5 24.1 24.2 23.4 22.2 22.2 21.9 21.4	23.8 23.7 22.2 21.2 21.1 20.1 19.7 19.5 20.2 20.8 21.4 22.1 22.5 21.6 21.4 20.2 21.4 20.2	21.8 20.9 20.3 18.8 18.7 18.0 17.4 17.2 17.7 18.1 18.6 18.9 19.0 19.3	22.6 22.2 21.5 20.0 19.9 19.0 18.5 18.6 19.1 19.6 20.2 20.6 20.4 20.3
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	16.5 16.6 16.5 17.1 17.5 16.3 15.1 13.6 13.3 15.1 17.4 19.2 20.4 21.0 20.9 19.6 17.7 16.7 11.2 18.1	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0 11.6 12.2 13.6 15.7 17.3 18.5 18.6 17.4 15.7 14.5 13.6 14.9	15.5 15.4 15.5 15.8 16.2 15.6 13.9 12.5 13.6 12.5 13.6 15.4 17.4 19.7 19.8 18.4 16.5 15.2 15.3 16.5	20.0 19.7 19.6 20.9 21.8 23.1 24.5 24.6 25.9 27.8 29.1 30.2 28.8 28.4 28.5 28.8 28.9 27.2 27.4	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5 20.8 21.1 21.5 22.9 24.2 25.4 24.5 23.6 23.6 23.8 23.1	18.7 18.4 18.8 19.3 19.9 21.1 22.0 22.5 22.8 23.6 25.1 26.4 27.3 26.4 25.9 25.9 25.9 25.9 26.1 25.8 25.0 25.1	25.7 24.4 21.9 22.2 22.8 23.2 24.0 25.5 24.7 25.8 26.8 27.0 25.4 24.4 24.4 23.5 22.9	20.7 21.1 20.1 20.1 20.1 19.2 19.0 18.6 20.7 21.0 21.3 21.6 21.7 21.7 22.0 20.3 20.2 20.5 20.0	23.0 22.5 22.1 20.9 20.6 20.4 20.6 21.1 21.7 22.9 22.8 23.5 24.1 24.2 23.4 22.2 22.2 21.9 21.4	23.8 23.7 22.2 21.2 21.1 20.1 19.7 19.5 20.2 20.8 21.4 22.1 22.5 21.6 21.4 20.2 21.4 20.2	21.8 20.9 20.3 18.8 18.7 18.0 17.4 17.1 17.2 17.7 18.1 18.6 19.0 19.3 18.8 18.2 16.8 17.0	22.6 22.2 21.5 20.0 19.9 19.0 18.5 18.6 19.1 19.6 20.2 20.6 20.4 20.3 19.5 19.0 17.9 18.3 18.4
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	16.5 16.6 17.1 17.5 16.3 15.1 13.6 13.3 15.1 17.4 19.2 20.9 19.6 17.7 16.0 17.2 18.1	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0 11.6 12.2 13.6 15.7 17.3 18.5 18.6 17.4 15.7 14.5 13.6 14.9	15.5 15.4 15.5 15.8 16.2 15.6 13.9 12.5 13.6 12.5 13.6 15.4 17.4 19.7 19.8 18.4 16.5 15.2 15.3 16.5	20.0 19.7 19.6 20.9 21.8 23.1 23.9 24.5 24.6 25.9 27.8 29.1 30.2 28.8 28.4 28.5 28.8 28.9 27.2 27.5	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5 20.8 21.1 21.5 22.9 24.2 25.4 24.5 23.6 23.6 23.8 23.1	18.7 18.4 18.8 19.3 19.9 21.1 22.0 22.5 22.8 23.6 25.1 26.4 27.3 26.4 25.9 25.9 25.9 25.9 26.1 25.8 25.0 25.1	25.7 24.4 21.9 22.2 22.8 23.2 24.0 25.5 24.7 25.8 26.8 27.0 25.4 24.4 24.4 23.5 22.9	20.7 21.1 20.1 20.1 20.1 19.2 19.0 18.6 20.7 21.0 21.3 21.6 21.7 21.7 22.0 20.3 20.2 20.5 20.0	23.0 22.5 22.1 20.9 20.6 20.4 20.6 21.1 21.7 22.9 22.8 23.5 24.1 24.2 23.4 22.2 22.2 21.9 21.4	23.8 23.7 22.2 21.2 21.1 20.1 19.7 19.5 20.2 20.8 21.4 22.1 22.5 21.6 21.4 20.2 21.4 20.2	21.8 20.9 20.3 18.8 18.7 18.0 17.4 17.1 17.2 17.7 18.1 18.6 18.9 19.0 19.3 18.8 17.0 19.3	22.6 22.2 21.5 20.0 19.9 19.0 18.5 18.2 19.6 20.2 20.6 20.4 20.3 19.5 19.0 17.9 18.3 18.4
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	16.5 16.6 16.5 17.1 17.5 16.3 15.1 13.6 13.3 15.1 17.4 19.2 20.4 21.0 20.9 19.6 17.7 16.7 11.2 18.1 19.3 20.0 20.0 20.0 20.0	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0 11.7 11.6 12.2 13.6 15.7 17.3 18.5 18.6 17.4 15.7 14.5 13.6 14.9	15.5 15.8 16.2 15.6 13.9 12.5 13.6 15.4 17.4 18.8 19.7 19.8 18.4 16.6 15.3 16.5	20.0 19.7 19.6 20.9 21.8 23.1 23.9 24.5 24.6 25.9 27.8 29.1 30.2 28.8 28.4 28.5 28.8 28.9 27.2 27.5	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5 20.8 21.1 21.5 22.9 24.2 25.4 24.5 23.6 23.6 23.8 23.1	18.7 18.4 18.8 19.3 19.9 21.1 22.0 22.5 22.8 23.6 25.1 26.4 27.3 26.4 25.9 25.9 25.9 25.9 26.1 25.8 25.0 25.1	25.7 24.4 21.9 22.2 22.8 23.2 24.0 25.5 24.7 25.8 26.8 27.0 25.4 24.4 24.4 23.5 22.9	20.7 21.1 20.1 20.1 20.1 19.2 19.0 18.6 20.7 21.0 21.3 21.6 21.7 21.7 22.0 20.3 20.2 20.5 20.0	23.0 22.5 22.1 20.9 20.6 20.4 20.6 21.1 21.7 22.9 22.8 23.5 24.1 24.2 23.4 22.2 22.2 21.9 21.4	23.8 23.7 22.2 21.2 21.1 20.1 19.7 19.5 20.2 20.8 21.4 22.1 22.5 21.6 21.4 20.2 21.4 20.2	21.8 20.9 20.3 18.8 18.7 18.0 17.4 17.1 17.2 17.7 18.1 18.6 18.9 19.0 19.3 18.8 17.0 19.3	22.6 22.2 21.5 20.0 19.9 19.0 18.5 18.2 19.6 20.2 20.6 20.4 20.3 19.5 19.0 17.9 18.3 18.4
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	16.5 16.6 16.5 17.1 17.5 16.3 15.1 13.6 13.3 15.1 17.4 21.0 20.9 20.9 19.6 17.7 16.0 17.2 18.1	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0 11.7 11.6 12.2 13.6 15.7 17.3 18.5 18.6 17.4 15.7 14.5 13.6 14.9	15.5 15.4 12.5 13.6 12.5 13.6 15.4 17.4 18.8 19.7 19.8 18.4 16.6 15.3 16.5 17.8 18.9 19.7 20.2	20.0 19.7 19.6 20.9 21.8 23.1 23.9 24.5 24.6 25.9 27.8 29.1 30.2 28.8 28.4 28.5 28.8 28.9 27.2 27.4	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5 20.8 21.1 21.5 22.9 24.2 25.4 24.5 23.6 23.6 23.8 23.1 23.0 23.3 24.1 23.8 24.2	18.7 18.4 18.8 19.3 19.9 21.1 22.5 22.8 23.6 25.1 26.4 27.3 26.4 25.9 25.9 25.9 26.1 25.1 25.1 25.1 25.1 25.9 26.1 25.9 26.0	25.7 24.4 24.4 21.9 22.2 22.8 23.2 24.0 25.5 24.7 25.8 26.8 27.0 25.4 24.4 24.4 23.5 22.9 24.0 25.5	20.7 20.1 20.1 20.1 20.1 19.2 19.0 18.6 20.7 21.0 21.3 21.6 21.7 21.7 22.0 20.3 20.2 20.5 20.0	23.0 22.5 22.1 20.9 20.6 20.4 21.1 21.7 22.9 22.8 23.5 24.1 24.2 22.2 22.2 21.9 21.4 21.3 21.4 22.3 23.1	23.8 23.7 22.2 21.2 21.1 20.1 19.7 19.5 20.2 20.8 21.4 22.1 22.5 21.6 21.4 20.2 18.9 19.8 19.6 18.5 18.1 18.2 18.2	21.8 20.9 20.3 18.8 18.7 18.0 17.4 17.1 17.2 17.7 18.1 18.6 19.0 19.3 18.8 18.2 16.8 17.0 17.4 16.3 15.5 15.4 15.7	22.6 22.2 21.5 20.0 19.9 19.0 18.5 18.6 19.1 19.6 20.2 20.6 20.4 20.3 19.5 19.0 17.9 18.3 18.4 17.3 16.7 16.8 16.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	16.5 16.6 16.5 17.1 17.5 16.3 15.1 13.6 13.3 15.1 17.4 19.2 20.4 21.0 20.9 19.6 17.7 16.0 17.2 18.1 19.3 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0 11.6 12.2 13.6 15.7 17.3 18.5 18.6 17.4 15.7 14.5 13.6 14.9 16.2 17.6 18.9 11.9 11.9 11.9 11.9 11.9 11.9 11.9	15.5 15.4 12.5 13.6 12.5 13.6 15.4 17.4 18.8 19.7 19.8 18.4 16.6 15.3 16.5 17.8 18.9 19.7 20.2	20.0 19.7 19.6 20.9 21.8 23.1 23.9 24.5 24.6 25.9 27.8 29.1 30.2 28.8 28.4 28.5 28.8 28.9 27.2 27.4	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5 20.8 21.1 21.5 22.9 24.2 25.4 24.5 23.6 23.6 23.8 23.1 23.0 23.3 24.1 23.8 24.2	18.7 18.4 18.8 19.3 19.9 21.1 22.5 22.8 23.6 25.1 26.4 27.3 26.4 25.9 25.9 25.9 26.1 25.1 25.1 25.1 25.1 25.9 26.1 25.9 26.0	25.7 24.4 24.4 21.9 22.2 22.8 23.2 24.0 25.5 24.7 25.8 26.8 27.0 25.4 24.4 24.4 23.5 22.9 24.0 25.5	20.7 20.1 20.1 20.1 20.1 19.2 19.0 18.6 20.7 21.0 21.3 21.6 21.7 21.7 22.0 20.3 20.2 20.5 20.0	23.0 22.5 22.1 20.9 20.6 20.4 21.1 21.7 22.9 22.8 23.5 24.1 24.2 22.2 22.2 21.9 21.4 21.3 21.4 22.3 23.1	23.8 23.7 22.2 21.2 21.1 20.1 19.7 19.5 20.2 20.8 21.4 22.1 22.5 21.6 21.4 20.2 18.9 19.8 19.6 18.5 18.1 18.2 18.2	21.8 20.9 20.3 18.8 18.7 18.0 17.4 17.1 17.2 17.7 18.1 18.6 19.0 19.3 18.8 18.2 16.8 17.0 17.4 16.3 15.5 15.4 15.7	22.6 22.2 21.5 20.0 19.9 19.0 18.5 18.6 19.1 19.6 20.2 20.6 20.4 20.3 19.5 19.0 17.9 18.3 18.4 17.3 16.7 16.8 16.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	16.5 16.6 16.5 17.1 17.5 16.3 15.1 13.6 13.3 15.1 17.4 19.2 20.4 21.0 20.9 19.6 17.7 16.0 17.2 18.1 19.3 20.0 20.8 21.2 21.6	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0 11.7 11.6 12.2 13.6 15.7 17.3 18.5 18.6 17.4 15.7 14.5 13.6 14.9 16.2 17.6 18.6 19.1 19.2	15.5 15.4 12.5 13.6 12.5 13.6 15.4 17.4 18.8 19.7 19.8 18.4 16.6 15.3 16.5 17.8 18.9 19.7 20.2	20.0 19.7 19.6 20.9 21.8 23.1 23.9 24.5 24.6 25.9 27.8 29.1 30.2 28.8 28.4 28.5 28.8 28.9 27.2 27.4	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5 20.8 21.1 21.5 22.9 24.2 25.4 24.5 23.6 23.6 23.8 23.1 23.0 23.3 24.1 23.8 24.2	18.7 18.4 18.8 19.3 19.9 21.1 22.0 22.5 22.8 23.6 25.1 26.4 27.3 26.4 27.3 26.4 27.3 26.1 25.8 25.9 26.1 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.8 25.0 26.0	25.7 24.4 21.9 22.2 22.8 23.2 24.0 25.5 24.7 25.0 25.8 26.8 27.0 25.4 24.4 24.4 24.4 24.4 24.4 24.4 24.4 24.4 24.4 24.4 24.4 24.8	20.7 20.1 20.1 20.1 20.1 19.2 19.0 18.6 20.7 21.0 21.3 21.6 21.7 21.7 22.0 20.3 20.2 20.5 20.0	23.0 22.5 22.1 20.9 20.6 20.4 21.1 21.7 22.9 22.8 23.5 24.1 24.2 22.2 22.2 21.9 21.4 21.3 21.4 22.3 23.1	23.8 23.7 22.2 21.2 21.1 20.1 19.7 19.5 20.2 20.8 21.4 22.1 22.5 21.6 21.4 20.2 18.9 19.8 19.6 18.5 18.1 18.2 18.2	21.8 20.9 20.3 18.8 18.7 18.0 17.4 17.1 17.2 17.7 18.1 18.6 18.9 19.0 19.3 18.8 17.0 19.3 16.3 15.5 15.4 15.5 16.0 16.0	22.6 22.2 21.5 20.0 19.9 19.0 18.5 18.6 19.1 19.6 20.2 20.6 20.4 20.3 19.5 19.0 17.9 18.3 16.7 16.8 16.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	16.5 16.6 16.5 17.1 17.5 16.3 15.1 13.6 13.3 15.1 17.4 19.2 20.9 19.6 17.7 16.0 17.2 18.1 19.3 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0 11.7 11.6 12.2 13.6 15.7 17.3 18.5 18.6 17.4 15.7 14.5 13.6 14.9 16.2 17.6 18.9 16.2 17.6 19.1 19.2	15.5 15.4 12.5 13.6 12.5 13.6 15.4 17.4 18.8 19.7 19.8 18.4 16.6 15.3 16.5 17.8 18.9 19.7 20.2	20.0 19.7 19.6 20.9 21.8 23.1 23.9 24.5 24.6 25.9 27.8 29.1 30.2 28.8 28.4 28.5 28.8 28.9 27.2 27.4	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5 20.8 21.1 21.5 22.9 24.2 25.4 24.5 23.6 23.6 23.8 23.1 23.0 23.3 24.1 23.8 24.2	18.7 18.4 18.8 19.3 19.9 21.1 22.0 22.5 22.8 23.6 25.1 26.4 27.3 26.4 25.9 26.1 25.8 25.0 25.1 25.4 25.9 26.0 25.1 25.4 25.9 26.0 25.1 25.4 25.9 26.0 26.0 27.0 28.0	25.7 24.4 21.9 22.2 22.8 23.2 24.0 25.5 24.7 25.8 26.8 27.0 25.4 24.4 24.4 23.5 22.9 22.9 23.2 24.4 24.4 24.4 23.5 22.9	20.7 20.1 20.1 20.1 20.1 19.2 19.0 18.6 20.7 21.0 21.3 21.6 21.7 21.7 22.0 20.3 20.2 20.5 20.0	23.0 22.5 22.1 20.9 20.6 20.4 21.1 21.7 22.9 22.8 23.5 24.1 24.2 22.2 22.2 21.9 21.4 21.3 21.4 22.3 23.1	23.8 23.7 22.2 21.2 21.1 20.1 19.7 19.5 20.2 20.8 21.4 22.1 22.5 21.6 21.4 20.2 18.9 19.8 19.6 18.5 18.1 18.2 18.2	21.8 20.9 20.3 18.8 18.7 18.0 17.4 17.1 17.2 17.7 18.1 18.6 18.9 19.0 19.3 18.8 18.2 16.8 17.0 17.4 16.3 15.5 15.4 15.7 16.0 16.0 15.8 15.7 16.0	22.6 22.2 21.5 20.0 19.9 19.0 18.5 18.6 19.1 19.6 20.2 20.6 20.4 20.3 19.5 19.0 17.9 18.3 16.7 16.8 16.9 17.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	16.5 16.6 17.1 17.5 16.3 15.1 13.6 13.3 15.1 17.4 19.2 20.4 21.0 20.9 19.6 17.7 16.0 17.2 18.1 19.3 20.0 20.8 21.2 21.6	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0 11.7 11.6 12.2 13.6 15.7 17.3 18.5 18.6 17.4 15.7 14.5 13.6 14.9 16.2 17.6 18.6 19.1 19.2 19.4 20.5 20.0 18.5 17.0	15.5 15.4 12.5 13.6 12.5 13.6 15.4 17.4 18.8 19.7 19.8 18.4 16.6 15.3 16.5 17.8 18.9 19.7 20.2	20.0 19.7 19.6 20.9 21.8 23.1 23.9 24.5 24.6 25.9 27.8 29.1 30.2 28.8 28.4 28.5 28.8 28.9 27.2 27.4	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5 20.8 21.1 21.5 22.9 24.2 25.4 24.5 23.6 23.6 23.8 23.1 23.0 23.3 24.1 23.8 24.2	18.7 18.4 18.8 19.3 19.9 21.1 22.0 22.5 22.8 23.6 25.1 26.4 27.3 26.4 27.3 26.4 27.3 26.4 27.3 26.4 27.3 26.1 25.8 25.0 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.0 25.1 25.0 25.1 25.0 25.1 25.0	25.7 24.4 21.9 22.2 22.8 23.2 24.0 25.5 24.7 25.8 26.8 27.0 25.8 24.4 24.4 24.4 24.4 24.4 24.4 24.4 24.4 24.4 24.4 24.4 24.4 24.4 24.8	20.7 20.1 20.1 20.1 20.1 19.2 19.0 18.6 20.7 21.0 21.3 21.6 21.7 21.7 22.0 20.3 20.2 20.5 20.0	23.0 22.5 22.1 20.9 20.6 20.4 20.6 21.1 21.7 22.9 22.8 23.5 24.1 24.2 22.2 22.2 21.9 21.4 21.3 21.4 22.0 22.3 23.1	23.8 23.7 22.2 21.2 21.1 20.1 19.7 19.5 20.2 20.8 21.4 22.1 22.5 21.6 21.4 20.2 18.9 19.8 19.6 18.5 18.1 18.2 18.2	21.8 20.9 20.3 18.8 18.7 18.0 17.4 17.1 17.2 17.7 18.1 18.6 18.9 19.0 19.3 18.8 17.0 19.3 16.3 15.5 15.4 15.5 16.0 16.0	22.6 22.2 21.5 20.0 19.9 19.0 18.5 18.6 19.1 19.6 20.2 20.6 20.4 20.3 19.5 19.0 17.9 18.3 16.7 16.8 16.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	16.5 16.6 16.5 17.1 17.5 16.3 15.1 13.6 13.3 15.1 17.4 19.2 20.9 19.6 17.7 16.0 17.2 18.1 19.3 20.0 20.9 20.0 20.0 20.0 20.0 20.0 20.0	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0 11.7 11.6 12.2 13.6 15.7 17.3 18.5 18.6 17.4 15.7 14.5 13.6 14.9 16.2 17.6 18.9 16.2 17.6 18.5 17.6 18.6 19.1 19.2	15.5 15.8 16.2 15.6 13.9 12.5 13.6 12.5 13.6 15.4 17.4 18.8 19.7 19.8 18.4 16.6 15.2 15.3 16.5 17.8 18.9 19.7 20.2 20.4 20.8 21.4 20.5 19.3 18.4	20.0 19.7 19.6 20.9 21.8 23.1 23.9 24.6 25.9 27.8 29.1 30.2 28.8 28.4 28.5 28.8 28.9 27.2 27.4 27.5 27.8 28.2 27.4 27.5 27.6 27.5 27.6 27.5 27.6	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5 20.8 21.1 21.5 22.9 24.2 25.4 24.5 23.6 23.6 23.8 23.1 23.0 23.3 24.1 23.5 22.7 21.9 22.6 23.3 21.8	18.7 18.4 18.8 19.3 19.9 21.1 22.0 22.5 22.8 23.6 25.1 26.4 27.3 26.4 25.9 26.1 25.8 25.0 25.1 25.4 25.9 26.0 25.1 25.4 25.9 26.0 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.4 25.9 26.0 26.0 27.0	25.7 24.4 21.9 22.2 22.8 23.2 24.0 25.5 24.7 25.8 26.8 27.0 25.4 24.4 24.4 23.5 22.9 22.9 23.2 24.0 25.5 26.8 27.0	20.7 20.1 20.1 20.1 20.1 19.2 19.0 18.6 20.7 21.0 21.3 21.6 21.7 21.7 22.0 20.3 20.2 20.5 20.0 19.9 19.9 20.7 21.6 21.7 21.6	23.0 22.5 22.1 20.9 20.6 21.1 21.7 22.9 22.8 23.0 23.5 24.1 24.2 22.2 21.9 21.4 21.3 21.4 22.2 22.2 21.9 21.4 21.3 21.4 22.3 23.6 23.6 23.6 23.6	23.8 23.7 22.2 21.2 21.1 20.1 19.7 19.5 20.2 20.8 21.4 22.5 21.6 21.4 20.2 18.9 19.8 19.6 18.5 18.1 18.2 18.2 18.4	21.8 20.9 20.3 18.8 18.7 18.0 17.4 17.1 17.2 17.7 18.1 18.6 18.9 19.0 19.3 18.8 18.2 16.8 17.0 17.4 16.3 15.5 15.4 16.0 16.0 15.8 15.7 16.0	22.6 22.2 21.5 20.0 19.9 19.0 18.5 18.6 19.1 19.6 20.2 20.6 20.4 20.3 19.5 19.0 17.9 18.3 18.4 17.3 16.7 16.8 16.9 17.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	16.5 16.6 16.5 17.1 17.5 16.3 15.1 13.6 13.3 15.1 17.4 19.2 20.4 21.0 20.9 19.6 17.7 16.0 17.2 18.1 19.3 20.0 20.8 21.2 21.6 22.1 22.1 22.3 21.5 22.3	JUNE 14.7 14.2 14.3 14.5 15.1 14.8 13.0 11.7 11.6 12.2 13.6 15.7 17.3 18.5 18.6 17.4 15.7 14.5 13.6 14.9 16.2 17.6 18.6 19.1 19.2 19.4 20.5 20.0 18.5 17.0	15.5 15.4 12.5 13.6 12.5 13.6 15.4 17.4 18.8 19.7 19.8 18.4 16.6 15.3 16.5 17.8 18.9 19.7 20.2	20.0 19.7 19.6 20.9 21.8 23.1 23.9 24.5 24.6 25.9 27.8 29.1 30.2 28.8 28.4 28.5 28.8 28.9 27.2 27.4	JULY 17.4 17.0 18.0 17.8 18.1 19.2 20.5 20.8 21.1 21.5 22.9 24.2 25.4 24.5 23.6 23.6 23.8 23.1 23.0 23.3 24.1 23.5 22.7 21.9 22.6 23.3 21.8	18.7 18.4 18.8 19.3 19.9 21.1 22.0 22.5 22.8 23.6 25.1 26.4 27.3 26.4 27.3 26.4 27.3 26.4 27.3 26.4 27.3 26.1 25.8 25.0 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.8 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.0 25.1 25.0 25.1 25.0 25.1 25.0	25.7 24.4 21.9 22.2 22.8 23.2 24.0 25.5 24.7 25.8 26.8 27.0 25.4 24.4 24.4 23.5 22.9 22.9 23.2 24.0 25.5 26.8 27.0	20.7 20.1 20.1 20.1 20.1 19.2 19.0 18.6 20.7 21.0 21.3 21.6 21.7 21.7 22.0 20.3 20.2 20.5 20.0	23.0 22.5 22.1 20.9 20.6 20.4 20.6 21.1 21.7 22.9 22.8 23.5 24.1 24.2 22.2 22.2 21.9 21.4 21.3 21.4 22.0 22.3 23.1	23.8 23.7 22.2 21.2 21.1 20.1 19.7 19.5 20.2 20.8 21.4 22.5 21.6 21.4 20.2 18.9 19.8 19.6 18.5 18.1 18.2 18.2 18.4	21.8 20.9 20.3 18.8 18.7 18.0 17.4 17.2 17.7 18.1 18.6 18.9 19.0 19.3 18.8 18.2 16.3 17.4 16.3 15.5 15.7 16.0 16.0 15.8 15.7	22.6 22.2 21.5 20.0 19.9 19.0 18.5 18.6 19.1 19.6 20.2 20.6 20.4 20.3 19.5 19.0 17.3 16.7 16.8 16.7 16.8 16.9 17.1

YAKIMA RIVER BASIN

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12510500 YAKIMA RIVER AT KIONA, WA--Continued

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
OCT 16	1220	1300	752	11.2	109	8.3	301	14.0	13.4	120	146	0	7.01
NOV 20	1230	3000	748	11.2	97	8.0	186	11.3	8.1	74	90	0	4.96
DEC 17	1220	3150	757	12.8	101	8.2	195	9.0	5.2	80	96	0	5.10
JAN 23	1050	3490	758	13.1	98	7.9	189	1.7	3.0	76	92	0	4.39
FEB 20	1140	2270	760	13.5	112	8.3	228	11.0	7.1	91	110	0	5.29
MAR 07	1030	3490	749	12.8	105	8.0	182	7.0	6.0				
20 APR	1140	2630	762	13.1	106	8.3	189	2.0	6.1	76	91	0	3.86
16	1110 1150	13700 3130	747 747	10.9 10.8	96 107	7.5 8.0	104 166	 18.4	8.9 14.1	41	49	0	2.03
MAY 06	1130	4670	755	11.4	105	8.0	139	15.0	11.4				
20 JUN	1040	3820	746	9.4	98	7.9	165	18.9	16.2	73	88	0	3.50
03 18	1105 1110	9400 9330	752 750	9.8 9.9	101 100	7.9 7.6	104 93	26.0	16.0 15.1	 44	 53	 0	 1.85
JUL 09	1050	1780	760	10.8	126	8.3	216	30.4	22.8				
23 AUG	1200	1360	750	9.9	125	8.5	231	40.5	26.2	102	120	2	5.25
06 21	1120 1220	1480 1330	759 752	10.0	111 115	8.2 8.3	232 243	18.0 25.2	20.0 21.5	 96	 114	 0	 5.34
SEP 17	1140	1670	748	9.3	102	8.2	274	19.0	18.9	108	126	0	5.74
Date	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	CARBON, INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)
OCT 16	DIS- SOLVED (MG/L AS SO4)	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	GEN, NITRITE DIS- SOLVED (MG/L AS N)	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N)	GEN, TOTAL (MG/L AS N)	PHOS- PHATE, DIS- SOLVED (MG/L AS P)	PHORUS TOTAL (MG/L AS P)	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C)	INOR- GANIC, PARTIC. TOTAL (MG/L AS C)	ORGANIC DIS- SOLVED (MG/L AS C)	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C)
OCT 16 NOV 20	DIS- SOLVED (MG/L AS SO4) (00945)	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570)	GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665)	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	ORGANIC DIS- SOLVED (MG/L AS C) (00681)	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)
OCT 16 NOV 20 DEC 17	DIS- SOLVED (MG/L AS SO4) (00945)	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570)	GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHATE, DIS-SOLVED (MG/LAS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665)	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	ORGANIC DIS- SOLVED (MG/L AS C) (00681)	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)
OCT 16 NOV 20 DEC 17 JAN 23	DIS- SOLVED (MG/L AS SO4) (00945)	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.09	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570)	GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665)	INORG + ORGANIC PARTIC: TOTAL (MG/L AS C) (00694)	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	ORGANIC DIS- SOLVED (MG/L AS C) (00681)	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20	DIS- SOLVED (MG/L AS SO4) (00945) 16.6 8.6	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 E.03 <.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .25 .26	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.09 .79	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .012 .009 E.006	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .08 .13	GEN, TOTAL (MG/L AS N) (00600) 1.3 1.1	PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671) .10 .06	PHORUS TOTAL (MG/L AS P) (00665) .143 .109	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 1.8 1.8	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07	DIS- SOLVED (MG/L AS SO4) (00945) 16.6 8.6 8.6 8.2	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 E.03 <.04 E.03 <.04 E.03	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .25 .26 .31 .22 .13	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.09 .79 .80 .78 .87	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .012 .009 E.006 E.005 E.006	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .08 .13 .12 .07 .05	GEN, TOTAL (MG/L AS N) (00600) 1.3 1.1 1.1 1.0	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .10 .06 .05 .07	PHORUS TOTAL (MG/L AS P) (00665) .143 .109 .112 .094 .092	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) .7 .9 1.0 .7	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 1.8 2.3 8.9 3.0	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689) 9 1.0 .7 E.4
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07	DIS- SOLVED (MG/L AS SO4) (00945) 16.6 8.6 8.6 8.2 10.7	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 E.03 <.04 E.03 <.04 E.03 <.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .25 .26 .31 .22 .13 .17 .19	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.09 .79 .80 .78 .87	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .012 .009 E.006 E.005 E.006 E.004 <.008	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .08 .13 .12 .07 .05	GEN, TOTAL (MG/L AS N) (00600) 1.3 1.1 1.0 1.0	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .10 .06 .05 .07 .06	PHORUS TOTAL (MG/L AS P) (00665) .143 .109 .112 .094 .092 .102 .096	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) .7 .9 1.0 .7 .5 .6	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688) <.1 <.1 <.1 <.1	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 1.8 2.3 8.9 3.0	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689) 9 1.0 .7 E.46
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30	DIS- SOLVED (MG/L AS SO4) (00945) 16.6 8.6 8.6 8.2	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 E.03 <.04 E.03 <.04 E.03	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .25 .26 .31 .22 .13	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.09 .79 .80 .78 .87	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .012 .009 E.006 E.005 E.006	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .08 .13 .12 .07 .05	GEN, TOTAL (MG/L AS N) (00600) 1.3 1.1 1.1 1.0	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .10 .06 .05 .07	PHORUS TOTAL (MG/L AS P) (00665) .143 .109 .112 .094 .092	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) .7 .9 1.0 .7	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 1.8 2.3 8.9 3.0	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689) 9 1.0 .7 E.4
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30 MAY 06	DIS- SOLVED (MG/L AS SO4) (00945) 16.6 8.6 8.6 8.2 10.7 7.8 4.2	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 E.03 <.04 E.03 <.04 E.03 <.04 E.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .25 .26 .31 .22 .13 .17 .19 1.5 .21	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.09 .79 .80 .78 .87 .58 .46 .29 .44 .36	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .012 .009 E.006 E.005 E.006 c.008 E.004 <.008 E.006 .012 E.004	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .08 .13 .12 .07 .0506 .30	GEN, TOTAL (MG/L AS N) (00600) 1.3 1.1 1.0 1.0 .75 .65 1.8 .66 .60	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .10 .06 .05 .07 .06 .07 .06 .05 .06	PHORUS TOTAL (MG/L AS P) (00665) .143 .109 .112 .094 .092 .102 .096 .62 .103 .107	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) .7 .9 1.0 .7 .5 6 2.6	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688) <.1 <.1 <.1 <.1 <.1 <.1	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 1.8 2.3 8.9 3.0 5.4	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689) 9 1.0 .7 E.46 2.5
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30 MAY 06	DIS- SOLVED (MG/L AS SO4) (00945) 16.6 8.6 8.6 8.2 10.7 7.8 4.2	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 E.03 <.04 E.03 <.04 E.03 <.04 E.03 <.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .25 .26 .31 .22 .13 .17 .19	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.09 .79 .80 .78 .87 .58 .46 .29 .44	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .012 .009 E.006 E.005 E.006 E.004 <.008 E.006 .012	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .08 .13 .12 .07 .0506 .30	GEN, TOTAL (MG/L AS N) (00600) 1.3 1.1 1.0 1.0 .75 .65	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .10 .06 .05 .07 .06	PHORUS TOTAL (MG/L AS P) (00665) .143 .109 .112 .094 .092 .102 .096 .62 .103	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) .7 .9 1.0 .7 .5 6 2.6	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688) <.1 <.1 <.1 <.1 E.1 <.1	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 1.8 2.3 8.9 3.0 5.4	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689) 9 1.0 .7 E.46 2.5
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30 APR 16 16 JUN 03 JUN 03 18 26	DIS- SOLVED (MG/L AS SO4) (00945) 16.6 8.6 8.6 8.2 10.7 7.8 4.2	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 E.03 <.04 E.03 <.04 E.04 <.04 .08 <.04 .08	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .25 .26 .31 .22 .13 .17 .19 1.5 .21 .24	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.09 .79 .80 .78 .87 .58 .46 .29 .44 .36	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .012 .009 E.006 E.005 E.006 E.004 <.008 E.006 .012 E.004	GEN, PAR TICULTE SUSP (MG/L AS N) (49570) .08 .13 .12 .07 .0506 .30	GEN, TOTAL (MG/L AS N) (00600) 1.3 1.1 1.0 1.0 .75 .65 1.8 .66	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .10 .06 .05 .07 .06 .07 .06	PHORUS TOTAL (MG/L AS P) (00665) .143 .109 .112 .094 .092 .102 .096 .62 .103 .107	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) .7 .9 1.0 .7 .5 6 2.6	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688) <.1 <.1 <.1 <.1 <.1 <.1	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 1.8 1.8 2.3 8.9 3.0 5.4 	ORGANIC PARTIC-ULATE TOTAL (MG/L AS C) (00689) 9 1.0 .7 E.46 2.5
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30 MAY 06 16 20 JUN 03 18 26 JUL 09	DIS- SOLVED (MG/L AS SO4) (00945) 16.6 8.6 8.6 8.2 10.7 7.8 4.2 7.1 3.4 4.7	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 E.03 <.04 E.03 <.04 E.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .25 .26 .31 .22 .13 .17 .19 1.5 .21 .2436 .33 .2920	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.09 .79 .80 .78 .87 .58 .46 .29 .44 .3641 .27 .2464	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .012 .009 E.006 E.005 E.006 .012 E.004 .008 E.006 .012 E.004 .010 E.005 .010	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .08 .13 .12 .07 .0506 .301818	GEN, TOTAL (MG/L AS N) (00600) 1.3 1.1 1.0 1.0 .75 .65 1.8 .66 .60 .77 .60 .53 	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .10 .06 .05 .07 .06 .05 .06 .05 .06 .05 .06	PHORUS TOTAL (MG/L AS P) (00665) .143 .109 .112 .094 .092 .102 .096 .62 .103 .107137 .177 .157058	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) .7 .9 1.0 .7 .56 2.6 1.3 1.0	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688) <.1 <.1 <.1 <.1 <.1 <.1 <.1 <.1	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 1.8 1.8 2.3 8.9 3.0 5.4 2.1	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689) 9 1.0 .7 E.46 2.51.31.0
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30 MAY 06 16 20 JUN 03 18 26 JUL 09 JUL 09 AUG	DIS- SOLVED (MG/L AS SO4) (00945) 16.6 8.6 8.6 8.2 10.7 7.8 4.2 7.1 3.4 4.7	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 E.03 <.04 E.03 <.04 C.04 C.04 C.04 C.04 C.04 C.04 C.04 C	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .25 .26 .31 .22 .13 .17 .19 1.5 .21 .2436 .33 .2920 .34	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.09 .79 .80 .78 .87 .58 .46 .29 .44 .3641 .27 .2464 .74	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .012 .009 E.006 E.005 E.006 .012 E.004 <.008 E.006 .012 E.006 .012 E.006 .012 E.004 .010 .010 E.005 .010 E.005	GEN, PAR TICULTE WAT FIT SUSP (MG/L AS N) (49570) .08 .13 .12 .07 .0506 .30181212	GEN, TOTAL (MG/L AS N) (00600) 1.3 1.1 1.0 1.0 .75 .65 1.8 .66 .6077 .60 .5384 1.1	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .10 .06 .05 .07 .06 .05 .06 .05 .06 .05 .06	PHORUS TOTAL (MG/L AS P) (00665) .143 .109 .112 .094 .092 .102 .096 .62 .103 .107137 .177 .157058 .125	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) .7 .9 1.0 .7 .56 2.6 1.3 1.0 7	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688) <.1 <.1 <.1 <.1 <.1 <.1 <.1 <.1 <.1 <.1 <.1 <.1 <.1 <.1 <.1	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 1.8 2.3 8.9 3.0 5.4 5.4 2.1 1.6 1.4	ORGANIC PARTIC-ULATE TOTAL (MG/L AS C) (00689) 9 1.0 .7 E.46 2.51.31.07
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30 MAY 06 16 20 JUN 03 JUN 03 JUL 09 23	DIS- SOLVED (MG/L AS SO4) (00945) 16.6 8.6 8.6 8.2 10.7 7.8 4.2 7.1 3.4 4.7	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 E.03 <.04 E.03 <.04 E.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .25 .26 .31 .22 .13 .17 .19 1.5 .21 .2436 .33 .2920	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) 1.09 .79 .80 .78 .87 .58 .46 .29 .44 .3641 .27 .2464	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .012 .009 E.006 E.005 E.006 .012 E.004 .008 E.006 .012 E.004 .010 E.005 .010	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .08 .13 .12 .07 .0506 .301818	GEN, TOTAL (MG/L AS N) (00600) 1.3 1.1 1.0 1.0 .75 .65 1.8 .66 .60 .77 .60 .53 	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) .10 .06 .05 .07 .06 .05 .06 .05 .06 .05 .06	PHORUS TOTAL (MG/L AS P) (00665) .143 .109 .112 .094 .092 .102 .096 .62 .103 .107137 .177 .157058	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) .7 .9 1.0 .7 .56 2.6 1.3 1.0	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688) <.1 <.1 <.1 <.1 <.1 <.1 <.1 <.1	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 1.8 1.8 2.3 8.9 3.0 5.4 2.1	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689) 9 1.0 .7 E.46 2.51.31.0

12510500 YAKIMA RIVER AT KIONA, WA--Continued

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Date	2,4-D METHYL ESTER, WATER FLITRD REC (UG/L) (50470)	2,4-D, DIS- SOLVED (UG/L) (39732)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	3HYDRXY CARBO- FURAN WAT,FLT GF 0.7U REC (UG/L) (49308)	3-KETO CARBO- FURAN WATER FLTRD REC (UG/L) (50295)	ACETO- CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029)	ACETO- CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61030)	ACETO- CHLOR, WATER FLIRD REC (UG/L) (49260)	ACIFL- UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315)	ALA- CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61031)	ALA- CHLOR ESA WAT FLT GF 0.7U REC (UG/L) (50009)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)
OCT 16	<.009	E.01	<.02	<.002	<.006	<2			<.004	<.007			<.002
NOV 20	<.009	<.02	<.02	<.002	<.006	<2	<.05	<.05	<.004	<.007	<.05	<.05	<.002
DEC 17 JAN	<.009	<.02	<.02	<.002	<.006	<2	<.05	<.05	<.004	<.007	<.05	<.05	<.002
23 FEB	<.009	<.02	<.02	<.006	<.006	<2	<.05	<.05	<.006	<.007	<.05	<.05	<.004
20 MAR	<.009	<.02	<.02	<.006	<.006	<2	<.05	<.05	<.006	<.007	<.05	<.05	<.004
07	<.009 <.009	<.02 <.02	<.02 <.02	<.006 <.006	<.006 <.006	<2 <2	<.05 <.05	<.05 <.05	<.006 <.006	<.007 <.104	<.05 <.05	<.05 <.05	<.004 <.004
APR 16	<.009	<.02	<.02	<.006	<.006	<2	<.05	<.05	<.006	<.007	<.05	<.05	<.004
30 MAY	<.009	.09	<.02	<.006	<.006	<2	<.05	<.05	<.006	<.007	<.05	<.05	<.004
06 20	<.009 <.009	.04	<.02 <.02	<.006 <.006	<.006 <.006	<2 <2	<.05	<.05	<.006 <.006	<.007 <.007	<.05	<.05 	<.004 <.004
JUN 03				<.006			<.05	<.05	<.006		<.05	<.05	<.004
18 JUL	<.009	E.01	<.02	<.006	<.006	<2	< . 05	<.05	<.006	<.007	<.05	<.05	<.004
09 23	<.009 <.009	E.05 .04	<.02 <.02	<.006 <.006	<.006 <.006	<2 <2	<.05 <.05	<.05 <.05	<.006 <.006	<.007 <.007	<.05 <.05	<.05 <.05	<.004 <.004
AUG 06 21	<.009 <.009	.03	<.02 <.02	<.006 <.006	<.006 <.006	<2 <2	<.05 <.05	<.05 <.05	<.006 <.006	<.007 <.007	<.05 <.05	.05 <.05	<.004 <.004
SEP 17	<.009	E.02	<.02	<.006	<.006	<2	<.05	<.05	<.006	<.007	<.05	.07	<.004
±/	1.005	2.02	1.02	1.000	1.000	12	1.03	1.03	1.000	1.007	1.03	,	1,001
Date	ALDI- CARB SULFONE WAT,FLT GF 0.7U REC (UG/L) (49313)	ALDICA- RB SUL- FOXIDE, WAT,FLT GF 0.7U REC (UG/L) (49314)	ALDI- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	BENDIO- CARB, WATER FLTRD REC (UG/L) (50299)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BENOMYL WATER FLTRD REC (UG/L) (50300)	BEN- SUL- FURON METHYL WAT FLT REC (UG/L) (61693)	BENTA- ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	BRO- MACIL, WATER, DISS, REC (UG/L) (04029)	BRO- MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)
Date OCT 16	CARB SULFONE WAT,FLT GF 0.7U REC (UG/L)	RB SUL- FOXIDE, WAT,FLT GF 0.7U REC (UG/L)	CARB, WATER, FLTRD, GF 0.7U REC (UG/L)	BHC DIS- SOLVED (UG/L)	ZINE, WATER, DISS, REC (UG/L)	CARB, WATER FLTRD REC (UG/L)	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L)	WATER FLTRD REC (UG/L)	SUL- FURON METHYL WAT FLT REC (UG/L)	ZON, WATER, FLTRD, GF 0.7U REC (UG/L)	MACIL, WATER, DISS, REC (UG/L)	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L)	ATE, WATER, DISS, REC (UG/L)
OCT 16 NOV 20	CARB SULFONE WAT,FLT GF 0.7U REC (UG/L) (49313)	RB SUL- FOXIDE, WAT,FLT GF 0.7U REC (UG/L) (49314)	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	BHC DIS- SOLVED (UG/L) (34253)	ZINE, WATER, DISS, REC (UG/L) (39632)	CARB, WATER FLTRD REC (UG/L) (50299)	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	WATER FLTRD REC (UG/L) (50300)	SUL- FURON METHYL WAT FLT REC (UG/L) (61693)	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	MACIL, WATER, DISS, REC (UG/L) (04029)	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	ATE, WATER, DISS, REC (UG/L) (04028)
OCT 16 NOV 20 DEC 17	CARB SULFONE WAT,FLT GF 0.7U REC (UG/L) (49313)	RB SUL- FOXIDE, WAT,FLT GF 0.7U REC (UG/L) (49314)	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	BHC DIS- SOLVED (UG/L) (34253)	ZINE, WATER, DISS, REC (UG/L) (39632)	CARB, WATER FLTRD REC (UG/L) (50299)	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	WATER FLTRD REC (UG/L) (50300)	SUL- FURON METHYL WAT FLT REC (UG/L) (61693)	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	MACIL, WATER, DISS, REC (UG/L) (04029)	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	ATE, WATER, DISS, REC (UG/L) (04028)
OCT 16 NOV 20 DEC 17 JAN 23	CARB SULFONE WAT, FLT GF 0.7U REC (UG/L) (49313) <.02	RB SUL- FOXIDE, WAT, FLT GF 0.7U REC (UG/L) (49314) <.008	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312) <.04 <.04	BHC DIS- SOLVED (UG/L) (34253) <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.010	CARB, WATER FLIRD REC (UG/L) (50299) <.03	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673) <.010	WATER FLTRD REC (UG/L) (50300) <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693) <.02	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711) E.01 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311) <.02 <.02	ATE, WATER, DISS, REC (UG/L) (04028) <.002
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20	CARB SULFONE WAT, FLT GF 0.7U REC (UG/L) (49313) <.02 <.02 <.02	RB SUL- FOXIDE, WAT, FLT GF 0.7U REC (UG/L) (49314) <.008 <.008	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312) <.04 <.04	BHC DIS- SOLVED (UG/L) (34253) <.005 <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.010 E.006	CARB, WATER FLTC REC (UG/L) (50299) <.03 <.03	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673) <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693) <.02 <.02	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711) E.01 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 <.03	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311) <.02 <.02	ATE, WATER, DISS, REC (UG/L) (04028) <.002 <.002
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20	CARB SULFONE WAT, FLT GF 0.7U REC (UG/L) (49313) <.02 <.02 <.02	RB SUL- FOXIDE, WAT, FLT GF 0.7U REC (UG/L) (49314) <.008 <.008 <.008	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312) < .04 < .04 < .04	BHC DIS- SOLVED (UG/L) (34253) <.005 <.005 <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.010 E.006 E.005	CARB, WATER FLTRD REC (UG/L) (50299) <.03 <.03 <.03	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673) <.010 <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693) <.02 <.02 <.02 <.02	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711) E.01 <.01 M	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 <.03 <.03	MOXYMIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311) <.02 <.02 <.02 <.02	ATE, WATER, DISS, REC (UG/L) (04028) <.002 <.002 <.002
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20	CARB SULFONE WAT, FLT GF 0.7U REC (UG/L) (49313) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	RB SUL- FOXIDE, WAT, FLT GF 0.7U REC (UG/L) (49314) <.008 <.008 <.008 <.008 <.008 <.008 <.008	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312) < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04 < .04	BHC DIS- SOLVED (UG/L) (34253) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.010 E.006 E.005 E.004 E.006 E.004 E.003	CARB, WATER FLTRD REC (UG/L) (50299) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FLUR- ALIN WAT FILD 0.7 U GF, REC (UG/L) (82673) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711) E.01 <.01 M <.01 <.01 <.01 <.01 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 <.03 <.03 <.03 M<.03	MOXYMIL WATER, FLITRD, GF 0.7U REC (UG/L) (49311) <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <	ATE, WATER, DISS, REC (UG/L) (04028) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20	CARB SULFONE WAT, FLT GF 0.7U REC (UG/L) (49313) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	RB SUL- FOXIDE, WAT, FLT GF 0.7U REC (UG/L) (49314) <.008 <.008 <.008 <.008 <.008 <.008	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.0	BHC DIS- DIS- SOLVED (UG/L) (34253) <.005 <.005 <.005 <.005 <.005 <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.010 E.006 E.005 E.004 E.006 E.004 E.003 <.007 .009	CARB, WATER FLITRD REC (UG/L) (50299) <.03 <.03 <.03 <.03 <.03 <.03 <.03	FLUR- ALIN WAT FILD 0.7 U GF, REC (UG/L) (82673) <.010 <.010 <.010 <.010 <.010 <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693) <.02 <.02 <.02 <.02 <.02 <.02 <.02	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711) E.01 <.01 M <.01 <.01 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 <.03 <.03 <.03 <.03 M <.03 <.03	MOXYNIL WATER, FLITRD, GF 0.7U REC (UG/L) (49311) <.02 <.02 <.02 <.02 <.02 <.02 <.02	ATE, WATER, DISS, REC (UG/L) (04028) <.002 <.002 <.002 <.002 <.002 <.002 <.002
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30 MAY 06 16 16	CARB SULFONE WAT, FLT GF 0.7U REC (UG/L) (49313) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	RB SUL- FOXIDE, WAT, FLT GF 0.7U REC (UG/L) (49314) <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.0	BHC DIS- SOLVED (UG/L) (34253) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.010 E.006 E.005 E.004 E.006 E.004 E.006	CARB, WATER FLITRD REC (UG/L) (50299) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FLUR- ALIN WAT FILD 0.7 U GF, REC (UG/L) (82673) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711) E.01 <.01 M <.01 <.01 <.01 <.01 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 <.03 <.03 <.03 <.03 <.03	MOXYNIL WATER, FLITRD, GF 0.7U REC (UG/L) (49311) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ATE, WATER, DISS, REC (UG/L) (04028) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30 MAY 06 16 JUN 03 18 26	CARB SULFONE WAT, FLT GF 0.7U REC (UG/L) (49313) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	RB SUL-FOXIDE, WAT, FLT GF 0.7U REC (UG/L) (49314) <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	BHC DIS- SOLVED (UG/L) (34253) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.010 E.006 E.005 E.004 E.006 E.004 E.003 <.007 .009	CARB, WATER FLTRD REC (UG/L) (50299) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FLUR- ALIN WAT FILD 0.7 U GF, REC (UG/L) (82673) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711) E.01 <.01 M <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 <.03 <.03 <.03 <.03 <.03 <.03	MOXYMIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ATE, WATER, DISS, REC (UG/L) (04028) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30 MAY 06 16 16 20 JUN 03 18	CARB SULFONE WAT, FLT GF 0.7U REC (UG/L) (49313) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	RB SUL- FOXIDE, WAT, FLT GF 0.7U REC (UG/L) (49314) <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.0	BHC DIS- SOLVED (UG/L) (34253) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.010 E.006 E.005 E.004 E.006 E.004 E.003 <.007 .009	CARB, WATER FLITRD REC (UG/L) (50299) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FLUR- ALIN WAT FILD 0.7 U GF, REC (UG/L) (82673) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711) E.01 <.01 M <.01 <.01 <.01 <.01 <.01 <.01 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 <.03 <.03 <.03 M <.03 E.02 <.03	MOXYNIL WATER, FLITRD, GF 0.7U REC (UG/L) (49311) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ATE, WATER, DISS, REC (UG/L) (04028) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002
OCT 16 NOV 20 DEC 17 JAN 23 FBB 20 MAR 07 20 APR 16 30 MAY 06 16 16 JUN 03 18 26 JUL 09 23	CARB SULFONE WAT, FLT GF 0.7U REC (UG/L) (49313) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	RB SUL- FOXIDE, WAT, FLT GF 0.7U REC (UG/L) (49314) <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.0	BHC DIS- SOLVED (UG/L) (34253) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ZINE, WATER, DISS, REC (UG/L) (39632) <.010 E.006 E.005 E.004 E.006 E.004 E.003 <.007 .009 .008 .011 <.007 <.007	CARB, WATER FUTRD REC (UG/L) (50299) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FLUR- ALIN WAT FILD 0.7 U GF, REC (UG/L) (82673) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711) E.01 <.01 M <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 <.03 <.03 <.03 <.03 <.03 <.0303 <.03 <.03 <.03 <.03 <.03 <.03 <.03 <	MOXYNIL WATER, FLITRD, GF 0.7U REC (UG/L) (49311) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ATE, WATER, DISS, REC (UG/L) (04028) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002

12510500 YAKIMA RIVER AT KIONA, WA--Continued
WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CAF- FEINE, WATER FLTRD REC (UG/L) (50305)	CAR- BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR- AMBEN, METHYL ESTER WATER FLTRD (UG/L) (61188)	CHLORI - MURON, WATER FLTRD REC (UG/L) (50306)	CHLORO- THALO- NIL, WAT,FLT GF 0.7U REC (UG/L) (49306)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CLOPYR- ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	CY- CLOATE, WATER, DISS, REC (UG/L) (04031)	DACTHAL MONO- ACID, WAT,FLT GF 0.7U REC (UG/L) (49304)
OCT 16	<.010	<.03	<.041	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
NOV 20	<.010	<.03	<.041	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
DEC 17	<.010	<.03	<.041	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
JAN 23	<.010	<.03	<.041	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
FEB 20	<.010	<.03	<.041	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
MAR 07	E.007	<.03	<.041	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
20 APR	<.010	<.03	<.041	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
16 30 MAY	<.010 <.010	<.03 E.01	<.041 E.055	<.006 <.006	<.020 <.020	<.02 <.02	<.010 <.010	<.04 <.04	E.004 <.005	<.01 <.01	<.018 <.018	<.01 <.01	<.01 <.01
06 20	.014	E.01 E.01	E.048 E.016	<.006 <.006	<.020	<.02 <.02	<.010 <.010	< .04	<.005 <.005	<.01 <.01	<.018 <.018	<.01 <.01	<.01 <.01
JUN 03	<.010	E.U1	<.041	<.006	<.020		<.010	<.04	<.005		<.018		
18 JUL	E.008	<.03	<.041	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
09 23	<.010 <.010	<.03 <.03	E.008 <.041	<.006 <.006	<.020 <.020	<.02 <.02	<.010 <.010	<.04 <.04	<.005 <.005	<.01 <.01	<.018 <.018	<.01 <.01	<.01 <.01
AUG 06	<.010	<.03	E.007	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
21 SEP	E.010	M	E.007	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
17	<.010	M	E.009	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
Date	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DEETHYL DEISO- PROPYL ATRAZIN DISS, REC (UG/L) (04039)	DEISO- PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	DICHLOR PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DIMETH- ENAMID OA, WATER FLT, REC (UG/L) (62482)	DIMETH- ENAMID, ESA, WAT FLT (UG/L) (61951)	DINOSEB WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	DIPHEN- AMID, WATER, DISS, REC (UG/L) (04033)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)
OCT 16	WATER FLTRD 0.7 U GF, REC (UG/L)	ATRA- ZINE, WATER, DISS, REC (UG/L)	DEISO- PROPYL ATRAZIN DISS, REC (UG/L)	PROPYL ATRAZIN WATER, DISS, REC (UG/L)	AZINON, DIS- SOLVED (UG/L)	WATER, FLTRD, GF 0.7U REC (UG/L)	PROP, WATER, FLTRD, GF 0.7U REC (UG/L)	ELDRIN DIS- SOLVED (UG/L)	ENAMID OA, WATER FLT, REC (UG/L)	ENAMID, ESA, WAT FLT (UG/L)	WATER, FLTRD, GF 0.7U REC (UG/L)	AMID, WATER, DISS, REC (UG/L)	FOTON WATER FLTRD 0.7 U GF, REC (UG/L)
OCT 16 NOV 20	WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DEISO- PROPYL ATRAZIN DISS, REC (UG/L) (04039)	PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	AZINON, DIS- SOLVED (UG/L) (39572)	WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	DIS- SOLVED (UG/L) (39381)	ENAMID OA, WATER FLT, REC (UG/L) (62482)	ENAMID, ESA, WAT FLT (UG/L) (61951)	WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	AMID, WATER, DISS, REC (UG/L) (04033)	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)
OCT 16 NOV 20 DEC 17	WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DEISO- PROPYL ATRAZIN DISS, REC (UG/L) (04039)	PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	AZINON, DIS- SOLVED (UG/L) (39572)	WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	ELDRIN DIS- SOLVED (UG/L) (39381)	ENAMID OA, WATER FLT, REC (UG/L) (62482)	ENAMID, ESA, WAT FLT (UG/L) (61951)	WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	AMID, WATER, DISS, REC (UG/L) (04033)	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)
OCT 16 NOV 20 DEC 17 JAN 23	WATER FLTRD 0.7 U GF, REC (UG/L) (82682) <.003	ATRA- ZINE, WATER, DISS, REC (UG/L) (04040) E.009	DEISO- PROPYL ATRAZIN DISS, REC (UG/L) (04039) <.01	PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038) <.04	AZINON, DIS- SOLVED (UG/L) (39572) <.005	WATER, FLTRD, GF 0.7U REC (UG/L) (38442) <.01	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005	ENAMID OA, WATER FLT, REC (UG/L) (62482)	ENAMID, ESA, WAT FLT (UG/L) (61951)	WATER, FLTRD, GF 0.7U REC (UG/L) (49301) M	AMID, WATER, DISS, REC (UG/L) (04033) <.03	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677) < .02
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20	WATER FLIRD 0.7 U GF, REC (UG/L) (82682) <.003 <.003	ATRA- ZINE, WATER, DISS, REC (UG/L) (04040) E.009 E.005	DEISO-PROPYL ATRAZIN DISS, REC (UG/L) (04039) <.01 <.01 <.01	PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038) <.04 <.04	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005	WATER, FLIRD, GF 0.7U REC (UG/L) (38442) <.01 <.01	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005	ENAMID OA, WATER FLT, REC (UG/L) (62482)	ENAMID, ESA, WAT FLT (UG/L) (61951) <.05	WATER, FLIRD, GF 0.7U REC (UG/L) (49301) M <.01	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677) <.02 <.02 <.02
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20	WATER FLIRD 0.7 U GF, REC (UG/L) (82682) <.003 <.003 <.003	ATRA- ZINE, WATER, DISS, REC (UG/L) (04040) E.009 E.005 E.004	DEISO-PROPYL ATRAZIN DISS, REC (UG/L) (04039) <.01 <.01 <.01 <.01	PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038) <.04 <.04 <.04	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 <.005	WATER, FLTRD, GF 0.7U REC (UG/L) (38442) <.01 <.01 <.01	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005 <.005	ENAMID OA, WATER FLT, REC (UG/L) (62482) <.05 <.05	ENAMID, ESA, WAT FLT (UG/L) (61951) <.05 <.05	WATER, FLTRD, GF 0.7U REC (UG/L) (49301) M <.01 <.01	AMID, WATTER, DISS, REC (UG/L) (04033) <.03 <.03 <.03	FOTON WATER FITTED 0.7 U GF, REC (UG/L) (82677) <02 <02 <02 <02 <02
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30	WATER FLIRD 0.7 U GF, REC (UG/L) (82682) <.003 <.003 <.003 <.003	ATRA- ZINE, WATER, DISS, REC (UG/L) (04040) E.009 E.005 E.004 E.004 E.006	DEISO-PROPYL ATRAZIN DISS, REC (UG/L) (04039) <.01 <.01 <.01 <.01 <.01 <.01 <.01	PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038) <.04 <.04 <.04 <.04 <.04 <.04	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLTRD, GF 0.7U REC (UG/L) (38442) <.01 <.01 <.01 <.01 <.01	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005 <.005 <.005 <.005	ENAMID OA, WATER FLT, REC (UG/L) (62482) <.05 <.05 <.05 <.05 <.05	ENAMID, ESA, WAT FLT (UG/L) (61951) <.05 <.05 <.05 <.05	WATER, FLTRD, GF 0.7U REC (UG/L) (49301) M <.01 <.01 <.01 <.01	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03 <.03 <.03 <.03	FOTON WATER FITTED 0.7 U GF, REC (UG/L) (82677) <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <-
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30 MAY	WATER FLIRD 0.7 U GF, REC (UG/L) (82682) <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003	ATRA- ZINE, WATER, DISS, REC (UG/L) (04040) E.009 E.005 E.004 E.004 E.004 E.004 E.004 E.004 E.005 E.005	DEISO-PROPYL ATRAZIN DISS, REC (UG/L) (04039) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLTRD, GF 0.7U REC (UG/L) (38442) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ENAMID OA, WATER FLT, REC (UG/L) (62482) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	ENAMID, ESA, WAT FLT (UG/L) (61951) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	WATER, FLTRD, GF 0.7U REC (UG/L) (49301) M <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FOTON WATER FLITED 0.7 U GF, REC (UG/L) (82677) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30 MAY 06 16 20	WATER FLIRD 0.7 U GF, REC (UG/L) (82682) <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003	ATRA-ZINE, WATER, DISS, REC (UG/L) (04040) E.009 E.005 E.004 E.004 E.006 E.004 C.006 E.005	DEISO-PROPYL ATRAZIN DISS, REC (UG/L) (04039) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLUTRD, GF 0.7U REC (UG/L) (38442) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	PROP, WATER, FLITRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ENAMID OA, WATER FLT, REC (UG/L) (62482) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	ENAMID, ESA, WAT FLT (UG/L) (61951) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	WATER, FLTRD, GF 0.7U REC (UG/L) (49301) M <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	FOTON WATER FLITRD 0.7 U GF, REC (UG/L) (82677) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30 MAY 06 16 20 JUN 03 188 26	WATER FLIRD 0.7 U GF, REC (UG/L) (82682) <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003	ATRA-ZINE, WATER, DISS, REC (UG/L) (04040) E.009 E.005 E.004 E.006 E.004 E.006 E.004 C.006 E.005	DEISO-PROPYL ATRAZIN DISS, REC (UG/L) (04039) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLTRD, GF 0.7U REC (UG/L) (38442) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ENAMID OA, WATER FLT, REC (UG/L) (62482) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	ENAMID, ESA, WAT FLT (UG/L) (61951) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	WATER, FLTRD, GF 0.7U REC (UG/L) (49301) M <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FOTON WATER FITTED 0.7 U GF, REC (UG/L) (82677) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30 MAY 06 16 20 JUN 03 18 26 JUL 09 23	WATER FLIRD 0.7 U GF, REC (UG/L) (82682) <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003	ATRA-ZINE, WATER, DISS, REC (UG/L) (04040) E.009 E.005 E.004 E.004 E.006 E.004 C.006 E.005 E.004 C.006 C.006	DEISO-PROPYL ATRAZIN DISS, REC (UG/L) (04039) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLURD, GF 0.7U REC (UG/L) (38442) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ENAMID OA, WATER FLT, REC (UG/L) (62482) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	ENAMID, ESA, WAT FLT (UG/L) (61951) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	WATER, FLTRD, GF 0.7U REC (UG/L) (49301) M <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FOTON WATER FLITRD 0.7 U GF, REC (UG/L) (82677) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30 MAY 06 16 20 JUN 03 18 26 JUL 09	WATER FLIRD 0.7 U GF, REC (UG/L) (82682) <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003 <.003	ATRA-ZINE, WATER, DISS, REC (UG/L) (04040) E.009 E.005 E.004 E.006 E.004 C.006 E.005 E.004 C.006 C.006 C.006 C.006	DEISO-PROPYL ATRAZIN DISS, REC (UG/L) (04039) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038) <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLURD, GF 0.7U REC (UG/L) (38442) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	ENAMID OA, WATER FLT, REC (UG/L) (62482) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	ENAMID, ESA, WAT FLT (UG/L) (61951) <.05 <.05 <.05 <.05 <.05 <.05 <.05 <.05	WATER, FLTRD, GF 0.7U REC (UG/L) (49301) M <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FOTON WATER FLITRD 0.7 U GF, REC (UG/L) (82677)

12510500 YAKIMA RIVER AT KIONA, WA--Continued

Date	DIURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLITRD 0.7 U GF, REC (UG/L) (82672)	FEN- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	FLUFEN- ACET, ESA, WAT FLT (UG/L) (61952)	FLUFE- NACET OA, WATER FLT, REC (UG/L) (62483)	FLUMET- SULAM WATER FLTRD REC (UG/L) (61694)	FLUO- METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811)	FONOFOS WATER DISS REC (UG/L) (04095)	HYDROXY ATRA- ZINE WATER FLTRD REC (UG/L) (50355)	IMAZ- AQUIN WATER FLTRD REC (UG/L) (50356)	IMAZE- THAPYR WATER FLTRD REC (UG/L) (50407)
OCT 16	<.01	<.002	<.009	<.005	<.03			<.01	<.03	<.003	<.008	<.02	<.02
NOV 20	E.01	<.002	<.009	<.005	<.03	<.05	<.05	<.01	<.03	<.003	<.008	<.02	<.02
DEC 17	E.01	<.002	<.009	<.005	<.03	<.05	<.05	<.01	<.03	<.003	<.008	<.02	E.02
JAN 23	<.01	<.002	<.009	<.005	<.03	<.05	<.05	<.01	<.03	<.003	<.008	<.02	<.02
FEB 20	М	<.002	<.009	<.005	<.03	<.05	<.05	<.01	<.03	<.003	<.008	М	<.02
MAR 07 20	E.01 E.01	<.002 <.002	<.009 <.009	<.005 <.005	<.03 <.03	<.05 <.05	<.05 <.05	<.01 <.01	<.03 <.03	<.003 <.003	<.008	<.02 <.02	<.02 <.02
APR 16	E.01	<.002	<.009	<.005	<.03	<.05	<.05	<.01	<.03	<.003	<.008	<.02	<.02
30 MAY	.04	<.002	<.009	<.005	<.03	<.05	<.05	<.01	<.03	<.003	<.008	<.02	<.02
06 20 JUN	.02	<.002	<.009 <.009	<.005 <.005	<.03 <.03	<.05	<.05	<.01 <.01	<.03 <.03	<.003 <.003	E.006 <.008	<.02 <.02	<.02 E.01
03 18 JUL	 E.01	<.002 <.002	<.009 <.009	<.005 <.005	<.03	<.05 <.05	<.05 <.05	<.01	<.03	<.003 <.003	<.008	<.02	<.02
09 23 AUG	<.01 E.01	.004 <.002	<.009 <.009	<.005 <.005	<.03 <.03	<.05 <.05	<.05 <.05	<.01 <.01	<.03 <.03	<.003 <.003	<.008 E.008	<.02 M	<.02 <.02
06 21 SEP	E.01 E.01	<.002 <.002	<.009 <.009	<.005 <.005	<.03 <.03	<.05 <.05	<.05 <.05	<.01 <.01	<.03 <.03	<.003 <.003	E.014 <.008	<.02 <.02	<.02 <.02
17	<.01	<.002	<.009	<.005	<.03	<.05	<.05	<.01	<.03	<.003	<.008	<.02	<.02
Date	IMID- ACLOP- RID WATER FLTRD REC (UG/L) (61695)	LINDANE DIS- SOLVED (UG/L) (39341)	LINURON WATER, FLTRD, GF 0.7U REC (UG/L) (38478)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	MCPA, WATER, FLTRD, GF 0.7U REC (UG/L) (38482)	MCPB, WATER, FLTRD, GF 0.7U REC (UG/L) (38487)	METAL- AXYL WATER FLTRD REC (UG/L) (50359)	METHIO- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	METH- OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METOLA- CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61043)
OCT 16 NOV	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02	<.008	<.004	<.050	<.006	
20 DEC	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02	<.008	<.004	<.050	<.006	<.05
17 JAN	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02	<.008	<.004	<.050	<.006	<.05
23 FEB	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02	<.008	<.004	<.050	<.006	<.05
20 MAR	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02	<.008	<.004	<.050	<.006	<.05
07 20 APR	<.007 <.007	<.004 <.004	<.01 <.01	<.035 <.035	<.027 <.027	<.02 <.08	<.01 <.01	<.02 <.02	<.008 <.008	<.004 <.004	<.050 <.050	<.006 <.006	<.05 <.05
16 30	<.007 <.007	<.004 <.004	<.01 <.01	<.035 <.035	<.027 <.027	<.02 .06	<.01 M	<.02 <.02	<.008	<.004 <.004	<.050 <.050	<.006 <.006	<.05 <.05
MAY 06	<.007	<.004	<.01	<.035	<.027	.02	<.01	<.02	<.008	<.004	<.050	<.006	<.05
16 20	 <.007	<.004	 <.01	<.035	<.027	 <.02	 <.01	<.02	<.008	<.004	 E.011	<.006	
JUN 03		<.004		<.035	<.027						<.050	<.006	<.05
18 26 JUL	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02	<.008	<.004	<.050	<.006	<.05
09 23 AUG	<.007 <.007	<.004 <.004	<.01 <.01	<.035 <.035	E.010 <.027	<.02 <.02	<.01 <.01	<.02 <.02	<.008 <.008	<.004 <.004	E.026 E.034	<.006 <.006	<.05 <.05
06 21 SEP	<.007 <.007	<.004 <.004	<.01 <.01	<.035 <.035	.057 E.004	<.02 <.02	<.01 <.01	<.02 <.02	<.008 <.008	<.004 <.004	<.050 E.015	<.006 <.006	<.05 <.05
17	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02	<.008	<.004	<.050	<.006	<.05

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12510500 YAKIMA RIVER AT KIONA, WA--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	METOLA- CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61044)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MET- SUL- FURON METHYL WAT FLT REC (UG/L) (61697)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	NEB- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	NICOSUL FURON WATER FLTRD REC (UG/L) (50364)	NORFLUR AZON, WATER, FLITRD, GF 0.7U REC (UG/L) (49293)	ORY- ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)	OXAMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (38866)	P,P' DDE DISSOLV (UG/L) (34653)	PARA- THION, DIS- SOLVED (UG/L) (39542)
OCT 16		<.013	<.006	<.03	<.002	<.007	<.01	<.01	<.02	<.02	<.01	<.003	<.007
NOV 20	<.05	<.013	<.006	<.03	<.002	<.007	<.01	<.01	<.02	<.02	<.01	<.003	<.007
DEC 17	<.05	<.013	<.006	<.03	<.002	<.007	<.01	<.01	<.02	<.02	<.01	<.003	<.007
JAN 23	<.05	<.013	<.006	<.03	<.002	<.007	<.01	<.01	<.02	<.02	<.01	<.003	<.010
FEB 20	<.05	<.013	<.006	<.03	<.002	<.007	<.01	<.01	<.02	<.02	<.01	<.003	<.010
MAR 07	<.05	<.013	<.006	<.03	<.002	<.007	<.01	<.01	<.02	<.02	<.01	<.003	<.010
20 APR	<.05	<.013	<.006	<.03	<.002	<.007	<.01	<.01	<.02	<.02	<.01	<.003	<.010
16 30	<.05 <.05	<.013 <.013	<.006 <.006	<.03 <.03	<.002 <.002	<.007 <.007	<.01 <.01	<.01 <.01	<.02 <.02	<.02 <.02	<.01 <.01	<.003 <.003	<.010 <.010
MAY 06	<.05	<.013	<.006	<.03	<.002	<.007	<.01	<.01	<.02	<.02	<.01	<.003	<.010
20 JUN		<.013	<.006	<.03	<.002	<.007	<.01	<.01	<.02	<.02	<.01	<.003	<.010
03 18	<.05 <.05	<.013 <.013	<.006 <.006	<.03	<.002 <.002	<.007 <.007	<.01	<.01	<.02	<.02	<.01	<.003 <.003	<.010 <.010
JUL 09	<.05	<.013	<.006	<.03	<.002	<.007	<.01	<.01	<.02	<.02	<.01	<.003	<.010
23 AUG	<.05	<.013	<.006	<.03	<.002	<.007	<.01	<.01	<.02	<.02	<.01	<.003	<.010
06 21	<.05 <.05	<.013 E.004	<.006 <.006	<.03 <.03	<.002 <.002	<.007 <.007	<.01 <.01	<.01 <.01	<.02 <.02	<.02 <.02	<.01 <.01	<.003 <.003	<.010 <.010
SEP 17	<.05	<.013	<.006	<.03	<.002	<.007	<.01	<.01	<.02	<.02	<.01	<.003	<.010
Date	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PIC- LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PRO- PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236)	PROP- ICONA- ZOLE , WATER FLTRD REC (UG/L) (50471)	PRO- POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538)
OCT	ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	METON, WATER, DISS, REC (UG/L) (04037)	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	CHLOR, WATER, DISS, REC (UG/L) (04024)	PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236)	ICONA- ZOLE , WATER FLTRD REC (UG/L) (50471)	POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538)
OCT 16 NOV	ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	METON, WATER, DISS, REC (UG/L) (04037)	AMIDE WATER FLIRD 0.7 U GF, REC (UG/L) (82676)	CHLOR, WATER, DISS, REC (UG/L) (04024)	PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236)	ICONA- ZOLE , WATER FLTRD REC (UG/L) (50471)	POXUR, WATER, FLITRD, GF 0.7U REC (UG/L) (38538)
OCT 16 NOV 20 DEC	ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669) <.002	METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683) <.010	METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687) <.006	WATER FLTRD 0.7 U GF, REC (UG/L) (82664) <.011	LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291) <.02	METON, WATER, DISS, REC (UG/L) (04037) <.01	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676) <.004	CHLOR, WATER, DISS, REC (UG/L) (04024) <.010	PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679) <.011	PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685) <.02	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236) <.010	ICONA- ZOLE, WATER FLITRD REC (UG/L) (50471) <.02	POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538) <.008
OCT 16 NOV 20 DEC 17 JAN	ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669) <.002 <.002	METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683) <.010 <.010	METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687) <.006 <.006	WATER FLIRD 0.7 U GF, REC (UG/L) (82664) <.011 <.011	LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291) <.02 <.02	METON, WATER, DISS, REC (UG/L) (04037) <.01 <.01	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676) <.004 <.004	CHLOR, WATER, DISS, REC (UG/L) (04024) <.010 <.010	PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679) <.011 <.011	PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685) <.02 <.02	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236) <.010 <.010	ICONA- ZOLE, WATER FLITRD REC (UG/L) (50471) <.02 <.02	POXUR, WATER, FIRD, GF 0.7U REC (UG/L) (38538) <.008 <.008
OCT 16 NOV 20 DEC 17	ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669) <.002	METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683) <.010	METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687) <.006	WATER FLTRD 0.7 U GF, REC (UG/L) (82664) <.011	LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291) <.02	METON, WATER, DISS, REC (UG/L) (04037) <.01	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676) <.004	CHLOR, WATER, DISS, REC (UG/L) (04024) <.010	PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679) <.011	PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685) <.02	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236) <.010	ICONA- ZOLE, WATER FLITRD REC (UG/L) (50471) <.02	POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538) <.008
OCT 16 NOV 20 DEC 17 JAN 23 FEB	ULATE WATER WATER FILITRD 0.7 U GF, REC (UG/L) (82669) <.002 <.002 <.002 <.004	METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683) <.010 <.010 <.010	METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687) <.006 <.006 <.006	WATER FLTRD 0.7 U GF, REC (UG/L) (82664) <.011 <.011 <.011	LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291) <02 <02 <02 <02	METON, WATER, DISS, REC (UG/L) (04037) <.01 <.01 M	AMIDE WATER FITTED 0.7 U GF, REC (UG/L) (82676) <.004 <.004 <.004	CHLOR, WATER, DISS, REC (UG/L) (04024) <.010 <.010 <.010	PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679) <.011 <.011 <.011	PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685) <.02 <.02 <.02 <.02	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236) <.010 <.010 <.010	ICONA- ZOLE , WATER FLTRD REC (UG/L) (50471) <-02 <-02 <-02 <-02 <-02	POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538) <.008 <.008 <.008
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20	ULATE WATER WATER FILITRD 0.7 U GF, REC (UG/L) (82669) <.002 <.002 <.002 <.004	METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683) <.010 <.010 <.010 <.022 <.022	METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687) <.006 <.006 <.006 <.006	WATER FLTRD 0.7 U GF, REC (UG/L) (82664) <.011 <.011 <.011 <.011	LORAM, WATER, FLITRD, GF 0.7U REC (UG/L) (49291) <.02 <.02 <.02 <.02 <.02 <.02	METON, WATER, DISS, REC (UG/L) (04037) <.01 <.01 M	AMIDE WATER FLITRD 0.7 U GF, REC (UG/L) (82676) <.004 <.004 <.004 <.004 <.004	CHLOR, WATER, DISS, REC (UG/L) (04024) <.010 <.010 <.010 <.010 <.010	PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679) <.011 <.011 <.011 <.011	PARGITE WATER FLITRD 0.7 U GF, REC (UG/L) (82685) <.02 <.02 <.02 <.02 <.02	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236) <.010 <.010 <.010	ICONA-ZOLE, WATER FLTRD REC (UG/L) (50471) <.02 <.02 <.02 <.02 <.02 <.02	POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538) <.008 <.008 <.008
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16	ULATE WATER WATER FILITRD 0.7 U GF, REC (UG/L) (82669) <.002 <.002 <.002 <.004 <.004	METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683) <.010 <.010 <.010 <.022 <.022 <.022	METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687) <.006 <.006 <.006 <.006	WATER FLTRD 0.7 U GF, REC (UG/L) (82664) <.011 <.011 <.011 <.011	LORAM, WATER, FILTRD, GF 0.7U REC (UG/L) (49291) <-02 <-02 <-02 <-02 <-02 <-02 <-02 <-02	METON, WATER, DISS, REC (UG/L) (04037) <.01 <.01 M <.01 M	AMIDE WATER FITTED 0.7 U GF, REC (UG/L) (82676) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	CHLOR, WATER, DISS, REC (UG/L) (04024) <.010 <.010 <.010 <.010 <.010 <.010	PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679) <.011 <.011 <.011 <.011 <.011 <.011	PARGITE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82685) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	ICONA-ZOLE , WATER FLTRD REC (UG/L) (50471) <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02	POXUR, WATER, WATER, FLTRD, GF 0.7U REC (UG/L) (38538) <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30 MAY 06	ULATE WATER WATER 11LTRD 0.7 U GF, REC (UG/L) (82669) <.002 <.002 <.002 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683) <.010 <.010 <.010 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022	METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	WATER FLTRD 0.7 U GF, REC (UG/L) (82664) <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011	LORAM, WATER, FLITRD, GF 0.7U REC (UG/L) (49291) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	METON, WATER, DISS, REC (UG/L) (04037) <.01 <.01 M <.01 M <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	AMIDE WATER FITRD 0.7 U GF, REC (UG/L) (82676) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	CHLOR, WATER, DISS, REC (UG/L) (04024) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679) <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011	PARGITE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82685) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	ICONA-ZOLE , WATER FLTRD REC (UG/L) (50471) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	POXUR, WATER, WATER, FLTRD, GF 0.7U REC (UG/L) (38538) <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30 MAY	ULATE WATER WATER FILITRD 0.7 U GF, REC (UG/L) (82669) <.002 <.002 <.002 <.004 <.004 <.004 <.004 <.004	METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683) <.010 <.010 <.010 <.022 <.022 <.022 <.022 <.022 <.022 <.022	METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	WATER FLUTRD 0.7 U GF, REC (UG/L) (82664) <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011	LORAM, WATER, FLITRD, GF 0.7U REC (UG/L) (49291) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	METON, WATER, DISS, REC (UG/L) (04037) <.01 <.01 M <.01 M <.01 <.01 <.01 <.01 <.01	AMIDE WATER FLITRD 0.7 U GF, REC (UG/L) (82676) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	CHLOR, WATER, DISS, REC (UG/L) (04024) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679) <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011	PARGITE WATER FLITRD 0.7 U GF, REC (UG/L) (82685) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	ICONA-ZOLE , WATER FLTRD REC (UG/L) (50471) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	POXUR, WATER, WATER, FLTRD, GF 0.7U REC (UG/L) (38538) <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30 MAY U66 16 20 JUN 03 188 26	ULATE WATER FILITRD 0.7 U GF, REC (UG/L) (82669) <.002 <.002 <.004 <.004 <.004 <.004 <.004 <.004 <.004	METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683) <.010 <.010 <.010 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022	METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	WATER FLTRD 0.7 U GF, REC (UG/L) (82664) <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011	LORAM, WATER, FILTRD, GF 0.7U REC (UG/L) (49291) <.02	METON, WATER, DISS, REC (UG/L) (04037) <.01 <.01 M <.01 M <.01 C.01 C.01 C.01 C.01 C.01 C.01 C.01 C	AMIDE WATER FITTED 0.7 U GF, REC (UG/L) (82676) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	CHLOR, WATER, DISS, REC (UG/L) (04024) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679) <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011	PARGITE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82685) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	ICONA-ZOLE , WATER FLTRD REC (UG/L) (50471) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	POXUR, WATER, WATER, FLTRD, GF 0.7U REC (UG/L) (38538) <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30 MAY 06 16 20 JUN 03 18	ULATE WATER WATER FILITRD 0.7 U GF, REC (UG/L) (82669) <.002 <.002 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683) <.010 <.010 <.010 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022	METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	WATER FLTRD 0.7 U GF, REC (UG/L) (82664) <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011	LORAM, WATER, FLITRD, GF 0.7U REC (UG/L) (49291) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	METON, WATER, DISS, REC (UG/L) (04037) <.01 <.01 M <.01 M <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	AMIDE WATER FLITRD 0.7 U GF, REC (UG/L) (82676) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	CHLOR, WATER, DISS, REC (UG/L) (04024) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	PANIL WATER FLITRD 0.7 U GF, REC (UG/L) (82679) <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011	PARGITE WATER WATER FLITRD 0.7 U GF, REC (UG/L) (82685) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	ICONA-ZOLE , WATER FLTRD REC (UG/L) (50471) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	POXUR, WATER, WATER, FLITRD, GF 0.7U REC (UG/L) (38538) <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008
OCT 16 NOV 20 DEC 17 JAN 23 FEB 20 MAR 07 20 APR 16 30 MAY 06 16 20 JUN 03 18 26 JUL 09 23	ULATE WATER WATER FILITRD 0.7 U GF, REC (UG/L) (82669) <.002 <.002 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683) <.010 <.010 <.010 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022 <.022	METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	WATER FLTRD 0.7 U GF, REC (UG/L) (82664) <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011	LORAM, WATER, FLITRD, GF 0.7U REC (UG/L) (49291) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	METON, WATER, DISS, REC (UG/L) (04037) <.01 <.01 M <.01 M <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 M M M M M M M M M M M M M M M M M M M	AMIDE WATER FLITRD 0.7 U GF, REC (UG/L) (82676) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	CHLOR, WATER, DISS, REC (UG/L) (04024) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	PANIL WATER FLITRD 0.7 U GF, REC (UG/L) (82679) <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011 <.011	PARGITE WATER FLITRD 0.7 U GF, REC (UG/L) (82685) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	ICONA-ZOLE , WATER FLTRD REC (UG/L) (50471) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	POXUR, WATER, WATER, FLITRD, GF 0.7U REC (UG/L) (38538) <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008

12510500 YAKIMA RIVER AT KIONA, WA--Continued

Date	SIDURON WATER FLTRD REC (UG/L) (38548)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	SULFO- MET- RURON METHYL WTR FLT REC (UG/L) (50337)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL, WATER, DISS, REC (UG/L) (04032)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	TER- BUTHYL- AZINE, WATER, DISS, REC (UG/L) (04022)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- BENURON METHYL WATER FLTRD (UG/L) (61159)	TRI- CLOPYR, WATER, FLTRD, GF 0.7U REC (UG/L) (49235)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)
OCT													
16	<.02	<.011	<.009	<.02	<.010	E.043	<.02	U	<.005	<.002	<.009	<.02	<.009
NOV 20	<.02	<.011	<.009	<.02	<.010	<.034	<.02	U	<.005	<.002	<.009	<.02	<.009
DEC	<.02	<.011	<.003	<.02	<.010	<.034	<.02	U	<.005	<.002	<.009	<.02	<.003
17	<.02	<.011	<.009	<.02	<.010	<.034	<.02	U	<.005	<.002		<.02	<.009
JAN 23	<.02	<.005	<.009	<.02	<.010	<.034	<.02	U	<.005	<.002		<.02	<.009
FEB	1.02	1.005	1.005	1.02	1.010	1.051	1.02	Ü	1.005	1.002		1.02	1.005
20	<.02	<.005	<.009	<.02	<.010	<.034	<.02	U	<.005	<.002		<.02	<.009
MAR 07	<.02	E.004	<.009	<.02	<.010	<.034	<.02	U	<.005	<.002		<.02	<.009
20	<.02	<.005	<.009	<.02	<.010	<.034	<.02	Ū	<.005	<.002		<.02	<.009
APR													
16	<.02	<.005	<.009	<.02	<.010	<.034	< .02		<.005	<.002		<.02	<.009
30 MAY	<.02	.009	<.009	<.02	<.010	E.106	<.02		<.005	<.002		<.02	<.009
06	<.02	<.005	<.009	<.02	E.022	E.102	<.02		<.005	<.002		<.02	<.009
20	<.02	<.005	<.009	<.02	<.010	E.034	<.02		<.005	<.002		<.02	E.004
JUN	1.02	1.005	1.005	1.02	1.010	2.051	1.02		1.005	1.002		1.02	2.001
03		< .005		<.02		< .034	< .02		<.005	<.002			<.009
18	<.02	< .005	<.009	<.02	<.010	<.034	< .02		< .005	<.002		< .02	<.009
JUL													
09	<.02	.008	<.009	<.02	<.010	E.028	<.02		<.005	<.002		<.02	<.009
23	<.02	.008	<.009	<.02	E.027	E.057	<.02		<.005	<.002		<.02	<.009
AUG													
06	<.02	<.005	<.009	<.02	E.017	E.033	< .02		<.005	<.002		<.02	<.009
21 SEP	<.02	.005	<.009	<.02	<.010	E.018	<.02		<.005	<.002		<.02	<.009
17	<.02	<.005	<.009	<.02	E.018	E.033	<.02		<.005	<.002		<.02	<.009

Date	UREA 3 (4-CHLOR OPHENYL METHYL WAT FLT REC (UG/L) (61692)	DIAM.	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)
OCT				
16 NOV	<.02		12	42.1
20	<.02	90	24	194
DEC 17	<.02	89	24	204
JAN	<.02	0.5	24	204
23 FEB	<.02	81	16	151
20	<.02		10	61.3
MAR 07	<.02	77	2.4	226
20	<.02	77 	24 12	85.2
APR				
16 30	<.02 <.02	81 91	525 21	19400 177
MAY				
06 16	<.02	84	35	441
20	<.02	83	39	402
JUN 03		77	93	2360
18	<.02	72	100	2520
26 ππ.				
09	<.02		9.0	43.3
23 AUG	<.02		10	36.7
06	<.02	85	17	67.9
21 SEP	<.02		11	39.5
17	<.02		4.0	18.0

12513000 ESQUATZEL COULEE AT CONNELL, WA

LOCATION.--Lat $46^{\circ}39^{\circ}49^{\circ}$, long $118^{\circ}51^{\circ}44^{\circ}$, in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.25, T.14 N., R.31 E., Franklin County, Hydrologic Unit 17020016, on right bank, at Clark Street Bridge in Connell, and 7.8 mi downstream from Hatton Coulee.

DRAINAGE AREA.--234 mi^2 , approximately.

PERIOD OF RECORD.--October 1952 to current year. Records published for period August 1959 to September 1964 include effluent from sewage treatment plant 0.8 mi downstream; records adjusted to exclude effluent October 1964 to June 1967.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 820 ft above NGVD of 1929, from topographic map. Prior to Aug. 7, 1959, at site 0.4 mi downstream at different datum, Aug. 7, 1959, to July 8, 1967, at site 0.9 mi downstream at different datum, July 9, 1967, to Oct. 28, 1981, at site 0.7 mi downstream at different datum, and Oct. 29, 1981, to Sept. 30, 1984 at datum 10 ft lower.

REMARKS.--Records poor. No diversion upstream from station. Most flow for October, and April through September is return and waste from water imported for irrigation, entering about 3 mi upstream on the right bank. U.S. Geological Survey satellite telemeter at gage.

AVERAGE DISCHARGE.--33 years (water years 1953-85), 1.73 $\rm ft^3/s$, 1,253 acre-ft/yr, adjusted for effluent from sewage treatment plant 1959-64. Average discharge is not computed after the 1985 water year because of ground-water withdrawals and return flows from irrigation occurring during the summer months upstream from the gage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,560 ${\rm ft}^3/{\rm s}$ Feb. 21, 1956, gage height, 12.68 ft, site and datum then in use; no flow at times during most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 25 ft³/s Apr. 15, gage height, 11.57 ft; maximum gage height, 11.94 ft Oct. 22; no flow most days, November through March.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		DISCHA	RGE, CUBIC	C REEL PE		WATER YE Y MEAN VA		R 2001 TO	SEPTEMBE	R 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	1.8 2.1 2.4 3.4 3.4	0.12 0.06 0.02 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	e0.00 e0.00 e0.00 e0.00 e0.00	5.7 8.3 14 12 7.3	8.7 4.2 9.7 5.8 6.8	4.6 5.2 6.5 7.2 3.1	15 8.4 10 16 14	7.5 9.5 4.8 4.4 7.7	7.8 12 9.1 7.8 8.1
6 7 8 9 10	11 10 5.4 8.9 2.7	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	e0.00 e0.00 e0.00 e0.00 e0.00	4.6 4.0 5.4 12	7.9 12 8.8 9.0	3.7 12 7.1 6.9 7.8	5.9 7.1 13 15 12	7.6 10 3.3 2.1 3.1	12 11 6.0 7.4 5.5
11 12 13 14 15	10 11 18 7.5 5.5	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	e0.00 e0.00 e0.00 e0.00 e0.00	7.6 7.7 13 15 22	10 8.2 6.7 8.3 7.3	5.7 5.1 2.4 3.0 2.2	8.1 5.5 2.9 7.8 6.0	5.4 5.7 7.0 5.3 6.1	6.0 7.1 8.7 3.0 3.4
16 17 18 19 20	3.5 6.4 7.8 9.2 5.8	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	e0.00 e0.00 e0.00 e0.00	21 15 17 11 7.0	6.6 8.1 5.0 4.5 5.5	3.6 7.6 11 7.0 3.4	7.9 7.2 5.8 10 5.9	4.1 8.6 9.5 7.5 7.3	7.5 15 11 12 9.2
21 22 23 24 25	6.8 22 21 18 5.0	0.00 0.00 0.00 0.00	0.00 0.00 0.00 e0.00 e0.00	0.00 0.00 0.00 0.00	e0.00 e0.00 e0.00 e0.00	0.59 0.52 0.51 0.65 0.36	3.1 3.0 2.1 2.2 5.6	6.6 5.3 5.3 6.2 7.3	2.6 4.4 4.2 6.9 8.0	7.9 5.4 3.3 5.1 6.8	8.6 10 9.1 6.6 9.2	2.9 7.3 10 7.9 6.0
26 27 28 29 30 31	5.2 1.4 0.21 0.12 0.32 0.16	0.00 0.00 0.00 0.00 0.00	e0.00 e0.00 e0.00 e0.00 e0.00	0.00 0.00 0.00 0.00 0.00	e0.00 e0.00 e0.00	0.44 0.45 0.37 0.46 2.4 4.1	4.5 5.6 11 11 11	4.6 6.2 6.1 7.6 6.0 4.4	2.4 3.2 4.0 8.4 17	6.1 4.5 7.4 9.4 4.6 5.0	8.8 11 2.8 12 10 9.3	6.2 11 9.0 13 12
TOTAL MEAN MAX MIN AC-FT	216.01 6.97 22 0.12 428	0.20 0.007 0.12 0.00 0.4	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	11.34 0.37 4.1 0.00 22	279.7 9.32 22 2.1 555	219.7 7.09 12 4.2 436	176.2 5.87 17 2.2 349	249.0 8.03 16 2.9 494	223.9 7.22 12 2.1 444	254.9 8.50 15 2.9 506

CAL YR 2001 TOTAL 1042.97 MEAN 2.86 MAX 22 MIN 0.00 AC-FT 2070 WTR YR 2002 TOTAL 1630.95 MEAN 4.47 MAX 22 MIN 0.00 AC-FT 3230

e Estimated

440 COLUMBIA RIVER MAIN STEM

12514500 COLUMBIA RIVER ON CLOVER ISLAND, AT KENNEWICK, WA

LOCATION.--Lat $46^{\circ}13^{\circ}00^{\circ}$, long $119^{\circ}06^{\circ}29^{\circ}$, in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.31, T.9 N., R.30 E., Benton County, Hydrologic Unit 17020016, on east end of U.S. Coast Guard wharf on south side of Clover Island, at the north city limit of Kennewick, 6.6 mi downstream from mouth of Yakima River, 4.4 mi upstream from mouth of Snake River, and at mile 328.6.

DRAINAGE AREA.--104,000 mi², approximately.

PERIOD OF RECORD.-- November 1987 to current year. Records for October 1963 to September 1966 (discharge) and October 1979 to February 1988 (elevations), published as Columbia River at Pasco (station 12514000) 1.4 mi upstream, are not equivalent for elevations because of fall between sites.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (Corps of Engineers' benchmark).

REMARKS.--Gage is within the pool formed by McNary Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 343.71 ft June 13, 1997; minimum, 335.73 ft Dec. 31, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 341.95 ft June 18; minimum, 337.32 ft Sept. 5.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	339.57	339.48	339.60	337.67	339.59	338.65	339.58	339.47	340.74	340.91	339.04	339.64
2	339.65	339.62	339.33	337.69	339.56	338.59	339.09	338.74	340.25	340.81	339.01	337.95
3	339.07	339.45	339.07	338.26	339.40	338.87	338.67	339.11	340.48	340.84	339.75	337.92
4	339.16	339.54	339.32	339.13	339.36	338.81	338.49	339.07	341.09	340.44	339.01	337.97
5	339.35	339.43	339.73	339.39	339.50	338.43	338.59	338.50	341.65	340.40	337.75	337.59
6	339.56	339.09	339.59	339.58	339.26	338.49	339.20	338.45	340.86	340.39	337.64	337.67
7	339.39	338.88	339.75	339.27	339.18	338.45	339.40	339.22	340.47	340.00	337.86	337.51
8	339.01	339.11	339.67	339.25	338.77	339.00	338.96	339.12	341.29	339.85	338.63	337.47
9	339.17	338.92	339.52	339.94	338.26	339.31	338.70	338.22	340.63	339.45	339.42	338.03
10	339.48	339.15	338.81	339.79	337.74	339.44	338.33	338.83	340.76	339.07	339.55	338.66
11	339.54	338.98	339.14	339.46	337.77	339.71	338.18	338.95	340.83	340.16	339.82	338.56
12	339.57	338.36	339.04	339.36	338.12	339.90	338.49	338.65	340.78	340.35	339.31	338.48
13	339.79	337.87	339.25	339.81	338.42	340.14	339.12	338.71	340.61	340.47	339.12	338.53
14	339.79	338.69	339.61	339.62	339.00	339.73	339.19	338.94	340.34	340.34	339.11	338.90
15	339.67	339.07	339.67	339.89	338.15	339.40	340.17	338.85	339.96	339.49	339.26	338.92
16	339.78	339.34	339.96	339.47	338.49	338.77	339.93	339.11	340.26	339.40	339.28	338.67
17	339.75	339.57	339.88	338.99	338.90	338.26	339.22	339.07	340.91	340.33	339.32	339.01
18	339.67	339.39	339.64	338.81	338.86	338.24	339.45	338.70	341.37	340.14	338.51	339.07
19	339.66	339.31	339.29	339.50	338.93	338.22	339.42	338.61	340.96	339.90	337.87	338.70
20	339.62	339.10	339.31	339.70	338.80	338.67	339.34	339.37	341.18	340.50	338.52	338.69
21	339.63	339.46	339.21	339.28	339.02	339.36	338.94	339.95	341.04	340.43	338.30	338.62
22	339.75	339.39	339.27	339.70	339.20	339.28	338.69	339.28	340.85	340.15	337.99	338.86
23	339.89	339.84	339.25	339.83	338.99	339.38	339.39	339.42	341.00	339.46	338.40	338.29
24	339.56	339.59	339.13	339.77	339.57	339.40	339.28	339.61	340.68	339.88	339.25	338.30
25	339.47	339.36	339.13	339.53	339.87	339.20	339.37	339.66	340.17	340.23	339.65	338.67
26 27 28 29 30 31	339.69 339.89 339.58 339.44 339.50 339.42	338.56 339.12 339.33 339.61 339.65	338.57 338.33 338.34 338.70 338.77 338.23	339.66 339.62 339.47 339.74 339.42 339.58	339.28 339.68 339.20 	339.01 339.15 339.68 339.70 339.56 339.69	339.27 339.33 338.95 338.99 338.86	339.48 340.08 339.98 340.38 340.21 340.78	340.70 340.64 341.34 341.06 340.64	340.71 340.57 340.24 338.70 338.35 338.47	338.74 338.93 339.44 339.45 339.56 339.82	339.23 338.91 338.32 338.61 338.02
MAX	339.89	339.84	339.96	339.94	339.87	340.14	340.17	340.78	341.65	340.91	339.82	339.64
MIN	339.01	337.87	338.23	337.67	337.74	338.22	338.18	338.22	339.96	338.35	337.64	337.47

CAL YR 2001 MAX 340.40 MIN 337.44 WTR YR 2002 MAX 341.65 MIN 337.47

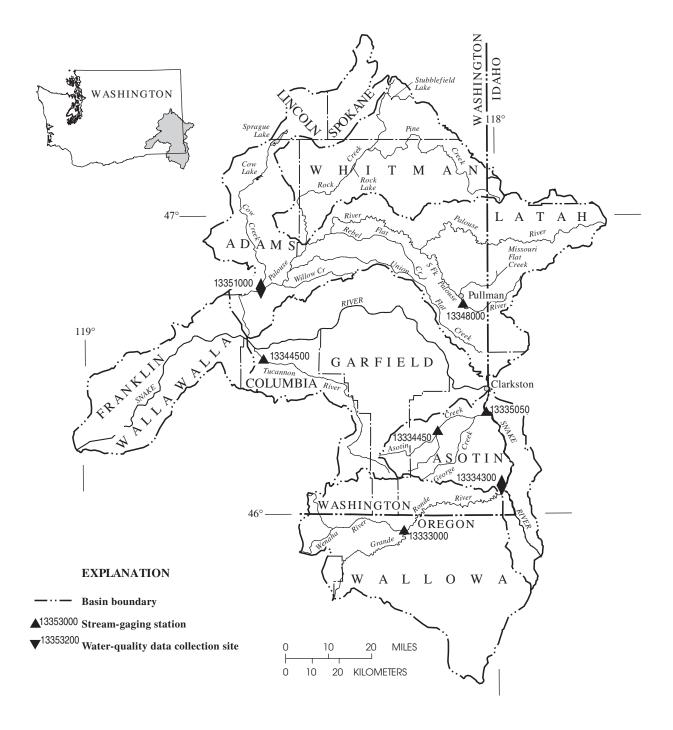


Figure 45. Location of surface-water and water-quality stations in the Snake River Basin including the Grande Ronde River, Asotin Creek, Tucannon River, and Palouse River Basins.

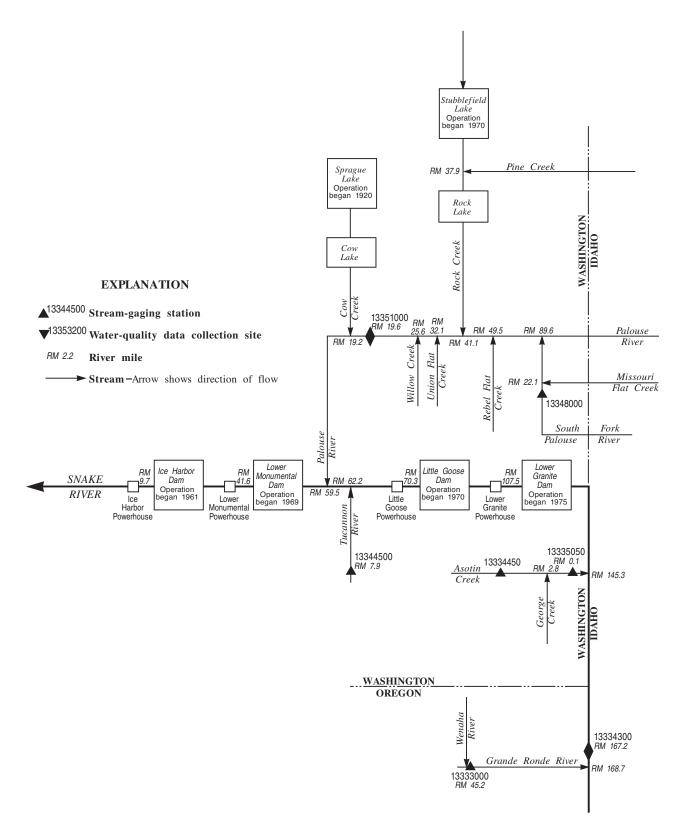


Figure 46. Schematic diagram showing surface-water and water-quality stations in the Snake River Basin including the Grande Ronde River, Asotin Creek, Tucannon River, and Palouse River Basins.

SEP

13333000 GRANDE RONDE RIVER AT TROY, OR

LOCATION.--Lat 45°56′45″, long 117°27′00″, in NE 1/4 NW 1/4 sec.4, T.5 N., R.43 E., Wallowa County, Hydrologic Unit 17060106, on left bank, on upstream side of bridge at Troy, 100 ft downstream from Wenaha River, and at mile 45.3.

DRAINAGE AREA. -- 3,275 mi2.

PERIOD OF RECORD.--August 1944 to current year. Monthly discharge only August 1944, published in WSP 1317.

REVISED RECORDS. -- WSP 1397: 1946(M), 1948-50.

GAGE.--Water-stage recorder. Datum of gage is 1,585.98 ft above NGVD of 1929. Aug. 17, 1944, to Sept. 30, 1949, nonrecording gage at datum 10.85 ft lower. Oct. 1, 1949, to Sept. 5, 1963, water-stage recorder at datum 1.15 ft higher. Sept. 6, 1963 to Oct. 19, 1994, water-stage recorder at site 500 ft downstream, at present

REMARKS.--No estimated daily discharges. Records fair. Flow slightly regulated by Wallowa Lake and small reservoirs. Diversions for irrigation upstream from station, chiefly in vicinity of LaGrande, Enterprise, and Wallowa; transbasin diversions for irrigation from Big Sheep Creek and tributaries in Immaha River Basin to Wallowa River Basin, and from South Fork Catherine Creek to the Powder River Basin. U.S. Geological Survey satellite telemeter and National Weather Service telemeter at station.

AVERAGE DISCHARGE.--58 years (water years 1945-2002), 3,068 ft^3/s , 2,222,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 51,800 ft³/s Feb. 9, 1996, gage height, 13.76 ft, from rating curve extended above 20,000 ft³; minimum discharge, 321 ft³/s Nov. 25, 1993; result of freezeup, but may have been less during period of ice effect that day.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 9,000 ft³/s and maximum (*):

	Date	Time	Discharge (ft ³ /s)	. Gá	age heigl (ft)		ate I	ime	Discharge (ft ³ /s)	е	Gage height (ft)
	Apr. 14	1730	*22,600		*10.44	M	Tay 30	1030	11,200		8.01
	Minimum	discharge,	438 ft ³ /s	Oct. 1.							
		DISCHA	ARGE, CUBIC	FEET PER		WATER Y Y MEAN V		R 2001 TO	SEPTEMBER	2002	
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
1 2	443 460	1200 1020	922 894	902 903	1300 1240	2020 1820	6390 6100	6280 6770	8530 8140	4000 3340	644 619
3	480	971	923	991	1220	1670	5870	6970	7430	2950	591
4		900	922	1020	1180	1620	5950	6710	7010	2790	599
5	480	852	930	1010	1130	1600	6440	6340	7000	2550	626
6	489	824	939	1020	1130	1660	7150	5780	7070	2360	695

2 3 4	460 480 481	1020 971 900	894 923 922	903 991 1020	1240 1220 1180	1820 1670	6100 5870	6770 6970 6710	8140 7430 7010	3340 2950 2790	619 591 599	614 615 604
5	481	852	930	1010	1130	1620 1600	5950 6440	6340	7010	2550	626	585
6	489	824	939	1020	1130	1660	7150	5780	7070	2360	695	572
7 8	485 492	800 773	957 939	1470 3480	1170 1210	2150 2100	7560 7320	5260 4760	6550 5660	2300 2430	685 690	580 586
9	517	761	945	3960	1170	1940	7260	4210	4950	2330	691	589
10	524	750	911	3100	1160	1860	8390	3790	4610	2030	667	593
11	679	736	888	2570	1180	2030	9080	3500	4180	1860	646	595
12	714	740	888	2300	1150	4210		3460	3910	1750	634	596
13 14	622 638	738 833	982 1240	2190 2040	1140 1180	4310 3670	11600 19100	3730 4370	3850 4250	1680 1640	613 593	585 557
15	636	907	1330	1880	1190	3170	17200	4660	5040	1530	593	540
16 17	638 607	866 843	1220 1220	1730 1620	1200 1270	2850 2610	13300 10900	4620 4740	6040 6620	1410 1290	572 568	536 554
18	591	834	1220	1540	1320	2370	9260		6390	1210	549	596
19	586	805	1110	1510	1410	2340	8020	6050	6160	1090	526	584
20	584	796	1100	1460	1600	2730	7270	8130	5200	1040	535	537
21	578	883	1070	1510	1700	3020	6650	7960	4890	967	541	520
22	620	990	1050	1500	2010	3170	6540 6680 6030	6670	4810	895	621	525
23	784	1450	923	1430	2680	3480	6680	5860	4880	868	641	517
24	835	1230	880	1390	3900	4970	6030	5230	4970	844	631	524
25	705	1100	934	1480	3550	6640	5750	4920	5160	835	615	519
26	690	1020	1080	1600	2830	6330	5750	4970	5230	790	634	502
27	674	958	1040	1580	2420	6250	5730	5610	5540	745	631	503
28 29	692 684	976 926	1030 979	1400 1240	2220	6250 5810 5310	5730 5630 5670	5610 7200 8970	5450 5160		623 627	519 514
30	712	876	918	1330		5250	5870	10700	4850	703	634	546
31	1120		888	1310		5710		9510		667	631	
TOTAL	19240	27358	31272	52466	45860	104670	244760	182660	169530	50332	19162	16829
MEAN	621	912	1009			3376	8159	5892	5651	1624	618	561
MAX	1120	1450	1330	3960	3900	6640	19100	10700	8530		695	622
MIN	443	736	880	902	1130	1600	5630	3460	3850	667 99830	526 38010	502
AC-FT	38160	54260	62030	104100	90960	207600	485500	362300	336300	99830	38010	33380
STATI	STICS OF M	IONTHLY ME.	AN DATA	FOR WATER	YEARS 194	5 - 2002	, BY WATE	ER YEAR (WY)			
MEAN	877	1239	1984	2189	3193	4300		7351	5652		842	764
MAX	2559	3766	7212		14390		11390		11610	4951	1385	1291
(WY)	1960	1996	1996	1974	1996	1972	1997		1974	1975	1984	1984
MIN (WY)	528 1988	618 1988	685 1945	702 1979	769 1977	888 1977	2257 1968	2368 1977	1501 1992	520 1977	438 1992	409 2001
SUMMA	RY STATIST	'ICS	FOR	2001 CAL	ENDAR YEAR		FOR 2002	WATER YEAR		WATER YEA	ARS 1945 -	2002
	L TOTAL			582663			964139					
	L MEAN			1596			2641			3068		1006
TOWER	ST ANNUAL T ANNUAL M	MEAN								5253 1136		1996 1977
HIGHE.	ST DATLY M	IEAN		7460	May 15		19100	Anr 14		42200	Feb 9	
LOWES'	T DAILY ME	AN		385	May 15 Sep 1 Sep 7		443	Oct 1		42200 344 361 2222000	Aug 20	
ANNUA	L SEVEN-DA	Y MINIMUM		389	Sep 7		474	Oct 1		361	Aug 20 Aug 18	1977
ANNUA	L RUNOFF (AC-FT)		1156000	_		1912000			2222000	-	
10 PE	RCENT EXCE	EDS		4180			6540			7440		
50 PE	T ANNUAL M ST DAILY M T DAILY ME L SEVEN-DA L RUNOFF (RCENT EXCE RCENT EXCE RCENT EXCE	EDS		894			1220			1630		
90 PE.	KCENT EXCE	SUB		434			585			694		

444 SNAKE RIVER MAIN STEM

13334300 SNAKE RIVER NEAR ANATONE, WA

LOCATION.--Lat $46^{\circ}05^{\circ}50^{\circ}$, long $116^{\circ}58^{\circ}36^{\circ}$, in SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.12, T.7 N., R.46 E., Asotin County, Hydrologic Unit 17060103, on left bank 1.2 mi downstream from Grande Ronde River, 7.8 mi east of Anatone, 22 mi south of Clarkston, and at mile 167.2.

DRAINAGE AREA. -- 92,960 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- July 1958 to current year.

REVISED RECORDS. -- WDR WA-76-1: 1974 and 1975.

GAGE.--Water-stage recorder. Datum of gage is 806.78 ft above NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good. Diversions upstream from station for irrigation of about 4,090,000 acres, of which about 750,000 acres are irrigated by withdrawals from ground water. Flow regulated by many reservoirs upstream from station with a total usable capacity of more than 10,000,000 acre-feet, the most effective of which is Brownlee Reservoir 117.8 mi upstream. Diurnal fluctuations caused by Hells Canyon powerplant. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--44 years (water years 1958-2002), 35,480 ft³/s, 25,710,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 195,000 ${\rm ft}^3/{\rm s}$ June 18, 1974, gage height, 24.45 ft; minimum discharge, 6,010 ${\rm ft}^3/{\rm s}$ Sept. 2, 1958, gage height, 1.29 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 86,200 ft³/s May 31, gage height, 13.55 ft; minimum discharge, 8,220 ft³/s Oct. 1 gage height, 2.10 ft.

445 SNAKE RIVER MAIN STEM

13334300 SNAKE RIVER NEAR ANATONE, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973 to May 1984, October 1985 to current year.

PERIOD OF DAILY RECORD. --

WATER TEMPERATURE: October 1959 to May 1984, April 1986 to current year.

INSTRUMENTATION. -- Temperature recorder since October 1959.

REMARKS.--Records poor. Records rounded to the nearest half degree. Interruption in record this year was due to malfunction of the recording instrument. Prior to October 1990, records furnished by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF DAILY RECORD.-WATER TEMPERATURE: Maximum, 25.5°C (rounded) Aug. 26, 28, 1991, Aug. 2-4, 1994, Aug. 14, 1998; minimum, 0.0°C several days during winter months.

EXTREMES FOR CURRENT YEAR. --

WATER TEMPERATURE: Maximum, 24.5°C Jul. 23, 30; minimum, 2.5°C Jan 29-31, Feb. 1, 3-7, 12-16, 26, 27, Mar. 2, 3.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER		N	OVEMBER		DE	CEMBER			JANUARY	
1 2 3 4 5	19.5 19.5 19.0 18.5	17.5 18.0 18.5 17.5	18.5 18.5 18.0 18.0	12.0 12.0 12.0 12.0 11.5	11.5 11.5 11.5 11.0 11.0	11.5 11.5 11.5 11.5 11.5	7.5 7.0 7.0 7.0	7.0 6.5 6.5 6.5	7.0 7.0 6.5 6.5	4.5 4.5 5.0 5.0	4.0 4.0 4.5 4.5 4.5	4.0 4.5 5.0 4.5 4.5
6 7 8 9 10	18.5 17.5 17.5 17.0 16.0	17.0 16.5 16.5 16.0 15.0	17.5 17.0 17.0 16.5 15.5	11.0 10.5 10.5 10.0 9.5	10.5 10.0 9.5 9.0 9.0	11.0 10.5 10.0 9.5 9.5	6.5 6.5 6.5 6.0	6.0 5.5 6.0 6.0 5.5	6.0 6.0 6.0 5.5	5.0 5.5 5.5 5.5	4.5 4.5 5.5 5.0 4.5	4.5 5.0 5.5 5.0 4.5
11 12 13 14 15	16.0 15.0 15.5 15.5	15.0 14.0 14.0 14.5 14.5	15.0 14.5 14.5 15.0 14.5	9.5 9.5 10.0 10.0	9.0 9.0 9.0 9.5 9.5	9.0 9.5 9.5 10.0 10.0	6.0 6.0 6.5 5.5	5.5 5.5 5.5 5.5 5.0	5.5 5.5 6.0 6.0 5.5	5.0 5.0 5.0 4.5 4.5	4.5 5.0 4.5 4.0 4.0	5.0 5.0 4.5 4.0 4.0
16 17 18 19 20	15.0 15.0 14.0 14.0 14.5	14.0 14.0 13.5 13.5	14.5 14.0 13.5 13.5	10.0 10.0 10.5 9.5 10.0	9.5 10.0 9.5 9.5 9.0	10.0 10.0 10.0 9.5 9.5	5.5 5.5 5.5 5.5	5.0 5.0 5.0 5.0	5.5 5.5 5.5 5.0	4.0 4.5 4.5 4.0	4.0 4.0 4.0 4.0 3.5	4.0 4.0 4.0 4.0 4.0
21 22 23 24 25	14.5 14.0 13.5 13.0 13.0	13.5 13.5 13.0 12.0	13.5 13.5 13.0 12.5 12.5	10.0 10.0 9.5 8.5 8.5	9.5 9.5 8.5 8.0 8.0	9.5 9.5 9.5 8.5 8.0	5.5 5.5 5.0 4.5 5.0	5.0 4.5 4.0 3.5 4.0	5.0 5.5 4.5 4.0 4.5	4.0 4.0 4.0 4.0 4.5	4.0 4.0 3.5 4.0 4.0	4.0 4.0 4.0 4.0
26 27 28 29 30 31	13.0 12.5 12.5 12.5 12.0 12.0	12.0 12.0 12.0 12.0 12.0 12.0	12.5 12.5 12.0 12.0 12.0	8.5 8.0 7.5 7.5 7.0	8.0 7.5 7.0 7.0 7.0	8.5 8.0 7.0 7.0 7.0	4.0 4.5 4.5 4.0 4.0	3.5 3.5 4.0 3.5 3.5 3.5	4.0 4.0 4.0 4.0 4.0	4.5 4.5 3.5 3.0 3.0	4.0 3.5 3.0 2.5 2.5 2.5	4.5 4.0 3.0 3.0 3.0 2.5
MONTH		12.0		12.0	7.0	9.6	7.5	3.5	5.4	5.5	2.5	4.2

13334300 SNAKE RIVER NEAR ANATONE, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

asotin creek basin 447

13334450 ASOTIN CREEK BELOW CONFLUENCE NEAR ASOTIN, WA

LOCATION.--Lat $46^{\circ}16^{\circ}25^{\circ}$, long $117^{\circ}17^{\circ}29^{\circ}$, in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.10, T.9 N., R.44 E., Asotin County, Hydrologic Unit 17060103, on left bank 0.1 mi downstream from confluence of North Fork and South Forks of Asotin Creek, at upstream side of county road bridge 11 mi southwest of Asotin, and at mile 14.6.

DRAINAGE AREA. -- 104 mi².

PERIOD OF RECORD. -- January 2001 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,810 ft above NGVD of 1929, from topographic map.

REMARKS.--Records poor. No regulation. No diversion. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--1 year (water year 2002) 55.5 ft³/s, 7.25 in/yr, 40,220 acre ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 539 ft^3/s Apr. 14, 2002, gage height 3.17 ft; minimum discharge, 20 ft^3/s Sept. 18, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 539 ft^3/s Apr. 14, gage height, 3.17 ft ; minimum daily discharge, 21 ft^3/s Aug. 13-18.

REVISIONS.--The maximum gage height for the period January through September 2001 has been revised to 2.13 ft.

		DISCHAR	€E, CUBIC	FEET PER			YEAR OCTOBEI VALUES	R 2001 TO	SEPTEMB:	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	23 23 22 22 22	34 31 29 28 28	30 30 29 29 29	31 31 34 35 35	28 27 27 26 26	46 42 39 38 38	99 96 97	106 119 135 126 117	175 160 148 140 135	44 42 40 39 38	e23 e23 e23 e24 e26	e25 e25 e24 e24 e26
6 7 8 9 10	22 22 23 23 22	28 27 27 27 27	29 29 29 29 28	36 59 104 95 74	26 28 28 26 26	40 39 37 37	152 144 139	106 97 88 82 76	131 120 108 105 114	36 35 36 e34 e34	e26 e26 e25 e24 e23	25 26 26 25 25
11 12 13 14 15	33 25 24 25 25	27 27 27 29 29	29 29 31 46 39	60 53 47 43 39	26 26 27 27 26	43 104 98 88 78	171 213 382	72 72 89 111 116	107 104 104 107 108	e32 e30 e30 e30 e30	e22 e22 e21 e21 e21	25 25 25 25 26
16 17 18 19 20	25 24 24 25 25	29 29 28 28 28	37 39 37 36 35	36 34 33 32 31	27 28 28 29 29	70 64 58 56 54	116 99 91	109 115 128 161 198	106 99 101 90 84	e29 e28 e28 e28 e28	e21 e21 e21 e22 e22	26 27 27 26 26
21 22 23 24 25	25 26 27 25 25	31 32 35 32 32	34 33 32 31 30	31 30 29 29 31	30 42 66 78 69	51 52 60 80 93	90 95 88	176 151 137 129 132	78 73 69 65 60	e28 e27 e26 e26 e27	e24 e30 e26 e24 e25	26 26 25 25 25
26 27 28 29 30 31	24 25 26 26 27 34	31 29 30 30 29	30 30 32 31 30 31	31 30 28 28 29	61 55 51 	100 109 107 98 93 92	92 88 87 97	144 169 212 231 220 190	56 53 51 60 49	e26 e26 e25 e24 e24 e24	e26 e25 e24 e25 e26 e26	26 26 26 26 27
TOTAL MEAN MAX MIN AC-FT CFSM IN.	769 24.8 34 22 1530 0.24 0.28	878 29.3 35 27 1740 0.28 0.31	993 32.0 46 28 1970 0.31 0.36	1267 40.9 104 28 2510 0.39 0.45	993 35.5 78 26 1970 0.34 0.36	2041 65.8 109 37 4050 0.63 0.73	126 382 87 7520 1.21	4114 133 231 72 8160 1.28 1.47	2960 98.7 175 49 5870 0.95 1.06	954 30.8 44 24 1890 0.30 0.34	738 23.8 30 21 1460 0.23 0.26	767 25.6 27 24 1520 0.25 0.27
STATIST	ICS OF MO	NTHLY MEAN	N DATA FO	R WATER Y	EARS 2001	- 200	2, BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	24.8 24.8 2002 24.8 2002	29.3 29.3 2002 29.3 2002	32.0 32.0 2002 32.0 2002	32.3 40.9 2002 23.8 2001	30.4 35.5 2002 25.3 2001	48.3 65.8 2002 30.8 2001	126 2002 49.7	110 133 2002 88.3 2001	67.7 98.7 2002 36.8 2001	30.9 31.0 2001 30.8 2002	25.1 26.3 2001 23.8 2002	24.0 25.6 2002 22.4 2001
SUMMARY	STATISTI	CS	FOR 2	001 CALEN	DAR YEAR		FOR 2002 W	ATER YEAR		WATER YEARS	3 2001 -	2002
LOWEST HIGHEST LOWEST ANNUAL ANNUAL ANNUAL ANNUAL 10 PERC 50 PERC		AN AN AN MINIMUM AC-FT) EFSM) NCHES) DS		12821 35.1 128 21 21 25430 0.34 4.59 48 29 23			20264 55.5 382 21 21 40190 0.5: 7.2! 116 31 24	Apr 14 Aug 13 Aug 12		55.5 55.5 55.5 382 21 21 40220 0.53 7.25 116 31 24	Apr 14 Sep 15 Aug 12	2001

e Estimated

448 ASOTIN CREEK BASIN

13335050 ASOTIN CREEK AT ASOTIN, WA

LOCATION.--Lat $46^{\circ}20^{\circ}27^{\circ}$, long $117^{\circ}03^{\circ}18^{\circ}$, in SW $\frac{1}{4}$ sec.16, T.10 N., R.46 E., Asotin County, Hydrologic Unit 17060103, on right bank near mouth, at upstream side of bridge on State Highway 129, at Asotin, and at mile 0.1.

DRAINAGE AREA. -- 323 mi2.

PERIOD OF RECORD. -- March 1991 to current year.

REVISED RECORDS.--WDR WA-93-1: 1992(M,m). WDR WA-96-1: 1991(M).

GAGE.--Water-stage recorder. Datum of gage is 742.57 ft above NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good except for those above 300 ft³/s, which are poor. Several diversions for irrigation. Miscellaneous data from January through September 1989 are available in the Spokane Field Office.

AVERAGE DISCHARGE.--11 years (water years 1992-2002), 105 ft³/s, 4.40 in/yr, 75,810 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,050 ft³/s Jan. 1, 1997, gage height, 7.50 ft, from high-water mark, from rating curve extended above 550 ft³/s, on basis of slope-area measurement of peak flow; minimum daily discharge, 17 ft³/s Aug. 6, 1998.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 963 ft³/s Apr. 14, gage height, 4.45 ft; minimum discharge, 29 ft³/s Sept. 14.

		DISCHAR	GE, CUBIC	FEET PER			YEAR OCTOBER	R 2001 TO	SEPTEMBEF	2 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	53	46	46	49	87		192	186	71	39	36
2	36	47	46	47	47	77		200	175	68	39	36
3	35 35	44 43	46 45	53 55	46 45	72		209	165 155	66 63	39 40	35 35
4 5	35	43	45	55 55	45	67 65		197 183	146	63	44	35
6	36	41	45	55	44	65		170	143	60	44	37
7	36	40	44	64	46	74		154	134	59	44	39
8	36	40	44	131	49	69	224	142	129	61	41	40
9	36	40	44	147	45	66		133	127	57	40	38
10	36	40	44	122	44	63		126	136	55	39	37
11	44	40	45	104	44	70		122	129	53	38	35
12	43	41	45	91	43	343		119	124	51	37	34
13 14	39 39	40 40	46 59	84 79	44 44	248 198		129 154	121 122	51 50	36 36	34 33
15	40	41	59	75	44	134		162	122	49	36	35
16	39	40	56	69	44	116	311	152	119	48	35	37
17	37	41	57	65	46	94		153	116	47	36	41
18	38	40	56	61	46	88		165	119	46	36	41
19	38	40	56	59	48	74		189	111	46	36	39
20	39	40	54	57	53	79		232	104	47	37	37
21	39	44	53	56	55	87		224	99	45	43	37
22 23	39 41	47 51	52 50	54 51	79 156	81 87		190 174	95 92	43 43	46 41	37 37
23 24	41	49	49	50	171	246		169	92 89	44	39	37
25	40	50	47	52	124	213		169	85	46	39	37
26	40	47	46	58	105	181		173	81	44	41	38
27	40	45	46	54	103	173		185	78	43	39	39
28	41	46	48	50	97 	160		212	75	41	38	38
29 30	41 44	46 46	47 46	47 50		157 141		231 222	84 77	41 40	39 40	40 40
31	49		46	50		138		196		39	38	
TOTAL	1208	1304	1511	2091	1805	3813	6701	5428	3538	1580	1215	1116
MEAN	39.0	43.5	48.7	67.5	64.5	123		175	118	51.0	39.2	37.2
MAX	49	53	59	147	171	343	724	232	186	71	46	41
MIN	35	40	44	46	43	63		119	75	39	35	33
AC-FT	2400	2590	3000	4150	3580 0.20	7560 0.38		10770 0.54	7020 0.37	3130 0.16	2410	2210
CFSM IN.	0.12 0.14	0.13 0.15	0.15 0.17	0.21	0.20	0.36		0.54	0.37	0.18	0.12	0.12 0.13
									0.11	0.10	0.11	0.15
							2, BY WATER					
MEAN	37.5	49.7	89.7	108	143	154		216	139	56.9	35.6	35.4
MAX (WY)	51.4 2000	74.0 1999	235 1999	435 1997	420 1996	367 1999		442 1997	429 1999	90.2 1999	49.0 1999	43.1 1998
MIN	25.9	30.7	33.4	28.1	35.6	57.9		58.1	35.5	26.5	23.8	25.3
(WY)	1999	1994	1993	1993	1993	2001		1992	1992	1994	1994	1994
SUMMARY	STATISTI	:CS	FOR 2	001 CALEN	DAR YEAR		FOR 2002 W	ATER YEAR	V	JATER YEARS	1991	- 2002
ANNUAL	TOTAL			19848			31310					
ANNUAL				54.4			85.8			105		
	ANNUAL M									197		1999
	ANNUAL ME			205	7		704	7		44.6	T	1994
	DAILY ME DAILY MEA			205	Apr 28 Aug 12		724 33	Apr 14		3000	Jan Aug	1 1997
		MINIMUM		32 32	Aug 12 Aug 15		35	Sep 14 Sep 10		17 21		7 1998
	RUNOFF (A			39370	1109 10		62100	SCD IO		75810	Juli	. 1000
	RUNOFF (C			0.17			0.27	7		0.32		
ANNUAL	RUNOFF (I	NCHES)		2.29			3.61			4.40		
	ENT EXCEE			83			177			234		
	ENT EXCEE			45			50			51		
90 PERC	ENT EXCEE	פחי		33			37			32		

TUCANNON RIVER BASIN 449

13344500 TUCANNON RIVER NEAR STARBUCK, WA

LOCATION.--Lat $46^\circ 30^\circ 17^\circ$, long $118^\circ 03^\circ 55^\circ$, in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.21, T.12 N., R.38 E., Columbia County, Hydrologic Unit 17060107, on right bank, 180 ft downstream from County road bridge, 0.5 mi downstream from Smith Hollow, 3.0 mi east of Starbuck, 3.3 mi downstream from Pataha Creek, and at mile 7.9.

DRAINAGE AREA. -- 431 mi2.

Apr. 15

PERIOD OF RECORD.--October 1914 to September 1917, August 1928 to September 1931, October 1958 to September 1990, October 1994 to current year. Monthly discharge only for October and November 1914, published in WSP 1317.

REVISED RECORDS. -- WSP 1347: 1930.

Time

0130

GAGE.--Water-stage recorder. Elevation of gage is 735.9 ft above NGVD of 1929, from plane-table survey. Nov. 8, 1914, to Sept. 30, 1917, nonrecording gage at site 2.8 mi upstream at different datum. Aug. 9, 1928, to Sept. 30, 1931, nonrecording gages at site 2.5 mi upstream at various datums.

REMARKS.--Records good. Many small diversions for irrigation upstream from station. Water temperatures and sediment records October 1962 to June 1970. U.S. Geological Survey satellite telemeter at station.

 $AVERAGE \; DISCHARGE. --46 \; years \; (water \; years \; 1915-17, \; 1929-31, \; 1959-90, \; 1995-2002) \;, \; 171 \; \text{ft}^3/\text{s}, \; 124,000 \; \text{acre-ft/yr}. \\$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,980 ft³/s Dec. 22, 1964, gage height, 9.84 ft, from rating curve extended above 2,500 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 15 ft³/s July 11, 12, 1990.

Time

No other peak greater than base discharge.

Date

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 $\mathrm{ft^3/s}$ and maximum (*):

Discharge Gage height (ft³/s) (ft)

*789 *1.65

Apr. 15	0130	" / 0:	7	~1.65	NO O	ther pea	k greater	than base	uischa	ige.		
Minimum disc	charge, 41	1 ft ³ /s Aug	g. 17.									
		DISCHAR	GE, CUBI	C FEET PE		WATER YE MEAN VA		R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	110 97	103	100 102 109 113 116	134 130 125 120 117	185	228	218	369	137	55	55
2	66	110 97 91 87 85	102	102	130	167	228 231 224 217 214	240	347	137 128 118 115 114	55 55	56
3	65	91	104	109	125	155	224	262	320	118	56	57
4	66	87	105	113	120	148	217	266	300	115	58	55
5	65								294			54
6	65	87 88 87 86 85	107	118 125 166 219 212	114 121 137 133 133	144	232 256 261 252 252	234	296	107 104 107 102 94	61	58
7	67	88	105	125	121	144	256	224	281	104	61	58
8	69	87	102	166	137	138	261	211	266	107	60	60
9	69	86	101	219	133	131	252	196	259	102	58	57
									273			56
11	77 92 79 77 83	85 85 84 85 90	103	193	134 134 131 131 129	134	256	175 168 173 200 221	261	88 83 78 76 75	56	53
12	92	85	103	181	134	186	272	168	249	83	55	53
13	79	84	108	169	131	260	303	173	243	78	56	53
14	77	85	145	159	131	272	e500	200	245	76	54	56
15							e680	221	252			53
16	78	88	146	142	127	234	e515	221	254	73	46 48 51 50 49	55
17	74	91	143	136	125	216	e410	219	251	70	48	61
18	74	89	141	131	126	198	e345 e300 e270	232	262	69	51	67
19	73	87	138	130	126	186	e300	266	247	70	50	60
20	74	88 91 89 87 86	132	142 136 131 130 126	127 125 126 126 124	178	e270	318	218	72	49	61
21	76	92	128	125	123	168	e255	339	202	75	53 60 57 54 56	65
22	78	102	124	122	128	160	e240	302	191	72	60	65
23	83	102 128 128	119	117	149	158	e235	284	182	71	57	68
24	84	128	114	115	198	170	e250	268	177	66	54	67
25	77	118				168 160 158 170 208	e245	261	168	69	56	67
26	77	112	106	159	228	239	e225	267	158	68	55	65
27	78	112 107 108 106 105	106	159	213	266	e240	288	151	61	55	65
28	82	108	107	150	198	274	e235	330	143	61	54	66
29	83	106	105	144		263	e220	389	154	59	53	68
30	84	105	103	145		245	203	416	148	57	54	69
31	95	112 107 108 106 105	101	159 159 150 144 145 140	228 213 198 	232		392		68 61 61 59 57 54		
TOTAL	2345	2879	3569	4401	4029 144 241 114	5989	8566	8015	7161	2593	1704	1803
MEAN	75.6	2879 96.0	115	142	144	193	286	259	239	83 6	55 0	60 1
MAX	95	128	153	219	241	274	680	416	369	137	61	69
MIN	65	84	101	100	114	131	203	168	143	54	46	53
AC-FT	4650	5710	7080	8730	7990	11880	16990	15900	14200	2593 83.6 137 54 5140	3380	3580
STATIST								YEAR (WY)				
MEAN	83.2	109 186 1996 60.0 1930	163	214	261	245	274	296	202	84.3 203 1974 32.9 1930	60.7	70.4
MAX	125	186	673	635	1057	717	668	986	599	203	114	108
(WY)	1960	1996	1965	1974	1996	1972	1917	1917	1974	1974	1974	1972
MIN	51.7	60.0	66.8	49.3	84.0	103	114	93.9	58.9	32.9	21.5	42.2
(WY)	1930	1930	1915	1930	1931	1977	1977	1977	1930	1930	1931	1931
SUMMARY	STATIST	ICS	FOR 2	2001 CALE	NDAR YEAR	F	OR 2002 W	ATER YEAR		WATER YEAR	S 1915 -	2002
ANNUAL	TOTAT:			39421			53054					
ANNUAL	MEAN			108			145			171		
HIGHEST	C ANNUAL N	MEAN								327		1974
LOWEST	ANNUAL ME	EAN								89.6		1977
HIGHEST	DAILY ME	EAN		373	May 1		680	Apr 15		5000	Feb 10	1916
LOWEST	DAILY MEA	AN		33	Aug 16		46	Aug 16		15	Jul 11	1930
ANNUAL	SEVEN-DAY	Y MINIMUM		38	Aug 13		50	Aug 15		18	Jul 24	1931
ANNUAL	RUNOFF (A	AC-FT)		78190	-		105200	-		124000		
10 PERG	CENT EXCE	EDS		177			262			329		
50 PERG	CENT EXCE	EDS		101			121			118		
90 PERC	CENT EXCE	EDS		51			57			171 327 89.6 5000 15 18 124000 329 118 58		

e Estimated

13348000 SOUTH FORK PALOUSE RIVER AT PULLMAN, WA

LOCATION.--Lat $46^{\circ}43^{\circ}57^{\circ}$, long $117^{\circ}10^{\circ}48^{\circ}$, in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.6, T.14 N., R.45 E., Whitman County, Hydrologic Unit 17060108, on right bank at State Street crossing in Pullman, 600 ft upstream from Missouri Flat Creek, and at mile 22.2.

DRAINAGE AREA. -- 132 mi2.

PERIOD OF RECORD.--February 1934 to September 1942, December 1959 to September 1981, May 2001 to current year. Chemical analyses water years 1974, 1978 to June 1980.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,326.3 ft above NGVD of 1929. Prior to March 19, 1934, nonrecording gage at site 30 ft upstream.

REMARKS.--Records fair. Minor diversions for domestic use above station. Slight regulation caused by pondage at Robinson Park Dam on headwaters and by Moscow sewage disposal plant on Paradise Creek. U.S. Geological Survey satellite telemeter at station.

 $AVERAGE \; \text{DISCHARGE.--30 years (water years 1935-42, 1961-81, 2002), 39.2 ft}^3/s, \; 4.03 \; \text{in/yr, 28,360 acre-ft/yr.}$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,570 $\mathrm{ft^3/s}$ Jan. 21, 1972, gage height, 9.46 ft; minimum, 0.1 $\mathrm{ft^3/s}$ Sept. 23, 1942, gage height, 0.50 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since 1910, 9.5 ft Feb. 26, 1948, discharge, 5,000 ft^3/s . Flood of Jan. 24, 1959, reached a stage of 6.5 ft from floodmarks, discharge, 1,860 ft^3/s . Flood of Dec. 22, 1933, reached a stage of 6.0 ft from gage readings furnished by Washington State University, discharge, 1,800 ft^3/s .

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 902 ft³/s Mar. 12, gage height, 4.85 ft; minimum discharge, 2.0 ft³/s Aug. 20, 21.

		DISCHAF	RGE, CUBIO	C FEET PER		WATER YE. Y MEAN VA		R 2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	5.3 4.8 4.9 4.5 3.9	15 9.8 8.3 7.6 7.2	20 27 31 e27 21	15 20 29 38 33	49 46 43 42 39	80 68 63 64 62	98 91 85 81 81	43 42 40 38 40	18 18 17 16 15	7.8 6.9 6.7 6.0 5.8	3.2 3.2 3.3 3.4 4.1	4.8 4.3 5.0 4.0 4.5
6 7 8 9 10	5.5 5.9 7.2 6.5 5.9	7.3 6.9 7.0 6.6 7.7	24 30 24 24 23	36 227 290 155 82	41 60 113 117 97	109 103 75 70 86	89 85 80 76 78	41 40 e41 e38 34	14 13 13 16 22	5.3 4.8 7.4 8.0 6.8	4.0 4.1 3.7 3.4 3.4	4.1 4.4 4.7 5.2 4.7
11 12 13 14 15	19 10 9.6 12 9.7	8.5 6.5 6.6 12	21 19 65 121 74	62 53 53 46 39	87 74 64 58 52	334 540 204 136 113	79 78 78 202 123	31 e30 29 36 27	20 15 12 9.9	6.3 5.0 4.3 4.3	3.8 4.0 3.2 3.0 2.8	4.1 3.8 3.7 4.4 4.3
16 17 18 19 20	7.0 6.3 5.9 6.4 6.3	9.8 17 12 8.3 9.0	55 59 51 38 31	33 30 28 28 32	53 60 73 104 130	106 100 84 109 218	95 83 75 67 63	27 26 27 26 25	8.3 8.7 25 22 14	3.8 4.0 3.4 3.4 3.4	3.5 2.9 2.7 2.7 2.7	4.4 7.0 7.4 5.7 5.0
21 22 23 24 25	6.2 9.7 13 7.8 7.1	16 24 32 15 19	29 26 22 19 17	46 38 33 45 397	118 331 362 584 164	152 123 113 419 328	60 57 55 53 51	26 27 29 25 23	10 9.4 9.2 9.4 7.9	3.4 3.3 3.8 3.4 3.1	2.7 8.2 6.2 4.6 4.4	5.0 5.0 4.8 4.6 4.5
26 27 28 29 30 31	6.3 7.3 10 9.1 17 27	26 20 15 16 18	16 15 15 15 15	322 132 79 63 55 50	107 92 87 	205 163 131 116 106 100	50 53 51 47 45	22 22 31 24 22 20	7.2 7.1 6.8 17 9.6	2.8 2.7 2.7 3.0 3.3 3.7	5.1 5.0 5.0 4.6 8.5 4.9	4.0 4.9 5.7 6.1 6.1
TOTAL MEAN MAX MIN AC-FT CFSM IN.	267.1 8.62 27 3.9 530 0.07 0.08	384.1 12.8 32 6.5 762 0.10 0.11	989 31.9 121 15 1960 0.24 0.28	2589 83.5 397 15 5140 0.63 0.73	3247 116 584 39 6440 0.88 0.92	4680 151 540 62 9280 1.14 1.32	2309 77.0 202 45 4580 0.58 0.65	952 30.7 43 20 1890 0.23 0.27	400.5 13.3 25 6.8 794 0.10 0.11	142.6 4.60 8.0 2.7 283 0.03 0.04	126.3 4.07 8.5 2.7 251 0.03 0.04	146.2 4.87 7.4 3.7 290 0.04 0.04
STATIST	rics of M	ONTHLY MEA	AN DATA FO	OR WATER Y	YEARS 1934	1 - 2002,	BY WATER	YEAR (WY)				
MEAN MAX (WY) MIN (WY)	4.31 9.43 1976 1.08 1940	9.17 40.9 1974 1.44 1940	36.0 219 1974 2.70 1937	84.9 401 1974 1.77 1937	111 360 1972 10.5 1977	118 313 1969 14.0 1977	58.4 137 1969 8.20 1977	23.3 58.4 1975 5.75 1934	10.3 40.5 1971 1.52 1940	3.72 7.81 1975 0.86 1940	2.95 8.89 1972 0.50 1940	3.23 6.03 1972 0.49 1942
SUMMARY	STATIST	rics			FOR 20	002 WATER	YEAR			WATER YEAR	RS 1934 -	2002
LOWEST HIGHEST LOWEST ANNUAL ANNUAL ANNUAL ANNUAL 10 PERC 50 PERC	MEAN F ANNUAL ANNUAL M F DAILY M DAILY ME	EAN EAN AN Y MINIMUM AC-FT) CFSM) INCHES) EDS EDS			58 3220 10	34 F 2.7 J 2.9 A 00 0.34 4.57	eb 24 ul 27 ug 15			39.2 111 7.73 3200 0.30 0.31 28360 4.03 97 8.3 1.8	Jan 21) Sep 1 ! Sep 1	1942

e Estimated

13351000 PALOUSE RIVER AT HOOPER, WA

LOCATION.--Lat $46^{\circ}45^{\circ}31^{\circ}$, long $118^{\circ}08^{\circ}52^{\circ}$, in NE $\frac{1}{4}$ sec.27, T.15 N., R.37 E., Whitman County, Hydrologic Unit 17060108, on left bank 150 ft downstream from bridge on State Highway 26 at Hooper, 0.3 mi upstream from Cow Creek, 3.5 mi downstream from right bank tributary, 6.0 mi downstream from Willow Creek, and at mile 19.6.

DRAINAGE AREA. -- 2,500 mi2.

Date

Jan. 26 Mar. 13 Time

1515

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April to August 1897 (gage heights only), September 1897 to December 1899, April 1900 to April 1907, June 1908 to July 1912, March 1913 to March 1916, February 1951 to current year. Prior to 1904 sometimes published as "near Hooper."

REVISED RECORDS.--WSP 1287: 1897-1904, 1910(M), 1915-16(M). WSP 1447: 1910. WSP 1934: Drainage area. WSP 1447: 1906(M). WSP 1567: 1908-09(M).

GAGE.--Water-stage recorder. Datum of gage is 1,040.8 ft above NGVD of 1929. Apr. 1 to Aug. 31, 1897, nonrecording gage at site 2.5 mi upstream at different datum. Sept. 9, 1897, to March 1916, various nonrecording gages at site 1.5 mi upstream from present site at different datums. Feb. 8 to Mar. 28, 1951, nonrecording gage at present site and datum.

REMARKS.--Records good except for estimated daily discharges which are fair. Diversions upstream from station for irrigation and municipal use. U. S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--64 years (water years 1898-99, 1901-06, 1909-11, 1914-15, 1952-2002), 611 ft3/s, 442,500 acre-ft/yr.

Date

Mar. 25 Apr. 16

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,500 ft³/s Feb. 4, 1963, gage height, 19.13 ft, from rating curve extended above 18,000 ft³/s on basis of slope-area measurement of peak flow; no flow part or all of each day June 25, 1910, Aug. 1-17, Aug. 28 to Sept. 4, 1968.

Time

Discharge (ft³/s)

> 4,830 5,530

Gage height (ft)

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,700 ft^3/s and maximum (*):

Discharge Gage height (ft³/s) (ft)

9.69 *11.04

4,020 *6,080

Minimum disc	charge, 2	2 ft ³ /s Au	g. 20.									
		DISCHAF	GE, CUBIC	FEET PE		WATER Y		ER 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	91	192	264	931	e800	2010	996	495	121	35	40
2	37	109	206	264	853	e700	2080	1060	449	123	35	40
3	40	112	213	277	789	e700	2040	1130	413	116	33	38
4	41	138	226	285	711	e1000	1890	1140	382	110	34	40
5	39	122	259	327	e680	1010	1800	1110	344	108	39	40
6	41	108	253	369	e600	1000	1850	1000	311	105	37	42
7	41	101	231	416	e550	1300	2090	971	291	96	36	41
8	44	96	222	1770	e900	1330	2250	906	276	94	35	41
9	46	91	227	2630	e1500	1070	2240	838	272	94	32	41
10	45	88	235	2110	e1600	1000	2040	757	280	97	30	38
11	50	86	243	1450	e1300	1200	1960	682	286	107	30	36
12	51	85	240	1110	e1100	4370	2260	626	290	105	31	36
13	54	82	245	919	e900	5280	2270	593	276	104	34	34
14	56	86	270	881	e750	3420	2650	596	256	98	31	36
15	65	88	1170	835	e600	2580	4250	680	232	102	31	37
16	71	90	1030	716	e550	2170	4660	788	214	90	28	36
17	81	103	663	625	e600	1930	2770	738	199	81	26	37
18	81	104	625	559	e700	1740	2060	687	193	75	25	40
19	91	131	667	530	e850	1560	1670	661	186	71	24	42
20	85	123	510	514	e1000	2020	1460	652	211	73	24	45
21	78	120	460	485 512 544 489	e2000	3070	1370	705	245	70	30	45
22	75	126	414	512	e2600	2590	1310	772	228	72	34	47
23	72	128	378	544	e2400	2300	1340	729	195	70	34	46
24	71	141	318	489	e3200	2280	1410	808	176	65	35	42
25	71	236	271	504	e1800	4270	1350	780	160	63	36	41
26	77	334	229		e1300	3520	1200	677	147	64	39	43
27	78	260	e200	3080	e1200	2960	1110	609	135	57	41	44
28	92	233	e190	1970	e1000	2790	1070	591	123	51	41	44
29	88	215	e190	1340		2470	1040	594	123	49	43	45
30 31	88 89	192	e200 e240	1120 1030		2330 2100	997	599 549	118	44 38	41 42	46
TOTAL	1974	4019	11017	30755	32964	66860	58497	24024	7506	2613	1046	1223
MEAN MAX	63.7 92	134 334	355 1170	992 3080	1177 3200	2157 5280	1950 4660	775 1140	250 495	84.3 123	33.7 43	40.8 47
MIN	36	82	190	264	550	700	997	549	118	38	24	34
AC-FT	3920	7970	21850	61000	65380	132600	116000	47650	14890	5180	2070	2430
STATIST	CICS OF M	ONTHLY MEA	N DATA FO	R WATER	YEARS 1898	3 - 2002	, BY WATE	R YEAR (WY)				
MEAN	68.2	147	454	1037	1734	1833	1289	632	255	83.9	33.9	38.9
MAX	151	349	2198	4602	5744	6660	4127	1560	982	291	97.4	116
(WY)	1960	1956	1974	1974	1996	1910	1913	1975	1990	1902	1997	1997
MIN	17.7	39.6	36.9	46.6	162	216	203	102	41.6	3.72	0.058	3.90
(WY)	1916	1905	1915	1915	1994	1977	1977	1992	1992	1968	1968	1967
SUMMARY	STATIST	ICS	FOR 2	001 CALE	NDAR YEAR		FOR 2002 T	WATER YEAR		WATER YEARS	5 1898 -	2002
ANNUAL	TOTAL			101151			242498					
ANNUAL				277			664			611		
	ANNUAL I									1595		1997
	ANNUAL M									106		1977
	DAILY ME			1980	May 2		5280	Mar 13		27800	Mar 2	
	DAILY ME	AN Y MINIMUM		15 17	Aug 19 Aug 17		24 27	Aug 19 Aug 15			Jun 25 Aug 10	
	RUNOFF (200600	Aug 17		481000	Aug 15		442500	Aug 10	1500
	CENT EXCE			692			2030			1640		
	CENT EXCE			190			245			179		
90 PERC	CENT EXCE	EDS		28			39			31		

e Estimated

13351000 PALOUSE RIVER AT HOOPER, WA--Continued (National Water-Quality Assessment station)

WATER-OUALITY RECORDS

PERIOD OF RECORD.--Water years 1959-71, 1993-current year.

PERIOD OF DAILY RECORD.

SPECIFIC CONDUCTANCE: October 1961 to September 1971, August 1993 to September 1994, April to Sept. 2002.
WATER TEMPERATURE: October 1961 to September 1971, August 1993 to current year.
SUSPENDED SEDIMENT DISCHARGE: October 1961 to September 1971, October 1992 to September 1999; November 2000 to March 2001

INSTRUMENTATION.--Water-quality monitor since August 1993. Electronic data logger with sixty-minute recording interval except for period Nov. 15, 1994 to Oct. 20, 1995, when the recording interval was seventy-two minutes.

REMARKS.--Specific Conductance record good for the period except May 14 - 28, Aug 29 - Sept. 10, 22 - 30, which is fair and May 29 - June 3, which is poor. Temperature record excellent. In October 1996, station became a Central Columbia Plateau National Water-Quality Assessment Program (NAWQA) surface-water quality trend site.

EXTREMES FOR PERIOD OF DAILY RECORD. --

SPECIFIC CONDUCTANCE: Maximum recorded, 447 microsiemens Aug. 14, 1994, but may have been higher during periods of missing record; minimum recorded, 131 microsiemens observered May 6, 2002, but may have been lower during periods of missing record.

WATER TEMPERATURE: Maximum recorded 32.5°C (rounded) July 24, 1994, but may have been higher during periods of missing record; minimum recorded, 0.0°C for several days during winter months.

SEDIMENT CONCENTRATION: Maximum daily mean, 10,100 mg/L Feb. 8, 1996; minimum daily mean, 1 mg/L Jan. 4, 2001.

SEDIMENT DISCHARGE: Maximum daily, 527,000 tons Feb. 9, 1996; minimum daily, 0.04 tons Aug. 16, 20, 1994.

EXTREMES FOR CURRENT YEAR . - -

SPECIFIC CONDUCTANCE: Maximum 403 microsiemens Sept. 10; Minimum 131 microsiemens (observed) May 6 but may have been lower during perioood of missing record.

WATER TEMPERATURE: Maximum 29.9°C July 12; minimum, 0.0°C Dec. 26 - 29, Jan 29.

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	1	FEBRUARY			MARCH			APRIL			MAY	
1										170	163	167
2										166	154	162
3										154	141	149
4										144	136	141
5										140	135	138
6										142	134	137
7										146	138	143
8										154	142	150
9												
10												
11												
12												
13												
14												
15												
15												
16												
17												
18										156	136	147
19										157	144	151
20										199	147	160
21										222	192	205
22										263	197	228
23										197	172	182
24							156	143	150	188	157	174
25							143	141	142	174	147	162
26							152	143	148	168	149	159
27							161	152	158	171	154	164
28							166	161	164	170	154	162
29							166	165	166	179	160	168
30							171	166	170	179	155	
31							1/1	166	170	170	155	161 158
31										1/2	151	128
MONTH												

13351000 PALOUSE RIVER AT HOOPER, WA--Continued (National Water-Quality Assessment station)

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBE	ER
1	189	166	178	287	279	282	314	300	307	381	367	374
2	200	180 171	188	293	287 290	289	318	309 315	315	382	370	376 375
4	204 181	174	184 178	293 299	290	291 294	331 336	315	325 333	383 371	362 346	361
5	192	181	186	300	288	293	341	325	333	373	346	362
6	198	180	192	297	289	293	343	326	335	384	363	376
7 8	201	197 196	198	305	294 292	298	342 343	335 323	339	391	379 387	388
9	208 211	207	205 209	308 297	288	299 294	335	316	336 329	397 400	392	394 396
10	215	208	211	293	284	288	324	311	317	403	336	365
11	220	214	215	292	286	289	319	308	314	343	335	338
12	221	213	217	295	288	291	328	308	320	344	335	340
13 14	222 225	216 204	219 222	304 310	295 303	300 306	333 339	322 330	330 335	345 344	338 338	341 341
15	232	206	223	314	308	311	341	333	336	344	338	342
1.6	020	000		214	200					245	220	
16 17	239 243	222 228	232 237	314 314	308 308	311 311	339 340	334 333	336 336	347 349	339 342	344 345
18	242	222	235	315	310	313	341	334	338	351	344	349
19	243	223	237	318	309	314	341	331	335	355	348	352
20	248	228	242	319	311	315	343	333	337	357	348	353
21	250	223	239	322	304	316	342	333	336	354	331	346
22	241	221	235	322	312	317	341	333	336	331	306	318
23 24	250 273	241 250	244 261	322 319	309 303	316 312	342 345	334 337	338 343	311 316	302 308	307 311
25	282	269	275	317	303	310	346	340	343	321	309	316
26	274	257	264	317	303	310	350	337	344	328	317	323
27	269	260	266	317	306	311	355	333	345	344	325	338
28	275	269	273	320	310	314	356	339	350	355	343	353
29 30	276 281	271 274	274 277	325	311	318 315	365	348 359	359	363	355 354	360 361
31				324 317	304 304	311	371 375	364	366 370	364		
MONTH	282	166	227	325	279	304	375	300	336	403	302	352
		THE MADE		TARRED (DE	a a) 1.11	AUDD VIDAD	OCHODED O	0001 EO		2002		
D311	M2.V			WATER (DE								MERRY
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	R 2002 MAX	MIN	MEAN
DAY	MAX		MEAN	MAX		MEAN	MAX		MEAN		MIN JANUARY	
1	16.6	MIN OCTOBER 14.3	MEAN	MAX	MIN NOVEMBER	MEAN	MAX E	MIN DECEMBER 3.2	MEAN	MAX 1.8	JANUARY	1.3
1 2	16.6 16.5	MIN OCTOBER 14.3 13.8	MEAN 15.6 15.4	MAX	MIN NOVEMBER	MEAN 8.8 9.6	MAX E	MIN DECEMBER 3.2	MEAN 3.7 4.0	MAX 1.8 2.1	JANUARY 1.0 1.0	1.3 1.6
1 2 3	16.6 16.5 16.2	MIN OCTOBER 14.3 13.8 13.0	MEAN 15.6 15.4 14.8	9.6 10.7 10.8	MIN NOVEMBER 8.2 8.8 8.8	MEAN 8.8 9.6 9.7	MAX 4.2 4.3 4.3	MIN DECEMBER 3.2 3.7 3.4	MEAN 3.7 4.0 3.8	1.8 2.1 2.7	JANUARY 1.0 1.0 2.1	1.3 1.6 2.5
1 2	16.6 16.5	MIN OCTOBER 14.3 13.8 13.0 12.4	MEAN 15.6 15.4	MAX	MIN NOVEMBER	MEAN 8.8 9.6	MAX E	MIN DECEMBER 3.2	MEAN 3.7 4.0	MAX 1.8 2.1	JANUARY 1.0 1.0	1.3 1.6
1 2 3 4 5	16.6 16.5 16.2 16.0 14.1	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0	MEAN 15.6 15.4 14.8 13.9 12.9	9.6 10.7 10.8 10.4 9.6	MIN NOVEMBER 8.2 8.8 8.8 8.7 8.5	MEAN 8.8 9.6 9.7 9.5 9.2	MAX F 4.2 4.3 4.3 3.7 2.9	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6	MEAN 3.7 4.0 3.8 3.3 2.7	1.8 2.1 2.7 3.2 2.9	JANUARY 1.0 1.0 2.1 2.6 2.4	1.3 1.6 2.5 2.8 2.7
1 2 3 4 5	16.6 16.5 16.2 16.0 14.1 14.0	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4	MEAN 15.6 15.4 14.8 13.9 12.9	9.6 10.7 10.8 10.4 9.6 8.5 6.8	MIN NOVEMBER 8.2 8.8 8.8 8.7 8.5	MEAN 8.8 9.6 9.7 9.5 9.2 7.7 6.1	MAX 4.2 4.3 4.3 3.7 2.9 3.1 3.4	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3	MEAN 3.7 4.0 3.8 3.3 2.7	1.8 2.1 2.7 3.2 2.9	JANUARY 1.0 1.0 2.1 2.6 2.4 2.4 3.4	1.3 1.6 2.5 2.8 2.7
1 2 3 4 5	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4 10.5	MEAN 15.6 15.4 14.8 13.9 12.9 12.6 11.5 11.2	9.6 10.7 10.8 10.4 9.6 8.5 6.8	MIN NOVEMBER 8.2 8.8 8.7 8.5 6.6 5.2 4.0	8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9	MAX E 4.2 4.3 4.3 3.7 2.9 3.1 3.4 3.4	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.3	3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8	1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6	1.0 1.0 2.1 2.6 2.4 2.4 3.4 4.0	1.3 1.6 2.5 2.8 2.7 2.8 4.0 4.9
1 2 3 4 5	16.6 16.5 16.2 16.0 14.1 14.0	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4	MEAN 15.6 15.4 14.8 13.9 12.9	9.6 10.7 10.8 10.4 9.6 8.5 6.8	MIN NOVEMBER 8.2 8.8 8.8 8.7 8.5	MEAN 8.8 9.6 9.7 9.5 9.2 7.7 6.1	MAX 4.2 4.3 4.3 3.7 2.9 3.1 3.4	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3	MEAN 3.7 4.0 3.8 3.3 2.7	1.8 2.1 2.7 3.2 2.9	JANUARY 1.0 1.0 2.1 2.6 2.4 2.4 3.4	1.3 1.6 2.5 2.8 2.7
1 2 3 4 5 6 7 8 9	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9 11.2	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4 10.5 9.1 8.6	15.6 15.4 14.8 13.9 12.9 12.6 11.5 11.2 10.4 9.7	9.6 10.7 10.8 10.4 9.6 8.5 6.8 5.9 5.6 5.4	MIN NOVEMBER 8.2 8.8 8.8 8.7 8.5 6.6 5.2 4.0 3.8 4.3	8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9 4.6	MAX 4.2 4.3 4.3 3.7 2.9 3.1 3.4 3.4 3.7 3.1	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.3 2.7 2.4	3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8 3.1	1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6 4.2 3.7	1.0 1.0 2.1 2.6 2.4 2.4 3.4 4.0 3.7 2.7	1.3 1.6 2.5 2.8 2.7 2.8 4.0 4.9 3.9 3.1
1 2 3 4 5 6 7 8 9 10	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9 11.2 11.1	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4 10.5 9.1 8.6 9.2	MEAN 15.6 15.4 14.8 13.9 12.9 12.6 11.5 11.2 10.4 9.7	9.6 10.7 10.8 10.4 9.6 8.5 6.8 5.9 5.6 5.4	MIN NOVEMBER 8.2 8.8 8.8 8.7 8.5 6.6 5.2 4.0 3.8 4.3	MEAN 8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9 4.6 4.7 5.1	MAX 4.2 4.3 4.3 3.7 2.9 3.1 3.4 3.4 3.7 3.1	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.3 2.7 2.4 2.1	3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8 3.1 2.7	1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6 4.2 3.7	1.0 1.0 2.1 2.6 2.4 2.4 3.4 4.0 3.7 2.7	1.3 1.6 2.5 2.8 2.7 2.8 4.0 4.9 3.9 3.1
1 2 3 4 5 6 7 8 9	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9 11.2 11.1 10.8 11.7	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4 10.5 9.1 8.6 9.2 9.1 9.2	MEAN 15.6 15.4 14.8 13.9 12.6 11.5 11.2 10.4 9.7 10.2 9.8 10.5	9.6 10.7 10.8 10.4 9.6 8.5 6.8 5.9 5.6 5.4	MIN NOVEMBER 8.2 8.8 8.8 8.7 8.5 6.6 5.2 4.0 3.8 4.3	8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9 4.6	MAX 4.2 4.3 4.3 3.7 2.9 3.1 3.4 3.4 3.7 3.1	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.3 2.7 2.4	3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8 3.1	1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6 4.2 3.7	1.0 1.0 2.1 2.6 2.4 2.4 3.4 4.0 3.7 2.7	1.3 1.6 2.5 2.8 2.7 2.8 4.0 4.9 3.9 3.1
1 2 3 4 5 6 7 8 9 10	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9 11.2 11.1 10.8 11.7 12.8	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4 10.5 9.1 8.6 9.2 9.1 9.2 10.5	MEAN 15.6 15.4 14.8 13.9 12.9 12.6 11.5 11.2 10.4 9.7 10.2 9.8 10.5 11.6	9.6 10.7 10.8 10.4 9.6 8.5 6.8 5.9 5.6 5.4 5.7 6.2 7.1	MIN NOVEMBER 8.2 8.8 8.7 8.5 6.6 5.2 4.0 3.8 4.3 4.6 4.8 5.2 6.6 6.6	MEAN 8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9 4.6 4.7 5.1 5.4 6.1 7.9	MAX 4.2 4.3 4.3 3.7 2.9 3.1 3.4 3.7 3.1 2.6 3.1 4.5 4.6	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.3 2.7 2.4 2.1 2.4 2.7 3.7	MEAN 3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8 3.1 2.7 2.4 2.6 3.5 4.3	MAX 1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6 4.2 3.7 4.0 4.5 4.5 3.4	1.0 1.0 2.1 2.6 2.4 3.4 4.0 3.7 2.7	1.3 1.6 2.5 2.8 2.7 2.8 4.0 4.9 3.1 3.5 4.1 3.3
1 2 3 4 5 6 7 8 9 10	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9 11.2 11.1 10.8 11.7 12.8	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4 10.5 9.1 8.6 9.2 9.1 9.2 10.5	MEAN 15.6 15.4 14.8 13.9 12.6 11.5 11.2 10.4 9.7 10.2 9.8 10.5	9.6 10.7 10.8 10.4 9.6 8.5 6.8 5.9 5.6 5.4	MIN NOVEMBER 8.2 8.8 8.8 8.7 8.5 6.6 5.2 4.0 3.8 4.3	8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9 4.6 4.7	MAX 4.2 4.3 4.3 3.7 2.9 3.1 3.4 3.7 3.1 2.6 3.1 4.5 4.6	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.3 2.7 2.4 2.1 2.4 2.7	MEAN 3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8 3.1 2.7 2.4 2.6 3.5	MAX 1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6 4.2 3.7 4.0 4.5 4.5	1.0 1.0 2.1 2.6 2.4 2.4 4.0 3.7 2.7	1.3 1.6 2.5 2.8 2.7 2.8 4.0 4.9 3.9 3.1 3.5 4.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9 11.2 11.1 10.8 11.7 12.8 12.5	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4 10.5 9.1 8.6 9.2 9.1 9.2 10.5 9.7 10.3	MEAN 15.6 15.4 14.8 13.9 12.9 12.6 11.5 11.2 10.4 9.7 10.2 9.8 10.5 11.6 11.2	9.6 10.7 10.8 10.4 9.6 8.5 6.8 5.9 5.6 5.4 5.7 6.2 7.1 8.5 9.4	MIN NOVEMBER 8.2 8.8 8.8 8.7 8.5 6.6 5.2 4.0 3.8 4.3 4.6 4.8 5.2 6.8 7.7	8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9 4.6 4.7 5.1 5.4 6.1 7.9 8.6	MAX 4.2 4.3 4.3 3.7 2.9 3.1 3.4 3.4 3.7 3.1 2.6 3.1 4.5 4.6 3.7	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.3 2.7 2.4 2.7 2.4 2.7 1.6	MEAN 3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8 3.1 2.7 2.4 2.6 3.5 4.3 2.4	1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6 4.2 3.7 4.5 4.5 3.4	1.0 1.0 2.1 2.6 2.4 2.4 3.4 4.0 3.7 2.7	1.3 1.6 2.5 2.8 2.7 2.8 4.0 4.9 3.9 3.1 3.5 4.1 3.1 2.0
1 2 3 4 5 5 6 7 8 9 10 11 12 13 14 15 16 17	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9 11.1 10.8 11.7 12.8 12.5	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4 10.5 9.1 8.6 9.2 9.1 9.2 10.5 9.7	15.6 15.4 14.8 13.9 12.9 12.6 11.5 11.2 10.4 9.7 10.2 9.8 10.5 11.6	9.6 10.7 10.8 10.4 9.6 8.5 6.8 5.9 5.6 5.4 5.7 6.2 7.1 8.5 9.4	MIN NOVEMBER 8.2 8.8 8.7 8.5 6.6 5.2 4.0 3.8 4.3 4.6 4.8 5.2 6.6 7.7	8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9 4.6 4.7 5.1 5.4 6.1 7.9 8.6	MAX 4.2 4.3 4.3 3.7 2.9 3.1 3.4 3.4 3.7 3.1 2.6 3.1 4.5 4.6 3.7	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.3 2.7 2.4 2.7 2.4 2.7 1.6	MEAN 3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8 3.1 2.7 2.4 2.6 3.5 4.3 2.4	1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6 4.2 3.7 4.5 4.5 3.4	1.0 1.0 2.1 2.6 2.4 2.4 3.4 4.0 3.7 2.7	1.3 1.6 2.5 2.8 2.7 2.8 4.0 4.9 3.1 3.5 4.1 3.4 3.1 2.0
1 2 3 4 5 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9 11.1 10.8 11.7 12.8 12.5 12.5 11.2	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4 10.5 9.1 8.6 9.2 9.1 9.2 10.5 9.7	MEAN 15.6 15.4 14.8 13.9 12.9 12.6 11.5 11.2 10.4 9.7 10.2 9.8 10.5 11.6 11.2	9.6 10.7 10.8 10.4 9.6 8.5 6.8 5.9 5.6 5.4 5.7 6.2 7.1 8.5 9.4	MIN NOVEMBER 8.2 8.8 8.8 8.7 8.5 6.6 5.2 4.0 3.8 4.3 4.6 4.8 5.2 6.8 7.7	8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9 4.6 4.7 5.1 5.4 6.1 7.9 8.6	MAX 4.2 4.3 4.3 3.7 2.9 3.1 3.4 3.4 3.7 3.1 2.6 3.1 4.5 4.6 3.7	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.3 2.7 2.4 2.1 2.4 2.7 3.7 1.6 2.4 2.4 1.5	MEAN 3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8 3.1 2.7 2.4 2.6 3.5 4.3 2.4 2.9 3.3 1.7	1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6 4.5 3.7 4.5 4.5 3.4 4.5 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1	1.0 1.0 2.1 2.6 2.4 2.4 3.4 4.0 3.7 2.7 3.1 3.7 2.9 1.6	1.3 1.6 2.5 2.8 2.7 2.8 4.0 4.9 3.1 3.1 3.1 2.0 1.6 1.8
1 2 3 4 5 5 6 7 8 9 10 11 12 13 14 15 16 17	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9 11.1 10.8 11.7 12.8 12.5	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4 10.5 9.1 8.6 9.2 9.1 9.2 10.5 9.7	15.6 15.4 14.8 13.9 12.9 12.6 11.5 11.2 10.4 9.7 10.2 9.8 10.5 11.6	9.6 10.7 10.8 10.4 9.6 8.5 6.8 5.9 5.6 5.4 5.7 6.2 7.1 8.5 9.4	MIN NOVEMBER 8.2 8.8 8.7 8.5 6.6 5.2 4.0 3.8 4.3 4.6 4.8 5.2 6.6 7.7	8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9 4.6 4.7 5.1 5.4 6.1 7.9 8.6	MAX 4.2 4.3 4.3 3.7 2.9 3.1 3.4 3.7 3.1 2.6 3.1 4.5 4.6 3.7 3.7 3.7 3.7	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.3 2.7 2.4 2.1 2.4 2.7 3.7 1.6 2.4 2.4 1.5	MEAN 3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8 3.1 2.7 2.4 2.6 3.5 4.3 2.4	1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6 4.2 3.7 4.5 4.5 3.4	1.0 1.0 2.1 2.6 2.4 2.4 3.4 4.0 3.7 2.7	1.3 1.6 2.5 2.8 2.7 2.8 4.0 4.9 3.1 3.5 4.1 3.4 3.1 2.0
1 2 3 4 4 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9 11.2 11.1 10.8 11.7 12.8 12.5 12.5 11.2 10.6 11.1	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4 10.5 9.1 8.6 9.2 9.1 9.2 10.5 9.7 10.3 9.4 8.8 9.4 8.6 8.8	15.6 15.4 14.8 13.9 12.9 12.6 11.5 11.2 10.4 9.7 10.2 9.8 10.5 11.6 11.2	9.6 10.7 10.8 10.4 9.6 8.5 6.8 5.9 5.6 5.4 5.7 6.2 7.1 8.5 9.4 9.7 9.9	MIN NOVEMBER 8.2 8.8 8.8 8.7 8.5 6.6 5.2 4.0 3.8 4.3 4.6 4.8 5.2 6.8 7.7 9.1 8.8 7.7 7.1 6.8	8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9 4.6 4.7 5.1 5.4 6.1 7.9 8.6 9.4 8.5 7.5	MAX 4.2 4.3 4.3 3.7 2.9 3.1 3.4 3.4 3.7 3.1 2.6 3.1 4.5 4.6 3.7	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.7 2.4 2.1 2.4 2.7 3.7 1.6 2.4 2.4 1.5 1.3	MEAN 3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8 3.1 2.7 2.4 2.6 3.5 4.3 2.4 2.9 3.3 1.7 1.4 1.8	1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6 4.5 4.5 4.5 3.7 4.0 4.5 4.5 4.5 2.9 1.9 2.4 2.9	1.0 1.0 2.1 2.6 2.4 2.4 3.4 4.0 3.7 2.7 3.1 3.7 2.9 1.6 1.5 1.8 1.6 2.4 2.7	1.3 1.6 2.5 2.8 2.7 2.8 4.0 4.9 3.1 3.5 4.1 3.1 2.0 1.6 1.8 1.9 2.8 3.0
1 2 3 4 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9 11.2 11.1 10.8 11.7 12.8 12.5 12.5 11.2 10.6 11.1	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4 10.5 9.1 8.6 9.2 9.1 9.2 10.5 9.7 10.3 9.4 8.8 9.4 8.6 8.8	15.6 15.4 14.8 13.9 12.9 12.6 11.5 11.2 10.4 9.7 10.2 9.8 10.5 11.6 11.2	9.6 10.7 10.8 10.4 9.6 8.5 6.8 5.9 5.6 5.4 5.7 6.2 7.1 8.5 9.4 9.7 9.9	MIN NOVEMBER 8.2 8.8 8.8 8.7 8.5 6.6 5.2 4.0 3.8 4.3 4.6 4.8 5.2 6.8 7.7 9.1 8.8 7.7 7.1 6.8	8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9 4.6 4.7 5.1 5.4 6.1 7.9 8.6 9.4 8.5 7.5	MAX 4.2 4.3 4.3 4.3 3.7 2.9 3.1 3.4 3.4 3.7 3.1 2.6 3.1 4.5 4.6 3.7 3.7 3.8 2.4 1.6 1.9	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.3 2.7 2.4 2.7 1.6 2.4 2.7 1.6 2.4 1.5 1.3 1.6	MEAN 3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8 3.1 2.7 2.4 2.6 3.5 4.3 2.4 2.9 3.3 1.7 1.4	1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6 4.5 4.5 4.5 3.7 4.0 4.5 4.5 4.5 2.9 1.9 2.4 2.9	1.0 1.0 2.1 2.6 2.4 2.4 3.4 4.0 3.7 2.7 3.1 3.7 2.9 1.6 1.5 1.8 1.6 2.4 2.7	1.3 1.6 2.5 2.8 2.7 2.8 4.0 4.9 3.1 3.5 4.1 3.1 2.0
1 2 3 4 5 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9 11.2 11.1 10.8 11.7 12.8 12.5 12.5 11.2 10.6 11.1	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4 10.5 9.1 8.6 9.2 9.1 9.2 10.5 9.7 10.3 9.4 8.8 9.4 8.6 8.8	15.6 15.4 14.8 13.9 12.9 12.6 11.5 11.2 10.4 9.7 10.2 9.8 10.5 11.6 11.2	9.6 10.7 10.8 10.4 9.6 8.5 6.8 5.9 5.6 5.4 5.7 6.2 7.1 8.5 9.4 9.7 9.9	MIN NOVEMBER 8.2 8.8 8.8 8.7 8.5 6.6 5.2 4.0 3.8 4.3 4.6 4.8 5.2 6.8 7.7 9.1 8.8 7.7 7.1 6.8	8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9 4.6 4.7 5.1 5.4 6.1 7.9 8.6 9.4 8.5 7.5	MAX 4.2 4.3 4.3 3.7 2.9 3.1 3.4 3.7 3.1 2.6 3.1 4.5 4.6 3.7 3.7 3.7 3.8 2.4 1.6 1.9 2.6 2.4 1.5	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.3 2.7 2.4 2.1 2.4 2.7 3.7 1.6 2.4 2.4 1.5 1.3 1.6 1.9 1.9 1.7	MEAN 3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8 3.1 2.7 2.4 2.6 3.5 4.3 2.4 2.9 3.3 1.7 1.4 1.8 2.3 2.1	MAX 1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6 4.2 3.7 4.0 4.5 3.4 2.9 1.9 1.9 2.4 3.2 3.7 1.8	1.0 1.0 2.1 2.6 2.4 2.4 3.4 4.0 3.7 2.7 3.1 3.7 2.9 1.6 1.5 1.8 1.6 2.4 2.7	1.3 1.6 2.5 2.8 2.7 2.8 4.0 4.9 3.9 3.1 3.5 4.1 3.1 2.0 1.6 1.8 1.9 2.8 3.0
1 2 3 4 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9 11.2 11.1 10.8 11.7 12.8 12.5 12.5 11.2 10.6 11.1	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4 10.5 9.1 8.6 9.2 9.1 9.2 10.5 9.7 10.3 9.4 8.8 9.4 8.6 8.8	MEAN 15.6 15.4 14.8 13.9 12.9 12.6 11.5 11.2 10.4 9.7 10.2 9.8 10.5 11.6 11.2 11.4 10.4 9.8 9.9 9.8	9.6 10.7 10.8 10.4 9.6 8.5 6.8 5.9 5.6 5.4 5.7 6.2 7.1 8.5 9.4 9.7 9.9	MIN NOVEMBER 8.2 8.8 8.8 8.7 8.5 6.6 5.2 4.0 3.8 4.3 4.6 4.8 5.2 6.8 7.7 9.1 8.8 7.7 7.1 6.8	8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9 4.6 4.7 5.1 5.4 6.1 7.9 8.6 9.4 8.5 7.5	MAX 4.2 4.3 4.3 3.7 2.9 3.1 3.4 3.7 3.1 2.6 3.1 4.5 4.6 3.7 3.7 3.7 3.8 2.4 1.6 1.9 2.6 2.4 1.5	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.3 2.7 2.4 2.1 2.4 2.7 3.7 1.6 2.4 2.4 1.5 1.3 1.6 1.9 1.9 1.7	MEAN 3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8 3.1 2.7 2.4 2.6 3.5 4.3 2.4 2.9 3.3 1.7 1.4 1.8 2.3 2.1	MAX 1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6 4.2 3.7 4.0 4.5 4.5 3.4 2.9 1.9 2.4 3.2 3.7 2.7 1.8	1.0 1.0 2.1 2.6 2.4 2.4 3.4 4.0 3.7 2.7 3.1 3.7 2.9 1.6 1.5 1.8 1.6 2.4 2.7	1.3 1.6 2.5 2.8 2.7 2.8 4.0 4.9 3.1 3.5 4.1 3.1 2.0 1.6 1.8 1.9 2.8
1 2 3 4 5 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9 11.2 11.1 10.8 11.7 12.5 12.5 11.2 10.8 10.6 11.1 10.0 10.3 9.7 8.1 9.5	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4 10.5 9.1 8.6 9.2 9.1 9.2 10.5 9.7 10.3 9.4 8.8 9.4 8.6 8.8 8.7 6.8 7.4	15.6 15.4 14.8 13.9 12.9 12.6 11.5 11.2 10.4 9.7 10.5 11.6 11.2 11.4 10.4 9.8 9.9 9.8 9.8 9.8 9.8 9.8 9.8	9.6 10.7 10.8 10.4 9.6 8.5 6.8 5.9 5.6 5.4 5.7 6.2 7.1 8.5 9.4 9.7 9.9 9.1 7.7 7.7 7.7	MIN NOVEMBER 8.2 8.8 8.8 8.7 8.5 6.6 5.2 4.0 3.8 4.3 4.6 4.8 5.2 6.8 7.7 9.1 8.8 7.7 7.1 6.8 7.3 7.7 6.8 5.4 4.6	MEAN 8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9 4.6 4.7 5.1 7.9 8.6 9.4 9.4 8.5 7.5 7.3 7.7 8.0 7.5 5.9 5.0	MAX 4.2 4.3 4.3 3.7 2.9 3.1 3.4 3.7 3.1 2.6 3.1 4.5 4.6 3.7 3.7 3.7 3.7 3.7 3.7 3.7 3.7 3.7 3.7	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.3 2.7 2.4 2.1 2.4 2.7 3.7 1.6 2.4 2.4 1.5 1.3 1.6 1.9 1.5 0.7 0.2 0.2	MEAN 3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8 3.1 2.7 2.4 2.6 3.5 4.3 2.4 2.9 3.3 1.7 1.4 1.8 2.3 2.1 1.3 0.7 0.5	MAX 1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6 4.2 3.7 4.0 4.5 3.4 2.9 1.9 1.9 2.4 3.2 3.7 2.7 1.8 3.8 5.4	1.0 1.0 2.1 2.6 2.4 3.4 4.0 3.7 2.7 3.1 3.7 2.9 1.6 1.5 1.8 1.6 2.4 2.7 2.7	1.3 1.6 2.5 2.8 2.7 2.8 4.0 4.9 3.9 3.1 3.5 4.1 3.4 3.1 2.0 1.6 1.8 1.9 2.8 3.0
1 2 3 4 4 5 6 7 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 26 2	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9 11.2 11.1 10.8 12.5 12.5 11.2 10.6 11.1 10.0 10.3 9.7 8.1 9.5	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4 10.5 9.1 8.6 9.2 9.1 9.2 10.5 9.7 10.3 9.4 8.8 9.4 8.6 8.8 7.7 6.8 7.7	15.6 15.4 14.8 13.9 12.9 12.6 11.5 11.2 10.4 9.7 10.2 9.8 10.5 11.6 11.2 11.4 10.4 9.8 9.9 9.8 9.8 9.8	9.6 10.7 10.8 10.4 9.6 8.5 6.8 5.9 5.6 5.4 5.7 6.2 7.1 8.5 9.4 9.7 9.9 9.1 7.7 7.7	MIN NOVEMBER 8.2 8.8 8.8 8.7 8.5 6.6 5.2 4.0 3.8 4.3 4.6 4.8 5.2 6.8 7.7 9.1 8.8 7.7 7.1 6.8 7.3 7.7 6.8 5.4 4.6	MEAN 8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9 4.6 4.7 5.1 7.9 8.6 9.4 9.4 8.5 7.5 7.3 7.7 8.0 7.5 5.9 5.0	MAX 4.2 4.3 4.3 4.3 3.7 2.9 3.1 3.4 3.4 3.7 3.1 2.6 3.1 4.5 4.6 3.7 3.7 3.8 2.4 1.6 1.9 2.6 2.4 1.5 0.7	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.7 2.4 2.1 2.4 2.7 3.7 1.6 2.4 2.1 1.5 1.3 1.6 1.9 1.5 0.7 0.2 0.2	MEAN 3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8 3.1 2.7 2.4 2.6 3.5 4.3 2.4 2.9 3.3 1.7 1.4 1.8 2.3 2.1 1.3 0.7 0.5	MAX 1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6 4.2 3.7 4.0 4.5 3.4 2.9 1.9 1.9 1.9 2.4 3.2 3.7 2.7 1.8 3.8 5.4 5.1	JANUARY 1.0 1.0 2.1 2.6 2.4 3.4 4.0 3.7 2.7 3.1 3.7 2.9 1.6 1.5 1.8 1.6 2.4 2.7 2.7 1.6 3.8 1.5	1.3 1.6 2.5 2.8 2.7 2.8 4.0 4.9 3.9 3.1 3.5 4.1 3.1 2.0 1.6 1.8 1.9 2.8 3.0 3.4 2.2 1.5 2.6 3.6
1 2 3 3 4 5 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9 11.2 11.1 10.8 11.7 12.8 12.5 10.8 10.0 11.9 11.2 10.8 11.7 12.9 10.8 10.0 11.9 10.0 10.0 10.0 10.0 10.0 10.0	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4 10.5 9.1 8.6 9.2 9.1 9.2 10.5 9.7 10.3 9.4 8.8 9.4 8.6 8.8 7.7 6.8 7.7	15.6 15.4 14.8 13.9 12.9 12.6 11.5 11.2 10.4 9.7 10.2 9.8 10.5 11.6 11.2 11.4 10.4 9.8 9.9 9.8 9.8 9.8	9.6 10.7 10.8 10.4 9.6 8.5 6.8 5.9 5.6 5.4 5.7 6.2 7.1 8.5 9.4 9.7 9.9 9.1 7.7 7.7	MIN NOVEMBER 8.2 8.8 8.8 8.7 8.5 6.6 5.2 4.0 3.8 4.3 4.6 4.8 5.2 6.8 7.7 9.1 8.8 7.7 7.1 6.8 7.3 7.7 6.8 5.4 4.6	MEAN 8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9 4.6 4.7 5.1 7.9 8.6 9.4 9.4 8.5 7.5 7.3 7.7 8.0 7.5 5.9 5.0	MAX 4.2 4.3 4.3 4.3 3.7 2.9 3.1 3.4 3.4 3.7 3.1 2.6 3.1 4.5 4.6 3.7 3.7 3.8 2.4 1.6 1.9 2.6 2.4 1.5 0.7	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.3 2.7 2.4 2.1 2.4 2.7 3.7 1.6 2.4 2.4 1.5 1.3 1.6 1.9 1.5 0.7 0.2 0.0 0.0 0.0	MEAN 3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8 3.1 2.7 2.4 2.6 3.5 4.3 2.4 2.9 3.3 1.7 1.4 1.8 2.3 2.1 1.3 0.7 0.5	MAX 1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6 4.2 3.7 4.0 4.5 3.4 2.9 1.9 2.4 3.2 3.7 2.7 1.8 3.8 5.4 5.1 1.8	JANUARY 1.0 1.0 2.1 2.6 2.4 3.4 4.0 3.7 2.7 3.1 3.7 2.9 1.6 1.5 1.8 1.6 2.4 2.7 2.7 1.6 1.3 1.6 3.8 1.5 1.0 0.2	1.3 1.6 2.5 2.8 2.7 2.8 4.0 4.9 3.1 3.5 4.1 3.4 3.1 2.0 1.6 1.8 1.9 2.8 3.0 1.9 2.8 3.0 4.9
1 2 3 4 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9 11.2 11.1 10.8 12.5 12.5 11.2 10.6 11.1 10.0 10.3 9.7 8.1 9.5 9.8 9.5 10.2 9.1	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0,5 9.1 8.6 9.2 9.1 9.2 10.5 9.7 10.3 9.4 8.8 9.4 8.6 8.8 7.7 6.8 7.4 7.7 8.5 8.2 8.3	15.6 15.4 14.8 13.9 12.9 12.6 11.5 11.2 10.4 9.7 10.2 9.8 10.5 11.6 11.2 11.4 10.4 9.8 9.9 9.8 9.8 9.8	9.6 10.7 10.8 10.4 9.6 8.5 6.8 5.9 5.6 5.4 5.7 6.2 7.1 8.5 9.4 9.7 9.9 9.1 7.7 7.7 7.7 8.0 8.3 7.9 9.6 8.5	MIN NOVEMBER 8.2 8.8 8.8 8.7 8.5 6.6 5.2 4.0 3.8 4.3 4.6 4.8 5.2 6.8 7.7 9.1 8.8 7.7 7.1 6.8 7.3 7.7 6.8 5.4 4.6	MEAN 8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9 4.6 4.7 5.1 7.9 8.6 9.4 9.4 8.5 7.5 7.3 7.7 8.0 7.5 5.9 5.0	MAX 4.2 4.3 4.3 4.3 3.7 2.9 3.1 3.4 3.4 3.7 3.1 2.6 3.1 4.5 4.6 3.7 3.7 3.8 2.4 1.6 1.9 2.6 2.4 1.5 0.7	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.3 2.7 2.4 2.1 2.4 2.7 3.7 1.6 2.4 2.4 1.5 1.3 1.6 1.9 1.5 0.7 0.2 0.0 0.0 0.0 0.0	MEAN 3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8 3.1 2.7 2.4 2.6 3.5 4.3 2.4 2.9 3.3 1.7 1.4 1.8 2.3 2.1 1.3 0.7 0.5	MAX 1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6 4.2 3.7 4.0 4.5 3.4 2.9 1.9 1.9 2.4 3.2 3.7 2.7 1.8 3.8 5.4 5.1 1.8 1.1	JANUARY 1.0 1.0 2.1 2.6 2.4 3.4 4.0 3.7 2.7 3.1 3.7 2.9 1.6 1.5 1.8 1.6 2.4 2.7 2.7 1.6 3.8 1.5 1.0 0.2 0.0	1.3 1.6 2.5 2.8 2.7 2.8 4.0 4.9 3.9 3.1 3.5 4.1 3.1 2.0 1.6 1.8 1.9 2.9 3.0 3.4 2.2 1.5 2.6 4.8
1 2 2 3 4 4 5 5 6 7 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9 11.2 11.1 10.8 11.7 12.8 12.5 12.5 10.6 11.1 10.0 10.3 9.7 8.1 9.5 10.2 9.5 10.2 9.5 10.2 9.5	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0,5 9.1 8.6 9.2 9.1 9.2 10.5 9.7 10.3 9.4 8.8 9.4 8.6 8.8 7.7 6.8 7.4 7.7 8.5 8.2 8.3	15.6 15.4 14.8 13.9 12.9 12.6 11.5 11.2 10.4 9.7 10.2 9.8 10.5 11.6 11.2 11.4 10.4 9.8 9.9 9.8 9.5 8.5 7.5 8.3	9.6 10.7 10.8 10.4 9.6 8.5 6.8 5.9 5.6 5.4 5.7 6.2 7.1 8.5 9.4 9.7 9.7 7.7 8.0 8.3 7.9 6.8 5.4	MIN NOVEMBER 8.2 8.8 8.8 8.7 8.5 6.6 5.2 4.0 3.8 4.3 4.6 4.8 5.2 6.8 7.7 9.1 8.8 7.7 7.1 6.8 7.7 7.1 6.8 4.0 3.1 2.3 2.3 2.6	8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9 4.6 4.7 5.1 4.6 6.1 7.9 8.6 9.4 8.5 7.3 7.7 8.0 7.5 5.9 5.0 4.6 3.8 2.6 2.7 3.0	MAX 4.2 4.3 4.3 4.3 3.7 2.9 3.1 3.4 3.4 3.7 3.1 2.6 3.1 4.5 4.6 3.7 3.7 3.8 2.4 1.6 1.9 2.6 2.4 1.5 0.7	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.3 2.7 2.4 2.1 2.4 2.7 1.6 2.4 2.5 1.5 1.5 1.5 1.5 0.7 0.2 0.0 0.0 0.0 0.0 0.0 0.0	MEAN 3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8 3.1 2.7 2.4 2.6 3.5 4.3 2.4 2.9 3.3 1.7 1.8 2.3 2.1 1.3 0.7 0.5	MAX 1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6 4.2 3.7 4.0 4.5 3.4 2.9 1.9 2.4 3.2 3.7 2.7 1.8 3.8 5.4 5.1 1.1 1.1	1.0 1.0 2.1 2.6 2.4 2.4 3.4 4.0 3.7 2.7 3.1 3.7 2.9 1.6 1.5 1.8 1.6 2.4 2.7 2.7 1.6 3.8	1.3 1.6 2.8 2.7 2.8 4.0 4.9 3.1 3.5 4.1 3.1 2.0 1.6 1.8 1.9 2.8 3.0 3.1 3.1 2.0 3.1 3.1 3.1 3.1 3.1 3.1 3.1 3.1 3.1 3.1
1 2 3 4 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	16.6 16.5 16.2 16.0 14.1 14.0 13.0 11.9 11.2 11.1 10.8 12.5 12.5 11.2 10.6 11.1 10.0 10.3 9.7 8.1 9.5 10.5 10.5 10.5 10.5 10.5 10.5 10.5 10	MIN OCTOBER 14.3 13.8 13.0 12.4 11.0 11.0 10.4 10.5 9.1 8.6 9.2 9.1 9.2 10.5 9.7 10.3 9.4 8.8 9.4 8.6 8.8 7.7 6.8 7.7	15.6 15.4 14.8 13.9 12.9 12.6 11.5 11.2 10.4 9.7 10.2 9.8 10.5 11.6 11.2 11.4 10.4 9.8 9.9 9.8 9.8 9.8	9.6 10.7 10.8 10.4 9.6 8.5 6.8 5.9 5.6 5.4 5.7 6.2 7.1 8.5 9.4 9.7 9.9 9.1 7.7 7.7 7.7 8.0 8.3 7.9 9.6 8.5	MIN NOVEMBER 8.2 8.8 8.8 8.7 8.5 6.6 5.2 4.0 3.8 4.3 4.6 4.8 5.2 6.8 7.7 9.1 8.8 7.7 7.1 6.8 7.3 7.7 6.8 5.4 4.6	MEAN 8.8 9.6 9.7 9.5 9.2 7.7 6.1 4.9 4.6 4.7 5.1 7.9 8.6 9.4 9.4 8.5 7.5 7.3 7.7 8.0 7.5 5.9 5.0	MAX 4.2 4.3 4.3 3.7 2.9 3.1 3.4 3.7 3.1 2.6 3.1 4.5 4.6 3.7 3.7 3.7 3.7 3.7 3.7 3.7 3.7 3.7 3.7	MIN DECEMBER 3.2 3.7 3.4 2.7 2.6 2.3 2.3 2.3 2.7 2.4 2.1 2.4 2.7 3.7 1.6 2.4 2.4 1.5 1.3 1.6 1.9 1.5 0.7 0.2 0.0 0.0 0.0 0.0	MEAN 3.7 4.0 3.8 3.3 2.7 2.6 2.7 2.8 3.1 2.7 2.4 2.6 3.5 4.3 2.4 2.9 3.3 1.7 1.4 1.8 2.3 2.1 1.3 0.7 0.5	MAX 1.8 2.1 2.7 3.2 2.9 3.4 4.5 5.6 4.2 3.7 4.0 4.5 3.4 2.9 1.9 1.9 2.4 3.2 3.7 2.7 1.8 3.8 5.4 5.1 1.8 1.1	JANUARY 1.0 1.0 2.1 2.6 2.4 3.4 4.0 3.7 2.7 3.1 3.7 2.9 1.6 1.5 1.8 1.6 2.4 2.7 2.7 1.6 3.8 1.5 1.0 0.2 0.0	1.3 1.6 2.5 2.8 2.7 2.8 4.0 4.9 3.9 3.1 3.5 4.1 3.4 2.0 1.6 1.8 1.9 2.8 3.0 3.4 2.2 1.5 2.6 4.8

13351000 PALOUSE RIVER AT HOOPER, WA--Continued (National Water-Quality Assessment station)

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX			MAX			MAX	MIN	MEAN
		FEBRUARY						APRIL			MAY	
1 2 3 4 5	2.7 2.6 2.4 2.4	2.1 1.6 1.5 1.6	2.4 2.1 1.9 2.1 2.1	3.7 3.7 4.6 4.6 5.7	1.5 1.6 1.8 3.4 4.0	2.6 2.6 3.1 3.9 4.7	9.3 9.3 9.7 10.4 10.4	7.4 6.8 6.5 6.8 8.2	8.3 8.1 8.1 8.6 9.3	16.1 16.1 14.9 13.8 11.0	12.6 13.0 11.5 10.5 9.4	14.2 14.4 13.1 11.4 10.2
6 7 8 9 10	2.7 3.7 4.3 4.3 3.5	1.9 2.7 3.2 2.6 1.9	2.2 3.4 3.7 3.4 2.7	5.7 4.3 4.2 4.5 5.4	4.0 3.2 2.1 2.4 3.7	4.8 3.7 3.0 3.3 4.3	10.8 10.5 10.5 9.6 11.3	9.1 8.8 7.7 7.7	10 9.7 9.1 8.7 9.3	10.1 10.1 11.2	7.9 7.7 8.4 	8.9 8.8 9.5
11 12 13 14 15	3.5 3.5 3.2 2.9 3.1	2.4 1.3 1.5 1.5	3.0 2.4 2.3 2.2 2.5	7.0 6.8 5.1 5.4 5.6	5.2 4.9 4.0 3.8 3.7	5.8 5.8 4.6 4.5 4.5	11.4 11.6 12.8 12.2	8.8 9.3 9.6 10.2 7.1	10.2 10.4 11.2 11.5 9.0	 	 	
16 17 18 19 20	4.0 4.2 5.6 5.7	2.4 3.4 4.0 5.1 4.2	3.0 3.8 4.7 5.3 5.0	5.2 5.2 4.6 4.9 4.9	3.7 3.8 3.4 2.9 3.7	4.5 4.5 3.8 3.7 4.5	7.1 8.3 10.5 11.9 13.2	5.7 5.6 6.8 8.2 9.3	6.3 6.8 8.5 10 11.2	16.6 17.8 17.8		16.1 17.2 16.5
21 22 23 24 25	5.6 6.5 6.0 4.5 2.7	3.8 5.4 4.5 2.7 1.5	4.8 5.9 5.0 3.8 2.0								14.3 12.1 12.1 13.4 14.6	
26 27 28 29 30 31	2.3 1.9 3.2 	1.3 0.5 0.8 	1.7 1.2 1.9	7.3 7.6 8.3 8.2 9.4 9.6	5.9 5.4 5.9 5.7 6.2 7.0	6.6 6.3 6.9 6.9 7.7 8.3	12.6 12.5 13.4 14.7 15.2	10.0 10.3 9.8 10.5 11.8	11.4 11.3 11.4 12.3 13.6	17.4 19.7 20.1 20.0 20.2 20.6	16.0 17.4 19.4 18.9 18.4 19.6	16.5 18.5 19.8 19.6 19.3 20.1
MONTH	6.5	0.5	3.1	9.6	1.5	4.8	15.2	5.6	9.9		7.7	14.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY	MAX	MIN JUNE	MEAN	MAX	MIN JULY	MEAN		MIN AUGUST	MEAN		MIN SEPTEMBE	
DAY 1 2 3 4 5	MAX 19.9 19.3 20.6 21.4 21.0	JUNE 17.8 17.0 18.3 19.3 18.9	19.2 18.1 19.3 20.3 20.1	22.4 23.5 21.7 20.8 22.5	JULY			AUGUST				IR 20 9
1 2 3 4 5 6 7 8	19.9 19.3 20.6 21.4	JUNE 17.8 17.0 18.3 19.3 18.9		22.4 23.5 21.7 20.8 22.5	JULY 19.2 18.8 19.6 18.0 17.3	20.7 21.1 20.7 19.4 19.7		19.6 20.6 19.0 17.2 16.1		22.5 21.8 21.7 19.8 19.8	20.1 18.6 19.3 17.0 17.8	20.9 20.4 20.2 18.6 19.0 18.0 17.7 17.1 17.5
1 2 3 4 5 6 7 8 9	19.9 19.3 20.6 21.4 21.0 18.9 15.8 14.2 14.1	JUNE 17.8 17.0 18.3 19.3 18.9 15.8 13.7 12.8 12.6 13.5	19.2 18.1 19.3 20.3 20.1 17.6 15.1 13.4 13.3 14.9	22.4 23.5 21.7 20.8 22.5	JULY 19.2 18.8 19.6 18.0 17.3 18.6 20.2 20.9 20.1 20.6	20.7 21.1 20.7 19.4 19.7 21.3 22.7 22.3 22.5 23.5	23.4 23.4 22.1 22.2 20.6 20.2 20.4 21.4 22.5 23.5	AUGUST 19.6 20.6 19.0 17.2 16.1 17.7 16.8 18.6 19.4 21.1	21.4 21.9 20.5 19.5 17.9 18.9 18.8 20.1 21.0 22.2	22.5 21.8 21.7 19.8 19.8 19.0 18.6 18.1 19.3 20.2	20.1 18.6 19.3 17.0 17.8 16.4 16.2 15.7 15.4 16.5	20.9 20.4 20.2 18.6 19.0 18.0 17.7 17.1 17.5 18.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14	19.9 19.3 20.6 21.4 21.0 18.9 15.8 14.2 14.1 16.6	JUNE 17.8 17.0 18.3 19.3 18.9 15.8 13.7 12.6 13.5 15.1 17.3 19.5 20.6 21.7	19.2 18.1 19.3 20.3 20.1 17.6 15.1 13.4 13.3 14.9 17.1 19.4 21.2 22.5	22.4 23.5 21.7 20.8 22.5 24.2 25.5 23.9 25.3 26.9 28.2 29.9 29.5 27.5	JULY 19.2 18.8 19.6 18.0 17.3 18.6 20.2 20.9 20.1 20.6 22.8 24.6 26.2 24.6 23.4 22.9 23.6 23.6	20.7 21.1 20.7 19.4 19.7 21.3 22.7 22.3 22.5 23.5 25.4 27.1 27.7 26.0	23.4 23.4 22.1 22.2 20.6 20.2 20.4 21.4 22.5 23.5 23.5 24.0 24.7 24.8	AUGUST 19.6 20.6 19.0 17.2 16.1 17.7 16.8 18.6 19.4 21.1 21.6 21.1 21.8 22.1 22.2	21.4 21.9 20.5 19.5 17.9 18.9 18.8 20.1 21.0 22.2 22.6 22.7 23.4 23.5	22.5 21.8 21.7 19.8 19.8 19.0 18.6 18.1 19.3 20.2 20.6 20.8 20.9 20.4	20.1 18.6 19.3 17.0 17.8 16.4 16.2 15.7 15.4 16.5 17.4 18.2 18.6 18.1	20.9 20.4 20.2 18.6 19.0 18.0 17.7 17.1 17.5 18.8 19.3 19.7 19.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	19.9 19.3 20.6 21.4 21.0 18.9 15.8 14.2 14.1 16.6 19.2 21.7 23.1 24.6 26.0 24.8 21.8 19.1 20.5	JUNE 17.8 17.0 18.3 19.3 18.9 15.8 13.7 12.8 12.6 13.5 15.1 17.3 19.5 20.6 21.7 21.8 18.9 17.1 16.3 17.3 19.1	19.2 18.1 19.3 20.3 20.1 17.6 15.1 13.4 13.3 14.9 17.1 19.4 21.2 22.5 23.7 23.4 20.1 18.2	22.4 23.5 21.7 20.8 22.5 24.2 25.5 23.9 25.3 26.9 28.2 29.9 29.5 27.5 27.8 27.7 28.0 27.7	JULY 19.2 18.8 19.6 18.0 17.3 18.6 20.2 20.9 20.1 20.6 22.8 24.6 26.2 24.6 23.4 22.9 23.6 23.6 23.2 22.3	20.7 21.1 20.7 19.4 19.7 21.3 22.7 22.3 22.5 23.5 25.4 27.1 27.7 26.0 25.4 25.2 25.7 25.6 24.9	23.4 23.4 22.1 22.2 20.6 20.2 20.4 21.4 22.5 23.5 23.5 24.0 24.7 24.8 24.9 24.0 23.0 23.0 23.2 22.7	AUGUST 19.6 20.6 19.0 17.2 16.1 17.7 16.8 18.6 19.4 21.1 21.6 21.1 21.8 22.1 22.2 20.8 20.1 20.5	21.4 21.9 20.5 19.5 17.9 18.9 18.8 20.1 21.0 22.2 22.6 22.7 23.5 23.6 23.1 22.0 21.5 21.5 21.4	22.5 21.8 21.7 19.8 19.8 19.0 18.6 18.1 19.3 20.2 20.6 20.8 20.9 20.4 19.8 19.2 17.2 17.5 17.5	20.1 18.6 19.3 17.0 17.8 16.4 16.2 15.7 15.4 16.5 17.4 18.2 18.6 18.1 18.0	20.9 20.4 20.2 18.6 19.0 18.0 17.7 17.1 17.5 18.8 19.3 19.7 19.9 19.4 18.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	19.9 19.3 20.6 21.4 21.0 18.9 15.8 14.2 14.1 16.6 19.2 21.7 23.1 24.6 26.0 24.8 21.8 19.1 20.5 22.4 23.7 24.6 24.3 24.6 24.8 24.6 24.8	JUNE 17.8 17.0 18.3 19.3 18.9 15.8 13.7 12.8 12.6 13.5 15.1 17.3 19.5 20.6 21.7 21.8 18.9 17.1 16.3 17.3 19.1 20.6 21.7	19.2 18.1 19.3 20.3 20.1 17.6 15.1 13.4 13.3 14.9 17.1 19.4 21.2 22.5 23.7 23.4 20.1 18.2 19.7 21.4 22.5 22.5 22.5	22.4 23.5 21.7 20.8 22.5 24.2 25.5 23.9 25.3 26.9 28.2 29.9 29.5 27.5 27.8 27.7 28.0 27.7 26.3 26.4	JULY 19.2 18.8 19.6 18.0 17.3 18.6 20.9 20.1 20.6 22.8 24.6 26.2 24.6 23.4 22.9 23.6 23.2 22.3 21.8 22.2 23.6 23.8 24.5	20.7 21.1 20.7 19.4 19.7 21.3 22.7 22.5 23.5 25.4 27.1 27.7 26.0 25.4 25.2 25.7 25.6 24.9 24.3 24.3 25.5 26.2	23.4 23.4 22.1 22.2 20.6 20.2 20.4 21.4 22.5 23.5 23.9 24.0 24.7 24.8 24.9 24.0 23.0 23.0 24.7 22.8 21.8 22.7 22.8	19.6 20.6 19.0 17.2 16.1 17.7 16.8 18.6 19.4 21.1 21.6 21.1 21.8 22.1 22.2 20.8 20.1 20.5 20.0	21.4 21.9 20.5 19.5 17.9 18.9 18.8 20.1 21.0 22.2 22.6 22.7 23.4 23.5 23.6 23.1 22.0 21.5 21.4 21.1	22.5 21.8 21.7 19.8 19.8 19.0 18.6 18.1 19.3 20.2 20.6 20.8 20.9 20.4 19.8 19.2 17.2 17.5 17.9 17.8	SEPTEMBE 20.1 18.6 19.3 17.0 17.8 16.4 16.2 15.7 15.4 16.5 17.4 18.0 17.2 18.6 18.1 18.0 17.2 15.2 15.2 15.1 13.8 13.4 13.7 13.6	20.9 20.4 20.2 18.6 19.0 18.0 17.7 17.1 17.5 18.8 19.3 19.7 19.9 19.4 18.9 17.8 16.6 16.5 16.7 16.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	19.9 19.3 20.6 21.4 21.0 18.9 15.8 14.2 14.1 16.6 19.2 21.7 23.7 24.6 26.0 24.8 21.8 19.1 20.5 22.4 23.7 24.6 24.3 24.6 24.3 24.6 24.3 24.6 24.3 24.6 24.3 24.6 24.3 24.6 24.3 24.6 24.3 24.6 24.3 24.6 24.6 24.6 24.6 24.6 24.6 24.6 24.6	JUNE 17.8 17.0 18.3 19.3 18.9 15.8 13.7 12.6 13.5 15.1 17.3 19.5 20.6 21.7 21.8 18.9 17.1 16.3 17.3 19.1 20.6 21.4 20.7 21.3 22.6 24.1 21.9 20.8 19.6	19.2 18.1 19.3 20.3 20.1 17.6 15.1 13.4 13.3 14.9 17.1 19.4 21.2 22.5 23.7 23.4 20.1 18.2 19.7 21.4 22.5 22.5 22.6 23.8 25.2 22.9 21.7 20.9	22.4 23.5 21.7 20.8 22.5 24.2 25.5 23.9 25.3 26.9 28.2 29.9 29.5 27.5 27.8 27.7 28.0 27.7 26.3 26.4 27.2 27.7 27.6 28.7 27.8	JULY 19.2 18.8 19.6 18.0 17.3 18.6 20.2 20.1 20.6 22.8 24.6 26.2 24.6 23.4 22.9 23.6 23.6 23.2 22.3 21.8 22.2 23.6 23.8 24.5 20.3 20.3 20.2 21.2	20.7 21.1 20.7 19.4 19.7 21.3 22.7 22.5 23.5 25.4 27.1 27.7 26.0 25.4 25.7 25.6 24.3 25.7 25.6 25.6 24.3 25.5 24.3 25.5 26.0 25.6 26.0 27.6 27.6 27.6 27.6 27.6 27.6 27.6 27.6	23.4 23.4 22.1 22.2 20.6 20.2 20.4 21.4 22.5 23.5 23.9 24.0 24.7 24.8 24.9 24.0 23.0 23.2 22.7 22.8 21.8 22.4 23.5 23.5	AUGUST 19.6 20.6 19.0 17.2 16.1 17.7 16.8 18.6 19.4 21.1 21.6 21.1 21.2 22.2 20.8 20.1 20.5 20.0 20.2 20.4 20.5 21.5 20.0 20.2 20.4 20.5 21.5 20.2 20.8	21.4 21.9 20.5 19.5 17.9 18.9 18.8 20.1 21.0 22.2 22.6 22.7 23.4 23.5 23.6 23.1 22.0 21.5 21.4 21.1 20.8 21.4 22.0 21.6 21.6 21.6 21.1 22.0 21.6 21.1 22.0 21.6	22.5 21.8 21.7 19.8 19.8 19.0 18.6 19.3 20.2 20.6 20.8 20.9 20.4 19.8 19.2 17.5 17.5 17.8 17.2 16.6 16.6 16.3 15.9 16.1 16.2 16.1 16.2 16.1	SEPTEMBE 20.1 18.6 19.3 17.0 17.8 16.4 16.2 15.7 15.4 16.5 17.4 18.2 18.6 18.1 18.0 17.2 16.2 15.2 15.2 15.1 13.8 13.4 13.7 13.6 13.8 13.4 13.3 13.4 13.5 11.4	20.9 20.4 20.2 18.6 19.0 18.0 17.7 17.1 17.5 18.8 19.3 19.7 19.9 17.8 16.6 16.5 16.7 16.8 15.7 16.8 15.5 15.5 15.5 15.3

13351000 PALOUSE RIVER AT HOOPER, WA--Continued (National Water-Quality Assessment station)

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
OCT 01	1040	36	734	10.1	103	8.7	386	14.4	14.5	157	187	2	13.4
NOV 07	1030	100	747	12.8	104	8.5	328	10.3	5.7	130	156	1	12.6
DEC 10	1030	235	730	13.3	103	8.1	310	3.1	2.8	114	138	0	15.1
JAN 02	1130	265	732	13.4	101	8.2	344	2.8	1.9	129	155	0	9.91
FEB 05	1110	680	735	13.4	100	8.2	282	4.9	1.8	96	116	0	6.53
MAR 04	1040	1040	735	12.6	98	8.1	238	5.0	3.3	82	100	0	4.57
19 APR	0950	1570	733	12.6	97	8.2	214	4.0	3.0				
02 23 MAY	1120 1230	2130 1360	740 740	11.6 11.0	99 100	8.1 8.2	180 161	13.9 12.2	7.4 9.7	59 	71 	0	3.11
06 20	1050 1040	995 646	735 728	11.6 8.2	102 89	8.3 9.2	131 159	9.9 9.3	8.3 17.2	51 	62 	0	2.49
JUN 03	1230	415	735	8.6	98	8.1	164	20.1	20.0	67	81	0	3.35
17 JUL	1120	199	735	10.7	121	9.2	231	18.7	19.5				
08 22 AUG	1120 1040	92 72	740 734	9.2 8.5	108 104	8.3 8.5	291 311	24.2 23.4	21.8 23.5	122	147 	0	7.04 7.66
06 20 SEP	1320 1130	37 22	738 733	10.3 8.9	114 104	8.9 8.9	338 330	25.7 25.1	18.8 21.2	148 146	171 167	5 5	8.98
10	1050	38	738	9.5	103	8.4	359	24.4	17.7	149	177	2	11.4
Date	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	CARBON, INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)
OCT 01	DIS- SOLVED (MG/L AS SO4)	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	GEN, NITRITE DIS- SOLVED (MG/L AS N)	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N)	GEN, TOTAL (MG/L AS N)	PHOS- PHATE, DIS- SOLVED (MG/L AS P)	PHORUS TOTAL (MG/L AS P)	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C)	INOR- GANIC, PARTIC. TOTAL (MG/L AS C)	ORGANIC DIS- SOLVED (MG/L AS C)	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C)
OCT 01 NOV 07	DIS- SOLVED (MG/L AS SO4) (00945)	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570)	GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665)	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	ORGANIC DIS- SOLVED (MG/L AS C) (00681)	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)
OCT 01 NOV 07 DEC 10	DIS- SOLVED (MG/L AS SO4) (00945)	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570)	GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHORUS TOTAL (MG/L AS P) (00665)	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	ORGANIC DIS- SOLVED (MG/L AS C) (00681)	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)
OCT 01 NOV 07 DEC 10 JAN 02	DIS- SOLVED (MG/L AS SO4) (00945) 16.2 11.5	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 E.03	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570)	GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) <.02	PHORUS TOTAL (MG/L AS P) (00665) .105	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	ORGANIC DIS- SOLVED (MG/L AS C) (00681)	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05	DIS- SOLVED (MG/L AS SO4) (00945) 16.2 11.5	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 E.03	GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .86 .39	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .38 1.14	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .012 .009 .008	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .35 .09	GEN, TOTAL (MG/L AS N) (00600) 1.2 1.5	PHOS- PHATTE, DIS- SOLVED (MG/L AS P) (00671) <.02 .10	PHORUS TOTAL (MG/L AS P) (00665) .105 .139	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) 2.2 .6	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 3.3 4.3	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689) 6 .2
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04	DIS- SOLVED (MG/L AS SO4) (00945) 16.2 11.5 24.7	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 E.03 E.03	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .86 .39 .15	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .38 1.14 1.27 4.75	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .012 .009 .008	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .35 .09 .04	GEN, TOTAL (MG/L AS N) (00600) 1.2 1.5 1.4	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) <.02 .10 .10	PHORUS TOTAL (MG/L AS P) (00665) .105 .139 .120	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) 2.2 .6 .2	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688) <.1 <.1 <.1	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 3.3 4.3 1.5	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689) 6 .2 .4
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23	DIS- SOLVED (MG/L AS SO4) (00945) 16.2 11.5 24.7 16.7 14.4	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 E.03 E.03 <.04 <.04 E.02	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .86 .39 .15 .47 .45	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .38 1.14 1.27 4.75 4.93	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .012 .009 .008 .014 .013	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .35 .09 .04 .06 .10 .10	GEN, TOTAL (MG/L AS N) (00600) 1.2 1.5 1.4 5.2 5.4	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) <.02 .10 .10 .12 .10	PHORUS TOTAL (MG/L AS P) (00665) .105 .139 .120 .158 .148	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) 2.2 .6 .2 .4 .9	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688) <.1 <.1 <.1 <.1 <.1	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 3.3 4.3 1.5 3.3 4.1	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689) 6 .2 .4 .9 1.0
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06	DIS- SOLVED (MG/L AS SO4) (00945) 16.2 11.5 24.7 16.7 14.4	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 E.03 E.03 <.04 <.04 E.02 <.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .86 .39 .15 .47 .45 .55 .56	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .38 1.14 1.27 4.75 4.93 4.98 4.58 3.60	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .012 .009 .008 .014 .013 .011 .009 .008	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .35 .09 .04 .06 .10 .1014	GEN, TOTAL (MG/L AS N) (00600) 1.2 1.5 1.4 5.2 5.4 5.5 5.1	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) <.02 .10 .10 .12 .10 .09 .08	PHORUS TOTAL (MG/L AS P) (00665) .105 .139 .120 .158 .148 .170 .176	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) 2.2 .6 .2 .4 .9 1.0 1.2	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688) <.1 <.1 <.1 <.1 <.1 <.1 <.1	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 3.3 4.3 1.5 3.3 4.1	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689) 6 .2 .4 .9 1.0 1.2
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06 20 JUN 03 JUN 03	DIS- SOLVED (MG/L AS SO4) (00945) 16.2 11.5 24.7 16.7 14.4 13.8 10.0 6.4	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 E.03 E.03 <.04 <.04 E.02 <.04 <.04 <.04 <.04 <.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .86 .39 .15 .47 .45 .55 .56 .45 .39	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .38 1.14 1.27 4.75 4.93 4.98 4.58 3.60 1.83 .88	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .012 .009 .008 .014 .013 .011 .009 .008 E.005 <.008	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .35 .09 .04 .06 .10 .10 .14	GEN, TOTAL (MG/L AS N) (00600) 1.2 1.5 1.4 5.2 5.4 5.5 5.1	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) <.02 .10 .10 .12 .10 .09 .08	PHORUS TOTAL (MG/L AS P) (00665) .105 .139 .120 .158 .148 .170 .176 .164 .108	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) 2.2 .6 .2 .4 .9 1.0 1.26	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688) <.1 <.1 <.1 <.1 <.1 <.1 <.1	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 3.3 4.3 1.5 3.3 4.1 4.7 4.9 3.0	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689) 6 .2 .4 .9 1.0 1.26
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06 20 JUN 03 17 JUL 088 22	DIS- SOLVED (MG/L AS SO4) (00945) 16.2 11.5 24.7 16.7 14.4 13.8 10.0 6.4 6.0	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 E.03 C.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .86 .39 .15 .47 .45 .55 .56 .45 .39 .25 .47	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .38 1.14 1.27 4.75 4.93 4.98 4.58 3.60 1.83 .88 .45 .65	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .012 .009 .008 .014 .013 .011 .009 .008 E.005 <.008 .008	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .35 .09 .04 .06 .10 .10140615	GEN, TOTAL (MG/L AS N) (00600) 1.2 1.5 1.4 5.2 5.4 5.5 5.1 4.0 2.2 1.1 .92 1.2	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) <.02 .10 .10 .12 .10 .09 .08 .07 .05 <.02 <.02	PHORUS TOTAL (MG/L AS P) (00665) .105 .139 .120 .158 .148 .170 .176 .164 .108 .037 .041 .129	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) 2.2 .6 .2 .4 .9 1.0 1.269	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688) <.1 <.1 <.1 <.1 <.1 <.1 <.1 <.1 <.1	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 3.3 4.3 1.5 3.3 4.1 4.7 4.9 3.0	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689) 6 .2 .4 .9 1.0 1.269
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06 20 JUN 03 17 JUL 08	DIS- SOLVED (MG/L AS SO4) (00945) 16.2 11.5 24.7 16.7 14.4 13.8 10.0 6.4 6.0 10.8	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) <.04 E.03 E.03 <.04 <.04 <.04 <.04 <.04 <.04 <.04 <.04	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) .86 .39 .15 .47 .45 .55 .56 .45 .39 .25 .47 .54 1.4	GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) .38 1.14 1.27 4.75 4.93 4.98 4.58 3.60 1.83 .88 .45 .65 .24 .66	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) .012 .009 .008 .014 .013 .011 .009 .008 E.005 <.008 .008 .008 .008	GEN, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570) .35 .09 .04 .06 .10 .1014061508	GEN, TOTAL (MG/L AS N) (00600) 1.2 1.5 1.4 5.2 5.4 5.5 5.1 4.0 2.2 1.1 .92 1.2 1.6	PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671) <.02 .10 .10 .12 .10 .09 .08 .07 .05 <.02 <.02 <.02	PHORUS TOTAL (MG/L AS P) (00665) .105 .139 .120 .158 .148 .170 .176 .164 .108 .037 .041 .129 .20 .140	INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694) 2.2 .6 .2 .4 .9 1.0 1.2696	INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688) <.1 <.1 <.1 <.1 <.1 <.1 <.1 <.1 <.1	ORGANIC DIS- SOLVED (MG/L AS C) (00681) 3.3 4.3 1.5 3.3 4.1 4.7 4.9 3.0 3.4 	ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689) 6 .2 .4 .9 1.0 1.2696

13351000 PALOUSE RIVER AT HOOPER, WA--Continued (National Water-Quality Assessment station)

Date	2,4-D METHYL ESTER, WATER FLTRD REC (UG/L) (50470)	2,4-D, DIS- SOLVED (UG/L) (39732)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	3HYDRXY CARBO- FURAN WAT,FLT GF 0.7U REC (UG/L) (49308)	3-KETO CARBO- FURAN WATER FLTRD REC (UG/L) (50295)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ACIFL- UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALDI- CARB SULFONE WAT,FLT GF 0.7U REC (UG/L) (49313)	ALDICA- RB SUL- FOXIDE, WAT,FLT GF 0.7U REC (UG/L) (49314)	ALDI- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ALPHA BHC DIS- SOLVED (UG/L) (34253)
OCT 01	<.009	E.02	<.02	<.002	<.006	<2	<.004	<.007	<.002	<.02	<.008	<.04	<.005
NOV 07	<.009	.02	<.02	<.002	<.006	<2	<.004	<.007	<.002	<.02	<.008	<.04	<.005
DEC 10	<.009	.03	<.02	<.002	<.006	<2	<.004	<.007	<.002	<.02	<.008	<.04	<.005
JAN 02	<.009	E.01	<.02	<.002	<.006	<2	<.004	<.007	<.002	<.02	<.008	<.04	<.005
FEB 05	<.009	<.02	<.02	<.006	<.006	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005
MAR 04	<.009	E.01	<.02	<.006	<.006	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005
19 APR	<.009	<.02	<.02	<.006	<.006	<2	<.006	<.200	<.004	<.02	<.008	<.04	<.005
02 23 MAY	<.009 <.009	E.01 E.01	<.02 <.02	<.006 <.006	<.006 <.006	<2 <2	<.006 <.006	<.007 <.007	<.004 <.004	<.02 <.02	<.008 <.008	<.04 <.04	<.005 <.005
06 20	<.009 <.009	.03	<.02 <.02	<.006 <.006	<.006 <.006	<2 <2	<.006 <.006	<.007 <.007	<.004 <.004	<.02 <.02	<.008	<.04 <.04	<.005 <.005
JUN 03	<.009	.07	<.02		<.006	<2		<.007		<.02	<.008	<.04	
17 JUL	<.009	.18	<.02	<.006	<.006	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005
08	<.009 <.009	.03	<.02 <.02	<.006 <.006	<.006 <.006	<2 <2	<.006 <.006	<.007 <.007	<.004 <.004	<.02 <.02	<.008 <.008	<.04 <.04	<.005 <.005
AUG 06	<.009	E.01	<.02	<.006	<.006	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005
20 SEP	<.009	E.01	<.02	<.006	<.006	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005
10	<.009	E.02	<.02	<.006	<.006	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005
Date	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	BENDIO- CARB, WATER FLTRD REC (UG/L) (50299)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BENOMYL WATER FLTRD REC (UG/L) (50300)	BEN- SUL- FURON METHYL WAT FLT REC (UG/L) (61693)	BENTA- ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	BRO- MACIL, WATER, DISS, REC (UG/L) (04029)	BRO- MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAF- FEINE, WATER FLTRD REC (UG/L) (50305)	CAR- BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)
OCT 01	ZINE, WATER, DISS, REC (UG/L)	CARB, WATER FLTRD REC (UG/L)	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L)	WATER FLTRD REC (UG/L)	SUL- FURON METHYL WAT FLT REC (UG/L)	ZON, WATER, FLTRD, GF 0.7U REC (UG/L)	MACIL, WATER, DISS, REC (UG/L)	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L)	ATE, WATER, DISS, REC (UG/L)	FEINE, WATER FLTRD REC (UG/L)	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L)	BARYL WATER FLTRD 0.7 U GF, REC (UG/L)	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L)
OCT 01 NOV 07	ZINE, WATER, DISS, REC (UG/L) (39632)	CARB, WATER FLTRD REC (UG/L) (50299)	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	WATER FLTRD REC (UG/L) (50300)	SUL- FURON METHYL WAT FLT REC (UG/L) (61693)	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	MACIL, WATER, DISS, REC (UG/L) (04029)	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	ATE, WATER, DISS, REC (UG/L) (04028)	FEINE, WATER FLTRD REC (UG/L) (50305)	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)
OCT 01 NOV 07 DEC 10	ZINE, WATER, DISS, REC (UG/L) (39632)	CARB, WATER FLITRD REC (UG/L) (50299)	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	WATER FLTRD REC (UG/L) (50300)	SUL- FURON METHYL WAT FLT REC (UG/L) (61693)	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	MACIL, WATER, DISS, REC (UG/L) (04029)	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	ATE, WATER, DISS, REC (UG/L) (04028)	FEINE, WATER FLTRD REC (UG/L) (50305)	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	BARYL WATER FLITRD 0.7 U GF, REC (UG/L) (82680)	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)
OCT 01 NOV 07 DEC 10 JAN 02	ZINE, WATER, DISS, REC (UG/L) (39632) E.005	CARB, WATER FLIRD REC (UG/L) (50299) <.03	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673) <.010	WATER FLTRD REC (UG/L) (50300) <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693) <.02	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711) M <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311) <.02 <.02	ATE, WATER, DISS, REC (UG/L) (04028) <.002	FEINE, WATER FLTRD REC (UG/L) (50305) <.010	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) <.041	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309) <.006
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05	ZINE, WATER, DISS, REC (UG/L) (39632) E.005 <.007	CARB, WATER FLTR REC (UG/L) (50299) <.03 <.03	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673) <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693) <.02 <.02	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711) M <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 <.03	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311) <.02 <.02	ATE, WATER, DISS, REC (UG/L) (04028) <.002 <.002	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) <.03 <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) <.041 <.041 E.003	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309) <.006 <.006
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR	ZINE, WATTER, DISS, REC (UG/L) (39632) E.005 <.007 E.006 <.007	CARB, WATER FLTRD REC (UG/L) (50299) <.03 <.03 <.03 <.03	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673) <.010 <.010 <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004 <.004 <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693) <.02 <.02 <.02 <.02 <.02 <.02	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711) M <.01 E.04 E.01 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 <.03 E.02 <.03 <.03	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311) <.02 <.02 M <.02 <.02 <.02	ATE, WATER, DISS, REC (UG/L) (04028) <.002 <.002 <.002 <.002 <.002 <.002 <.002	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 <.010 .035 .039	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) <.03 <.03 <.03 <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) <.041 <.041 E.003 <.041 <.041	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19	ZINE, WATER, DISS, REC (UG/L) (39632) E.005 <.007 E.006 <.007 E.006	CARB, WATER FLITRD REC (UG/L) (50299) <.03 <.03 <.03 <.03 <.03 <.03 <.03	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673) <.010 <.010 <.010 <.010 <.010 <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004 <.004 <.004 <.004 <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693) <.02 <.02 <.02 <.02 <.02 <.02	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711) M <.01 E.04 E.01 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 <.03 <.03 <.03 <.03	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311) <.02 <.02 M <.02 <.02 <.02	ATE, WATER, DISS, REC (UG/L) (04028) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 <.010 .035 .039 .017 .083	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) <.03 <.03 <.03 <.03 <.03	BARYL WATER FITTRD 0.7 U GF, REC (UG/L) (82680) <.041 <.041 E.003 <.041 <.041 E.005	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006 <.006
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23	ZINE, WATTER, DISS, REC (UG/L) (39632) E.005 <.007 E.006 <.007	CARB, WATER FLTRD REC (UG/L) (50299) <.03 <.03 <.03 <.03	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673) <.010 <.010 <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004 <.004 <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693) <.02 <.02 <.02 <.02 <.02 <.02	ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711) M <.01 E.04 E.01 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 <.03 E.02 <.03 <.03	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311) <.02 <.02 M <.02 <.02 <.02	ATE, WATER, DISS, REC (UG/L) (04028) <.002 <.002 <.002 <.002 <.002 <.002 <.002	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 <.010 .035 .039	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) <.03 <.03 <.03 <.03	BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680) <.041 <.041 E.003 <.041 <.041	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06	ZINE, WATTER, DISS, REC (UG/L) (39632) E.005 <.007 E.006 <.007 E.006 <.007 E.006	CARB, WATER FLTRD REC (UG/L) (50299) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02	ZON, WATER, FITRD, GF 0.7U REC (UG/L) (38711) M <.01 E.04 E.01 <.01 E.01 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 <.03 <.03 <.03 <.03 <.03	MOXYMIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311) <.02 <.02 M <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02	ATE, WATER, DISS, REC (UG/L) (04028) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 <.010 .035 .039 .017 .083	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) <.03 <.03 <.03 <.03 <.03 <.03	BARYL WATER FITTRD 0.7 U GF, REC (UG/L) (82680) <.041 <.041 E.003 <.041 <.041 E.005	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06 20 JUN	ZINE, WATTER, DISS, REC (UG/L) (39632) E.005 <.007 E.006 <.007 E.006 <.007 E.006 <.007 E.006	CARB, WATER FLTRD REC (UG/L) (50299) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02	ZON, WATER, FITRD, GF 0.7U REC (UG/L) (38711) M <.01 E.04 E.01 <.01 E.01 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	MOXYMIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311) <.02 <.02 M <.02 <.02 <.02 <.02 <.02 <.02 <.02	ATE, WATER, DISS, REC (UG/L) (04028) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 <.010 .035 .039 .017 .083 .036 .017 E.026	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	BARYL WATER FITTRD 0.7 U GF, REC (UG/L) (82680) <.041 <.041 E.003 <.041 <.041 E.005 <.041 E.005	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06 20 JUN 03 17 JUL 08 22	ZINE, WATTER, DISS, REC (UG/L) (39632) E.005 <.007 E.006 <.007 E.006 <.007 E.006 <.007 E.006	CARB, WATER FLTRD REC (UG/L) (50299) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02	ZON, WATER, FITRD, GF 0.7U REC (UG/L) (38711) M <.01 E.04 E.01 <.01 E.01 <.01 E.01 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311) <.02 <.02 M <.02 <.02 <.02 <.02 <.02 <.02 <.02 E.01 E.01 <.02	ATE, WATER, DISS, REC (UG/L) (04028) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002002	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 <.010 .035 .039 .017 .083 .036 .017 E.026 .010 .044	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	BARYL WATER FITTED 0.7 U GF, REC (UG/L) (82680)	FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06 20 JUN 03 17 JUL 08	ZINE, WATTER, DISS, REC (UG/L) (39632) E.005 <.007 E.006 <.007 E.006 <.007 E.006 <.007 E.006 <.007 <.007 <.007	CARB, WATER FLTRD REC (UG/L) (50299) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	WATER FLTRD REC (UG/L) (50300) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	SUL- FURON METHYL WAT FLT REC (UG/L) (61693) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02	ZON, WATER, FITRD, GF 0.7U REC (UG/L) (38711) M <.01 E.04 E.01 <.01 E.01 <.01 <.01 <.01 <.01	MACIL, WATER, DISS, REC (UG/L) (04029) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311) <.02 <.02 M <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ATE, WATER, DISS, REC (UG/L) (04028) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	FEINE, WATER FLTRD REC (UG/L) (50305) <.010 <.010 .035 .039 .017 .083 .036 .017 E.026 .010 .044 <.010 .074	BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	BARYL WATER FITTED 0.7 U GF, REC (UG/L) (82680) <.041 <.041 E.003 <.041 <.041 E.005 <.041 <.041 E.005	FURAN, WATER, FLITRD, GF 0.7U REC (UG/L) (49309) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006

13351000 PALOUSE RIVER AT HOOPER, WA--Continued (National Water-Quality Assessment station)

Date	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR- AMBEN, METHYL ESTER WATER FLTRD (UG/L) (61188)	CHLORI- MURON, WATER FLTRD REC (UG/L) (50306)	CHLORO- THALO- NIL, WAT,FLT GF 0.7U REC (UG/L) (49306)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CLOPYR- ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	CY- CLOATE, WATER, DISS, REC (UG/L) (04031)	DACTHAL MONO- ACID, WAT, FLT GF 0.7U REC (UG/L) (49304)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DEETHYL DEISO- PROPYL ATRAZIN DISS, REC (UG/L) (04039)	DEISO- PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)
	(02071)	(01100)	(30300)	(13300)	(30333)	(15505)	(01011)	(01031)	(13301)	(02002)	(01010)	(01000)	(01050)
OCT 01	<.020	<.02	<.010	<.04	<.005	.03	<.018	<.01	<.01	<.003	<.006	<.01	<.04
NOV													
07 DEC	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01	<.003	<.006	<.01	<.04
10 JAN	<.020	<.02	<.010	<.04	<.005	.05	<.018	<.01	<.01	<.003	E.004	<.01	<.04
02	<.020	<.02	<.010	<.04	<.005	.03	<.018	<.01	<.01	<.003	E.002	<.01	<.04
FEB 05	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01	<.003	E.004	<.01	<.04
MAR 04	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01	<.003	E.004	<.01	<.04
19 APR	<.020	<.02	<.010	< .04	<.005	<.01	<.018	<.01	<.01	<.003	E.003	<.01	<.04
02	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01		<.003	E.002	<.01	<.04
23 MAY	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01	<.003	<.006	<.01	<.04
06	<.020	<.02	<.010	< .04	<.005	<.01	<.018	<.01	<.01	<.003	<.006	<.01	<.04
20 JUN	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01	<.003	<.006	<.01	<.04
03		<.02	<.010	< .04		<.01		<.01	<.01			<.01	<.04
17 JUL	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01	<.003	<.006	<.01	<.04
08 22	<.020 <.020	<.02 <.02	<.010 <.010	<.04 <.04	<.005 <.005	<.01 <.01	<.018 <.018	<.01 <.01	<.01 <.01	<.003	E.006 E.005	<.01 <.01	<.04 <.04
AUG													
06 20	<.020 <.020	<.02 <.02	<.010 <.010	<.04 <.04	<.005 <.005	<.01 <.01	<.018 <.018	<.01 <.01	<.01 <.01	<.003 <.003	<.006 E.004	<.01 <.01	<.04 <.04
SEP 10	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01	<.003	E.003	<.01	<.04
10	1.020	1.02	1.010	1.01	1.005	1.01	1.010	1.01	1.01	1.005	2.005	1.01	1.01
Date	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	DICHLOR PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DINOSEB WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	DIPHEN- AMID, WATER, DISS, REC (UG/L) (04033)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	DIURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FEN- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	FLUMET- SULAM WATER FLTRD REC (UG/L) (61694)
OCT	AZINON, DIS- SOLVED (UG/L) (39572)	WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	ELDRIN DIS- SOLVED (UG/L) (39381)	WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	AMID, WATER, DISS, REC (UG/L) (04033)	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	SULAM WATER FLTRD REC (UG/L) (61694)
	AZINON, DIS- SOLVED (UG/L)	WATER, FLTRD, GF 0.7U REC (UG/L)	PROP, WATER, FLTRD, GF 0.7U REC (UG/L)	ELDRIN DIS- SOLVED (UG/L)	WATER, FLTRD, GF 0.7U REC (UG/L)	AMID, WATER, DISS, REC (UG/L)	FOTON WATER FLTRD 0.7 U GF, REC (UG/L)	WATER, FLTRD, GF 0.7U REC (UG/L)	WATER FLTRD 0.7 U GF, REC (UG/L)	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L)	PROP WATER FLTRD 0.7 U GF, REC (UG/L)	URON, WATER, FLTRD, GF 0.7U REC (UG/L)	SULAM WATER FLTRD REC (UG/L)
OCT 01 NOV 07 DEC	AZINON, DIS- SOLVED (UG/L) (39572)	WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	ELDRIN DIS- SOLVED (UG/L) (39381)	WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	AMID, WATER, DISS, REC (UG/L) (04033)	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	SULAM WATER FLTRD REC (UG/L) (61694)
OCT 01 NOV 07	AZINON, DIS- SOLVED (UG/L) (39572)	WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	ELDRIN DIS- SOLVED (UG/L) (39381)	WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	AMID, WATER, DISS, REC (UG/L) (04033)	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	SULAM WATER FLTRD REC (UG/L) (61694)
OCT 01 NOV 07 DEC 10 JAN 02	AZINON, DIS- SOLVED (UG/L) (39572) <.005	WATER, FLTRD, GF 0.7U REC (UG/L) (38442) <.01	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005	WATER, FLTRD, GF 0.7U REC (UG/L) (49301) <.01	AMID, WATER, DISS, REC (UG/L) (04033)	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	WATER, FLTRD, GF 0.7U REC (UG/L) (49300) M	WATER FLTRD 0.7 U GF, REC (UG/L) (82668) <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297) <.03 <.03	SULAM WATER FLTRD REC (UG/L) (61694) <.01
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005	WATER, FLITRD, GF 0.7U REC (UG/L) (38442) <.01 .04	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005	WATER, FLTRD, GF 0.7U REC (UG/L) (49301) <.01 <.01	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677) < .02 < .02 < .02	WATER, FLTRD, GF 0.7U REC (UG/L) (49300) M <.01	WATER FLITRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672) <.005 <.005	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03	SULAM WATER FLTRD REC (UG/L) (61694) <.01 <.01 <.01
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 <.005 <.005	WATER, FLITRD, GF 0.7U REC (UG/L) (38442) <.01 .04 .05 .03 <.01	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLITRD, GF 0.7U REC (UG/L) (49301) <.01 <.01 .01 E.01 <.01	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03 <.03 <.03 <.03	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	WATER, FLITRD, GF 0.7U REC (UG/L) (49300) M <.01 .03 .02 .02	WATER FLITRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002 <.002 <.002 <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009 <.009	PROP WATER FLITED 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005 <.005	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03 <.03 <.03	SULAM WATER FLITRD REC (UG/L) (61694) <.01 <.01 <.01 <.01 <.01 <.01 <.01
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 <.005	WATER, FLIRD, GF 0.7U REC (UG/L) (38442) <.01 .04 .05 .03	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005 <.005	WATER, FLIRD, GF 0.7U REC (UG/L) (49301) <.01 <.01 .01 E.01 <.01	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03 <.03 <.03	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677) < .02 < .02 < .02 < .02 < .02	WATER, FLIRD, GF 0.7U REC (UG/L) (49300) M <.01 .03 .02	WATER FLITRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002 <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009 <.009	PROP WATER FLITED 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005	URON, WATER, FLITRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03 <.03	SULAM WATER FLTRD REC (UG/L) (61694) <.01 <.01 <.01 <.01 <.01 <.01
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 E.003 <.005 E.005 <.005	WATER, FLIRD, GF 0.7U REC (UG/L) (38442) <.01 .04 .05 .03 <.01 E.01 <.01 <.01 <.01	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01 <.01 <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLIRD, GF 0.7U REC (UG/L) (49301) <.01 <.01 .01 E.01 <.01 <.01 E.01 E.01 E.01	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03 <.03 <.03 <.03 <.03 <.03	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	WATER, FLTRD, GF 0.7U REC (UG/L) (49300) M <.01 .03 .02 .02 .02 E.01 .03	WATER FLITRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009	PROP WATER FLITED 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	SULAM WATER FLITRD REC (UG/L) (61694) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 <.005 E.003 <.005 E.005 <.005 <.005	WATER, FLITRD, GF 0.7U REC (UG/L) (38442) <.01 .04 .05 .03 <.01 E.01 <.01 <.01 <.01 <.01	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLIRD, GF 0.7U REC (UG/L) (49301) <.01 <.01 .01 E.01 <.01 <.01 E.01 <.01 B.01 <.01 B.01 <.01 B.01 <.01 B.01 <.01 B.01 B.01 B.01 B.01 B.01	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	WATER, FLTRD, GF 0.7U REC (UG/L) (49300) M <.01 .03 .02 .02 .02 E.01 .03 .02	WATER FLITRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009	PROP WATER FLITED 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	URON, WATER, FLITRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	SULAM WATER FLTRD REC (UG/L) (61694) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06 20	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 E.003 <.005 E.005 <.005	WATER, FLIRD, GF 0.7U REC (UG/L) (38442) <.01 .04 .05 .03 <.01 E.01 <.01 <.01 <.01	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01 <.01 <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLIRD, GF 0.7U REC (UG/L) (49301) <.01 <.01 .01 E.01 <.01 <.01 E.01 E.01 E.01	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03 <.03 <.03 <.03 <.03 <.03	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	WATER, FLTRD, GF 0.7U REC (UG/L) (49300) M <.01 .03 .02 .02 .02 E.01 .03	WATER FLITRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009	PROP WATER FLITED 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	SULAM WATER FLITRD REC (UG/L) (61694) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 <.005 E.003 <.005 E.005 <.005 <.005 <.005 <.005 <.005	WATER, FLIRD, GF 0.7U REC (UG/L) (38442) <.01 .04 .05 .03 <.01 E.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLTRD, GF 0.7U REC (UG/L) (49301) <.01 <.01 .01 E.01 <.01 <.01 E.01 <.01 H.01 <.01 C.01 C.01 C.01 C.01 C.01 C.01 C.01 C	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	WATER, FLTRD, GF 0.7U REC (UG/L) (49300) M <.01 .03 .02 .02 .02 E.01 .03 .02	WATER FLITRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009	PROP WATER FLITED 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	SULAM WATER FLITRD REC (UG/L) (61694) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06 20 JUN 03 17	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 <.005 E.003 <.005 E.003 <.005 <.005 <.005 <.005 <.005	WATER, FLITRD, GF 0.7U REC (UG/L) (38442) <.01 .04 .05 .03 <.01 E.01 <.01 <.01 <.01 <.01 <.01	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLTRD, GF 0.7U REC (UG/L) (49301) <.01 <.01 .01 E.01 <.01 <.01 E.01 E.01 M <.01 C.01	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	WATER, FLTRD, GF 0.7U REC (UG/L) (49300) M <.01 .03 .02 .02 E.01 .03 .02 E.02 E.01	WATER FLITRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009	PROP WATER FLITED 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	URON, WATER, FLITRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	SULAM WATER FLTRD REC (UG/L) (61694) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06 20 JUN 03 17 JUL 08	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 <.005 E.003 <.005 E.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLITRD, GF 0.7U REC (UG/L) (38442) <.01 .04 .05 .03 <.01 E.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLIRED, GF 0.7U REC (UG/L) (49301) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	WATER, FLTRD, GF 0.7U REC (UG/L) (49300) M <.01 .03 .02 .02 .02 E.01 .03 .02 E.02 E.01 .03 .02	WATER FLITRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009	PROP WATER FLITED 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	SULAM WATER FLITRD REC (UG/L) (61694) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06 20 JUN 03 JUN JUL	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 <.005 E.003 <.005 E.005 <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLITRD, GF 0.7U REC (UG/L) (38442) <.01 .04 .05 .03 <.01 E.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLITRD, GF 0.7U REC (UG/L) (49301) <.01 <.01 .01 E.01 <.01 <.01 E.01 M <.01 C.01 C.01 E.01 M <.01 C.01 C.01 C.01 C.01 C.01 C.01 C.01 C	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	WATER, FLITRD, GF 0.7U REC (UG/L) (49300) M <.01 .03 .02 .02 E.01 .03 .02 .02 E.01 .03 .02 E.02 E.01 .03 .02 E.02 E.01 .03 .02 E.02 E.01 .02 <.01	WATER FLITRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009	PROP WATER FLITED 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	SULAM WATER FLTRD REC (UG/L) (61694) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06 20 JUN 03 17 JUL 08 22 AUG 06	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 <.005 E.003 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLITRD, GF 0.7U REC (UG/L) (38442) <.01 .04 .05 .03 <.01 .01 <.01 <.01 <.01 <.01 <.01 <.01 <	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLIRED, GF 0.7U REC (UG/L) (49301) <.01 <.01 <.01 <.01 <.01 <.01 <.01 E.01 <.01 E.01 <.01 <.01 E.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01 <	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	WATER, FLTRD, GF 0.7U REC (UG/L) (49300) M <.01 .03 .02 .02 .02 E.01 .03 .02 E.02 E.01 .02 <.01 .02 <.01	WATER FLITRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009	PROP WATER FLITED 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	SULAM WATER FLITRD REC (UG/L) (61694) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06 20 JUN 03 17 JUL 08 22 AUG	AZINON, DIS- SOLVED (UG/L) (39572) <.005 <.005 <.005 <.005 E.003 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLITRD, GF 0.7U REC (UG/L) (38442) <.01 .04 .05 .03 <.01 .01 <.01 <.01 <.01 <.01 <.01 <.01	PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	ELDRIN DIS- SOLVED (UG/L) (39381) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	WATER, FLITRD, GF 0.7U REC (UG/L) (49301) <.01 <.01 <.01 <.01 <.01 <.01 <.01 E.01 M <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	AMID, WATER, DISS, REC (UG/L) (04033) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	WATER, FLITRD, GF 0.7U REC (UG/L) (49300) M <.01 .03 .02 .02 E.01 .03 .02 E.02 E.01 .03 .02 E.02 E.01 .02 <.01 .02 <.01 .02 <.01 .02 <.01	WATER FLITRD 0.7 U GF, REC (UG/L) (82668) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663) <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009	PROP WATER FLITED 0.7 U GF, REC (UG/L) (82672) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.0	SULAM WATER FLITRD REC (UG/L) (61694) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0

13351000 PALOUSE RIVER AT HOOPER, WA--Continued (National Water-Quality Assessment station)

Date	FLUO- METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811)	FONOFOS WATER DISS REC (UG/L) (04095)	HYDROXY ATRA- ZINE WATER FLTRD REC (UG/L) (50355)	IMAZ- AQUIN WATER FLTRD REC (UG/L) (50356)	IMAZE- THAPYR WATER FLTRD REC (UG/L) (50407)	IMID- ACLOP- RID WATER FLTRD REC (UG/L) (61695)	LINDANE DIS- SOLVED (UG/L) (39341)	LINURON WATER, FLTRD, GF 0.7U REC (UG/L) (38478)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	MCPA, WATER, FLTRD, GF 0.7U REC (UG/L) (38482)	MCPB, WATER, FLTRD, GF 0.7U REC (UG/L) (38487)	METAL- AXYL WATER FLTRD REC (UG/L) (50359)
OCT 01	<.03	<.003	<.008	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02
NOV 07	<.03	<.003	<.008	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02
DEC 10	<.03	<.003	<.008	<.02	E.02	<.007	<.004	<.01	<.035	<.027	E.01	<.01	М
JAN 02	<.03	<.003	<.008	<.02	E.04	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02
FEB 05	<.03	<.003	<.008	<.02	E.12	<.007	E.003	<.01	<.035	<.027	<.02	<.01	<.02
MAR 04	<.03	<.003	<.008	<.02	E.05	<.007	<.004	<.01	<.035	<.027	E.01	<.01	<.02
19 APR	<.03	<.003	<.008	<.02	<.02	<.007	.004	<.01	<.035	<.027	<.20	<.01	<.02
02 23 MAY	<.03 <.03	<.003 <.003	<.008 <.008	<.02 <.02	E.06 E.02	<.007 <.007	<.004 <.004	<.01 <.01	<.035 <.035	<.027 <.027	<.02 .05	<.01 <.01	<.02 <.02
06 20	<.03 <.03	<.003 <.003	<.008 <.008	<.02 <.02	<.02 <.02	<.007 <.007	<.004 <.004	<.01 <.01	<.035 <.035	<.027 <.027	E.02 <.02	<.01 <.01	<.02 <.02
JUN 03	<.03		<.008	<.02	<.02	<.007		<.01			.04	<.01	<.02
17 JUL	<.03	<.003	<.008	<.02	<.02	<.007	<.004	<.01	<.035	<.027	.03	<.01	<.02
08 22	<.03 <.03	<.003 <.003	<.008 <.008	<.02 <.02	<.02	<.007 <.007	<.004 <.004	<.01 <.01	<.035 <.035	<.027 <.027	<.02 <.02	<.01 <.01	<.02 <.02
AUG 06 20	<.03 <.03	<.003 <.003	<.008 <.008	<.02 <.02	<.02 <.02	<.007 <.007	<.004 <.004	<.01 <.01	<.035 <.035	<.027 <.027	<.02 <.02	<.01 <.01	<.02 <.02
SEP 10	<.03	<.003	<.008	<.02	E.04	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02
Date	METHIO- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	METH- OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MET- SUL- FURON METHYL WAT FLT REC (UG/L) (61697)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	NAPROP- AMIDE WATER FLITRD 0.7 U GF, REC (UG/L) (82684)	NEB- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	NICOSUL FURON WATER FLTRD REC (UG/L) (50364)	NORFLUR AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	ORY- ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)
Date OCT 01	CARB, WATER, FLTRD, GF 0.7U REC (UG/L)	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L)	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L)	PARA- THION WAT FLT 0.7 U GF, REC (UG/L)	LACHLOR WATER DISSOLV (UG/L)	BUZIN SENCOR WATER DISSOLV (UG/L)	SUL- FURON METHYL WAT FLT REC (UG/L)	INATE WATER FLTRD 0.7 U GF, REC (UG/L)	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L)	URON, WATER, FLTRD, GF 0.7U REC (UG/L)	FURON WATER FLTRD REC (UG/L)	AZON, WATER, FLTRD, GF 0.7U REC (UG/L)	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L)
OCT 01 NOV 07	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	LACHLOR WATER DISSOLV (UG/L) (39415)	BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	SUL- FURON METHYL WAT FLT REC (UG/L) (61697)	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	FURON WATER FLTRD REC (UG/L) (50364)	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)
OCT 01 NOV 07 DEC 10	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	LACHLOR WATER DISSOLV (UG/L) (39415)	BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	SUL- FURON METHYL WAT FLT REC (UG/L) (61697)	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	AMIDE WATER FLITRD 0.7 U GF, REC (UG/L) (82684)	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	FURON WATER FLTRD REC (UG/L) (50364)	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)
OCT 01 NOV 07 DEC 10 JAN 02	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501) <.008	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296) <.004	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007	URON, WATER, FLITRD, GF 0.7U REC (UG/L) (49294) <.01 <.01	FURON WATER FLTRD REC (UG/L) (50364)	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293) <.02	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501) <.008 <.008	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296) <.004 <.004	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03	INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002	AMIDE WATER FLIRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01	FURON WATER FLITRD REC (UG/L) (50364) <.01 <.01 <.01	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501) <.008 <.008 <.008	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296) <.004 <.004 <.004	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050 <.050	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667) <.006 <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01	FURON WATER FLIRD REC (UG/L) (50364) <.01 <.01 <.01 <.01	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501) <.008 <.008 <.008 <.008 <.008 <.008	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296) <.004 <.004 <.004 <.004 <.004	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050	PARA- THION WAT FIIT 0.7 U GF, REC (UG/L) (82667) <.006 <.006 <.006 <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 .006 .007	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.01	FURON WATER FLIRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01 <.01 <.01	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501) <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	AZIN-PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050	PARA- THION WAT FIIT 0.7 U GF, REC (UG/L) (82667) <.006 <.006 <.006 <.006 <.006 <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 .006 .007 .007 .009	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03 <.03 <.03	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FITRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	FURON WATER FLIRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 022 23 MAY 06 20 JUN 03 17	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501) <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	AZIN-PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050	PARA- THION WAT FIIT 0.7 U GF, REC (UG/L) (82667) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 .007 .007 .007 .009 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FITTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007	URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	FURON WATER FLIRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06 20 JUN 03 17 JUL 088 22	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501) <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	AZIN-PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050	PARA- THION WAT FIIT 0.7 U GF, REC (UG/L) (82667) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 .007 .007 .009 <.006 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	INATE WATER WATER FLTRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002002	AMIDE WATER FITTRD 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007	URON, WATER, FITTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	FURON WATER FLIRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	AZON, WATER, FLTRE, FLTRE, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ZALIN, WATER, FITTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06 20 JUN 03 17 JUL 08	CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501) <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008	OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296) <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004 <.004	AZIN-PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686) <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050 <.050	PARA- THION WAT FLIT 0.7 U GF, REC (UG/L) (82667) <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	LACHLOR WATER DISSOLV (UG/L) (39415) <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013 <.013	BUZIN SENCOR WATER DISSOLV (UG/L) (82630) <.006 <.006 .006 .007 .007 .009 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006 <.006	SUL- FURON METHYL WAT FLT REC (UG/L) (61697) <.03 <.03 <.03 <.03 <.03 <.03 <.03 <.03	INATE WATER WATER FLITRD 0.7 U GF, REC (UG/L) (82671) <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002 <.002	AMIDE WATER FITTED 0.7 U GF, REC (UG/L) (82684) <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007 <.007	URON, WATER, FITTRD, GF 0.7U REC (UG/L) (49294) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	FURON WATER FLIRD REC (UG/L) (50364) <.01 <.01 <.01 <.01 <.01 <.01 <.01 <.0	AZON, WATER, FLTREN, GF 0.7U REC (UG/L) (49293) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	ZALIN, WATER, FITTRD, GF 0.7U REC (UG/L) (49292) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0

13351000 PALOUSE RIVER AT HOOPER, WA--Continued (National Water-Quality Assessment station)

Date	OXAMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (38866)	P,P' DDE DISSOLV (UG/L) (34653)	PARA- THION, DIS- SOLVED (UG/L) (39542)	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PIC- LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)
OCT 01	<.01	<.003	<.007	<.002	<.010	<.006	<.011	<.02	<.01	<.004	<.010	<.011	<.02
NOV 07	<.01	<.003	<.007	<.002	<.010	<.006	<.011	<.02	<.01	<.001	<.010	<.011	<.02
DEC													
JAN	<.01	<.003	<.007	<.002	<.010	<.006	<.011	.10	E.01	<.004	<.010	<.011	<.02
02 FEB	<.01	<.003	<.007	<.002	<.010	<.006	<.011	.07	<.01	<.004	<.010	<.011	<.04
05 MAR	<.01	<.003	<.010	<.004	<.022	<.006	<.011	<.02	М	<.004	<.010	<.011	<.02
04 19 APR	<.01 <.01	<.003 <.003	<.010 <.010	<.004 <.004	<.022 <.022	<.006 <.006	<.011 <.011	<.02 <.02	M M	<.004 <.004	<.010 <.010	<.011 <.011	<.02 <.02
02 23 MAY	<.01 <.01	<.003 <.003	<.010 <.010	<.004 <.004	<.022 <.022	<.006 <.006	<.011 <.011	<.02 <.02	M <.01	<.004 <.004	<.010 <.010	<.011 <.011	<.02 <.02
06 20 JUN	<.01 <.01	<.003 <.003	<.010 <.010	<.004 <.004	<.022 <.022	<.006 <.006	<.011 <.011	<.02 <.02	<.01 M	<.004 <.004	<.010 <.010	<.011 <.011	<.02 <.02
03 17 JUL	<.01 <.01	<.003	<.010	<.004	<.022	<.006	<.011	<.02 <.02	<.01	<.004	<.010	<.011	<.02
08 22 AUG	<.01 <.01	<.003 <.003	<.010 <.010	<.004 <.004	<.022 <.022	<.006 <.006	<.011 <.011	<.02 <.02	E.01 E.01	<.004 <.004	<.010 <.010	<.011 <.011	<.02 <.02
06 20 SEP	<.01 <.01	<.003 <.003	<.010 <.010	<.004 <.004	<.022 <.022	<.006 <.006	<.011 <.011	<.02 <.02	<.01 M	<.004 <.004	<.010 <.010	<.011 <.011	<.02 <.02
10	<.01	<.003	<.010	<.004	<.022	<.006	<.011	<.02	M	<.004	<.010	<.011	<.02
Date	PRO- PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236)	PROP- ICONA- ZOLE , WATER FLTRD REC (UG/L) (50471)	PRO- POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538)	SIDURON WATER FLTRD REC (UG/L) (38548)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	SULFO- MET- RURON METHYL WTR FLT REC (UG/L) (50337)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL, WATER, DISS, REC (UG/L) (04032)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	TER- BUTHYL- AZINE, WATER, DISS, REC (UG/L) (04022)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)
OCT 01	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L)	ICONA- ZOLE , WATER FLTRD REC (UG/L)	POXUR, WATER, FLTRD, GF 0.7U REC (UG/L)	WATER FLTRD REC (UG/L)	MAZINE, WATER, DISS, REC (UG/L)	MET- RURON METHYL WTR FLT REC (UG/L)	THIURON WATER FLTRD 0.7 U GF, REC (UG/L)	BACIL, WATER, DISS, REC (UG/L)	BACIL WATER FLTRD 0.7 U GF, REC (UG/L)	BUFOS WATER FLTRD 0.7 U GF, REC (UG/L)	BUTHYL- AZINE, WATER, DISS, REC (UG/L)	BENCARB WATER FLTRD 0.7 U GF, REC (UG/L)	LATE WATER FLTRD 0.7 U GF, REC (UG/L)
OCT 01 NOV 07	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236)	ICONA- ZOLE , WATER FLTRD REC (UG/L) (50471)	POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538)	WATER FLTRD REC (UG/L) (38548)	MAZINE, WATER, DISS, REC (UG/L) (04035)	MET- RURON METHYL WTR FLT REC (UG/L) (50337)	THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	BACIL, WATER, DISS, REC (UG/L) (04032)	BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	BUTHYL- AZINE, WATER, DISS, REC (UG/L) (04022)	BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)
OCT 01 NOV 07 DEC 10	PHAM, WATER, FLITRD, GF 0.7U REC (UG/L) (49236)	ICONA- ZOLE , WATER FLTRD REC (UG/L) (50471)	POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538)	WATER FLTRD REC (UG/L) (38548)	MAZINE, WATER, DISS, REC (UG/L) (04035)	MET- RURON METHYL WTR FLT REC (UG/L) (50337)	THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	BACIL, WATER, DISS, REC (UG/L) (04032)	BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	BUFOS WATER FLITRD 0.7 U GF, REC (UG/L) (82675)	BUTHYL- AZINE, WATER, DISS, REC (UG/L) (04022)	BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678) <.002
OCT 01 NOV 07 DEC 10 JAN 02	PHAM, WATER, FLIRD, GF 0.7U REC (UG/L) (49236) <.010	ICONA- ZOLE, WATER FLITRD REC (UG/L) (50471) <.02	POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538) <.008	WATER FLTRD REC (UG/L) (38548) <.02	MAZINE, WATER, DISS, REC (UG/L) (04035) <.011	MET- RURON METHYL WTR FLT REC (UG/L) (50337) <.009	THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670) <.02 <.02	BACIL, WATER, DISS, REC (UG/L) (04032) <.010	BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665) <.034	BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675) <.02	BUTHYL- AZINE, WATER, DISS, REC (UG/L) (04022) U	BENCARB WATER FLIRD 0.7 U GF, REC (UG/L) (82681) <.005	LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678) <.002
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236) <.010 <.010	ICONA- ZOLE, WATER FILTRD REC (UG/L) (50471) <.02 <.02	POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538) <.008 <.008	WATER FLIRD REC (UG/L) (38548) <.02 <.02	MAZINE, WATER, DISS, REC (UG/L) (04035) <.011 <.011	MET- RURON METHYL WTR FLT REC (UG/L) (50337) <.009 <.009	THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670) <.02 <.02 E.01	BACIL, WATER, DISS, REC (UG/L) (04032) <.010 <.010	BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665) <.034 <.034	BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675) <.02 <.02 <.02	BUTHYL- AZINE, WATER, DISS, REC (UG/L) (04022) U	BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681) <.005 <.005	LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678) <.002 <.002
OCT 01 NOV 07 DEC 10 JAN 02 FEB	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236) <.010 <.010	ICONA- ZOLE, WATER FLTRD REC (UG/L) (50471) <.02 <.02 <.02	POXUR, WATER, WATER, FLTRD, GF 0.7U REC (UG/L) (38538) <.008 <.008 <.008 <.008	WATER FLITRD REC (UG/L) (38548) <.02 <.02 <.02	MAZINE, WATER, DISS, REC (UG/L) (04035) <.011 <.011	MET- RURON METHYL WTR FLT REC (UG/L) (50337) <.009 <.009 E.004	THIURON WATER FLITRD 0.7 U GF, REC (UG/L) (82670) <.02 <.02 E.01 <.02	BACIL, WATER, DISS, REC (UG/L) (04032) <.010 <.010 <.010	BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665) <.034 <.034 <.034	BUFOS WATER FITTED 0.7 U GF, REC (UG/L) (82675) <02 <02 <02 <02 <02	BUTHYL- AZINE, WATER, DISS, REC (UG/L) (04022) U	BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681) <.005 <.005 <.005	LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678) <.002 <.002 .011 <.002
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236) <.010 <.010 <.010 <.010	ICONA- ZOLE , WATER FLTRD REC (UG/L) (50471) <.02 <.02 <.02 <.02 <.02 <.02	POXUR, WATER, WATER, FLTRD, GF 0.7U REC (UG/L) (38538) <.008 <.008 <.008 <.008 <.008 <.008	WATER FLITRD REC (UG/L) (38548) <.02 <.02 <.02 <.02 <.02 <.02	MAZINE, WATER, DISS, REC (UG/L) (04035) <.011 <.011 <.011 .006 <.005	MET- RURON METHYL WTR FLT REC (UG/L) (50337) <.009 <.009 E.004 <.009 <.009	THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670) <.02 <.02 E.01 <.02 <.02 <.02 <.02 <.02	BACIL, WATER, DISS, REC (UG/L) (04032) <.010 <.010 <.010 <.010	BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665) <.034 <.034 <.034 <.034 <.034	BUFOS WATER FITTED 0.7 U GF, REC (UG/L) (82675) <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <-	BUTHYL- AZINE, WATER, DISS, REC (UG/L) (04022) U U U U U	BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681) <.005 <.005 <.005 <.005 <.005 <.005	LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678) <.002 <.002 .011 <.002 .016 .016
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236) <.010 <.010 <.010 <.010 <.010 <.010 <.010	ICONA- ZOLE , WATER FLTRD REC (UG/L) (50471) <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <02 <	POXUR, WATER, WATER, FLTRD, GF 0.7U REC (UG/L) (38538) <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008	WATER FLITRD REC (UG/L) (38548) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	MAZINE, WATER, DISS, REC (UG/L) (04035) <.011 <.011 <.011 .006 <.005 <.005	MET- RURON METHYL WTR FLT REC (UG/L) (50337) <.009 <.009 <.009 <.009 <.009 <.009	THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670) <.02 <.02 E.01 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02	BACIL, WATER, DISS, REC (UG/L) (04032) <.010 <.010 <.010 <.010 <.010 <.010 <.010	BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665) <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034	BUFOS WATER FITTED 0.7 U GF, REC (UG/L) (82675) <.02	BUTHYL- AZINE, WATER, DISS, REC (UG/L) (04022) U U U U U U U	BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678) <.002 <.002 .011 <.002 .016 .016 .018 .010
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06 20 JUN 03	PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	ICONA-ZOLE , WATER FLTRD REC (UG/L) (50471) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	POXUR, WATER, WATER, FLTRD, GF 0.7U REC (UG/L) (38538) <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008	WATER FLITRD REC (UG/L) (38548) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	MAZINE, WATER, DISS, REC (UG/L) (04035) <.011 <.011 <.011 .006 <.005 <.005 <.005	MET- RURON METHYL WTR FLT REC (UG/L) (50337) <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009	THIURON WATER FLITRD 0.7 U GF, REC (UG/L) (82670) <.02 <.02 E.01 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02	BACIL, WATER, DISS, REC (UG/L) (04032) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665) <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034	BUFOS WATER FITTED 0.7 U GF, REC (UG/L) (82675) <.02	BUTHYL- AZINE, WATER, DISS, REC (UG/L) (04022) U U U U U U U	BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678) <.002 <.002 .011 <.002 .016 .016 .018 .010 .010 .007
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06 20 JUN 03 17 JUL 08 22	PHAM, WATER, FLITED, GF 0.7U REC (UG/L) (49236) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	ICONA-ZOLE , WATTER FLTRD REC (UG/L) (50471) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	POXUR, WATER, WATER, FLTRD, GF 0.7U REC (UG/L) (38538) <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008	WATER FLITRD REC (UG/L) (38548) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	MAZINE, WATER, DISS, REC (UG/L) (04035) <.011 <.011 <.011 .006 <.005 <.005 <.005 <.005	MET- RURON METHYL WTR FLT REC (UG/L) (50337) <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009	THIURON WATER FLITED 0.7 U GF, REC (UG/L) (82670) <.02 <.02 E.01 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02	BACIL, WATER, DISS, REC (UG/L) (04032) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665) <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034	BUFOS WATER FLITED 0.7 U GF, REC (UG/L) (82675) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	BUTHYL- AZINE, WATER, DISS, REC (UG/L) (04022) U U U U U U	BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678) <.002 <.002 .011 <.002 .016 .016 .018 .010 .010 .007 <.002
OCT 01 NOV 07 DEC 10 JAN 02 FEB 05 MAR 04 19 APR 02 23 MAY 06 20 JUN 03 17 JUL 08	PHAM, WATER, FLITED, GF 0.7U REC (UG/L) (49236) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	ICONA-ZOLE , WATTER FLTRD REC (UG/L) (50471) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	POXUR, WATER, WATER, FLTRD, GF 0.7U REC (UG/L) (38538) <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008 <.008	WATER FLITRD REC (UG/L) (38548) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	MAZINE, WATER, DISS, REC (UG/L) (04035) <.011 <.011 <.011 .006 <.005 <.005 <.005 <.005 <.0005 .006 <.005 .0010 .0010	MET- RURON METHYL WTR FLT REC (UG/L) (50337) <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009 <.009	THIURON WATER FLITED 0.7 U GF, REC (UG/L) (82670) <.02 <.02 E.01 <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.02	BACIL, WATER, DISS, REC (UG/L) (04032) <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010 <.010	BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665) <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034 <.034	BUFOS WATER FLITED 0.7 U GF, REC (UG/L) (82675) <.02 <.02 <.02 <.02 <.02 <.02 <.02 <.0	BUTHYL- AZINE, WATER, DISS, REC (UG/L) (04022) U U U U U U	BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681) <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005 <.005	LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678) <.002 <.002 .011 <.002 .016 .016 .018 .010 .010 .007 <.002 <.002 <.002 <.002

13351000 PALOUSE RIVER AT HOOPER, WA--Continued (National Water-Quality Assessment station)

	Date	METHYL WATER FLTRD (UG/L)	WATER, FLTRD, GF 0.7U REC (UG/L)	WAT FLT 0.7 U	4-CHLOR OPHENYL METHYL WAT FLT REC (UG/L)	SEDI- MENT, SUS- PENDED (MG/L)	SUS- PENDED (T/DAY)	
	OCT 01	<.009	<.02	<.009	<.02	23	2.2	
	NOV 07 DEC	<.009	<.02	<.009	<.02	4.0	1.1	
	10 JAN		E.01	E.003	<.02	11	7.0	
	02 FEB		<.02	<.009	<.02	14	10.0	
	05 MAR		<.02	<.009	<.02	25	45.9	
	04	 	<.02 <.02	<.009 <.009	<.02 <.02	26 70	73.0 297	
	APR 02 23		<.02 <.02	<.009 <.009	<.02 <.02	61 29	351 106	
	MAY 06			<.009		9.0	24.2	
	20 JUN		<.02	<.009	<.02	5.0	8.7	
	03 17		<.02 <.02	<.009	<.02 <.02	9.0 35	10.1 18.8	
	JUL 08 22	 	<.02 <.02	E.004 E.004	<.02 <.02	9.0 12	2.2	
	AUG 06 20	 	<.02 <.02	<.009 E.004	<.02	18 14	1.8	
	SEP 10			<.009		16	1.6	
Date	Time	SPE- CIFIC CON- DUCT- ANCE (US/CM)	ATURE WATER	BIOMASS ASH	BIOMASS TOTAL DRY WEIGHT	PHYTON BIOMASS ASH FREE DRY	BIOMASS CHLORO- PHYLL RATIO PERI- PHYTON (UNITS)	PERI- PHYTON CHROMO- GRAPHIC FLUOROM
AUG		(00095)	(00010)	(00572)	(00573)	(49954)	(70950)	(70957)
22	1155	338	20.8	510	539.9	34.100	397	85.8

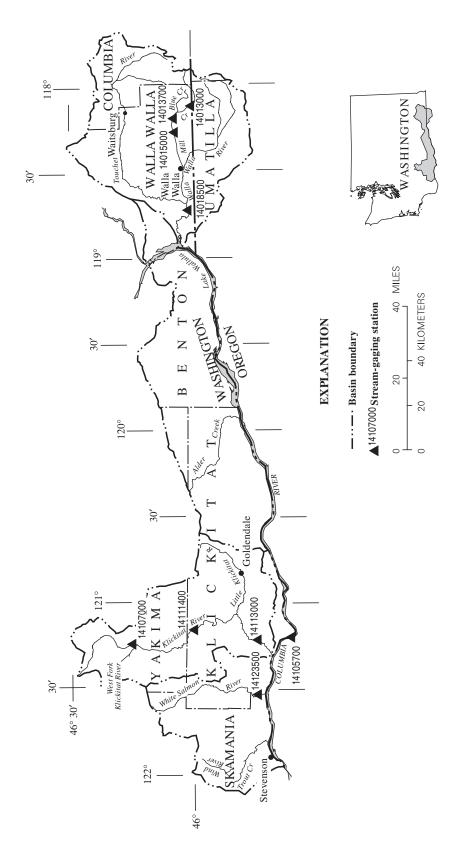


Figure 47. Location of surface-water stations in the Columbia River Basin between Wallula Lake and Stevenson including Walla Walla, Klickitat, and White Salmon River Basins.

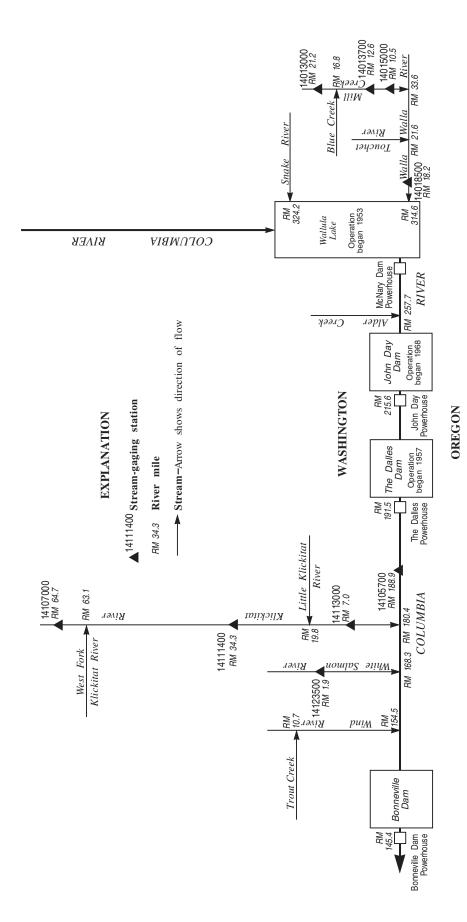


Figure 48. Schematic diagram showing surface-water stations in the Columbia River Basin between Wallula Lake and Stevenson including Walla Walla, Klickitat, and White Salmon River Basins.

WALLA WALLA RIVER BASIN 463

14013000 MILL CREEK NEAR WALLA WALLA, WA

LOCATION.--Lat 46° 00'29", long 118 $^\circ$ 07'03", in SW $^1\!\!/_4$ SW $^1\!\!/_4$ sec.7, T.6 N., R.38 E., Walla Walla County, Hydrologic Unit 17070102, on left bank 0.1 mi downstream from Railroad Canyon, 4.0 mi downstream from City of Walla Walla diversion dam, 4.4 mi upstream from Blue Creek, 11.5 mi southeast of Walla Walla, and at mile 21.2.

DRAINAGE AREA. -- 59.6 mi².

PERIOD OF RECORD.--August 1913 to September 1917, April to September 1938, October 1939 to September 1976, October 1979 to current year. Maximum discharge and occasional discharge measurements 1977-79.

REVISED RECORDS.--WSP 1398: 1946-48(M), 1950 (M). WSP 1935: 1959, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,995.85 ft above NGVD of 1929 (levels by U.S. Corps of Engineers). Prior to Oct. 1, 1938, nonrecording gages at about same site at different datums.

REMARKS.--No estimated daily discharges. Records fair. No regulation. City of Walla Walla diverts about 28 ft³/s 4.0 mi upstream from station for municipal use. Water temperatures March 1962 to July 1965. Sediment records March 1962 to July 1965. U.S. Geological Survey telephone telemeter at station.

 $AVERAGE \ DISCHARGE. --64 \ years \ (water years \ 1914-17, \ 1940-76, \ 1980-2002), \ 96.1 \ ft^3/s, \ 69,610 \ acre-ft/yr.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,350 ft³/s Feb. 9, 1996, gage height, 20.43 ft, from rating curve extended above 1,600 ft³/s on basis of slope-area measurement of peak flow; minimum daily discharge, 9.5 ft³/s Dec. 9, 10, 1972.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 31 or Apr. 1, 1931, reached a discharge of about 11,000 ft³/s, based on slope-area measurement about 900 ft upstream at old City of Walla Walla diversion dam.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 $\mathrm{ft^3/s}$ and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Feb. 24	0100	*1,380	*17.05	Apr. 14	1030	1,350	17.02

Minimum discharge, 23 ft^3/s Aug. 16-18, 24, 25, 29, 30, Sept. 9.

	2 .					-						
		DISCHAF	RGE, CUBI	C FEET PE		WATER YE MEAN VA		R 2001 TO 8	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SE
1	27	48	77	55	83	154	253	132	113	41	28	20
2	28	46	77	60	80	129	227	146	100	39	28	26
3	28	41	87	82	78	109	204	155	87	39	28	26
4	28	39	86	94	74	101	201	131	80	36	28	26
5	28	38	79	93	73	99	235	120	79	36	28	28
6	28	37	76	97	75	111	287	97	75	34	28	29
7	28	35	77	199	94	118	278	91	71	33	27	27
8	30	34	77	462	123	117	250	84	70	36	27	27
9	27	34	78	356	119	111	239	90	72	33 30	27	25
10	28	34	76	235	110	109	304	81	75	30	27	25
11	50	34	74	158	104	140	343	80	69	30	26	25
12	35	34	70	134	98	410	371	83	64	30	26	26
13	30	34	220	121	93	379	430	107	59	30	26	26
14	34	64	428	109	90	297	1080	127	61	32	25	26
15	31	52	220	99	87	241	745	118	58	30	27	26
16	30	45	138	88	87	206	470	108	57	30	25	27
17	29	52	123	82	91	177	344	110	54	30	25	34
18	28	51	117	79	93	153	268	129	70	30	25	35
19	28	48	103	80	99	163	215	161	60	30	25	29
20	28	47	93	79	108	185	181	189	56	30	25	28
21	29	59	84	80	124	185	160	148	50	30	27	28
22	41	164	77	77	247	176	151	113	47	29	25	28
23	41	413	72	75	609	167	153	111	48	29	27	28
24	34	171	68	78	970	231	136	103	45	29	25	29
25	33	117	64	151	451	416	122	107	44	32	25	28
26	32	96	62	221	304	398	118	113	42	31	25	28
27	33	85	60	168	228	358	110	120	43	29	26	30
28	37	80	61	128	187	297	105	168	41	29	26	28
29	34	79	58	109		248	107	186	48	29	25	30
30 31	38 61	77 	56 56	100 88		225 232	117	167 132	45	29 29	25 26	32
TOTAL	1016	2188	3094	4037	4979	6442	8204	3807	1883	984	813	836
MEAN	32.8	72.9	99.8	130	178	208	273	123	62.8	31.7	26.2	27.9
MAX	61	413	428	462	970	416	1080	189	113		28	
MIN	27	34	56	55	73	99	105	80	41		25	25
AC-FT	2020	4340	6140	8010	9880	12780	16270	7550	3730	1950	1610	1660
STATIST	CICS OF M	ONTHLY MEA	AN DATA F	OR WATER	YEARS 1914	- 2002,	BY WATER	YEAR (WY)				
MEAN	36.8	73.1	113	130	155	159	175	138	75.2	37.8	30.9	31.4
MAX	105	263	376	362	548	410	420	495	260	69.8	48.7	47.5
(WY)	1952	1996	1965	1965	1996	1997	1917	1917	1974	1974	1975	1959
MIN	19.4	24.1	32.9	33.7	44.3	45.4	46.5	40.1	27.7	23.0	20.4	20.7
(MA)	1940	1940	1966	1944	1994	1941	1941	1992	1992	1994	1987	1983
SUMMARY	STATIST	ICS	FOR	2001 CALE	NDAR YEAR	F	FOR 2002 W	ATER YEAR		WATER YEAR	S 1914	- 2002
ANNUAL	TOTAL			25438			38283					
ANNUAL	MEAN			69.7			105			96.1		
	' ANNUAL I									180		1997
	ANNUAL M									54.1		1941
	DAILY M			428	Dec 14		1080	Apr 14		3240	Feb	9 1996
	DAILY ME			27 27	Sep 17		25	Aug 14		9.5	Dec	9 1972
		Y MINIMUM		27 50460	Sep 17		25 75930	Aug 14		10 69610	Dec	8 1972
	RUNOFF (A			50460 135			75930			69610 204		
	ENT EXCE			51			75			∠04 58		
	ENT EXCE			28			27			28		
20 EDMC	LIVI DACE	فحد		20			21			20		

464 WALLA WALLA RIVER BASIN

14013700 MILL CREEK AT FIVE MILE ROAD BRIDGE, NEAR WALLA WALLA, WA

LOCATION.--Lat $46^{\circ}05^{\circ}09^{\circ}$, long $118^{\circ}13^{\circ}38^{\circ}$, in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.18, T.7 N., R.37 E., Walla Walla County, Hydrologic Unit 17070102, on right bank 4.2 mi downstream from Blue Creek, 3.0 mi upstream from diversion to Bennington Lake, 6 mi east of Walla Walla, and at mile 12.6.

DRAINAGE AREA. -- Not determined.

PERIOD OF RECORD. -- November 1997 to current year (seasonal records).

GAGE.--Water-stage recorder. Elevation of gage is 1,348 ft above NGVD of 1929 (levels by Walla Walla County).

REMARKS.--No estimated daily discharges. Records poor. No regulation. City of Walla Walla diverts water for municipal supply about 13 miles upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,330 ft^3/s , Nov. 26, 1999, gage height, 9.65 ft ; maximum gage height, 9.91 ft Feb. 24, 2002; minimum discharge, 41 ft^3/s , Nov. 8, 9, 12, 13, 2001.

EXTREMES FOR PERIOD NOVEMBER TO APRIL.--Maximum discharge, 1,830 ${\rm ft}^3/{\rm s}$ Feb. 24, gage height, 9.91 ft; minimum discharge, 41 ${\rm ft}^3/{\rm s}$ Nov. 8, 9, 12, 13.

DISCHARGE, CUBIC FEET PER SECOND, NOVEMBER 2001 TO APRIL 2002 DAILY MEAN VALUES DAY NOV DEC FEB 46 7 41 173 ---TOTAL MEAN MAX MIN AC-FT

WALLA WALLA RIVER BASIN 465

14015000 MILL CREEK AT WALLA WALLA, WA

LOCATION.--Lat $46^{\circ}04'35"$, long $118^{\circ}16'21"$, in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.23, T.7 N., R.36 E., Walla Walla County, Hydrologic Unit 17070102, on left bank 200 ft downstream from diversion dam, 1.5 mi east of Walla Walla, and at mile 10.5.

DRAINAGE AREA. -- 95.7 mi².

PERIOD OF RECORD. -- April 1941 to current year.

REVISED RECORDS.--WSP 1288: Drainage area. WSP 1348: 1943, 1945-46.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,165.49 ft above NGVD of 1929 (levels by U.S. Corps of Engineers). April 1941 to June 11, 1941, nonrecording gage, and June 11, 1941, to Jan. 22, 1957, water-stage recorder, at sites 0.8 mi downstream at different datum. U.S. Geological Survey telephone telemeter at station.

AVERAGE DISCHARGE.--61 years (water years 1942-2002), 79.9 ft³/s, 57,900 acre-ft/yr.

REMARKS.--No estimated daily discharges. Records fair except for those below 10 ft³/s, which are poor. Some regulation at diversion dam 200 ft upstream from station where water is diverted into Yellowhawk and Garrison Creeks for stock and irrigation. Since Nov. 19, 1941, water has been diverted 1.0 mi upstream into Mill Creek Reservoir for flood control with release of stored water after flood into Russell Creek, and is also diverted as required to replenish losses from seepage and evaporation from small recreation pool maintained in the reservoir. City of Walla Walla diverts water for municipal supply about 11 mi upstream. Other small diversions upstream from station for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,190 ft^3/s Feb. 9, 1996, gage height, 6.89 ft (inside high-water mark), from rating curve extended above 1,500 ft^3/s ; no flow many days.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 31 or Apr. 1, 1931, discharge not determined, was greatest since at least 1913. A discharge of about 11,000 ft³/s, based on a slope-area measurement, was determined for the 1931 peak at old City of Walla Walla diversion dam.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,320 ${\rm ft}^3/{\rm s}$ Feb. 24, gage height, 4.46 ft; no flow part or all of each day July 12-18, Aug. 16 to Sept. 30.

		DISCHAR	GE, CUBIC	FEET PER		WATER Y	EAR OCTOBER ALUES	2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.60	20	34	41	74	116	167	99	91	12	4.2	0.00
2	0.60	13	35	43	68	87	150	108	81	12	4.5	0.00
3	0.60	0.67	46 47	67	64	68	124	116	73	11	4.4	0.00
4	0.60	0.22	47	87	64 59 53	59	136	97	66	11	4.4	0.00
5	0.60	0.22	41	43 67 87 87	53	65	160	91	63	11	4.4	0.00
6	0.60	0.72	31	85	51 77 141 125 104	78	197 194 171 162 210	79	56 51 48 51 57	9.7 8.7 8.4 8.0 7.7	4.4 4.4 4.1	0.00
7 8	0.60	0.22	35	182	1/1	76	194	79	51	8.7	4.4	0.00
9	0.60	0.22	30	202	125	71	162	71	40 51	0.4	3.6	0.00
10	0.43	0.72 0.22 0.22 0.22 0.22	32	275	104	70	197 194 171 162 210	62	57	7.7	3.6	
11	0.60 0.44 0.22 0.22	0.22 0.22	27 20 98 370	188 155 134 115	92 83 68 58 59	90	251 270 326 918 679	61	48 43 32 35 29	7.4 4.8 0.00 0.00	3.6 3.6 3.9 3.9	0.00
12	0.44	0.22	20	155	83	398	270	64	48 43	4.8	3.6	0.00
13	0.22	0.22	98	134	68	409	326	79	32	0.00	3.9	0.00
14	0.22	21	370	115	58	265	918	97	35	0.00	3.9	
15	6.0	1/	213			198		96	29	0.22	3.9	0.00
16	0.53	9.0 15 18 13	127	82	59 61 64 67 76	165	431 315	90	28	0.00	2.2	0.00
17	0.61 0.60 0.60	15	104	74	61	138		89	25	0.00 1.6 2.9 2.9	0.00 0.00 0.00 0.00	0.00
18	0.60	18	128	69	64	106	241	98	45	1.6	0.00	0.00
19	0.60	13	127	76	67	103	194	98 122 162	37	2.9	0.00	0.00
20	0.00					121	141					
21	0.60	12 20 360 155 91	89	76 74 69 70 160	84	121	119 113 122 105 97	122	21	2.9	0.00	0.00
22	0.60	20	75	74	171	117	113	106	17	2.9	0.00	0.00
23	4.6	360	67	69	443	108	122	97	17	2.9	0.00	0.00
24	0.14	155	62	70	1070	164	105	86	15	2.9	0.00	0.00
26	0.10	69	53	256	347	421	95	90	12	2.9	0.00	0.00
27	0.10	43	48	203	216	343	96	92	11	2.9	0.00	0.07
28	0.10	33	49	151	149	249	85	127	11	2.9	0.00	0.00
29 30	0.10	33	46	117		190	83	143	14	2.9	0.00	0.00
31	25	69 43 33 33 35	43	83		159	95 96 85 83 89	104		3.3	0.00	0.00
MEAN		992.37 33.1	75.1	4103 132 420	161	160	212	3010	27 0	1 02	2.10	0.07
MAX	25	360	370	420	1070	446	918	162	91	1.32	4 5	0.002
MIN	0.10	0.22	20	41	51	59	83	61	11	0 00	0.00	0.07
AC-FT	95	1970	4620	8140	8950	10380	6441 215 918 83 12780	5990	2250	303	125	0.1
STATIS	TICS OF I						, BY WATER Y					
MEAN	6.14	45.6	112	149						3.45	1.96	2.31
MAX	96.0		433	149 372	1/6 627	3 0 3 T \ T	703 701	344	33.8 170	18.4		
(WY)	1952	1996	1965	372 1974	1996	1997	1974	1948	1974	1981	1989	
MIN	0.000		4.81	15.8	12.0	3.21	163 381 1974 9.70	1.10	0.000	0.000	0.000	
(WY)	1989		1953	1944	1977	1947	1947	1968	1973		1973	
SUMMAR	Y STATIS	rics	FOR 2	001 CALENI	OAR YEAR	:	FOR 2002 WAT	TER YEAR		WATER YEA	RS 1941 -	2002
ANNUAL				16114.95			28024.95					
ANNUAL				44.2			76.8			79.9		
	r annual									182		1974
LOWEST	ANNUAL I	MEAN		202	n-1		1070	H-b or		18.1	n-1- 0	1977
HIGHES.	I NATIVU I	MEAN ZAM		383	rep 5		10.00	rep 24		3070	rep 9	1 1996
TOWEST	CEALM D	TATAL ALL TATAL		0.10	Oct 24		0.00	Δuα 17		0.0	ייסות ט	1 1963
ANNITAT.	RINOFF	(AC-FT)		31960	JUL 24		55590	Aug 1/		57900	. uui 2/	1903
10 PER	CENT EXC	REDS		127			175			218		
50 PER	CENT EXC	EEDS		18			1070 0.00 0.00 55590 175 46 0.00			29		
90 PER	CENT EXC	EEDS		0.60			0.00			0.0	6	

466 WALLA WALLA RIVER BASIN

14018500 WALLA WALLA RIVER NEAR TOUCHET, WA

LOCATION.--Lat $46^{\circ}01^{\circ}40^{\circ}$, long $118^{\circ}43^{\circ}43^{\circ}$, in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.6, T.6 N., R.33 E., Walla Walla County, Hydrologic Unit 17070102, on left bank 0.8 mi upstream from Gardena Creek, 2.8 mi southwest of Touchet, 3.4 mi downstream from Touchet River, and at mile 18.2.

DRAINAGE AREA. -- 1,657 mi2.

Date

Feb. 24 Mar. 25 WATER DISCHARGE RECORDS

PERIOD OF RECORD.--October 1951 to current year.

Time

1700 1600

REVISED RECORDS.--WSP 1935: Drainage area. WDR WA-96-1: 1992(M), 1993(M), 1995 (M,P).

GAGE.--Water-stage recorder. Elevation of gage is 405 ft above NGVD of 1929, from topographic map. Prior to Nov. 27, 1951, nonrecording gage at same site and datum. U.S. Geological Survey satellite telemeter at station.

Date

REMARKS.--No estimated daily discharges. Records good. Many diversions upstream from station for irrigation.

AVERAGE DISCHARGE.--51 years (water years 1952-2002), 573 ft^3/s , 415,000 acre-ft/yr.

Discharge Gage height (ft³/s) (ft)

*10.99

9.16

*5,050 3,320

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,400 ft³/s Dec. 22, 1964, gage height, 18.90 ft, from rating curve extended above 15,000 ft³/s on basis of slope-area measurement of peak flow; maximum gage height, 20.58 ft Feb. 10, 1996, from high-water mark; no flow July 30 to Aug. 8, Aug. 12, 13, 1968, Oct. 5-7, 1987.

Time

Apr. 15 0300 4,960

Discharge Gage height (ft³/s) (ft)

*10.99

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft^3/s and maximum (*):

Minimum disc	charge, 4	.9 ft ³ /s Au	ıg. 17.									
		DISCHARG	GE, CUBI	C FEET PE	R SECOND, DAILY	WATER YI MEAN V		R 2001 TO	SEPTEME	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	205	396	422	719	1100	1260	864	868	178	21	8.8
2	44				670	976				131		
		171	402	427			1230	914	861		17	16
3	35	128	413	487	628	886	1110	968	790	112	16	18
4	31	109	469	592	604	827	1040	930	693	97	15	15
5	36	95	470	624	581	808	1060	852	597	90	20	18
6	27	93	453	615	570	855	1190	800	569	90	26	22
7	25	99	445	777	604	938	1310	714	517	80	22	28
8	27	104	470	1630	946	899	1260	694	494	76	19	32
9	36	105	473	2260	1030	868	1150	647	504	71	23	31
10	48	104	481	1630	926	847	1240	614	547		19	30
11	58	106	472	1200	050	862	1470	589	E20	52	14	28
			4/2	1200 989	852		1470		529			
12	106	107		989 896	786	1760	1580	572	4/4	43	13	26
13	108	108	456	896	738	2570	1790	635	382	30	13	24
14	65	125	1600	806	684	1890	2910	791	328	29	e11	22
15	55	168	1760	726	852 786 738 684 645	1540	4200	844	333	30	8.4	28
16	70	173	1120	657 618 577 576	626 616 616 621 720	1360	2590	804	307	31	6.3	27
17	60		930	618	616	1220	1910	777	294	34	5.6	27
18	53	180	950	577	616	1090	1540	768	323		5.9	42
19	55		950	577	010	998						51
		180	833	5/6	621		1290	845	471		6.5	
20	54	166	719	5/6	720	1040	1100	1010	364	29	7.6	40
21	52	172	645	564	737	1020	1010	1050	300		9.0	34
22	61	225	586	577	999	975	965	895	268	29	8.5	35
23	80	724	547	562	1780	945	978	810	233	26	8.8	40
24	128	906	515	542	4250	1130	935	777	210	23	13	38
25	88	584	491	772	3310	2820	866	729	174	19	11	35
26	72	489	469	1820	2100	2710	841	728	151	18	9.0	38
	70									23	9.5	43
27		417	452	1630	1570	2210	879	762	133			
28	76	367	456	1250	1280	1810	833	904	121	24	11	41
29	96	372	450	1000		1520	777	1050	121 128 186	26	8.9	38
30	94	385	436	889		1340	802	1050	186	25	9.2	41
31	109		426	784		1260		931		23	8.3	
TOTAL	1971	7332	19242	27475	30208	41074	41116	25318	12149	1601	395.5	916.8
MEAN	63.6	244	621	886		1325	1371	817		51.6		30.6
MAX	128	906	1760	2260	4250	2820	4200	1050	868		26	51
MIN	25	93	396	422	570	808	777		121			
AC-FT	3910	14540	38170	54500	59920	81470	81550	572 50220	24100		784	8.8 1820
STATIST	CICS OF M	ONTHLY MEAN	N DATA F	OR WATER	YEARS 1952	- 2002	, BY WATER	YEAR (WY)				
MEAN	81.1	298	801	1090	1290	1199	1076	721	259	42.7	19.1	39.9
MAX	392	1056	2890	2698	3700	3105	2437	1544	1130	139	82.7	181
(WY)	1952	1996	1965	1965	1996	1972	1974	1993	1974	1974	1976	1959
MIN	9.20	55.3	190	306	286	339	242	60.6	21.2	5.85	3.07	3.07
(WY)	1989	1988	1988	1979	1977	1977		1968	1968		1973	1994
SUMMARY	STATIST	TCS	FOR	2001 CALE	NDAR YEAR	1	FOR 2002 W.	ATER YEAR		WATER YEAR	S 1952 -	2002
ANNUAL	TOTAL.			149425			208798.3					
ANNUAL				409			572			573		
	ANNUAL	MEAN		405			312			1212		1974
	ANNUAL M			0100	m-2 c		4050	TI-1 0:		166	D- :: C-	1977
	DAILY M			2180	Feb 6		4250	Feb 24		20300	Dec 23	1964
	DAILY ME			13 14	Aug 31		5.6	Aug 17		0.00	Jul 30	1968
		MUMINIM Y.		14	Aug 28		7.0	Aug 15		0.00	Jul 30	1968
		AC-FT)		296400			414200			415000		
10 PERC	CENT EXCE	EDS		1040			1260			1430		
	CENT EXCE			312			470			300		
	CENT EXCE			22			22			14		
		-										

e Estimated

14018500 WALLA WALLA RIVER NEAR TOUCHET, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--WATER TEMPERATURE: August to September 2002.

INSTRUMENTATION.--Water-temperature sensor interfaced with a data-collection platform for satellite telemetry.

REMARKS. -- Records excellent.

EXTREMES FOR PERIOD OF RECORD.-- WATER TEMPERATURE: Maximum, 28.8°C Aug. 15, 2002; minimum, 11.2°C Sept. 30, 2002.

EXTREMES FOR CURRENT YEAR.-- WATER TEMPERATURE: Maximum 28.8°C Aug. 15; minimum, 11.2°C Sept. 30.

TEMPERATURE, WATER (DEG. C), WATER YEAR AUGUST TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBE	IR.
1										24.2	19.7	21.9
2										24.7	19.4	22.0
3										21.4	18.4	20.4
4										21.6	16.6	18.9
5										21.6	17.4	19.0
6										20.3	16.5	18.2
7										19.7	16.5	18.0
8										19.6	15.9	17.8
9										20.6	16.2	18.4
10										21.1	16.9	18.9
11										21.4	17.3	19.4
12										22.3	17.8	20.0
13										22.6	18.3	20.4
14										21.6	18.4	20.0
15							28.8	21.8	25.1	21.0	18.2	19.3
16							26.0	20.5	23.1	19.0	16.8	17.8
17							26.1	18.3	22.0	19.5	16.8	17.7
18							26.6	18.4	22.3	18.9	15.8	17.4
19							26.0	18.6	21.9	19.2	16.0	17.6
20							23.7	17.5	20.3	19.3	16.4	17.8
21							23.0	17.0	19.9	18.5	15.1	16.8
22							24.9	18.1	21.1	17.8	14.0	15.9
23							25.4	18.5	21.8	17.5	13.8	15.6
24							25.4	19.7	22.6	17.4	13.9	15.7
25							25.1	20.3	22.5	17.6	14.2	15.8
26							24.9	18.4	21.6	16.0	13.9	15.1
27							26.2	19.9	22.8	17.1	14.5	15.5
28							26.8	20.7	23.6	17.1	13.8	15.4
29							27.6	21.0	23.8	15.3	12.5	14.2
30							24.3	18.2	21.3	13.9	11.2	12.4
31							25.8	18.4	21.8			
MONTH										24.7	11.2	17.8

14105700 COLUMBIA RIVER AT THE DALLES, OR

LOCATION.--Lat 45°36'27", long 121°10'20", in SW 1/4 SW 1/4 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). SP 1094: 1894. WSP 1248: 1866, 1888, 1899, 1909. WSP 1518: 1876(M).

GAGE.--Ultrasonic velocity meter (UVM) with water-stage and velocity-index recorder. Datum of gage is NGVD 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.--Records good. Considerable regulation by many large reservoirs. Diurnal fluctuations caused by powerplant and gates at The Dalles Dam. Many diversions for irrigation upstream from station. Continuous water-quality records for the period October 1957 to February 1985 have been collected at this location.

 $A VERAGE \ DISCHARGE. --124 \ years \ (water years \ 1879-2002), \ 191,200 \ \text{ft}^3/s, \ 138,500,000 \ \text{acre-ft/yr, unadjusted}.$

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (since 1858), 1,240,000 ${\rm ft}^3/{\rm s}$ June 6, 1894, elevation, 106.5 ${\rm ft}$; minimum discharge (since 1878), 12,100 ${\rm ft}^3/{\rm s}$ Apr. 16, 1968 (due to closure of John Day dam, recorded by UVM).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 377,000 ft³/s June 6; maximum elevation, 82.95 ft June 5; minimum daily discharge, 64,800 ft³/s Oct. 13.

		DISC	HARGE, CUI	BIC FEET P		, WATER T		BER 2001 T	O SEPTEM	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	94000 107000 86100 72400 85600	97700 93400 87100 86000 82400	110000 106000 96500 116000 124000	120000 116000 115000 e125000 e140000	173000 147000 125000 161000 154000	143000 133000 104000 125000 116000	158000 177000 147000 139000 135000	215000 200000 249000 235000 221000	351000 320000 306000 331000 367000	315000 318000 307000 319000 266000	169000 159000 172000 144000 164000	117000 103000 103000 126000 113000
6 7 8 9 10	74800 69500 72100 79500 97200	116000 115000 124000 114000 100000	111000 106000 116000 96700 117000	e135000 e130000 e105000 151000 157000	157000 161000 165000 168000 124000	124000 131000 115000 128000 91300	120000 114000 170000 e155000 178000	219000 240000 257000 215000 191000	377000 340000 371000 334000 293000	264000 239000 228000 216000 211000	160000 155000 172000 174000 143000	118000 95100 79400 89000 114000
11 12 13 14 15	81100 84100 64800 68800 101000	79500 96200 105000 98400 90000	127000 132000 e125000 119000 118000	135000 115000 115000 130000 165000	145000 168000 144000 184000 159000	113000 132000 169000 141000 152000	190000 184000 216000 212000 269000	209000 183000 211000 e205000 212000	351000 298000 314000 274000 290000	238000 257000 249000 240000 249000	153000 155000 163000 152000 163000	115000 83100 84700 112000 86700
16 17 18 19 20	87000 114000 113000 85800 76800	98000 111000 93400 109000 112000	101000 110000 151000 136000 148000	190000 161000 158000 112000 135000	126000 114000 130000 134000 151000	140000 118000 131000 129000 e115000	346000 350000 322000 296000 277000	191000 229000 206000 220000 224000	256000 303000 305000 348000 368000	191000 252000 243000 220000 212000	162000 133000 127000 140000 151000	74300 105000 114000 113000 123000
21 22 23 24 25	75400 79100 88200 110000 84400	119000 99900 98300 120000 112000	154000 137000 131000 119000 127000	136000 135000 174000 171000 128000	144000 132000 105000 124000 155000	e145000 132000 114000 83300 143000	287000 255000 e280000 267000 244000	260000 278000 265000 283000 251000	358000 319000 295000 327000 284000	222000 241000 195000 202000 185000	163000 159000 139000 150000 123000	116000 104000 139000 110000 124000
26 27 28 29 30 31	89800 89400 90500 91400 91500 91600	116000 132000 150000 123000 133000	125000 140000 127000 117000 118000 119000	152000 122000 144000 164000 167000 171000	165000 149000 159000 	125000 125000 122000 135000 140000 121000	225000 235000 179000 215000 234000	238000 237000 283000 309000 294000 303000	283000 313000 329000 361000 297000	154000 156000 147000 179000 188000 165000	138000 145000 147000 130000 133000 145000	127000 126000 86200 75600 102000
MEAN MAX MIN	2695900 86960 114000 64800 5347000	3211300 107000 150000 79500 6370000	3780200 121900 154000 96500 7498000	4374000 141100 190000 105000 8676000	4123000 147200 184000 105000 8178000	3935600 127000 169000 83300 7806000	6576000 219200 350000 114000 13040000	7333000 236500 309000 183000 14550000	9663000 322100 377000 256000 19170000	7068000 228000 319000 147000 14020000	4683000 151100 174000 123000 9289000	3178100 105900 139000 74300 6304000
STATI	STICS OF	MONTHLY N	MEAN DATA	FOR WATER	YEARS 18	79 - 200	2, BY WATE	ER YEAR (W	Y)			
MEAN MAX (WY) MIN (WY)	104500 174800 1960 69430 1930	108200 200800 1928 57830 1937	116100 258300 1996 52380 1937	119200 275000 1997 42430 1937	129100 340400 1996 51420 1937	147000 345000 1983 69820 1937	204300 386400 1881 98350 1944	338300 624400 1897 136100 1977	435900 1002000 1894 123700 1977	297800 793300 1880 86780 2001	172200 385700 1880 91970 1994	119900 198200 1880 75760 1994
SUMMA	RY STATIS	STICS	FOI	R 2001 CAL	ENDAR YEA	R	FOR 2002	WATER YEA	R	WATER YE	ARS 1879	- 2002
ANNUA HIGHE	L TOTAL L MEAN ST ANNUAL T ANNUAL ST DAILY T DAILY T DAILY L SEVEN-I L RUNOFF RCENT EXC RCENT EXC			40919600 112100 173000 62800 76000 81160000 140000 115000 80000	May 1 Sep 1 Sep 1	6 5	377000 64800 77100 120200000 291000 141000 91400	Jun Oct 1 Oct	3	191200 313600 117600 1230000 36000 38200 138500000 381000 142000 80600	Jan 1	1894 2001 6 1894 2 1937 7 1937

e Estimated

KLICKITAT RIVER BASIN 469

14107000 KLICKITAT RIVER ABOVE WEST FORK NEAR GLENWOOD, WA

LOCATION.--Lat $46^{\circ}15^{\circ}54^{\circ}$, long $121^{\circ}14^{\circ}38^{\circ}$, in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.18, T.9 N., R.13 E., Yakima County, Hydrologic Unit 17070106, Yakama Nation Reservation, on right bank 0.8 mi upstream from Swamp Creek, 1.9 mi upstream from West Fork, 17.0 mi north of Glenwood, and at mile 64.7.

DRAINAGE AREA. -- 151 mi2.

PERIOD OF RECORD.--October 1944 to September 1977, July 1991 to current year. Monthly discharge only for October 1944, published in WSP 1318.

GAGE.--Water-stage recorder. Elevation of gage is 2,720 ft above NGVD of 1929, from river-profile map.

REMARKS.--Records fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--44 years (water years 1945-77, 1992-2002), 327 ft³/s, 29.41 in/yr, 236,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,500 ft³/s Feb. 8, 1996, gage height, 5.70 ft, from high-water mark, from rating curve extended above 2,600 ft³/s; minimum discharge, 4.4 ft³/s Feb. 1, 1957 (result of freezeup, discharge measurement).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

 $\hbox{\it EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 4,850 ft}^3/s \; \hbox{\it Dec. 2, 1977, from high-water mark.}$

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 900 $\mathrm{ft^3/s}$ and maximum (*):

Date	:	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. Apr.	14	0915 0845	1,470 *2,120	2.75 *3.37	May 29 Jun. 15	2115 0500	1,450 1,010	2.73 2.27
May	02	2115	1,100	2.36				

Minimum discharge, 52 $\mathrm{ft^3/s}$ Oct. 2-6.

		DISCHAR	GE, CUBIC	. FEEI PEI		MEAN V.	EAR OCTOBE ALUES	R 2001 10	SEPIEME	3ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	134	155	124	112	166	218	800	1120	419	138	92
2	55	123	127	126	108	161	251	997	1090	377	134	92
3	55	120	122	119	106	157	244	1010		346	130	89
4	54	114	122	113	104	154	271	919		329	130	88
5	53	116	119	112	103	151	321	842	1080	297	130	88
6	55	112 105 102 100 98	117 110 113 111 109	141	101 102 102 94 91	154	364 427 432 456 553	745 659 593 551 517	1060	282	127	88
7	55	105	110	612	102	144	427	659	865	286	126	88
8	58	102	113	1380	102	145	432	593	741	351	122	88
9	59	100	111	1380 973 625	94	135	456	551	657	290	118	88
10							553			2/4	117	88
11 12	88 74	96 98	107 105 158 242 183	467 392	89 95 100 93 96	158 201	624 704	515 566 641 671 685	707 760	282 276	114 110	85 85
13	83	106	158	321	100	170	1050	641	837	265	110	85
14	79	208	242	280	93	157	1940	671	923	256	107	81
15	77	247	183	257	93 96	153	1500	685	963	232	106	81
16	71	239	207 326 288 242 216	245	87 85 85 96 92	149	1130 901 741 661 635	696 758 810 836 1000	900	215 209 202 197 190	103	81
17	69	190	326	220	85	143	901	758	781	209	103	81
18	68	163	288	203 201	85	141	741	810	729	202	103	81
19	68	167	242	201	96	145	661	836	631	197	103	81
20	68				92						103	81
21	68 76 115 93 91	190	195 181 170 159 134	184	103	131	633 644 610 582	1000	583	181 174 179 172	99	81
22	76	193	181	194	207	128	644	942	612	174	101	81
23	115	210	170	163 160	263	129	610	889	636	179	99	80
24	93	172	159	160	242	129	582	880	601	172	99	78
25	91			159	210	135	588	222	240	100	99	78
26	93	140	152	149	201	142	600	994	560	163	95	78
27	91	135 147 153 129	14 /	146	190	141	588	1070	587	159	95	78
28 29	90	147	139	146	180	142	561 601	1190	544	151	95 92	78 78
30	85	153	132	e140 e130		148 156	678	1350	E13	150	92	78 78
31	163		152 147 139 132 128 126	e130		184		1070 1190 1350 1350 1210	213	163 159 151 150 146 142	92	
TOTAL	2372	4454	4942	8793	3537	4625	10500	26608	22993	7358	3392	2499
MEAN	76.5 163 53	4454 148	159	284	126	149	650	858			109	83.3
MAX	163	148 247	326	1380	263	201	1940	1350	1120	419	138	92
MIN	53	96	326 105	112	85	128	218	515	513	142	92	78
AC-FT	4700	8830	9800	17440	7020	149 201 128 9170 0.99	38690	52780	45610	14590	6730	4960
CFSM	0.51	0.98	1.06	1.88	0.84	0.99	38690 4.31	5.68	5.08	1.57	0.72	0.55
IN.	0.58	1.10	1.22	2.17	0.87	1.14	4.81	515 52780 5.68 6.56	5.66	1.81	0.84	0.62
STATIST	rics of Mo	ONTHLY MEA	N DATA FO	OR WATER '	YEARS 1945	- 2002	, BY WATER	YEAR (WY)				
MEAN	127	192	239	219	259	236		921	730	294	139	104
MAX	291	464	983	615	1470	713	990	1714	1730	637	257	174
(WY)	1998	1996	1996	1974	1996	1972	1997	1956	1974	1974	1974	1997
MIN	58.1	61.3	71.1	69.3	78.3	98.1		224	170	89.8	61.7	56.8
(WY)	1994	1994	1993	1993	1994	1977		1977	1992	1977	1994	2001
SUMMARY	STATIST:	ICS	FOR 2	001 CALE	NDAR YEAR		FOR 2002 W	ATER YEAR		WATER YEARS	1945 -	2002
ANNUAL	TOTAL			53196			111081			327 539 126 5000 4.5 5.6 236800 2.16 29.41 774 188 90		
ANNUAL	MEAN	MUNN		146			304			327		1000
HIGHESI	L AMMOAL I	MEMIN								126		1996 1977
HIGHEGA TOMESI	IM VITACI 1	EΣN		521	Mass 24		1940	Apr 14		5000	Feb 8	
LOWEST	DATIN ME	AN AN		52	Sen 24		1340	Oct 5		4 5	Feb 1	
ANNUAL.	SEVEN-DAY	Y MTNTMIM		53	Sep 18		55	Oct. 1		5.6	Jan 30	
ANNUAT.	RUNOFF (AC-FT)		105500	50p 10		220300	000 1		236800	Jul 30	
ANNUAT	RUNOFF (CFSM)		0.9	7		2.0	2		2,16		
ANNUAL	RUNOFF (INCHES)		13.1	1		27.3	7		29.41		
10 PERC	CENT EXCE	EDS		285			804			774		
50 PERC	CENT EXCE	EDS		109			153			188		
90 PERC	CENT EXCE	EDS		59			81			90		

e Estimated

470 KLICKITAT RIVER BASIN

14111400 KLICKITAT RIVER BELOW SUMMIT CREEK, NEAR GLENWOOD, WA

LOCATION.--Lat $45^{\circ}57'45"$, long $121^{\circ}06'04"$, in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.31, T.6 N., R.14 E., Klickitat County, Bureau of Land Management lands, Hydrologic Unit 17070106, on right bank, 3 mi downstream from Summit Creek, 10 miles southeast of Glenwood, and at mile 34.3.

DRAINAGE AREA. -- Not determined.

PERIOD OF RECORD. -- October 1996 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 900 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. No regulation. Some upstream diversions for irrigation.

AVERAGE DISCHARGE.--6 years (water years 1997-2002), 1,515 ft³/s, 1,097,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,030 $\mathrm{ft^3/s}$ Apr. 20, 1997, gage height, 7.92 ft; minimum discharge, 502 $\mathrm{ft^3/s}$ Oct. 2, 5-10, 2001.

AUG

SEP

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, about 21,000 ${\rm ft}^3/{\rm s}$ Feb. 8, 1996, gage height, 14.4 ft, from high-water mark, from rating extended above 4,500 ${\rm ft}^3/{\rm s}$.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft^3/s and maximum (*):

Date	Time	Discha (ft ³ /		age height (ft)	Date	2	Time	Discha (ft ³ /		Gage height (ft)
Jan. 08 Apr. 14	1545 1230	4,9 *5,4	930 480	7.27 *7.60	May	30	0130	3,3	310	6.26
Minimum di	scharge, 50	2 ft ³ /s Oc	et. 2, 5	-10.						
		DISCHARO	GE, CUBI	C FEET PER		WATER YE Y MEAN VA	AR OCTOBER LUES	2001 TO	SEPTEM	BER 2002
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
1	516	710	778	793	1120	1490	1600	2100	2690	1540
2	514	653	821	828	1090	1420	1710	2390	2610	1430
3	513	633	775	815	1060	1360	1680	2480	2540	1360
4	516	617	743	793	1020	1330	1710	2330	2430	1310
5	509	609	729	790	1010	1310	1810	2210	2540	1240

DAY	OCI	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	516	710	778	793	1120	1490	1600	2100	2690	1540	796	655
2	514	653	821	828	1090	1420	1710	2390	2610	1430	787	665
3	514	633	775	815	1060	1360			2540	1360	785	656
4	516	617	743	793	1020	1330		2330	2430	1310	781	623
	509	609	729	793	1010		1810			1240		609
5	509	609	129	790	1010	1310	1810	2210	2540	1240	763	609
6	511	601	722	950	1000	1340	1880	2060	2560	1210	743	607
			732									
7	506	586	731	2680	1030	1290	1980	1920	2230	1220	727	612
8	507	578	732	4750	1070	1230	2000	1810	1980	1320	721	608
9	507	573	722	3970	1030	1200	2050	1740	1820	1210	726	607
10	512	568	710	3120	1010	1220	2170	1670	1790	1200	739	608
11	556	563	703	2560	991	1540	2300	1640	1840	1230	741	613
12	536	570	697	2320	943	2410	2400	1690	1910	1230	737	616
13	543	607	831	2090	942	2150	2890	1800	2000	1240	739	612
14	545	1280	1250	1880	937	1970	5060	1840	2170	1230	752	609
15	538	1130	1050	1710	914	1850	4260	1860	2320	1150	749	607
16	531	1000	1120	1610	912	1770	3500	1880	2290	1100	744	601
17	524	849	1620	1520	902	1670	3010	1950	2080	1080	730	617
18	518	765	1440	1440	891	1580	2650	2060	1980	1060	709	605
19	519	799	1300	1410	1020	1560	2410	2090	1840	1030	703	612
20	517	917	1210	1380	1080	1530	2320	2320	1730	963	693	612
20	517	917	1210	1300	1000	1530	2320	2320	1/30	303	093	012
21	516	906	1130	1350	1170	1430	2230	2360	1700	940	685	603
	530	969	1060	1280	1600	1390	2220	2280	1730	929	687	598
22												
23	608	963	1010	1230	2100	1370	2140	2190	1770	924	687	599
24	571	850	973	1220	2150	1350	2030	2150	1740	932	685	602
25	551	789	919	1380	1920	1360	1990	2170	1670	913	694	602
26	550	741 701 717 724 719	909	1370	1770	1370	1990	2280	1670	900	687	599
27	545	701	895	1300	1670	1370	1960	2400	1730	880	678	594
28	541	717	871	1230	1590	1370	1880	2620	1730	876	658	592
29	536	724	841	1180		1390	1900	3070	2250	912	666	607
30	589	719	818	1170		1410	1970	3150	1780	880	649	610
31	734		805	1150		1490	1900 1970	2910		822	640	
TOTAL	16709	22687	28925	51269	33942	46520	69700	67420	61120	34261	22281	18360
MEAN	539	756	933	1654	1212	1501	2323	2175	2037	1105	719	612
MAX	734	1280	1620	4750	2150	2410	5060	3150	2690	1540	796	665
MIN	506	563	697	790	891	1200	1600	1640	1670	822		592
AC-FT	33140	45000	57370	101700	67320	92270	138200	133700	121200	67960	44190	36420
110 11	33110	15000	5,5,0	101700	07520	22270	130200	155700	IDIDOO	0,500	11170	30120
STATIS'	TICS OF M	ONTHLY ME	AN DATA I	FOR WATER	YEARS 1997	- 2002	, BY WATER	R YEAR (WY)			
MEAN	859	1052	1199	1560	1594	1924	2254	2581	2117	1309	936	803
MAX	1274	1521	1711	2343	2107	2800		3843	3177	1952	1274	1043
(WY)	1998	2000	1999	1997	1999	1997	1997	1997	1999	1999	1999	1997
MIN	539	691	642	619	615	701	840	1279	790	618	601	553
(WY)	2002	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001
SUMMAR	Y STATIST	ICS	FOR	2001 CALE	NDAR YEAR		FOR 2002 V	WATER YEAR		WATER YEA	RS 1997 -	- 2002
7 7 7 7 7 7	moma r			260407			472104					
	TOTAL			269407			473194					
ANNUAL				738			1296			1515		
	T ANNUAL									1988		1997
LOWEST	ANNUAL M	EAN								731 5590 506 510 1097000		2001
HIGHES'	T DAILY M	EAN		1620	Dec 17		5060	Apr 14		5590	Apr 20	1997
LOWEST	DAILY ME	AN		506	Oct 7		506	Oct 7		506	Oct 1	7 2001
ANNUAL	SEVEN-DA	Y MINIMUM		510	Oct 4		506 510 938600	Oct 4		510	Oct 4	2001
ANNUAL	RUNOFF (AC-FT)		534400			938600			1097000		
10 PER	CENT EXCE	EDS		1130			2280			2680		
EO DED												
	CENT EXCE	EDS		638			1080			1240		
90 PER	ANNUAL M T DAILY ME DAILY ME SEVEN-DA RUNOFF (CENT EXCE CENT EXCE CENT EXCE	EDS EDS		638 549			1080 593			1240 636		

KLICKITAT RIVER BAISN 471

14113000 KLICKITAT RIVER NEAR PITT, WA

LOCATION.--Lat $45^\circ45^\circ24^\circ$, long $121^\circ12^\circ12^\circ12^\circ$, in SW $\frac{1}{2}_4$ sec.8, T.3 N., R.13 E., Klickitat County, Hydrologic Unit 17070106, on left bank 2.8 mi south of Pitt, 4.8 mi southwest of Klickitat, 5.3 mi upstream from Silvias Creek, and at mile 7.0.

DRAINAGE AREA. -- 1,297 mi2.

PERIOD OF RECORD.--July 1909 to January 1912, October 1928 to current year. Published as "at Klickitat" 1909-12 and as "at Pitt" 1928-35.

REVISED RECORDS.--WSP 1348: 1910(M), 1929-33(M), 1934, 1935-38(M), 1940(M), 1942-43(M), 1946(M), 1948(M). WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 288.9 ft above NGVD of 1929 (river-profile survey). July 3, 1909, to Jan. 31, 1912, nonrecording gage at site 7 mi upstream at different datum. Oct. 1, 1928, to Sept. 30, 1935, nonrecording gage at site 3.5 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Several small diversions upstream from station for irrigation of about 7,500 acres, mostly in vicinity of Glenwood. The largest of these is Hellroaring Irrigation Canal, which at times diverts the entire flow of Hellroaring Creek (tributary to Big Muddy Creek). No regulation. Water temperatures October 1950 to September 1970. Chemical analyses October 1950 to September 1970, October 1975 to September 1986. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--76 years (water years 1909-11, 1929-2002), 1,589 ft^3/s , 1,151,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 51,000 ft³/s Feb. 8, 1996, gage height, 17.90 ft from high-water mark in well, from rating curve extended above 16,000 ft³/s on basis of slope-area measurement at gage height 14.34 ft; minimum discharge, 412 ft³/s Jan. 16, 1979, gage height, 3.81 ft.

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 08 Mar. 12	1230 0600	*6,660 4,190	*8.19 6.83	Apr. 14	1600	6,020	7.87

Minimum discharge, 497 ft3/s Oct. 6.

		DISCHARGE	E, CUBIC	FEET PE		WATER Y MEAN	YEAR OCTOBER VALUES	2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	512	795	889	989	1520	2030	1970	2350	2940	1770	906	715
2	510	696	1090	1120	1440	1900		2620	2790	1620	891	729
3	507	663	1030	1190	1390	1790		2770	2740	1530	876	736
4	512	642	934	1140	1330	1730	2070	2650	2630	1460	870	700
5	506	629	923	1110	1290	1680	2190	2530	2680	1400	842	683
6	509	622	967	1530	1270	1830		2390	2810	1350	827	680
7	509	607	1010	3600	1350	1800		2210	2520	1340	808	688
8	508	594	941	6260	1730	1650		2060	2240	1450	795	683
9 10	507	590 584	899 860	5430	1500	1580		1970 1880	2070 2020	1370	794 807	686 685
10	510			4140	1440	1580				1320		
11	549	578	849	3470	1390	1920		1800	2080	1340	818	690
12	552	578	840	3140	1300	3900		1840	2160	1350	806	694
13	540	614	960	2880	1280	3570		1960	2220	1360	807	694
14	548	1180	2070	2560	1260	3200		2020	2390	1370	813	689
15	547	1240	1590	2280	1220	2910	4950	2030	2520	1290	830	692
16	537	1180	1550	2090	1200	2670	4050	2040	2550	1230	814	682
17	530	975	2320	1950	1180	2450	3510	2100	2370	1210	802	696
18	524	855	2050	1830	1160	2250	3130	2230	2260	1180	781	690
19	522	831	1780	1790	1280	2200	2860	2250	2120	1160	776	690
20	524	1030	1660	1750	1460	2150	2700	2450	1970	1090	769	695
21	522	1020	1520	1770	1490	1980		2540	1900	1070	751	686
22	531	1080	1410	1630	2100	1890		2470	1920	1050	756	678
23	607	1110	1320	1520	3380	1850		2370	1970	1050	753	680
24	607	976	1250	1490		1810		2320	1960	1050	748	681
25	567	890	1190	2060	3010	1780	2340	2310	1880	1040	759	679
26	562	823	1130	2150	2660	1780	2310	2430	1860	1020	750	677
27	559	760	1120	1940	2400	1780	2300	2550	1910	1000	749	672
28	554	807	1090	1800	2230	1760		2720	1910	985	713	669
29	549	791	1050	1670		1780		3130	2410	1020	726	690
30	591	817	1010	1620		1780		3330	2080	1010	716	695
31	734		999	1560		1850		3160		952	707	
TOTAL	16846		38301	69459	47690	64830		73480	67880		24560	20704
MEAN	543	819	1236	2241	1703	2091		2370	2263			690
MAX	734	1240	2320	6260	3430	3900		3330	2940	1770	906	736
MIN	506	578	840	989	1160	1580		1800	1860	952	707	669
AC-FT	33410	48710	75970	137800	94590	128600	161600	145700	134600	76240	48710	41070
STATIST	rics of M	ONTHLY MEAN	DATA FO	R WATER	YEARS 190	9 - 200	2, BY WATER	YEAR (WY)			
MEAN	763	983	1476	1851	2245	2277	2340	2482	1947	1163	833	745
MAX	1299	2763	6160	7325	8225	6111	4942	5235	4161	2250	1387	1082
(WY)	1998	1910	1934	1974	1996	1910		1956	1974	1974	1999	1997
MIN	501	501	521	524	610	742		900	784	603	473	448
(WY)	1945	1994	1931	1979	1994	1977	1977	1977	1992	1994	1994	1994
SUMMARY	Y STATIST	ICS	FOR 2	001 CALE	NDAR YEAR		FOR 2002 WA	TER YEAR		WATER YE	ARS 1909 -	2002
ANNUAL	TOTAL.			291153			568224					
ANNUAL				798			1557			1589		
HIGHEST	r annual	MEAN								2876		1974
LOWEST	ANNUAL M	EAN								751		1994
HIGHEST	r daily m	EAN		2320	Dec 17		6260	Jan 8		40000	Feb 8	
LOWEST	DAILY ME	AN		506	Oct 5		506	Oct 5		360 395	Dec 29	
ANNUAL	SEVEN-DA	Y MINIMUM		508	Oct 3		508	Oct 3		395	Dec 24	1993
ANNUAL	KUNOFF (.	AC-FT)		577500			1127000			1151000		
10 PERG	CENT EXCE	EDS		1190			2650			3020		
50 PERO	CENI EXCE	EDS		713			1350			1150		
90 PERO	CEMI EXCE	HAN AN Y MINIMUM AC-FT) EDS EDS EDS		547			611			638		

472 WHITE SALMON RIVER BASIN

14123500 WHITE SALMON RIVER NEAR UNDERWOOD, WA

LOCATION.--Lat $45^{\circ}45^{\circ}08$ ", long $121^{\circ}31^{\circ}33$ ", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.14, T.3 N., R.10 E., Skamania County, Hydrologic Unit 17070105, on right bank 300 ft downstream from bridge, 1,000 ft downstream from Pacific Power & Light Co.'s Condit powerplant, 1.7 mi north of Underwood, and at mile 1.9.

DRAINAGE AREA. -- 386 mi2.

PERIOD OF RECORD.--October 1912 to February 1913 (published as "at Condit Dam, near Underwood"), March 1915 to September 1930, September 1935 to current year.

REVISED RECORDS.--WSP 484: 1915-17. WSP: 1348 1936-41(M). WSP 1638: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 112.96 ft above NGVD of 1929. Prior to March 1913, reference point at dam 1 mi upstream at different datum. March 1915, to July 16, 1918, water-stage recorder at site 200 ft upstream at datum 3.24 ft higher, and July 17, 1918, to Sept. 30, 1930, at datum 2.24 ft higher than present datum.

REMARKS.--No estimated daily discharges. Records good. Diversions for irrigation of about 4,000 acres in Trout Lake area. Low and medium flows regulated by powerplant of Pacific Power & Light Co. Chemical analyses August 1960 to August 1961, water years 1964-1968 (miscellaneous), October 1967 to September 1970 (monthly), November 1975 to June 1980. Water temperatures July 1968 to August 1970. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--82 years (water years 1916-30, 1936-2002), 1,123 ft³/s, 813,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,200 ft³/s Feb. 8, 1996, result of flashboard failure on Condit Dam, gage height, 19.16 ft, from rating curve extended above 8,030 ft³/s, on basis of theoretical weir computation of peak flow; minimum discharge, practically no flow at times when powerplant is shut down; minimum daily discharge, 158 ft³/s Jan. 17, 1950.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,590 ft³/s Jan. 8, gage height, 7.65 ft; minimum discharge, 159 ft³/s Nov. 7.

		DISCHA	RGE, CUBI	C FEET PE			YEAR OCTOBE VALUES	R 2001 TO	SEPTEME	BER 2002	J.,	,
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	441	726	818	775	1250	1390	1300	1620	1940	1330	820	635
2	455	622	1000	886	1180	1310	1360	1770	1880	1260	816	657
3	457	599	911	892	1140	1240	1290	1770	1850	1210	785	650
4	455	554	809	846	1120	1230	1290	1680	1800	1180	790	639
5 6 7 8	455 455 455 479	524 513 534 481	788 826 900 803	1010 2050 3620	1070 1100 1200 1340	1230 1300 1210 1160	1350 1370 1450 1450	1630 1580 1500 1430	1800 1790 1680 1580	1120 1100 1090 1110	787 760 772 760	634 636 632 637
9	464	478	758	3350	1240	1130	1480	1410	1480	1110	763	635
10	474	488	720	2550	1210	1170	1720	1370	1460	1040	772	632
11	502	501	684	2100	1180	1680	1870	1400	1490	1070	765	629
12	466	484	719	1990	1120	2890	1980	1420	1490	1050	736	619
13	485	521	1030	1900	1140	2570	2150	1500	1520	1030	729	621
14	487	1130	2120	1730	1090	2180	3260	1520	1640	1050	735	617
15	488	1000	1620	1570	1050	1940	3110	1550	1670	989	714	625
16	483	852	1770	1500	1060	1810	2560	1570	1640	978	717	620
17	482	713	2590	1330	1040	1680	2220	1600	1570	946	709	613
18	469	629	2260	1320	1040	1570	1970	1650	1570	972	698	612
19	488	614	1800	1260	1150	1580	1830	1650	1540	917	717	617
20	481	833	1560	1310	1220	1550	1770	1690	1440	922	690	618
21	436	1010	1380	1340	1310	1470	1730	1750	1370	924	700	614
22	501	1280	1240	1320	1660	1410	1680	1740	1400	899	697	610
23	562	1410	1120	1230	1910	1380	1620	1730	1370	870	670	585
24	600	1150	1020	1270	1940	1340	1550	1720	1360	899	671	620
25	520	920	971	1920	1770	1330	1560	1680	1330	865	671	616
26 27 28 29 30 31	500 521 502 503 560 752	802 714 819 687 759	942 893 890 841 819 811	1960 1720 1550 1420 1350 1260	1630 1530 1460 	1290 1290 1260 1250 1250 1260	1500 1530 1470 1490 1530	1700 1760 1850 2100 2150 2030	1350 1260 1300 1640 1530	884 888 841 885 877 851	668 662 659 654 657 648	638 650 607 597 589
TOTAL	15378	22347	35413	49149	36150	46350	52440	51520	46740	31157	22392	18704
MEAN	496	745	1142	1585	1291	1495	1748	1662	1558	1005	722	623
MAX	752	1410	2590	3620	1940	2890	3260	2150	1940	1330	820	657
MIN	436	478	684	775	1040	1130	1290	1370	1260	841	648	585
AC-FT	30500	44330	70240	97490	71700	91940	104000	102200	92710	61800	44410	37100
STATIS'	TICS OF M	ONTHLY ME	AN DATA E	OR WATER	YEARS 1916	- 2002	2, BY WATER	YEAR (WY)				
MEAN	633	811	1155	1333	1533	1511	1514	1519	1268	892	701	632
MAX	1210	1607	2984	3362	4110	3417	2518	2631	2506	1911	1225	1026
(WY)	1998	1956	1918	1974	1996	1972	1943	1997	1956	1916	1916	1997
MIN	429	396	452	430	508	558	651	659	587	456	424	391
(WY)	1993	1930	1945	1979	1929	1977	1977	1977	1992	1977	1994	1994
SUMMAR	Y STATIST	ICS	FOR	2001 CALE	NDAR YEAR		FOR 2002 W	ATER YEAR		WATER YEA	ARS 1916 -	2002
LOWEST HIGHES' LOWEST ANNUAL ANNUAL 10 PER 50 PER	MEAN T ANNUAL ANNUAL M T DAILY M DAILY ME	EAN EAN AN Y MINIMUM AC-FT) EDS EDS		255944 701 2590 436 451 507700 1010 600 469	Dec 17 Oct 21 Sep 1		427740 1172 3620 436 453 848400 1800 1130 546	Jan 8 Oct 21 Oct 1		1123 1765 554 15400 158 372 813300 1910 936 525	Feb 9 Jan 17 Sep 21	1950

14128870 COLUMBIA RIVER BELOW BONNEVILLE DAM, OR

LOCATION.--Lat 45°38'00", long 121°57'33", in sec.21, T.2 N., R.7 E., Multnomah County, Hydrologic Unit 17080001, on left bank 0.9 mi downstream from Bonneville Dam left bank powerhouse, 50 ft upstream from Tanner Creek, and at mile 144.5.

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 NGVD of 1929. Prior to August 15, 1990, at a site 0.5 mi upstream at the same datum.

REMARKS. -- Flow regulated by many reservoirs upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 35.11 ft Feb. 9, 1996; minimum, 6.14 ft July 15, 16, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 27.79 ft June 6; minimum, 6.20 ft Oct. 9.

GAGE HEIGHT, in FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBE	R	1	NOVEMBER		I	DECEMBER			JANUAR	Y
1 2 3 4 5	10.69 11.36 10.54 8.27 9.26	6.75 7.61 7.74 6.58 6.32	8.38 9.31 8.78 7.32 7.35	10.26 10.37 9.77 9.89 10.55	8.83 8.25 8.10 7.03 7.49	9.50 9.50 8.89 8.23 8.58	17.34 17.14 16.77 15.79 17.22	11.70 11.45 11.59 11.26 11.42	13.80 13.80 13.58 13.11 13.37	11.98 12.22 11.96 12.07 13.31	11.36 11.54 11.57 11.45 11.54	11.68 11.77 11.73 11.67 12.26
6 7 8 9 10	9.47 8.57 8.01 7.97 9.85	7.06 6.60 6.35 6.20 6.66	7.81 7.39 6.96 6.85 8.15	11.24 11.41 12.73 12.87 11.34	9.59 9.47 9.38 9.67 7.65	10.23 10.32 10.73 10.96 9.23	16.57 14.72 13.52 13.27 13.78	11.47 11.50 11.50 11.37 11.50	13.25 12.65 12.20 11.90 12.19	13.42 14.80 15.33 18.09 18.11	11.54 12.41 13.94 14.50 15.54	12.41 14.02 14.57 15.80 16.82
11 12 13 14 15	10.03 8.82 8.04 8.87 10.75	7.58 7.31 6.49 6.53 7.91	8.60 7.96 7.28 7.58 9.19	8.66 10.70 10.27 12.92 12.01	7.35 7.39 8.61 8.88 9.56	7.88 9.24 9.52 10.79	15.41 16.19 17.31 17.19 16.91	11.51 11.43 11.44 12.08 12.02	12.70 13.38 13.28 14.40 14.46	15.85 13.95 15.24 15.03 17.53	13.62 12.75 13.42 12.10 11.45	14.78 13.35 14.02 13.37 13.30
16 17 18 19 20	10.51 13.68 13.16 11.25 8.93	7.47 9.08 9.94 7.86 6.96	9.19 10.59 11.05 9.32 7.96	11.39 13.02 12.94 11.23 11.70	9.64 9.51 9.51 8.19 9.80	10.32 10.91 10.67 9.51 11.01	18.00 18.55 19.27 18.78 18.30	11.56 12.15 12.33 12.96 11.68	13.88 14.82 16.72 16.22 14.43	18.31 17.55 16.10 14.52 15.40	15.90 13.78 12.36 11.82 11.66	17.15 15.87 15.02 13.14 12.93
21 22 23 24 25	8.41 8.86 9.05 10.12 9.70	6.51 6.54 7.38 7.42 7.29	7.31 7.41 8.05 9.23 8.09	11.56 11.71 11.57 13.19 12.81	10.89 11.12 11.05 11.09 11.02	11.26 11.33 11.24 11.88 11.66	18.82 18.63 16.55 13.82 11.84	13.21 11.47 11.47 11.53 11.55	16.49 13.94 13.41 11.82 11.70	15.47 15.59 16.81 17.43 16.22	12.02 11.87 14.04 14.19 11.52	14.07 13.99 15.67 16.21 13.48
26 27 28 29 30 31	9.88 9.63 9.58 10.01 9.97 9.47	6.67 7.62 7.60 9.01 8.02 7.36	7.83 8.63 8.53 9.46 9.03 8.39	13.01 16.31 15.94 17.19 17.50	11.01 11.01 11.07 11.45 11.46	11.70 12.77 13.16 13.84 13.92	13.52 12.02 13.05 12.18 12.07 12.01	11.28 11.37 11.38 11.54 11.48	11.75 11.70 11.84 11.74 11.73 11.67	17.37 16.33 16.68 18.26 18.09 18.13	13.37 13.82 13.55 13.73 14.06 13.65	16.02 14.64 15.26 16.42 16.67 16.27
MONTH	13.68	6.20	8.35	17.50	7.03	10.65	19.27	11.26	13.29	18.31	11.36	14.33

GAGE HEIGHT, in FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

14128870 COLUMBIA RIVER BELOW BONNEVILLE DAM, OR--Continued

		'	GAGE HEIGH	r, in FEE	T, WATER	YEAR O	CTOBER 2001	TO SEP	TEMBER 200	2		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUAR			MARCH			APRIL			MAY	
1 2	16.79 16.17	14.09 12.15	15.78 14.66	15.92 14.04	13.12 11.68	14.44 12.82	15.74 15.99 14.75 13.79	11.97 14.75	14.22 15.60	19.56 18.63	17.08 16.64	18.39 17.72
3 4	14.56 17.11	11.99 11.71	12.94 13.97	14.01 12.52	11.52 11.53	11.97 11.89	14.75 13.79	13.11 12.36	13.60 12.83	20.79	16.81 17.78	19.38 19.10
5	17.08	14.43										19.41
6 7	15.63 15.92	13.23 12.51	14.60	12.06	11.42	11.68	13.60 13.15 15.93 16.18 16.66	11.54	12.10	19.10	16.68	17.65 19.24
8 9	16.33	14.79	15.82	12.99	11.44	11.79	15.93	11.48	14.10	22.19	19.58	20.55
10	15.39		13.07	11.83	11.34	11.60	16.66	15.57	16.07	17.67	15.90	16.54
11	16.21	11.70	13.73	12.18	11.39	11.65	18.75	15.85	17.15	19.58	16.39	17.53
12 13	16.24 15.78	11.65	13.54	15.78	15.16	16.60	17.75	16.62	18.48	19.39	14.78	16.42 17.33
14 15	17.35 16.40	13.26 13.26	15.74 14.37	17.32 16.28	14.17 13.82	15.27 15.16	18.75 17.75 19.87 21.01 24.31	19.31 18.51	20.32 21.20	18.54 18.59	15.97 17.07	17.37 17.74
16												17.38
17 18	12.18 12.15	11.49 11.51	11.74 11.81	14.38 14.74	12.18 11.51	12.85 12.57	26.34 25.86	25.16 24.37	25.71 24.85	19.94 19.47	16.58 16.59	17.72 18.13
19 20	14.16 15.06	11.63 12.09	12.91 13.70	14.52 12.79	12.52 11.22	13.21	26.06 26.34 25.86 25.05 23.55	23.02	23.91	19.39 18.92	17.26 17.38	17.88 18.41
21												19.99
22	14.36	12.23	13.16	12.89	11.74	12.25	24.34 22.34 22.02 21.96 21.27	19.63	21.05	23.30	20.44	21.71
24 25	16.44	11.10	12.92	11.86	11.40	11.60	21.96	20.67	21.12	22.28	20.63	21.43
26											18.27	19.52
27	17.50	11.63	14.58	13.80	11.40	12.82	20.87 20.55 19.71 17.82 19.40	17.28	19.39	20.53	17.23	19.23
28 29	15.88	13.93	14.89	14.21	12.10	12.82	19.71	16.57	17.39	23.96	20.61 21.46	21.54 23.22
30 31			14.90 14.58 14.89	14.89 14.97	11.75 11.98	12.71 12.62	19.40	17.70	18.85	23.40 23.86	21.44 22.83	22.54 23.16
MONTH	17.57	11.10		17.38	11.22	12.76	26.34	11.48	18.39	23.96	14.78	19.24
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY	MAX	MIN JUNE	MEAN	MAX	MIN	MEAN		MIN AUGUST	MEAN	MAX	MIN SEPTEMBE	
1	27.27	JUNE			JULY		i	AUGUST			SEPTEMBE	ER 11.52
1 2 3	27.27 25.87 24.96	JUNE			JULY		i	AUGUST			SEPTEMBE	11.52 9.60 9.36
1 2	27.27 25.87	JUNE			JULY			AUGUST			SEPTEMBE	11.52 9.60
1 2 3 4 5	27.27 25.87 24.96 25.50 27.69	JUNE 23.34 23.48 21.14 22.74 23.41 26.01	24.83 23.99 23.10 24.33 25.68	25.70 24.58 24.17 23.43 23.25	JULY 20.42 22.88 21.71 22.58 20.87	23.54 23.67 22.79 23.10 21.53	16.29 15.36 15.07 14.92 15.72	13.50 13.63 14.10 11.50 12.04	14.51 14.21 14.50 12.90 14.15	14.67 12.17 10.04 12.53 12.36	SEPTEMBE 10.30 7.95 7.95 8.15 9.97	11.52 9.60 9.36 10.76 10.89
1 2 3 4 5 6 7 8	27.27 25.87 24.96 25.50 27.69	JUNE 23.34 23.48 21.14 22.74 23.41 26.01 24.84	24.83 23.99 23.10 24.33 25.68	25.70 24.58 24.17 23.43 23.25	JULY 20.42 22.88 21.71 22.58 20.87	23.54 23.67 22.79 23.10 21.53	16.29 15.36 15.07 14.92 15.72	13.50 13.63 14.10 11.50 12.04	14.51 14.21 14.50 12.90 14.15	14.67 12.17 10.04 12.53 12.36	SEPTEMBE 10.30 7.95 7.95 8.15 9.97	11.52 9.60 9.36 10.76 10.89 10.76 9.78 9.01
1 2 3 4 5	27.27 25.87 24.96 25.50 27.69 27.79 26.76	JUNE 23.34 23.48 21.14 22.74 23.41 26.01 24.84 24.96 22.97	24.83 23.99 23.10 24.33 25.68	25.70 24.58 24.17 23.43 23.25	JULY 20.42 22.88 21.71 22.58 20.87	23.54 23.67 22.79 23.10 21.53	16.29 15.36 15.07 14.92 15.72	13.50 13.63 14.10 11.50 12.04	14.51 14.21 14.50 12.90 14.15	14.67 12.17 10.04 12.53 12.36	SEPTEMBE 10.30 7.95 7.95 8.15 9.97	11.52 9.60 9.36 10.76 10.89 10.76 9.78
1 2 3 4 5 6 7 8 9	27.27 25.87 24.96 25.50 27.69 27.79 26.76 26.57 25.08	JUNE 23.34 23.48 21.14 22.74 23.41 26.01 24.84 24.96 22.97 21.96	24.83 23.99 23.10 24.33 25.68 26.85 25.65 25.73 24.13 23.02	25.70 24.58 24.17 23.43 23.25 21.71 21.75 21.75 20.00 19.71	JULY 20.42 22.88 21.71 22.58 20.87 18.05 18.30 18.46 16.12 16.68	23.54 23.67 22.79 23.10 21.53 19.87 19.54 19.54 19.54 19.56 17.60	16.29 15.36 15.07 14.92 15.72 15.90 13.84 15.60 16.94 14.46	13.50 13.63 14.10 11.50 12.04 13.64 12.69 12.96 14.45 12.58	14.51 14.21 14.50 12.90 14.15 14.81 12.99 14.53 15.66 13.28	14.67 12.17 10.04 12.53 12.36 11.93 10.83 9.77 9.86 12.50	SEPTEMBE 10.30 7.95 7.95 8.15 9.97 8.96 9.00 8.18 8.05 8.17	11.52 9.60 9.36 10.76 10.89 10.76 9.78 9.01 8.82
1 2 3 4 5 6 7 8 9 10	27.27 25.87 24.96 25.50 27.69 27.79 26.76 26.57 25.08 23.95 25.90 25.76	JUNE 23.34 23.48 21.14 22.74 23.41 26.01 24.84 24.96 21.76 20.95	24.83 23.99 23.10 24.33 25.68 26.85 25.65 25.73 24.13 23.02	25.70 24.58 24.17 23.43 23.25 21.71 21.75 21.75 20.00 19.71	JULY 20.42 22.88 21.71 22.58 20.87 18.05 18.30 18.46 16.12 16.68	23.54 23.67 22.79 23.10 21.53 19.87 19.54 19.54 19.54 19.56 17.60	16.29 15.36 15.07 14.92 15.72 15.90 13.84 15.60 16.94 14.46	13.50 13.63 14.10 11.50 12.04 13.64 12.69 12.96 14.45 12.58	14.51 14.21 14.50 12.90 14.15 14.81 12.99 14.53 15.66 13.28	14.67 12.17 10.04 12.53 12.36 11.93 10.83 9.77 9.86 12.50	SEPTEMBE 10.30 7.95 7.95 8.15 9.97 8.96 9.00 8.18 8.05 8.17	11.52 9.60 9.36 10.76 10.89 10.76 9.78 9.01 8.82 10.11 10.43 8.58
1 2 3 4 5 6 7 8 9 10 11 12 13 14	27.27 25.87 24.96 25.50 27.69 27.79 26.76 26.57 25.08 23.95 25.90 25.76 24.31 23.72	JUNE 23.34 23.48 21.14 22.74 23.41 26.01 24.84 24.96 22.97 21.96 21.76 20.95 21.13 20.31	24.83 23.99 23.10 24.33 25.68 26.85 25.65 25.73 24.13 23.02	25.70 24.58 24.17 23.43 23.25 21.71 21.75 21.75 20.00 19.71	JULY 20.42 22.88 21.71 22.58 20.87 18.05 18.30 18.46 16.12 16.68	23.54 23.67 22.79 23.10 21.53 19.87 19.54 19.54 19.54 19.56 17.60	16.29 15.36 15.07 14.92 15.72 15.90 13.84 15.60 16.94 14.46	13.50 13.63 14.10 11.50 12.04 13.64 12.69 12.96 14.45 12.58	14.51 14.21 14.50 12.90 14.15 14.81 12.99 14.53 15.66 13.28	14.67 12.17 10.04 12.53 12.36 11.93 10.83 9.77 9.86 12.50	SEPTEMBE 10.30 7.95 7.95 8.15 9.97 8.96 9.00 8.18 8.05 8.17	11.52 9.60 9.36 10.76 10.89 10.76 9.78 9.01 8.82 10.11 10.43 8.58 7.91
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	27.27 25.87 24.96 25.50 27.69 27.79 26.76 26.57 25.08 23.95 25.76 24.31 23.72 23.72	JUNE 23.34 23.48 21.14 22.74 23.41 26.01 24.84 24.96 22.97 21.96 21.76 20.95 21.13 20.31 21.45	24.83 23.99 23.10 24.33 25.68 26.85 25.65 25.73 24.13 23.02 24.24 22.66 22.80 21.87 22.23	25.70 24.58 24.17 23.43 23.25 21.71 21.75 20.00 19.71 20.70 22.07 22.07 22.01 20.51 21.19	JULY 20.42 22.88 21.71 22.58 20.87 18.05 18.30 18.46 16.12 16.68 17.45 18.57 18.08 17.75 18.73	23.54 23.67 22.79 23.10 21.53 19.87 19.54 19.35 18.06 17.60 18.79 20.15 19.74 19.34 19.62	16.29 15.36 15.07 14.92 15.72 15.90 13.84 15.60 16.94 14.46 15.69 15.03 15.58 14.73 15.52	AUGUST 13.50 13.63 14.10 11.50 12.04 12.69 12.96 12.96 12.58 12.32 11.61 11.86 12.89 13.19	14.51 14.21 14.50 12.90 14.15 14.81 12.99 14.53 15.66 13.28 14.01 13.28 14.03 13.28 14.03	14.67 12.17 10.04 12.53 12.36 11.93 10.83 9.77 9.25 11.91 10.36 9.08 11.91	SEPTEMBI 10.30 7.95 7.95 8.15 9.97 8.96 9.00 8.18 8.05 8.17 9.18 7.54 7.24 8.01 7.51	11.52 9.60 9.36 10.76 10.89 10.76 9.78 9.01 8.82 10.11 10.43 8.58 7.91 9.96 8.86
1 2 3 4 5 5 6 7 8 9 10 11 12 13 14 15 16 17	27.27 25.87 24.96 25.50 27.69 27.79 26.76 26.76 25.08 23.95 25.90 25.76 24.31 23.72 23.07	JUNE 23.34 23.48 21.14 22.74 23.41 26.01 24.84 24.96 22.97 21.96 21.76 20.95 21.13 20.31 21.45	24.83 23.99 23.10 24.33 25.68 26.85 25.65 25.73 24.13 23.02 24.24 22.66 22.80 21.87 22.23	25.70 24.58 24.17 23.43 23.25 21.71 21.75 20.00 19.71 20.70 22.07 22.07 22.01 20.51 21.19	JULY 20.42 22.88 21.71 22.58 20.87 18.05 18.30 18.46 16.12 16.68 17.45 18.57 18.08 17.75 18.73	23.54 23.67 22.79 23.10 21.53 19.87 19.54 19.35 18.06 17.60 18.79 20.15 19.74 19.34 19.62	16.29 15.36 15.07 14.92 15.72 15.90 13.84 15.60 16.94 14.46 15.69 15.03 15.58 14.73 15.52	AUGUST 13.50 13.63 14.10 11.50 12.04 12.69 12.96 12.96 12.58 12.32 11.61 11.86 12.89 13.19	14.51 14.21 14.50 12.90 14.15 14.81 12.99 14.53 15.66 13.28 14.01 13.28 14.03 13.28 14.03	14.67 12.17 10.04 12.53 12.36 11.93 10.83 9.77 9.25 11.91 10.36 9.08 11.91	SEPTEMBI 10.30 7.95 7.95 8.15 9.97 8.96 9.00 8.18 8.05 8.17 9.18 7.54 7.24 8.01 7.51	11.52 9.60 9.36 10.76 10.89 10.76 9.78 9.01 8.82 10.11 10.43 8.58 7.91 9.96 8.86
1 2 3 4 4 5 5 6 7 7 8 8 9 10 11 12 13 14 15 16 17 18 19	27.27 25.87 24.96 25.50 27.69 27.79 26.76 26.57 25.08 23.95 25.90 25.76 24.31 23.72 23.07 22.95 23.99 23.89 25.25	JUNE 23.34 23.48 21.14 22.74 23.41 26.01 24.84 24.96 22.97 21.96 21.76 20.95 21.13 20.31 21.45	24.83 23.99 23.10 24.33 25.68 26.85 25.65 25.73 24.13 23.02 24.24 22.66 22.80 21.87 22.23	25.70 24.58 24.17 23.43 23.25 21.71 21.75 20.00 19.71 20.70 22.07 22.07 22.01 20.51 21.19	JULY 20.42 22.88 21.71 22.58 20.87 18.05 18.30 18.46 16.12 16.68 17.45 18.57 18.08 17.75 18.73	23.54 23.67 22.79 23.10 21.53 19.87 19.54 19.35 18.06 17.60 18.79 20.15 19.74 19.34 19.62	16.29 15.36 15.07 14.92 15.72 15.90 13.84 15.60 16.94 14.46 15.69 15.03 15.58 14.73 15.52	AUGUST 13.50 13.63 14.10 11.50 12.04 12.69 12.96 12.96 12.58 12.32 11.61 11.86 12.89 13.19	14.51 14.21 14.50 12.90 14.15 14.81 12.99 14.53 15.66 13.28 14.01 13.28 14.03 13.28 14.03	14.67 12.17 10.04 12.53 12.36 11.93 10.83 9.77 9.25 11.91 10.36 9.08 11.91	SEPTEMBI 10.30 7.95 7.95 8.15 9.97 8.96 9.00 8.18 8.05 8.17 9.18 7.54 7.24 8.01 7.51	11.52 9.60 9.36 10.76 10.89 10.76 9.78 9.01 8.82 10.11 10.43 8.58 7.91 9.96 8.86 7.79 9.14 10.30
1 2 3 4 4 5 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20	27.27 25.87 24.96 25.50 27.69 27.79 26.76 26.57 25.08 23.95 25.96 24.31 23.72 23.07 22.95 23.99 23.89 22.95 23.99	JUNE 23.34 23.48 21.14 22.74 23.41 26.01 24.84 24.96 22.97 21.96 21.76 20.95 21.13 20.31 21.45 20.59 19.84 20.81 23.52 24.97	24.83 23.99 23.10 24.33 25.68 26.85 25.65 25.73 24.13 23.02 24.266 22.80 21.87 22.23 21.34 22.29 22.30 24.55 25.68	25.70 24.58 24.17 23.43 23.25 21.71 21.75 20.00 19.71 20.70 22.07 22.07 22.01 20.51 21.19 19.28 21.39 20.90 19.55 20.54	JULY 20.42 22.88 21.71 22.58 20.87 18.05 18.30 18.46 16.12 16.68 17.45 18.08 17.75 18.08 17.75 18.73	23.54 23.67 22.79 23.10 21.53 19.87 19.54 19.35 18.06 17.60 18.79 20.15 19.74 19.34 19.62 17.93 18.28 19.70 18.08 17.76	16.29 15.36 15.07 14.92 15.72 15.90 13.84 15.60 16.94 14.46 15.69 15.03 15.58 14.73 15.52 15.62 15.99 12.73 13.99 14.40	AUGUST 13.50 13.63 14.10 11.50 12.04 13.64 12.69 12.96 14.45 12.58 12.32 11.61 11.86 12.89 13.19 13.36 11.73 13.18	14.51 14.21 14.50 12.90 14.15 14.81 12.99 14.53 15.66 13.28 14.01 13.28 14.03 13.92 14.18 14.90 12.83 12.03 12.71 13.60	14.67 12.17 10.04 12.53 12.36 11.93 10.83 9.77 9.86 12.50 11.91 10.36 9.08 11.62 8.71 10.93 11.05 11.92	SEPTEMBH 10.30 7.95 7.95 8.16 9.97 8.96 9.00 8.18 8.05 8.17 9.18 7.54 7.24 8.01 7.51 6.66 7.38 8.53 8.91 8.53	11.52 9.60 9.36 10.76 10.89 10.76 9.78 9.01 1.882 10.11 10.43 8.58 7.91 9.96 8.86 7.79 9.14 10.30 10.43 11.04
1 2 3 4 5 5 6 7 8 8 9 10 11 12 13 13 14 15 16 17 18 19 20 21 22	27.27 25.87 24.96 25.50 27.69 27.79 26.76 26.57 25.08 23.95 25.76 24.31 23.72 23.07 22.3.07 22.3.07 22.3.09 23.89 25.26 26.57	JUNE 23.34 23.48 21.14 22.74 23.41 26.01 24.84 24.96 22.97 21.96 21.76 20.95 21.13 20.31 21.45 20.59 19.84 23.52 24.97 25.00	24.83 23.99 23.10 24.33 25.68 26.85 25.65 25.73 24.13 23.02 24.24 22.66 22.80 21.87 22.23 21.34 22.29 22.30 24.55 25.68	25.70 24.58 24.17 23.43 23.25 21.71 21.75 20.00 19.71 20.70 22.07 22.07 22.01 20.51 21.19 19.28 21.39 20.90 19.55 20.54	JULY 20.42 22.88 21.71 22.58 20.87 18.05 18.36 16.12 16.68 17.45 18.73 16.96 16.50 16.93 16.37 18.21	23.54 23.67 22.79 23.10 21.53 19.87 19.54 19.35 18.06 17.60 18.79 20.15 19.74 19.62 17.93 18.28 19.34 17.76	16.29 15.36 15.07 14.92 15.72 15.90 13.84 15.60 16.94 14.46 15.69 15.03 15.58 14.73 15.52 15.62 15.99 12.73 13.99 14.40	AUGUST 13.50 13.63 14.10 11.50 12.04 13.64 12.69 12.96 14.45 12.58 12.58 11.61 11.86 11.59 13.19 13.36 11.75 11.73 13.18	14.51 14.21 14.50 12.90 14.15 14.81 12.99 14.53 15.66 13.28 14.01 13.28 14.03 13.28 14.03 12.83 12.83 12.83 12.71 13.60 14.00 13.20	14.67 12.17 10.04 12.53 12.36 11.93 10.83 9.77 9.86 12.50 11.91 10.36 9.08 11.92 8.71 10.93 11.05 11.32 12.52	SEPTEMBH 10.30 7.95 7.95 8.16 9.97 8.96 9.00 8.18 8.05 8.17 9.18 7.54 7.24 8.01 7.51 6.66 7.38 8.53 8.91 8.53 8.91 8.53	11.52 9.60 9.36 10.76 10.89 10.76 9.78 9.01 10.43 10.43 11.04 10.33 10.43 11.04
1 2 3 4 5 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	27.27 25.87 24.96 25.50 27.69 27.79 26.76 26.57 25.08 23.95 25.76 24.31 23.97 22.307 22.95 23.90 25.26 23.95 23.95 23.90 25.26	JUNE 23.34 23.48 21.14 22.74 23.41 26.01 24.84 24.96 22.97 21.96 20.95 21.13 20.59 19.84 23.52 24.97 25.00 23.32 21.42	24.83 23.99 23.10 24.33 25.68 26.85 25.65 25.73 24.13 23.02 24.24 22.66 22.80 21.87 22.23 21.34 22.29 22.30 24.55 25.68	25.70 24.58 24.17 23.43 23.25 21.71 21.75 20.00 19.71 20.70 22.07 22.07 22.01 20.51 21.19 19.28 21.39 20.90 19.55 20.54 20.53 19.95 17.91 17.88	JULY 20.42 22.88 21.71 22.58 20.87 18.05 18.36 16.12 16.68 17.45 18.08 17.75 18.73 16.96 16.93 16.37 17.75 15.94	23.54 23.67 22.79 23.10 21.53 19.87 19.35 18.06 17.60 20.15 19.74 19.34 19.62 17.93 18.28 19.76 18.08 17.76	16.29 15.36 15.07 14.92 15.72 15.90 13.84 15.60 16.94 14.46 15.03 15.58 14.73 15.52 15.62 15.99 12.73 13.99 14.40 14.72 13.76 15.18	AUGUST 13.50 13.63 14.10 11.50 12.04 13.64 12.69 14.45 12.59 13.19 13.36 11.59 13.19 13.36 11.75 11.73 13.18	14.51 14.21 14.50 12.90 14.15 14.81 12.99 14.53 15.66 13.28 14.01 13.28 14.03 13.28 14.03 12.83 12.83 12.83 12.71 13.60 14.00 13.20 13.23 13.23 13.23 13.23 13.23 13.23	14.67 12.17 10.04 12.53 12.36 11.93 10.83 9.77 9.86 12.50 11.91 10.36 9.08 11.92 8.71 10.93 11.05 11.32 12.52 12.52	SEPTEMBE 10.30 7.95 7.95 8.16 9.97 8.96 9.00 8.18 8.05 8.17 9.18 7.54 7.24 8.01 7.51 6.66 7.38 8.53 8.91 8.53 8.91 8.53 8.91 8.53	11.52 9.60 9.36 10.76 10.89 10.76 9.78 9.01 8.82 10.11 10.43 8.58 7.91 9.91 4.030 10.43 11.04 10.93 12.16
1 2 3 4 4 5 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	27.27 25.87 24.96 25.50 27.69 27.79 26.76 26.57 25.08 23.95 25.90 25.76 24.31 23.72 23.07 22.95 23.89 23.80 25.26.10	JUNE 23.34 23.48 21.14 22.74 23.41 26.01 24.84 24.97 21.96 21.76 20.95 21.13 20.31 20.31 21.45 20.59 19.84 20.81 23.52 24.97	24.83 23.99 23.10 24.33 25.68 26.85 25.65 25.73 24.13 23.02 24.24 22.66 22.80 21.87 22.23 21.34 22.29 22.30 24.55 25.68	25.70 24.58 24.17 23.43 23.25 21.71 21.75 21.59 20.00 19.71 20.70 22.07 22.07 22.01 20.51 21.19 19.28 21.39 20.90 19.55 20.54 20.53 19.95 17.91	JULY 20.42 22.88 21.71 22.58 20.87 18.05 18.36 16.12 16.68 17.45 18.08 17.75 18.73 16.96 16.93 16.37 17.75 15.94	23.54 23.67 22.79 23.10 21.53 19.87 19.54 19.35 17.60 18.79 20.15 19.74 19.34 19.62 17.93 18.28 19.70 18.08 17.76	16.29 15.36 15.07 14.92 15.72 15.90 13.84 15.60 16.94 14.46 15.03 15.58 14.73 15.52 15.62 15.99 12.73 13.99 14.40 14.72 13.76 15.18	AUGUST 13.50 13.63 14.10 11.50 12.04 13.64 12.69 12.96 12.58 12.32 11.61 11.86 12.89 13.36 11.59 11.73 13.18 13.49 12.73	14.51 14.21 14.50 12.90 14.15 14.81 12.99 14.53 15.66 13.28 14.01 13.28 14.03 13.92 14.18 14.90 12.83 12.03 12.71 13.60	14.67 12.17 10.04 12.53 12.36 11.93 10.83 9.77 9.86 12.50 11.91 10.36 9.08 11.68 11.68 11.92 11.93 11.05 11.93 11.05 11.93 11.05 11.93 11.05 11.93 11.05 11.93 11.05 11.93 11.05 11.93 11.05 11.93 11.05 11.93 11.05 11.93 11.05 11.93 11.05 11.93 11.05 11.93 11.05 11.93 11.05 11.93 11.	SEPTEMBI 10.30 7.95 7.95 8.15 9.97 8.96 9.00 8.18 8.05 8.17 9.18 7.54 7.24 8.01 7.51 6.66 7.38 8.53 8.91 8.53	11.52 9.60 9.36 10.76 9.78 9.01 8.82 10.11 10.43 8.58 7.91 9.96 8.86 7.79 9.14 10.30 10.43 11.04
1 2 3 4 5 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	27.27 25.87 24.96 25.50 27.69 27.79 26.76 26.57 25.08 23.95 25.76 24.31 23.97 22.307 22.95 23.90 25.26 23.95 23.95 23.90 25.26	JUNE 23.34 23.48 21.14 22.74 23.41 26.01 24.84 24.96 22.97 21.96 21.76 20.95 21.13 20.31 21.45 20.59 19.84 23.52 24.97 25.00 22.76 23.36 22.1.97	24.83 23.99 23.10 24.33 25.68 26.85 25.65 25.73 24.13 23.02 24.24 22.66 22.80 21.87 22.23 21.34 22.29 22.30 24.55 25.68	25.70 24.58 24.17 23.43 23.25 21.71 21.75 21.59 20.00 19.71 20.70 22.07 22.07 22.01 20.51 21.19 19.28 21.39 20.90 19.55 20.54 20.53 19.95 17.88 17.88 17.82	JULY 20.42 22.88 21.71 22.58 20.87 18.05 18.36 16.12 16.68 17.45 18.73 16.96 16.50 16.93 16.37 18.17 17.75 18.73	23.54 23.67 22.79 23.10 21.53 19.87 19.35 18.06 17.60 20.15 19.74 19.34 19.62 17.93 18.28 19.76 18.08 17.76	16.29 15.36 15.07 14.92 15.72 15.90 13.84 15.60 16.94 14.46 15.69 15.03 15.58 14.73 15.52 15.62 15.99 12.73 13.99 14.40 14.72 13.76 15.18 14.72	AUGUST 13.50 13.63 14.10 11.50 12.04 13.64 12.69 12.96 14.45 12.58 12.32 11.61 11.86 12.89 13.19 13.36 11.59 11.73 13.18 12.52 12.22 12.52 10.54	14.51 14.21 14.50 12.90 14.15 14.81 12.99 14.53 15.66 13.28 14.01 13.28 14.03 13.28 14.03 12.83 12.83 12.83 12.71 13.60 14.00 13.20 13.23 13.23 13.23 13.23 13.23 13.23	14.67 12.17 10.04 12.53 12.36 11.93 10.83 9.77 9.86 12.50 11.91 10.36 9.08 11.92 8.71 10.93 11.05 11.32 12.52 12.52	SEPTEMBE 10.30 7.95 7.95 8.16 9.97 8.96 9.00 8.18 8.05 8.17 9.18 7.54 7.24 8.01 7.51 6.66 7.38 8.53 8.91 8.53 8.91 8.53 8.91 8.53	11.52 9.60 9.36 10.76 10.89 10.76 9.78 9.01 8.82 10.11 10.43 8.58 7.91 9.91 4.030 10.43 11.04 10.93 12.16
1 2 3 4 5 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	27.27 25.87 24.96 25.50 27.69 27.79 26.76 26.57 25.08 23.95 25.76 24.31 23.72 22.95 23.99 23.89 25.26 26.57 24.31 23.72 22.95 23.99 23.89 25.25 26.57 23.99 23.89 25.56 25.56 26.57 23.99	JUNE 23.34 23.48 21.14 22.74 23.41 26.01 24.84 24.96 22.97 21.96 20.95 21.13 20.31 21.45 20.59 19.84 20.59 21.76 20.21 21.42 21.42 21.42 21.42 21.42 21.42 21.42 21.42 21.42	24.83 23.99 23.10 24.33 25.68 26.85 25.65 25.73 24.13 23.02 24.26 22.80 21.87 22.23 21.34 22.29 22.30 24.55 25.68 25.66 22.80 21.87 22.23	25.70 24.58 24.17 23.43 23.25 21.71 21.75 20.00 19.71 20.70 22.07 22.07 22.01 20.51 21.19 19.28 21.39 20.90 19.55 20.54 20.54 20.53 17.91 17.82 17.82	JULY 20.42 22.88 21.71 22.58 20.87 18.05 18.36 16.12 16.68 17.45 18.08 17.75 18.73 16.96 16.93 16.37 17.75 15.94 16.31 15.08 12.80 13.89	23.54 23.67 22.79 23.10 21.53 19.87 19.54 19.35 18.06 17.60 19.34 19.34 19.62 17.93 18.28 19.34 19.62 17.93 18.28 17.76 18.08 17.76 18.08 17.76 18.08 17.76 18.83 16.57 17.06 16.72	16.29 15.36 15.07 14.92 15.72 15.90 13.84 15.60 16.94 14.46 15.69 15.03 15.58 14.73 15.52 15.62 15.99 12.73 13.99 14.40 14.74 14.72 13.76 15.18 14.71 13.71	AUGUST 13.50 13.63 14.10 11.50 12.04 13.64 12.69 12.96 14.45 12.58 12.58 11.61 11.86 11.59 13.19 13.36 11.75 11.73 13.18 12.22 10.54 10.04 11.26	14.51 14.21 14.50 12.90 14.15 14.81 12.99 14.53 15.66 13.28 14.01 13.28 14.03 13.28 14.03 12.83 12.03 12.71 13.60 14.00 12.83 12.71 13.60 14.00 13.20 13.23 14.18	14.67 12.17 10.04 12.53 12.36 11.93 10.83 9.77 9.86 12.50 11.91 10.36 9.08 11.92 8.71 10.93 11.05 11.32 12.52 12.48 11.70 13.58 13.24 12.29	SEPTEMBE 10.30 7.95 7.95 8.16 9.97 8.96 9.00 8.18 8.05 8.17 9.18 7.54 7.24 8.01 7.51 6.66 7.38 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53	11.52 9.60 9.36 10.76 9.78 9.01 10.89 10.76 9.78 9.01 10.43 8.58 7.91 9.96 8.86 7.79 9.14 10.30 10.43 11.04
1 2 3 3 4 5 5 6 7 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	27.27 25.87 24.96 25.50 27.69 27.79 26.76 26.57 25.08 23.95 25.76 24.31 23.07 22.95 23.90 25.25 23.95 24.31 25.25 26.15 27.25	JUNE 23.34 23.48 21.14 22.74 23.41 26.01 24.84 24.96 22.97 21.96 21.76 20.95 21.13 20.59 19.84 23.52 24.97 25.00 23.32 21.42 21.76 21.37 20.67 21.37	24.83 23.99 23.10 24.33 25.68 26.85 25.65 25.73 24.13 23.02 24.24 22.80 21.87 22.23 21.34 22.29 22.30 24.55 22.66 22.80 22.80 21.87 22.23 21.34 22.29 22.30 24.55 25.68	25.70 24.58 24.17 23.43 23.25 21.71 21.75 20.00 19.71 20.70 22.07 22.07 22.01 20.51 21.19 19.28 21.39 20.90 19.55 20.54 20.53 19.95 17.91 17.88 17.82 16.60 15.27 14.89 16.15	JULY 20.42 22.88 21.71 22.58 20.87 18.05 18.36 16.12 16.68 17.45 18.07 18.08 17.75 18.73 16.96 16.93 16.37 18.60 16.93 16.37 18.21 17.75 15.94 16.31 15.08	23.54 23.67 22.79 23.10 21.53 19.87 19.35 18.06 17.60 20.15 19.74 19.34 19.62 17.93 18.20 19.34 19.62 17.93 18.20 17.76 18.08 17.76 17.76 17.76 18.08 17.76 18.08 17.76	16.29 15.36 15.07 14.92 15.72 15.90 13.84 15.60 16.94 14.46 15.69 15.03 15.58 14.73 15.52 15.62 12.73 13.99 14.40 14.72 13.76 15.18 14.71 13.71 14.41	AUGUST 13.50 13.63 14.10 11.50 12.04 13.64 12.69 12.94 13.61 11.86 12.32 11.61 11.86 11.79 13.19 13.36 11.75 11.73 13.18 13.49 12.56 12.73 12.56 12.73 12.22 10.54 10.04 11.60 11.60	14.51 14.21 14.50 12.90 14.15 14.81 12.99 14.53 15.66 13.28 14.01 13.28 14.03 13.28 14.03 12.03 12.71 13.60 14.00 13.23 12.71 13.60 14.00 13.23 13.23 13.23 14.18	14.67 12.17 10.04 12.36 11.93 10.83 9.77 9.86 12.50 11.91 10.36 9.08 11.91 10.95 11.92 8.71 10.93 11.92 12.52 12.48 11.70 13.58 13.24 12.29	SEPTEMBI 10.30 7.95 7.95 8.16 8.15 9.97 8.96 9.00 8.18 8.05 8.17 9.18 7.54 7.24 8.01 7.51 6.66 7.38 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53	11.52 9.60 9.36 10.76 10.89 10.76 9.78 9.01 10.43 8.58 7.91 9.14 10.30 10.43 11.04 10.93 12.16 10.93 12.16 10.93 10.68
1 2 3 3 4 5 5 6 7 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	27.27 25.87 24.96 25.50 27.69 27.79 26.76 26.57 25.08 23.95 23.95 23.95 23.95 23.95 23.99 23.80 25.26 23.95 23.99 23.80 25.25 23.95 23.95 23.95 23.95 23.95 25.87 24.13 25.16 23.65	JUNE 23.34 23.48 21.14 22.74 23.41 26.01 24.86 22.97 21.96 20.95 21.13 20.59 19.88 20.59 19.88 20.497 25.00 23.32 21.42 21.97 25.00 23.32 21.42 21.97 21.37	24.83 23.99 23.10 24.33 25.68 26.85 25.65 25.73 24.13 23.02 24.24 22.66 22.80 21.87 22.23 21.34 22.23 21.34 22.30 24.55 25.68 22.80 22.80 21.87 22.23 21.34 22.30 24.55 25.68	25.70 24.58 24.17 23.43 23.25 21.71 21.75 20.00 19.71 20.70 22.07 22.07 22.01 21.19 19.28 21.39 20.90 19.55 20.54 20.53 19.95 17.91 17.88 17.82 16.60 15.27 14.89 16.15 16.97 15.90	JULY 20.42 22.88 21.71 22.58 20.87 18.05 18.36 16.12 16.68 18.57 18.08 17.75 18.73 16.96 16.50 16.93 16.37 18.12 17.75 15.98 12.80 13.89 13.24 12.76	23.54 23.67 22.79 23.10 21.53 19.87 19.54 19.35 18.06 17.60 20.15 19.74 19.62 17.93 18.28 19.70 18.89 16.57 17.76 18.83 18.89 16.57 17.06 16.72	16.29 15.36 15.07 14.92 15.72 15.90 13.84 15.60 16.94 14.46 15.69 15.03 15.58 14.73 15.52 15.62 15.99 12.73 13.99 14.40 14.72 13.76 15.18 14.71 13.11 13.11 13.11 13.21 14.22 13.48 14.15 14.64	AUGUST 13.50 13.63 14.10 11.50 12.04 13.64 12.69 14.45 12.59 13.19 13.36 11.59 13.19 13.36 11.75 11.73 13.18 13.49 12.56 12.56 12.57 11.73 13.18 13.49 12.56 12.76 11.61 11.60 11.60 11.60 11.60	14.51 14.51 14.21 14.50 12.90 14.15 14.81 12.99 14.53 15.66 13.28 14.01 13.28 14.03 13.28 14.03 13.28 14.03 13.28 14.03 13.28 14.18 14.90 12.83 12.03 12.71 13.60 14.00 13.20 13.28 14.00 13.28 14.00 13.28 14.00 13.28 14.00 13.28 14.00 13.28 14.00 13.28 14.00 13.28 14.00 13.28 14.00 13.28 14.00 13.28 14.00 13.28 14.00 13.28 14.00 13.28 14.00 13.28 14.00 13.28 14.00 13.20 13	14.67 12.17 10.04 12.53 12.36 11.93 10.83 9.77 9.86 12.50 11.91 10.36 9.08 11.91 10.95 11.92 8.71 10.93 11.92 12.52 12.48 11.70 13.58 13.24 12.29 12.96 13.04 9.15	SEPTEMBI 10.30 7.95 7.95 8.16 8.15 9.97 8.96 9.00 8.18 8.05 8.17 9.18 7.54 7.24 7.24 8.01 7.51 6.66 7.38 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53 8.91 8.53	11.52 9.60 9.36 10.76 10.89 10.76 9.78 9.01 8.82 10.11 10.43 8.58 7.91 9.63 8.86 7.79 9.53 11.04 10.93 11.04 10.93 12.16 10.93 10.68
1 2 3 3 4 5 5 6 7 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	27.27 25.87 24.96 25.50 27.69 27.79 26.76 26.57 25.08 23.95 25.76 24.31 23.07 22.95 23.90 25.25 23.95 24.31 25.25 26.15 27.25	JUNE 23.34 23.48 21.14 22.74 23.41 26.01 24.84 24.96 22.97 21.96 21.76 20.95 21.13 20.59 19.84 23.52 24.97 25.00 23.32 21.42 21.76 21.37 20.67 21.37	24.83 23.99 23.10 24.33 25.68 26.85 25.65 25.73 24.13 23.02 24.24 22.80 21.87 22.23 21.34 22.29 22.30 24.55 22.66 22.80 22.80 21.87 22.23 21.34 22.29 22.30 24.55 25.68	25.70 24.58 24.17 23.43 23.25 21.71 21.75 20.00 19.71 20.70 22.07 22.07 22.01 20.51 21.19 19.28 21.39 20.90 19.55 20.54 20.53 19.95 17.91 17.88 17.82 16.60 15.27 14.89 16.15	JULY 20.42 22.88 21.71 22.58 20.87 18.05 18.36 16.12 16.68 18.57 18.08 17.75 18.73 16.96 16.50 16.93 16.37 18.12 17.75 15.98 12.80 13.89 13.24 12.76	23.54 23.67 22.79 23.10 21.53 19.87 19.35 18.06 17.60 20.15 19.74 19.34 19.62 17.93 18.20 19.34 19.62 17.93 18.20 17.76 18.08 17.76 17.76 17.76 18.08 17.76 18.08 17.76	16.29 15.36 15.07 14.92 15.72 15.90 13.84 15.60 16.94 14.46 15.69 15.03 15.58 14.73 15.52 15.62 12.73 13.99 14.40 14.72 13.76 15.18 14.71 13.71 14.41	AUGUST 13.50 13.63 14.10 11.50 12.04 13.64 12.69 14.45 12.59 13.19 13.36 11.59 13.19 13.36 11.75 11.73 13.18 13.49 12.56 12.56 12.57 11.73 13.18 13.49 12.56 12.76 11.61 11.60 11.60 11.60 11.60	14.51 14.21 14.50 12.90 14.15 14.81 12.99 14.53 15.66 13.28 14.01 13.28 14.03 13.28 14.03 12.03 12.71 13.60 14.00 13.23 12.71 13.60 14.00 13.23 13.23 13.23 14.18	14.67 12.17 10.04 12.53 12.36 11.93 10.83 9.77 9.86 12.50 11.91 10.36 9.08 11.91 10.95 11.92 8.71 10.93 11.92 12.52 12.48 11.70 13.58 13.24 12.29 12.96 13.04 9.15	SEPTEMBI 10.30 7.95 7.95 8.16 8.15 9.97 8.96 9.00 8.18 8.05 8.17 9.18 7.54 7.24 8.01 7.51 6.66 7.38 8.53 8.91 8.53 8.91 8.53 9.32 8.45 10.30 9.98 7.88 8.95 9.98 7.88	11.52 9.60 9.36 10.76 10.89 10.76 9.01 8.82 10.11 10.43 8.58 7.91 9.01 10.43 11.04 10.30 10.43 11.04 10.91 9.53 12.16 10.93 10.68

14144700 COLUMBIA RIVER AT VANCOUVER, WA

LOCATION.--Lat 45°37'15", long 122°40'20", in NE 1/4 NW 1/4 sec.34, T.2 N., R.1 E., Clark County, Hydrologic Unit 17080001, near right bank in control house of Interstate Highway 5 bridge at south edge of Vancouver, 5.0 mi upstream from Willamette River, and at mile 106.5.

DRAINAGE AREA. -- 241,000 mi², approximately.

PERIOD OF RECORD.--October 1963 to June 1970 (discharge), February 1998 to current year (gage heights only).

GAGE.--Water-stage recorder. Datum of gage is 1.82 ft above NGVD of 1929. Prior to February 1998, datum of gage was NGVD of 1929.

REMARKS.--Considerable regulation by many large reservoirs. Diurnal fluctuations caused by powerplant operations at Bonneville Dam and tides. Gage maintained by National Weather Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 27.60 ft Dec. 25, 1964, present datum, (backwater from Willamette River).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1894, reached a stage of 34.4 ft, present datum, from information provided by U.S. Army Corps of Engineers. Flood of June 13, 14, 1948, reached a stage of 31.0 ft, present datum, from Weather Bureau records.

EXTREMES FOR CURRENT YEAR. -- Maximum recorded gage height, 12.92 ft Apr. 18; minimum, -0.68 ft Oct. 26.

GAGE HEIGHT, in FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER	!	N	OVEMBER		D	ECEMBER			JANUARY	
1 2	3.30	-0.02 0.42	1.62	4.60	1.28	2.74	8.32 8.22	6.42	7.37	6.72		
3	3.72	0.50	2.04	4.44	1.30	2.57	8.32	6.92	7.65	5.62	3.72	4.63
4	3.24	0.16	1.66	4.04	0.86	2.18	7.22	6.12	6.75	5.02	3.12	4.14
5	3.78	0.00	1.68	3.88	0.80	2.10	6.92	5.82	6.49	5.12	2.92	4.04
6	3.64	0.48	1.84	4.04	0.72	2.23	6.82	5.72	6.40	5.52	3.12	4.27
7	3.32	0.20	1.50	3.32	0.98	1.97	6.72	5.42	6.04	7.42	4.22	5.90
8	3.28	-0.10	1.32	3.24	0.56	1.74	6.02	4.92	5.50	8.42	6.82	7.48
9	2.88	-0.26	1.06	3.22	0.92	2.05	5.92	4.52	5.30	8.12	7.12	7.60
10	3.44	-0.64	1.03	3.68	0.72	2.11	6.02	4.02	4.91	8.52	7.52	7.97
11	3.48	0.22	1.60	3.68	0.32	1.97	6.22	4.02	5.05	7.72	6.22	7.24
12	2.98	-0.46	1.28	4.36	0.64	2.41	6.12	4.32	5.15	7.02	5.42	6.16
13	3.28	-0.26	1.42	4.82	1.40	2.94	7.02	4.42	5.65	6.62	5.02	5.64
14	3.28	0.00	1.68	6.42	1.62	4.05	8.22	6.32	7.54	6.02	4.62	5.37
15	3.96	0.36	2.08	6.52	3.42	4.69	8.02	6.82	7.55	5.32	3.92	4.76
16	4.40	0.90	2.48	6.02	2.92	4.20	8.62	7.02	7.77	6.52	4.32	5.48
17	4.60	1.00	2.56	5.42	2.52	3.67	9.22	8.12	8.67	6.22	5.02	5.58
18	4.76	1.50	2.92	4.92	2.42	3.44	9.52	8.02	8.67	5.42	4.22	4.77
19	4.42	1.04	2.51	4.92	1.62	2.97	9.52	8.02	8.81	5.02	3.72	4.30
20	3.84	0.64	1.99	5.02	2.02	3.45	8.82	6.62	7.61	4.92	2.92	3.98
21	3.52	0.14	1.60	4.52	2.42	3.61	7.82	6.82	7.18	5.62	3.82	4.84
22	3.80	0.00	1.62	5.12	2.32	3.90	7.82	5.52	6.69	5.92	4.42	5.27
23	3.40	0.76	1.94	4.72	3.42	4.06	6.12	4.72	5.51	6.52	5.32	5.93
24	2.28	-0.40	1.12	5.02	3.52	4.17	5.32	3.92	4.68	7.22	5.82	6.51
25	2.48	-0.08	1.21	4.82	3.32	4.06	4.72	3.12	3.86	7.22	6.12	6.74
26	2.44	-0.68	0.97	4.42	2.72	3.54	4.82	2.92	3.68	8.72	6.82	7.84
27	3.04	-0.08	1.48	4.62	2.72	3.56	5.42	3.02	3.85	8.42	7.52	8.01
28	2.92	-0.16	1.33	6.72	3.32	4.87	6.02	3.02	4.21	8.62	7.42	7.91
29	3.44	0.28	1.71	7.22	4.92	6.33	6.12	3.32	4.37	8.52	7.12	7.64
30	4.12	0.68	2.15	7.22	5.82	6.61	6.22	3.22	4.36	8.22	6.82	7.47
31	4.44	0.98	2.59				6.32	3.22	4.42	7.72	6.12	6.95
MONTH	4.76	-0.68	1.74	7.22	0.32	3.37	9.52	2.92	6.11			

14144700 COLUMBIA RIVER AT VANCOUVER, WA--Continued

GAGE HEIGHT, in FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		G	AGE HEIGHT,	in FEET,	WATER	YEAR OCTO	DBER 2001	TO SEPT	TEMBER 2002			
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY		N	IARCH			APRIL			MAY	
1	7 22	E 00	6 54	E 00	4 02	4 00	E 40	2 62	3 03	6 00	E 40	6 07
2	6.52	5.02	6.54 5.78 5.10 4.20 4.98	5.42	2.92	4.07	5.42	3.72	4.54	6.42	4.92	5.66
3	6.12	4.22	5.10	5.32	2.52	3.65	5.02	2.82	3.93	6.12	4.92	5.53
4	5.12	3.22	4.20	5.12	2.12	3.31	4.12	2.12	3.16	6.02	4.92	5.58
6	5.82	4.02	4.81	5.02	2.32	3.32	3.72	1.82	3.00	5.72	4.32	4.96
7	6.22	4.32	5.11	4.62	2.72	3.42	3.82	1.92	3.04	5.82	4.32	5.27
8 9	7.12	4.82 5.92	6.04	4.32	2.22	3.46	4.22	3.12	4.13	6.62	4.82	5.77
10	6.42	4.62	4.81 5.11 6.04 6.51 5.76	5.12	2.12	3.71	5.82	3.42	4.86	5.82	4.02	4.83
12	6.02	4.42	4.78 5.14 4.79 4.64 4.51	6.92	3.92	5.55	6.82	5.72	6.31	6.02	4.22	4.96
13	5.62	3.72	4.79	7.82	5.82	6.95	7.62	5.92	6.81	5.52	3.92	4.66
14 15	5.72	3.62	4.64	7.62	6.22	7.07	9.62	7.32	8.82	6.02	4.42	5.18
16	4.52	2.22	3.56 3.46 3.21 3.71 3.63	6.82	5.52	6.10	12.42	10.32	11.45	6.12	4.42	5.21
17 18	4.72	2.62	3.46	5.92	4.22	5.04	12.92	12.42	12.67	6.72	4.32	4.95 5.47
19	5.32	2.42	3.71	5.32	3.82	4.40	12.02	10.82	11.49	5.62	4.42	5.05
20	4.62	3.02	3.63	5.22	3.82	4.35	10.82	8.92	9.92	5.72	4.82	5.33
21	5.02	3.22	3.90	4.42	3.22	3.78	9.42	8.62	9.15	6.32	5.32	5.94
22	5.12	3.32	4.08	4.42	2.82	3.64	8.82	7.42	8.24	7.42	6.02	7.10
23	5.52	3.52	4.32	4.32	2.42	3.38	7.92	7.32	7.63	8.42	7.22	7.79
24 25	5.62	3.52	3.90 4.08 4.32 4.48 4.84	4.42	2.32	3.32	7.92 8.12	6.72	7.36	8.32	7.32	7.73
26	6.22	3.92	4.96 5.17 5.02 	5.22	2.52	3.71	7.82	6.62	7.11	8.22	6.62	7.32
27 28	6.02	4.12	5.02	5.62	3.32	4.37	7.82	5.62	6.61	8.42	6.02	7.71
29				5.42	3.12	4.20	6.82	5.02	5.77	9.52	8.02	8.91
30				5.52	2.92	4.05	7.12	5.22	6.09	9.42	8.82	9.14
31				5.62	2.92	3.94				9.42	8.92	9.14
MONTH	7.22	2.22	4.75	7.82	2.12	4.26	12.92	1.82	6.82		3.82	
D			W77.17			WEAR			WELL			
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE		Ċ	TULY		i	AUGUST			SEPTEMBER	ર
		JUNE		Ċ	TULY		i	AUGUST			SEPTEMBER	ર
		JUNE		Ċ	TULY		i	AUGUST			SEPTEMBER	ર
		JUNE		Ċ	TULY		i	AUGUST			SEPTEMBER	ર
		JUNE		Ċ	TULY		i	AUGUST			SEPTEMBER	ર
1 2 3 4 5	10.22 10.42 9.42 9.22 10.42	JUNE 9.12 9.22 8.32 8.62 9.12	9.44 9.82 8.78 8.97 9.67	9.22 9.02 8.92 8.22 8.32	8.32 8.42 7.52 7.62 6.72	8.68 8.63 8.24 7.86 7.49	4.24 4.30 4.27 4.42 4.28	2.05 1.90 2.24 1.79 1.51	2.92 2.81 2.93 2.84 2.84	3.90 3.52 3.50 4.06 4.87	1.05 0.60 0.05 0.38 1.28	1.98 1.68 1.72 2.26 2.87
1 2 3 4 5	10.22 10.42 9.42 9.22 10.42	JUNE 9.12 9.22 8.32 8.62 9.12	9.44 9.82 8.78 8.97 9.67	9.22 9.02 8.92 8.22 8.32	8.32 8.42 7.52 7.62 6.72	8.68 8.63 8.24 7.86 7.49	4.24 4.30 4.27 4.42 4.28	2.05 1.90 2.24 1.79 1.51	2.92 2.81 2.93 2.84 2.84	3.90 3.52 3.50 4.06 4.87	1.05 0.60 0.05 0.38 1.28	1.98 1.68 1.72 2.26 2.87
1 2 3 4 5 6 7 8	10.22 10.42 9.42 9.22 10.42 11.32 11.42 10.72	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42	9.44 9.82 8.78 8.97 9.67	9.22 9.02 8.92 8.22 8.32	8.32 8.42 7.52 7.62 6.72	8.68 8.63 8.24 7.86 7.49	4.24 4.30 4.27 4.42 4.28	2.05 1.90 2.24 1.79 1.51	2.92 2.81 2.93 2.84 2.84	3.90 3.52 3.50 4.06 4.87	1.05 0.60 0.05 0.38 1.28	1.98 1.68 1.72 2.26 2.87
1 2 3 4 5 6 7 8	10.22 10.42 9.42 9.22 10.42 11.32 11.42 10.72	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42	9.44 9.82 8.78 8.97 9.67	9.22 9.02 8.92 8.22 8.32	8.32 8.42 7.52 7.62 6.72	8.68 8.63 8.24 7.86 7.49	4.24 4.30 4.27 4.42 4.28	2.05 1.90 2.24 1.79 1.51	2.92 2.81 2.93 2.84 2.84	3.90 3.52 3.50 4.06 4.87	1.05 0.60 0.05 0.38 1.28	1.98 1.68 1.72 2.26 2.87
1 2 3 4 5 6 7 8 9	10.22 10.42 9.42 9.22 10.42 11.32 11.42 10.72 10.62 9.82	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 9.42 8.52	9.44 9.82 8.78 8.97 9.67 11.08 11.03 10.59 10.01 9.15	9.22 9.02 8.92 8.92 8.22 8.32 7.52 7.12 6.62	8.32 8.42 7.52 7.62 6.72 5.62 5.42 5.22	8.68 8.63 8.24 7.86 7.49 6.34 6.11 6.07	4.24 4.30 4.27 4.42 4.28 5.36 5.35 5.39 5.92 5.81	2.05 1.90 2.24 1.79 1.51 2.73 2.31 3.06 2.59	2.92 2.81 2.93 2.84 2.84 3.81 3.62 4.35 4.05	3.90 3.52 3.50 4.06 4.87 4.93 4.99 4.51 4.32 5.02	1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.73 0.94	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.61 2.40 2.59
1 2 3 4 5 6 7 8 9	10.22 10.42 9.42 9.22 10.42 11.32 11.42 10.72 10.62 9.82	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 9.42 8.52	9.44 9.82 8.78 8.97 9.67 11.08 11.03 10.59 10.01 9.15	9.22 9.02 8.92 8.92 8.22 8.32 7.52 7.12 6.62	8.32 8.42 7.52 7.62 6.72 5.62 5.42 5.22	8.68 8.63 8.24 7.86 7.49 6.34 6.11 6.07	4.24 4.30 4.27 4.42 4.28 5.36 5.35 5.39 5.92 5.81	2.05 1.90 2.24 1.79 1.51 2.73 2.31 3.06 2.59	2.92 2.81 2.93 2.84 2.84 3.81 3.62 4.35 4.05	3.90 3.52 3.50 4.06 4.87 4.93 4.99 4.51 4.32 5.02	1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.73 0.94	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.61 2.40 2.59
1 2 3 4 5 6 7 8 9	10.22 10.42 9.42 9.22 10.42 11.32 11.42 10.72 10.62 9.82	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 9.42 8.52	9.44 9.82 8.78 8.97 9.67 11.08 11.03 10.59 10.01 9.15	9.22 9.02 8.92 8.92 8.22 8.32 7.52 7.12 6.62	8.32 8.42 7.52 7.62 6.72 5.62 5.42 5.22	8.68 8.63 8.24 7.86 7.49 6.34 6.11 6.07	4.24 4.30 4.27 4.42 4.28 5.36 5.35 5.39 5.92 5.81	2.05 1.90 2.24 1.79 1.51 2.73 2.31 3.06 2.59	2.92 2.81 2.93 2.84 2.84 3.81 3.62 4.35 4.05	3.90 3.52 3.50 4.06 4.87 4.93 4.99 4.51 4.32 5.02	1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.73 0.94	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.61 2.40 2.59
1 2 3 4 5 6 7 8 9	10.22 10.42 9.42 9.22 10.42 11.32 11.42 10.72 10.62 9.82	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 9.42 8.52	9.44 9.82 8.78 8.97 9.67 11.08 11.03 10.59 10.01 9.15	9.22 9.02 8.92 8.92 8.22 8.32 7.52 7.12 6.62	8.32 8.42 7.52 7.62 6.72 5.62 5.42 5.22	8.68 8.63 8.24 7.86 7.49 6.34 6.11 6.07	4.24 4.30 4.27 4.42 4.28 5.36 5.35 5.39 5.92 5.81	2.05 1.90 2.24 1.79 1.51 2.73 2.31 3.06 2.59	2.92 2.81 2.93 2.84 2.84 3.81 3.62 4.35 4.05	3.90 3.52 3.50 4.06 4.87 4.93 4.99 4.51 4.32 5.02	1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.73 0.94	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.61 2.40 2.59
1 2 3 4 5 6 7 8 9	10.22 10.42 9.42 9.22 10.42 11.32 11.42 10.72 10.62 9.82	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 9.42 8.52	9.44 9.82 8.78 8.97 9.67 11.08 11.03 10.59 10.01 9.15	9.22 9.02 8.92 8.92 8.22 8.32 7.52 7.12 6.62	8.32 8.42 7.52 7.62 6.72 5.62 5.42 5.22	8.68 8.63 8.24 7.86 7.49 6.34 6.11 6.07	4.24 4.30 4.27 4.42 4.28 5.36 5.35 5.39 5.92 5.81	2.05 1.90 2.24 1.79 1.51 2.73 2.31 3.06 2.59	2.92 2.81 2.93 2.84 2.84 3.81 3.62 4.35 4.05	3.90 3.52 3.50 4.06 4.87 4.93 4.99 4.51 4.32 5.02	1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.73 0.94	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.61 2.40 2.59
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	10.22 10.42 9.42 9.22 10.42 11.32 11.42 10.72 9.82 9.62 9.92 9.12 9.32 8.42	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 9.42 8.52 8.42 8.52 8.7 52	9.44 9.82 8.78 8.97 9.67 11.08 11.03 10.01 9.15 8.89 9.10 8.64 8.64 7.97	9.22 9.02 8.92 8.22 8.32 7.52 7.12 6.62 6.99 7.28 7.79 7.07 6.98	8.32 8.42 7.52 7.62 6.72 5.62 5.42 5.22 4.95 5.66 5.97 5.42 5.58	8.68 8.63 8.24 7.86 7.49 6.34 6.11 6.07 5.78 6.37 6.82 6.29 6.15	4.24 4.30 4.27 4.42 4.28 5.36 5.35 5.92 5.81 5.40 5.25 5.69 5.67	2.05 1.90 2.24 1.79 1.51 2.73 2.31 3.06 2.59 2.65 2.17 2.34 2.53 2.43	2.92 2.81 2.93 2.84 3.81 3.62 4.35 4.05 3.87 3.67 3.67 3.67	3.90 3.50 4.06 4.87 4.93 4.99 4.51 4.32 5.02 4.93 4.08 3.67 4.03 4.03	SEPTEMBER 1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.73 0.94 1.22 0.66 0.31 0.33 0.86	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.61 2.40 2.59 2.85 2.31 1.64 1.85 2.03
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	10.22 10.42 9.42 9.22 10.42 11.32 11.42 10.72 9.82 9.62 9.92 9.12 9.32 8.42	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 9.42 8.52 8.42 8.52 8.7 52	9.44 9.82 8.78 8.97 9.67 11.08 11.03 10.01 9.15 8.89 9.10 8.64 8.64 7.97	9.22 9.02 8.92 8.22 8.32 7.52 7.12 6.62 6.99 7.28 7.79 7.07 6.98	8.32 8.42 7.52 7.62 6.72 5.62 5.42 5.22 4.95 5.66 5.97 5.42 5.58	8.68 8.63 8.24 7.86 7.49 6.34 6.11 6.07 5.78 6.37 6.82 6.29 6.15	4.24 4.30 4.27 4.42 4.28 5.36 5.35 5.92 5.81 5.40 5.25 5.69 5.67	2.05 1.90 2.24 1.79 1.51 2.73 2.31 3.06 2.59 2.65 2.17 2.34 2.53 2.43	2.92 2.81 2.93 2.84 3.81 3.62 4.35 4.05 3.87 3.67 3.67 3.67	3.90 3.50 4.06 4.87 4.93 4.99 4.51 4.32 5.02 4.93 4.08 3.67 4.03 4.03	SEPTEMBER 1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.73 0.94 1.22 0.66 0.31 0.33 0.86	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.61 2.40 2.59 2.85 2.31 1.64 1.85 2.03
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	10.22 10.42 9.42 9.22 10.42 11.32 11.42 10.72 9.82 9.62 9.92 9.12 9.32 8.42	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 9.42 8.52 8.42 8.52 8.7 52	9.44 9.82 8.78 8.97 9.67 11.08 11.03 10.01 9.15 8.89 9.10 8.64 8.64 7.97	9.22 9.02 8.92 8.22 8.32 7.52 7.12 6.62 6.99 7.28 7.79 7.07 6.98	8.32 8.42 7.52 7.62 6.72 5.62 5.42 5.22 4.95 5.66 5.97 5.42 5.58	8.68 8.63 8.24 7.86 7.49 6.34 6.11 6.07 5.78 6.37 6.82 6.29 6.15	4.24 4.30 4.27 4.42 4.28 5.36 5.35 5.92 5.81 5.40 5.25 5.69 5.67	2.05 1.90 2.24 1.79 1.51 2.73 2.31 3.06 2.59 2.65 2.17 2.34 2.53 2.43	2.92 2.81 2.93 2.84 3.81 3.62 4.35 4.05 3.87 3.67 3.67 3.67	3.90 3.50 4.06 4.87 4.93 4.99 4.51 4.32 5.02 4.93 4.08 3.67 4.03 4.03	SEPTEMBER 1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.73 0.94 1.22 0.66 0.31 0.33 0.86	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.61 2.40 2.59 2.85 2.31 1.64 1.85 2.03
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	10.22 10.42 9.42 9.22 10.42 11.32 11.42 10.72 9.82 9.62 9.92 9.12 9.32 8.42	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 9.42 8.52 8.42 8.52 8.42 7.52	9.44 9.82 8.78 8.97 9.67 11.08 11.03 10.01 9.15 8.89 9.10 8.64 8.64 7.97	9.22 9.02 8.92 8.22 8.32 7.52 7.12 6.62 6.99 7.28 7.79 7.07 6.98	8.32 8.42 7.52 7.62 6.72 5.62 5.42 5.22 4.95 5.66 5.97 5.42 5.58	8.68 8.63 8.24 7.86 7.49 6.34 6.11 6.07 5.78 6.37 6.82 6.29 6.15	4.24 4.30 4.27 4.42 4.28 5.36 5.35 5.92 5.81 5.40 5.25 5.69 5.67	2.05 1.90 2.24 1.79 1.51 2.73 2.31 3.06 2.59 2.65 2.17 2.34 2.53 2.43	2.92 2.81 2.93 2.84 3.81 3.62 4.35 4.05 3.87 3.67 3.67 3.67	3.90 3.50 4.06 4.87 4.93 4.99 4.51 4.32 5.02 4.93 4.08 3.67 4.03 4.03	SEPTEMBER 1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.73 0.94 1.22 0.66 0.31 0.33 0.86	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.61 2.40 2.59 2.85 2.31 1.64 1.85 2.03
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	10.22 10.42 9.42 9.22 10.42 11.32 11.42 10.72 9.82 9.62 9.92 9.12 9.32 8.42	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 9.42 8.52 8.42 8.52 8.42 7.52	9.44 9.82 8.78 8.97 9.67 11.08 11.03 10.59 10.01 9.15	9.22 9.02 8.92 8.22 8.32 7.52 7.12 6.62 6.99 7.28 7.79 7.07 6.98	8.32 8.42 7.52 7.62 6.72 5.62 5.42 5.22 4.95 5.66 5.97 5.42 5.58	8.68 8.63 8.24 7.86 7.49 6.34 6.11 6.07 5.78 6.37 6.82 6.29 6.15	4.24 4.30 4.27 4.42 4.28 5.36 5.35 5.92 5.81 5.40 5.25 5.69 5.67	2.05 1.90 2.24 1.79 1.51 2.73 2.31 3.06 2.59 2.65 2.17 2.34 2.53 2.43	2.92 2.81 2.93 2.84 3.81 3.62 4.35 4.05 3.87 3.67 3.67 3.67	3.90 3.50 4.06 4.87 4.93 4.99 4.51 4.32 5.02 4.93 4.08 3.67 4.03 4.03	SEPTEMBER 1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.73 0.94 1.22 0.66 0.31 0.33 0.86	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.61 2.40 2.59 2.85 2.31 1.64 1.85 2.03
1 2 3 4 4 5 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	10.22 10.42 9.42 9.42 10.42 11.32 11.62 9.82 9.62 9.92 9.12 9.32 8.42 8.22 8.62 9.32 10.32	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 8.52 8.42 8.52 8.42 7.52 7.02 6.82 7.52 8.12 9.32	9.44 9.82 8.78 8.97 9.67 11.08 11.03 10.59 10.01 9.15 8.89 9.10 8.64 8.60 7.97 7.75 7.31 7.99 8.79 10.11	9.22 9.02 8.92 8.92 8.32 7.52 7.22 7.12 6.62 6.99 7.28 7.79 7.07 6.98 6.27 6.73 7.03 6.61	**B ** S	8.68 8.63 8.24 7.49 6.34 6.11 6.07 5.78 6.37 6.32 6.29 6.15 5.78 5.78 5.78 5.24	4.24 4.30 4.27 4.428 5.36 5.35 5.39 5.92 5.81 5.40 5.25 5.78 5.69 5.78 5.69 5.78 5.69 5.78 5.69	2.05 1.90 2.24 1.79 1.51 2.73 2.31 3.06 2.59 2.65 2.17 2.34 2.53 2.43 2.70 2.10 1.54 1.86 2.13	2.92 2.81 2.93 2.84 2.84 3.81 3.62 4.35 4.05 3.67 3.67 3.67 3.67 3.7 3.69 3.7 3.33 2.79 3.11 3.38	3.90 3.52 3.50 4.06 4.87 4.93 4.99 4.51 4.32 5.02 4.93 4.08 4.03 4.03 4.22 3.42 3.42 4.03 4.22 4.03 4.22	1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.94 1.22 0.66 0.31 0.33 0.86 0.01 0.19 0.80 0.80	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.61 2.40 2.59 2.85 2.31 1.85 2.03 1.62 2.41 2.43 2.58 2.62
1 2 3 4 5 5 6 7 8 8 9 10 11 12 13 13 14 15 16 17 18 19 20 21 22	10.22 10.42 9.42 9.22 10.42 11.32 11.42 10.62 9.82 9.82 9.12 9.92 9.12 9.32 8.42 8.22 8.22 9.32 10.82	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 8.52 8.42 8.52 8.12 7.52 7.02 6.82 7.52 7.02 6.82 7.52 9.32	9.44 9.82 8.78 8.97 9.67 11.08 11.03 10.59 10.01 9.15 8.89 9.10 8.64 8.60 7.97 7.75 7.31 7.99 8.79 10.11	9.22 9.02 8.92 8.22 8.32 7.52 7.12 6.62 6.99 7.28 7.79 7.07 6.98 6.98 6.27 6.70 6.70 6.70	**STATES********************************	8.68 8.63 8.24 7.86 7.49 6.34 6.11 6.07 5.78 6.37 6.82 6.15 5.78 5.00 5.81 5.55 5.24	4.24 4.30 4.27 4.42 4.28 5.36 5.35 5.92 5.81 5.425 5.69 5.67 5.66 5.33 4.83 5.03	2.05 1.90 2.24 1.79 1.51 2.73 2.31 3.06 2.59 2.65 2.17 2.34 2.53 2.43 2.70 2.10 4.86 2.13	2.92 2.81 2.93 2.84 3.81 3.62 4.35 4.05 3.67 3.67 3.69 3.71 3.33 2.79 3.11 3.38	3.90 3.52 3.50 4.06 4.87 4.93 4.99 4.51 4.32 5.02 4.93 4.03 4.03 4.03 4.22 3.42 3.55 4.03 4.07 4.03	SEPTEMBER 1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.73 0.94 1.22 0.66 0.31 0.33 0.86 0.01 0.19 0.80 0.88 1.03 1.16 0.78	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.61 2.40 2.59 2.85 2.31 1.64 1.85 2.03 1.62 1.95 2.43 2.58
1 2 3 4 5 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	10.22 10.42 9.42 9.42 10.42 11.32 11.62 9.82 9.62 9.12 9.32 8.42 8.22 8.62 9.32 10.32	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 8.52 8.42 8.52 8.12 7.52 7.02 6.82 7.52 7.02 6.82 7.52 9.32	9.44 9.82 8.78 8.97 9.67 11.08 11.03 10.59 10.01 9.15 8.89 9.10 8.64 8.60 7.97 7.75 7.31 7.99 8.79 10.11 10.45 10.07 8.92	9.22 9.02 8.92 8.92 8.32 7.52 7.22 7.12 6.62 6.99 7.28 7.79 7.07 6.98 6.27 6.73 7.03 6.61 6.70 6.70 7.703	**B ** S	8.68 8.63 8.24 7.49 6.34 6.11 6.07 5.78 6.82 6.29 6.15 5.78 5.78 5.78 5.70 5.55 5.24 5.65 5.77 5.65	4.24 4.30 4.27 4.42 4.28 5.36 5.35 5.39 5.92 5.81 5.69 5.69 5.69 5.67 5.67 5.66 67 5.33 4.66 4.83 5.03	2.05 1.90 2.24 1.79 1.51 2.73 2.31 3.06 2.59 2.65 2.13 2.43 2.53 2.43 2.70 2.10 1.54 2.13 2.46 2.13	2.92 2.81 2.93 2.84 3.81 3.62 4.35 4.05 3.87 3.67 3.81 3.69 3.71 3.33 2.79 3.11 3.38	3.90 3.52 3.50 4.06 4.87 4.93 4.99 4.51 4.32 5.02 4.93 4.08 4.03 4.03 4.23 3.45 4.03 4.03 4.03 4.07	1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.73 0.94 1.22 0.66 0.31 0.33 0.86 0.01 0.19 0.80 0.80 1.03	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.40 2.59 2.85 2.31 1.64 1.85 2.03 2.59 2.85 2.31 2.59 2.31 2.59 2.31 2.31 2.31 2.31 2.33 2.33 2.33 2.33
1 2 3 4 5 5 6 7 8 8 9 10 11 12 13 13 14 15 16 17 18 19 20 21 22	10.22 10.42 9.42 9.22 10.42 11.32 11.42 10.62 9.82 9.82 9.12 9.92 9.12 9.32 8.42 8.22 8.22 9.32 10.82	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 8.52 8.42 8.52 8.12 7.52 7.02 6.82 7.52 7.02 6.82 7.52 9.32	9.44 9.82 8.78 8.97 9.67 11.08 11.03 10.59 10.01 9.15 8.89 9.10 8.64 8.64 8.60 7.97 7.75 7.31 7.99 8.79 10.11 10.45 10.07 8.92 8.92	9.22 9.02 8.92 8.22 8.32 7.52 7.12 6.62 7.28 7.79 7.07 6.98 6.98 6.27 6.70 6.70 6.70 7.03 6.70 6.70 6.70 6.70 6.53	**B ** S	8.68 8.63 8.24 7.86 7.49 6.34 6.11 6.07 5.78 6.37 6.82 6.15 5.78 5.00 5.81 5.55 5.24	4.24 4.30 4.27 4.42 4.28 5.36 5.35 5.39 5.92 5.81 5.40 5.25 5.69 5.67 5.66 5.33 4.68 3.50 4.83 5.33 5.33 5.33 5.39 5.30 5.35 5.35 5.35 5.35 5.35 5.35 5.35	2.05 1.90 2.24 1.79 1.51 2.73 	2.92 2.81 2.93 2.84 3.81 3.62 4.35 4.05 3.67 3.67 3.69 3.71 3.39 3.71 3.33 3.71 3.33 3.71 3.33 3.71 3.43 3.43 3.44 3.44	3.90 3.52 3.50 4.06 4.87 4.93 4.99 4.51 4.32 5.02 4.93 4.08 4.03 4.03 4.23 3.45 4.03 4.03 4.03 4.07	SEPTEMBER 1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.73 0.94 1.22 0.66 0.31 0.33 0.86 0.01 0.19 0.80 0.88 1.03 1.16 0.78	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.61 2.40 2.59 2.85 2.31 1.64 1.85 2.03 1.62 1.95 2.43 2.58
1 2 3 3 4 5 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	10.22 10.42 9.42 9.22 10.42 11.32 11.72 10.62 9.82 9.92 9.12 8.22 8.22 8.22 9.32 10.82 9.62	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 9.42 8.52 8.42 8.7 52 7.02 6.82 7.52 7.02 6.82 9.32 10.22 9.32 10.22 9.32 8.22 8.32 8.22	9.44 9.82 8.78 8.97 9.67 11.08 11.03 10.59 10.01 9.15 8.89 9.10 8.64 8.60 7.97 7.75 7.31 7.99 8.79 10.01 10.45 10.07 8.92 8.83	9.22 9.02 8.92 8.22 8.32 7.52 7.12 6.62 7.28 7.79 7.07 6.98 6.98 6.27 7.03 6.61 6.70 6.70 7.03 6.47	**STATES*** TRANSPORT TO THE TRANSPORT T	8.68 8.63 8.24 7.86 7.49 6.34 6.11 6.07 5.78 6.37 6.82 6.37 6.82 6.15 5.78 5.08 5.09 6.15 5.78 5.63 5.24 5.65 5.24	4.24 4.30 4.27 4.42 4.28 5.36 5.35 5.92 5.92 5.69 5.67 5.66 5.33 5.67 5.66 4.83 5.36 5.33 5.22 5.69 5.67	2.05 1.90 2.24 1.79 1.51 2.73 2.31 3.06 2.59 2.65 2.17 2.34 2.43 2.70 2.10 2.154 1.86 2.13 2.43 2.43 2.43 2.43 2.43 2.43 2.44 2.43 2.44 2.43 2.44 2.43 2.44 2.43 2.44 2.44	2.92 2.81 2.93 2.84 2.84 3.81 3.62 4.35 4.05 3.67 3.67 3.69 3.71 3.39 3.71 3.33 3.59 3.11 3.38 3.59 3.52 3.46 3.49 3.17	3.90 3.52 3.50 4.06 4.87 4.93 4.51 4.32 5.02 4.93 4.08 3.67 4.03 4.22 3.42 3.42 3.42 4.07 4.17 4.03 4.17 4.07 4.16 3.93 4.75 4.34	SEPTEMBER 1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.73 0.94 1.22 0.66 0.31 0.33 0.86 0.01 0.19 0.88 1.03 1.16 0.78 1.06 1.06 1.07	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.40 2.59 2.85 2.31 1.64 1.85 2.03 1.62 1.95 2.43 2.58 2.62 2.37 2.37 2.37 2.43
1 2 3 4 5 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	10.22 10.42 9.42 9.22 10.42 11.32 11.72 10.62 9.82 9.92 9.12 8.22 8.22 8.22 9.32 10.82 9.62 9.62	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 9.42 8.52 8.42 8.22 8.12 7.52 7.02 6.82 7.52 8.12 9.32 10.22 9.32 10.22 9.32 8.22 8.32 8.22 7.62 7.72	9.44 9.82 8.78 8.97 9.67 11.08 11.03 10.59 10.01 9.15 8.89 9.10 8.64 8.60 7.97 7.75 7.31 7.99 8.79 10.01 10.45 10.07 8.92 8.83	9.22 9.02 8.92 8.22 8.32 7.52 7.12 6.62 7.28 7.79 7.07 6.98 6.98 6.27 7.03 6.61 6.70 6.70 7.03 6.47	**STATES*** TRANSPORT TO THE TRANSPORT T	8.68 8.63 8.24 7.86 7.49 6.34 6.11 6.07 5.78 6.37 6.82 6.37 6.82 6.15 5.78 5.08 5.09 6.15 5.78 5.63 5.24 5.65 5.24	4.24 4.30 4.27 4.42 4.28 5.36 5.35 5.92 5.92 5.69 5.67 5.66 5.33 5.67 5.66 4.83 5.36 5.33 5.22 5.69 5.67	2.05 1.90 2.24 1.79 1.51 2.73 2.31 3.06 2.59 2.65 2.17 2.34 2.43 2.70 2.10 2.154 1.86 2.13 2.43 2.43 2.43 2.43 2.43 2.43 2.44 2.43 2.44 2.43 2.44 2.43 2.44 2.43 2.44 2.44	2.92 2.81 2.93 2.84 2.84 3.81 3.62 4.35 4.05 3.67 3.67 3.69 3.71 3.39 3.71 3.33 3.59 3.11 3.38 3.59 3.52 3.46 3.49 3.17	3.90 3.52 3.50 4.06 4.87 4.93 4.99 4.51 4.32 5.02 4.93 4.08 4.03 4.03 4.03 4.03 4.03 4.03 4.03 4.03	SEPTEMBER 1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.73 0.94 1.22 0.66 0.31 0.33 0.86 0.01 0.19 0.80 0.80 1.03 1.16 0.78 1.06 1.64 1.07	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.61 2.40 2.59 2.85 2.31 1.64 1.85 2.03 1.62 1.95 2.43 2.58 2.62 2.43 2.58
1 2 3 4 5 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	10.22 10.42 9.42 9.22 10.42 11.32 11.42 10.62 9.82 9.62 9.12 9.32 8.42 8.22 8.22 9.32 10.82 9.62 9.62	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 9.42 8.52 8.42 8.52 7.52 7.02 6.82 7.52 7.02 6.82 7.52 8.12 9.32 10.22 9.32 8.22 8.22 8.32 8.22 8.32 8.22 8.32 8.3	9.44 9.82 8.78 8.97 9.67 11.08 11.08 11.09 10.01 9.15 8.89 9.10 8.64 8.64 8.60 7.97 7.75 7.31 7.99 8.79 10.11 10.45 10.07 8.92 8.83 8.18 8.18 8.18 8.18 8.18	9.22 9.02 8.92 8.22 8.32 7.52 7.12 6.62 6.99 7.28 7.79 7.07 6.98 6.27 7.03 6.61 6.70 7.03 6.53 6.47 5.89 5.44 4.41	**STATES*** TRANSPORT TO THE TRANSPORT T	8.68 8.63 8.24 7.86 7.49 6.34 6.11 6.07 5.78 6.37 6.82 6.15 5.78 5.00 5.55 5.24 5.67 5.63 5.24 5.67 5.63 5.16 4.56 3.94 4.36 4.36 4.36 4.36 4.36 4.36 4.36 4.3	4.24 4.30 4.27 4.42 4.28 5.36 5.35 5.92 5.81 5.425 5.69 5.67 5.66 5.33 5.67 5.66 4.83 5.35 5.92 5.67	2.05 1.90 2.24 1.79 1.51 2.73 2.31 3.06 2.59 2.65 2.17 2.34 2.53 2.43 2.70 2.10 4.86 2.13 2.43 2.25 2.15 1.86 2.13 2.13 2.13 2.13 2.13 2.13 2.13 2.13	2.92 2.81 2.93 2.84 3.81 3.62 4.35 4.05 3.67 3.67 3.69 3.71 3.33 2.79 3.11 3.38 3.59 3.11 3.59 3.17	3.90 3.52 3.50 4.06 4.87 4.93 4.95 4.32 5.02 4.93 4.03 4.03 4.03 4.07 4.16 4.03 4.07 4.16 4.16 4.16 4.16 4.16 4.16 4.16 4.16	SEPTEMBER 1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.73 0.94 1.22 0.66 0.31 0.33 0.86 0.01 0.19 0.80 0.88 1.03 1.16 0.78 1.064 1.07 1.28 1.48 0.83	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.61 2.40 2.59 2.85 2.31 1.64 1.64 1.64 1.243 2.03 1.62 1.95 2.43 2.58 2.62 2.62 2.62 2.62 2.62 2.62 2.62 2.6
1 2 3 4 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	10.22 10.42 9.42 9.22 11.42 11.32 11.42 10.62 9.82 9.62 9.92 9.12 9.32 8.22 8.22 8.22 8.22 9.32 10.32 10.82 9.62 9.62 9.62	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 8.52 8.42 8.22 8.22 8.12 7.52 7.02 6.82 7.52 7.02 6.82 7.52 8.32 9.32 10.22 9.32 8.22 8.32 7.62 7.72 8.32 9.22	9.44 9.82 8.78 8.97 9.67 11.08 11.03 10.59 10.01 9.15 8.89 9.10 8.64 8.60 7.97 7.75 7.31 7.99 8.79 10.11 10.45 10.07 8.92 8.92 8.83 8.18 8.18 8.74 9.98	9.22 9.02 8.92 8.92 8.32 7.52 7.22 7.12 6.62 6.99 7.28 7.79 7.07 6.98 6.27 6.70 6.98 6.27 6.70 6.53 6.47 5.89 5.14 4.41 4.41 4.41	**B	8.68 8.63 8.24 7.49 6.34 6.11 6.07 5.78 6.82 6.25 5.78 5.24 5.76 5.55 5.24 5.65 5.763 5.23 5.16 4.56 3.94 3.44 3.07	4.24 4.30 4.27 4.28 5.36 5.35 5.39 5.92 5.81 5.40 5.69 5.69 5.67 5.66 5.33 4.68 5.33 5.03	2.05 1.90 2.24 1.79 1.51 2.73 2.59 2.65 2.59 2.65 2.13 2.43 2.53 2.43 2.70 2.10 1.54 2.13 2.46 2.23 2.25 1.70	2.92 2.81 2.93 2.84 3.81 3.62 4.35 4.05 3.87 3.67 3.81 3.69 3.71 3.33 2.79 3.11 3.38 3.59 3.11 3.38 3.59 3.17 2.50 2.41 2.59 2.41 2.59 2.63	3.90 3.52 3.50 4.06 4.87 4.93 4.99 4.51 5.02 4.93 4.03 4.03 4.03 4.07 4.03 4.07 4.16 3.55 4.17 4.03 4.07	SEPTEMBER 1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.73 0.94 1.22 0.66 0.31 0.33 0.86 0.01 0.19 0.80 0.88 1.03 1.16 0.78 1.06 1.64 1.07 1.28 1.48 0.83 0.53	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.61 2.40 2.59 2.85 1.64 1.85 2.03 1.62 2.74 3.03 2.58 2.62 2.74 3.03 2.42 2.58
1 2 3 4 4 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	10.22 10.42 9.42 9.22 10.42 11.32 11.42 10.62 9.82 9.62 9.12 9.32 8.42 8.22 8.22 9.32 10.82 9.62 9.62	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 9.42 8.52 8.42 8.52 7.52 7.02 6.82 7.52 7.02 6.82 7.52 8.12 9.32 10.22 9.32 8.22 8.22 8.32 8.22 8.32 8.22 8.32 8.3	9.44 9.82 8.78 8.97 9.67 11.08 11.03 10.59 10.01 9.15 8.89 9.10 8.64 8.60 7.97 7.75 7.31 7.99 8.79 10.11 10.45 10.07 8.92 8.92 8.83 8.18 8.18 8.74 9.98	9.22 9.02 8.92 8.92 8.32 7.52 7.22 7.12 6.62 6.99 7.28 7.79 7.07 6.98 6.27 6.70 6.98 6.27 6.70 6.53 6.47 5.89 5.14 4.41 4.41 4.41	**B	8.68 8.63 8.24 7.49 6.34 6.11 6.07 5.78 6.82 6.25 5.78 5.24 5.76 5.55 5.24 5.65 5.763 5.23 5.16 4.56 3.94 3.44 3.07	4.24 4.30 4.27 4.28 5.36 5.35 5.92 5.92 5.69 5.67 5.66 5.33 5.25 5.67 5.66 4.83 5.25 5.67 5.66 4.83 5.22 5.00 4.61 3.87 4.39 4.39 3.99 7.40 4.39 4.39 3.99 4.39 4.39 4.39 4.39 4.39	2.05 1.90 2.24 1.79 1.51 2.73 	2.92 2.81 2.93 2.84 2.84 3.81 3.62 4.35 4.05 3.67 3.67 3.69 3.71 3.33 3.59 3.11 3.33 3.52 3.46 3.47 3.17 2.50 2.41 2.59 2.663 1.99	3.90 3.52 3.50 4.06 4.87 4.93 4.95 4.32 5.02 4.93 4.03 4.03 4.03 4.07 4.16 4.03 4.07 4.16 4.16 4.16 4.16 4.16 4.16 4.16 4.16	SEPTEMBER 1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.73 0.94 1.22 0.66 0.31 0.33 0.86 0.01 0.19 0.80 0.88 1.03 1.16 0.78 1.064 1.07 1.28 1.48 0.83	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.61 2.40 2.59 2.85 2.31 1.64 1.64 1.64 1.243 2.03 1.62 1.95 2.43 2.58 2.62 2.62 2.62 2.62 2.62 2.62 2.62 2.6
1 2 3 4 4 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	10.22 10.42 9.42 9.22 10.42 11.32 11.72 10.62 9.82 9.92 9.12 8.22 8.22 8.22 9.32 10.82 9.62 9.62	JUNE 9.12 9.22 8.32 8.62 9.12 10.42 10.52 10.42 9.42 8.52 8.22 8.12 7.52 7.02 6.82 7.52 8.12 9.32 10.22 9.32 8.22 8.32 8.22 7.62 7.72 8.32 9.22 9.02	9.44 9.82 8.78 8.97 9.67 11.08 11.03 10.59 10.01 9.15 8.89 9.10 8.64 8.60 7.97 7.75 7.31 7.99 8.79 10.11 10.45 10.07 8.92 8.83 8.18 8.18 8.18 8.74 9.967	9.22 9.02 8.92 8.22 8.32 7.52 7.12 6.62 6.99 7.28 7.79 6.98 6.27 6.70 7.03 6.70 7.03 6.47 5.89 5.14 4.41 4.10 4.81 4.75	**B	8.68 8.63 8.24 7.86 7.49 6.34 6.11 6.07 5.78 6.37 6.829 6.15 5.78 5.00 5.81 5.55 5.24 5.65 5.27 5.63 5.16 4.56 3.44 3.37 3.39 3.18	4.24 4.30 4.27 4.28 5.36 5.35 5.92 5.92 5.67 5.67 5.67 5.63 4.66 4.83 5.22 5.00 4.61 3.87 4.39 3.99 3.99 3.87	2.05 1.90 2.24 1.79 1.51 2.73 	2.92 2.81 2.93 2.84 2.84 3.81 3.62 4.35 4.05 3.67 3.60 3.67 3.69 3.71 3.33 2.79 3.11 3.38 3.59 3.52 3.49 3.17 2.50 2.41 2.59 2.63 1.99 2.08	3.90 3.52 3.50 4.06 4.87 4.93 4.51 4.32 5.02 4.93 4.03 4.03 4.03 4.22 3.42 3.42 3.42 4.03 4.03 4.22 3.42 4.03 4.03 4.03 4.03 4.03 4.03 4.03 4.03	SEPTEMBER 1.05 0.60 0.05 0.38 1.28 1.31 1.30 0.95 0.73 0.94 1.22 0.66 0.31 0.33 0.86 0.01 0.19 0.88 1.03 1.16 0.78 1.064 1.07 1.28 1.48 0.83 0.53 0.13	1.98 1.68 1.72 2.26 2.87 2.97 2.97 2.40 2.59 2.85 2.31 1.64 1.64 1.243 2.58 2.37 2.743 2.58 2.59 2.59 2.59 2.59 2.103

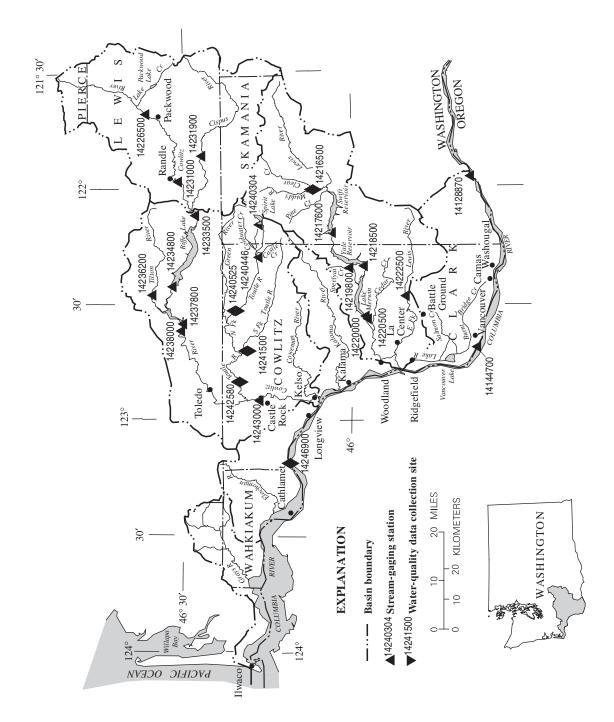


Figure 49. Location of surface-water and water-quality stations in the Lewis and Cowlitz River Basins and downstream to mouth of Columbia River.

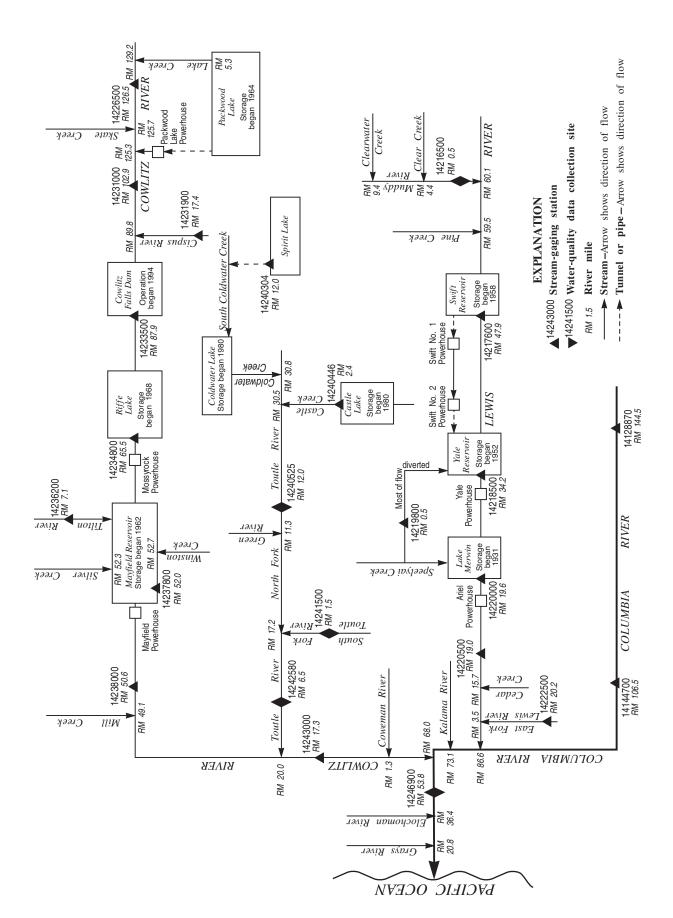


Figure 50. Schematic diagram showing surface-water and water-quality stations in the Lewis and Cowlitz River Basins and downstream to mouth of Columbia River.

14216500 MUDDY RIVER BELOW CLEAR CREEK, NEAR COUGAR, WA

LOCATION.-- Lat $46^{\circ}04^{\circ}33^{\circ}$, long $121^{\circ}59^{\circ}51^{\circ}$, in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.24, T.7 N., R.6 E., Skamania County, Hydrologic Unit 17080002, Gifford Pinchot National Forest, on left bank 3.9 mi downstream from Clear Creek, approximately 14 mi northeast of Cougar, and 0.5 mi upstream from mouth.

DRAINAGE AREA. -- 135 mi2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1927 to September 1934, October 1954 to December 1973 (destroyed by flood of January 1974), October 1983 to current year. Monthly discharge only for October, December 1933 and January 1934 published in WSP 1318. Published as "near Cougar" 1927-34. Records for August to October 1909, published in WSP 272 and 492, have been found to be unreliable and should not be used.

REVISED RECORDS.--WDR WA-99-1: 1991 (m), 1996-97 (M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,032.90 ft above NGVD of 1929. Aug. 1927 to Sept. 1934, at same site at different datum; Oct. 1954 to Dec. 1973 at site 3.7 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Records fair. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--45 years (water years 1928-34, 1955-73, 1984-2002), 875 $\mathrm{ft^3/s}$, 88.02 $\mathrm{in/yr}$, 633,900 acre-ft/yr, includes monthly data published in WSP 1318.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,000 ft³/s, Feb. 8, 1996, gage height, 33.26 ft from high-water marks, from rating curve extended above 8,000 ft³/s; minimum, 94 ft³/s Dec. 5-7, 1929.

EXTREMES OUTSIDE PERIOD OF RECORD.--A flood occurred about 0900 hours on May 18, 1980, from a mudflow caused by the eruption of Mount St. Helens.

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

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 14	1500	4,020	20.62	Dec. 17	0030	6,450	22.99
Nov. 22	2300	4,920	21.56	Jan. 7	2245	*10,300	*25.81
Dec. 13	2300	4,010	20.60	Apr. 14	0200	6,400	23.11
Minimum dis	charge, 102	ft ³ /s Oct. 6,	7.	-			
		DISCHARGE, C	JBIC FEET PER	SECOND, WATER	YEAR OCTOBER	2001 TO SEP	TEMBER 2002

		DISCHA	RGE, CUB	IC FEET PER		WATER Y MEAN V		ER 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113	648	2010	886	828	1310	1150	1410	1550	547	227	161
2	111	636	2140	1040	792	1230	1210	1590	1450	502	222	160
3	109	557	1920	928	800	1160	1230	1600	1380	474	219	159
4	107	513	1730	892	760	1130	1340	1530	1280	452	217	156
5	105	510	1550	948	745	1120	1460	1460	1230	428	216	155
6	104	462	1520	1800 6890 7650 4110 2590	818	1160	1510	1330	1200	411	213	154
7	106	432	1380	6890	1010	1080	1550	1230	1080	411	210	153
8	113	407	1240	7650	989	1020	1540	1140	945	423	207	153
9	115	388	1160	4110	937	995	1790	1030	836	398	205	151
10	153	371				1110	2650	958	804	386	204	149
11	181	354	1030	2100 2060 1770 1590 1450	934	2300 2370	3280	937 983 1150 1230	830	384	201	148
12	169	379	973	2060	899	2370	3450	983	895	376	198	146
13	233	721	2180	1770	871	2120	3780	1150	996	366 350 334	195	145
14	204	3410	2930	1590	842	1880	5390	1230	1060	350	192	143
15	171	3090				1640	3000	1230	1040	334	190	141
16	151	2670	3870	1340 1240 1180 1140 1120	829	1500	2550	1330 1370 1430 1420 1460	953	320 309	188	142
17	144	2270	4990	1240	817	1350	1950	1370	836	309	186	147
18	135	1920	3580	1180	84 /	1220	1610	1430	834	302 294 287	183	142
19	130 128	1980	2700	1140 1120	1160	1200	1410	1420	751	294	181	140
20		2320									200	139
21	134 240	2790	1880	1070	1880	1080	1200	1490 1480 1420 1400 1420	682	279 274 268 263	178	137
22	240	4260	1640	966	2220	1030	1150	1480	696	274	178	136
23	429	4260	1440	904	2420	1010	1100	1420	683	268	176	135
24	313	3260	1300	974	2160	1020	1050	1400	634	263	175	133
25	283	2580									175	132
26	258	2070	1090	1110	1700	1040	1080	1450 1550 1810 2390 2130 1780	605	255	173	131
27	258	1740	1020	1010	1550	1020	1080	1550	604	248	171	130
28	256	1640	982	953	1430	1020	1060	1810	612	244	169	129
29	246	1780	903	902		1040	1100	2390	904	240	165	132
30	570	1610	848	881		1050	1060 1100 1200	2130	632	237	163	148
31	832		829	8/1		1080		1/80		231	162	
TOTAL	6601	50028	55775	53675	33024	39465	54810	44198	27297	10552	5919	4327
MEAN	212.9	1668	1799	1731	1179	1273		1426	909.9	340.4	190.9	144.2
MAX	832	4260	4990	1731 7650 871 106500	2420	2370	5390 1050	2390	1550	54 /	227	161
MIN	104	354	829	871	745	995		937	600	231	162	129
AC-FT	13090	99230	110600	106500	65500	78280	108700	87670	54140	20930	11740	8580
CFSM	1.58	12.4	13.3	12.8	8.74	9.43	13.5		6.74	2.52	1.41	1.07
IN.	1.82	13.79	15.37	14.79	9.10	10.87	15.10	12.18	7.52	231 20930 2.52 2.91	1.63	1.19
				FOR WATER Y								
MEAN	343.2	1102	1241	1214	1221	1186	1296	1279 2467 1956 425 1934 WATER YEAR	842.1	371.3		
MAX	1567	2609	2828	2308	3222	2841	2318	2467	2341	1163		385
(WY)	1998	1984	1974	1997	1996	1972	1997	1956	1933	1971	1933	
MIN	107	102	313	365	254	386	620	425	194	143	116	122
(WY)	1988	1930	1931	1985	1929	1955	1973	1934	1992	1992		1934
SUMMAR	Y STATIST	ICS	FOR	2001 CALEN	DAR YEAR		FOR 2002 W	VATER YEAR		WATER YEAR	S 1928	- 2002
ANNUAL				255534			385671					
ANNUAL				700.1			1057			871.8 1297 465		
	T ANNUAL									1297		1956
LOWEST	ANNUAL M	EAN								465		2001
HIGHES	I. DAILY M	EAN		4990	Dec 17		7650	Jan 8		21000	ren	8 1996
LOWEST	DAILY ME	AIN		104	Aug 20		104	001 6		94	Dec	5 1929
ANNUAL	DEVEN-DA	T MINIMUM	1	108	OCL I		7650 104 108 765000 7.8	OCL I		1297 465 21000 94 95 631600 6.46	Dec	T 1929
AMMUAL	DIMOPP (CEGM)		200200			705000	22		6.46		
AMMUAL	MONORE (TMCHEC)		70 41			106.2			87.75		
10 DED	TOMORE (EDG TMCTTE9/		1510			2130	- /		1840		
50 PFP	CENT EXCE	EDS		4990 104 108 506900 5.19 70.41 1510 480 124			948			633		
90 ppp	CENT EXCE	EDS		124			151			156		
20 LEIO				121			101			100		

14216500 MUDDY RIVER BELOW CLEAR CREEK, NEAR COUGAR, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- October 1983 to current year.

PERIOD OF DAILY RECORD. --

SUSPENDED SEDIMENT DISCHARGE: October 1983 to March 1995, October 1998 to current year. Water years 1995 and 1996, daily sediment discharge values for period October to March, monthly sediment discharge values only for the period April to September. Water years 1997 and 1998, annual sediment discharge estimates only (on file at the Cascades Volcano Observatory in Vancouver, WA). Records prior to October 1985 are published in U.S. Geological Survey Open-File Report 85-632; records for 1984-87 are published in U.S. Geological Survey Open-File Report 91-219.

INSTRUMENTATION.--Water-quality monitor May 1990 to September 1991. Automatic pumping sediment sampler August 1983 to September 1996, October 1998 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.-SEDIMENT CONCENTRATION: Maximum daily, 37,800 mg/L Oct. 26, 1986; minimum, 1 mg/L on several days in water years 2001, 2002.
SEDIMENT DISCHARGE: Maximum daily, 1,400,000 tons (estimated) Feb. 8, 1996; minimum, 0.45 tons Oct. 9, 2001.

EXTREMES FOR CURRENT YEAR . -

SEDIMENT CONCENTRATION: Maximum daily 4,010 mg/L (estimated) Jan. 8; minimum daily 1 mg/L Oct. 9 and Sept. 26. SEDIMENT DISCHARGE: Maximum daily 88,300 tons (estimated) Jan. 8; minimum daily 0.45 tons Oct. 9.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER		4	OVEMBER		DE	ECEMBER	
1 2 3 4 5	113 111 109 107 105	3.0 4.0 2.0 2.0 3.0	0.88 1.0 0.71 0.70 0.95	648 636 557 513 510	96 181 101 90 96	170 316 152 125 132	2010 2140 1920 1730 1550	134 118 79 51 38	746 683 413 238 159
6 7 8 9 10	104 106 113 115 153	3.0 5.0 2.0 1.0	0.75 1.3 0.62 0.45 12.0	462 432 407 388 371	77 70 62 55 47	97.0 82.0 68.0 57.0 47.0	1520 1380 1240 1160 1090	28 23 19 17 11	113 87.0 65.0 53.0 32.0
11 12 13 14 15	181 169 233 204 171	25 15 48 31 11	13.0 8.0 34.0 18.0 5.3	354 379 721 3410 3090	39 37 157 1780 855	38.0 38.0 511 16900 7200	1030 973 2180 2930 2440	10 19 494 836 276	27.0 50.0 4440 6920 1830
16 17 18 19 20	151 144 135 130 128	6.0 4.0 6.0 5.0	2.4 1.5 2.1 1.7	2670 2270 1920 1980 2320	619 299 176 130 253	4500 1850 918 701 1630	3870 4990 3580 2700 2230	1590 2220 1010 450 200	19900 31600 9940 3340 1220
21 22 23 24 25	134 240 429 313 283	3.0 50 81 20 9.0	1.1 52.0 94.0 18.0 6.8	2790 4260 4260 3260 2580	e524 e2070 e1410 e608 247	e3980 e25300 e16500 e5460 1740	1880 1640 1440 1300 1180	118 73 63 59 55	605 324 246 208 175
26 27 28 29 30 31	258 258 256 246 570 832	8.0 8.0 7.0 9.0 545 e414	5.6 5.3 5.0 5.8 1290 e1100	2070 1740 1640 1780 1610	147 102 76 83 69	831 479 338 404 299	1090 1020 982 903 848 829	51 47 43 38 34 30	149 129 113 94.0 78.0 67.0
TOTAL	6601		2690.66	50028		90863.0	55775		84044.0

LEWIS RIVER BASIN

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14216500 MUDDY RIVER BELOW CLEAR CREEK, NEAR COUGAR, WA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)		SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY		I	FEBRUARY			MARCH	
1 2 3 4 5	886 1040 928 892 948	42 60 47 37 38	108 168 117 89.0 100	828 792 800 760 745	22 18 15 12 8.0	49.0 39.0 33.0 24.0 17.0	1310 1230 1160 1130 1120	90 75 59 43 41	320 247 185 132 126
6 7 8 9 10	1800 6890 7650 4110 2590	e253 e3900 e4010 e1550 942	e1740 e83700 e88300 e17700 6660	818 1010 989 937 936	43 120 78 37 31	108 328 208 93.0 78.0	1160 1080 1020 995 1110	47 38 28 24 72	147 111 77.0 66.0 220
11 12 13 14 15	2100 2060 1770 1590 1450	495 501 293 214 154	2830 2820 1410 919 604	934 899 871 842 830	39 25 17 15 13	98.0 60.0 40.0 34.0 30.0	2300 2370 2120 1880 1640	e661 e563 e229 164 118	e5280 e3690 e1320 833 526
16 17 18 19 20	1340 1240 1180 1140 1120	129 103 82 73 74	465 345 259 223 225	829 817 847 1160 1100	13 13 18 109 130	28.0 28.0 42.0 353 387	1500 1350 1220 1200 1150	72 35 29 25 22	293 127 94.0 82.0 70.0
21 22 23 24 25	1070 966 904 974 1310	59 30 23 68 283	174 78.0 56.0 183 1040	1880 2220 2420 2160 1920	e452 e516 e531 e237 156	e2470 e3090 e3480 e1400 809	1080 1030 1010 1020 1030	19 16 13 10 8.0	57.0 46.0 36.0 28.0 21.0
26 27 28 29 30 31	1110 1010 953 902 881 871	160 108 76 48 33 25	482 295 195 117 79.0 59.0	1700 1550 1430 	137 121 106 	629 507 408 	1040 1020 1020 1040 1050 1080	8.0 9.0 10 10 11	22.0 24.0 26.0 29.0 32.0 36.0
TOTAL	53675		211540.0	33024		14870.0	39465		14303.0
DAY	MEAN DISCHARGE (CFS)	(MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	(MG/L)		MEAN DISCHARGE (CFS)	TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
	DISCHARGE (CFS)	CONCEN- TRATION (MG/L) APRIL	DISCHARGE (TONS/DAY)	(CFS)	CONCEN- TRATION (MG/L) MAY	DISCHARGE (TONS/DAY)	DISCHARGE (CFS)	CONCEN- TRATION (MG/L) JUNE	DISCHARGE (TONS/DAY)
DAY 1 2 3 4 5	DISCHARGE	CONCEN- TRATION (MG/L)	DISCHARGE	(CFS) 1410 1590 1600	CONCEN- TRATION (MG/L)	DISCHARGE	DISCHARGE	CONCEN- TRATION (MG/L)	DISCHARGE
1 2 3 4	DISCHARGE (CFS) 1150 1210 1230 1340	CONCENTRATION (MG/L) APRIL 14 18 23 29	DISCHARGE (TONS/DAY) 42.0 60.0 78.0 104	(CFS) 1410 1590 1600 1530	CONCENTRATION (MG/L) MAY 186 308 264 161	DISCHARGE (TONS/DAY) 712 1320 1140 669	DISCHARGE (CFS) 1550 1450 1380 1280	CONCENTRATION (MG/L) JUNE 235 162 112 75	DISCHARGE (TONS/DAY) 989 637 420 261
1 2 3 4 5 6 7 8 9	DISCHARGE (CFS) 1150 1210 1230 1340 1460 1550 1540 1790	CONCEN- TRATION (MG/L) APRIL 14 18 23 29 33 37 42 60 107	DISCHARGE (TONS/DAY) 42.0 60.0 78.0 104 132 149 175 250 538	(CFS) 1410 1590 1600 1530 1460 1330 1230 1140 1030	CONCEN- TRATION (MG/L) MAY 186 308 264 161 104 97 63 54 40	DISCHARGE (TONS/DAY) 712 1320 1140 669 412 351 211 165 112	DISCHARGE (CFS) 1550 1450 1380 1280 1230 1200 1080 945 836	CONCEN- TRATION (MG/L) JUNE 235 162 112 75 54 45 37 26 15	DISCHARGE (TONS/DAY) 989 637 420 261 179 147 108 65.0 34.0
1 2 3 4 5 6 7 8 9 10	DISCHARGE (CFS) 1150 1210 1230 1340 1460 1550 1540 1790 2650 3280 3450 3780 5390	CONCEN- TRATION (MG/L) APRIL 14 18 23 29 33 37 42 60 107 644 1130 1040 1360 2430	DISCHARGE (TONS/DAY) 42.0 60.0 78.0 104 132 149 175 250 538 4820 10000 9660 14300 36100 21000 8560 3040 2080 1050 666	1410 1590 1600 1530 1460 1330 1140 1030 958 937 983 1150 1230	CONCEN- TRATION (MG/L) MAY 186 308 264 161 104 97 63 54 40 31 22 27 50 64	DISCHARGE (TONS/DAY) 712 1320 1140 669 412 351 211 165 112 80.0 57.0 73.0 155 212	DISCHARGE (CFS) 1550 1450 1380 1280 1230 1200 1080 945 836 804 830 895 996 1060	CONCEN- TRATION (MG/L) JUNE 235 162 112 75 54 45 37 26 15 16 22 29 38	989 637 420 261 179 147 108 65.0 34.0 34.0 69.0 77.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DISCHARGE (CFS) 1150 1210 1230 1340 1460 1550 1540 1790 2650 3280 3450 3780 5390 3600 2550 1950 1610 1410	CONCEN- TRATION (MG/L) APRIL 14 18 23 29 33 37 42 60 107 644 1130 1040 1360 2430 2170 1220 571 476 274	DISCHARGE (TONS/DAY) 42.0 60.0 78.0 104 132 149 175 250 538 4820 10000 9660 14300 36100 21000 8560 3040	1410 1590 1600 1530 1460 1330 1230 1140 1030 958 937 983 1150 1230 1290	CONCEN- TRATION (MG/L) MAY 186 308 264 161 104 97 63 54 40 31 22 27 50 64 74 75 114 125 85	DISCHARGE (TONS/DAY) 712 1320 1140 669 412 351 211 165 112 80.0 57.0 73.0 155 212 259 270 424 482 327	DISCHARGE (CFS) 1550 1450 1380 1280 1280 1200 1080 945 836 804 830 895 996 1060 1040 953 836 834 751	CONCEN- TRATION (MG/L) JUNE 235 162 112 75 54 45 37 26 15 16 22 29 38 40 26 17 14 12	DISCHARGE (TONS/DAY) 989 637 420 261 179 147 108 65.0 34.0 34.0 69.0 77.0 109 112 67.0 39.0 31.0 24.0 17.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	DISCHARGE (CFS) 1150 1210 1230 1340 1460 1550 1540 1790 2650 3280 3450 3780 5390 3600 2550 1950 1610 1410 1280 1200 1150 1100 1050	CONCEN- TRATION (MG/L) APRIL 14 18 23 29 33 37 42 60 107 644 1130 1040 1360 2430 2170 1220 571 476 274 192 171 147 120 100	DISCHARGE (TONS/DAY) 42.0 60.0 78.0 104 132 149 175 250 538 4820 10000 9660 14300 36100 21000 8560 3040 2080 1050 666 555 458 356 284	1410 1590 1600 1530 1460 1330 1230 1140 1030 958 937 983 1150 1230 1290 1330 1370 1440 1420 1460	CONCEN- TRATION (MG/L) MAY 186 308 264 161 104 97 63 54 40 31 22 27 50 64 74 75 114 125 85 100 138 90 68 56	DISCHARGE (TONS/DAY) 712 1320 1140 669 412 351 211 165 112 80.0 57.0 73.0 155 212 259 270 424 482 327 395 556 358 261 211	DISCHARGE (CFS) 1550 1450 1380 1280 1230 1200 1080 945 836 804 830 895 996 1060 1040 953 836 834 751 695 682 696 683 634	CONCEN- TRATION (MG/L) JUNE 235 162 112 75 54 45 37 26 15 16 22 29 38 40 26 17 14 12 9.0 5.0 6.0 9.0 7.0	DISCHARGE (TONS/DAY) 989 637 420 261 179 147 108 65.0 34.0 34.0 37.0 109 112 67.0 39.0 31.0 24.0 17.0 11.0 9.9

14216500 MUDDY RIVER BELOW CLEAR CREEK, NEAR COUGAR, WA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MEAN DISCHARGE (CFS)		SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST		SI	EPTEMBER	
1 2 3 4 5	547 502 474 452 428 411 411	9.0 6.0 5.0 3.0 6.0 7.0 4.0	14.0 7.9 7.0 3.8 7.2 7.3 4.1	227 222 219 217 216	6.0 5.0 7.0 26 15 3.0 3.0	3.7 3.0 4.2 15.0 8.5	161 160 159 156 155 154 153	4.0 5.0 4.0 5.0 3.0	1.7 2.1 1.8 2.0 1.4
8 9 10	423 398 386	4.0 5.0 4.0	4.6 5.9 4.2	207 205 204	3.0 6.0 16	1.9 3.5 9.0	153 151 149	3.0 3.0 5.0	1.4 1.0 2.1
11 12 13 14 15	384 376 366 350 334	1.0 2.0 6.0 11 9.0	1.5 1.6 6.1 10.0 8.3	201 198 195 192 190	8.0 10 12 9.0 5.0	4.6 5.2 6.4 4.7 2.5	148 146 145 143 141	4.0 5.0 3.0 7.0 4.0	1.8 1.8 1.2 2.6 1.6
16 17 18 19 20	320 309 302 294 287	7.0 7.0 6.0 9.0	6.3 5.5 5.2 7.0 8.0	188 186 183 181 180	5.0 10 11 4.0 6.0	2.8 5.1 5.3 1.9 2.7	142 147 142 140 139	2.0 3.0 3.0 4.0 3.0	0.67 1.4 1.3 1.4
21 22 23 24 25	279 274 268 263 259	8.0 14 17 11 9.0	6.3 10.0 12.0 7.8 6.2	178 178 176 175 175	7.0 5.0 6.0 5.0	3.2 2.6 2.7 2.5 2.6	137 136 135 133 132	7.0 7.0 5.0 4.0 2.0	2.6 2.4 1.9 1.4 0.87
26 27 28 29 30 31	255 248 244 240 237 231	11 7.0 10 7.0 6.0 7.0	7.9 4.6 6.3 4.4 3.9 4.2	173 171 169 165 163 162	3.0 7.0 6.0 5.0 5.0	1.5 3.2 2.8 2.3 2.1	131 130 129 132 148	1.0 3.0 3.0 2.0 2.0	0.50 0.95 1.0 0.76 0.78
TOTAL YEAR	10552 385671		199.1 561238.39	5919		120.5	4327		45.13

e Estimated

14217600 SWIFT RESERVOIR AT COUGAR, WA

LOCATION.-- Lat 46°03'38", long 122°11'44", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.28, T.7 N., R.5 E., Skamania County, Hydrologic Unit 17080002, at the intake structure near left bank on Swift Dam on Lewis River, 5.0 mi east of Cougar, and at mile 47.9.

DRAINAGE AREA. -- 481 mi2.

PERIOD OF RECORD.--September 1958 to current year.

GAGE.--Water-stage recorder and long distance indicator in powerhouse. Datum of gage is NGVD of 1929 (levels by PacifiCorp).

REMARKS.--Hourly elevations for the year were furnished by PacifiCorp. Reservoir is formed by rock and earthfill dam; storage began Sept. 29, 1958; dam completed in December 1958. Usable capacity, 446,600 acre-ft between elevations 878 ft, lower limit for economic operation, and 1,000.5 ft, maximum operating limit. Dead storage unknown. Figures given herein represent total contents. Water is used by PacifiCorp for power generation. Capacity table furnished by PacifiCorp.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 759,100 acre-ft, Nov. 15, 1973, elevation 1,000.77 ft; minimum contents since reservoir was first filled, 325,100 acre-ft, May 1, 1967, elevation 883.60 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 755,500 acre-ft, Jul. 1, elevation 999.99 ft; minimum contents 516,900 acre-ft, Mar. 8, elevation 942.16 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	980.62	669,600	
Oct. 31	963.55	599,000	-70,600
Nov. 30	980.34	668,400	+69,400
Dec. 31	977.05	654,500	-13,900
CAL YR 2001			+206,700
Jan. 31	965.63	607,400	-47,100
Feb. 28	948.97	542,200	-65,200
Mar. 31	958.22	577,900	+35,700
Apr. 30	996.24	738,500	+160,600
May 31	994.09	728,800	-9,700
June 30	999.74	754,400	+25,600
July 31	998.94	750,700	-3,700
Aug. 31	998.05	746,700	-4,000
Sept. 30	999.39	752,800	+6,100
WTR YR 2002			+83,200

14218500 YALE RESERVOIR NEAR YALE, WA

LOCATION.-- Lat $45^{\circ}57^{\circ}50^{\circ}$, long $122^{\circ}19^{\circ}53^{\circ}$, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.32, T.6 N., R.4 E., Clark County, Hydrologic Unit 17080002, at left bank on Yale Dam on Lewis River just upstream from intake, 500 ft upstream from powerhouse, 1.0 mi upstream from Canyon Creek, 3.2 mi southeast of Yale, and at mile 34.2.

DRAINAGE AREA. -- 596 mi².

PERIOD OF RECORD. -- August 1952 to current year.

GAGE.--Water-stage recorder and long distance indicator in powerhouse. Datum of gage is NGVD of 1929 (levels by PacifiCorp). Prior to Feb. 1, 1954, nonrecording indicator gage at same site and datum.

REMARKS.--Hourly elevations for the year were furnished by PacifiCorp. Reservoir is formed by rock and earthfill dam; storage began July 31, 1952; dam completed in 1952. Usable capacity, 189,500 acre-ft between elevations 430 ft, lower limit for economic operation, and 490 ft, top of spillway gates. Dead storage below elevation 417 ft, 178,000 acre-ft. Figures given herein represent total contents. Water is used by PacifiCorp for power generation. Capacity table furnished by PacifiCorp.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 402,500 acre-ft, May 13, 1961, elevation 490.15 ft; minimum contents observed since reservoir was first filled, 227,600 acre-ft, Feb. 22, 1957, elevation 435.65 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 401,900 acre-ft, Jul. 12, elevation 490.04 ft; minimum contents 308,300 acre-ft, Jan. 6, elevation 463.02 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Park.	Elevation	Contents	Change in contents
Date	(feet)	(acre-feet)	(acre-feet)
Sept. 30	473.71	343,200	
Oct. 31	476.47	352,700	+9,500
Nov. 30	482.03	372,300	+19,600
Dec. 31	468.72	326,600	-45,700
CAL YR 2001			+25,300
Jan. 31	479.79	364,300	+37,700
Feb. 28	486.75	389,600	+25,300
Mar. 31	485.83	386,200	-3,400
Apr. 30	485.99	386,800	+600
May 31	489.35	399,300	+2,500
June 30	488.44	395,900	-3,400
July 31	488.65	396,700	+800
Aug. 31	487.96	394,100	-2,600
Sept. 30	479.95	364,900	-29,200
WTR YR 2002			+21,700

14219800 SPEELYAI CREEK NEAR COUGAR, WA

LOCATION.--Lat 46° 00'17", long 122°20'35", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.17, T.6 N., R.4 E., Cowlitz County, Hydrologic Unit 17080002, on right bank 3.8 mi southwest of Cougar, and at mile 0.5.

DRAINAGE AREA. -- 12.6 mi².

Time

PERIOD OF RECORD. -- May 1959 to May 1978, October 1978 to current year.

REVISED RECORDS.--WSP 1718: 1959. WDR WA-81-1: 1978-80(P). WDR WA-84-1: 1983.

Discharge Gage height (ft³/s) (ft)

GAGE.--Water-stage recorder. Elevation of gage is 500 ft above NGVD of 1929, from topographic map. Prior to Nov. 21, 1959, at site 900 ft upstream at different datum; Nov. 22, 1959, to Sept. 30, 1996, at site 1,150 ft upstream at different datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--42 years (water years 1960-77, 1979-2002), 103 ft³/s, 110.96 in/yr, 74,550 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,600 ft³/s probably Nov. 20, 1962 (by slope-area measurement, gage height not determined); maximum gage height, 8.12 ft Feb. 8, 1996, datum then in use; minimum discharge, 0.76 ft³/s Aug. 28 to Sept. 4, 1992.

Time

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 $\mathrm{ft^3/s}$ and maximum (*):

Date	Time	(ft ³	/s)	(ft)	Date		Time	(ft ³ /s)	Ĩ	(ft)		
Nov 14 Nov 22 Dec 01 Dec 13 Dec 16	0700 1330 1815 1730 2315	1,5 5 1,5 2,0	980	7.68 6.68 6.28 7.66 8.53	Jan Jan Mar Apr	07 25 11 14	0700 unknown 1700 0400	1,670 *unknow 1,050 1,000	n	7.87 *unknown 6.82 6.72		
Minimum disc	harge, 0											
		DISCHAF	RGE, CUBI	C FEET PER		WATER YE MEAN VA	AR OCTOBER LUES	2001 TO S	EPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2	2.2	144 208	655 519	67 88	73 69	75 66	77 78	71 71	66 58	55 47	6.5 6.2	2.1
3	1 9	143	324			58	77	67	53		5.9	1.8
4 5	1.9 1.8	98 78	237 174	89 89 96	79 85	e52 e50	83 105	61 68	49 47	36 32	6.2 6.0	1.8 1.7
6							133	63	43			
7		61 49	258	277 1420 972 474 263	230	e100 67 60	145	59	41	27	5.5	1.6
8 9	3.7 2.6	42 37 33	211 178	972 474	235 178	60 56	125 185	54 50	39 34		5.2 4.9 4.9	1.6 1.5
10	5.0						497	46	32	21	4.9	1.3
11	11	29	140	176 172 156 121 94	116	642	496	46	31		4.7	1.2
12 13	16	126	898	156	81	574 335	413 539	52 66	30	19 18	4.3	1.1
14 15	15 11	1140 476	823 383	121 94	81 71 65	232 171	754 387	69 64	30 29 27	16 16	4.0 3.7 3.6	1.0
16							265	59	25	15		
17	8.9 8.0 6.7 6.1	217	1040	80 69 66 87 109	62	132 100	207	60	30	14	3.4 3.3 3.2	4.3
18 19	6.7	151 136	422 283	66 87	153	85 147	167 138	59 57	33	e18 e17	3.2	2.0 1.5
20	5.,					222	117	62	29	e18	3.2	1.3
21 22	8.1	195 664 557 298 198	153	154 122 95 230 e1500	500	183	101 e87 e80 73 70	61	26	e16 e15 e14	3.2	1.1 0.97 0.93
23	79	557	100	95	514	115	e87	57	22	e15 e14	3.3	0.97
24 25	64 48	298 198	86 75	230 e1500	432 242	111 111	73 70	53 52	e20	e12 e12	2.8	0.90
				6900	161	106	70					
27	34	109	62	e900 e500 e200	118	99	68	56	18	e13	2.6	0.84
28 29	29 26	132 238	61 55	e200 104	91	94 89	64 65	90 154	34 123	e12 e11	2.4	
30	88	141 109 132 238 318	51 54	104 86 82		106 99 94 89 83 77	69	101 78	72	e14 e13 e12 e11 e10 e9.4	2.2	10
TOTAL MEAN	24.5	6550 218 1140 28	306	8938 288	168	4529 146	191	2021 65.2	38.1	644.4 20.8 55 9.4	3.97	1.81
MAX	176	1140	1300	1500	514	642	754 64	154 46	123	55 9 4	6.5 2.1 244	10
AC-FT	1500	12990	18800	17730	9340	8980	11380	4010	2270	1280	244	108
CFSM IN.	1.94	17.3 19.34		22.9 26.39	13.3 13.90	11.6 13.37	15.2 16.93	5.17 5.97	3.03	1280 1.65 1.90	0.32	0.14
STATIST							BY WATER					
MEAN	51.0	174	206	196	182	150	126	78.2	40.3	15.7	8.79	13.8
MAX	174 1998	371	393	350	374 1972			151	106	71.2	49.0	55.9
(WY) MIN	1.54	6.79	393 1976 39.9 1977	1974 37.1	57.2	25.9	238 1993 50.0 1998	151 1960 20.0 1994	6.93	1983 3.26	1968 1.40	1977 1.61
(WY)	1988	1994	1977	1977	1973	1992	1998	1994	1992	1992	1992	1999
SUMMARY	STATIST:	ICS	FOR	2001 CALEN	DAR YEAR	F	OR 2002 WA	TER YEAR		WATER YEAR	RS 1960 -	2002
ANNUAL ANNUAL				28921.4 79.2			44682.30 122			103		
HIGHEST	ANNUAL I			75.2			122			155		1974
	ANNUAL MI DAILY MI			1300	Dec 16		1500	Jan 25		45.1 2410	Feb 8	2001 1996
LOWEST	DAILY ME			1.7	Sep 24		0.83	Sep 28		0.76 0.78	Aug 29	1992
ANNUAL	RUNOFF (A	AC-FT)		1300 1.7 1.9 57370 6.29	рећ то		88630	Jan 25 Sep 28 Sep 22		74550		1334
ANNUAL	RUNOFF (CFSM) INCHES)		6.29 85.39			9.72 131.92			8.17 110.96		
10 PERC	ENT EXCE	EDS		174			279			242		
	ENT EXCE			42 3.0			62 2.4			56 4.8		

e Estimated

14220000 LAKE MERWIN NEAR ARIEL, WA

LOCATION.-- Lat 45°57'23", long 122°33'13", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.34, T.6 N., R.2 E., Clark County, Hydrologic Unit 17080002, on left bank on Merwin Dam on Lewis River at Ariel, and at mile 19.6.

DRAINAGE AREA. -- 730 mi2.

PERIOD OF RECORD. -- March 1931 to current year.

GAGE.--Water-stage recorder and long distance indicator in powerhouse. Datum of gage is NGVD of 1929 (levels by PacifiCorp).

REMARKS.--Hourly elevations for the year were furnished by PacifiCorp. Reservoir is formed by combination gravity-concrete-arch dam; some storage began March 1931; completed May 13, 1931. Usable capacity, 245,600 acre-ft between elevations 165 ft, lower limit of regulation set by Federal Energy Regulatory Commission, and 235 ft, top of spillway gates. Additional storage of 18,200 acre-ft is provided by flashboards to elevation 239.6 ft. Unused storage below elevation 165 ft, 159,000 acre-ft. Figures given herein represent total contents. Water is used by PacifiCorp for power generation. Capacity table furnished by PacifiCorp.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents during the period 1931-52 not determined; maximum since 1953, 424,000 acre-ft Jan. 24, 1959, elevation 239.86 ft; minimum contents observed since reservoir was first filled, 164,200 acre-ft, Dec. 5, 1936, elevation 166.7 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 422,100 acre-ft, July 13, elevation 239.43 ft; minimum contents 364,300 acre-ft, Apr.28, elevation 224.48 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	232.54	395,000	
Oct. 31	236.87	412,000	+17,000
Nov. 30	233.35	398,200	-13,800
Dec. 31	232.63	395,400	-2,800
CAL YR 2001			+13,800
Jan. 31	237.36	413,900	+18,500
Feb. 28	239.02	420,500	+6,600
Mar. 31	231.88	392,500	-28,000
Apr. 30	225.99	370,000	-22,500
May 31	238.00	416,400	+46,400
June 30	237.93	416,200	-200
July 31	236.85	411,900	-4,300
Aug. 31	234.90	404,200	-7,700
Sept. 30	234.57	402,900	-1,300
WTR YR 2002			+7,900

14220500 LEWIS RIVER AT ARIEL, WA

LOCATION.--Lat $45^{\circ}57'07"$, long $122^{\circ}33'46"$, in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.4, T.5 N., R.2 E., Cowlitz County, Hydrologic Unit 17080002, on right bank 0.4 mi southeast of Ariel, 0.5 mi downstream from Merwin Dam and powerplant, 3.3 mi upstream from Cedar Creek, and at mile 19.0.

DRAINAGE AREA. -- 731 mi².

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PERIOD OF RECORD.--July to October 1909, November 1909 (gage heights only), July to October 1922, July 1923 to current year.

Published as "near Ariel" water years 1922-29. Prior to October 1952, discharge measurements made at site 0.5 mi downstream; low discharges not equivalent due to local inflow.

REVISED RECORDS.--WSP 884: 1938. WSP 984: 1936-37, 1940-42. WSP 1318: 1924-30(M).

GAGE.--Water-stage recorder. Datum of gage is 44.0 ft above NGVD of 1929 (levels by Pacificorp). July to November 1909, nonrecording gage at site 4 mi upstream at different datum. July 27 to Oct. 29, 1922, and July 31, 1923, to Apr. 20, 1930, nonrecording gages at site 0.5 mi downstream at datums 3.90 ft and 0.90 ft higher respectively, than present datum.

REMARKS.--No estimated daily discharges. Records good. No diversion upstream from station. Flow regulated by Swift and Yale Reservoirs, and Lake Merwin (stations 14217600, 14218500, 14220000). Chemical analyses July 1959 to June 1960, April 1979 to September 1986. Additional data from April to August 1980 are published in U.S. Geological Survey Open-File Report 81-1007. Water temperatures October 1950 to September 1963.

AVERAGE DISCHARGE.--79 years (water years 1924-2002), 4,816 ft³/s, 89.47 in/yr, 3,489,000 acre-ft/yr, adjusted for storage in Lake Merwin Reservoir since March 1931, Yale Reservoir since August 1952, and Swift Reservoir since October 1958.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 129,000 ft³/s Dec. 22, 1933, gage height, 35.0 ft, from floodmarks, from rating curve extended above 56,000 ft³/s on basis of computation of peak flow over dam; no flow at times June 30, July 1-3, 6-9, 1931 (caused by regulation during construction of Merwin Dam); minimum daily discharge, 1 ft³/s July 6, 1931.

EXTREMES FOR CURRENT YEAR.--Maximum discharge,14,700 ft³/s Dec. 17, gage height, 8.60 ft; minimum discharge, 1,030 ft³/s Oct. 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		DISCILL	ROD, CODI	C IDDI ID	DAIL	Y MEAN VA		10 2001 10		10 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2150	1900	11600	6100	8510	6410	4970	5050	5930	3550	1500	1160
2	2140	2900	11800	6150	8500	5960	4950	5630	5920	3140	1500	1160
3	2100	2900	11800	5920	8520	5980	4950	5610	5940	3030	1500	1160
4	2070	2940	11800	5690	8540	5980	4960	5620	5980	2760	1480	1160
5	2060	4670	11800	5440	8500	5930	4960	5620	5970	2580	1470	1170
6	2030	5330	11800	5450	8470	5910	4970	5640	5960	2810	1400	2360
7	2040	4500	11800	9830	8460	5920	4990	5650	5660	2480	1170	1460
8	2020	2460	10700	11800	8450	5940	5000	5650	4670	2490	1180	1210
9	2010	4960	10100	11700	8490	5960	4980	5640	3360	2480	1180	1210
10	2010	4970	10100	11700	8100	5950	5800	5630	3280	2360	1190	1220
11	2000	4980	10100	11700	5980	5350	6460	5630	3290	2250	1190	1210
12	1990	4990	10100	11700	5890	5710	7880	5630	3550	2260	1200	1210
13	1980	4990	9140	11600	5920	5930	9450	5320	3920	2290	1210	1210
14	2000	5500	11500	11300	5890	5910	11500	4930	4030	2290	1210	1210
15	2000	5110	11900	10100	5860	6210	11400	4920	3990	2120	1210	1210
16	2000	2700	12300	9580	5900	6460	11400	4920	3990	1970	1200	1200
17	2000	5960	13500	9020	5920	6450	10900	4940	3990	1950	1200	1210
18	2000	5970	11900	9010	5930	6420	9520	4360	4010	1950	1200	1210
19	1980	6260	11900	9010	5930	6400	8310	3580	3730	1960	1200	1210
20	1990	6130	11900	9050	5890	7380	7380	3690	3570	1930	1200	1210
21	2010	4080	11900	9150	5910	7930	7370	3850	3450	1690	1190	1210
22	2020	6320	11800	9130	5920	6470	5480	3850	3260	1700	1190	1210
23	2410	7970	11800	9090	5970	6430	4380	3870	3260	1450	1190	1210
24	2690	9000	10900	9070	5980	6450	3170	3880	3280	1430	1150	1200
25	1770	9230	10000	11100	5970	6180	3180	3890	3270	1430	1160	1200
26	2680	11400	10100	9490	5930	5700	3880	3860	3280	1430	1160	1230
27	2670	11800	9650	9070	6250	5450	4930	3890	3260	1430	1160	1310
28	2670	11800	9120	8810	6250 6410 	5440	4930	3850	3260	1430	2430	1230
29	2790	11800	9120	8470		5150	4910	4060	3750	1430	1710	1230
30	2910	11600	9130	8470		5000	4910	5830	3930	1460	1170	1220
31	2900		7870	8480		5000		5930		1500	1160	
TOTAL	68090	185120	338930	282180	191990	187360	191870	150420	124740	65030	40260	37610
MEAN	2196	6171	10930	9103	6857	6044	6396	4852	4158	2098	1299	1254
MAX	2910	11800	13500	11800	8540	7930	11500	5930	5980	3550	2430	2360
MIN		1900	7870	5440	5860	5000	3170	3580	3260	1430	1150	1160
	135100	367200	672300	559700	380800	371600	380600	298400	247400	129000	79860	74600
MEAN†	1480	7435	9919	9251	6257	6113	8727	5653	4527	1981	1066	844
CFSM†	2.02	10.17	13.57	12.66 14.59	8.56 8.92	8.36 9.64	11.94	7.73	6.19	2.71	1.46	1.15
IN.†	2.33	11.35	15.65		8.92	9.64	13.32	8.92	6.91	3.13	1.68	1.29
AC-FT†	91000	442400	609900	568800	347500	375900	519300	347600	269400	121800	65560	50200

CAL YR 2001 TOTAL 1199850 MEAN 3287 MAX 13500 MIN 1020 AC-FT 2380000 MEAN† 3627 CFSM† 4.96 IN.† 67.37 AC-FT† 2626000 WTR YR 2002 TOTAL 1863600 MEAN 5106 MAX 13500 MIN 1150 AC-FT 3696000 MEAN† 5261 CFSM† 7.20 IN.† 97.72 AC-ft† 3809000

[†] Adjusted for change in contents in Lake Merwin, Swift Reservoir and Yale Reservoir.

14222500 EAST FORK LEWIS RIVER NEAR HEISSON, WA

LOCATION.--Lat 45°50'13", long 122°27'54", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.17, T.4 N., R.3 E., Clark County, Hydrologic Unit 17080002, on right bank 60 ft downstream from Basket Creek, 1.5 mi northeast of Heisson, 3.4 mi southwest of Yacolt, and at mile 20.2.

DRAINAGE AREA. -- 125 mi2.

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

Time

GAGE.--Water-stage recorder. Datum of gage is 356.8 ft above NGVD of 1929 (from river-profile survey). Prior to Oct. 1, 1987, at datum 10.00 ft higher.

REMARKS.--Records good, except for estimated daily discharges which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--73 years (water years 1930-2002), 741 $\mathrm{ft^3/s}$, 80.52 $\mathrm{in/yr}$, 536,700 acre-ft/yr.

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,600 ft³/s Feb. 8, 1996, from indirect measurement, gage height, 25.26 ft; minimum discharge, 29 ft³/s Nov. 3, 1935, Sept. 27, 28, 1967.

Date Time

Discharge Gage height (ft³/s) (ft)

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,100 ft^3/s and maximum (*):

Jan. 25 1015 *6,330 *18.01 No other peak greater than base discharge.

						-				_		
Minimum discharge, 42 ft ³ /s Oct. 5.												
		DISCHA	RGE, CUI	BIC FEET P	ER SECOND, N	WATER YE MEAN VA		ER 2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	854	3580	540	1130	758	687	550	462	320	79	57
2	49	1010	3240	638	985	666	685	549	414	271	77	56
3	49	786	2370	627	1010	598	662	532	375	240	76	55
4	47	571	2050	600	956	551	671	479	356	218	77	54
5	43	546	1820	594	929	549	801	509	356	198	87	54
6	44	434	1990	937	1080	788	901	494	338	182	78	54
7	49	370	2160	4400	1870	717	1020	445	305	174	76	55
8	66	326	1740	4360	2100	630	938	409	292	186	74	55
9	65	293	1550	2550	1760	576	1110	385	266	162	72	55
10	88	265	1390	1720	1450	746	2170	362	249	143	71	52
11	186	241	1320	1300	1250	3030	2090	349	244	135	72	51
12	111	247	1330	1360	1060	3520	1830	370	249	129	69	51
13	194	451	2910	1320	916	2280	2070	466	259	123	66	50
14	157	2880	2720	1080	794	1810	3560	480	256	119	64	49
15	134	1580	e2100	889	711	1490	2140	439	235	114	63	49
16	105	1240	e4200	780	668	1280	1670	410	219	110	63	58
17	103	977	e3700	691	620	1080	1480	421	219	106	63	107
18	90	781	e2500	669	619	980	1270	421	366	103	62	65
19	84	776	e2100	974	1350	1900	1100	415	293	100	63	57
20	79	923	1820	1260	1240	2010	959	435	235	101	64	55
21	82	1260	1460	1400	2070	1610	047	414	212	97	64	53
21 22	252	1260 3210	1460 1190	1490 1290	2430	1610 1310	847 762	414 551	213 202	93	64 66	50
23	725	3210	985	1140	3120	1100	691	493	190	93 89	63	48
24	553	1850	839	1750	2780	1160	635	440	176	88	61	48
25	344	1290	732	4860	1790	1130	601	416	165	87	60	49
26	268	995	649	3030	1320	1040	594	419	158	91	63	48
27	242	814	588	2050	1050	947	596	425	153	90	63	47
28	235	1260	592	1530	882	868	539	554	189	88	59	48
29	202	2350	515	1210		804	526	968	848	86	57	59
30	493	2370	471	1020		742	544	677	414	83	56	177
31	1170		474	1110		708		539		81	59	
TOTAL	6364	34150	55085	47769	37940	37378	34149	14816	8696	4207	2087	1766
MEAN	205	1138	1777	1541	1355	1206	1138	478	290	136	67.3	58.9
MAX	1170	3210	4200	4860	3120	3520	3560	968	848	320	87	177
MIN	43	241	471	540	619	549	526	349	153	81	56	47
AC-FT	12620	67740	109300	94750	75250	74140	67730	29390	17250	8340	4140	3500
CFSM	1.64	9.11	14.2	12.3	10.8	9.65	9.11	3.82	2.32	1.09	0.54	0.47
IN.	1.89	10.16	16.39	14.22	11.29	11.12	10.16	4.41	2.59	1.25	0.62	0.53
STATIST	TICS OF	MONTHLY ME.	AN DATA	FOR WATER	YEARS 1930	- 2002,	BY WATER	YEAR (WY)				
MEAN	348	1090	1489	1407	1287	1105	917	592	346	146	82.5	112
MAX	1318	2502	3957	3460	2636	2432	1818	1254	914	561	278	555
(WY)	1952	1996	1934	1953	1961	1932	1937	1933	1933	1983	1968	1941
MIN	36.7	53.7	288	303	394	352	312	198	88.2	59.4	42.7	42.3
(WY)	1988	1937	1977	1979	1977	1992	1941	1931	1992	1992	1992	1967
SUMMARY	STATIST	rics	FOR	2001 CALE	NDAR YEAR	FC	DR 2002 W <i>F</i>	TER YEAR		WATER YEARS	1930 -	2002
ANNUAL	TOTAL			209482			284387					
ANNUAL				574			779			741		
HIGHES?	r annual	MEAN								1117		1974
	ANNUAL									411		2001
	r DAILY			4200	Dec 16		4860	Jan 25		21000	Feb 8	
	DAILY M			43	Oct 5		43	Oct 5		30	Sep 27	
		MUMINIM YA		47	Oct 1		47	Oct 1		32	Sep 23	1967
	RUNOFF			415500			564100			536700		
	RUNOFF			4.			6.2			5.93		
		(INCHES)		62.	34		84.6	i3		80.52		
	CENT EXC			1320			2030			1760		
	CENT EXC			374			515			449		
90 PER	CENT EXC	EEDS		62			59			64		

e Estimated

14226500 COWLITZ RIVER AT PACKWOOD, WA

LOCATION.--Lat $46^\circ36^147^\circ$, long $121^\circ40^141^\circ$, in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.16, T.13 N., R.9 E., Lewis County, Hydrologic Unit 17080004, on right bank on upstream side of Forest Service bridge, 0.6 mi northwest of Packwood, 0.8 mi upstream from Skate Creek, and at mile 126.5.

DRAINAGE AREA. -- 287 mi2.

PERIOD OF RECORD.--July 1911 to December 1919, September 1929 to current year. Published as "at Lewis" 1911-19.

REVISED RECORDS.--WSP 884: 1938. WSP 1348: 1916-18(M), 1934. WSP 1638: 1947(P).

GAGE.--Water-stage recorder. Datum of gage is 1,048.0 ft above NGVD of 1929 (Bureau of Public Roads benchmark). July 1, 1911, to Dec. 31, 1919, nonrecording gages at site about 1 mi upstream at different datums. Sept. 30, 1929, to Jan. 1, 1930, nonrecording gage at present site and datum.

REMARKS.--Records good. Minor regulation by Packwood Lake beginning June 1964. Small diversions for domestic use. Water temperatures November 1970 to April 1971. U.S. Geological Survey satellite telemeter at station. Water is diverted from Packwood Lake for power generation and is discharged into Cowlitz River about 1 mi downstream from station. Monthly mean diversion in cubic feet per second for the current water year, as furnished by Energy Northwest is as follows:

October	0.3	January	82.4	April	74.1	July	148
November	3.8	February	48.7	May	125	August	45.9
December	93.3	March	51.8	June	180	September	78.0

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,600 ft³/s Dec. 21, 1933, gage height, 13.0 ft; maximum gage height, 13.73 ft Dec. 2, 1977; minimum discharge, 130 ft³/s Nov. 29, 1952.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,500 ${\rm ft}^3/{\rm s}$ and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 11	0830	13,800	8.80	May 29	0630	7,640	6.75
Jan. 8	0015	*17,400	*9.79	Jun. 29	0645	9,280	7.28
Apr. 14	0600	11.800	8.05				

Minimum discharge, 224 ft^3/s Oct. 10.

		DISCHA	ARGE, CUB	IC FEEL PI	DAILY	MEAN V		SR 2001 10) SEPIEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	302	2000	1230	656	741	1130	878	1670	4470	3120	946	577
2	311	2000	1380	717	671	1020	908	2110	4410	2790	904	562
3	309	1640	1250	718	658	938	930	1900	4230	2630	825	613
4	320	1340	1150	684	632	895	1050	1530	4140	2380	805	493
5	298	1360	1060	692	633	869	1350	1300	5130	2070	733	442
6	289	1100	1050	1210	653	859	1530	1110	5110	2200	693	417
7	253	935	1000	11000	749	798	1730	946	3510	2720	652	400
8	256	837	916	11500	786	759	1650	821	2580	3470	665	369
9 10	238 304	762 705	877 836	5670 3690	758 724	723 722	1680 2240	762 720	2080 2530	2500 2780	719 780	375 411
11	509	678	780	2670	705	1350	2510	766	3700	3190	777	450
12	573	763	751	2450	665	2080	3140	992	4790	3050	753	480
13	743	1270	2100	2200	663	1650	4630	1600	5860	2990	790	490
14 15	972 585	10200 5580	3530 2330	1860 1590	630 589	1390 1200	8980 4860	1770 1680	6290 6240	2600 2150	847 846	479 472
16	443	3650	3120	1390	582	1070	2960	1660	5560	1990	794	460
17	378	2550	4710	1230	580	951	2020	1850	4410	1960	738	419
18	324	1920	2970	1120	583	881	1530	2120	4470	1890	681	368
19	333	1970	2170	1060	656	869	1280	2150	3670	1750	650	391
20	360	2500	1700	1020	713	896	1160	2940	3560	1540	631	435
21	351	2500	1420	999	1650	842	1140	3070	4110	1450	597	393
22	601	2800	1240	965	3890	807	1060	2680	4700	1490	632	380
23	1150	3260	1110	941	3320	791	967	2300	4590	1500	641	395
24	760	2470	995	1040	2820	785	889	2300	3930	1480	663	410
25	714	1920	913	1230	2160	803	877	2630	4120	1460	668	393
26	782	1570	845	1120	1740	848	932	3250	4960	1360	636	372
27	850	1330	787	976	1470	853	931	3920	4930	1200	657	337
28	760	1240	768	899	1280	854		5350	4800	1110	702	325
29	660	1240	720	839		857	931	7120	7370	1180	719	340
30	1160	1150	685	794		849	1140	6150	4380	1210	656	297
31	2530		673	782		868		5110		1030	591	
TOTAL	18418	63240	45066	63712	31701	30207	56765	74277	134630	64240	22391	12745
MEAN	594	2108	1454	2055	1132	974	1892	2396	4488	2072	722	425
MAX	2530	10200	4710	11500	3890	2080	8980	7120	7370	3470	946	613
MIN	238	678	673	656	580	722	877	720	2080	1030	591	297
AC-FT	36530	125400	89390	126400	62880	59920	112600	147300	267000	127400	44410	25280
STATIST	rics of	MONTHLY ME	EAN DATA	FOR WATER	YEARS 1930	- 2002	, BY WATER	R YEAR (WY	Z)			
MEAN	811	1609	1760	1515	1411	1215	1709	2817	3058	1790	824	577
MAX	2683	5023	6025	4104	4690	3478	2833	5209	6085	4265	1824	1527
(WY)	1956	1996	1934	1974	1996	1972	1991	1949	1974	1933	1999	1959
MIN	237	196	319	364	396	495	668	1548	842	527	445	344
(WY)	1988	1953	1953	1937	1933	1955	1975	1977	1992	1992	1987	1987
SUMMARY	STATIS	TICS	FOR	2001 CAL	ENDAR YEAR		FOR 2002 W	NATER YEAR	ર	WATER YE	ARS 1930 -	2002
ANNUAL	TOTAL			417460			617392					
ANNUAL				1144			1691			1591		
	r ANNUAL	MEAN								2411		1956
LOWEST	ANNUAL	MEAN								923		1941
				10200	Nov 14		11500	Jan 8		27700	Dec 2	
LOWEST	DAILY M	MEAN EAN AY MINIMUN (AC-FT) EEDS EEDS		238 280	Oct 9		238	Oct 9		144	Nov 29	
ANNUAL	SEVEN-D	AY MINIMUM	1	280 828000	Oct 4		200	Oct 4	1	156	Nov 26	1952
ANNUAL	RUNOFF	(AC-FT)		828000			1225000			1153000		
10 PERG	CENT EXC	EEDS		2150			3920			3360		
				787			1020			1090		
90 PERO	CENT EXC	EEDS		423			447			450		

Gage height (ft)

*19.77

Time

1130

14231000 COWLITZ RIVER AT RANDLE, WA

LOCATION.--Lat $46^\circ31^\circ57^\circ$, long $121^\circ57^\circ20^\circ$, in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.17, T.12 N., R.7 E., Lewis County, Hydrologic Unit 17080004, on left bank on upstream side of Cispus Road bridge in the town of Randle, and at mile 102.9.

DRAINAGE AREA. -- 541 mi².

Date

Jan. 8

PERIOD OF RECORD. -- October 1910 to December 1911, October 1993 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 900 ft above NGVD of 1929 from topographic map. October 1910 to December 1911, nonrecording gage at same site at different datum.

REMARKS.--Records good except for period of Oct. 1-Nov. 13 and estimated daily discharges, which are fair. Small diversions for domestic use and irrigation upstream from station. Minor regulation by Packwood Lake for power production. U.S. Geological Survey satellite telemeter at station. Due to bank overflow, discharges above 19.00 ft gage height cannot be determined by direct methods.

 $A VERAGE \ DISCHARGE. --9 \ years \ (water \ years \ 1994-2002), \ 2,916 \ ft^3/s, \ 73.22 \ in/yr, \ 2,112,000 \ acre-ft/yr.$

Date Time

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 24.90 ft Feb. 9, 1996, from outside high-water mark; minimum discharge, 292 ft³/s Nov. 26, 1993.

EXTREMES FOR CURRENT YEAR.--Peak gage heights greater than base gage heights of 18.00 ft (National Weather Service flood stage) and maximum (*):

No other peak greater than base gage height.

Gage height (ft)

Udii. 0	1130	"1:	5.11	140 011	iei beak d	reacer t	nan Dase	gage neign	٠.			
Minimum disc	Minimum discharge, 397 ft ³ /s Oct. 10.											
DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
DAY												SEP
1	519	3470 3210 2840 2340 2180	2750	1770	1980	2880	2270	4050 4780 4720 4230 3870	7440	4830	1300	764
2	499	3210	3090	1820	1880	2590	2320	4780	7100	4310	1250	742
3	504	2840	2890	1910	1810	2410	2360	4720	6930	4010	1120	770
4	530	2340	2670	1790	1770	2300	2520	4230	6680	3740	1070	743
5	519	2180	2470	1750								699
6	511	1890	2440	2100	1760	2200	3240	3560 3230 2990 2820 2700	7860	3250	1000	667
7	467	1660	2440	11400	1960	2090	3580	3230	6260	3540	977	654
8	470	1470	2340	e22000	2120	1990	3590	2990	5270	4290	937	624
9	458	1360	2250	15300	2070	1920	3550	2820	4620	3570	954	619
10	448	1890 1660 1470 1360 1250	2140	8810	2000	1880	4500	2700	4590	3490	997	627
11 12	705	1170 1150 1480 10100 11300	2030	6420	1960	2550	5110	2690 2910 3710 4180 4200	5360	3890	1010 986 998	658 672
13	1100	1130	2540	5730	1770	2010	7630	2710	7220	3760	200	683
14	1110	10100	7890	4660	1640	3430	16300	4180	8620	3480	1030	672
15	997	11300	5720	4000	1580	3090	13200	4200	8790	3030	1030 1050	690
13	221	11300	3720	4000								050
16	772	6920 4910 3930 3550 3960	6290	3640	1550	2840	8240	4150 4250 4630 4700 5400	8140	2770	1010	746
17	689	4910	10500	3280	1520	2600	6240	4250	6800	2690	958	752
18	611	3930	7420	3010	1510	2430	5240	4630	6460	2610	921	702
19	575	3550	5500	2850	1590	2440	4660	4700	5960	2480	887	693
20	609	3960	4480	2810	1720							723
21	589	4110	3830	2790	2470	2490	4090	5890 5680 5270 5120 5290	5840	2030	818	648
22	705	4530	3350	2610	5570	2390	3880	5680	6360	1990	824	606
23	1770	6310	2980	2460	5740	2330	3640	5270	6530	2010	848	610
24	1440	5020	2710	2600	5610	2300	3420	5120	5810	1950	831	636
25	1270	4110 4530 6310 5020 4070	2490	3190	4730	2310	3310	5290	5690	1930	846	630
26												616
26	1370	3450	2310	3090	4050	2350	3310	6720	6260	1650	827	588
20	1350	2770	2100	2/30	3330	2330	2170	9220	5070	1560	000	574
29	1180	2770	1930	2280	3210	2310	3170	10400	8670	1510	901	584
30	1290	2640	1840	2140		2260	3380	10200	6460	1570	843	581
31	3400	3450 2980 2770 2770 2640	1800	2040		2350 2350 2320 2310 2260 2270		5930 6720 8220 10400 10200 8550		1430	788	
												10073
TOTAL	28500	108790	108240	138880	70730	78490	142120	155040	197510	88680	29608	19973
MEAN MAX	919	3626	10500	22000	2526	4400	16200	5001 10400 2690	0700	780T	1200	770
MIN	110	11500	1000	1750	1510	1000	2270	2690	4590	1/20	700	574
AC-ET	56530	215800	214700	275500	140300	155700	281900	307500	391800	175900	58730	39620
CESM	1.70	6.70	6.45	8.28	4.67	4.68	8.76	9.24	12.2	5.29	1.77	1.23
IN.	1.96	7.48	7.44	9.55	4.86	5.40	9.77	307500 9.24 10.66	13.58	6.10	2.04	1.37
STATIST	TICS OF I							R YEAR (WY				
MEAN	1428	3501	3926	3661 5981 1997 1391 2001	3510	2874	3274	4389 6748 1997 3239 1996	4191	2363 4822 1999 1290 2001	1122	805
MAX	3690 1998 417	9466	6632	5981	8136	4912	4737	6748 1997	6662	4822	2382	1493
(WY)	1998	1996	1996	1997	1996	1997	2002	1997	1999	1999	1999	1997
MIN		365	930	1391	1323	1658	2132	1997 3239 1996	2404	1290	715	593
(WY)	1994	1994	2001	2001	1994	2001	1998	1996	2001	2001	1994	1998
SUMMAR	Y STATIS	TICS	FOR	2001 CAL	ENDAR YEAR			WATER YEAR		WATER YEA	RS 1994 -	2002
ΑΝΝΙΙΔΤ.	TOTAL			728336			1166561					
2227777	3455337			1995			2100			2916		
HIGHES	T ANNUAL	MEAN								3982 1573		1996
LOWEST	ANNUAL I	MEAN								1573		2001
HIGHES'	T DAILY I	MEAN		11300	Nov 15		22000	Jan 8		35000	Feb 9	1996
LOWEST	DAILY M	EAN		448	Oct 10		448	Oct 10		295	Nov 26	1993
ANNUAL	SEVEN-D	AY MINIMUM		486	Oct 4		486	Oct 4		321	Nov 12	1993
ANNUAL	KUNOFF	(AC-FT)		1445000			2314000	0.1		2112000	0	
ANNUAL	KUNOFF	(CFSM)		3.6	9		5.	91		5.3	9	
ANNUAL 10 DED	CENTE EVO	CINCHED)		2020	0		8U.	21		13.2	2	
TO PERO	CENL EXC	EEDS COUL		1490			2490			2200		
90 PER	CENT EXC	EEDS		745			692	Jan 8 Oct 10 Oct 4 91 21		697		
JO FERN	CLLVI LIAC			,45			032			057		

e Estimated

14231900 CISPUS RIVER ABOVE YELLOWJACKET CREEK, NEAR RANDLE, WA

LOCATION.--Lat $46^{\circ}26'38"$, long $121^{\circ}50'28"$, in NE $\frac{1}{4}$ sec.18, T.11 N., R.8 E., (unsurveyed), Lewis County, Hydrologic Unit 17080004, Gifford Pinchot National Forest, on right bank 600 ft downstream from Forest Service Road 28 bridge, 2.5 mi downstream from North Fork, 8.5 mi southeast of Randle, and at mile 17.4.

DRAINAGE AREA.--250 mi².

PERIOD OF RECORD. -- August 1996 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,260 ft above NGVD of 1929.

REMARKS.--Records good except estimated daily values, which are poor. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--7 years (water years 1996-2002), 1,077 ft³/s, 58.55 in/yr, 780,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,840 ft³/s Nov. 25, 1999, gage height, 8.24 ft; minimum daily discharge, 170 ft³/s Oct. 9, 2001.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 8, 1996, reached stage of 12.50 ft, discharge not determined.

EXTREMES FOR CURRENT YEAR--Peak discharges greater than base discharge of $4,000~{\rm ft}^3/{\rm s}$ and maximum (*):

Date	Time	Disch (ft ³	arge G /s)	age height (ft)	Date		Time	Discha (ft ³ /s	rge Ga	ge height (ft)		
Jan. 08 Apr. 14	0300 0930		480 570	*8.10 6.75	May	29	1530	4,0	60	5.64		
Minimum dai	ly dischar	ge, 170 f	t ³ /s Oct	. 9.								
						WATER YE MEAN VA	EAR OCTOBER	2001 TO	SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e235	757	1100	683	688	1000	896	1550	2970	1800	662	416
2	e240 e235	674 612	1150 1040	736 731	656 642	950 907	935 934	1730 1710	2890 2840	1660 1560	642 610	432 429
4	e245	541	986	689	614	878	988	1600	2740	1470	601	379
5	e230	530	933	678	605	854	1120	1510	2860	1370	579	360
6	e225	481	893	838	618	858	1240	1390	2870	1330	551	346
7	e190	432	853	3730	694	814	1360	1290	2500	1360	540	338
8	e190	402	849	6550	702	774	1360	1200	2210	1520	528	334
9 10	e170	385	779	4230 2850	666	750	1390	1150	1990	1350	535	333
10	e210	367	748	2000	652	763	1680	1110	1980	1350	551	339
11	e270	360	718	2130	635	1060	1790	1110	2160	1390	545	346
12 13	e280	366 425	672	1900 1700	606 593	1450 1270	1900 2200	1190 1430	2400	1340	540 548	344
14	e310 e350	1670	983 1700	1530	570	1170	4600	1560	2830 3060	1340 1260	555	342 339
15	e310	1590	1440	1360	555	1090	3470	1580	3060	1150	539	336
16	e280	1400	1740	1250	547	1030	2500	1590	2870	1090	515	330
17	e265	1180	2680	1140	540	972	2040	1640	2560	1080	499	330
18	e250	1020	2090	1070	538	921	1770	1720	2450	1040	480	322
19 20	e250 e270	1020 1210	1750 1500	1040 1000	631 647	915 885	1610 1510	1750 1970	2270 2150	1000 942	472 457	325 325
20	e270	1210	1500	1000	047	000	1510	1970	2150	942	457	323
21	e260	1410	1330	971	817	852	1460	2050	2160	907	443	318
22 23	e320	1700	1200	918	1340	821	1390	2030	2240	899 895	450	315
23	450 383	1920 1570	1080 1010	880 870	1490 1490	808 797	1320 1250	1980 1950	2260 2190	876	442 449	319 323
25	e330	1320	945	929	1340	806	1230	2000	2070	857	472	e315
26	e335	1150	895	891	1230	824	1240	2130	2140	850	450	e300
27	e350	1040	852	843	1140	828	1220	2350	2180	809	457	e285
28	e340	1000	816	799	1070	828	1200	2780	2050	771	470	e280
29	e320	1010	756	760		840	1240	3750	2590	809	463	e300
30 31	379 828	951	718 705	741 718		840 860	1340	3680 3260	2120	789 717	431 411	e270
TOTAL MEAN	9300 300.0	28493 949.8	34911 1126	45155 1457	22316 797.0	28415 916.6	48183 1606	57740 1863	73660 2455	35581 1148	15887 512.5	10070 335.7
MAX	828	1920	2680	6550	1490	1450	4600	3750	3060	1800	662	432
MIN	170	360	672	678	538	750	896	1110	1980	717	411	270
AC-FT CFSM	18450	56520	69250	89560	44260	56360		114500	146100	70570	31510	19970
IN.	1.20 1.38	3.80 4.24	4.50 5.19	5.83 6.72	3.19 3.32	3.67 4.23	6.42 7.17	7.45 8.59	9.82 10.96	4.59 5.29	2.05	1.34
							BY WATER					
											-4-	465 5
MEAN MAX	520.9 1172	1036 1720	1143 1763	1271 2322	899.6 1345	992.6 1617	1277 1756	1939 2865	1883 2814	1018 1869	545.4 836	408.6 583
(WY)	1998	2000	1999	1997	1997	1997	1997	1997	1999	1999	1999	1997
MIN	300	359	369	426	414	574	785	1515	889	500	378	274
(WY)	2002	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001
SUMMAR	Y STATISTI	CS	FOR	2001 CALEN	DAR YEAR	I	FOR 2002 WA	TER YEAR		WATER YEA	RS 1996	- 2002
ANNUAL				247907			409711					
ANNUAL				679.2			1122			1077		
	T ANNUAL M ANNUAL ME									1381 580		1997 2001
	T DAILY ME			2680	Dec 17		6550	Jan 8		7560	Jan	1 1997
LOWEST	DAILY MEA	N		170	Oct 9		170	Oct 9		170	Oct	9 2001
	SEVEN-DAY			209	Oct 4		209	Oct 4		209	Oct	4 2001
	RUNOFF (A RUNOFF (C			491700 2.72			812700 4.49			780500 4.3	1	
ANNUAL	RUNOFF (I	NCHES)		36.89			60.96			58.5		
	CENT EXCEE			1410			2160			2030		
	CENT EXCEE CENT EXCEE			506 283			899 330			864 360		
JO FER	CTTAI TRECTIF			200			550			500		

e Estimated

14233500 COWLITZ RIVER NEAR KOSMOS, WA

LOCATION.--Lat $46^{\circ}27^{\circ}59^{\circ}$, long $122^{\circ}06^{\circ}28^{\circ}$, in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.6, T.11 N., R.6 E., Lewis County, Hydrologic Unit 17080005, at Cowlitz Falls Dam, 1.1 mi downstream from Cispus River, 8 mi southwest of Randle, 4.5 mi southeast of Kosmos.

DRAINAGE AREA. -- 1,040 mi².

PERIOD OF RECORD.--October 1947 to current year. October 1967 to March 1994, published as "14233400 Cowlitz River near Randle."

GAGE.--Discharge determined from flow through turbines and outlet structures of Cowlitz Falls Dam. Prior to December 1948, nonrecording gage at site 0.8 mi downstream. December 1948 to September 1967, water-stage recorder at site 0.3 mi downstream, at datum 760.96 ft above sea level. October 1967 to March 1994, water-stage recorder, at site 0.6 mi upstream, at datum 799.42 ft above NGVD of 1929.

REMARKS.--Flow regulated by Cowlitz Falls Dam since Mar. 8, 1994. Water temperatures November 1952 to August 1968, April 1969 to September 1982. Chemical analyses July 1959 to September 1970, December 1973 to September 1985.

COOPERATION.--Records provided by Lewis County Public Utility District since Mar. 8, 1994.

AVERAGE DISCHARGE.--55 years (water years 1948-2002), 4,833 ft³/s, 63.14 in/yr, 3,501,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $103,000 \text{ ft}^3/\text{s}$ Feb. 9, 1996; no flow part or all of many days 1994-2002 water years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 48,700 ft³/s April 14; no flow part of many days.

		DISCHA	ARGE, CUB	IC FEET PER		WATER Y MEAN		ER 2001 TO) SEPTEMB	ER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	671	4800	5290	2880	3360	4490		6640	12000	7020	2070	1320
2	631 628	4240 3920	5940 5410	3120 3210	3180 3020	3970 3700		7810 7940	11400	6170	2040	1280 1290
4	6∠8 594	3920	4860	3020	2960	3480		7940	11200 10700	5680 5330	1970 1930	1290
5	606	3060	4390	2920	2890	3410		6440	11200	4840	1930	1210
6	585	2660	4310	3510	2960	3380		5890	12100	4630	1430	1200
7 8	566 504	2340 2170	4110 4030	21100 36200	3500 3820	3180 2940		5260 4780	9940 8160	5000 6000	1940 1430	1190 1180
9	574	2030	3850	23800	3630	2840		4390	6930	5170	1690	785
10	563	1800	3660	15700	3520	2880		4210	6730	4940	1920	1110
11	832	1760	3500	11400	3410	4330		4160	8000	5460	1530	1240
12	856	1820	3330	9960	3250	8130		4540	9430	5460	1910	1210
13	957	2140	5550	8950	3020	6900		5920	10900	5260	1390	1200
14 15	1000 1470	13900 13600	12900 10200	7570 6740	2820 2690	5780 5340		6850 6990	13000 13200	4970 4350	1930 1910	889 1200
16	1280	10500	11200	6000	2630	4830	14200	6890	12300	3960	1420	1130
17	861	7390	19000	5350	2510	4310	10600	7010	10500	3810	1890	1220
18	767	5830	14000	4850	2570	4030		7690	9790	3750	1370	1160
19	722	5020	10600	4720	2780	4230		7820	8890	3520	1630	1140
20	723	6340	8410	4680	2980	4180	6690	9250	8160	3240	1530	1160
21	723	7320	7000	4670	4160	3870		9620	8440	3060	1460	1180
22	839	9090	5910	4320	8750	3820		9560	9220	2970	1500	1120
23	1800	12200	5220	4020	9420	3750		8820	9490	3010	1480	933
24 25	2180 1790	9480 7290	4650 4240	4380 5580	9230 7720	3640 3660		8520 8750	8510 8090	2950 2880	1470 1560	1080 816
26	1880	5990	3960	5430	6450	3740	5100	9870	8780	2800	1580	1010
27	1880	5000	3660	4850	5720	3760		11000	9480	2660	1460	992
28	1910	4710	3450	4300	5070	3690	4880	13000	8420	2460	1460	968
29	1820	4940	3230	3670		3620		16200	11600	2440	1520	936
30 31	1760 4370	4570	2970 2980	3680 3480		3570 3580		16200 13800	9480	2480 2290	1500 1390	971
TOTAL	36342	169200	191810		118020	127030		252850	296040	128560	51240	33410
MEAN MAX	1172	5640	6187 19000	7550	4215	4098		8156	9868	4147	1653	1114
MIN	4370 504	13900 1760	2970	36200 2880	9420 2510	8130 2840		16200 4160	13200 6730	7020 2290	2070 1370	1320 785
AC-FT	72080	335600	380500		234100	252000		501500	587200	255000	101600	66270
CFSM	1.13	5.42	5.95	7.26	4.05	3.94		7.84	9.49	3.99	1.59	1.07
IN.	1.30	6.05	6.86	8.37	4.22	4.54	8.20	9.04	10.59	4.60	1.83	1.20
STATIST	rics of i	MONTHLY ME	EAN DATA	FOR WATER Y	EARS 194	8 - 200	2, BY WATER	R YEAR (W	()			
MEAN	2145	5033	6279	5810	5734	4689	5742	7963	7335	3944	1938	1472
MAX	6302	14650	16520	13820	15610	14510		13760	16130	8580	3705	2881
(WY)	1960	1996	1978	1974	1996	1972		1949	1974	1974	1974	1959
MIN	675	648	1100	1640	1815	2270		4017	2176	1336	1042	952
(WY)	1988	1953	1953	1979	1977	1955	1975	1992	1992	1992	1992	2001
SUMMARY	Y STATIS'	TICS	FOR	2001 CALEN	DAR YEAR		FOR 2002 V	WATER YEAR	3	WATER YE	ARS 1948	- 2002
ANNUAL				1169067			1867792					
ANNUAL				3203			5117			4833		
	C ANNUAL									7236		1974
	1 AAUNUAL 1 YAILAC 1			19000	Dec 17		36200	Jan 8		2509 84300	Fob	2001 9 1996
	DAILY M			504	Oct 8		504	Oct 8		0.		
		AY MINIMUN	1	570	Oct 4		570	Oct 4		549	Nov 2	
	RUNOFF	(AC-FT)		2319000			3705000			3501000		
		(CFSM)		3.08			4.9			4.		
	RUNOFF			41.82			66.8	31		63.	14	
	CENT EXCI			6270 2340			10300 4030			9430 3760		
	CENT EXC			913			1170			1290		
		-										

14234800 RIFFE LAKE NEAR MOSSYROCK, WA

LOCATION.--Lat 46°32'07", long 122°25'25", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.10, T.12 N., R.3 E., Lewis County, Hydrologic Unit 17080005, in emergency generator room on top of Mossyrock Dam on Cowlitz River, 2.8 mi east of Mossyrock, and at mile 65.5.

DRAINAGE AREA.--1,154 mi².

PERIOD OF RECORD. -- April 1968 to current year.

REVISED RECORDS. -- WDR WA-74-1: 1973.

GAGE.--Water-stage recorder; nonrecording gage prior to July 25, 1968. Datum of gage is NGVD of 1929 (levels by City of Tacoma).

REMARKS.--Reservoir is formed by concrete arch dam, completed in April 1968; storage began Apr. 3, 1968. Useable capacity, 1,297,400 acre-ft between elevations 600 ft, minimum operating level, and 770 ft, normal operating pool. Unused storage below elevation 600 ft, 288,900 acre-ft. Crest of spillway is at elevation 728.5 ft and top of taintor gates are at elevation 778.5 ft. Water used by City of Tacoma for power generation. Figures given herein represent total contents. Capacity table furnished by City of Tacoma. Chemical analyses December 1973 to September 1983 (samples were taken near the dam).

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,686,300 acre-ft July 31, 1972, elevation, 778.63 ft; minimum contents since normal low operating level was attained, 517,233 acre-ft Mar. 9, 2001, elevation, 644.93 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,674,020 acre-ft June 24, elevation, 777.59 ft; minimum contents, 1,084,409 acre-ft Oct. 22, elevation 719.96 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30. Oct. 31. Nov. 30. Dec. 31.	725.39 722.58 740.12 741.33	1,133,890 1,108,154 1,273,441 1,285,279	-25,736 +165,287 +11,838
CAL YR 2001			+628,708
Jan. 31. Feb. 28. Mar. 31. Apr. 30. May 31. June 30. July 31. Aug. 31. Sept. 30.	736.94 743.12 743.43 763.15 773.50 777.31 774.71 765.56 751.68	1,242,617 1,302,905 1,305,971 1,510,310 1,626,328 1,670,726 1,640,340 1,536,717 1,389,138	-42,662 +60,288 +3,066 +204,339 +116,018 +44,398 -30,386 -103,623 -147,579
WTR YR 2002			+255,248

14236200 TILTON RIVER ABOVE BEAR CANYON CREEK, NEAR CINEBAR, WA

LOCATION.--Lat $46^\circ35^144^{\circ}$, long $122^\circ27^130^{\circ}$, in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.20, T.13 N., R.3 E., Lewis County, Hydrologic Unit 17080005, on right bank 0.9 mi upstream from Bear Canyon Creek, 3.5 mi southeast of Cinebar, and at mile 7.1.

DRAINAGE AREA. -- 141 mi2.

PERIOD OF RECORD. -- October 1956 to current year.

REVISED RECORDS.--WDR WA-72-1: 1957(M), 1959(P), 1960(P), 1961(M), 1963(P), 1964(M), 1965, 1967(P), 1971(P).

GAGE.--Water-stage recorder. Elevation of gage is 600 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Several small diversions for municipal and domestic use upstream from station. No regulation. U.S. Geological Survey satellite telemeter at station. Water temperatures May 1965 to September 1982.

AVERAGE DISCHARGE.--46 years (water years 1957-2002), 828 $\mathrm{ft^3/s}$, 79.78 $\mathrm{in/yr}$, 599,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,100 ft³/s Feb. 8, 1996, gage height, 17.90 ft, from rating curve extended above 10,500 ft³/s on basis of slope-area measurement at gage height of 14.79 ft; minimum discharge, 49 ft³/s Oct. 22-26, 28-30, 1987, gage height, 1.93 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,200 ft^3/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 14	0830	7,180	9.37	Jan. 7	2330	7,480	9.55
Dec. 13	2345	8,270	10.01	Apr. 14	0445	8,250	10.00
Dec. 17	0100	*8.360	*10.06	-			

Minimum discharge, 58 ${\rm ft}^3/{\rm s}$ Sep. 25-29.

		DISCH	ARGE, CUB	IC FEET PE			EAR OCTOBER	2001 TO	SEPTEME	BER 2002		
DAY	OCT	NOV	DEC	JAN	DAILY	MEAN V	ALUES APR	MAY	JUN	JUL	AUG	SEP
DAI	OCI	INOV	DEC	UAIN	100	71414	APR	MAI	UUN	001	AUG	SEP
1	83	1540	2120	764	857	895	1000	974	656	439	112	73
2	79	1420	2260	1180	782	787	1000	962	608	362	108	73
3	79	1100	1770	1150	830	713	990	872	553	316	106	75
4	76	838	1500	1000	831	671	1050	757	527	288	109	74
5	72	736	1280	913	828	695	1210	789	604	262	115	72
6 7	72 72	608 523	1530 1560	1300 5610	977 1360	714 643	1420 1550	802 720	546 468	241 234	110 107	71 71
8	80	458	1360	5470	1470	595	1320	664	425	257	107	71
9	81	412	1340	2990	1320	553	1410	628	387	222	101	72
10	98	375	1220	1950	1170	569	2780	593	370	202	99	70
11	209	347	1160	1470	1120	2870	2900	586	364	189	98	69
12	172	347	1110	1600	983	3020	3500	648	360	180	95	67
13	307	488	4410	1530	878	1930	4140	840	354	174	91	67
14	388	5610	5560	1250	788	1580	6230	886	344	166	89	65
15	320	2930	2990	1050	735	1340	3270	807	325	161	87	64
16	242	1870	5780	912	740	1170	2480	733	300	158	87	72
17	205	1330	5850	806	723	993	1990	765	290	152	87	83
18	177	1030	3100	743	848	886	1650	761	353	150	84	73
19 20	171 165	943 936	2290 1770	856 1230	1170 1280	1090 1820	1420 1290	724 751	350 295	144 143	83 83	69 67
21	166	1160	1420	1400	2740	1560	1150	905	270	137	86	67
22	400	2570	1190	1110	3300	1370	1060	814	253	133	85	64
23 24	1270 1030	3460 2200	1020 893	978 2010	3440	1310 1300	988 906	721 646	239 226	128 127	82 79	62 61
25	1230	1590	796	4260	3240 2060	1300	863	644	213	125	79	59
26 27	895 690	1280 1050	719	2530 1750	1530 1230	1280 1270	856 852	662 686	202 197	126 125	79 81	58 58
27	569	1220	663 717	1330	1040	1270	798	902	269	121	79	58
29	467	2150	682	1090	1040	1210	787	1300	984	120	76	61
30	537	1890	643	971		1110	866	954	606	116	75	73
31	1360		683	931		1050		760		115	74	
TOTAL	11762	42411	59386	52134	38270	37574	51726	24256	11938	5813	2831	2039
MEAN	379	1414	1916	1682	1367	1212	1724	782	398	188	91.3	68.0
MAX	1360	5610	5850	5610	3440	3020	6230	1300	984	439	115	83
MIN	72	347	643	743	723	553	787	586	197	115	74	58
AC-FT	23330	84120	117800	103400	75910	74530	102600	48110	23680	11530	5620	4040
CFSM	2.69	10.0	13.6	11.9	9.69	8.60	12.2	5.55	2.82	1.33	0.65	0.48
IN.	3.10	11.19	15.67	13.75	10.10	9.91	13.65	6.40	3.15	1.53	0.75	0.54
STATIST	TICS OF M	ONTHLY M	EAN DATA	FOR WATER	YEARS 1957	- 2002	, BY WATER	YEAR (WY)				
MEAN	403	1265	1588	1553	1398	1129	1040	706	416	194	118	164
MAX	1240	3014	3418	2869	3039	2940	1724	1283	1082	620	294	667
(WY)	1960	1996	1976	1971	1982	1972	2002	1974	1981	1983	1968	1959
MIN	52.0	185	401	415	377	374	520	304	134	93.4	64.3	60.5
(WY)	1988	1994	1977	1977	1977	1992	1998	1980	1992	1970	1970	1967
SUMMAR	Y STATIST	ICS	FOR	2001 CALE	NDAR YEAR		FOR 2002 WA	TER YEAR		WATER YEARS	1957 -	2002
ANNUAL				243049			340140					
ANNUAL				666			932			828		
	T ANNUAL									1228		1972
	ANNUAL M									464		2001
	T DAILY M			5850	Dec 17		6230	Apr 14		21000	Feb 8	
	DAILY ME		ue.	72	Oct 5		58	Sep 26		49	Oct 23	
	SEVEN-DA		vI	76 482100	Oct 2		60	Sep 23		50	Oct 23	198/
	RUNOFF (CFSM)		482100	າ		674700 6.61			599800 5.87		
	RUNOFF (64.1			89.74			79.78		
	CENT EXCE			1370	-		1970			1780		
	CENT EXCE			431			733			537		
	CENT EXCE			98			78			95		

14237800 MAYFIELD RESERVOIR NEAR SILVER CREEK, WA

LOCATION.--Lat $46^{\circ}30'13"$, long $122^{\circ}35'11"$, in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.20, T.12 N., R.2 E., Lewis County, Hydrologic Unit 17080005, on right bank at Mayfield Dam on Cowlitz River, 0.3 mi downstream from Silver Creek, 4 mi south of town of Silver Creek, and at mile 52.0.

DRAINAGE AREA. -- 1,392 mi².

PERIOD OF RECORD. -- April 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Prior to Mar. 5, 1963, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete arch dam, completed April 1962; storage began Apr. 14, 1962. Usable capacity, 21,380 acre-ft between elevation 415 ft, lower limit of operation, and 425 ft, top of taintor gates. Dead storage below elevation 415 ft, 112,340 acre-ft. Crest of spillway is at elevation 385 ft. Water is used by City of Tacoma for power generation. Figures given herein represent total contents. Capacity table furnished by City of Tacoma. Chemical analyses December 1973 to September 1983 (samples were taken near the dam).

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 134,850 acre-ft Dec. 9, 1971, elevation, 425.50 ft; minimum contents since normal operating level was attained, 112,830 acre-ft June 4, 1969, elevation, 415.24 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 133,188 acre-ft Jan. 24, elevation, 424.76 ft; minimum contents, 121,438 acre-ft Dec. 16, elevation, 419.38 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

	Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
		(====,	((3322 2227)
Sept.	30	423.68	130,766	
Oct.	31	423.80	131,040	+274
Nov.	30	423.18	129,664	-1,376
Dec.	31	422.85	128,940	-724
CA	L YR 2001			+5,802
Jan.	31	423.77	130,971	+2,031
Feb.	28	423.61	130,612	-359
Mar.	31	420.56	123,952	-6,660
Apr.	30	423.86	131,172	+7,220
May	31	421.49	125,968	-5,204
June	30	424.05	131,590	+5,622
July	31	424.13	131,769	+179
Aug.	31	423.94	131,348	-421
Sept.	30	423.82	131,084	-264
WT	R YR 2002			+318

14238000 COWLITZ RIVER BELOW MAYFIELD DAM, WA

LOCATION.--Lat $46^{\circ}30'38"$, long $122^{\circ}36'54"$, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.24, T.12 N., R.1 E., Lewis County, Hydrologic Unit 17080005, on right bank 1.1 mi upstream from fish barrier dam, 1.4 mi downstream from Mayfield Dam, 1.5 mi upstream from Mill Creek, 2.1 mi downstream from Winston Creek, and at mile 50.6.

DRAINAGE AREA. -- 1,400 mi².

PERIOD OF RECORD.--August to October 1910, December 1910 to September 1911, October to November 1911 (monthly discharge only), April 1934 to current year. Published as "at Mayfield" water years 1910-11 and "near Mayfield" water years 1934-61.

REVISED RECORDS.--WSP 1318: 1949(M). WSP 1348: Drainage area. WSP 1718: 1943, 1947.

GAGE.--Water-stage recorder. Datum of gage is 226.6 ft above NGVD of 1929. August 1910 to November 1911 nonrecording gage at site 2.5 mi upstream at different datum. Apr. 27 to July 2, 1934, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Riffe Lake (station 14234800) at mile 65.5 and Mayfield Reservoir (station 14237800) at mile 52.0. Minor diversions for domestic and farm use upstream from station. U.S. Geological Survey satellite telemeter at station. Sediment records October 1978 to September 1980. Water temperatures October 1950 to September 1980.

AVERAGE DISCHARGE.--68 years (water years 1935-2002), 6,265 ft³/s, 60.77 in/yr, 4,539,000 acre-ft/yr, adjusted for storage in Mayfield Reservoir since April 1962, and Riffe Lake since April 1968.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $68,400~{\rm ft}^3/{\rm s}$ Nov. 28,~1995; gage height, $26.19~{\rm ft};$ minimum discharge, $37~{\rm ft}^3/{\rm s}$ Apr. 16,~1962, gage height, $6.42~{\rm ft};$ minimum daily discharge, $451~{\rm ft}^3/{\rm s}$ Apr. 16,~1962.

EXTREMES OUTSIDE PERIOD OF RECORD. -- Flood in December 1933 is known to have exceeded that of Nov. 28, 1995.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,900 ${\rm ft}^3/{\rm s}$ Dec. 19, Jan. 9, 22, 23,28; maximum gage height 15.17 on Jan. 22; minimum discharge, 2,470 ${\rm ft}^3/{\rm s}$ many days in October and November 1, 2.

DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2550	2480	10100	6010	8930	8210	5200	8960	9420	10300	2980	3000
2	2550	2480	9760	5980	5900	7170	5170	8960	9170	10600	2980	3500
3	2540	2490	12100	5880	5830	5340	5140	7560	10400	9360	2990	4450
4	2500	2500	12500	5870	7070	5160	6470	5980	9890	7590	2990	4620
5	2500	2590	12500	5870	7370	5140	6670	5860	9850	5680	2990	4620
6	2510	3550	12500	5890	7360	5140	5210	8420	9840	5160	2990	4350
7	2520	3500	11500	10600	7330	5140	5210	9040	9860	5150	2990	3150
8	2510	3510	7630	13200	5650	5140	6740	9050	9850	6820	3000	3070
9	2510	3500	7400	13700	4990	5140	6730	9070	9850	6220	3000	4300
10	2510	3500	9020	13600	5010	5170	6190	7540	10400	5860	3000	4610
11	2500	3510	9540	13600	5010	5180	6210	6030	10600	5850	3010	4600
12	2500	3520	9510	13600	5010	5140	6180	5200	10500	5230	4100	4610
13	2500	3520	10600	13600	5010	5150	6180	8310	10500	5170	4320	4440
14	2500	4740	13000	13500	5010	5160	6430	8940	10500	5190	4320	3260
15	2490	5370	13700	13500	5000	5150	8400	8960	9930	5170	4310	3070
16	2490	4320	13600	13500	5020	5290	8970	9000	10500	4990	4210	4300
17	2490	3510	13600	13600	5020	7430	8980	7540	11100	4010	3170	4610
18	2490	3520	13600	13600	5000	8300	9000	5920	11100	3920	3000	4600
19	2490	5660	13700	13600	5000	10200	8970	5240	10600	3810	4040	4600
20	2490	7280	13600	13600	4990	10200	7540	8750	9650	3080	4290	4470
21	2500	7180	13600	13700	5220	10200	6010	9060	7600	3120	4280	3310
22	2500	6010	12400	13800	5520	10100	8440	6910	7680	3940	4280	3070
23	2490	5930	9580	13800	5040	7790	11300	6710	8070	3930	4000	4220
24	2490	5900	8490	13700	5020	6270	9640	5800	10300	3930	3000	4400
25	2480	5880	6000	13700	6380	8380	9410	5140	11500	3920	2990	3510
26	2490	9970	6010	13600	8410	8550	7550	5140	11400	3270	4020	3230
27	2500	12500	5990	13600	8410	8510	5920	5140	10200	2970	4290	3220
28	2500	13600	5980	13700	8330	8460	5190	7550	9880	2970	4290	3060
29	2500	13700	5960	12700		6810	8180	10100	9810	2980	4300	3070
30	2490	13500	5960	9770		5230	8950	12400	9120	2980	4200	3360
31	2490		5980	9780		5190		13400		2980	3140	
TOTAL	77570	169220	315410	364150	167840	209440	216180	241680	299070	156150	111470	116680
MEAN	2502	5641	10170	11750	5994	6756	7206	7796	9969	5037	3596	3889
MAX	2550	13700	13700	13800	8930	10200	11300	13400	11500	10600	4320	4620
MIN	2480	2480	5960	5870	4990	5140	5140	5140	7600	2970	2980	3000
AC-FT	153900	335600	625600	722300	332900	415400	428800	479400	593200	309700	221100	231400
MEAN†	2088	8397	10350	11080	7074	6696	10770	9597	10810	4545	1904	1405
CFSM†	1.49	6.00	7.39	7.91	5.05	4.78	7.69	6.86	7.72	3.25	1.36	1.00
IN.†	1.72	6.69	8.53	9.13	5.26	5.52	8.58	7.90	8.61	3.74	1.57	1.12
AC-FT†	128400	499500	636700	681700	392800	411800	640400	590200	643200	279500	117100	83560

CAL YR 2001 TOTAL 1382830 MEAN 3789 MAX 13700 MIN 2480 AC-FT 2743000 MEAN† 4665 CFSM† 3.33 IN.† 45.24 AC-FT 3378000 WTR YR 2002 TOTAL 2444860 MEAN 6698 MAX 13800 MIN 2480 AC-FT 4849000 MEAN† 7050 CFSM† 5.04 IN.† 68.37 AC-FT† 5105000

 $[\]dagger$ Adjusted for change in contents in Riffe Lake and Mayfield Reservoir.

14240304 SPIRIT LAKE AT TUNNEL, AT SPIRIT LAKE, WA

LOCATION.--Lat $46^{\circ}16'35"$, long $122^{\circ}09'41"$, in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.10, T.9 N., R.5 E., Skamania County, Hydrologic Unit 17080005, Mount St. Helens National Volcanic Monument, at entrance of Spirit Lake Outlet Tunnel, 5.6 mi north-northeast of the Mount St. Helens volcanic edifice.

DRAINAGE AREA.--18.0 mi², at entrance to Spirit Lake Outlet Tunnel. Prior to the volcanic eruption on May 18, 1980, 14.9 mi².

PERIOD OF RECORD.--October 1987 to current year. Records of contents published in WDR-WA-94-1 are unreliable and should not be used.

GAGE.--Water-stage recorder. Elevation of gage is 3,470 ft above NGVD of 1929, from topographic map.

REMARKS.--As a result of the May 18, 1980, eruption, a gravitational landslide ensued, transporting an estimated 0.6 mi3 of debris into the upper North Toutle River drainage basin. A massive debris avalanche completely filled the lake, blocking the natural outlet to the North Fork Toutle River with a deposit several hundred feet thick. This filling caused the lake to rise 200 ft to elevation 3,400 ft. Refer to report by Schuster, R. L., ed., 1986, Landslide Dams: Processes, Risk and Mitigation: Geotechnical Special Publication no. 3, American Society of Civil Engineers, 164 p., for history of Spirit Lake as it was impacted by the eruption and actions taken to reduce the resulting flood threat.

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded elevation, 3,460.13 ft Feb. 5, 1997; minimum recorded elevation, 3,437.00 ft Oct. 28, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum recorded elevation, 3,443.47 ft Jan 12; minimum recorded elevation, 3,437.92 ft Oct. 10.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY OBSERVATION AT 2400 HOURS

1 3438.09 3438.82 3443.23 3441.79 3442.21 3440.99 3440.32 3441.58 3442.28 3441.68 3439.73 3438.52 2 3438.06 3438.87 3443.18 3441.71 3442.12 3440.93 3440.29 3441.64 3442.32 3441.61 3439.67 3438.50 3438.04 3438.96 3443.07 3441.65 3442.05 3440.86 3440.27 3441.66 3442.33 3441.63 3439.61 3438.47 4 3438.00 3439.06 3443.05 3441.55 3441.95 3440.81 3440.26 3441.65 3442.33 3441.46 3439.57 3438.47 5 3437.98 3439.13 3442.95 3441.55 3441.86 3440.76 3440.27 3441.68 3442.37 3441.39 3439.51 3438.41 6 3437.95 3439.18 3442.92 3441.79 3441.83 3440.76 3440.27 3441.68 3442.37 3441.32 3439.46 3438.41 6 3437.95 3439.23 3442.80 3442.75 3441.89 3440.72 3440.31 3441.68 3442.36 3441.32 3439.41 3438.35 8 3437.97 3439.28 3442.73 3443.27 3441.89 3440.72 3440.34 3441.68 3442.36 3441.32 3439.41 3438.35 8 3437.95 3439.38 3442.73 3443.37 3441.86 3440.64 3440.34 3441.68 3442.37 3441.17 3439.39 3438.31 10 3438.02 3439.36 3432.57 3443.37 3441.67 3440.62 3440.44 3441.58 3442.27 3441.17 3439.33 3438.31 10 3438.02 3439.36 3432.57 3443.39 3441.67 3440.64 3440.57 3441.58 3442.27 3441.17 3439.29 3438.31 13 3438.03 3439.41 342.52 3443.37 3441.68 3440.62 3440.47 3441.58 3442.27 3441.17 3439.29 3438.31 13 3438.03 3439.51 3442.57 3443.39 3441.67 3440.64 3440.57 3441.58 3442.22 3441.11 3439.29 3438.31 13 3438.03 3439.51 3442.62 3443.37 3441.38 3440.67 3440.67 3440.57 3441.58 3442.22 3441.11 3439.29 3438.31 13 3438.01 3439.51 3442.63 3443.39 3441.68 3440.67 3440.68 3441.49 3442.22 3441.11 3439.29 3438.31 13 3438.11 3439.72 3442.61 3443.36 3441.48 3440.97 3440.67 3440.67 3440.67 3440.67 3440.67 3440.67 3440.67 3440.67 3440.67 3440.67 3440.67 3440.67 3440.67 3440.67 3440.67 3440.67 3440.67 3440.68 3441.59 3440.69 3440.67 3440.68 3440.67 3440.68 3440.67 3440.68 3440.67 3440.68 3440.67 3440.68 3440.67 3440.68 3440.67 3440.68 3440.67 3440.67 3440.68 3440.67 3440.68 3440.67 3440.68 3440.67 3440.68 3440.67 3440.68 3440.67 3440.68 3440.67 3440.68 3440.67 3440.68 3440.67 3440.68 3440.67 3440.68 3440.67 3440.68 3440.67 3440.68 3440.67 3440.68 3440.67 3440.68 3440.67 34	DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
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14240446 CASTLE LAKE NEAR MOUNT ST. HELENS, WA

LOCATION.--Lat $46^{\circ}15'36"$, long $122^{\circ}16'27"$, in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.14, T.9 N., R.4 E., Skamania County, Hydrologic Unit 17080005, Mount St. Helens National Volcanic Monument, on right bank at outflow of Castle Lake, 5.0 mi north by northwest of the northwest edifice of Mount St. Helens (at Toutle Glacier).

DRAINAGE AREA.--1.3 \min^2 , at spillway entrance. Prior to the volcanic eruption drainage area is unknown.

PERIOD OF RECORD.--October 1993 to current year (records of contents for water year 1994 published in WDR-WA-94-1 are unreliable and should not be used).

GAGE.--Water-stage recorder with radio telemetry. Datum of gage is 2,498.95 ft above NGVD of 1929, (U.S. Army Corps of Engineers benchmarks).

REMARKS.--As a result of the collapse of the north face of Mount St. Helens on May 18, 1980, a debris avalanche blocked the flow of South Fork Castle Creek forming Castle Lake. Castle Lake would have overtopped the blockage in late 1981 or early 1982. Overtopping most probably would have resulted in a quick release of lake waters as a result of rapid erosion of the blockage. Serious flooding probably would have resulted from the breakout of Castle Lake. As a result, the level of Castle Lake was stabilized with the construction of a spillway in 1981. Refer to report by Schuster, R. L., ed., 1986, Landslide Dams: Processes, Risk and Mitigation: Geotechnical Special Publication no. 3, American Society of Civil Engineers, 164 p., for history of Castle Lake as it was formed and impacted by the eruption and actions taken to reduce the resulting flood threat.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 2,582.76 ft Feb. 8, 1996; minimum elevation, 2,578.23 ft Sept. 17, 1998.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 2,581.79 ft Jan 8; minimum elevation, 2,578.27 ft Sept. 1-4, 21, 22, 26, 29.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2578.48	2579.27	2579.76	2578.74	2578.82	2579.04	2578.95	2579.03	2579.20	2578.70	2578.37	2578.28
2	2578.48	2579.24	2579.60	2578.92	2578.78	2578.97	2578.96	2579.06	2579.14	2578.68	2578.37	2578.28
3	2578.48	2579.18	2579.47	2578.92	2578.81	2578.92	2578.97	2579.07	2579.10	2578.66	2578.36	2578.28
4	2578.40	2579.14	2579.36	2578.94	2578.77	2578.88	2578.99	2579.04	2579.07	2578.64	2578.37	2578.31
5	2578.44	2579.08	2579.24	2578.98	2578.79	2578.89	2579.06	2579.07	2579.05	2578.62	2578.38	2578.30
6 7 8 9	2578.43 2578.44 2578.47 2578.46 2578.52	2579.02 2578.97 2578.91 2578.87 2578.85	2579.21 2579.09 2579.05 2579.00 2579.00	2579.56 2581.73 2581.16 2580.36 2579.87	2578.93 2579.02 2579.00 2578.89 2578.85	2578.89 2578.87 2578.83 2578.86 2578.97	2579.13 2579.20 2579.20 2579.32 2579.58	2579.06 2579.02 2578.96 2578.92 2578.89	2579.02 2579.01 2578.96 2578.90 2578.88	2578.61 2578.63 2578.61 2578.60 2578.58	2578.37 2578.37 2578.36 2578.36 2578.36	2578.29 2578.30 2578.29 2578.29 2578.30
11	2578.55	2578.77	2578.96	2579.54	2578.83	2579.42	2579.74	2578.87	2578.86	2578.57	2578.36	2578.31
12	2578.60	2578.83	2578.89	2579.55	2578.78	2579.49	2579.81	2578.87	2578.86	2578.56	2578.35	2578.30
13	2578.60	2579.02	2579.37	2579.37	2578.76	2579.43	2580.14	2578.94	2578.84	2578.55	2578.36	2578.31
14	2578.63	2579.95	2579.61	2579.23	2578.73	2579.29	2580.30	2578.99	2578.84	2578.52	2578.35	2578.30
15	2578.62	2580.08	2579.54	2579.13	2578.72	2579.19	2580.00	2579.00	2578.83	2578.51	2578.35	2578.30
16	2578.65	2579.89	2580.30	2579.08	2578.71	2579.11	2579.74	2579.02	2578.81	2578.50	2578.34	2578.32
17	2578.64	2579.66	2580.34	2579.01	2578.71	2579.02	2579.51	2579.06	2578.82	2578.49	2578.34	2578.32
18	2578.63	2579.43	2580.01	2578.99	2578.79	2579.00	2579.34	2579.08	2578.85	2578.48	2578.33	2578.32
19	2578.63	2579.34	2579.68	2578.98	2578.95	2579.01	2579.23	2579.09	2578.80	2578.47	2578.32	2578.30
20	2578.62	2579.56	2579.46	2579.05	2578.95	2578.95	2579.15	2579.13	2578.77	2578.46	2578.31	2578.32
21	2578.66	2579.63	2579.29	2579.01	2579.45	2578.90	2579.10	2579.13	2578.75	2578.45	2578.30	2578.31
22	2578.79	2580.16	2579.14	2578.95	2579.75	2578.88	2579.07	2579.14	2578.72	2578.45	2578.30	2578.30
23	2578.92	2580.09	2579.03	2578.91	2579.93	2578.86	2579.01	2579.10	2578.70	2578.45	2578.30	2578.30
24	2578.98	2579.83	2578.96	2579.03	2579.79	2578.86	2578.98	2579.07	2578.69	2578.44	2578.30	2578.29
25	2578.95	2579.59	2578.93	2579.15	2579.55	2578.86	2578.97	2579.06	2578.67	2578.43	2578.30	2578.30
26 27 28 29 30 31	2578.93 2578.97 2578.96 2578.95 2579.00 2579.22	2579.40 2579.24 2579.40 2579.45 2579.39	2578.85 2578.86 2578.85 2578.81 2578.79 2578.76	2579.11 2579.06 2578.96 2578.90 2578.89 2578.88	2579.38 2579.23 2579.12	2578.88 2578.90 2578.93 2578.92 2578.92 2578.91	2578.98 2578.98 2578.96 2578.96 2578.97	2579.08 2579.13 2579.30 2579.44 2579.37 2579.28	2578.65 2578.65 2578.78 2578.77 2578.74	2578.42 2578.42 2578.41 2578.40 2578.39 2578.38	2578.30 2578.30 2578.29 2578.29 2578.29 2578.28	2578.31 2578.28 2578.28 2578.34 2578.34
MEAN	2578.68	2579.38	2579.26	2579.29	2579.03	2578.99	2579.28	2579.07	2578.86	2578.52	2578.33	2578.30
MAX	2579.22	2580.16	2580.34	2581.73	2579.93	2579.49	2580.30	2579.44	2579.20	2578.70	2578.38	2578.34
MIN	2578.40	2578.77	2578.76	2578.74	2578.71	2578.83	2578.95	2578.87	2578.65	2578.38	2578.28	2578.28

CAL YR 2001 MEAN 2578.84 MAX 2580.34 MIN 2578.40 WTR YR 2002 MEAN 2578.91 MAX 2581.73 MIN 2578.28

Time

Discharge Gage height (ft³/s) (ft)

14240525 NORTH FORK TOUTLE RIVER BELOW SEDIMENT RETENTION STRUCTURE, NEAR KID VALLEY, WA

LOCATION.--Lat $46^{\circ}22^{\circ}19^{\circ}$, long $122^{\circ}34^{\circ}40^{\circ}$, in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.8, T.10 N., R.2 E., Cowlitz County, Hydrologic Unit 17080005, 1.3 mi downstream from Sediment Retention Structure, on left bank, 0.7 mi upstream from the mouth of the Green River, 1.8 mi east of Kid Valley, and at mile 12.0.

DRAINAGE AREA. -- 175 mi2.

Date

Time

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1989 to September 1998, October 2000 to September 2002 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 700.00 ft above NGVD of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Records fair. No regulation or diversion upstream from station.

Discharge Gage height (ft³/s) (ft)

AVERAGE DISCHARGE.--11 years (water years 1990-98, 2001-02), 774 ft³/s, 60.12 in/yr, 561,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,100 ft³/s, Feb. 8, 1996, gage height, 62.13 ft; minimum discharge, 141 ft³/s, Sept. 24, 25, 2001.

EXTREMES OUTSIDE PERIOD OF RECORD.--An outstanding flood occurred on May 18, 1980, from a mudflow caused by the eruption of Mount St. Helens.

Date

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ${\rm ft}^3/{\rm s}$ and maximum (*):

Date	Time	(IL-	/S)	(IT)	Date		Time	(It-/	8)	(IT)		
37 14	0015	2	250	F7 0F	T	0.0	0100	45.5	11.0	+50.66		
NOV. 14	1815	۷,	010	57.25	Jan.	08	0100	^5,/	.EO	*59.66		
NOV. 22	1800	۷,	910	57.75	Jan.	25	0830	2,6	50	57.51		
NOV. 29	0600	Ι,	980	56.89	reb.	23	0715	2,3	10	57.26		
Dec. 01	2030	2,	220	57.42	Mar.	11	2000	2,0	10	57.00		
Dec. 14	0015	ے , 5	260	50.05	ADI.	14	0343	3,3	20	30.09		
Nov. 14 Nov. 22 Nov. 29 Dec. 01 Dec. 14 Dec. 17	0100	٥,	200	33.42								
Minimum dis												
		DISCHAF	RGE, CUBI	C FEET PE	R SECOND,	WATER Y	EAR OCTOBE	R 2001 TO	SEPTEMB	ER 2002		
					DAILY	MEAN V	ALUES					
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	188		2210	889	973	1010	871	876	e840		344	230
2	187	720	1970		926	947	861	892	e800		339	232
3	186	563	1650	984	970	910	842	894	e780		343	233
4	186	489	1510	929	892	870 877	820	838	e750		339	227
5	184	500	1370	914	899	877	870	863	e740	524	338	221
_	104	407	1200	1000	000	002	909	007	-740	523	332	224
6 7	184 189	427 383	1390	1080 3180 3970 2460	980 1260 1310 1150	903 847 813 822 913	909	827 776	e740 e680		332	224
8	202	353	1270 1190	3180	1260	847	973	776	e660	528 507	328	227
9			1190	3970	1310	813						
10	197 265	333 312	1180 1120		1090	012	1020 1440	702 665	e580 e560	486 474	299 291	219 217
10	265	312	1120	1840	1090	913	1440	665	6560	4 / 4	291	217
11	298	297	1130	1550	1010	1790	1530	645	574	468	286	220
12	264	314	1130 1050 1730	e1500	958	1880	1570	640	562		279	215
13	338	406	1730	e1400	906	1620	1710	677	592		273	214
14	318	1810	2510	e1300	862	1420	2840	682	626		279	214
15	284	1410	1790	1550 e1500 e1400 e1300 e1200	836	1280	2330	649	637		276	215
16	282	1200 1000 820	2820	e1100 e1050 e980 e1150 e1250	844	1160	1990	643	626	455	272	224
17	275	1000	3600	e1050	823	1040	1720	685	623	451	266	219
18	251	820	2250	e980	844	952	1490	716	678	443	263	212
19	248	831	1790	e1150	1040	1180	1320	733	616	417	262	210
20	240	1030	1540	e1250	1020	1240	1200	794	586	403	265	212
21	253	1150	1350 1210 1100	e1400	1470 1790 2150	1110	1140	799	587		269	211
22	322	1960	1210	e1400 e1250 e1100	1790	1040	1080	797	575	392	256	204
23	584					1020	1050	750	563		247	201
24	477	1610		e1300	1870	1040	958	722	552	379	246	201
25	455	1310	973	2120	1560	1000	906	733	548	391	243	203
26	507	1090	935	1590	1370 1220	974 942 957 922 913 865	908	731	541		248	202
27	567	965	910	1350	1220	942	918	747	540	378	243	201
28	513	1380	922	1160	1100	957	882	818	582	379	236	201
29	452	1750	874	1050 994		922		e1300	710	378	232	228
30		1620	854	994		913		e1100	710 592	378 367 350	235	225
31	875		880	1030		865		e950		350	232	
moma r	10051	28971	46100	44067	20102	22257	26001	24270	10040	12076	0.670	6484
TOTAL MEAN	10351 334	203/1	1407	1422	32123 1147 2150	1072	10001	706	13040	13876 448 558	200	216
MAX	875	2120	3600	2070	2150	1073	2010	1200	940	550	280	233
MIN	184	297	854	889	823	813	820	640	540	350	232	201
AC-FT	20530	57460	91460		63720	65970	72990	48350	37770	27520	17200	12860
CFSM	1.91	5.52	8.50	8.12	6.56	6.13	7.01	4.49	3.63	2.56	17200 1.60	1.24
STATIS'	TICS OF M	ONTHLY MEA	AN DATA F	OR WATER	YEARS 1990	- 2002	, BY WATER	YEAR (WY)				
	,				10			0				
MEAN	433	934	1188 1810 1996 497	1108	1203	1005	1046	851	633	405 581 1997	277	238
MAX	929	1523	1810	1582	2323	1767	1461	1206	913	581	408	369
(WY)	1998	1000	1996	1997	1996	1997	1991	1996	1000			1997
MIN	218	404	497	448	402	539	658	515	278			173
(WY)	1992	2001	2001	2001	1993	1992	1992	1992	1992	1992	1990	1990
SUMMAR	Y STATIST	rics	FOR	2001 CALE	NDAR YEAR	I	FOR 2002 W	ATER YEAR		WATER YEA	RS 1990	- 2002
ANNUAL	TOTAL			215819			304128					
ANNUAL	MEAN			591			833			774		
HIGHES'	T ANNUAL	MEAN								1074		1996
LOWEST	ANNUAL M	IEAN								465		2001
HIGHES'	T DAILY M	IEAN		3600	Dec 17		3970	Jan 8		1074 465 11000 140 156 561000	Feb	8 1996
LOWEST	DAILY ME	AN		147	Sep 24		184	Oct 5		140	Oct	1 1989
ANNUAL	SEVEN-DA	MUMINIM Y		162	Sep 19		186	Oct 1		156	Aug 1	2 1990
ANNUAL	RUNOFF (AC-FT)		428100	-		603200			561000	_	
ANNUAL	RUNOFF (CFSM)		3.3	8		4.7	6		4.4	2	
10 PER	CENT EXCE	EDS		1110			1540			1440		
50 PER	CENT EXCE	EDS		460			799			650		
90 PER	CENT EXCE	EDS		223	Dec 17 Sep 24 Sep 19		229			232		

e Estimated

14240525 NORTH FORK TOUTLE RIVER BELOW SRS NEAR KID VALLEY, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1990-91, February 2001 to current year.

PERIOD OF DAILY RECORD. --

SPECIFIC CONDUCTANCE: May to September 1990, May to September 1991.
WATER TEMPERATURE: May to September 1990, May to September 1991, May 2001 to September 2002 (discontinued).
SUSPENDED SEDIMENT: February 2001 to September 2002 (discontinued).

INSTRUMENTATION.--Temperature sensor and electronic data logger, with 15-minute logging interval. Automatic pumping sediment sampler.

REMARKS.--Water temperature records good, except Oct. 13-14, Dec. 6-14, Feb. 12-19, 21-27, May 7, 15-17, May 23-June 7, July 2-12, Sept. 7-15, which are fair; and Oct. 15-22, 24-27, Mar. 11-14, 19, 20, Apr. 9-May 5, May 8-12, 14, July 13-15, July 17-Aug. 13, Sept. 16-17, 19-30, which are poor.

EXTREMES FOR PERIOD OF RECORD. --

SPECIFIC CONDUCTANCE: Maximum recorded, 999 microsiemens Sept. 26, 1991; minimum recorded, 322 microsiemens May 26, 1991. WATER TEMPERATURE: Maximum recorded (more than 20 percent missing record), 29.7° C, July 22, 2002; minimum recorded, 1.0° C

SEDIMENT CONCENTRATION: Maximum daily, 18,100 mg/L Jan. 8, 2002; minimum daily, 82 mg/L Feb. 12, 2001. SEDIMENT DISCHARGE: Maximum daily, 200,000 tons Jan. 8, 2002; minimum daily, 45 tons Sept. 22, 2001.

EXTREMES FOR CURRENT YEAR.-WATER TEMPERATURE: Maximum recorded (more than 20 percent missing record), 29.7°C, July 22; minimum recorded 1.0°C, Jan. 29.
SEDIMENT CONCENTRATION: Maximum daily, 18,100 mg/L Jan. 8; minimum daily, 119 mg/L Oct. 5.
SEDIMENT DISCHARGE: Maximum daily, 200,000 tons Jan. 8, minimum daily, 59 tons Oct. 5.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER	2	NC	OVEMBER		DE	CEMBER			JANUARY	
1							6.8	5.8	6.3	6.7	3.9	5.6
2							6.4	5.6	6.0	8.1	5.4	6.8
3							7.2	4.8	5.8	7.8	5.0	6.1
4							5.3	4.4	4.8	7.7	4.6	5.9
5							6.7	3.7	5.0	7.5	5.2	6.4
6							6.7	5.5	6.0	9.4	5.8	7.6
7							7.4	4.2	5.6	9.3	8.0	8.8
8							7.1	5.7	6.2	8.0	6.7	7.4
9	15.7						7.1	4.8	5.8	7.2	5.2	6.2
10	11.9	7.8	9.6				5.7	4.7	5.2	7.0	5.0	5.9
11	13.5	9.5	11.1				6.3	4.6	5.4	8.0	6.2	6.9
12	11.4	9.1	10.0				6.4	4.3	5.2	6.7	4.9	6.2
13	15.6	9.8	12.2				8.0	6.4	7.2	6.6	4.2	5.1
14	16.4	12.0	13.4	11.7			6.4	4.2	5.0	5.9	3.5	4.8
15	17.1	9.1	12.4	10.8	9.4	10.3	5.9	4.7	5.1	5.3	1.9	3.4
16	13.0	10.1	11.6	9.7	8.6	9.2	7.5	5.9	7.0	4.5	2.8	3.5
17	15.9	9.4	11.9	10.5	6.1	8.5	6.7	4.4	5.3	4.4	2.7	3.6
18	14.5	9.1	11.5	9.5	4.9	6.9	5.6	4.4	4.9	5.5	3.8	4.4
19	14.2	11.8	12.7	10.6	7.2	9.1	5.9	4.5	5.2			
20	15.8	10.3	12.5	9.5	8.1	8.9						
21	13.4	10.8	11.9	9.0	7.6	8.2	7.3	4.8	5.7	4.4	3.0	3.6
22	12.4	11.1	11.7	8.9	7.5	8.3	6.3	3.2	4.4	4.4	2.6	3.3
23							6.3	2.9	4.1	5.2	2.9	4.0
24	10.2	9.4	9.8	7.9	6.6	7.1	6.0	2.6	3.7	5.5	4.6	5.0
25	12.2	10.2	10.9	7.3	5.6	6.5	4.8	2.0	3.1	5.5	3.9	5.1
26	13.0	11.0	11.8	7.8	5.3	6.2	4.5	1.8	3.1	4.3	1.7	3.4
27	13.0	11.6	12.2	7.1	4.7	5.7	5.2	3.8	4.5	4.2	1.8	2.9
28	11.6	10.4	11.0	6.5	4.7	5.6	7.5	4.0	5.6	5.7	1.9	3.3
29				6.9	5.3	6.2	6.5	3.0	4.3	4.0	1.0	2.3
30				6.1	5.2	5.6	6.6	2.8	4.5	5.3	2.6	3.6
31							7.4	4.1	5.9	5.1	3.6	4.2
MONTH	17.1	7.8	11.6	11.7	4.7	7.5	8.0	1.8	5.2	9.4	1.0	5.0

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14240525 NORTH FORK TOUTLE RIVER BELOW SRS NEAR KID VALLEY, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1 2 3 4 5	7.3 7.1 8.0 7.2 6.3	3.8 2.5 4.1 2.1 3.6	5.0 4.6 5.7 4.3 4.8	 	 	 	 	 	 	18.1 13.1 15.1 12.3 13.5	9.4 7.3 7.4	12.8 11.0 10.4 9.6 9.5
6 7 8 9	6.6 5.9 7.3 6.9 7.2	5.2	5.7 4.7 4.2 4.5 5.1	 	 	 	 12.0 12.9	 9.3	 10.7	10.3 14.0 18.6 13.2	6.0 5.8 6.2	7.6 9.3 11.8 10.2 12.0
11 12 13 14 15	7.8 6.5 5.8 9.0 9.0	3.3	4.9 3.8 3.8 5.4 5.2	8.2 8.1 7.7 7.4	5.2 4.7 5.1	6.4 6.0 6.0	12.5 13.5 16.1 12.5	9.2 9.7 10.7 8.0	10.6 11.2 12.7 10.2 8.4	20.9 22.5 16.4	7.1	13.3
16 17 18 19 20	7.6 8.6 8.7 8.5	4.6 4.8 5.8 	5.8 6.5 7.1 	 6.7 10.1	 5.7	 7.6	12.7 13.6 14.8	6.7 6.9 7.6 8.3 8.2	8.2 9.1 10.2 10.7 10.7	17.5 		
21 22 23 24 25	9.4 9.9 7.8 7.3 7.5	6.6 7.4 5.8 3.8 2.2	8.3 8.4 7.1 5.5 4.3		 		11.6 17.0 18.2	8.0 6.9 5.5	9.8 9.8 10.8 11.2 11.8	21.4	8.5 8.0 11.4	13.2 14.3 14.1
26 27 28 29 30 31	8.7 7.9 	2.4 2.4 	4.7 5.0 		 	 		8.4 7.3	9.7 10.2 12.2 13.3 13.6	21.8		14.6 14.1 14.4 15.6
MONTH	9.9	1.8	5.4	10.1	4.7	6.5	20.5	5.5	10.7	22.5	5.8	12.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY	MAX	MIN JUNE	MEAN		MIN	MEAN		AUGUST			MIN SEPTEMBE	
DAY 1 2 3 4 5	MAX 22.3 21.6 19.9 19.6 19.8	JUNE 10.5 9.8 10.4 12.9		24.3 20.1 19.3 24.6	JULY 12.4 13.0 11.5	MEAN 16.0 15.9 17.7		13.5 13.9 13.4 14.9	MEAN 19.1 18.2 18.3 18.0 16.7	21.4 23.5 23.3 22.7	15.3 13.4	IR 18.0
1 2 3 4	22.3 21.6 19.9 19.6	JUNE 10.5 9.8 10.4 12.9 13.6	15.4 14.6 14.9 15.7	24.3 20.1 19.3	JULY 12.4 13.0 11.5 14.0 15.8 14.7 13.1	 16.0 15.9 17.7	26.0 24.6 25.0 21.8 21.4 24.0 25.5 26.4 27.5	AUGUST 13.5 13.9 13.4 14.9 13.4 12.6 14.5 13.7 14.6	19.1 18.2 18.3 18.0	21.4 23.5 23.3 22.7 21.8 22.3 19.9 16.7 25.1	SEPTEMBE 15.3 13.4 14.0 11.0 10.6	18.0 17.9 17.4 16.0 15.4 15.6 15.8 13.9 18.0
1 2 3 4 5 6 7 8 9	22.3 21.6 19.9 19.6 19.8	JUNE 10.5 9.8 10.4 12.9 13.6 10.9 10.7	15.4 14.6 14.9 15.7 15.8	24.3 20.1 19.3 24.6 26.2 19.2 22.0 27.8	JULY 12.4 13.0 11.5 14.0 15.8 14.7 13.1 15.8	16.0 15.9 17.7 19.6 17.2 17.8 20.0 22.2	26.0 24.6 25.0 21.8 21.4 24.0 25.5 26.4 27.5	AUGUST 13.5 13.9 13.4 14.9 13.4 12.6 14.5 13.7 14.6 17.2	19.1 18.2 18.3 18.0 16.7 17.7 19.0 19.5 20.6	21.4 23.5 23.3 22.7 21.8 22.3 19.9 16.7 25.1	15.3 13.4 14.0 11.0 10.6 12.7 10.4 12.8	18.0 17.9 17.4 16.0 15.4 15.6 15.8 13.9 18.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14	22.3 21.6 19.9 19.6 19.8 18.0	JUNE 10.5 9.8 10.4 12.9 13.6 10.9 10.7	15.4 14.6 14.9 15.7 15.8 14.2	24.3 20.1 19.3 24.6 26.2 19.2 22.0 27.8 29.2 28.5 28.8 28.0 26.0	JULY 12.4 13.0 11.5 14.0 15.8 14.7 13.1 15.8 16.2 15.8 18.4 15.7 14.0	16.0 15.9 17.7 19.6 17.2 17.8 20.0 22.2 22.0 21.9 22.5 19.9	26.0 24.6 25.0 21.8 21.4 24.0 25.5 26.4 27.5 24.5 26.6 28.0	13.5 13.9 13.4 14.9 13.4 12.6 14.5 13.7 14.6 17.2 16.4 15.1 16.8	19.1 18.2 18.3 18.0 16.7 17.7 19.0 19.5 20.6 20.1	21.4 23.5 23.3 22.7 21.8 22.3 19.9 16.7 25.1 25.0 25.5 25.7 25.8 24.5	SEPTEMBE 15.3 13.4 14.0 11.0 10.6 10.6 12.7 10.4 12.8 13.2 13.4 13.9 13.6 14.5	18.0 17.9 17.4 16.0 15.4 15.6 13.9 18.0 18.4 18.7 19.1 19.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	22.3 21.6 19.9 19.6 19.8 18.0	JUNE 10.5 9.8 10.4 12.9 13.6 10.9 10.7	15.4 14.9 15.7 15.8 14.2	24.3 20.1 19.3 24.6 26.2 19.2 22.0 27.8 29.2 28.5 28.8 28.0 26.0 26.6	JULY 12.4 13.0 11.5 14.0 15.8 14.7 13.1 15.8 16.2 15.7 14.0	16.0 15.9 17.7 19.6 17.2 17.8 20.0 22.2 22.0 21.9 22.5 19.9 19.8	26.0 24.6 25.0 21.8 21.4 24.0 25.5 26.4 27.5 24.5 26.6 28.0 28.2 26.9 26.0	13.5 13.9 13.4 14.9 13.4 12.6 14.5 13.7 14.6 17.2 16.4 15.1 16.8 15.7	19.1 18.2 18.3 18.0 16.7 17.7 19.5 20.6 20.1 20.4 21.1 20.6	21.4 23.5 23.3 22.7 21.8 22.3 19.9 16.7 25.1 25.0 25.5 25.7 25.8 24.5 18.6	SEPTEMBE 15.3 13.4 14.0 11.0 10.6 10.6 12.7 10.4 12.8 13.2 13.4 13.9 13.6 14.5 15.8 15.1 13.6	18.0 17.9 17.4 16.0 15.4 15.6 15.8 13.9 18.0 18.4 18.7 19.1 19.0 16.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	22.3 21.6 19.9 19.6 19.8 18.0	JUNE 10.5 9.8 10.4 12.9 13.6 10.9 10.7	15.4 14.9 15.7 15.8 14.2	24.3 20.1 19.3 24.6 26.2 19.2 22.0 27.8 29.2 28.5 28.8 28.0 26.0 26.6	JULY 12.4 13.0 11.5 14.0 15.8 14.7 13.1 15.8 16.2 15.7 14.0 17.2 17.6 17.5 14.8 14.8 17.2 18.1 18.5	16.0 15.9 17.7 19.6 17.2 17.8 20.0 22.2 22.0 21.9 22.5 19.9 19.8 21.4 20.0 20.4 21.3 23.0 23.0 22.2	26.0 24.6 25.0 21.8 21.4 24.0 25.5 26.4 27.5 24.5 26.6 28.0 28.2 26.9 26.0 24.4 24.3 21.1 19.5 25.2 26.3	13.5 13.9 13.4 14.9 13.4 12.6 14.5 13.7 14.6 17.2 16.4 15.1 16.8 15.7 14.8 12.8 14.0 14.9	19.1 18.2 18.3 18.0 16.7 17.7 19.5 20.6 20.1 20.4 21.1 20.6 19.6 18.3 17.9 17.4 15.9 18.4 19.5 19.5 19.5	21.4 23.5 23.3 22.7 21.8 22.3 19.9 16.7 25.1 25.0 25.5 25.7 25.8 24.5 18.6 20.0 22.7 22.5 22.4 22.1 23.8 23.8 23.7	SEPTEMBE 15.3 13.4 14.0 11.0 10.6 10.6 12.7 10.4 12.8 13.2 13.4 13.9 13.6 14.5 15.8 15.1 13.6 12.0 13.0 10.3 10.8 12.2 12.8	18.0 17.9 17.4 16.0 15.4 15.6 15.8 13.9 18.0 18.4 18.7 19.1 19.0 16.9 16.8 16.6 16.6 15.5 16.2 17.2
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30	22.3 21.6 19.9 19.6 19.8 18.0	JUNE 10.5 9.8 10.4 12.9 13.6 10.9 10.7	15.4 14.9 15.7 15.8 14.2 	24.3 20.1 19.3 24.6 26.2 19.2 22.0 27.8 29.2 28.5 28.8 28.0 26.6 27.9 26.2 27.2 28.6 29.7 28.6 29.7 28.6 29.7 28.6 29.7 28.6 29.7 28.6 29.7 28.6 29.7 28.6 29.7 28.6 29.7 28.6 29.7 29.7 29.7 29.7 29.7 29.7 29.7 29.7	JULY 12.4 13.0 11.5 14.0 15.8 14.7 13.1 15.8 16.2 15.8 18.4 15.7 14.0 17.2 17.6 17.5 14.8 14.8 17.2 18.1 18.5 18.3 18.2 15.8 16.6 16.6 16.6	16.0 15.9 17.7 19.6 17.2 17.8 20.0 22.2 22.0 21.9 22.5 19.9 19.8 21.4 20.0 20.4 21.3 23.0 23.2 22.8 21.6	26.0 24.6 25.0 21.8 21.4 24.0 25.5 26.4 27.5 24.5 26.6 28.0 28.2 26.9 26.0 24.4 24.3 21.1 19.5 25.2 26.3 26.4 27.5 26.6 28.0 28.0 28.0 29.0 20	13.5 13.9 13.4 14.9 13.4 12.6 14.5 13.7 14.6 17.2 16.4 15.1 16.8 15.7 14.8 14.9 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5	19.1 18.2 18.3 18.0 16.7 17.7 19.0 19.5 20.6 20.1 20.4 21.1 20.6 19.6 18.3 17.9 17.4 15.9 18.4 19.5 19.0 20.7 19.0 19	21.4 23.5 23.3 22.7 21.8 22.3 19.9 16.7 25.1 25.0 25.5 24.5 18.6 20.0 22.7 22.5 22.4 22.1 23.0 23.8 23.7 23.7 21.4 22.7 22.7 22.6 17.6 17.6 17.6	SEPTEMBE 15.3 13.4 14.0 11.0 10.6 10.6 12.7 10.4 12.8 13.2 13.4 13.9 13.6 14.5 15.8 15.1 13.6 12.0 13.0 10.3 10.8 12.2 12.8 13.1 12.2 13.3 10.8 12.2 13.0 12.3 13.3 11.8	18.0 17.9 17.4 16.0 15.4 15.6 15.8 13.9 18.0 18.4 18.7 19.1 19.0 16.8 16.8 16.8 17.2 17.4 17.4 16.2 17.4 16.2 17.4 16.2 17.4 16.2 17.4 17.4

14240525 NORTH FORK TOUTLE RIVER BELOW SRS NEAR KID VALLEY, WA--Continued

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER		1	NOVEMBER		D	ECEMBER	
1 2 3 4 5	188 187 186 186	167 161 121 121 119	86.0 82.0 60.0 61.0 59.0	808 720 563 489 500	653 630 559 461 444	1430 1220 855 609 601	2210 1970 1650 1510 1370	2610 1780 1900 1760 1180	15800 9550 8420 7250 4380
6 7 8 9 10	184 189 202 197 265	133 139 127 132 452	66.0 71.0 69.0 70.0 363	427 383 353 333 312	372 389 311 304 296	429 401 297 273 250	1390 1270 1190 1180 1120	1230 1260 1070 1160 1090	4630 4300 3460 3720 3300
11 12 13 14 15	298 264 338 318 284	358 219 508 493 286	296 159 491 440 219	297 314 406 1810 1410	299 325 532 6360 1880	240 277 650 33400 7180	1130 1050 1730 2510 1790	976 845 3120 3000 1500	2960 2390 18300 21600 7270
16 17 18 19 20	282 275 251 248 240	243 235 214 201 198	185 174 145 135 128	1200 1000 820 831 1030	1360 1220 1430 1560 2010	4410 3310 3140 3580 5580	2820 3600 2250 1790 1540	5630 12900 6420 5210 4440	52300 137000 39100 25200 18400
21 22 23 24 25	253 322 584 477 455	235 368 990 508 444	161 346 1550 657 546	1150 1960 2130 1610 1310	1660 3750 4120 1550	5200 23500 25700 6700 5510	1350 1210 1100 1030 973	2910 2050 1800 1670 1570	10600 6700 5360 4650 4140
26 27 28 29 30 31	507 567 513 452 580 875	e517 e727 e650 511 858 1260	e709 e1130 e907 624 1430 3030	1090 965 1380 1750 1620	1000 1190 1730 2040 1500	2960 3110 6700 9840 6580	935 910 922 874 854 880	1530 1560 1330 1140 955 1030	3860 3830 3310 2700 2200 2450
TOTAL	10351		14449.0	28971		163932	46108		439130
DAY	MEAN DISCHARGE (CFS)	(MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	(MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	(MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
DAY	DISCHARGE (CFS)	CONCEN- TRATION (MG/L) JANUARY	DISCHARGE (TONS/DAY)	DISCHARGE (CFS)	CONCEN- TRATION (MG/L) FEBRUARY	DISCHARGE (TONS/DAY)	DISCHARGE (CFS)	CONCEN- TRATION (MG/L) MARCH	DISCHARGE (TONS/DAY)
	DISCHARGE	CONCEN- TRATION (MG/L)	DISCHARGE	DISCHARGE (CFS)	CONCEN- TRATION (MG/L)	DISCHARGE	DISCHARGE	CONCEN- TRATION (MG/L)	DISCHARGE
DAY 1 2 3 4	DISCHARGE (CFS) 889 997 984 929	CONCENTRATION (MG/L) JANUARY 1050 1110 1060 1020	DISCHARGE (TONS/DAY) 2520 2980 2820 2550	DISCHARGE (CFS) 973 926 970 892	CONCENTRATION (MG/L) FEBRUARY 1830 1730 1610 1480	DISCHARGE (TONS/DAY) 4820 4330 4230 3570	DISCHARGE (CFS) 1010 947 910 870	CONCENTRATION (MG/L) MARCH 2040 447 345 347	DISCHARGE (TONS/DAY) 5550 1150 849 814 823 850 800 770 781
DAY 1 2 3 4 5 6 7 8 9	DISCHARGE (CFS) 889 997 984 929 914 1080 3180 3970 2460	CONCEN- TRATION (MG/L) JANUARY 1050 1110 1060 1020 942 2560 13400 18100 11200	DISCHARGE (TONS/DAY) 2520 2980 2820 2550 2320 8460 125000 200000 74800 46300	DISCHARGE (CFS) 973 926 970 892 899 980 1260 1310 1150 1090	CONCEN- TRATION (MG/L) FEBRUARY 1830 1730 1610 1480 1370 1610 2880 3050 2950	DISCHARGE (TONS/DAY) 4820 4330 4230 3570 3340 4460 9780 10700 9180 9000 8630 7300 5910	DISCHARGE (CFS) 1010 947 910 870 877 903 847 813 822 913 1790 1880 1620 1420	CONCEN- TRATION (MG/L) MARCH 2040 447 345 347 348 350 351 352 e1940 e7560	DISCHARGE (TONS/DAY) 5550 1150 849 814 823 850 800 770 781 e4810 e42300 e43300 e43300 e23900
DAY 1 2 3 4 5 6 7 8 9 10 11 12 13 14	DISCHARGE (CFS) 889 997 984 929 914 1080 3180 3970 2460 1840 1550 e1500 e1400 e1300	CONCEN- TRATION (MG/L) JANUARY 1050 1110 1060 1020 942 2560 13400 18100 11200 9270 6230 5420 5090 4280 3930	DISCHARGE (TONS/DAY) 2520 2980 2820 2550 2320 8460 125000 200000 74800 46300	DISCHARGE (CFS) 973 926 970 892 899 980 1260 1310 1150 1090 1010 958 906 862 836 844 823	CONCEN- TRATION (MG/L) FEBRUARY 1830 1730 1610 1480 1370 1610 2880 3050 2950 3050 3160 2820 2410 2250 2060	DISCHARGE (TONS/DAY) 4820 4330 4230 3570 3340 4460 9780 10700 9180 9000 8630 7300 5910 5230 4660 4120 3120 3440	DISCHARGE (CFS) 1010 947 910 870 877 903 847 813 822 913 1790 1880 1620 1420 1280 1160 1040 952 1180 1240	CONCEN- TRATION (MG/L) MARCH 2040 447 345 347 348 350 351 352 e1940 e7560 e8350 e5450 65450 357 358 359 361 362 23100 e3830	DISCHARGE (TONS/DAY) 5550 1150 849 814 823 850 800 770 781 e4810 e42300 e43000 e23900 1360 1240 1130 1010 930 e10300 e12900
DAY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	DISCHARGE (CFS) 889 997 984 929 914 1080 3180 3970 2460 1840 e1500 e1400 e1500 e1400 e1500 e1200 e1100 e1050 e980 e1150 e1250 e1400 e1250 e1400 e1250	CONCEN- TRATION (MG/L) JANUARY 1050 1110 1060 1020 942 2560 13400 18100 9270 6230 5420 5090 4280 3930 4000 3840 3540 3350 3160	DISCHARGE (TONS/DAY) 2520 2980 2980 2820 2550 2320 8460 125000 200000 74800 46300 26100 e22000 e19000 e15000 e10000 e11000 e91000 e11000 e9100 e9100 e7600 e77600 e46500	DISCHARGE (CFS) 973 926 970 892 899 980 1260 1310 1150 1090 1010 958 906 862 836 844 823 844 1040 1020 1470 1790 2150 1870 1560	CONCEN- TRATION (MG/L) FEBRUARY 1830 1730 1610 1480 1370 1610 2880 3050 2950 3050 3160 2820 2410 2250 2060 1810 1400 1510 2310	DISCHARGE (TONS/DAY) 4820 4330 4230 3570 3340 4460 9780 10700 9180 9000 8630 7300 5910 5230 4660 4120 3140 6570 6280 18500 29900	DISCHARGE (CFS) 1010 947 910 870 877 903 847 813 822 913 1790 1880 1620 1420 1280 1160 1040 952 1180 1240	CONCEN- TRATION (MG/L) MARCH 2040 447 345 347 348 350 351 352 e1940 e7560 e8350 e5450 357 358 359 361 362 e3100 e3830	DISCHARGE (TONS/DAY) 5550 1150 849 814 823 850 800 770 781 e4810 e42300 e33900 1360 1240 1130 e10300 e12900 1030
DAY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	DISCHARGE (CFS) 889 997 984 929 914 1080 3180 3970 2460 1840 e1500 e1400 e1500 e1500 e1400 e1200 e1100 e1050 e980 e1150 e1250 e1400 e1250 e1250 e1400 e1250	CONCEN- TRATION (MG/L) JANUARY 1050 1110 1060 1020 942 2560 13400 18100 9270 6230 5420 5090 4280 3930 4000 3840 3540 3350 3160	DISCHARGE (TONS/DAY) 2520 2980 2820 2550 2320 8460 125000 200000 74800 46300 26100 e12000 e13000 e13000 e11000 e9400 e10000 e11000 e9400 e10000 e11000 e7600 e7600 e17000 e46500 e21600	DISCHARGE (CFS) 973 926 970 892 899 980 1260 1310 1150 1090 1010 958 906 862 836 844 1040 1020 1470 1790 2150 1870 1560 1370	CONCEN- TRATION (MG/L) FEBRUARY 1830 1730 1610 1480 1370 1610 2880 3050 3050 3160 2820 2410 2250 2060 1810 2250 2060 1400 1510 2270 4470 6200 6960 4960 4960 4960 3970	DISCHARGE (TONS/DAY) 4820 4330 4230 3570 3340 4460 9780 10700 9180 9000 8630 7300 5910 5230 4660 4120 3140 6570 6280 18500 29900 40600 25200 16700 13300 10600	DISCHARGE (CFS) 1010 947 910 870 877 903 847 813 822 913 1790 1880 1620 1420 1280 1160 1040 952 1180 1240 1110 1040 1020 1040 1020 1040 1000 974	CONCEN- TRATION (MG/L) MARCH 2040 447 345 347 348 349 350 351 352 e1940 e7560 e8350 e5450 e357 358 361 362 e3100 e3830 365 366 366 367 368 369	DISCHARGE (TONS/DAY) 5550 1150 849 814 823 850 800 770 781 e4810 e42300 e43900 1360 1240 1130 1010 930 e10300 e12900 1090 1030 1020 1030 997 973 944

14240525 NORTH FORK TOUTLE RIVER BELOW SRS NEAR KID VALLEY, WA--Continued

	SEDIME	INI DISCHA	RGE, SUSPENI	DED (TONS/DAY),	WAIER IE	AR OCIOBER 2	OUI IO SEPIEM	3ER 2002	
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1 2 3 4 5	871 861 842 820 870	377 378 379 380 381	886 878 862 841 895	876 892 894 838 863	409 410 411 412 413	967 988 993 933 963	e840 e800 e780 e750 e740	1750 1820 1850 1850 1830	
6 7 8 9 10	909 973 934 1020 1440	382 383 384 385 386	937 1010 969 1060 1500	827 776 734 702 665	414 415 417 418 419	925 870 826 792 752	e740 e680 e660 e580 e560	1800 1780 1780 1830 2070	e3600 e3300 e3200 e2900 e3100
11 12 13 14 15	1530 1570 1710 2840 2330	387 389 390 391 392	1600 1650 1800 2990 2460	645 640 677 682 649	420 421 422 423 424	731 727 772 779 743	574 562 592 626 637	453 454 455 456 458	703 689 728 771 787
16 17 18 19 20	1990 1720 1490 1320 1200	393 394 395 396 397	2100 1830 1580 1400 1280	643 685 716 733 794	425 426 427 428 430	739 789 827 848 921	626 623 678 616 586	459 460 461 462 463	775 773 843 768 733
21 22 23 24 25	1140 1080 1050 958 906	398 399 400 401 403	1220 1160 1130 1040 984	799 797 750 722 733	431 432 433 434 435	928 929 876 846 861	587 575 563 552 548	464 465 466 467 468	736 722 708 697 693
26 27 28 29 30 31	908 918 882 872 847	404 405 406 407 408	989 1000 966 958 933	731 747 818 e1300 e1100 e950	436 437 438 2320 2250 1990	861 881 968 e8100 e6700 e5100	541 540 582 710 592	469 470 e1290 e1840 e1180	
TOTAL	36801		38908	24378		43935	19040		55338
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
DAY	DISCHARGE	MEAN CONCEN- TRATION (MG/L) JULY	SEDIMENT DISCHARGE (TONS/DAY)		MEAN CONCEN- TRATION (MG/L) AUGUST	SEDIMENT DISCHARGE (TONS/DAY)		MEAN CONCEN- TRATION (MG/L) EPTEMBER	DISCHARGE
DAY 1 2 3 4 5	DISCHARGE	CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY) 715 695 683 675 678		CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY) 472 466 472 468 467		CONCEN- TRATION (MG/L)	DISCHARGE
1 2 3 4	DISCHARGE (CFS) 558 541 530 523	CONCENTRATION (MG/L) JULY 475 476 477 478 479 480 481	715 695 683 675 678 678	344 339 343 339	CONCENTRATION (MG/L) AUGUST 508 509 510 511 512 514 515	472 466 472 468 467 460 455	230 232 233 227 221 224 227	CONCENTRATION (MG/L) EPTEMBER 542 543 544 545	DISCHARGE (TONS/DAY) 336 339 342 334 325 330 336
1 2 3 4 5 6 7 8 9	DISCHARGE (CFS) 558 541 530 523 524 523 528 507 486	CONCEN- TRATION (MG/L) JULY 475 476 477 478 479 480 481 482 483	715 695 683 675 678 678 686 660 635	344 339 343 339 338 332 328 311 299	CONCEN- TRATION (MG/L) AUGUST 508 509 510 511 512 514 515 516 517	472 466 472 468 467 460 455 433 417	230 232 233 227 221 224 227 222 219	CONCEN- TRATION (MG/L) EPTEMBER 542 543 544 545 546 547 548 549 550 551	DISCHARGE (TONS/DAY) 336 339 342 334 325 330 336 328 325 323
1 2 3 4 5 6 7 8 9 10	DISCHARGE (CFS) 558 541 530 523 524 523 528 507 486 474 468 468 472 466	CONCEN- TRATION (MG/L) JULY 475 476 477 478 479 480 481 482 483 484 486 487 488 489 490	715 695 683 675 678 678 686 686 660 635 620 613 615 622 615 614	344 339 343 339 338 332 328 311 299 291 286 279 273 279	CONCEN- TRATION (MG/L) AUGUST 508 509 510 511 512 514 515 516 517 518 519 520 521 522 523	472 466 472 468 467 460 455 433 417 407 400 392 384 393	230 232 233 227 221 224 227 222 219 217 220 215 214 214	CONCEN- TRATION (MG/L) EPTEMBER 542 543 544 545 546 547 548 549 550 551 552 553 555 556 557	DISCHARGE (TONS/DAY) 336 339 342 334 325 330 336 328 325 323 328 321 320 321 322 337 330
1 2 3 4 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	DISCHARGE (CFS) 558 541 530 523 524 523 528 507 486 474 468 468 472 466 464 455 451 443 417	CONCEN- TRATION (MG/L) JULY 475 476 477 478 479 480 481 482 483 484 486 487 488 489 490 491 492 493 494	715 695 683 675 678 678 678 686 660 635 620 613 615 614 603 600 590 557	344 339 343 339 338 322 328 311 299 291 286 279 273 279 276 272 266 263 262	CONCEN- TRATION (MG/L) AUGUST 508 509 510 511 512 514 515 516 517 518 519 520 521 522 523	472 466 472 468 467 460 455 433 417 407 400 392 384 393 389 385 378 374	230 232 233 227 221 224 227 221 222 219 217 220 215 214 214 215	CONCEN- TRATION (MG/L) EPTEMBER 542 543 544 545 546 547 548 549 550 551 552 553 555 556 557 558 559 560 561 562	DISCHARGE (TONS/DAY) 336 339 342 334 325 330 336 328 325 323 328 321 320 321 322 337 330 321 318 321 318 321 320 310 307 307
1 2 3 4 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	DISCHARGE (CFS) 558 541 530 523 524 523 528 507 486 474 468 468 464 455 451 443 417 403 395 392 387 379	CONCEN- TRATION (MG/L) JULY 475 476 477 478 479 480 481 482 483 484 486 487 488 489 490 491 492 493 494 495	715 695 683 675 678 678 678 686 660 635 620 613 615 614 603 600 590 557 540	344 339 343 339 338 332 328 311 299 291 286 279 273 279 276 272 266 263 262 265 269 256 247 246	CONCEN- TRATION (MG/L) AUGUST 508 509 510 511 512 514 515 516 517 518 519 520 521 522 523 524 525 527 528 529 530 531 532 534 535 534 535 536 537 538	472 466 472 468 467 460 455 433 417 407 400 392 384 393 389 385 378 374 374 378	230 232 233 227 221 224 227 221 224 227 222 219 217 220 215 214 214 215 224 219 211 204 212	CONCEN- TRATION (MG/L) 542 543 544 545 546 547 548 549 550 551 552 553 555 556 557 558 559 560 561 562 563 564 565 566	DISCHARGE (TONS/DAY) 336 339 342 334 325 330 336 328 321 322 337 330 321 312 318 321 320 310 307 307 311
1 2 3 4 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	DISCHARGE (CFS) 558 541 530 523 524 523 524 523 507 486 474 468 472 466 464 455 451 443 417 403 395 392 387 379 391 379 378 379 378 367 350	CONCEN- TRATION (MG/L) JULY 475 476 477 478 479 480 481 482 483 484 486 487 488 499 491 492 493 494 495 496 497 498 500 501	715 695 683 675 678 678 678 678 686 660 635 620 613 615 614 603 600 590 557 540 530 527 521 512 512 529	344 339 343 339 338 311 299 291 286 279 273 279 276 272 266 263 262 265 265 247 248 243 248 243 228	CONCEN- TRATION (MG/L) AUGUST 508 509 510 511 512 514 515 516 517 518 519 520 521 522 523 524 525 527 528 529 530 531 532 534 535 536 537 538 539 541	472 466 472 468 467 460 455 433 417 407 400 392 384 393 389 385 378 374 374 374 378 353 350 359 352 342 337	230 232 233 227 221 224 227 221 222 219 217 220 215 214 214 215 224 219 211 201 201 201 201 201 201 201 201 201	CONCEN- TRATION (MG/L) EPTEMBER 542 543 544 545 546 550 551 552 553 555 556 557 558 559 560 561 562 563 564 565 566 567 569 567	DISCHARGE (TONS/DAY) 336 339 342 334 325 330 336 328 321 320 321 322 337 330 321 312 310 307 307 307 307 307 307 307 307 311 311 309 310 351 344

e Estimated

14241500 SOUTH FORK TOUTLE RIVER AT TOUTLE, WA

LOCATION.--Lat $46^{\circ}19^{\circ}26^{\circ}$, long $122^{\circ}42^{\circ}28^{\circ}$, in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.29, T.10 N., R.1 E., Cowlitz County, Hydrologic Unit 17080005, on right bank at upstream side of bridge on South Toutle Road, 3.1 mi downstream from Johnson Creek, 0.8 mi upstream from Studebaker Creek, approximately 1.0 mi upstream from mouth, and 1.3 mi southeast of Toutle.

DRAINAGE AREA.--120 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1939 to December 1957, February 1996 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 460 ft above NGVD of 1929, from topographic map. Prior to Feb. 9, 1996, water-stage recorder at site 0.6 mi upstream, at datum at NGVD of 1929 (river-profile survey).

REMARKS. -- Records fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--24 years (water years 1940-57, 1997-2002), 636 ft³/s, 72.02 in/yr, 460,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, not determined Feb. 8, 1996, gage height, 28.81 ft, from high-water mark; maximum daily discharge, 17,400 ft³/s Feb. 8, 1996; minimum discharge, 62 ft³/s Nov. 29, 1952.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 9, 1990, produced discharge of 19,200 ft³/s as recorded at station 14241490, 2.2 mi upstream. A flood believed to be in excess of 100,000 ft³/s (from Ph.d. thesis by Fairchild, U. Wash., 1985) occurred at about 1000 hours on May 18, 1980, from a mudflow caused by the eruption of Mount St. Helens.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,200 ft^3/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov 14	0745	6,060	24.94	Jan 07	2215	10,400	*26.57
Nov 22	1800	4,910	24.55	Mar 11	2000	4,860	24.87
Dec 13	2300	7,410	25.34	Apr 14	0545	4,910	24.89
Dec 17	0000	*11,200	26.43	-			

Minimum discharge, 66 ft³/s Sept. 26-29.

		DISCIE	MGE, CODI	C FEET FEE		MEAN V		EK 2001 10	OBF I BNL	ISK 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81	821	3110	392	650	668	602	654	602	298	108	80
2	79	648 499 402	2640	623	558	579	609 589 607	700	544	261	106	80
3	77	499	1730	623	628	509	589	632	499	239	102	81
4	77	402	1430	529	571	466	607	548	471	231	107	79
5	73	331	3110 2640 1730 1430 1230		650 558 628 571 556		005			298 261 239 231 219	117	78
6	72	328 289 261 239 221	1300	952	699	512	783	526	431	203 200 210 193 180	117	78
7	76	289	1220	6880	1220	422	834	481	396	200	108	77
8	89	261	1090	5970	1280	378	766	457	400	210	106	79
9	91	239	1040	2640	1080	367	951	420	339	193	106 106 110	79
10												77
11 12	161 120 170 152 137	205 210	894	1230 1300 1180 1030 875	819	2560	1970	380	312	169 163 160 156 150	109	76 76
13	120	351	2010	1100	6/9	1000	2020	403	315	163	102	76
14	152	331	4520	1020	106	1/100	2200	542	323	160	96	73
15	137	4450 2120	2300	875	445	1190	2190	555	320	150	97	73
16	123 127 112 108 109	1440 976 738 707 1000	5420	788	449	1010	1590	524	300	147 143 140 137 136	94	75
17	127	976	6010	714	418	840	1300	552	285	143	96	81 77
18	112	738	2810	757	445	000	1120	221	3/6	140	693	74
19 20	108	1000	1870	757	896	1250	986	615	318	137	e92	74
21	113 168 540 422 327	1360 3210 2950 1600 1110	1120	1090	1830	1040	795	643	251	130 127 122 121 120	e91	72
22	168	3210	944	867	2230	900	733	628	240	127	92	70
23	540	2950	759	698	2450	815	668	595	232	122	90	69
24	422	1600	637	1160	2140	804	614	535	223	121	87	69
												68
26	279	934	454	1720	1160	739	596	557	208	122 122 119 120 115 112	89	67 67
27	299	794	412	1240	950	707	601	581	206	122	90	67
28	289	1070	412	1010	791	684	552	826	249	119	87	68
29	245	1780	359	797		652	546	1310	636	120	85	80
30	420	1600	326	667		618	586	905	368	115	84	120
31	982		34 /	686		597		/14		112	83	
	6231	32710	50901	42969	27355	28102	32723	18477	10438	5065	3022	2291
MEAN	201	1090 4450	1642	1386	977	907	1091	596	348	163	97.5	76.4
MAX	982	4450	6010	6880	2450	2870	3890	1310	636	298	117	120
MIN	72	205	326	392	418	367	546	380	206	112	83	67
CFSM	12360 1.68	64880 9.09	101000	85230	54260	55/40	64910	36650	20700	10050	5990	4540
IN.	1.68	10.14	15.78	13.32	8.48	8.71	10.14	4.97 5.73	3.24	5065 163 298 112 10050 1.36 1.57	0.81	0.64
SIAIIS	IICS OF M	ONIHLY M	SAN DATA F	OR WAIER 1	EARS 1940) - 2002		R YEAR (WY)				
MEAN	384	915	1198	1031 2488 1953	1094	825		659	416	197	118	135
MAX	1222	1655	2031	2488	2451	1647	1142	1097	772	414	172	409
(WY)	1998	1956	1997	1953	1996	1950	1996	1948	1955	1955	1954	1941
MIN	75.3	1655 1956 106 1953	389	318	381	297	25/	211	132	97.2	78.8	76.4
(WY)	1953	1953	1945	2001	1941	1941	1941	1947	1940	1940	1940	2002
SUMMAR	Y STATIST	'ICS	FOR	2001 CALEN	IDAR YEAR		FOR 2002	WATER YEAR		WATER YEAR	S 1940 -	2002
ANNUAL	TOTAL			177425			260284					
ANNUAL	MEAN			486			713			636		
HIGHES	T ANNUAL	MEAN								928		1997
LOWEST	ANNUAL M	IEAN								317		2001
HIGHES	I. DATPA M	IEAN		6010	Dec 17		6880	Jan /		1/400	reb 8	1996
TOMEST	DAILY ME	AN ANTENTRA		72	OCL 6		67	Sep 26		64	Sep 4	1947
AMMUAL	DEVEN-DE	T MINIMON	1	251000	OCL 1		E16300	Sep 22		460000	Aug 31	. 134/
THUMP	DIMORF (CESM)		∆ 0E	:		270200	94		±00000		
ANNITAT.	RINOFF (INCHES)		55 00			gn	69		72 02		
10 PFP	CENT EXCE	EDS		989	•		1590			1350		
50 PER	CENT EXCF	EDS		289			502			430		
90 PER	CENT EXCE	EDS		90			82			100		
										636 928 317 17400 64 68 460800 72.02 1350 430		

e Estimated

14241500 SOUTH FORK TOUTLE RIVER AT TOUTLE, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- February 1996 to current year.

PERIOD OF DAILY RECORD. --

SUSPENDED SEDIMENT DISCHARGE: February 1996 to March 1999, October 1999 to current year. Water year 1999, daily sediment discharge values for period October to March, monthly sediment discharge values only for the period April to September.

INSTRUMENTATION.--Samples obtained by observer, February 1996 to September 1999. Automatic pumping sampler since October 1999.

REMARKS.--Station was placed in operation after the station at South Fork Toutle River at Camp 12, near Toutle, WA (14241490) was destroyed by flood of February 1996. Current site is 2.2 miles downstream from destroyed station.

EXTREMES FOR PERIOD OF DAILY RECORDS. --

SEDIMENT CONCENTRATION: Maximum daily, 18,000 mg/L (estimated) Oct. 4, 1997; minimum, 1 mg/L on many days 1996, 1998-2002, SEDIMENT DISCHARGE: Maximum daily, 356,000 tons Jan. 1, 1997; minimum, 0.25 tons Aug. 29, 2002.

EXTREMES FOR CURRENT YEAR.--SEDIMENT CONCENTRATION: Maximum daily, 8,260 mg/L Nov. 14; minimum, 1 mg/L on several days. SEDIMENT DISCHARGE: Maximum daily, 124,000 tons Dec. 17; minimum, 0.25 tons Aug. 29.

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)		SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER		1	NOVEMBER		DI	ECEMBER	
1	81	18	3.9	821	426	959	3110	1800	15400
2	79	13	2.8	648	216	382	2640	1210	9100
3	77	9.0	1.8	499	107	147	1730	603	2860
4	77	6.0	1.2	402	56	61.0	1430	312	1230
5	73	3.0	0.56	397	46	50.0	1230	232	780
6	72	5.0	0.90	328	24	21.0	1300	265	951
7	76	9.0	1.9	289	15	11.0	1220	272	908
8	89	14	3.4	261	13	9.4	1090	97	286
9	91	12	3.0	239	10	6.7	1040	70	196
10	113	41	18.0	221	12	7.4	932	81	204
11	161	80	36.0	205	9.0	4.9	894	63	153
12	120	27	8.8	210	9.0	5.0	849	49	112
13	170	84	40.0	351	301	643	2810	1010	15800
14	152	55	23.0	4450	8260	106000	4520	1650	23600
15	137	29	11.0	2120	4060	23700	2300	313	2000
16	123	14	4.5	1440	2000	8080	5420	e3610	e76000
17	127	10	3.5	976	1170	3090	6010	e6890	e124000
18	112	12	3.7	738	844	1690	2810	e2630	e20600
19	108	8.0	2.4	707	785	1500	1870	805	4200
20	109	6.0	1.6	1000	989	2730	1400	329	1270
21	113	5.0	1.4	1360	1360	5020	1120	169	513
22	168	47	37.0	3210	3960	40300	944	106	272
23	540	652	994	2950	3440	29600	759	59	122
24	422	167	204	1600	1290	5670	637	41	72.0
25	327	52	47.0	1110	686	2070	526	16	24.0
26 27 28 29 30 31	279 299 289 245 420 982	34 52 36 9.0 290 1080	26.0 47.0 29.0 5.9 549 2910	934 794 1070 1780 1600	656 604 873 1010 696	1640 1280 2460 5080 3110	454 412 412 359 326 347	10 7.0 1.0 1.0 2.0 2.0	12.0 7.5 1.5 1.1 1.8 2.1
TOTAL	6231		5022.26	32710		245327.4	50901		300679.0

14241500 SOUTH FORK TOUTLE RIVER AT TOUTLE, WA--Continued

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)		SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY		I	FEBRUARY			MARCH	
1 2 3 4 5	392 623 623 529 502	24 70 67 36 8.0	31.0 120 113 52.0 10.0	650 558 628 571 556	90 65 69 49 69	159 98.0 117 77.0 105	668 579 509 466 464	16 14 8.0 7.0 6.0	29.0 22.0 11.0 8.2 7.2
6 7 8 9 10	952 6880 5970 2640 1640	186 4720 6320 2340 992	871 97100 107000 18000 4380	699 1220 1280 1080 920	97 191 125 78 41	208 628 433 230 102	512 422 378 367 588	5.0 2.0 2.0 3.0 59	6.6 2.3 2.4 2.7 103
11 12 13 14 15	1230 1300 1180 1030 875	1990 2880 956 448 280	6450 9770 3060 1260 665	819 679 580 496 445	39 28 16 14 11	86.0 51.0 26.0 18.0 13.0	2560 2870 1900 1480 1190	922 948 329 167 132	9450 7700 1730 671 423
16 17 18 19 20	788 714 644 757 885	220 206 251 969 274	468 397 439 1990 656	449 418 445 896 905	13 8.0 12 66 47	16.0 9.2 15.0 167 116	1010 840 725 990 1250	120 111 76 75 104	328 253 149 224 357
21 22 23 24 25	1090 867 698 1160 2880	252 130 60 275 1360	751 309 114 1040 11300	1830 2230 2450 2140 1510	205 252 320 227 86	1160 1530 2140 1340 359	1040 900 815 804 778	38 21 16 14 18	108 51.0 35.0 31.0 37.0
26 27 28 29 30 31	1720 1240 1010 797 667 686	377 233 244 119 55 80	1820 778 668 260 101 151	1160 950 791 	49 22 19 	154 58.0 41.0 	739 707 684 652 618 597	14 12 11 10 9.0 9.0	28.0 22.0 20.0 17.0 15.0 14.0
TOTAL	42969		270124.0	27355		9456.2	28102		21857.4
DAY	MEAN DISCHARGE (CFS)	(MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	(MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
	DISCHARGE (CFS)	CONCEN- TRATION (MG/L)	DISCHARGE (TONS/DAY)	DISCHARGE (CFS)	CONCEN- TRATION (MG/L)	DISCHARGE (TONS/DAY)	DISCHARGE (CFS)	CONCEN- TRATION (MG/L) JUNE	DISCHARGE (TONS/DAY)
DAY 1 2 3 4 5	DISCHARGE	CONCEN- TRATION (MG/L)	DISCHARGE	DISCHARGE	CONCEN- TRATION (MG/L)	DISCHARGE (TONS/DAY) 30.0 25.0 19.0	DISCHARGE	CONCEN- TRATION (MG/L)	DISCHARGE
1 2 3 4	DISCHARGE (CFS) 602 609 589 607	CONCENTRATION (MG/L) APRIL 9.0 8.0 8.0 10	DISCHARGE (TONS/DAY) 14.0 14.0 13.0 16.0	DISCHARGE (CFS) 654 700 632 548	CONCENTRATION (MG/L) MAY 17 13 11 9.0	DISCHARGE (TONS/DAY) 30.0 25.0 19.0 13.0	DISCHARGE (CFS) 602 544 499 471	CONCENTRATION (MG/L) JUNE 20 16 11 10	DISCHARGE (TONS/DAY) 33.0 23.0 15.0 13.0
1 2 3 4 5 6 7 8 9	DISCHARGE (CFS) 602 609 589 607 689 783 834 766 951 1780 1970 2020 2280	CONCEN- TRATION (MG/L) APRIL 9.0 8.0 8.0 10 13 16 19 17 e24 e111 e122 e120	DISCHARGE (TONS/DAY) 14.0 14.0 13.0 16.0 24.0 34.0 43.0 35.0 e68.0 e561	DISCHARGE (CFS) 654 700 632 548 565 526 481 457 420	CONCEN- TRATION (MG/L) MAY 17 13 11 9.0 4.0 5.0 4.0 5.0	DISCHARGE (TONS/DAY) 30.0 25.0 19.0 13.0 5.2 6.8 5.4 5.4 4.2	DISCHARGE (CFS) 602 544 499 471 456 431 396 400 339	CONCENTRATION (MG/L) JUNE 20 16 11 10 11 7.0 9.0 7.0 6.0	DISCHARGE (TONS/DAY) 33.0 23.0 15.0 13.0 7.7 9.7 7.8 5.2 3.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14	DISCHARGE (CFS) 602 609 589 607 689 783 834 766 951 1780 1970 2020 2280 3890 2190	CONCEN- TRATION (MG/L) APRIL 9.0 8.0 10 13 16 19 17 e24 e111 e122 e120 e174 e985 e171	DISCHARGE (TONS/DAY) 14.0 14.0 13.0 16.0 24.0 34.0 43.0 35.0 e68.0 e561	DISCHARGE (CFS) 654 700 632 548 565 526 481 457 420 391 380 403 542 604	CONCEN- TRATION (MG/L) MAY 17 13 11 9.0 4.0 5.0 4.0 5.0 4.0 6.0 8.0 12	DISCHARGE (TONS/DAY) 30.0 25.0 19.0 13.0 5.2 5.2 6.8 5.4 4.2 3.1 7.0 13.0 20.0 13.0 4.7 7.6	DISCHARGE (CFS) 602 544 499 471 456 431 396 400 339 319 312 315 325 333 320 300 285	CONCENTRATION (MG/L) JUNE 20 16 11 10 11 7.0 9.0 7.0 6.0 4.0 6.0 8.0 8.0 4.0	DISCHARGE (TONS/DAY) 33.0 23.0 15.0 13.0 17.7 9.7 7.8 5.2 3.6 5.2 4.8 6.9 3.3
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	DISCHARGE (CFS) 602 609 589 607 689 783 834 766 951 1780 1970 2020 2280 3890 2190 1590 1300 1120 986	CONCEN- TRATION (MG/L) APRIL 9.0 8.0 8.0 10 13 16 19 17 e24 e111 e122 e120 e174 e985 e171 e117 e97 e88	DISCHARGE (TONS/DAY) 14.0 14.0 13.0 16.0 24.0 35.0 e68.0 e561 e648 e661 e1140 e11500 e1030 e505 e341 e266 214	DISCHARGE (CFS) 654 700 632 548 565 526 481 457 420 391 380 403 542 604 555 524 555 524 555 643 628 595 535 533	CONCEN- TRATION (MG/L) MAY 17 13 11 9.0 4.0 5.0 4.0 5.0 4.0 6.0 8.0 8.0 12 9.0 6.0 6.0 8.0 12 9.0 11 10 8.0 10	DISCHARGE (TONS/DAY) 30.0 25.0 19.0 13.0 5.2 6.8 5.4 5.4 4.2 3.1 7.0 13.0 20.0 13.0 4.7 7.6 9.1 8.1 13.0 16.0 19.0 16.0 12.0 14.0	DISCHARGE (CFS) 602 544 499 471 456 431 396 400 339 319 312 315 325 333 320 300 285 376 318 270 251 240	CONCENTRATION (MG/L) JUNE 20 16 11 10 11 7.0 9.0 7.0 6.0 4.0 6.0 8.0 4.0 2.0 2.0	DISCHARGE (TONS/DAY) 33.0 23.0 15.0 13.0 13.0 7.7 7.8 5.2 3.6 5.2 4.8 6.9 3.3 2.2 1.8 2.4 23.0 8.9 4.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	DISCHARGE (CFS) 602 609 589 607 689 783 834 766 951 1780 1970 2020 2280 3890 2190 1590 1300 1120 986 883 795 733 668 614 593	CONCEN- TRATION (MG/L) APRIL 9.0 8.0 8.0 10 13 16 19 17 e24 e111 e122 e120 e174 e985 e171 e117 e97 e88 80 73 66 59	DISCHARGE (TONS/DAY) 14.0 14.0 13.0 16.0 24.0 34.0 43.0 35.0 e68.0 e561 e648 e661 e1140 e11500 e1030 e505 e341 e266 214 175 142 116 93.0 73.0 63.0	DISCHARGE (CFS) 654 700 632 548 565 526 481 457 420 391 380 403 542 604 555 524 555 524 555 643 628 595 535 533	CONCEN- TRATION (MG/L) MAY 17 13 11 9.0 4.0 5.0 4.0 5.0 4.0 5.0 6.0 8.0 12 9.0 6.0 6.0 8.0 6.0 8.0 8.0	DISCHARGE (TONS/DAY) 30.0 25.0 19.0 13.0 5.2 6.8 5.4 5.4 4.2 3.1 7.0 13.0 20.0 13.0 4.7 7.6 9.1 8.1 13.0 16.0 19.0 16.0 12.0 14.0	DISCHARGE (CFS) 602 544 499 471 456 431 396 400 339 319 312 315 325 333 320 300 285 376 318 270 251 240 232 223 214	CONCENTRATION (MG/L) JUNE 20 16 11 10 11 7.0 9.0 6.0 4.0 6.0 8.0 0 4.0 2.0 2.0 3.0 2.3 10 6.0 4.0 4.0 4.0 5.0	DISCHARGE (TONS/DAY) 33.0 23.0 15.0 13.0 7.7 9.7 7.8 5.2 3.6 5.2 4.8 6.9 3.3 2.2 1.8 2.4 23.0 8.9 4.7 3.3 2.7 2.8

14241500 SOUTH FORK TOUTLE RIVER AT TOUTLE, WA--Continued

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST		SI	EPTEMBER	
1 2 3 4 5	298 261 239 231 219 203 200 210	5.0 4.0 5.0 4.0 4.0 3.0 4.0	4.2 2.9 3.1 2.6 2.3 1.7 2.1 6.0	108 106 102 107 117 117 108	2.0 2.0 2.0 2.0 2.0 1.0 1.0	0.65 0.63 0.59 0.60 0.64 0.43 0.29	80 80 81 79 78 78 77	2.0 2.0 2.0 2.0 2.0 2.0 2.0	0.43 0.43 0.44 0.43 0.42 0.42
9 10	193 180	3.0	1.6 1.9	106 110	2.0	0.57 0.85	79 77	2.0	0.43
11 12 13 14 15	169 163 160 156 150	2.0 2.0 2.0 2.0 1.0	0.71 0.84 0.86 0.78 0.45	109 102 98 96 97	3.0 3.0 4.0 3.0 3.0	0.88 0.95 1.2 0.82 0.76	76 76 74 73 73	2.0 2.0 2.0 2.0 2.0	0.41 0.41 0.40 0.39 0.45
16 17 18 19 20	147 143 140 137 136	3.0 3.0 3.0 3.0	1.0 1.2 1.1 1.1	94 96 e93 e92 e93	2.0 2.0 e3.0 e2.0 e2.0	0.54 0.52 e0.68 e0.50 e0.50	75 81 77 74 74	4.0 5.0 4.0 3.0 2.0	0.71 1.0 0.85 0.60 0.31
21 22 23 24 25	130 127 122 121 120	3.0 3.0 3.0 3.0	1.0 0.95 0.90 0.88 0.85	e91 92 90 87 87	e3.0 4.0 4.0 2.0 3.0	e0.78 0.92 0.92 0.56 0.67	72 70 69 69 68	3.0 2.0 2.0 4.0 3.0	0.50 0.42 0.40 0.66 0.56
26 27 28 29 30 31	122 122 119 120 115 112	3.0 3.0 2.0 2.0 2.0	0.84 0.83 0.79 0.78 0.73	89 90 87 85 84 83	3.0 3.0 1.0 2.0 2.0	0.72 0.67 0.30 0.25 0.43 0.45	67 67 68 80 120	2.0 3.0 3.0 6.0 7.0	0.28 0.48 0.55 1.3 2.1
TOTAL YEAR	5065 260284		46.79 872199.97	3022		19.59	2291		17.03

e Estimated

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA

LOCATION.--Lat 46°20'05", long 122°50'27", in NW $\frac{1}{4}$ Sec.20, T.10 N., R.1 W., Cowlitz County, Hydrologic Unit 17080005, on right bank 10.7 mi downstream from confluence of North and South Forks, 2.9 mi northwest of Silver Lake, and at mile 6.5.

DRAINAGE AREA.--496 mi². A large debris avalanche generated by the eruption of Mount St. Helens on May 18, 1980 blocked tributaries in the upper North Fork Toutle River valley. As a result, from May 19, 1980 to July 7, 1981, approximately 40 mi² was noncontributing. From July 7, 1981 (Coldwater Lake, station 14240446, release) to October 1981, the noncontributing portion was approximately 21 mi². From October 1981 (Coldwater Lake release) to November 1982, the noncontributing portion was approximately 19.7 mi². Since November 1982 (Spirit Lake, station 14240304, release), effectively all areas are contributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- March 1981 to current year.

REVISED RECORDS.--WDR WA-86-1: 1982 (M)(P), 1983 (M)(P), 1984 (M)(P), 1985 (M).

GAGE.--Water-stage recorder. Elevation of gage is 160 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good. No regulation or diversion upstream from station. Some quality of water data available from Washington Office for this station.

AVERAGE DISCHARGE.--21 years (water years 1982-2002), 2,105 ft³/s, 57.65 in/yr, 1,525,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, $61,800 \text{ ft}^3/\text{s}$, Feb. 8, 1996, gage height, 24.91 ft; maximum gage height, 28.03 ft Dec. 3, 1982; minimum daily, 243 ft $^3/\text{s}$ Oct. 14, 1987.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods occurred on May 18, 1980, from mudflows caused by the eruption of Mount St. Helens. A flood about 1200 hours was due to mudflow from South Fork Toutle River and a larger flood about 2100 hours was due to mudflow from North Fork Toutle River.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 10,000 ${\rm ft}^3/{\rm s}$ and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2330	10,600	10.23	Jan. 25	1045	10,800	10.24
Dec. 14	0145	13,100	11.22	Mar. 11	2115	10,900	10.29
Dec. 17	0300	*23,300	*14.76	Apr. 14	0700	11,900	10.75
Jan. 08	0230	22,300	14.53	-			

Minimum discharge, 288 ft³/s Oct. 6, 7.

		DISCHA	ARGE, CUB	IC FEET PI		, WATER YI LY MEAN V		ER 2001 TO) SEPTEMBE	IR 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	324	2330	7530	1690	2710	2440	2240	2100	2190	1200	512	367
2	316	1990	7230	2120	2470	2190	2230	2270	2060	1070	495	376
3	310	1630	5570	2130	2570	2020	2160	2220	2010	1020	484	383
	310	1370	4940	1970	2440	1900	2150	2020	1940	979	488	379
5	299	1360	4470	1890	2360	1890	2280	2000	1940	935	526	366
6	295	1170	4330	2280	2520	2070	2480	1990	1940	885	531	363
7	301	1030	4050	11500	3760	1860	2650	1910	1780	895	485	361
8	330	931	3550	15800	4620	1740	2540	1810	1720	991	468	370
9	357	858	3480	8290	4050	1670	2730	1680	1520	e920	454	380
10	364	801	3120	5860	3520	1960	4590	1590	1430	e900	449	365
11	625	751	3180	4560	3280	5370	5230	1520	1460	858	452	357
12	484	750	2990	4310	2820	7520	5380	1540	1500	842	437	351
13	686	956	5340	3800	2530	5670	5770	1800	e1600	816	427	346
14	650	6750	10200	3280	2280	4780	9960	2040	e1800	790	420	340
15	644	5120	6460	2920	2120	4020	6930	1930	1680	756	414	339
16	547	4170	10100	2740	2140	3560	5590	1870	1550	727	411	351
17	554	3290	16500	2650	2040	3090	4640	1930	1430	712	406	381
18	485	2600	8640	2430	2040	2750	3890	1980	1580	699	395	358
19	454	2390	6340	2830	2710	3500	3340	1950	1510	685	396	343
20	457	2900	4940	3070	2760	4410	2980	2120	1340	673	401	343
21	453	3650	3880	3590	4260	3640	2710	2260	1300	643	406	334
22	563	6270	3220	3160	5700	3130	2560	2180	1300	629	407	327
23	1400	8170	2750	2830	6700	2880	2370	2090	1280	613	394	321
24	1410	5160	2440	3480	6370	2780	2190	1940	1220	603	385	318
25	1190	3820	2200	8630	4850	2730	2100	1920	1160	595	381	315
26	1080	3010	2030	6450	3860	2610	2090	2010	1170	597	394	311
27	1150	2450	1890	4870	3210	2550	2160	2090	1200	595	402	311
28	1210	3250	1900	3840	2780	2470	2010	2470	1230	571	390	309
29	992	5500	1740	3200		2460	1940	3430	1870	568	377	352
30 31	1160 2340	5160	1630 1660	2880 2850		2370 2290	1980	2920 2480	1440	546 530	373 373	496
TOTAL	21740	89587	148300	131900	93470	94320	101870	64060	47150	23843	13333	10613
MEAN	701	2986	4784	4255	3338	3043	3396	2066	1572	769	430	354
MAX	2340	8170	16500	15800	6700	7520	9960	3430	2190	1200	531	496
MIN	295	750	1630	1690	2040	1670	1940	1520	1160	530	373	309
AC-FT CFSM TN	43120 1.41 1.63	177700 6.02 6.72	294200 9.64 11 12	261600 8.58 9.89	185400 6.73 7.01	187100 6.13 7.07	202100 6.85 7.64	127100 4.17 4.80	93520 3.17 3.54	47290 1.55 1.79	26450 0.87	21050 0.71 0.80
IN.	1.63	6.72	11.12	9.89	7.01	7.07	7.64	4.80	3.54	1.79	1.00	0.80

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	1	SEP
MEAN	960	2964	3516	3429	3445	2922	2675	2109	1574	820	484	ŀ	452
MAX	2931	5290	6954	5939	7754	5500	4697	3192	2643	1653	771	L	925
(WY)	1998	1996	1997	1997	1996	1997	1991	1999	1990	1983	1999	j	1997
MIN	310	418	1350	1167	1185	1315	1707	1226	539	412	306		277
(WY)	1988	1994	2001	2001	1993	1992	1998	1992	1992	1992	1992	2	1989
SUMMARY	Y STATIST	ICS	FOR 2	2001 CALE	NDAR YEAR		FOR 2002	WATER YEAR		WATER YEARS	1981	L -	2002
ANNUAL	TOTAL			588200			840186						
ANNUAL	MEAN			1612			2302			2105			
HIGHEST	r annual i	MEAN								3118			1997
LOWEST	ANNUAL M	EAN								1168			2001
HIGHEST	r daily m	EAN		16500	Dec 17		16500	Dec 17		48300	Feb	8	1996
LOWEST	DAILY ME	AN		268	Sep 24		295	Oct 6		243	Oct	14	1987
ANNUAL	SEVEN-DA	Y MINIMUM		288	Sep 19		308	Oct 1		248	Oct	10	1987
ANNUAL	RUNOFF (.	AC-FT)	-	L167000			1667000			1525000			
ANNUAL	RUNOFF (CFSM)		3.2	5		4	.64		4.24			
ANNUAL	RUNOFF (INCHES)		44.1	1		63	.01		57.65			
10 PERC	CENT EXCE	EDS		3140			4940			4170			
	CENT EXCE			1140			1940			1640			
90 PERC	CENT EXCE	EDS		376			375			401			

e Estimated

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.-SPECIFIC CONDUCTANCE: May to October 1990, May to September 1991.
WATER TEMPERATURE: May to October 1990, May to September 1991.
SUSPENDED SEDIMENT DISCHARGE: February 1981 to current year. Records prior to October 1985 are published in U.S. Geological Survey Open-File Report 85-632; records for 1984-87 are published in U.S. Geological Survey Open-File Report 91-219.

INSTRUMENTATION.--Water-quality monitor May 1990 to September 1991. Automatic pumping sediment sampler since February 1981.

EXTREMES FOR PERIOD OF DAILY RECORD. --

SEDIMENT CONCENTRATION: Maximum daily, 232,000 mg/L Mar. 20, 1982; minimum, 1 mg/L Oct. 3, 1989. SEDIMENT DISCHARGE: Maximum daily, 5,930,000 tons Feb. 20, 1982; minimum, 0.71 tons Oct. 3, 1989.

EXTREMES FOR CURRENT YEAR.--SEDIMENT CONCENTRATION: Maximum daily, 10,200 mg/L Jan. 8; minimum, 8 mg/L on several days. SEDIMENT DISCHARGE: Maximum daily, 464,000 tons Jan. 8; minimum, 6.5 tons Sept. 27.

		MEAN			MEAN			MEAN	
	MEAN	CONCEN-	SEDIMENT	MEAN	CONCEN-	SEDIMENT	MEAN	CONCEN-	SEDIMENT
	DISCHARGE	TRATION	DISCHARGE	DISCHARGE	TRATION	DISCHARGE	DISCHARGE	TRATION	DISCHARGE
DAY	(CFS)	(MG/L)	(TONS/DAY)	(CFS)	(MG/L)	(TONS/DAY)	(CFS)	(MG/L)	(TONS/DAY)
	(/	(,,	(,,	(/	(/ =/	(/	(/	(/ =/	(,
		OCTOBER		1	NOVEMBER		DI	ECEMBER	
1	324	9.0	8.2	2330	590	3770	7530	1480	31000
2	316	11	9.4	1990	356	1910	7230	1100	22000
3	310	14	12.0	1630	271	1200	5570	613	9310
4	310	8.0	6.6	1370	228	844	4940	490	6570
5	299	9.0	7.0	1360	286	1050	4470	340	4130
6	295	9.0	7.2	1170	214	682	4330	305	3600
7	301	9.0	7.0	1030	145	405	4050	239	2660
8	330	10	9.4	931	106	268	3550	170	1630
9	357	9.0	8.5	858	73	169	3480	193	1830
10	364	12	13.0	801	68	147	3120	157	1330
11	625	81	137	751	68	138	3180	161	1380
12	484	47	62.0	750	79	161	2990	142	1150
13	686	132	255	956	275	753	5340	1150	27700
14	650	97	171	6750	6070	128000	10200	2440	72000
15	644	60	106	5120	2060	29200	6460	812	14400
16	547	56	82.0	4170	1290	14700	10100	1960	66600
17	554	89	134	3290	830	7450	16500	5930	289000
18	485	86	113	2600	456	3250	8640	2000	47200
19	454	76	94.0	2390	287	1870	6340	1200	20800
20	457	66	82.0	2900	711	5580	4940	893	12000
21	452	60	76.0	2650	026	0070	2000	600	7220
21	453	62	76.0	3650	836	8270	3880	688	7230
22	563	84	129	6270	2750	59100	3220	543	4740
23	1400	466	1950	8170	2610	60700	2750	443	3300
24	1410	286	1160	5160	902	12800	2440	428	2820
25	1190	108	349	3820	453	4730	2200	381	2270
26	1080	82	240	3010	274	2250	2030	414	2260
27	1150	111	355	2450	222	1470	1890	313	1590
28	1210	163	539	3250	619	6490	1900	310	1590
29	992	57	155	5500	1150	17500	1740	289	1360
30	1160	143	526	5160	716	10100	1630	259	1140
31	2340	1680	11200				1660	258	1160
TOTAL	21740		18003.3	89587		384957	148300		665750

511 14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA--Continued

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1 2 3 4 5	1690 2120 2130 1970 1890	268 449 401 367 259	1230 2570 2310 1960 1320	2710 2470 2570 2440 2360	380 294 355 300 276	2800 1960 2480 1990 1760	2440 2190 2020 1900 1890	593 536 440 369 411	3910 3170 2400 1900 2100
6 7 8 9 10	2280 11500 15800 8290 5860	613 7210 10200 4940 4000	4230 249000 464000 112000 63600	2520 3760 4620 4050 3520	377 1380 1240 690 498	2620 14200 15600 7630 4750	2070 1860 1740 1670 1960	518 343 207 102 289	2900 1720 976 460 1580
11 12 13 14 15	4560 4310 3800 3280 2920	2390 1940 1500 1140 1020	29900 22700 15500 10100 8040	3280 2820 2530 2280 2120	486 423 338 280 250	4350 3230 2310 1730 1440	5370 7520 5670 4780 4020	3950 3340 1520 947 709	81500 72000 23300 12300 7710
16 17 18 19 20	2740 2650 2430 2830 3070	1160 1080 888 1370 1520	8610 7800 5830 10500 12900	2140 2040 2040 2710 2760	310 278 253 722 582	1800 1530 1400 5540 4370	3560 3090 2750 3500 4410	567 442 362 927 1140	5460 3700 2690 10000 14100
21 22 23 24 25	3590 3160 2830 3480 8630	1770 956 773 1580 4570	17400 8150 5930 16500 108000	4260 5700 6700 6370 4850	2670 3440 3920 2660 1600	35100 52900 71800 46300 21300	3640 3130 2880 2780 2730	560 394 333 408 392	5540 3350 2580 3070 2890
26 27 28 29 30 31	6450 4870 3840 3200 2880 2850	1520 803 524 385 354 425	27200 10700 5460 3330 2750 3300	3860 3210 2780 	1080 835 661 	11300 7290 4970 	2610 2550 2470 2460 2370 2290	377 361 345 330 314 298	2660 2490 2300 2190 2010 1840
TOTAL	131900		1242820	93470		334450	94320		284796
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
DAY	DISCHARGE	CONCEN- TRATION	DISCHARGE	DISCHARGE	CONCEN- TRATION	DISCHARGE	DISCHARGE	CONCEN- TRATION	DISCHARGE
DAY 1 2 3 4 5	DISCHARGE	CONCEN- TRATION (MG/L)	DISCHARGE	DISCHARGE	CONCEN- TRATION (MG/L)	DISCHARGE	DISCHARGE	CONCEN- TRATION (MG/L)	DISCHARGE
1 2 3 4	DISCHARGE (CFS) 2240 2230 2160 2150	CONCENTRATION (MG/L) APRIL 305 321 299 278	DISCHARGE (TONS/DAY) 1850 1940 1740 1610	DISCHARGE (CFS) 2100 2270 2220 2020	CONCENTRATION (MG/L) MAY 657 708 590 495	DISCHARGE (TONS/DAY) 3740 4350 3550 2710	DISCHARGE (CFS) 2190 2060 2010 1940	CONCENTRATION (MG/L) JUNE 764 674 678 642	DISCHARGE (TONS/DAY) 4520 3740 3670 3360
1 2 3 4 5 6 7 8 9	DISCHARGE (CFS) 2240 2230 2160 2150 2280 2480 2650 2540 2730	CONCEN- TRATION (MG/L) APRIL 305 321 299 278 269 384 520 460 801	DISCHARGE (TONS/DAY) 1850 1940 1740 1610 1660 2580 3720 3170 6490	DISCHARGE (CFS) 2100 2270 2220 2020 2000 1990 1910 1810 1680	CONCEN- TRATION (MG/L) MAY 657 708 590 495 475 467 440 404 299	DISCHARGE (TONS/DAY) 3740 4350 3550 2710 2570 2520 2270 1980 1350	2190 2060 2010 1940 1940 1780 1720	CONCENTRATION (MG/L) JUNE 764 674 678 642 671 701 621 638 532	DISCHARGE (TONS/DAY) 4520 3740 3670 3360 3520 3680 2980 2970 2180
1 2 3 4 5 6 7 8 9 10 11 12 13 14	2240 2230 2160 2150 2280 2480 2650 2540 2730 4590 5230 5380 5770 9960	CONCEN- TRATION (MG/L) APRIL 305 321 299 278 269 384 520 460 801 2970 2450 2080 2320 7510	DISCHARGE (TONS/DAY) 1850 1940 1740 1610 1660 2580 3720 3170 6490 37300 34700 30200 36700 208000	DISCHARGE (CFS) 2100 2270 2220 2020 2000 1990 1910 1810 1680 1590 1540 1800 2040	CONCEN- TRATION (MG/L) MAY 657 708 590 495 475 467 440 404 404 299 238 197 218 456 623	DISCHARGE (TONS/DAY) 3740 4350 3550 2710 2570 2520 2270 1980 1350 1020 813 907 2260 3430	2190 2060 2010 1940 1940 1720 1520 1430 1460 1500 e1600	CONCEN- TRATION (MG/L) JUNE 764 674 678 642 671 701 621 638 532 459 596 676 832 1010	DISCHARGE (TONS/DAY) 4520 3740 3670 3360 3520 2980 2970 2180 1770 2360 2750 e3600 e4900 3980
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	DISCHARGE (CFS) 2240 2230 2160 2150 2280 2480 2650 2540 2730 4590 5230 5380 5770 9960 6930 5590 4640 3890 3340	CONCEN- TRATION (MG/L) APRIL 305 321 299 278 269 384 520 460 801 2970 2450 2080 2320 7510 3750 2340 1700 1500 1250	DISCHARGE (TONS/DAY) 1850 1940 1740 1610 1660 2580 3720 3170 6490 37300 34700 208000 71000 35600 21400 15800 11300	DISCHARGE (CFS) 2100 2270 2220 2020 2000 1990 1910 1810 1680 1590 1520 1540 1800 2040 1930 1930 1970 1930 1980 1980 1950	CONCEN- TRATION (MG/L) MAY 657 708 590 495 475 467 440 404 299 238 197 218 456 623 329 176 146 123 125	DISCHARGE (TONS/DAY) 3740 4350 3550 2710 2570 2520 2270 1980 1350 1020 813 907 2260 3430 1730 887 762 658 661	2190 2060 2010 1940 1940 1720 1520 1430 1460 1500 e1600 e1800 1580 1580	CONCEN- TRATION (MG/L) JUNE 764 674 678 642 671 701 621 638 532 459 596 676 832 1010 878 749 652 851 687	DISCHARGE (TONS/DAY) 4520 3740 3670 3360 3520 3680 2980 2970 2180 1770 2360 2750 e3600 e4900 3980 3140 2520 3630 2820
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	DISCHARGE (CFS) 2240 2230 2160 2150 2280 2480 2650 2540 2730 4590 5230 5380 5770 9960 6930 5590 4640 3890 3340 2980 2710 2560 2370 2190	CONCEN- TRATION (MG/L) APRIL 305 321 299 278 269 384 520 460 801 2970 2450 2080 3750 2340 1700 1500 1250 1030 866 794 724 655	DISCHARGE (TONS/DAY) 1850 1940 1740 1610 1660 2580 3720 3170 6490 37300 34700 30200 36700 208000 71000 35600 21400 15800 11300 8330 6350 5500 4640 3880	DISCHARGE (CFS) 2100 2270 2220 2020 2020 2000 1990 1910 1810 1680 1590 1520 1540 1800 2040 1930 1870 1930 1980 1950 2120 2260 2180 2090 1940	CONCEN- TRATION (MG/L) MAY 657 708 590 495 475 467 4404 299 238 197 218 456 623 329 176 146 123 125 322 518 498 449 401	DISCHARGE (TONS/DAY) 3740 4350 3550 2710 2570 2520 2270 1980 1350 1020 813 907 2260 3430 1730 887 762 658 661 1850 3160 2920 2540 2110	DISCHARGE (CFS) 2190 2060 2010 1940 1940 1780 1720 1520 1430 1460 1500 e1600 e1800 1550 1430 1550 1430 1580 1510 1340 1300 1300 1280	CONCEN- TRATION (MG/L) JUNE 764 674 678 642 671 701 621 638 532 459 596 676 832 1010 878 749 652 851 687 491 443 486 491 385	DISCHARGE (TONS/DAY) 4520 3740 3670 3360 2980 2970 2180 1770 2360 2750 e3600 e4900 3980 3140 2520 3630 2820 1780 1550 1720 1710 1270 1160

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA--Continued

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST		SI	EPTEMBER	
1 2 3 4 5	1200 1070 1020 979 935 885 895	434 400 215 211 300 175 189	1410 1160 590 558 760 418 458	512 495 484 488 526 531 485	31 31 30 29 29 29	43.0 41.0 39.0 39.0 41.0 42.0 40.0	367 376 383 379 366	9.0 11 9.0 10 12 9.0 8.0	8.6 11.0 9.1 9.7 12.0 8.4 7.5
8 9 10	991 e920 e900	196 172 140	526 e430 e340	468 454 449	18 15 18	23.0 18.0 22.0	370 380 365	9.0 9.0 9.0	9.0 9.5 8.6
11 12 13 14 15	858 842 816 790 756	157 139 137 134 111	363 316 301 285 228	452 437 427 420 414	15 13 14 15 13	18.0 16.0 16.0 17.0 15.0	357 351 346 340 339	9.0 10 11 9.0 8.0	8.5 9.4 11.0 8.5 7.6
16 17 18 19 20	727 712 699 685 673	84 73 79 60 65	166 141 150 111 119	411 406 395 396 401	17 14 14 11 12	19.0 16.0 15.0 12.0 13.0	351 381 358 343 343	9.0 11 9.0 12 13	8.5 11.0 8.6 11.0 12.0
21 22 23 24 25	643 629 613 603 595	54 43 34 31 35	93.0 73.0 56.0 50.0 56.0	406 407 394 385 381	16 9.0 12 10 9.0	18.0 10.0 13.0 11.0 9.2	334 327 321 318 315	11 13 10 11 12	9.9 11.0 8.6 9.8 9.9
26 27 28 29 30 31	597 595 571 568 546 530	33 34 34 33 32 32	54.0 54.0 52.0 51.0 48.0 46.0	394 402 390 377 373 373	8.0 11 10 10 10	8.8 11.0 10.0 10.0 10.0	311 311 309 352 496	9.0 8.0 8.0 9.0 30	7.9 6.5 7.0 8.9 41.0
TOTAL YEAR	23843 840186		9463.0 3704975.3	13333		628.0	10613		310.0

e Estimated

14243000 COWLITZ RIVER AT CASTLE ROCK, WA

LOCATION.--Lat $46^{\circ}16^{\circ}28^{\circ}$, long $122^{\circ}54^{\circ}45^{\circ}$, in SW $\frac{1}{4}$ sec.10, T.9 N., R.2 W., Cowlitz County, Hydrologic Unit 17080005, on left bank 40 ft downstream from Arkansas Valley Road bridge in Castle Rock, 2.7 mi downstream from Toutle River, and at mile 17.3.

DRAINAGE AREA.--2,238 mi². A large debris avalanche generated by the eruption of Mount St. Helens on May 18, 1980 blocked tributaries in the upper North Fork Toutle River valley. As a result, from May 19, 1980 to July 7, 1981, approximately 40 mi² was noncontributing. From July 7, 1981 (Coldwater Lake, station 14240446, release) to October 1981, the noncontributing portion was approximately 21 mi². From October 1981 (Coldwater Lake release) to November 1982, the noncontributing portion was approximately 19.7 mi². Since November 1982 (Spirit Lake, station 14240304, release), effectively all areas are contributing.

PERIOD OF RECORD. -- December 1926 to current year; October 1985 to April 2000 (seasonal records).

REVISED RECORDS.--WSP 1218: Drainage area. WSP 1638: 1947(P), 1951.

GAGE.--Water-stage recorder. Datum of gage is NAVD of 1988. Prior to Dec. 18, 1933, nonrecording gage at site 2 mi upstream at datum 38.58 ft higher. Dec. 18, 1933, to June 13, 1934, nonrecording gage, and June 14 to Sept. 30, 1934, water-stage recorder, at present site at datum 28.65 ft higher. Oct. 1, 1934, to May 21, 1980, water-stage recorder, on right bank at datum 23.65 ft higher. May 23, 1980, to July 29, 1997, water-stage recorder at present site at datum 23.65 higher.

REMARKS.--Records good. Flow regulated by Riffe Lake (station 14234800) at mile 65.5, and Mayfield Reservoir (station 14237800) at mile 52.0. Minor diversions for domestic and farm use upstream from station. U.S. Geological Survey satellite telemeter at station

AVERAGE DISCHARGE.--60 years (water years 1928-85, 2001-02), 9,213 ft³/s, 55.90 in/yr, 6,675,000 acre-ft/yr, adjusted for storage in Mayfield Reservoir since April 1962, and Riffe Lake since April 1968.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 139,000 ft³/s Dec. 23, 1933, gage height, 55.25 ft present datum, from rating curve extended above 80,000 ft³/s; maximum gage height, 55.76 ft Feb. 8, 1996; minimum discharge, 998 ft³/s Nov. 7, 8, 1935.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 51,400 ft³/s Dec. 17, gage height, 44.78 ft; minimum discharge, 2,900 ft³/s Oct. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAILY MEAN VALUES DAY ОСТ NOV DEC JAN FEB MAR MAY ATTIN. лтт. AUG SEP APR e4200 2.6 2.9 TOTAL MEAN MAX MIN AC-FT MEAN+ CFMS† 1.31 8.34 7.71 6.85 5.47 5.81 2.57 1.12 0.84 5.64 5.41 5.16 9.62 5.64 6.48 8.89 5 95 2.97 0.93 IN. † 1.52 6.29 7.64 6.31 1.30 AC-FTt 180900

CAL YR 2001 TOTAL 2208160 MEAN 6050 MAX 41600 MIN 2890 AC-FT 4380000 MEAN† 6926 CFSM† 3.09 IN.† 42.02 AC-FT† 5014000 WTR YR 2002 TOTAL 3694410 MEAN 10120 MAX 41600 MIN 2960 AC-FT 7328000 MEAN† 10480 CFSM† 4.68 IN.† 63.58 AC-FT† 7584000

 $[\]dagger$ Adjusted for change in contents in Riffe Lake and Mayfield Reservoir.

e Estimated

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL, NEAR QUINCY, OR

LOCATION.--Lat 46°10'55", long 123°10'50", in NE 1/4 sec.16, T.8 N., R.4 W., Columbia County, Hydrologic Unit 17080003, on left bank, 0.7 mi downstream from Crims Island, 3.0 mi northwest of Quincy, and at mile 53.8.

DRAINAGE AREA.--256,900 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- May 1968 to June 1970, June 1991 to current year.

GAGE.--Water-stage and velocity index recorder. Datum of gage is 0.52 ft above NGVD of 1929. May 1968 to June 1970 water-stage recorder with auxillary water-stage recorder 5.6 miles downstream, at datum 10.00 ft lower.

REMARKS.--Records fair. Flow regulated by many reservoirs on Columbia River and in tributary basins. Flows affected by tide which can cause reverse direction during tidal cycle when mean daily flows are less than 250,000 ft³/s. Mean discharge values are based on a 24 hour day, not a tidal cycle.

 ${\tt AVERAGE\ DISCHARGE.--12\ years\ (water\ years\ 1969,\ 1992-2002),\ 239,300\ ft^3/s,\ 173,300,000\ acre-ft/yr.}$

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 864,000 ft 3 /s Feb. 10, 1996; minimum daily discharge, 63,600 ft 3 /s Sept. 9, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 464,000 ft³/s Apr. 18; maximum gage height, 9.57 ft Dec. 1; minimum daily discharge, 68,000 ft³/s Oct. 22.

		DISCH	IARGE, CUE	BIC FEET P), WATER T		BER 2001 1	TO SEPTEM	BER 2002		
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	88700 101000 106000 91700 70100	124000 127000 121000 104000 106000	274000 317000 325000 293000 291000	171000 159000 185000 188000 189000	272000 249000 233000 210000 231000	215000 189000 177000 152000 154000	173000 212000 202000 176000 183000	264000 261000 270000 279000 277000	369000 384000 365000 363000 375000	355000 352000 349000 334000 319000	166000 169000 166000 166000 147000	143000 120000 103000 118000 134000
6 7 8 9 10	85400 84600 69400 79800 75300	118000 138000 126000 131000 124000	288000 302000 267000 265000 242000	181000 227000 315000 338000 348000	218000 222000 271000 298000 268000	152000 173000 198000 176000 162000	177000 183000 178000 203000 223000	265000 265000 283000 282000 249000	406000 417000 403000 388000 e380000	284000 266000 265000 241000 219000	178000 164000 159000 176000 158000	121000 115000 96300 88500 90200
11 12 13 14 15	113000 97400 102000 92800 105000	111000 111000 123000 132000 165000	241000 245000 218000 291000 323000	324000 266000 254000 243000 225000	230000 232000 224000 218000 220000	164000 222000 283000 306000 268000	256000 278000 281000 328000 375000	225000 231000 212000 237000 238000	e370000 357000 327000 330000 315000	216000 239000 256000 247000 244000	147000 145000 151000 154000 163000	117000 108000 89400 91800 120000
16 17 18 19 20	101000 104000 127000 109000 91700	157000 159000 165000 133000 146000	305000 370000 364000 376000 346000	250000 272000 247000 227000 206000	195000 164000 165000 167000 195000	264000 245000 209000 221000 234000	423000 459000 464000 439000 400000	244000 24000 249000 239000 249000	319000 301000 326000 346000 381000	242000 221000 242000 247000 228000	181000 164000 145000 146000 154000	93300 101000 123000 116000 122000
21 22 23 24 25	80100 68000 122000 113000 118000	175000 170000 237000 227000 227000	328000 319000 283000 258000 221000	238000 266000 291000 299000 301000	195000 205000 203000 222000 240000	234000 209000 191000 186000 182000		268000 297000 317000 314000 305000	388000 381000 348000 336000 340000	239000 230000 225000 199000 205000	163000 153000 148000 148000 153000	132000 113000 112000 131000 118000
26 27 28 29 30 31	97800 112000 109000 117000 111000 107000	220000 215000 200000 252000 286000	211000 194000 182000 184000 178000	331000 338000 321000 308000 295000 280000	220000 220000 214000 	177000 182000 187000 185000 184000 174000		281000 264000 284000 329000 350000 361000	314000 316000 335000 369000 383000	186000 171000 170000 159000 171000 181000	130000 130000 138000 144000 132000 143000	117000 129000 114000 94800 102000
MEAN MAX MIN	3049800 98380 127000 68000 6049000	4830000 161000 286000 104000 9580000	8471000 273300 376000 170000 16800000	8083000 260700 348000 159000 16030000	6201000 221500 298000 164000 12300000	6255000 201800 306000 152000 12410000	287000 464000 173000	271900 361000 212000	10732000 357700 417000 301000 21290000	7502000 242000 355000 159000 14880000	4781000 154200 181000 130000 9483000	3373300 112400 143000 88500 6691000
STATIS	STICS OF	MONTHLY M	EAN DATA	FOR WATER	YEARS 19	68 - 200	2, BY WATI	ER YEAR (V	MY)			
MEAN MAX (WY) MIN (WY)	144800 212300 1998 98380 2002	196500 256500 1996 136100 1994	269100 430800 1996 175400 1994	288900 444300 1997 153400 2001	282400 543400 1996 141500 2001	255900 388700 1997 142100 2001	406500 1969 150500	325100 507500 1997 174700 2001	327800 514500 1997 151700 2001	217400 279300 1997 98390 2001	157400 223000 1999 106300 2001	129600 177300 1997 90080 2001
	RY STATIS	STICS	FOR	2001 CAL	ENDAR YEA	AR.	FOR 2002	WATER YEA	AR	WATER YE	ARS 1968	- 2002
ANNUAL ANNUAL HIGHES LOWES LOWES ANNUAL ANNUAL 10 PER 50 PER	L TOTAL L MEAN ST ANNUAL I ANNUAL ST DAILY I DAILY I DAILY I L SEVEN-1 L RUNOFF RCENT EX RCENT EX	MEAN MEAN MEAN MEAN MEAN MEAN MEAN MEAN	JM 1	376000 63600 78700 05100000 211000 140000 88900	Dec 1 Sep Sep		464000 68000 79500 159300000 346000 218000 110000	Apr 1 Oct 2 Oct	1.8 22 4	239300 338200 140000 864000 63600 78700 173300000 390000 217000 123000	Feb 1 Sep Sep	1997 2001 0 1996 9 2001 5 2001

e Estimated

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usuable in low-flow or flood-flow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to these events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites. The description and location of some sites may have been updated from previously published miscellaneous measurements sites.

Records collected at crest-stage partial-record stations are presented in the following table. Discharge measurements made at low-flow partial-record sites and peak flows at miscellaneous sites and for special studies are given in separate tables.

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 During Water Year 2002

			Water	year 2002 max	kimum	Period o	f record max	kimum
Station name and number	Location of drainage area	Period of record	Date	Gage height (ft)	Dis- charge (ft ³ /s)	Date	Gage height (ft)	Dis- charge (ft ³ /s)
		PUYALI	LUP RIVER BAS	SIN				
Puyallup River at Alderton (12096500)	Lat 47°11'07", long 122°13'42", on line between sec.25, T.20 N.,R.4 E., and sec.30, T.20 N., R.5 E., Pierce County, at State Highway 162 road crossing, 1.0 mi north of Alderton, 1.0 mi south of Sumner, and at mile 12.2. Drainage area is 438 mi ² .	1914-27, 1943-57‡ 1997-2002	04-14-02	51.95a,b	12,300	02-09-96	61.15a	41,500
		SNOHON	AISH RIVER BA	SIN				
Snoqualmie River at Duvall (12150400)	Lat 47°44'36", long 121°59'12", in SW 1/4 NW 1/4 sec.13, T26. N, R.6 E., King County Hydrologic Unit 17110010, on right bank at downstream side of abandoned bridge pier 100 ft south of the present Woodinville-Duvall Road bridge in Duvall. Drainage area is 645 mi ² .	2001-2002	04-15-02	39.75a		04-15-02	39.75 a	
		PEND ORI	EILLE RIVER B	ASIN				
Calispell Creek near Dalkena, (12396000)	Lat 48°14'40", long 117°20'26", in NE 1/4 SW 1/4 sec.26, T.32N, R.43E., Pend Oreille County, 2.4 mi upstream from Calispell Lake, and 4.8 mi west of Dalkena. Drainage area is 68.3 mi ² .	1950-73‡, 1974-2002	04-14-02	10.14	1,280	01-15-74	14.38	3,190

⁻⁻ No data or undetermined.

[‡] Operated as a continuous-record gaging station.

a Gage height shown is at NGVD of 1929.

b From crest-stage gage. Station operated Oct. 15 to Apr. 15.

Discharge Measurements Made at Miscellaneous Sites During Water Year 2002

			Drainage	Measured previously	Measu	rements
Stream	Tributary to	Location	area (mi ²)	(water year)	Date	Discharge (ft ³ /s)
		CHEHALIS RIVER BASIN				
Thompson Creek	Skookumchuck River	Lat 46°47'39", long 122°45'49", in SE ¹ / ₄ SE ¹ / ₄ sec.11, T.15 N., R.1 W., Thurston County, Hydrologic Unit 17100103, at road bridge, 4.9 m east of Bucoda, and 0.2 mi upstream from mouth.	7.16 ni		12-17-01	226
Unnamed Tributary	Skookumchuck River	Lat 46°46'26", long 122°55'20", in SW¼NW¼ sec.22, T.15 N., R.2 W., Thurston County, Hydrologic Unit 17100103, at mobile home park,3.2 mi southwest of Bucoda, 0.1 mi upstream from mouth.			12-14-01	91
Porter Creek	Chehalis River	Lat 46°56'15", long 123°18'30", in NW1/4NE1/4 sec.28, T.17 N., R.5 W., Grays Harbor County, Hydrologic Unit 17100103, at railroad bridge, at Porter, and at mouth.	39.8	1963-65 1972 1976-78 1980-82 2000-01	07-31-02	17
		HUMPTULIPS RIVER BASIN	1			
12039000 Humptulips River	Grays Harbor	Lat 47°13'42", long 123°56'23", in NE 1/4 NE 1/4 sec. 17, T. 20 N., R. 10 W., Grays Harbor County, Hydrologic Unit 17100105, 2.3 mi upstream from Stevens Creek, 3.3 mi downstrear from confluence of east and west forks, 0.9 mi southeast of Humptulips, and at mile 24.8.	130 m	1933-35‡ 1942 1942-79‡ 1980-97	09-16-02	217
]	BETWEEN DUNGENESS RIVER AND QUILCE	NE RIVER	BASINS		
Chimacum Creek	Port Townsend	Lat 47°56′20", long 122°48′34", in NW¼NE¼ sec.9, T.28 N., R.1 W., Jefferson County, Hydrologic Unit 17110019, 20 ft upstream from sediment basin, and 0.8 mi west of Center.			06-26-02	0.84
Unnamed Tributary	Chimacum Creek	Lat 47°56'54", long 122°47'56", in SE ¹ / ₄ NE ¹ / ₄ sec.4, T.28 N., R.1 W., Jefferson County, Hydrologic Unit 17110019, at West Valley Road 0.6 mi northwest of Center, and 5 ft upstream from mouth.			06-26-02	0.17
Chimacum Creek	Port Townsend	Lat 47°56'54", long 122°47'54", in SW¼NW¼ sec.3, T.28 N., R.1 W., Jefferson County, Hydrologic Unit 17110019, 50 ft downstream from West Valley Road, and 0.6 mi northwest of Center.	9.38	1952-53	06-26-02	2.4
Chimacum Creek	Port Townsend	Lat 47°57'49", long 122°46'47", in SE ¹ / ₄ NE ¹ / ₄ sec.34, T.29 N., R.1 W., Jefferson County, Hydrologic Unit 17110019, at Center Road bridge, and 1.7 mi north of Center.			06-26-02	2.8
12051500 Chimacum Creek	Port Townsend	Lat 47°58'26", long 122°46'35", in NW1/4SW1/4 sec.26, T.29 N., R.1 W., Jefferson County, Hydrologic Unit 17110019, 100 ft downstream from road bridge, and 2.4 mi north of Center.	13.8	1952-58‡	06-26-02 06-26-02	4.4 3.7

			Drainage	Measured previously	Measu	rements
Stream	Tributary to	Location	area (mi ²)	(water year)	Date	Discharge (ft ³ /s)
Unnamed Tributary	Chimacum Creek	Lat 47°58′54″, long 122°47′11″, in NW¼NE¼ sec.27, T.29 N., R.1 W., Jefferson County, Hydrologic Unit 17110019, 10 ft upstream from wier, 50 ft downstream from West Valley Road, and 2.8 mi north of Center.			06-26-02	0.32
Unnamed Tributary	Chimacum Creek	Lat 48°00'16", long 122°46'59", in NW1/4SE1/4 sec.15, T.29 N., R.1 W., Jefferson County, Hydrologic Unit 17110019, 10 ft downstream from West Valley Road, and 0.9 mi southwest of Chimacum.			06-26-02	0.14
Chimacum Creek	Port Townsend	Lat 48°00'43", long 122°46'24", in NW¼NW¼ sec.14, T.29 N., R.1 W., Jefferson County, Hydrologic Unit 17110019, at Rhody Drive bridge, and 0.3 mi west of Chimacum.	21.7	1947	06-26-02	3.9
Unnamed Tributary	Chimacum Creek	Lat 47°57'18", long 122°44'24", in NE½NE½ sec.1, T.28 N., R.1 W., Jefferson County, Hydrologic Unit 17110019, 30 ft upstream from Egg and I Road, and 2.0 mi north of Beaver Valley.			06-26-02	0.62
Unnamed Tributary	Chimacum Creek	Lat 47°58'37", long 122°44'40", in NW1/4SE1/4 sec.25, T.29 N., R.1 W., Jefferson County, Hydrologic Unit 17110019, upstream from culvert, and 3.2 mi south of Chimacum.			06-26-02	1.5
Unnamed Tributary	Chimacum Creek	Lat 47°59'29", long 122°45'10", in NW1/4SW1/4 sec.24, T.29 N., R.1 W., Jefferson County, Hydrologic Unit 17110019, Lamberton site, and 1.7 mi southeast of Chimacum.			06-26-02	1.6
Unnamed Tributary	Chimacum Creek	Lat 48°01'11", long 122°46'12", in NE'/4SW'/4 sec.11, T.29 N., R.1 W., Jefferson County, Hydrologic Unit 17110019, 20 ft downstream from Chimacum Road, and 0.6 mi north of Chimacum.			06-26-02	1.4
Chimacum Creek	Port Townsend	Lat 48°01'39", long 122°46'26", in NW¼NW¼ sec.11, T.29 N., R.1 W., Jefferson County, Hydrologic Unit 17110019, at PUD gage, 50 ft upstream from footbridge, 300 ft east of end of Hilda Road, 1.2 mi north of Chimacum, and at mile 2.3.			06-26-02	6.3
Chimacum Creek	Port Townsend	Lat 48°02'57", long 122°47'16", in NE¼SW¼ sec.34, T.30 N., R.1 W., Jefferson County, Hydrologic Unit 17110019, and 0.7 mi upstream from mouth.	 1		06-26-02	7.1
Tarboo Creek	Tarboo Bay	Lat 47°54'51", long 122°49'28", in SE¼SE¼ sec.17, T.28 N., R.1 W., Jefferson County, Hydrologic Unit 17110018, 20 ft upstream from culvert under Dabob Road, and 2.4 mi southwes of Center.			07-02-02	0.70

			Drainage	Measured previously	Measu	rements
Stream	Tributary to	Location	area (mi ²)	(water year)	Date	Discharge (ft3/s)
Unnamed Tributary	Tarboo Creek	Lat 47°53'55", long 122°49'36", in SE½SE½ sec.20, T.28 N., R.1 W., Jefferson County, Hydrologic Unit 17110018, upstream from Old Tarboo Road, 3.3 mi southwest of Center, and 0 mi upstream from mouth.	1		07-02-02	0.18
Tarboo Creek	Tarboo Bay	Lat 47°53'48", long 122°49'22", in SE½SE½ sec.20, T.28 N., R.1 W., Jefferson County, Hydrologic Unit 17110018, 40 ft upstream from Old Tarboo Road, and 3.3 mi southwest of Center.			07-02-02	2.1
Unnamed Tributary	Tarboo Creek	Lat 47°53'44", long 122°49'16", in NW¹4NW¹4 sec.28, T.28 N., R.1 W., Jefferson County, Hydrologic Unit 17110018, at ditch next to Dabob Road, 0.2 mi south of Old Tarboo Road, and 3.4 mi southwest of Center.			07-02-02	0.03
Tarboo Creek	Tarboo Bay	Lat 47°53'20", long 122°49'11", in NW¹4SW¼ sec.28, T.28 N., R.1 W., Jefferson County, Hydrologic Unit 17110018, 0.6 mi south of intersection of Old Tarboo Road and Dabob Roa and 3.8 mi southwest of Center.	 d,		07-02-02	2.0
Tarboo Creek	Tarboo Bay	Lat 47°52'12", long 122°49'01", in SW ¹ / ₄ SW ¹ / ₄ sec.33, T.28 N., R.1 W., Jefferson County, Hydrologic Unit 17110018, 100 ft downstream from Dabob P.O. Road, and 1.6 mi north of Dabob.	11.3	1951	07-02-02	2.4
Unnamed Tributary	Tarboo Creek	Lat 47°52'11", long 122°49'03", in SW\4SW\4 sec.33, T.28 N., R.1 W., Jefferson County, Hydrologic Unit 17110018, near intersection of Carl Johnson Road and Dabob P.O. Road, and 1 mi north of Dabob.			07-02-02	0.02
Unnamed Tributary	Tarboo Creek	Lat 47°52'04", long 122°48'55", in NW¹4NW¹4 sec.4, T.27 N., R.1 W., Jefferson County, Hydrologic Unit 17110018, 100 ft downstream from intersection of Dabob P.O. Road and Coyle Road, and 1.5 mi north of Dabob.			07-02-02	0.44
Tarboo Creek	Tarboo Bay	Lat 47°51'48", long 122°48'53", in SE ¹ / ₄ NW ¹ / ₄ sec.4, T.27 N., R.1 W., Jefferson County, Hydrologic Unit 17110018, and 0.1 mi upstrean from mouth.			07-02-02	3.4
Unnamed Tributary	Tarboo Creek	Lat 47°51'42", long 122°48'53", in SE ¹ 4NW ¹ 4 sec.4, T.27 N., R.1 W., Jefferson County, Hydrologic Unit 17110018, at wier 30 ft downstream from Carl Johnson Road, and 2.4 m northwest of Dabob.	 i		07-02-02	0.22

			Drainage	Measured previously	Measu	rements
Stream	Tributary to	Location	area (mi ²)	(water year)	Date	Discharge (ft ³ /s)
		QUILCENE RIVER BASIN				
12051900 Little Quilcene River	Quilcene Bay	Lat 47°52'34", long 122°57'42", in SE¼NW¼ sec.32, T.28 N., R.2 W., Clallam County, Hydrologic Unit 17110018, downstream from diversion dam, and 8.7 mi northwest of Quilcene	 x.	1992-2001	10-04-01 10-04-01 12-11-01 02-01-02 04-23-02 06-17-02 08-15-02	4.3 4.1 20 17 19 16 4.9
Little Quilcene River	Quilcene Bay	Lat 47°50'48", long 122°53'31", in SW1/4NE1/4 sec.11, T.27 N., R.2 W., Jefferson County, Hydrologic Unit 17110018, 400 ft upstream from small diversion, and 1.8 mi northwest of Quilcene.			06-18-02	39
Unnamed Diversion	Diverts from Little Quilcene River	Lat 47°50'46", long 122°53'31", in SE¼NE¼ sec.11, T.27 N., R.2 W., Jefferson County, Hydrologic Unit 17110018, 20 ft downstream from diversion of Little Quilcene River, and 1.8 mi northwest of Quilcene.			06-18-02	1.8
12052000 Little Quilcene River	Quilcene Bay	Lat 47°50'15", long 122°53'09", in NE¼NE¼ sec.14, T.27 N., R.2 W., Jefferson County, Hydrologic Unit 17110018, at Hwy 101 bridge, and 1.0 mi northwest of Quilcene.	23.7	1926 1926-27‡ 1951-58‡	06-18-02	34
Leland Creek	Little Quilcene River	Lat 47°50'18", long 122°53'08", in NE¼NE¼ sec.14, T.27 N., R.2 W., Jefferson County, Hydrologic Unit 17110018, 1.0 mi northwest of Quilcene, and 100 ft upstream from mouth.	11.3	1951	06-18-02	3.0
Little Quilcene River	Quilcene Bay	Lat 47°49'51", long 122°52'52", in NW ¹ 4SW ¹ 4 sec.13, T.27 N., R.2 W., Jefferson County, Hydrologic Unit 17110018, and 0.6 mi northwes of Quilcene.	 st		06-18-02	36
Little Quilcene River	Quilcene Bay	Lat 47°49'48", long 122°52'24", in NW ¹ 4SE ¹ 4 sec.13, T.27 N., R.2 W., Jefferson County, Hydrologic Unit 17110018, at Center Road, and 0.4 mi north of Quilcene.	35.5	1926	06-18-02	41
Little Quilcene River	Quilcene Bay	Lat 47°49'39", long 122°51'45", in SW¼SW¼ sec.18, T.27 N., R.1 W., Jefferson County, Hydrologic Unit 17110018, south of intersection of McInnes Road and East Quilcene Road, 0.6 m northeast of Quilcene, and near mouth.			06-18-02	35
Big Quilcene River	Quilcene Bay	Lat 47°48'02", long 122°55'20", in NW¼SW¼ sec.27, T.27 N., R.2 W., Jefferson County, Hydrologic Unit 17110018, at Hiddendale Community Park, 0.9 mi southwest of Hwy 101 bridge, and 2.8 mi southwest of Quilcene.			06-17-02	166 _k
12052390 Big Quilcene River	Quilcene Bay	Lat 47°48'32", long 122°54'43", in NW14NE14 sec.27, T.27 N., R.2 W., Jefferson County, Hydrologic Unit 17110018, at hatchery, 2.1 mi southwest of Quilcene, and at mile 2.7.	59.7	1993-2001	10-04-01 12-11-01 02-01-02 04-24-02 06-17-02 08-14-02	19 138 97 107 140 26

			Drainage	Measured previously	Measu	rements
Stream	Tributary to	Location	area (mi ²)	(water year)	Date	Discharge (ft3/s)
Penny Creek	Big Quilcene River	Lat 47°48'39", long 122°54'48", in SW1/4SE1/4 sec.22, T.27 N., R.2 W., Jefferson County, Hydrologic Unit 17110018, upstream from hatchery, upstream from diversion, and 2.1 mi southwest of Quilcene.	6.78	1951 1965	06-17-02	5.7
Big Quilcene River	Quilcene Bay	Lat 47°49'06", long 122°52'27", in SW¼NE1⁄4 sec.24, T.27 N., R.2 W., Jefferson County, Hydrologic Unit 17110018, at Rodgers Road, an 0.4 mi south of Quilcene.	 d		06-17-02	187
Big Quilcene River	Quilcene Bay	Lat 47°49'09", long 122°51'53", in SE¼NE¼ sec.24, T.27 N., R.2 W., Jefferson County, Hydrologic Unit 17110018, 0.3 mi downstream from Linger Longer Road, and near mouth.			06-17-02	184
		NISQUALLY RIVER BASIN				
12089300 Nisqually River	Puget Sound	Lat 46°53'58", long 122°29'48", in NE 1/4 SW 1/4 sec. 1, T. 16 N., R. 2 E., Thurston County, Hydrologic Unit 17110015, 60 ft downstream from diversion dam, and 3.7 mi southeast of McKenna.		2001	10-10-01 07-09-02 08-05-02	562 502 337
		BETWEEN NISQUALLY RIVER AND PUYALL	UP RIVER I	BASINS		
Leach Creek	Chambers Creek	Lat 47°11'55", long 122°31'12", in NE ¹ 4NW ¹ 4 sec.26, T.20 N., R.2 E., Pierce County, Hydrologic Unit 17110019, and 4.2 mi northeast of Steilacoom.		2000-01	10-02-01 12-07-01	6.3 11
		PUYALLUP RIVER BASIN				
Evans Creek	Carbon River	Lat 47°00'13", long 122°00'23", in NE ¹ 4SW ¹ 4 sec.35, T.18 N., R.6 E., Pierce County, Hydrologic Unit 17110014, at Carbon Glacier Road bridge.		1999-2000	11-14-01 04-16-02 06-06-02	97 84 40
	BE	TWEEN SNOHOMISH RIVER AND STILLAGUA	AMISH RIV	ER BASINS		
12157000 Quilceda Creek	Ebey Slough	Lat 48°06'18", long 122°09'42", in NE¼NE¼ sec.9, T.30 N., R.5 E., Snohomish County, Hydrologic Unit 17110011, 50 ft downstream from Middle Fork, and 3.5 mi north of Marysville.	15.4	1946-69‡ 1975-77 2001	10-31-01 11-28-01 12-20-01 01-24-02 02-27-02 03-19-02 04-24-02 05-21-02 06-25-02 07-23-02 09-10-02	28 38 54 56 30 45 23 16 7.1 6.1 4.4

Stream			Drainage	Measured previously	Measu	rements
Stream	Tributary to	Location	area (mi ²)	(water year)	Date	Discharge (ft ³ /s)
12157020 West Fork Quilceda Creek	Quilceda Creek	Lat 48°06'03", long 122°11'05", in SE¼NE¼ sec.8, T.30 N., R.5 E., Snohomish County, Hydrologic Unit 17110011, 200 ft north of county road, and 0.5 mi west of Kruse.	9.41	1946-47‡ 1957 1959-60 1975-77 2001	10-31-01 11-28-01 12-20-01 01-24-02 02-27-02 03-19-02 04-24-02 05-21-02 06-25-02 07-22-02	15 22 37 39 18 30 15 6.8 3.0 2.5
12157030 Unnamed Tributary	Quilceda Creek	Lat 48°04'34", long 122°11'17", in NE½NE½ sec.20, T.30 N., R.5 E., Snohomish County, Hydrologic Unit 17110011, at road crossing at Boeing Test Facility perimeter boundary, 1.4 mi north of Marysville, and 0.8 mi upstream from mouth.	2.88	1975-77 2001	10-31-01 11-29-01 12-21-01 01-23-02 02-27-02 03-19-02 04-24-02 05-21-02 06-25-02 07-22-02	2.1 9.9 8.7 7.2 3.7 6.6 3.6 1.8 0.61 0.20 0.20
12157035 Sturgeon Creek	Quilceda Creek	Lat 48°03'27", long 122°11'47", in NE¼SW¼ sec.29, T.30 N., R.5 E., Snohomish County, Hydrologic Unit 17110011, 0.6 mi west of Marysville, and 0.3 mi upstream from mouth.	1.87	1975-77 2001	10-30-01 11-27-01 12-19-01 01-22-02 02-28-02 03-20-02 04-25-02 05-22-02 06-25-02 07-23-02 09-10-02	0.99 1.4 2.5 4.1 2.4 8.6 1.7 2.1 0.65 0.90 0.65
12157140 Mission Creek below John Sam Lake	Tulalip Bay	Lat 48°06'42", long 122°14'52", in SE¼SE¼ sec.2, T.30 N., R.4 E., Snohomish County, Hydrologic Unit 17110019, Tulalip Indian Reservation, at road crossing 200 ft west of lake outlet, and 3.6 mi northeast of Tulalip.	.33		10-31-01 11-28-01 12-20-01 01-24-02 02-27-02 03-19-02 04-24-02 05-21-02 05-31-02 06-25-02 07-23-02	0 0 1.7 1.1 0.31 1.0 0.37 _e 0.10 _e 0 0
12157150 Mission Creek	Tulalip Bay	Lat 48°05'08", long 122°14'50", in SW1/4SW1/4 sec.13, T.30 N., R.4 E., Snohomish County, Hydrologic Unit 17110019, Tulalip Indian Reservation, 0.2 mi upstream from confluence with unnamed tributary, and 2.3 mi northeast of Tulalip.	1.34	1975-77 2001	10-29-01 11-26-01 12-18-01 01-22-02 02-26-02 03-18-02 04-23-02 05-20-02 06-24-02 07-23-02 09-09-02	0.74 0.84 6.5 4.1 1.4 2.4 1.7 0.93 0.75 0.69

			Drainage	Measured previously	Measu	rements
Stream	Tributary to	Location	area (mi ²)	(water year)	Date	Discharge (ft3/s)
12157170 Unnamed Tributary	Mission Creek	Lat 48°05'00", long 122°14'58", in SE ¹ 4SE ¹ 4 sec.14, T.30 N., R.4 E., Snohomish County, Hydrologic Unit 17110019, Tulalip Indian Reservation, 2.1 mi northeast of Tulalip, and 100 ft upstream from mouth.	1.33	1975-77 2001	10-29-01 11-26-01 12-18-01 01-22-02 02-26-02 03-18-02 04-23-02 05-20-02 06-24-02 07-23-02 09-09-02	0.16 0.46 3.2 1.7 0.98 1.2 0.76 0.26 0.09 _e 0
12157210 Unnamed Tributary	Mission Creek	Lat 48°04'45", long 122°14'36", in NW¹4NW¹4 sec.24, T.30 N., R.4 E., Snohomish County, Hydrologic Unit 17110019, Tulalip Indian Reservation, at road crossing, and 2.4 mi northeast of Tulalip.	1.57	1975-77 2001	10-29-01 11-26-01 12-18-01 01-22-02 02-26-02 03-18-02 04-23-02 05-20-02 06-24-02 07-23-02 09-09-02	0.52 0.56 3.0 1.5 0.96 1.4 1.0 0.47 0.35 0.28 0.32
Unnamed Spring	Mission Creek	Lat 48°03'27", long 122°14'19", in NE½SW½ sec.25, T.30 N., R.4 E., Snohomish County, Hydrologic Unit 17110019, Tulalip Indian Reservation, 1.2 mi north of Priest Point Grange and 2.4 mi northeast of Tulalip.	 ,	1975 2001	10-30-01 11-28-01 12-20-01 01-23-02 02-28-02 03-20-02 04-25-02 05-22-02 06-26-02 07-23-02 09-11-02	0.35 0.83 0.32 0.32 0.20 0.81 0.17 0.27 0.17 0.12
12158001 Tulalip Creek	Tulalip Bay	Lat 48°07'24", long 122°18'24", in NE½NW¼ sec.4, T.30 N., R.4 E., Snohomish County, Hydrologic Unit 17110019, Tulalip Indian Reservation, at Fire Trail Road, 0.3 mi southwes of Lake Shoecraft, and 4.0 mi north of Tulalip.	6.12	1946 1957 1972 1974-77 2001	10-31-01 11-28-01 12-20-01 01-24-02 02-27-02 03-19-02 04-24-02 05-21-02 06-25-02 07-23-02 09-12-02	0.09 _e 3.3 22 7.1 6.8 6.7 3.7 1.8 0 0.10 _e
12158025 East Branch Tulalip Creek	Tulalip Creek	Lat 48°06'47", long 122°15'45", in NE½SW¼ sec.2, T.30 N., R.4 E., Snohomish County, Hydrologic Unit 17110019, at old logging road, 400 ft upstream from Mary Shelton Lake, and 3.5 mi north of Tulalip.	0.80	1974-77 2001	10-31-01 11-28-01 12-20-01 01-24-02 02-27-02 03-19-02 04-24-02 05-21-02 06-25-02 07-23-02 09-12-02	0 0.02 _e 2.0 1.8 0.22 0.70 0.44 0.02 0

			Drainage	Measured previously	Measurements	
Stream	Tributary to	Location	area (mi ²)	(water year)	Date	Discharge (ft ³ /s)
Unnamed Spring	Tulalip Creek	Lat 48°04'58", long 122°16'15", in NE ¹ 4SE ¹ 4 sec.15, T.30 N., R.4 E., Snohomish County, Hydrologic Unit 17110019, and 1.5 mi northeast of Tulalip.		1974-75 2001	10-30-01 11-27-01 12-19-01 01-23-02 02-28-02 03-20-02 04-25-02 05-22-02 06-26-02 07-23-02 09-11-02	0.15 0.15 0.20 0.16 0.12 0.32 0.15 0.18 0.13 0.14
		PEND OREILLE RIVER BASI	N			
12395900 Davis Creek	Pend Oreille River	Lat 48°13'51", long 117°17'14", in NE¼ sec.31, T.32 N., R.44 E., Pend Oreille County, Hydrologic Unit 17010216, at State Highway 311, at outlet of Davis lake, and 2.5 mi southeast of Dalkena.	16.8	1954-73c 1962-63 1965 1969 1977-78	10-04-01	3.5
12396100 Winchester Creek	Calispell Creek	Lat 48°16'52", long 117°21'44", in NW1⁄4 sec.15, T.32 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, at county road around Calispell Lake, and 4.8 mi southwest of Cusick.	16.8	1954-88c 1957‡ 1964-68 1975 1977 1980-88	10-04-01	1.8
Le Clerc Creek	Pend Oreille River	Lat 48°21'19", long 117°16'52", in SW¼NW¼ sec.20, T.35 N., R.44 E., Pend Oreille County, Hydrologic Unit 17010216, at Le Clerc Road crossing, and 700 ft upstream from mouth.	87.7	1977	10-04-01	23
Cee Cee Ah Creek	Pend Oreille River	Lat 48°23'08", long 117°16'14", in SE ¹ /4SW ¹ /4 sec.5, T.33 N., R.44 E., Pend Oreille County, Hydrologic Unit 17010216, at Le Clerc Road crossing, and 1500 ft upstream from mouth.	17.8	1977	10-04-01	2.2
12396450 Little Muddy Creek	Big Muddy Creek	Lat 48°43'58", long 117°25'36", in SW¼ sec.6, T.37 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, and at southwest edg of Ione.	11.3	1954-73c 1962-64 1967-68 1971-73 1977	10-04-01	0.63
		BETWEEN PEND OREILLE RIVER AND KETT	LE RIVER	BASINS		
12399600 Deep Creek	Columbia River	Lat 48°55'47", long 117°44'59", in SE1/4NW1/4 sec.34, T.40 N., R.40 E., Stevens County, Hydrologic Unit 17020001, 2.0 mi northeast of Northport, and 0.5 mi upstream from mouth.	191	1972-75‡ 1976-77 1976-79c	10-04-01	8.5
Little Sheep Creek	Big Sheep Creek	Lat 48°59'10", long 117°49'35", in NW1/4NE1/4 sec.10, T.40 N., R.39 E., Pend Oreille County, Hydrologic Unit 17020001, at county road bridge, and at Velvet.	27.2	1929 1977	10-04-01	1.5
12400500 Big Sheep Creek	Columbia River	Lat 48°56'27", long 117°46'51", in NE¼NE¼ sec.25, T.40 N., R.39 E., Stevens County, Hydrologic Unit 17020001, 1.5 mi north of Northport, and 0.7 mi upstream from mouth.	225	1928-29 1929-42‡ 1948 1977	10-04-01	21

			Drainage area (mi ²)	Measured previously (water year)	Measurements	
Stream	Tributary to				Date	Discharge (ft3/s)
		KETTLE RIVER BASIN				
Boulder Creek	Kettle River	Lat 48°50'10", long 118°11'03", in NW1/4SE1/4 sec.36, T.39 N., R.36 E., Ferry County, Hydrologic Unit 17020002, at Hwy 395 crossing and 2.3 mi southeast of Orient.	101	1971-73 1977	10-05-01	4.0
Deadman Creek	Kettle River	Lat 48°42'27", long 118°07'31", in NW1/4NW1/4 sec.16, T.37 N., R.37 E., Ferry County, Hydrologic Unit 17020002, at Hwy 395 crossing and 0.7 mi southeast of Boyds.	61.8	1914-15 1967 1971-72 1977	10-05-01	4.2
		COLVILLE RIVER BASIN				
12407520 Deer Creek	Colville River	Lat 48°07'06", long 117°47'52", in NW1/4NW1/4 sec.8, T.30 N., R.40 E., Stevens County, Hydrologic Unit 17020003, at county road bridge, 2.0 mi upstream from confluence with Sheep Creek, 5.2 mi southwest of Valley, and at mile 2.0.	36.0	1959-72‡ 1973-79c 1977	10-03-01	5.4
Grouse Creek	Jump Off Joe Lake	Lat 48°08'33", long 117°38'40", in NW1/4SW1/4 sec.33, T.31 N., R.41 E., Spokane County, Hydrologic Unit 17020003, at county road crossing, and 4.4 mi southwest of Valley.	8.19	1959-60 1977	10-02-01	0.64
Bulldog Creek	Colville River	Lat 48°10'06", long 117°43'42", in SE!/4SW1/4 sec.23, T.31 N., R.40 E., Stevens County, Hydrologic Unit 17020003, at Valley, and at mouth.			10-02-01	7.3
Waitts Creek	Colville River	Lat 48°11'04", long 117°45'25", in NW¹4SW¹4 sec.15, T.31 N., R.40 E., Stevens County, Hydrologic Unit 17020003, at Farm to Market Road, near Valley, and 0.9 mi upstream from mouth.			10-02-01	0.11
Waitts Creek	Colville River	Lat 48°11'23", long 117°44'13", in SE½NE¼ sec.15, T.31 N., R.40 E., Stevens County, Hydrologic Unit 17020003, near Valley, and at mouth.			10-02-01	0.18
12407560 Huckleberry Creek	Colville River	Lat 48°12'29", long 117°45'49", in NW1/4NW1/4 sec.9, T.31 N., R.40 E., Stevens County, Hydrologic Unit 17020003, at privately owned bridge, and 3.5 mi northwest of Valley.	41.8	1959-60 1977	10-02-01	0.22
12407580 Cottonwood Creek	Colville River	Lat 48°13'23", long 117°42'13", in NE¼NW¼ sec.1, T.31 N., R.40 E., Stevens County, Hydrologic Unit 17020003, at county road crossing, 4.2 mi south of Chewelah, and 0.4 mi from mouth.	34.1	1977	10-03-01	2.9
North Fork Chewelah Creek	Chewelah Creek	Lat 48°17'25", long 117°43'01", in NE ¹ 4NE ¹ 4 sec.11, T.32 N., R.40 E., Stevens County, Hydrologic Unit 17020003, at road crossing, and 0.6 mi north of Chewelah.	59.6	1957-60 1977	10-03-01	4.8

			Drainage	Measured previously	Measurements	
Stream	Tributary to	Location	area (mi ²)	(water year)	Date	Discharge (ft ³ /s)
South Fork Chewelah Creek	Chewelah Creek	Lat 48°17'25", long 117°42'54", in NE½NE½ sec.11, T.32 N., R.40 E., Stevens County, Hydrologic Unit 17020003, and 0.6 mi north of Chewelah.		1957-58 1977	10-03-01	1.8
East Branch South Fork Chewelah Creek	Chewelah Creek	Lat 48°17'17", long 117°42'52", in NW1/4SW1/4 sec.12, T.32 N., R.40 E., Stevens County, Hydrologic Unit 17020003, at road crossing, and 0.5 mi north of Chewelah.		1957-58 1960 1977	10-03-01	2.0
12407700 Chewelah Creek	Colville River	Lat 48°17'01", long 117°42'50", in SW1/4SW1/4 sec.12, T.32 N., R.40 E., Stevens County, Hydrologic Unit 17020003, 10 ft downstream from small road bridge to highway north of the city park, in northern part of Chewelah, and at mile 2.0.	94.1	1957-74‡ 1977	10-03-01	9.6
12408120 Stranger Creek	Colville River	Lat 48°22'20", long 117°51'29", in NE½SW½ sec.11, T.33 N., R.39 E., Stevens County, Hydrologic Unit 17020003, at county road crossing, and 1.5 mi northwest of Addy.	42.9	1959-60 1977 2001	10-03-01	0.75
12408300 Little Pend Oreille River	Colville River	Lat 48°27'58", long 117°44'53", in NW1/4NE1/4 sec.10, T.34 N., R.40 E., Stevens County, Hydrologic Unit 17020003, 320 ft upstream from abandoned railroad bridge, 0.5 mi downstream from Bear Creek, 6.2 mi east of Arden, 9.2 mi southeast of Colville, and at mile 7.0.	132	1957-75‡ 1976-79c 1977	10-03-01	12
12408420 Haller Creek	Colville River	Lat 48°28'02", long 117°54'24", in SW¹4SW¹4 sec.4, T.34 N., R.39 E., Stevens County, Hydrologic Unit 17020003, 10 ft downstream from county road bridge, and 1.5 mi northwest o Arden.	37.0	1959-70‡ 1971-79c 1977	10-03-01	0.63
12408500 Mill Creek	Colville River	Lat 48°34'44", long 117°51'56", in SW1/4SW1/4 sec.23, T.34 N., R.36 E., Stevens County, Hydrologic Unit 17020003, 5.3 mi downstream from North Fork, 3.0 mi northeast of Colville, and at mile 10.9.	83.0	1939-72‡ 1973-77c 1977 2001	10-05-01	4.8
		BETWEEN COLVILLE RIVER AND SPOKAN	E RIVER B	ASINS		
Barnaby Creek	Franklin D. Roosevelt Lake	Lat 48°26'04", long 118°13'31", in SW1/4NE1/4 sec.23, T.34 N., R.36 E., Ferry County, Hydrologic Unit 17020001, Colville Indian Reservation, 2.6 mi west of Rice, and 0.2 mi upstream from mouth.	45.9	1914 1919 1972-73 1977	10-05-01	2.8
12409500 Hall Creek	Franklin D. Roosevelt Lake	Lat 48°18'41", long 118°12'39", in SE ¹ 4NW ¹ /4 sec.1, T.32 N., R.36 E., Ferry County, Hydrologic Unit 17020002, Colville Indian Reservation, 1,000 ft upstream from county road crossing, and 1.0 mi northwest of Inchelium.	160	1913-29‡ 1967 1973 1977	10-04-01	6.2

Stream		1	Drainage	Measured previously	Measurements	
	Tributary to	Location	area (mi ²)	(water year)	Date	Discharge (ft3/s)
Stranger Creek	Franklin D. Roosevelt Lake	Lat 48°15'52", long 118°16'58", in NW ¹ 4NW ¹ 4 sec.21, T.32 N., R.36 E., Ferry County, Hydrologic Unit 17020001, Colville Indian Reservation, at county road crossing, 600 ft southeast of Meteor, and 4.7 mi southwest of Inchelium.	50.9	1916 1922 1925-28 1977	10-05-01	0.85
Wilmont Creek	Franklin D. Roosevelt Lake	Lat 48°04'34", long 118°19'29", in NW¼NW¼ sec.30, T.30 N., R.36 E., Ferry County, Hydrologic Unit 17020001, Colville Indian Reservation, at road crossing, and 5.9 mi west of Fruitland.	51.1	1967 1971-74 1977	10-16-01	0.02
Nine Mile	Franklin D. Roosevelt Lake	Lat 48°02'50", long 118°26'06", in NW1/4NW1/4 sec.5, T.29 N., R.35 E., Ferry County, Hydrologic Unit 17020001, Colville Indian Reservation, and 11.2 mi west of Fruitland.	106	1971-74 1977	10-16-01	2.6
		SPOKANE RIVER BASIN				
Little Hangman Creek	Hangman Creek	Lat 47°13'35", long 117°04'18", in SW¼SE¼ sec.13, T.20 N., R.45 E., Whitman County, Hydrologic Unit 17010306, at SR 27, in Tekoa, and 0.2 mi upstream from mouth.	64.6 g	1958 1977	10-11-01	0.43
Hangman Creek	Spokane River	Lat 47°13'35", long 117°04'46", in SW1/4NW1/4 sec.13, T.20 N., R.45 E., Whitman County, Hydrologic Unit 17010306, above sewage treatment plant, 0.25 mi below Little Hangman Creek, and at Tekoa.		1967 1977	10-11-01	0.60
12425500 Deep Creek	Spokane River	Lat 47°40'57", long 117°40'34", in SW1/4NE1/4 sec.7, T.25 N., R.41 E., Spokane County, Hydrologic Unit 17010307, at county road crossing, 3.0 mi northeast of Deep Creek, 10 mi west of Spokane, and at mile 14.4.	77.3	1949-50‡ 1977	10-10-01	1.6
12427000 Little Spokane River	Spokane River	Lat 48°01'20", long 117°16'19", in NW1/4SE1/4 sec.8, T.29 N., R.44 E., Spokane County, Hydrologic Unit 17010308, 3.0 mi upstream from Dry Creek, 0.6 mi northeast of Elk, and at mile 37.6.	115	1948-71‡ 1972-79c 1973 1978-80	10-05-01	34
Dry Creek	Little Spokane River	Lat 47°59'11", long 117°17'39", in NW¼NE¼ sec.30, T.29 N., R.44 E., Spokane County, Hydrologic Unit 17010308, at county road crossing, and 2.1 mi northeast of Milan.	20.8	1948-49 1977	10-05-01	2.6
West Branch Little Spokane River	Little Spokane River	Lat 47°59'50", long 117°20'55", in SE¼NE¼ sec.22, T.29 N., R.43 E., Spokane County, Hydrologic Unit 17010308, at road crossing, and 6.8 mi north of Chattaroy.	 I	1977	10-05-01	4.2
12429500 Little Spokane River	Spokane River	Lat 47°53'22", long 117°21'16", in NW1/4NE1/4 sec.34, T.28 N., R.43 E., Spokane County, Hydrologic Unit 17010308, 200 feet downstream from Hwy 2 and Hwy 195, 200 feet upstream from Deer Creek, at Chattaroy, and at mile	301	1948‡ 1952 1955-58 1960-70 1973 1977	10-05-01	66
			23.03	1979-81 1984-89		

Stream			Drainage	Measured previously	Measurements	
	Tributary to		area (mi ²)	(water year)	Date	Discharge (ft ³ /s)
12429600 Deer Creek	Little Spokane River	Lat 47°53'28", long 117°20'06", in SE!/4SW1/4 sec.26, T.28 N., R.43 E., Spokane County, Hydrologic Unit 17010308, at county road, 1 mi east of Chattaroy, and 1 mi upstream from mouth.	31.9	1962-75	10-05-01	0.17
12430100 Dragoon Creek	Little Spokane River	Lat 47°52'34", long 117°22'08", in SE1/4SE1/4 sec.33, T.27 N., R.42 E., Spokane County, Hydrologic Unit 17010308, 1.2 mi southwest of Chattaroy, and at mouth.			10-05-01	17
12430400 Deadman Creek	Little Spokane River	Lat 47°46′53", long 117°21′49", in SE½NW¼ sec.3, T.26 N., R.43 E., Spokane County, Hydrologic Unit 17010308, 1000 ft downstream from Hwy 195, 1.1 mi north of Mead, and at mile 1.8.	94.7 e	1953 1955-58 1960-70 1973 1977	10-05-01	3.2
12430500 Little Deep Creek	Deadman Creek	Lat 47°49'17", long 117°20'44", in SE1⁄4 sec.22, T.27 N., R.43 E., Spokane County, Hydrologic Unit 17010308, at Hwy 395 bridge, 0.5 mi south of Colbert, and at mile 3.5.	31.8	1948‡ 1952-53 1955-58 1960-70 1973 1977	10-05-01	0
Little Chamokane Creek	Spokane River	Lat 47°51'13", long 117°52'44", in NE!4SW!4 sec.10, T.27 N., R.39 E., Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation, 1.7 mi northwest of town of Long Lake, and 0.3 mi from mouth.		1977	10-10-01	0.50
		BETWEEN SPOKANE RIVER AND SANPOIL	RIVER BA	SINS		
Hawk Creek	Franklin D. Roosevelt Lake	Lat 47°48'55", long 118°18'55", in NE!/4NE!/4 sec.30, T.27 N., R.36 E., Lincoln County, Hydrologic Unit 17020001, at county road crossing, 4.6 mi east of Lincoln, and 2.7 mi upstream from mouth.		1977	10-10-01	7.9
		SANPOIL RIVER BASIN				
12434110 West Fork Sanpoil River	Columbia River	Lat 48°27'33", long 118°44'57", in NE!/4SW!/4 sec.11, T.34 N., R.32 E., Ferry County, Hydrologic Unit 17020004, Colville Indian Reservation at Hwy 21 bridge, 13.9 mi south of Republic, and at mile 0.5.	308	1972-74‡ 1975-79c 1977	10-01-01	5.1
12434500 Sanpoil River	Columbia River	Lat 48°06'26", long 118°41'51", in NE ¹ / ₄ NE ¹ / ₄ sec.18, T.30 N., R.33 E., Ferry County, Hydrologic Unit 17020004, Colville Indian Reservation, 0.3 mi upstream from Brush Creek, 2.2. mi north of Keller, and at mile 14.1.	880	1952-55‡ 1956-59c 1972-74‡ 1975-79c 1977	10-01-01	16
		BETWEEN SANPOIL RIVER AND OKANOGA	N RIVER B	ASINS		
12437505 Nespelem River	Columbia River	Lat 48°09'54", long 118°58'46", in SE½SE½ sec.24, T.31 N., R.30 E., Okanogan County, Hydrologic Unit 17020005, Colville Indian Reservation, at county bridge, 0.2 mi downstream from millpond, 3.9 mi upstream from Little Nespelem River, and at Nespelem.	123 n	1972-74‡ 1975-79c 1977 1981-93	10-11-01	7.6

			Drainage	(water	Measurements	
Stream	Tributary to		area (mi ²)		Date	Discharge (ft3/s)
		OKANOGAN RIVER BASIN	[
12442000 Toats Coulee Creek	Sinlahekin Creek	Lat 48°50'01", long 119°41'32", in NE¼SE¼ sec.33, T.39 N., R.25 E., Okanogan County, Hydrologic Unit 17020007, 600 ft upstream from Deer Creek, 1,800 ft upstream from intake of Whitestone Irrigation Canal, 2.8 mi northwest of Loomis, and at mile 2.2.	130	1920-26‡ 1957-70‡ 1971-79c 1975 1977 1979	10-02-01	8.2
12442300 Sinlahekin Creek	Palmer Lake	Lat 48°51'06", long 119°38'53", in SE¼NE¼ sec.26, T.39 N., R.25 E., Okanogan County, Hydrologic Unit 17020007, at road crossing 400 ft upstream from Chopaka Creek, 2.2 mi north o Loomis, and 2 mi upstream from mouth.		1957-65‡ 1977 1979	10-02-01	7.5
Palmer Creek	Similkameen River	Lat 48°55'25", long 119°39'17", in SW½NE½ sec.35, T.40 N., R.25 E., Okanogan County, Hydrologic Unit 17020007, at bridge, 3.2 mi southwest of Nighthawk, and 0.2 mi upstream from mouth.	296	1929-44 1961-62 1967 1970 1973 1977	10-02-01	0.28
Antoine Creek	Okanogan River	Lat 48°45'34", long 119°24'29", in SE¼SE¼ sec.27, T.38 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, at Hwy 97 crossing, 2.1 mi south of Ellisford, and 0.2 mi upstream from mouth.		1970 1973 1977 1979	10-02-01	0.73
Bonaparte Creek	Okanogan River	Lat 48°42'05", long 119°26'29", in NE¼SW¼ sec.16, T.37 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, at Hwy 97 crossing, at Tonasket, and 0.3 mi upstream from mouth.	148	1912 1970 1973 1977 1979	10-02-01	0.36
Aeneas Creek	Okanogan River	Lat 48°39'34", long 119°28'41", in NW1/4SE1/4 sec.31, T.37 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, at county road crossing, and 3.5 mi southwest of Tonasket.		1967 1970-71 1977 1979	10-10-01	2.3
Johnson Creek	Okanogan River	Lat 48°29'33", long 119°32'05", in SW½NW½ sec.35, T.35 N., R.26 E., Okanogan County, Hydrologic Unit 17020006, 1.4 mi southwest of Riverside, and 1.5 mi upstream from mouth.		1977 1979	10-03-01	3.7
Omak Creek	Okanogan River	Lat 48°21'59", long 119°26'46", in NW ¹ 4NW ¹ 4 sec.16, T.33 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, Colville Indian Reservation, and 6.5 mi southeast of Omak.		1976-78	10-03-01	2.6
Loup Loup Creek	Okanogan River	Lat 48°16'58", long 119°42'27", in SW1/4SW1/4 sec.9, T.32 N., R.25 E., Okanogan County, Hydrologic Unit 17020006, at county road crossing, at Malott, and 0.2 mi upstream from mouth.	64.2	1970 1974 1977 1979	10-03-01	0

			Drainage	Measured previously	Measu	rements
Stream	Tributary to	Location	area (mi ²)	(water year)	Date	Discharge (ft ³ /s)
		CHELAN RIVER BASIN				
Fish Creek	Lake Chelan	Lat 48°14'11", long 120°36'54", in SW14SW14 sec.28, T.32 N., R.18 E., Chelan County, Hydrologic Unit 17020009, near Lucerne, and 100 ft upstream of mouth.			10-22-01	6.2 _j
Railroad Creek	Lake Chelan	Lat 48°12'04", long 120°35'36", in NW ¹ / ₄ NW ¹ / ₄ sec.10, T.31 N., R.18 E., Chelan County, Hydrologic Unit 17020009, 10 ft downstream from bridge, and at Lucerne.			10-22-01	54 _j
Prince Creek	Lake Chelan	Lat 48°08'50", long 120°29'46", in NE ¹ / ₄ NE ¹ / ₄ sec.32, T.31 N., R.18 E., Chelan County, Hydrologic Unit 17020009, near Lucerne, and 400 ft upstream from mouth.			10-22-01	9.9 _j
Safety Harbor Creek	Lake Chelan	Lat 48°02'47", long 120°22'30", in SW¼SW¼ sec.32, T.30 N., R.20 E., Chelan County, Hydrologic Unit 17020009, near Lucerne, and 20 ft upstream from mouth.			10-22-01	3.0 _j
12451610 Falls Creek	Lake Chelan	Lat 48°05'08", long 120°19'24", in SE¼NW¼ sec.22, T.30 N., R.20 E., Chelan County, Hydrologic Unit 17020009, Wenatchee National Forest, 150 ft above diversion dam, 16 mi northwest of Mason, and 3.0 mi upstream from mouth.	4.77	1960-69 1977	10-11-01	1.1
12451620 Grade Creek	Lake Chelan	Lat 48°03'36", long 120°15'26", in SE¼SW¼ sec.30, T.30 N., R.21 E., Chelan County, Hydrologic Unit 17020009, Wenatchee National Forest, at road crossing, and 13 mi northwest of Mason.	8.45	1960-69‡ 1973 1977	10-11-01	0.99
North 25 Mile Creek	Lake Chelan	Lat 47°59'33", long 120°15'40", in SE¼SW¼ sec.19, T.29 N., R.21 E., Chelan County, Hydrologic Unit 17020009, at 25 Mile Creek State Park Campground Site #24, and near Manson.			10-29-01	4.9 _j
Poison Creek	Lake Chelan	Lat 48°02'06", long 120°13'06", in SE¼NW¼ sec.4, T.29 N., R.21 E., Chelan County, Hydrologic Unit 17020009, Wenatchee National Forest, and 10.7 mi northwest of Manson.	5.14	1961-68 1973 1977	10-11-01	0.38
12451660 Mitchell Creek	Lake Chelan	Lat 47°59'45", long 120°09'34", in NW¼SW¼ sec.24, T.29 N., R.21 E., Chelan County, Hydrologic Unit 17020009, at road crossing, and 7.5 mi north of Manson.	9.55	1960-69 1973 1977	10-11-01	0
Mitchell Creek	Lake Chelan	Lat 47°58'11", long 120°11'28", in SW¼NE¼ sec.34, T.29 N., R.21 E., Chelan County, Hydrologic Unit 17020009, near Manson, and 40 ft upstream from mouth.			10-22-01	0.76 _j
First Creek	Lake Chelan	Lat 47°52'26", long 120°11'58", in SW¼NE¼ sec.4, T.27 N., R.21 E., Chelan County, Hydrologic Unit 17020009, at South Lakeshore Drive culvert, and near Manson.			10-29-01	3.0 _j

Stream			Drainage	Measured previously	Measurements	
	Tributary to		area (mi ²)	(water year)	Date	Discharge (ft3/s)
		ENTIAT RIVER BASIN				
12452890 Mad River	Entiat River	Lat 47°44'13", long 120°22'03", in NW1/4SE1/4 sec.19, T.26 N., R.20 E., Chelan County, Hydrologic Unit 17020010, 100 ft upstream from concrete diversion, at Moe Ridge Bridge, at Ardenvoir, and 0.35 mi above mouth.	92.4	1999-2001	10-11-01 10-11-01	15 28
		WENATCHEE RIVER BASIN	ſ			
White River	Wenatchee Lake	Lat 47°57'50", long 120°56'35", in SW¼ sec.35, T.29 N., R.15 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, at road crossing, 10.6 mi northwest of Telma, and a mile 15.3.	66.3	1970 1973 1975-77	10-01-01	77
Panther Creek	White River	Lat 47°56'24", long 120°55'41", in SE1/4 sec.11, T.28 N., R.15 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 8.8 mi northwest of Telma, and 100 ft upstream from mouth.	19.1	1911 1975-77	10-02-01	5.7
Napeequa River	White River	Lat 47°55'17", long 120°53'38", in SW¼SE¼ sec.18, T.28 N., R.16 E., Chelan County, Hydrologic Unit 17020011, 6.8 mi northwest of Telma, and 200 ft upstream from mouth.	40.0	1911 1975-77	10-02-01	41
Canyon Creek	White River	Lat 47°54'27", long 120°53'38", in SW¼SE¼ sec.19, T.28 N., R.16 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 6.0 mi northwest of Telma, and about 500 ft upstream from mouth.	4.27	1975-77	10-02-01	0.09
Cady Creek	Little Wenatchee River	Lat 47°54'50", long 121°05'33", in SE1/4 sec.14, T.28 N., R.13 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 15.0 mi northwest of Telma, and 20 ft upstream from mouth.	7.65	1975-77	10-03-01	2.4
Fish Creek	Little Wenatchee River	Lat 47°54'20", long 121°05'04", in NW1/4 sec.24, T.28 N., R.13 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 13.9 mi northwest of Telma, and 80 ft upstream from mouth.	7.92	1975-77	10-03-01	3.0
Lake Creek	Little Wenatchee River	Lat 47°52'35", long 121°02'04", in SW1/4SW1/4 sec.31, T.28 N., R.15 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, at road crossing, 10.9 mi northwest of Telma, and 0.2 mi upstream from mouth.	16.5	1911 1975-77	10-03-01	4.9
Theseus Creek	Little Wenatchee River	Lat 47°52'24", long 121°00'58", in NE¼ sec.6, T.27 N., R.15 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, at road crossing, 11.0 mi northwest of Telma, and 150 ft upstream from mouth.	1.05	1975-77	10-03-01	0.10 _e

			Drainage	Measured previously	Measurements	
Stream	Tributary to	Location	area (mi ²)	(water year)	Date	Discharge (ft ³ /s)
Rainy Creek	Little Wenatchee River	Lat 47°51'02", long 120°57'37", in SW1⁄4 sec.10, T.27 N., R.15 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, at road crossing, 7.2 mi west of Telma, and 0.3 mi upstream from mouth.	17.2	1911 1973 1975-77	10-03-01	10
Little Wenatchee River	Wenatchee Lake	Lat 47°50'02", long 120°50'11", in SE¼SW¼ sec.15, T.27 N., R.15 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 0.8 mi upstream from Wenatchee Lake, and 1.5 mi southwest of Telma.	100	1911-13 1967 1970 1972 1973 1975-77	10-04-01	31
Nason Creek	Wenatchee River	Lat 47°47'26", long 120°42'55", in SE¼SE¼ sec.33, T.27 N., R.17 E., Chelan County, Hydrologic Unit 17020011, Lake Wenatchee State Park, 2.8 mi northeast of Coles Corner, and at mile 1.6.	107 I	1973 1975-77	10-02-01	30
12456000 Phelps Creek	Chiwawa River	Lat 48°04'24", long 120°50'58", in NW1/4 sec.27, T.30 N., R.16 E., Chelan County, Hydrologic Unit 17020011, at road crossing, 16.0 mi north of Telma, and 0.3 mi upstream from mouth. 2001	16.4	1927 1927-31‡ 1948 1975-77	10-04-01	11
Rock Creek	Chiwawa River	Lat 47°58'13", long 120°47'18", in SW1/4NE1/4 sec.36, T.29 N., R.16 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, at road crossing, 8.9 mi north of Telma, and 0.6 mi upstream from mouth.	21.3	1975-77	10-04-01	9.2
Minnow Creek	Chikamin Creek	Lat 47°54'36", long 120°43'11", in NW1/4SE1/4 sec.21, T.28 N., R.17 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 10.9 mi northwest of Plain, and 100 ft upstream from mouth.	3.10	1975-77	10-09-01	0.13
Chikamin Creek	Chiwawa River	Lat 47°54'31", long 120°43'16", in NW¼SE¼ sec.21, T.28 N., R.17 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, at road crossing, 4.2 mi northeast of Telma, and 0.5 mi upstream from mouth.	20.5	1975-77	10-09-01	4.0
12456300 Brush Creek	Chiwawa River	Lat 47°53'20", long 120°43'15", in NW1/4NE1/4 sec.33, T.28 N., R.17 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, at logging road crossing, 6.2 mi northeast of Telma, and 1.0 mi upstream from mouth.		1965-69 1965-75c 1971-72 1976-77	10-04-01	0.23
Big Meadow Creek	Chiwawa River	Lat 47°52'04", long 120°41'44", in NE½SE½ sec.3, T.27 N., R.17 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, at road crossing, 7.5 mi northwest of Plain, and 0.2 mi upstream from mouth.	16.5	1954 1973 1975-77	10-04-01	0.74

	Tributary to		Drainage	Measured previously	Measurements	
Stream		Location	area (mi ²)	(water year)	Date	Discharge (ft3/s)
Alder Creek	Chiwawa River	Lat 47°50′55″, long 120°39′31″, in SW¹4SE¹4 sec.12, T.27 N., R.17 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, at road crossing, 6.0 mi north of Plain, and 0.4 mi upstream from mouth.	16.5	1954 1975-77	10-09-01	0.70
Goose Creek	Chiwawa River	Lat 47°50'21", long 120°38'46", in NW1/4SW1/4 sec.18, T.27 N., R.17 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 5.3 mi north of Plain, and 0.4 mi upstream from mouth.	2.43	1975-77	10-09-01	0.17
Deep Creek	Chiwawa River	Lat 47°49'12", long 120°38'00", in SW1/4SE1/4 sec.19, T.27 N., R.18 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, at road crossing, 4.0 mi northeast of Plain, and 0.3 mi upstream from mouth.	2.82	1975-77	10-10-01	0.27
Beaver Creek	Wenatchee River	Lat 47°45'53", long 120°39'18", in NW¼SE¼ sec.12, T.26 N., R.17 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, at Plain, and 0.3 mi upstream from mouth.	10.0	1910-11 1975-77	10-10-01	1.6
12457500 Chiwaukum Creek	Wenatchee River	Lat 47°40'50", long 120°43'50", in SE½NW½ sec.9, T.25 N., R.17 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 1.0 mi southeast of Chiwaukum, and 0.1 mi upstream from mouth.	49.6	1911‡ 1912-13 1926 1958 1967 1975-77	10-02-01	8.5
Icicle Creek	Wenatchee River	Lat 47°36'46", long 120°56'40", in NW1/4NW1/4 sec.2, T.24 N., R.15 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 100 ft upstream from Black Pine Creek, and 13.3 mi west of Leavenworth.	74.3	1975-77	10-05-01	21
Black Pine Creek	Icicle Creek	Lat 47°36'42", long 120°56'39", in NW1/4NW1/4 sec.2, T.24 N., R.15 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 13.3 mi west of Leavenworth, and 0.1 mi upstream from mouth.		1975-77	10-05-01	0
Jack Creek	Icicle Creek	Lat 47°36'31", long 120°54'26", in NE¼NE¼ sec.1, T.24 N., R.15 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, at end of road, 11.5 mi west of Leavenworth, and near mouth.	29.1	-	10-05-01	7.6
Trout Creek	Icicle Creek	Lat 47°36'23", long 120°53'33", in NW¼ sec.6, T.24 N., R.16 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, at foot trail crossing, 10.7 mi west of Leavenworth and near mouth.	8.43	1911 1975-77	10-05-01	2.7

			Drainage		Measu	Piacharas
Stream	Tributary to	Location	area (mi ²)	(water year)	Date	Discharge (ft ³ /s)
12457900 Chatter Creek	Icicle Creek	Lat 47°36'29", long 120°52'52", in SW1/4NE1/4 sec.5, T.24 N., R.16 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, at Icicle Creek Road, and 11 mi west of Leavenworth.	2.25	1965-69 1966-75c 1971-72 1975-77	10-05-01	0.09
Doctor Creek	Icicle Creek	Lat 47°36'26", long 120°51'54", in SE¼NE¼ sec.5, T.24 N., R.16 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 9.6 mi west of Leavenworth, and 200 ft upstream from mouth.	1.97	1975-77	10-05-01	0
Ida Creek	Icicle Creek	Lat 47°36'26", long 120°50'53", in SW1/4NE1/4 sec.4, T.24 N., R.16 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 8.8 mi west of Leavenworth, and 10 ft upstream from mouth.	1.42	1975-77	10-05-01	0.02
Johnny Creek	Icicle Creek	Lat 47°35'54", long 120°49'01", in NW1/4SW1/4 sec.2, T.24 N., R.16 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 7.4 mi west of Leavenworth, and 25 ft upstream from mouth.	1.24	1975-77	10-05-01	0.43
Bridge Creek	Icicle Creek	Lat 47°33'41", long 120°46'44", in NE¼NE¼ sec.24, T.24 N., R.16 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 6.1 mi west of Leavenworth, and 50 ft upstream from mouth.	1.16	1975-77	10-10-01	0.16
Chumstick Creek	Wenatchee River	Lat 47°36'18", long 120°38'50", in SE¼NE¼ sec.1, T.24 N., R.17 E., Chelan County, Hydrologic Unit 17020011, 0.8 mi northeast of Leavenworth, and 0.2 mi upstream from mouth.	79.3	1975-77	10-09-01	1.3
Derby Canyon	Wenatchee River	Lat 47°34'11", long 120°35'10", in SE¼SE¼ sec.16, T.24 N., R.18 E., Chelan County, Hydrologic Unit 17020011, 0.8 mi east of Peshastin, and 0.1 mi upstream from mouth.	12.6	1975-77	10-09-01	0
Scotty Creek	Peshastin Creek	Lat 47°22'40", long 120°38'41", in SW¼SE¼ sec.24, T.22 N., R.17 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 3.2 mi south of Blewett, and 100 ft upstream from mouth.	7.15	1975-77	10-10-01	0.10
Shaser Creek	Peshastin Creek	Lat 47°23'28", long 120°39'28", in SW1/4SW1/4 sec.13, T.22 N., R.17 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 2.2 mi south of Blewett, and 40 ft upstream from mouth.	8.92	1975-77	10-10-01	0.51
12459400 Tronsen Creek	Peshastin Creek	Lat 47°20'24", long 120°33'59", in NE¼SW¼ sec.3, T.21 N., R.18 E., Chelan County, Hydrologic Unit 17020011, at forest campground, 0.6 mi northeast of Swauk Pass, an 17 mi south of Peshastin.	3.96 d	1959 1960c 1962-74c 1966-67 1969 1972 1974-77	10-10-01	0.15

			Drainage	Measured inage previously	Measurements	
Stream	Tributary to	Location	area (mi ²)	(water year)	Date	Discharge (ft3/s)
Negro Creek	Peshastin Creek	Lat 47°26'37", long 120°39'38", in NE ¹ / ₄ SW ¹ / ₄ sec.36, T.23 N., R.17 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 9.2 mi southwest of Peshastin, and 30 ft upstream from mouth.	12.2	1911 1975-77	10-10-01	1.9
Ingalls Creek	Peshastin Creek	Lat 47°27'48", long 120°39'38", in SE½NW¼ sec.25, T.23 N., R.17 E., Chelan County, Hydrologic Unit 17020011, 9.4 mi south of Leavenworth, and 300 ft upstream from mouth.	36.8	1911 1973 1975-77	10-10-01	11
Hansel Creek	Peshastin Creek	Lat 47°28'17", long 120°39'21", in NW¼SE¼ sec.24, T.23 N., R.17 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 7.3 mi south of Peshastin, and 50 ft upstream from mouth.	3.76	1927 1975-77	10-10-01	0.35
Peshastin Creek	Wenatchee River	Lat 47°33'09", long 120°36'07", in NW¼NW¼ sec.28, T.24 N., R.18 E., Chelan County, Hydrologic Unit 17020011, at road crossing, 1.3 mi south of Peshastin, and 1.4 mi upstream from mouth.	133	1904 1914 1948 1975-77	10-10-01	16
12461100 East Fork Mission Creek	Mission Creek	Lat 47°22'51", long 120°29'16", in NE1/4SW1/4 sec.20, T.22 N., R.19 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National forest, at U.S. Forest Service road crossing, and 9.7 mi south of Cashmere.	15.4	1955-61 1955-74c 1963 1965-67 1974-78	10-09-01	0.19
12461500 Sand Creek	Mission Creek	Lat 47°25'48", long 120°30'25", in SW¼NE¼ sec.6, T.22 N., R.19 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 6.5 mi south of Cashmere, and 60 ft upstream from mouth.	18.6	1954-56‡ 1954c 1957 1957-73c 1959-60 1963 1965 1967 1970 1973 1975-77	10-09-01	0.27
12462000 Mission Creek	Wenatchee River	Lat 47°31'00", long 120°28'30", in NW1/4NW1/4 sec.9, T.23 N., R.19 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, 0.4 mi downstream from former gage, and 1.0 mi south of Cashmere.		1954-58‡ 1954c 1959 1959-73c 1965 1967 1975-77	10-09-01	0
		BETWEEN WENATCHEE RIVER AND CRAB	CREEK BA	ASINS		
12462800 Moses Creek	Douglas Creek	Lat 47°37'03", long 120°00'27", in NE1/4SE1/4 sec.36, T.25 N., R.22 E., Douglas County, Hydrologic Unit 17020012, at county road, and 0.3 mi southeast of Douglas.	15.4	1955c 1957-75c 1965 1976-77	10-04-01	0.21

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water year)	Measurements	
					Date	Discharge (ft ³ /s)
12463000 Douglas Creek	Columbia River	Lat 47°35'02", long 120°01'19", in SW1/4SW1/4 sec.12, T.24 N., R.22 E., Douglas County, Hydrologic Unit 17020012, 1.5 mi northwest of Alstown, and 2.9 mi south of Douglas.	99.9	1949-55‡ 1956-60c 1963-68‡ 1977	10-04-01	0.26
Douglas Creek	Columbia River	Lat 47°25'12", long 119°54'56", in NW¼NW¼ sec.11, T.22 N., R.23 E., Douglas County, Hydrologic Unit 17020012, at road bridge, 350 f west of post office, and at Palisades.	197 t	1948 1977	10-04-01	2.5
		CRAB CREEK BASIN				
12464800 Coal Creek	Crab Creek	Lat 47°24'25", long 118°19'04", in SE ¹ / ₄ SE ¹ / ₄ sec.7, T.22 N., R.36 E., Lincoln County, Hydrologic Unit 17020013, 0.3 mi east of Mohler, and at mile 0.3.	64.7	1963-74‡ 1975-79c 1977 1985	10-01-01	0.41
Goose Creek	Wilson Creek	Lat 47°45'25", long 118°42'08", in NE ¹ 4NE ¹ 4 sec.18, T.26 N., R.33 E., Lincoln County, Hydrologic Unit 17020013, in city park, at Wilbur, and 4.5 mi from mouth.	52.0	1977	10-01-01	0
Corbett Draw	Wilson Creek	Lat 47°39'52", long 118°55'35", in SE¼NW¼ sec.16, T.25 N., R.31 E., Lincoln County, Hydrologic Unit 17020013, 3 mi south of Almira, and 1000 ft upstream from mouth.	119	1976-77	10-01-01	2.0
12465400 Wilson Creek	Crab Creek	Lat 47°39'47", long 118°55'46", in SW¼NW¼ sec.16, T.25 N., R.31 E., Lincoln County, Hydrologic Unit 17020013, 65 ft downstream from Corbett Draw, and 3.5 mi south of Almira.	327	1969-71‡ 1972-79c 1977 1985	10-01-01	0.13
		YAKIMA RIVER BASIN				
Gold Creek	Keechelus Lake	Lat 47°23'28", long 121°22'52", in NE¼SE¼ sec.15, T.22 N., R.11 E., Kittitas County, Hydrologic Unit 17030001, Wenatchee National Forest, between Interstate 90 bridges, and 0.5 mi east of Hyak.	14.0	1906 1910 1960 1968 1970 1973	10-01-01	8.5
12474700 Mosquito Creek	Yakima River	Lat 47°17'32", long 121°19'23", in SE¼ sec.22, T.21 N., R.12 E., Kittitas County, Hydrologic Unit 17030001, at Forest Service road, 2.0 mi southeast of Keechelus Dam, and 8 mi northwest of Easton.	1.07	1968-77c 1969-75 1977	10-01-01	0.09
12475000 Cabin Creek	Yakima River	Lat 47°14'23", long 121°13'34", in NW1/4SE1/4 sec.9, T.20 N., R.13 E., Kittitas County, Hydrologic Unit 17030001, and 2.2 mi west of Easton.	29.3	1904 1907-09 1909-11‡ 1912-15 1958 1967 1970	10-01-01	1.2

			Drainage	Measured previously	Measurements	
Stream	Tributary to	Location	area (mi ²)	(water year)	Date	Discharge (ft3/s)
Big Creek	Yakima River	Lat 47°12'44", long 121°06'09", in SE ¹ /4NW ¹ /4 sec.21, T.20 N., R.14 E., Kittitas County, Hydrologic Unit 17030001, at Interstate 90, and 3.5 mi southeast of Easton.	27.4	1909-10 1912 1967 1970 1973 1976-77	10-01-01	0.10 _e
Paris Creek	Cle Elum River	Lat 47°24'55", long 121°04'49", in NW¼NW¼ sec.10, T.22 N., R.14 E., Kittitas County, Hydrologic Unit 17030001, Wenatchee National Forest, 1.2 mi northeast of Salmon la Sac Guard Station, and 0.4 mi upstream from mouth.	3.90	1970 1973 1977	10-03-01	1.4
Cle Elum River	Yakima River	Lat 47°24'02", long 121°05'40", in NE¼NW¼ sec.16, T.22 N., R.14 E., Kittitas County, Hydrologic Unit 17030001, at Salmon la Sac Campground, 1.5 mi downstream from Waptus River, and 4.0 mi upstream from Cle Elum Lake.		1977	10-03-01	50
12480000 Teanaway River	Yakima River	Lat 47°15'03", long 120°52'18", in SW1/4SW1/4 sec.5, T.20 N., R.16 E., Kittitas County, Hydrologic Unit 17030001, 0.4 mi upstream from Story Creek, 0.5 mi downstream from North Fork, 5.0 mi northeast of Cle Elum, and 9.6 mi upstream from mouth.	172	1911-12‡ 1968-73‡ 1974-77c 1977	10-03-01	12
Manastash Creek	Yakima River	Lat 46°58'02", long 120°41'02", in NW¹4NW¹4 sec.14, T.17 N., R.17 E., Kittitas County, Hydrologic Unit 17030001, about 500 ft upstream from road crossing 0.2 mi upstream from Reed Canyon, about 1 mi upstream from entrance to Manastash Canyon, and 6.5 mi southwest of Ellensburg.		1977	10-01-01	4.9
Wenas Creek	Yakima River	Lat 46°50'14", long 120°43'02", in NW¼NW¼ sec.33, T.16 N., R.17 E., Yakima County, Hydrologic Unit 17030001, 200 ft downstream from road crossing, 2.0 mi upstream from Wenas Lake, and 8 mi north of Naches.		1967 1973 1977	10-04-01	0.96
Rattlesnake Creek	Naches River	Lat 46°49'10", long 120°56'07", in SE¼ sec.3, T.15 N., R.15 E., Yakima County, Hydrologic Unit 17030002, 200 ft upstream from road crossing, 50 ft upstream from diversion, 0.5 mi northwest of Nile, and 0.3 mi upstream from mouth	134	1904 1910 1912 1922-23 1963 1967 1970	10-02-01	12
North Fork Tieton River	Naches River	Lat 46°37'14", long 121°18'01", Yakima County, Hydrologic Unit 17030002, unsurveyed, 0.5 mi upstream from Clear Lake, at county road bridge and 6 mi east of White Pass.			10-02-01	36
12491700 Hause Creek	Tieton River	Lat 46°40'33", long 121°04'49", in NE¼ sec.28, T.14 N., R.14 E., Yakima County, Hydrologic Unit 17030002, at State Highway 14, 0.1 mi wes of Tieton Ranger Station, and 2.5 mi east of Rimrock.	3.91	1955-88c 1967 1969 1971 1976-85	10-02-01	0.01 _e

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

				Measured previously	Measurements	
Stream	Tributary to	Location	Drainage area (mi ²)	(water year)	Date	Discharge (ft ³ /s)
Naches River	Yakima River	Lat 46°44'54", long 120°46'34", in SE½NW¼ sec.36, T.15 N., R.16 E., Yakima County, Hydrologic Unit 17030002, 0.4 mi downstream from mouth of Tieton River, and 4 miles west of Naches.			08-15-02	194
Naches River	Yakima River	Lat 46°44'38", long 120°45'41", in NE¼SE¼ sec.36, T.15 N., R.16 E., Yakima County, Hydrologic Unit 17030002, 1.25 mi downstream from mouth of Tieton River, and 3.2 mi west of Naches.			08-15-02	253
Naches River	Yakima River	Lat 46°43'28", long 120°41'55", in SW¼SW¼ sec.3, T.14 N., R.17 E., Yakima County, Hydrologic Unit 17030002, 100 ft downstream from Naches-Tieton Rd bridge, and 0.5 mi south of Naches.			08-15-02	141
Naches River	Yakima River	Lat 46°38'15", long 120°36'18", in SE¼SW¼ sec.5, T.13 N., R.18 E., Yakima County, Hydrologic Unit 17030002, 1 mi upstream from Hwy 12 bridge, and 1.5 mi south of Gleed.			08-15-02	414
Naches River	Yakima River	Lat 46°37'37", long 120°31'23", in NW ¹ / ₄ SW ¹ / ₄ sec.12, T.13 N., R.18 E., Yakima County, Hydrologic Unit 17030002, 2 mi south of Selah, and 0.6 mi upstream from mouth.			08-16-02	381
12506300 North Fork Simcoe Creek	Simcoe Creek	Lat 46°27'27", long 120°52'06", in SW1/4NE1/4 sec.7, T.11 N., R.16 E., Yakima County, Hydrologic Unit 17030003, just upstream from diversion, 8.3 mi from White Swan, and 0.9 mi upstream from mouth.	24.8	1971-72‡ 1977 1980	10-04-01	3.7 _h
12506330 South Fork Simcoe Creek	Simcoe Creek	Lat 46°26'41", long 120°53'09", in NE¼NE¼ sec.13, T.11 N., R.15 E., Yakima County, Hydrologic Unit 17030003, 8.6 mi northwest of White Swan, and 1.3 mi upstream from mouth.	16.2	1971-72‡ 1977	10-04-01	2.7 _h
Logy Creek	Satus Creek	Lat 46°13'03", long 120°29'35", in SE¼SW¼ sec.31, T.9 N., R.19 E., Yakima County, Hydrologic Unit 17030003, 14.5 mi southwest o Toppenish, and 1.3 mi upstream from mouth.	97.5 f	1974 1977	10-04-01	12 _h
12508480 Dry Creek	Satus Creek	Lat 46°15'15", long 120°24'09", in SE¼NW¼ sec.23, T.9 N., R.19 E., Yakima County, Hydrologic Unit 17030003, at U.S. Highway 97 crossing, 10 mi southwest of Toppenish, and 0.8 mi upstream from mouth.	157	1971-74‡ 1977 1985	10-04-01	$0_{\rm i}$
		SNAKE RIVER BASIN				
13349400 Pine Creek	Rock Creek	Lat 47°12'24", long 117°30'14", in NW1/4NE1/4 sec.27, T.20 N., R.42 E., Whitman County, Hydrologic Unit 17060109, 1.0 mi east of Pine City, and 2.3 mi west of Malden.	302 f	1961-75‡ 1976-78c 1977-78	10-09-01	2.6

			Drainage	-	Measurements	
Stream	Tributary to	Location	area (mi ²)	(water year)	Date	Discharge (ft3/s)
13350500 Union Flat Creek	Palouse River	Lat 46°48'37", long 117°25'52", in NW¼NW¼ sec.8, T.15 N., R.43 E., Whitman County, Hydrologic Unit 17060108, 20 ft upstream from county road bridge, 6.0 mi southwest of Colfax, and at mile 32.3.	189	1953-71‡ 1972-78c 1977-78 1984 1994	10-09-01	1.6
13352500 Cow Creek	Palouse River	Lat 46°45'46", long 118°08'46", in NW¼NW¼ sec.26, T.15 N., R.37 E., Adams County, Hydrologic Unit 17060108, on county road bridge, 0.5 mile north of Hooper, and 0.5 mi upstream from mouth.	679	1951-54‡ 1962-70‡ 1971-79c 1975 1977-78	10-05-01	2.9
		WALLA WALLA RIVER BASI	N			
Russell Creek	Yellowhawk Creek	Lat 46°01'46", long 118°20'37", in SW¼NW¼ sec.5, T.6 N., R.36 E., Walla Walla County, Hydrologic Unit 17070102, at county road crossing, 0.2 mi west of Langdon, and 0.1 mi upstream from mouth.		1970-73 1977	10-04-01	0
Cottonwood Creek	Yellowhawk Creek	Lat 46°01'33", long 118°20'42", in NW¼SE¼ sec.6, T.6 N., R.36 E., Walla Walla County, Hydrologic Unit 17070102, at county road crossing, 0.4 mi southwest of Langdon, and 1.0 mi upstream from mouth.		1970-73 1977	10-04-01	0
Mill Creek	Walla Walla River	Lat 46°02'31", long 118°28'11", in SE ¹ 4NW ¹ /4 sec., Walla Walla County, Hydrologic Unit 17070102, at county road bridge, 0.1 mi upstream from Doan Creek, 0.4 mi west of Whitman Mission, and 0.4 mi upstream from mouth.		1973-75 1977	10-04-01	3.6
	I	BETWEEN WALLA WALLA RIVER AND KLICK	ITAT RIVEI	R BASINS		
Glade Creek	Columbia River	Lat 45°53'40", long 119°41'31", in NW1/4NE1/4 sec.28, T.5 N., R.25 E., Benton County, Hydrologic Unit 17070101, at State Highway 14 crossing, 5.5 mi southwest of Patterson, and 0.5 mi upstream from mouth.	428	1977	10-03-01	18
14034325 Alder Creek	Columbia River	Lat 45°59'49", long 120°16'31", in NE¼NW¼ sec.23, T.6 N., R.20 E., Klickitat County, Hydrologic Unit 17070101, at county road, and 1.3 mi east of Patterson.	8.35	1963-77c 1964-65 1967 1973-75 1977 1985	10-04-01	0
Wood Gulch	Columbia River	Lat 45°45'00", long 120°11'58", in SW1/4SW1/4 sec.9, T.3 N., R.21 E., Klickitat County, Hydrologic Unit 17070101, 0.7 mi northwest of Roosevelt, and 0.2 mi upstream from mouth.	60.0	1977 1985	10-03-01	0
Rock Creek	Columbia River	Lat 45°50'31", long 120°31'49", in SW1/4SW1/4 sec.11, T.4 N., R.18 E., Klickitat County, Hydrologic Unit 17070101, at county road crossing, and 15 mi northeast of Goldendale.	67.6	1977 1985	10-03-01	0.25

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

			Drainage	Measured previously	Measurements		
Stream	Tributary to	Location	area (mi ²)	(water year)	Date	Discharge (ft ³ /s)	
Rock Creek River T.3		Lat 45°44'55", long 120°26'04", in NE¼ sec.16, T.3 N., R.19 E., Klickitat County, Hydrologic Unit 17070101, at county highway bridge.	213	1962-68‡ 1973 1977	10-03-01	0	
		KLICKITAT RIVER BASIN					
McCreedy Creek	Klickitat River	Lat 46°19'21", long 121°15'06", in SE¼NE¼ sec.25, T.10 N., R.12 E., Yakima County, Hydrologic Unit 17070106, Yakama Nation Reservation, 21.2 mi north of Glenwood, and 30 ft upstream from mouth.	18.0	1973 1977	10-04-01	34 _h	
14106500 Pearl Creek	Klickitat River	Lat 46°18'42", long 121°15'36", in NE¼NW¼ sec.36, T.10 N., R.12 E., Yakima County, Hydrologic Unit 17070106, Yakama Nation Reservation, 20.5 mi north of Glenwood, and at mouth.	4.31	1916‡ 1973 1977	10-03-01	0.18 _h	
14108500 Cunningham Creek	Klickitat River	Lat 46°10'48", long 121°17'08", in NW1/4SE1/4 sec.15, T.8 N., R.12 E., Yakima County, Hydrologic Unit 17070106, Yakama Nation Reservation, 11.2 mi north of Glenwood, and 0.8 mi upstream from mouth.	15.4	1916‡ 1973 1977	10-03-01	6.7	
Outlet Creek	Klickitat River	Lat 46°00'59", long 121°11'20", in SE½SW½ sec.9, T.6 N., R.13 E., Klickitat County, Hydrologic Unit 17070106, 0.9 mi upstream from Outlet Falls, and 4.8 mi east of Glenwood.	128	1974-75 1977	10-04-01	4.3	
Summit Creek	Klickitat River	Lat 45°59'19", long 121°07'23", in SW¼SE¼ sec.24, T.6 N., R.13 E., Klickitat County, Hydrologic Unit 17070106, 9.6 mi southeast of Glenwood, and 0.2 mi upstream from mouth.	44.8	1974-75 1977 1985	10-04-01	7.6	
14112000 Little Klickitat River	Klickitat River	Lat 45°50'40", long 120°47'42", in NE¼SW¼ sec.10, T.4 N., R.16 E., Klickitat County, Hydrologic Unit 17070106, 400 ft upstream from State Highway 97 bridge, and 2.1 mi northeast of Goldendale.	83.5	1910-12‡ 1946-51‡ 1957-70‡ 1971-78c 1973 1975-78 1985	10-02-01	0.3	

- 1	No data	or undetermined.
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[‡] Operated as a continuous-record gaging site.

a Not previously published.

b Annual maximum discharge only. c Operated as a crest-stage gage.

e Estimated.

f Includes 281 sq mi in Washington.

g Includes 19.9 sq mi in Washington.

h Data provided by Yakama Nation.

i Data provided by Bureau of Reclamation.j Data provided by US Forest Service.

k Data provided by Jefferson County PUD.

BENTON COUNTY

462913119362102. Local number, 12N/26E-31C01D1.

LOCATION.--Lat 46°29'13", long 119°36'21", Hydrologic Unit 17030003, near Richland.

Owner: U.S. Department of Energy, Hanford Site Well 699-17-70.

AQUIFER .-- Middle Part of Ringold Formation of Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation well, water table, diameter 8 in, depth 125 ft.

DATUM.--Elevation of land-surface datum is 561.18 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; perforated 8 in diameter casing from 75 to 125 ft, water level measured in 8 in casing. This well was originally 286 ft deep and was back-filled to 125 ft in July 1978. Water levels were measured in the original well (12N/26E-31C01) from November 1958 to December 1977. The gradual water-level rise exhibited by the reconstructed well may result from leakage across the plug at the top of the backfill material, and therefore not represent a true water-level trend in the aquifer.

PERIOD OF RECORD .-- December 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest static water level measured, 86.0 ft below land-surface datum, May 13, June 27, and Aug. 12, 2002; lowest measured, 87.8 ft below land-surface datum, Dec. 1, 1978, Dec. 1, 1980, and Dec. 1, 1981.

WATER LEVEL. IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
NOV 14	86.1	FEB 11	86.1	MAY 13	86.0	AUG 12	86.0
DEC 28	86.1	MAR 28	86.1	JUN 27	86.0	SEP 30	86.1

COLUMBIA COUNTY

461935118081501. Local number, 10N/37E-23R01.

LOCATION.--Lat 46°19'34", long 118°08'14", Hydrologic Unit 17070102, near Dayton.

Owner: Joe McCown

AQUIFER .-- Grande Ronde Basalt of the Yakima Basalt Subgroup of the Columbia River Basalt Group of Miocene Age.

WELL CHARACTERISTICS .-- Drilled unused irrigation well, water table, diameter 6 in, depth 103 ft.

DATUM.--Elevation of land-surface datum is 1,390 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; uncertain, probably 6 in diameter open end casing at 103 ft., water level measured in 6 in casing

PERIOD OF RECORD.--June 1968 to November 1973. September 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest static water level measured, 24.40 ft below land-surface datum, Sept. 8, 1997; lowest measured, 41.28 ft below land-surface datum, June 25, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Water Level	Date	Water Level	Date	Water Level		
NOV 5 JAN 1	37.95 37.60	MAR 21	38.24	MAY 10	37.50	JUL 3	37.56

LINCOLN COUNTY

473442118162201. Local number, 24N/36E-16A01.

LOCATION.--Lat 47°34'41", long 118°16'27", Hydrologic Unit 17020013, near Davenport.

Owner: Washington State, Department of Ecology.

AQUIFER .-- Wanapum Basalt of the Yakima Basalt Subgroup of the Columbia River Basalt of Miocene Age.

WELL CHARACTERISTICS.--Drilled observation well, water-table, diameter 10 in, depth 117 ft.

DATUM.--Elevation of land-surface datum is 2,372 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; 10 in diameter open hole from 75 to 117 ft, water level measured in 10 in casing. A pressure transducer and data logger were installed on Feb. 1, 1998. Water levels were recorded at 4-hour intervals. The water levels below are average daily values for the dates given. PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest static water level measured, 26.57 ft below land-surface datum, April 9, 1997; lowest measured, 52.15 ft below land-surface datum, Sept. 23, 1992.

	Water		Water		Water		Water
Date	Level	Date	Level	Date	Level	Date	Level
OCT 5	37.8	FEB 15	36.4	MAY 5	34.8	JUL 20	35.9
OCT 10	37.9	FEB 20	35.7	MAY 10	34.9	JUL 25	36.0
OCT 15	38.1	FEB 25	35.2	MAY 15	34.9	JUL 30	36.1
OCT 20	38.0	FEB 28	35.0	MAY 20	34.8	AUG 5	36.3
OCT 25	38.2	MAR 5	34.9	MAY 25	34.8	AUG 10	36.4
OCT 30	38.2	MAR 10	35.1	MAY 30	35.0	AUG 15	36.5
NOV 5	38.2	MAR 15	34.9	JUN 5	35.1	AUG 20	36.6
NOV 10	38.4	MAR 20	35.1	JUN 10	35.1	AUG 25	36.8
NOV 15	38.4	MAR 25	34.7	JUN 15	35.1	AUG 30	36.9
NOV 20	38.3	MAR 30	34.8	JUN 20	35.2	SEP 5	37.0
NOV 25	38.0	APR 5	34.7	JUN 25	35.4	SEP 10	37.2
NOV 26	38.3	APR 10	34.8	JUN 30	35.4	SEP 15	37.2
JAN 31	36.3	APR 15	34.6	JUL 5	35.5	SEP 20	37.5
FEB 6	36.3	APR 20	34.8	JUL 10	35.6	SEP 25	37.6
FEB 8	36.4	APR 25	34.8	JUL 15	35.7	SEP 30	37.6
FEB 10	36.5	APR 30	34.7				

473442118162202. Local number, 24N/36E-16A02.

LOCATION.--Lat 47°34'41", long 118°16'27", Hydrologic Unit 17020013, near Davenport.

Owner: Washington State, Department of Ecology.

AQUIFER .-- Wanapum Basalt of the Yakima Basalt Subgroup of the Columbia River Basalt of Miocene Age.

WELL CHARACTERISTICS .-- Drilled observation well, confined, diameter 10 in, depth 160 ft.

DATUM.--Elevation of land-surface datum is 2,372 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; 10 in diameter open hole from 123 to 160 ft, water level measured in 1.25 in diameter piezometer.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.62 ft below land-surface datum, Apr. 9, 1997; lowest measured, 52.2 ft below land-surface datum, Sept. 23, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
OCT 18 JAN 31	38.1 36.3	FEB 6	36.2	APR 18	34.95	JUL 31	36.25

473442118162203. Local number, 24N/36E-16A03.

LOCATION.--Lat 47°34'41", long 118°16'27", Hydrologic Unit 17020013, near Davenport.

Owner: Washington State, Department of Ecology.

AQUIFER .-- Wanapum Basalt of the Yakima Basalt Subgroup of the Columbia River Basalt of Miocene Age.

WELL CHARACTERISTICS .-- Drilled observation well, confined, diameter 10 in, depth 224 ft.

DATUM.--Elevation of land-surface datum is 2,372 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; 10 in diameter open hole from 208 to 224 ft, water level measured in 1.25 in diameter piezometer.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest static water level measured, 26.58 ft below land-surface datum, Apr. 9, 1997; lowest measured 52.24 ft below land-surface datum, Sept. 23. 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
OCT 18 IAN 31	38.1 36.3	FEB 6	36.3	APR 18	34.95	JUL 31	36.25

473442118162204. Local number, 24N/36E-16A04.

LOCATION.--Lat 47°34'41", long 118°16'27", Hydrologic Unit 17020013, near Davenport.

Owner: Washington State, Department of Ecology.

AQUIFER .-- Wanapum Basalt of the Yakima Basalt Subgroup of the Columbia River Basalt of Miocene Age.

WELL CHARACTERISTICS .-- Drilled observation well, confined, diameter 10 in, depth 261 ft.

DATUM.--Elevation of land-surface datum is 2,372 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; 10 in diameter open hole from 242 to 261 ft, water level measured in 1.25 in diameter piezometer.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest static water level measured, 26.04 ft below land-surface datum, Apr. 9, 1997; lowest measured, 52.28 ft below land-surface datum, Sept. 23, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
OCT 18 JAN 31	38.3 36.5	FEB 6	36.4	APR 18	35.10	JUL 31	36.3

473442118162205. Local number, 24N/36E-16A05.

LOCATION.--Lat 47°34'41", long 118°16'27", Hydrologic Unit 17020013, near Davenport.

Owner: Washington State, Department of Ecology.

AQUIFER.--Wanapum and Grande Ronde Basalts of the Yakima Basalt Subgroup of the Columbia River Basalt of Miocene Age.

 $WELL\ CHARACTERISTICS. -- Drilled\ observation\ well,\ confined,\ diameter\ 10\ in,\ depth\ 365\ ft.$

DATUM.--Elevation of land-surface datum is 2,372 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; 10 in diameter open hole from 315 to 365 ft, water level measured in 1.25 in diameter piezometer.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest static water level measured, 27.90 ft below land-surface datum, May 1, 1974; lowest measured, 57.55 below land-surface datum, Sept. 23, 1992.

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
OCT 18 JAN 31	39.5 39.6	FEB 6	39.6	APR 18	38.60	JUL 31	38.50

473442118162206. Local number, 24N/36E-16A06.

LOCATION.--Lat 47°34'41", long 118°16'27", Hydrologic Unit 17020013, near Davenport.

Owner: Washington State, Department of Ecology.

AQUIFER .-- Grande Ronde Basalt of the Yakima Basalt Subgroup of the Columbia River Basalt of Miocene Age.

WELL CHARACTERISTICS.--Drilled observation well, confined, diameter 10 in, depth 491 ft.

DATUM.--Elevation of land-surface datum is 2,372 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; 10 in diameter open hole from 451 to 491 ft, water level measured in 1.25 in diameter piezometer.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest static water level measured, 29.6 ft below land-surface datum Feb. 6, 1998; lowest measured, 87.9 ft below land-surface datum, Sept. 8, 1971.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
OCT 18 JAN 31	37.0 37.7	FEB 6	37.6	APR 18	38.12	JUL 31	38.84

473442118162207. Local number, 24N/36E-16A07.

LOCATION .-- Lat 47°34'41", long 118°16'27", Hydrologic Unit 17020013, near Davenport.

Owner: Washington State, Department of Ecology.

AQUIFER .-- Grande Ronde Basalt of the Yakima Basalt Subgroup of the Columbia River Basalt of Miocene Age.

WELL CHARACTERISTICS .-- Drilled observation well, confined, diameter 10 in, depth 635 ft.

DATUM.--Elevation of land-surface datum is 2,372 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; 10 in diameter open hole from 590 to 635 ft, water level measured in 1.25 in diameter piezometer.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest static water level measured, 161.17 ft below land-surface datum Mar. 22, 1972; lowest measured, 217.88 ft below land-surface datum, July 26, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

	Water		Water		Water		Water
Date	Level	Date	Level	Date	Level	Date	Level
OCT 18 JAN 31	199.61 194.25	FEB 6	193.65	APR 18	191.72	JUL 31	198.92

473442118162208. Local number, 24N/36E-16A08.

LOCATION.--Lat 47°34'41", long 118°16'27", Hydrologic Unit 17020013, near Davenport.

Owner: Washington State, Department of Ecology.

AQUIFER.--Grande Ronde Basalt of the Yakima Basalt Subgroup of the Columbia River Basalt of Miocene Age.

WELL CHARACTERISTICS .-- Drilled observation well, confined, diameter 10 in, depth 750 ft.

DATUM.--Elevation of land-surface datum is 2,372 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; 10 in diameter open hole from 728 to 750 ft, water level measured in 1.25 in diameter piezometer.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest static water level measured, 161.52 ft below land-surface datum, Mar. 22, 1972; lowest measured, 217.93 ft below land-surface datum, July 26, 1994.

	Water		Water		Water		
Date	Level	Date	Level	Date	Level	Date	Level
OCT 18 JAN 31	199.6 194.2	FEB 6	193.8	APR 18	191.72	JUL 31	198.90

GROUND-WATER LEVELS

OKANOGAN COUNTY

482252120134501. Local number, 33N/21E-09D02

LOCATION.--Lat 48°22'52.2",long 120°13'45.4", Hydrologic Unit 17020008, near Twisp.

Owner: Washington State, Department of Fish and Wildlife.

AQUIFER .-- Unidentified gravel unit of Pleistocene Age and unindentified shale unit of Cretaceous Age.

WELL CHARACTERISTICS.--Drilled observation well, water table/confined, diameter 6 in, depth 61 ft.

INSTRUMENTATION .-- A non-submersible pressure transducer and data logger.

DATUM.--Elevation of land-surface datum is 2000.4 feet above NGVD of 1929.

REMARKS.--Monitored depth interval; 6 in diameter open hole from 53-61 ft.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest static water level measured, 41.2 ft below land-surface datum, May 25-28, 2002; lowest measured, 43.4 ft below land-surface datum, Dec. 27-29, Jan. 4-7, Jan. 9 to Mar. 26, 2002.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42.7	43.0	43.3	43.3	43.4	43.4	43.3	43.0	42.1	42.5	42.7	43.0
2	42.7	43.0	43.3	43.3	43.4	43.4	43.3	43.0	42.1	42.5	42.7	43.0
3	42.7	43.0	43.3	43.3	43.4	43.4	43.3	43.0	42.1	42.5	42.7	43.0
4	42.7	43.0	43.3	43.4	43.4	43.4	43.3	43.0	42.1	42.5	42.7	43.0
5	42.8	43.1	43.3	43.4	43.4	43.4	43.2	42.9	42.1	42.5	42.8	43.0
6	42.8	43.1	43.3	43.4	43.4	43.4	43.2	42.8	42.2	42.5	42.8	43.1
7	42.8	43.1	43.3	43.4	43.4	43.4	43.2	42.8	42.2	42.5	42.8	43.1
8	42.8	43.1	43.3	43.3	43.4	43.4	43.2	42.8	42.2	42.5	42.8	43.1
9	42.8	43.1	43.3	43.4	43.4	43.4	43.2	42.7	42.2	42.5	42.8	43.1
10	42.8	43.1	43.3	43.4	43.4	43.4	43.2	42.6	42.2	42.5	42.8	43.1
11	42.8	43.1	43.3	43.4	43.4	43.4	43.2	42.5	42.3	42.5	42.8	43.1
12	42.8	43.1	43.3	43.4	43.4	43.4	43.2	42.4	42.3	42.5	42.8	43.1
13	42.8	43.1	43.3	43.4	43.4	43.4	43.2	42.3	42.3	42.5	42.8	43.1
14	42.8	43.1	43.3	43.4	43.4	43.4	43.2	42.2	42.3	42.5	42.9	43.1
15	42.8	43.1	43.3	43.4	43.4	43.4	43.2	42.1	42.3	42.5	42.9	43.1
16	42.8	43.1	43.3	43.4	43.4	43.4	43.2	42.1	42.3	42.5	42.9	43.1
17	42.8	43.2	43.3	43.4	43.4	43.4	43.2	42.0	42.3	42.5	42.9	43.1
18	42.9	43.2	43.3	43.4	43.4	43.4	43.2	42.0	42.4	42.5	42.9	43.2
19	42.9	43.2	43.3	43.4	43.4	43.4	43.2	41.9	42.4	42.5	42.9	43.2
20	42.9	43.2	43.3	43.4	43.4	43.4	43.2	41.9	42.4	42.5	42.9	43.2
21	42.9	43.2	43.3	43.4	43.4	43.4	43.1	41.9	42.4	42.5	43.0	43.2
22	42.9	43.2	43.3	43.4	43.4	43.4	43.1	41.9	42.4	42.5	43.0	43.2
23	42.9	43.2	43.3	43.4	43.4	43.4	43.1	41.9	42.4	42.5	43.0	43.2
24	42.9	43.2	43.3	43.4	43.4	43.4	43.1	41.9	42.4	42.6	43.0	43.2
25	43.0	43.2	43.3	43.4	43.4	43.4	43.1	41.9	42.4	42.6	43.0	43.2
26	43.0	43.2	43.3	43.4	43.4	43.4	43.1	41.9	42.4	42.6	43.0	43.2
27	43.0	43.2	43.4	43.4	43.4	43.3	43.1	41.9	42.4	42.6	43.0	43.2
28	43.0	43.2	43.4	43.4	43.4	43.3	43.1	41.9	42.4	42.6	43.0	43.2
29	43.0	43.2	43.4	43.4		43.3	43.1	42.0	42.4	42.6	43.0	43.3
30	43.0	43.3	43.3	43.4		43.3	43.1	42.0	42.4	42.6	43.0	43.3
31	43.0		43.3	43.4		43.3		42.0		42.7	43.0	
MEAN	42.9	43.1	43.3	43.4	43.4	43.4	43.2	42.3	42.3	42.5	42.9	43.1
MAX	43.0	43.3	43.4	43.4	43.4	43.4	43.3	43.0	42.4	42.7	43.0	43.3
MIN	42.7	43.0	43.3	43.3	43.4	43.3	43.1	41.9	42.1	42.5	42.7	43.0

482246120134101. Local number, 33N/21E-09D03.

LOCATION.--Lat 48°22'46.2", long 120°13'41.0", Hydrologic Unit 17020008, near Twisp.

Owner: Washington State, Department of Fish and Wildlife.

AQUIFER.-- Unidentified sand and gravel unit of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled observation well, confined, diameter 6 in, depth 38 ft.

INSTRUMENTATION .-- A non-submersible pressure tranducer and data logger.

DATUM.--Elevation of land-surface datum is 1,964.8 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; perforated 6 in diameter casing from 33 to 38 ft.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest static water level measured, 26.1 ft below land-surface datum, May 25, 2001; lowest measured, 30.9 ft below land-surface datum, Feb. 13-19, 2002.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.8	30.4	30.6	30.7		30.7	30.4	30.1	26.6	27.4	27.6	28.5
2	28.8	30.4	30.6	30.7	30.8	30.7	30.4	29.9	26.6	27.4	27.7	28.4
3	28.9	30.4	30.6	30.7	30.8	30.7	30.4	29.8	26.7	27.4	27.8	28.5
4	28.9	30.5	30.6	30.7	30.8	30.7	30.4	29.7	26.7	27.4	27.8	28.5
5	29.0	30.5	30.6	30.7	30.8	30.7	30.3	29.6	26.7	27.4	27.9	28.5
6	29.0	30.5	30.6	30.8	30.8	30.7	30.3	29.5	26.8	27.4	27.9	28.5
7	29.0	30.5	30.7	30.8	30.8	30.7	30.3	29.4	26.8	27.4	28.0	28.6
8	29.1	30.5	30.7	30.7	30.8	30.7	30.3	29.3	26.9	27.4	28.0	28.6
9	29.1	30.6	30.7	30.7	30.8	30.7	30.3	29.2	27.0	27.4	28.1	28.6
10	29.1	30.6	30.7	30.7	30.8	30.7	30.3	29.0	27.0	27.4	28.1	28.7
11	29.1	30.6	30.7	30.7	30.8	30.7	30.3	28.8	27.0	27.4	28.1	28.7
12	29.1	30.6	30.7	30.7	30.8	30.7	30.3	28.6	27.0	27.4	28.1	28.7
13	29.2	30.6	30.7	30.7	30.9	30.7	30.3	28.2	27.0	27.3	28.2	28.8
14	29.2	30.6	30.6	30.7	30.9	30.7	30.3	27.9	27.0	27.3	28.2	28.8
15	29.2	30.6	30.7	30.7	30.9	30.7	30.3	27.5	27.0	27.3	28.2	28.8
16	29.3	30.6	30.7	30.8	30.9	30.7	30.3	27.3	27.0	27.3	28.2	28.9
17	29.4	30.6	30.6	30.8	30.9	30.7	30.2	27.0	27.1	27.3	28.3	28.9
18	29.5	30.6	30.7	30.8	30.9	30.7	30.2	26.8	27.2	27.3	28.3	28.9
19	29.6	30.6	30.7	30.8	30.9	30.7	30.2	26.7	27.2	27.3	28.3	28.9
20	29.8	30.5	30.7	30.8	30.8	30.7	30.2	26.5	27.3	27.3	28.4	28.9
21	29.9	30.5	30.7	30.8	30.8	30.7	30.3	26.4	27.3	27.3	28.4	28.9
22	30.0	30.5	30.7	30.8	30.8	30.7	30.3	26.4	27.3	27.4	28.5	29.0
23	30.0	30.5	30.7	30.8	30.8	30.7	30.3	26.4	27.3	27.4	28.5	29.0
24	30.1	30.6	30.7	30.8	30.8	30.7	30.3	26.4	27.3	27.4	28.5	29.0
25	30.2	30.6	30.7	30.8	30.7	30.7	30.2	26.4	27.3	27.4	28.5	29.1
26	30.2	30.6	30.7	30.8	30.7	30.6	30.2	26.3	27.3	27.4	28.4	29.1
27	30.2	30.6	30.8	30.8	30.7	30.6	30.2	26.3	27.3	27.4	28.4	29.1
28	30.3	30.6	30.8	30.8	30.7	30.6	30.3	26.3	27.3	27.5	28.4	29.1
29	30.3	30.6	30.7	30.8		30.6	30.3	26.4	27.3	27.5	28.5	29.1
30	30.3	30.6	30.7	30.8		30.6	30.3	26.4	27.3	27.5	28.5	29.1
31	30.4		30.7	30.8		30.5		26.5		27.6	28.4	
MEAN	29.5	30.6	30.7	30.8	30.8	30.7	30.3	27.8	27.1	27.4	28.2	28.8
MAX	30.4	30.6	30.8	30.8	30.9	30.7	30.4	30.1	27.3	27.6	28.5	29.1
MIN	28.8	30.4	30.6	30.7	30.7	30.5	30.2	26.3	26.6	27.3	27.6	28.4

482224120115401. Local number, 33N/21E-10L02.

LOCATION.--Lat 48°22'24.3", long 120°11'54.9", Hydrologic Unit 17020008, near Twisp.

Owner: Chris and Pat Christianson.

AQUIFER .-- Unidentified sand and gravel unit of Pleistocene Age and unidentified shale unit of Cretaceous-Jurassic Age.

WELL CHARACTERISTICS.--Drilled observation well, confined, diameter 6 in, depth 80 ft.

 $INSTRUMENTATION. \hbox{--} A non-submersible pressure tranducer and data logger. \\$

DATUM.--Elevation of land-surface datum is 1,851.1 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; 6 in diameter open hole from 78 to 80 ft.

PERIOD OF RECORD.--April 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest static water level measured, 29.5 ft below land-surface datum, June 15-16, 2002; lowest measured, 33.7 ft below land-surface datum, Nov. 7-13, 2001.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32.6	33.5	33.5	33.5		33.0	32.4	31.8	29.8	30.1	30.9	31.8
2	32.8	33.5	33.5	33.5	33.5	33.0	32.4	31.7	30.0	30.2	30.9	31.8
3	32.8	33.6	33.5	33.5	33.5	33.0	32.4	31.6	30.0	30.3	30.9	31.8
4	32.9	33.6	33.5	33.5	33.5	33.0	32.4	31.7	30.0	30.3	30.9	31.8
5	32.9	33.6	33.5	33.5	33.5	33.0	32.3	31.7	29.8	30.4	30.9	31.8
6	32.8	33.6	33.5	33.5	33.5	33.0	32.3	31.8	29.7	30.4	30.9	31.7
7	32.9	33.7	33.5	33.5	33.5	33.0	32.2	31.8	29.9	30.3	31.0	31.7
8	32.9	33.7	33.5	33.4	33.5	33.0	32.2	31.9	30.0	30.2	31.1	31.6
9	32.9	33.7	33.5	33.4	33.4	33.0	32.2	31.9	30.1	30.3	31.1	31.7
10	32.9	33.7	33.4	33.4	33.4	32.9	32.2	32.0	30.2	30.3	31.1	31.7
11	32.9	33.7	33.4	33.4	33.4	32.9	32.1	32.0	30.2	30.3	31.2	31.6
12	33.0	33.7	33.5	33.4	33.4	32.9	32.1	32.0	30.0	30.3	31.3	31.7
13	33.0	33.7	33.4	33.4	33.4	32.9	32.0	31.9	29.9	30.4	31.3	31.7
14	33.0	33.6	33.4	33.5	33.4	32.9	31.8	31.8	29.6	30.4	31.3	31.7
15	33.1	33.5	33.5	33.5	33.4	32.8	31.8	31.7	29.5	30.4	31.3	31.8
16	33.1	33.5	33.4	33.5	33.4	32.8	31.8	31.5	29.5	30.5	31.3	31.8
17	33.1	33.6	33.4	33.5	33.4	32.8	31.8	31.4	29.6	30.5	31.4	31.7
18	33.2	33.6	33.4	33.5	33.3	32.8	31.9	31.1	29.7	30.4	31.5	31.7
19	33.2	33.6	33.4	33.5	33.3	32.8	31.9	31.0	29.8	30.4	31.6	31.7
20	33.2	33.5	33.4	33.4	33.3	32.8	31.9	30.7	29.8	30.5	31.6	31.7
0.1	22.2	22 5	22.4	22.4	22.2	20.0	21.0	20 5	00.0	20.6	21.6	21.0
21	33.3	33.5	33.4	33.4	33.3	32.8	31.9	30.5	29.8	30.6	31.6	31.8
22	33.3	33.5	33.4	33.5	33.3	32.8	31.9	30.5	29.7	30.6	31.6	32.0
23	33.3	33.5	33.4	33.5	33.1	32.8	31.9	30.5	29.8	30.6	31.6	32.0
24	33.3	33.5	33.5	33.4	33.0	32.7	31.9	30.5	29.8	30.6	31.7	32.0
25	33.4	33.5	33.5	33.4	33.1	32.6	31.9	30.5	29.9	30.6	31.6	32.0
26	33.4	33.5	33.5	33.5	33.0	32.5	31.9	30.4	29.9	30.6	31.6	31.9
27	33.4	33.5	33.5	33.5	33.0	32.5	31.9	30.2	29.8	30.6	31.6	31.8
28	33.5	33.5	33.5	33.5	33.0	32.5	32.0	29.9	29.8	30.7	31.7	31.9
29	33.5	33.5	33.5	33.5		32.5	31.9	29.7	29.9	30.7	31.7	32.0
30	33.5	33.5	33.5	33.5		32.4	31.9	29.6	30.0	30.8	31.8	32.1
31	33.5		33.5	33.4		32.4		29.7		30.8	31.8	
MEAN	33.1	33.6	33.5	33.5	33.3	32.8	32.0	31.1	29.9	30.5	31.3	31.8
MAX	33.5	33.7	33.5	33.5	33.5	33.0	32.4	32.0	30.2	30.8	31.8	32.1
MIN	32.6	33.5	33.4	33.4	33.0	32.4	31.8	29.6	29.5	30.1	30.9	31.6
T-ITIM	22.0	55.5	33.4	JJ.4	33.0	32.7	J1.0	20.0	20.5	JU.1	30.5	51.0

482221120115601. Local number, 33N/21E-10L03.

LOCATION.--Lat 48°22'22.1", long 120°11'55.8", Hydrologic Unit 17020008, near Twisp.

Owner: Chris and Pat Christianson.

AQUIFER .-- Unidentified sand and gravel unit of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled observation well, confined, diameter 6 in, depth 38 ft.

INSTRUMENTATION.--A non-submersible pressure tranducer and data logger.

REMARKS.--Monitored depth interval; 6 in diameter open end casing at 38 ft.

DATUM.--Elevation of land-surface datum is 1,830.1 ft above NGVD of 1929.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest static water level measured, 8.5 ft below land-surface datum, June 16-17, 2002; lowest measured, 12.4 ft below land-surface datum, May 9, 2001.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.4	12.1	12.1	12.1	12.2	11.9	11.3	10.8	8.8	9.0	9.8	10.8
2	11.5	12.1	12.1	12.1	12.2	11.9	11.3	10.6	8.8	9.1	9.8	10.8
3	11.6	12.2	12.1	12.1	12.3	11.9	11.3	10.6	8.9	9.2	9.8	10.8
4	11.6	12.2	12.1	12.1	12.3	11.9	11.3	10.6	8.9	9.2	9.8	10.8
5	11.7	12.2	12.1	12.1	12.3	11.9	11.3	10.6	8.9	9.3	9.9	10.8
6	11.7	12.2	12.1	12.2	12.3	11.9	11.2	10.6	8.7	9.3	9.9	10.8
7	11.7	12.2	12.1	12.2	12.3	11.9	11.2	10.6	8.8	9.3	9.9	10.8
8	11.7	12.2	12.1	12.2	12.3	11.8	11.2	10.6	8.8	9.3	9.9	10.7
9	11.7	12.2	12.1	12.1	12.3	11.8	11.1	10.7	8.9	9.3	10.0	10.7
10	11.7	12.3	12.1	12.1	12.3	11.8	11.1	10.7	9.0	9.3	10.0	10.7
11	11.7	12.3	12.1	12.1	12.3	11.8	11.1	10.8	9.1	9.3	10.1	10.7
12	11.7	12.3	12.1	12.1	12.3	11.8	11.1	10.8	9.1	9.4	10.1	10.7
13	11.8	12.3	12.1	12.2	12.3	11.8	11.0	10.8	9.0	9.4	10.2	10.7
14	11.8	12.3	12.1	12.2	12.3	11.8	10.8	10.7	8.8	9.4	10.2	10.7
15	11.8	12.2	12.1	12.2	12.2	11.8	10.7	10.6	8.6	9.4	10.2	10.8
16	11.8	12.2	12.1	12.3	12.2	11.7	10.7	10.6	8.5	9.4	10.3	10.8
17	11.8	12.2	12.1	12.3	12.2	11.7	10.7	10.4	8.5	9.5	10.3	10.8
18	11.9	12.2	12.1	12.3	12.2	11.7	10.7	10.4	8.6	9.5	10.3	10.8
19	11.9	12.2	12.1	12.3	12.2	11.7	10.8	10.2	8.6	9.5	10.3	10.8
20	11.9	12.2	12.1	12.2	12.2	11.7	10.8	9.8	8.7	9.5	10.4	10.8
20	11.9	12.2	12.0	12.2	12.2	11.7	10.6	9.0	0.7	9.5	10.5	10.6
21	11.9	12.2	12.0	12.2	12.2	11.7	10.8	9.6	8.8	9.5	10.5	10.8
22	12.0	12.2	12.0	12.2	12.2	11.7	10.8	9.6	8.8	9.6	10.6	10.8
23	12.0	12.1	12.0	12.2	12.0	11.7	10.8	9.6	8.8	9.6	10.6	10.8
24	12.0	12.2	12.0	12.2	11.9	11.7	10.8	9.6	8.8	9.6	10.6	10.9
25	12.0	12.2	12.0	12.2	11.9	11.5	10.8	9.6	8.8	9.6	10.6	10.9
26	12.0	12.2	12.0	12.2	11.9	11.4	10.8	9.5	8.8	9.6	10.6	10.9
27	12.0	12.2	12.1	12.2	11.9	11.4	10.8	9.4	8.8	9.6	10.7	10.9
28	12.0	12.2	12.1	12.2	11.9	11.4	10.8	9.1	8.9	9.7	10.7	10.9
29	12.1	12.2	12.1	12.3		11.4	10.8	8.8	9.0	9.7	10.7	10.9
30	12.1	12.2	12.1	12.3		11.4	10.9	8.7	9.0	9.7	10.7	10.9
31	12.1		12.1	12.2		11.3		8.7		9.7	10.8	
31	14.1		14.1	14.4		11.3		0.7		2.1	10.0	
MEAN	11.8	12.2	12.1	12.2	12.2	11.7	11.0	10.1	8.8	9.4	10.3	10.8
MAX	12.1	12.3	12.1	12.3	12.3	11.9	11.3	10.8	9.1	9.7	10.8	10.9
MIN	11.4	12.1	12.0	12.1	11.9	11.3	10.7	8.7	8.5	9.0	9.8	10.7

 $482213120103601.\ Local\ number,\ 33N/21E-11P03.$

LOCATION.--Lat 48°22'13.2", long 120°10'36.7", Hydrologic Unit 17020008, near Twisp.

Owner: Connie and Barry Swanson.

AQUIFER .-- Unidentified igneous rock of Cretaceous-Jurassic Age.

WELL CHARACTERISTICS.--Drilled unused well, confined, diameter 6 in, depth 160 ft.

 $INSTRUMENTATION. \hbox{--} A non-submersible pressure tranducer and data logger. \\$

DATUM.--Elevation of land-surface datum is 1,825.6 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; 6 in diameter open hole from 101-160 ft.

PERIOD OF RECORD .-- April 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest static water level measured, 76.8 ft below land-surface datum, Aug. 19 and Sept. 29, 2002; lowest measured, 85.2 ft below land-surface datum, May 2-3, 2001.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78.8	80.0	81.0	82.1	82.7	82.8	83.1	83.4	82.0	79.6	77.4	77.0
2	78.8	80.1	81.0	82.1	82.7	82.9	83.1	83.2	81.9	79.5	77.3	77.0
3	78.8	80.1	81.2	82.1	82.7	82.9	83.0	83.3	81.9	79.3	77.3	77.0
4	78.8	80.0	81.3	82.2	82.7	82.8	83.0	83.3	81.8	79.3	77.2	77.0
5	78.8	80.1	81.3	82.2	82.6	82.7	82.9	83.3	81.7	79.3	77.2	77.0
6	78.7	80.2	81.3	82.1	82.5	82.8	82.8	83.4	81.6	79.2	77.2	77.0
7	78.7	80.4	81.5	82.1	82.5	82.8	82.8	83.4	81.5	79.1	77.2	76.9
8	78.7	80.4	81.4	82.1	82.6	82.9	82.8	83.4	81.4	79.0	77.2	77.0
9	78.9	80.4	81.4	82.2	82.8	83.0	82.7	83.3	81.3	79.0	77.1	77.0
10	78.9	80.4	81.4	82.3	82.7	82.9	82.8	83.3	81.2	78.8	77.0	77.0
11	78.9	80.4	81.4	82.4	82.8	82.7	82.8	83.2	81.2	78.7	77.0	76.9
12	78.8	80.4	81.5	82.2	82.9	82.7	82.8	83.2	81.1	78.6	77.0	76.9
13	78.8	80.4	81.3	82.3	82.7	82.8	82.8	83.2	81.1	78.4	77.0	76.9
14	78.9	80.5	81.3	82.3	82.9	82.9	82.7	83.1	81.0	78.4	76.9	76.9
15	79.0	80.5	81.5	82.3	82.9	82.9	82.8	83.0	80.8	78.4	76.9	76.9
16	79.0	80.6	81.4	82.4	82.8	82.8	82.8	82.9	80.7	78.3	76.9	76.9
17	79.1	80.8	81.6	82.4	82.6	82.9	82.9	82.8	80.6	78.2	76.9	77.0
18	79.1	80.9	81.7	82.5	82.6	83.0	83.0	82.7	80.5	78.2	76.9	77.1
19	79.0	80.8	81.8	82.4	82.6	83.0	82.9	82.6	80.4	78.1	76.8	77.0
20	79.0	80.7	81.7	82.3	82.8	83.1	82.8	82.5	80.3	78.1	76.9	77.0
21	79.0	80.7	81.8	82.3	82.8	83.1	82.9	82.5	80.2	78.1	76.9	77.1
22	79.1	80.6	81.9	82.3	82.7	83.0	82.8	82.5	80.1	78.0	77.0	77.1
23	79.3	80.8	82.0	82.4	82.6	82.9	82.9	82.5	80.0	77.9	77.0	77.0
24	79.5	80.7	82.1	82.4	82.8	83.0	82.9	82.4	79.9	77.8	77.0	77.0
25	79.6	80.6	82.1	82.3	82.8	83.0	82.9	82.3	79.8	77.8	77.0	77.0
26	79.7	80.9	82.1	82.3	82.8	83.0	82.9	82.3	79.7	77.6	77.0	76.9
27	79.7	81.0	82.0	82.4	82.7	83.0	83.1	82.3	79.5	77.6	77.0	76.9
28	79.9	80.8	82.0	82.5	82.7	83.0	83.5	82.2	79.4	77.6	77.0	76.9
29	80.0	80.9	82.1	82.6		83.0	83.5	82.2	79.4	77.6	76.9	76.8
30	79.9	81.0	82.1	82.6		83.1	83.5	82.1	79.5	77.5	76.9	76.9
31	79.8		82.1	82.6		83.0		82.1		77.5	77.0	
MEAN	79.1	80.5	81.6	82.3	82.7	82.9	82.9	82.8	80.7	78.4	77.0	77.0
MAX	80.0	81.0	82.1	82.6	82.9	83.1	83.5	83.4	82.0	79.6	77.4	77.1
MIN	78.7	80.0	81.0	82.1	82.5	82.7	82.7	82.1	79.4	77.5	76.8	76.8

482212120104001. Local number, 33N/21E-11P04.

LOCATION. -- Lat~48°22'12.0", long~120°10'40.0", Hydrologic~Unit~17020008, near~Twisp.

Owner: Connie and Barry Swanson.

AQUIFER.-- Unidentified sand and gravel unit of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled observation well, confined, diameter 6 in, depth 30 ft.

INSTRUMENTATION .-- A non-submersible pressure tranducer and data logger.

DATUM.--Elevation of land-surface datum is 1,748.9 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; perforated 6 in diameter casing from 25 to 30 ft.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest static water level measured, 5.9 ft below land-surface datum, May 30 and June 16, 2002; lowest measured, 8.7 ft below land-surface datum, Dec. 30, 2001 to Jan.7, 2002, and Feb. 20, 21, 2002.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	8.4	8.6	8.7	8.4	8.4	7.8	7.5	6.1	6.6	7.6	7.9
2	8.2	8.5	8.6	8.7	8.5	8.4	7.8	7.3	6.1	6.8	7.7	7.9
3	8.3	8.5	8.6	8.7	8.6	8.4	7.8	7.2	6.1	6.9	7.7	7.9
4	8.3	8.5	8.6	8.7	8.6	8.4	7.9	7.2	6.1	7.0	7.7	7.9
5	8.3	8.5	8.6	8.7	8.6	8.4	7.9	7.2	6.0	7.0	7.7	7.9
6	8.2	8.5	8.6	8.7	8.6	8.4	7.8	7.2	6.0	7.1	7.7	7.8
7	8.2	8.5	8.6	8.7	8.6	8.4	7.8	7.2	6.1	7.1	7.7	7.8
8	8.2	8.6	8.6	8.6	8.6	8.4	7.8	7.2	6.3	7.0	7.7	7.8
9	8.2	8.6	8.6	8.6	8.6	8.4	7.8	7.2	6.4	7.0	7.8	7.8
10	8.2	8.6	8.6	8.6	8.6	8.4	7.8	7.2	6.5	7.0	7.8	7.8
11	8.2	8.6	8.6	8.6	8.7	8.4	7.8	7.3	6.5	7.0	7.8	7.9
12	8.2	8.6	8.6	8.6	8.6	8.4	7.8	7.3	6.4	7.0	7.8	7.9
13	8.2	8.6	8.6	8.6	8.6	8.4	7.7	7.2	6.3	7.0	7.8	8.0
14	8.2	8.6	8.6	8.6	8.5	8.4	7.6	7.2	6.1	7.0	7.9	8.0
15	8.2	8.6	8.6	8.6	8.5	8.4	7.5	7.1	6.0	7.1	7.9	8.0
16	8.2	8.5	8.6	8.6	8.6	8.4	7.5	7.0	5.9	7.1	8.0	8.0
17	8.2	8.5	8.6	8.5	8.6	8.4	7.5	7.0	6.1	7.2	8.0	8.0
18	8.2	8.6	8.6	8.4	8.6	8.4	7.5	6.9	6.2	7.2	8.0	8.0
19	8.3	8.5	8.6	8.4	8.6	8.4	7.5	6.8	6.4	7.3	8.0	8.0
20	8.3	8.5	8.5	8.4	8.7	8.4	7.5	6.7	6.5	7.3	8.0	8.0
21	8.3	8.5	8.5	8.5	8.7	8.4	7.5	6.5	6.5	7.3	8.0	7.9
22	8.3	8.5	8.6	8.5	8.6	8.4	7.5	6.5	6.5	7.4	8.0	7.9
23	8.3	8.5	8.6	8.4	8.5	8.4	7.6	6.5	6.5	7.4	8.0	7.9
24	8.3	8.5	8.6	8.3	8.5	8.4	7.6	6.6	6.5	7.5	8.0	7.9
25	8.3	8.5	8.6	8.4	8.5	8.2	7.5	6.6	6.5	7.5	8.0	8.0
26	8.3	8.5	8.6	8.4	8.4	8.1	7.6	6.5	6.5	7.5	7.8	8.0
27	8.3	8.6	8.6	8.5	8.4	8.1	7.6	6.5	6.4	7.5	7.9	7.9
28	8.4	8.5	8.6	8.5	8.4	8.0	7.6	6.3	6.4	7.5	7.9	7.9
29	8.4	8.6	8.6	8.6		7.9	7.6	6.0	6.4	7.6	7.9	7.9
30	8.4	8.6	8.7	8.5		7.9	7.6	5.9	6.5	7.6	7.9	7.9
31	8.4		8.7	8.4		7.8		6.0		7.6	7.9	
MEAN	8.3	8.5	8.6	8.5	8.6	8.3	7.7	6.9	6.3	7.2	7.9	7.9
MAX	8.4	8.6	8.7	8.7	8.7	8.4	7.9	7.5	6.5	7.6	8.0	8.0
MIN	8.2	8.4	8.5	8.3	8.4	7.8	7.5	5.9	5.9	6.6	7.6	7.8

PIERCE COUNTY

471137122304701. Local number, 20N/02E-26C01.

LOCATION.--Lat 47°11'45.4", long 122°30'55.4", Hydrologic Unit 17110019, in Tacoma.

Owner: Meadow Park Golf Course, City of Tacoma.

AQUIFER .-- Unidentified sand and gravel unit of Pleistocene Age.

WELL CHARACTERISTICS .-- Drilled irrigation well, confined, diameter 10 in, depth 157 ft.

DATUM.--Elevation of land-surface datum is 242 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; 10 in diameter screen from 142 to 157 ft, water level measured in 10 in casing. Measurements made by Tom Higgins,

Meadow Park employee.

PERIOD OF RECORD.--November 1974, April 1989 to September 1990, February 2000 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest static water level measured, 19.00 ft below land-surface datum, Feb. 15, 2000; lowest measured, 44.34 ft below land-surface datum, June 30, 2000.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

	Water		Water		Water		Water
Date	Level	Date	Level	Date	Level	Date	Level
OCT 1	24.20	JAN 18	19.43	APR 30	32.90	SEP 27	30.82
DEC 5	20.45	MAR 28	31.70	JUL 18	38.81		

471148122305501. Local number, 20N/02E-26C02.

LOCATION.--Lat 47°11'47.6", long 122°30'55.2", Hydrologic Unit 17110019, in Tacoma.

Owner: Meadow Park Golf Course, City of Tacoma.

AQUIFER .-- Unidentified sand and gravel unit of Pleistocene Age.

WELL CHARACTERISTICS .-- Drilled irrigation well, confined, diameter 12 in, depth 265.5 ft.

DATUM .-- Elevation of land-surface datum is 250 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; 10 in diameter screens from 218.5 to 233.5 ft, 240.5 to 245.5 ft, and 250.5 to 260.5 ft, water level measured in 12 in casing. Measurements made by Tom Higgins, Meadow Park employee.

PERIOD OF RECORD.--October 1989 to June 1990, February 2000 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest static water level measured, 27.86 ft below land-surface datum, Mar. 31, 2000; lowest measured, 54.67 ft below land-surface datum, June 30, 2000.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

	Water		Water		Water		Water
Date	Level	Date	Level	Date	Level	Date	Level
OCT 1	33.42R	JAN 18	28.17	APR 30) 42.79	SEP 27	40.51
DEC 5	5 28.77	MAR 28	41.39	JUL 18			
DEC 3	20.77	MAK 20	41.39	JUL 10	32.00	K – Well	recently pumped

471032122292701. Local number, 20N/02E-36K01.

LOCATION.--Lat 47°10'31.0", long 122°29'31.9", Hydrologic Unit 17110019, in Lakewood.

Owner: U.S. Geological Survey.

AQUIFER.--Unidentified gravel unit of Pleistocene Age.

WELL CHARACTERISTICS.--Augered observation well, water table, diameter 2 in, depth 90 ft.

DATUM.--Elevation of land-surface datum is 275 ft above NGVD of 1929.

REMARKS.--Monitored depth intervals; 2 in diameter screens from 55 to 65 ft and 75 to 85 ft, water level measured in 2 in casing.

PERIOD OF RECORD.--October 1997, July 2000 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest static water level measured, 33.77 ft below land-surface datum, Feb. 22, 2002; lowest measured, 43.50 ft below land-surface datum, Aug. 3, 2000.

	Water		Water		Water		Water
Date	Level	Date	Level	Date	Level	Date	Level
OCT 8	39.12	JAN 17	34.02	APR 26	35.52	JUL 22	38.08
OCT 23	39.23	FEB 1	33.90	MAY 10	35.39	AUG 5	38.16
NOV 9	38.65	FEB 22	33.77	MAY 24	35.39	AUG 19	39.04
NOV 23	37.33	FEB 27	33.72	JUN 7	37.04	SEP 5	39.10
DEC 13	34.92	MAR 14	33.95	JUN 25	37.35	SEP 19	38.99
JAN 3	34.34	MAR 28	34.88	JUL 5	36.85		

472121122442011. Local number, 22N/01W-36H01D11.

LOCATION.--Lat 47°21'21", long 122°44'20", Hydrologic Unit 17110019, near Key Center.

Owner: Washington State, Department of Natural Resources.

AQUIFER .-- Unidentified sand and gravel unit of Pleistocene Age.

WELL CHARACTERISTICS .-- Augered observation well, confined, diameter 1.25 in, depth 74 ft.

DATUM .-- Elevation of land-surface datum is 183 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; 1.25 in diameter screen from 71 to 74 ft, water level measured in 1.25 in casing.

PERIOD OF RECORD .-- August 1992 to October 1993, October 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest static water level measured, 24.67 ft below land-surface datum, Mar. 12, 1999; lowest measured, 44.44 ft below land-surface datum. Feb. 12, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

	Water		Water		Water		Water
Date	Level	Date	Level	Date	Level	Date	Level
NOV 2	39.95	FEB 20	27.56	JUN 19	28.72	AUG 20	33.12
DEC 12	39.47	MAY 1	25.45				

472121122442012. Local number, 22N/01W-36H02.

LOCATION .-- Lat 47°21'21", long 122°44'20", Hydrologic Unit 17110019, near Key Center.

Owner: Washington State, Department of Natural Resources.

AQUIFER .-- Vashon Till of Pleistocene Age.

WELL CHARACTERISTICS.--Augered observation well, confined, diameter 1.25 in, depth 33 ft.

DATUM.--Elevation of land-surface datum is 183 ft above NGVD of 1929.

REMARKS,--Monitored depth interval; 1.25 in diameter screen from 30 to 33 ft, water level measured in 1.25 in casing,

PERIOD OF RECORD.--August 1992 to October 1993, October 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest static water level measured, 21.60 ft below land-surface datum, Apr. 10, 1998; lowest measured, dry on numerous occasions.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

	Water		Water		Water		Water
Date	Level	Date	Level	Date	Level	Date	Level
NOV 2	dry	FEB 20	25.38	JUN 19	26.78	AUG 20	30.94
DEC 12	31.70	MAY 1	23.38				

SPOKANE COUNTY

474011117072901. Local number, 25N/45E-16C01.

LOCATION.--Lat 47°40'11", long 117°07'29", Hydrologic Unit 17010305, near Greenacres.

Owner: Inland Empire paper Company.

AQUIFER.--Unidentified sand and gravel unit of Pleistocene Age.

WELL CHARACTERISTICS .-- Dug unused irrigation well, water table, diameter 96 in, depth 129 ft.

DATUM.--Elevation of land-surface datum is 2055.89 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; 96 in diameter open end casing at 129 ft, water level measured in 96 in casing.

PERIOD OF RECORD.--November 1921, April 1929 to August 1955, April 1957 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest static water level measured, 82.63 ft below land-surface datum, May 30, 1997; lowest measured, 114.53 ft below land-surface datum, Dec. 8, 1931.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
OCT 31	103.23	JAN 31	100.06	APR 30	94.80	JUL 31	100.7
NOV 30	103.11	FEB 28	101.36	MAY 31	94.07	AUG 30	102.82
DEC 31	102.44	MAR 29	100.31	JUN 30	97.48	SEP 30	101.98

THURSTON COUNTY

465033122570201. Local number, 16N/02W-29L02P1.

LOCATION.--Lat~46°50'33.6", long~122°57'31.8", Hydrologic~Unit~17100103, near~Sunnydale.

Owner: Washington State, Department of Ecology.

AQUIFER.--Unidentified sand and gravel unit of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled observation well, confined, diameter 6 in, depth 108 ft.

DATUM.--Elevation of land-surface datum is 217.65 ft above NGVD of 1929.

REMARKS.--Monitored depth interval: 6 in perforated casing from 103 to 108 ft, water level measured in 2 in diameter piezometer.

PERIOD OF RECORD.--August 1988, November 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest static water level measured, 12.22 ft below land-surface datum, Mar. 9, 1999; lowest measured, 41.11 ft below land-surface datum, Nov. 6, 2001.

	Water		Water		Water		Water
Date	Level	Date	Level	Date	Level	Date	Level
NOV 1	40.83	DEC 6	22.45	FEB 20	16.35	MAY 30	21.40
NOV 6	41.11	JAN 4	17.22	APR 2	16.98	JUL 24	26.88
NOV 15	40.60	JAN 24	17.10				

465033122570202. Local number, 16N/02W-29L02P2.

LOCATION.--Lat 46°50'33.6", long 122°57'31.8", Hydrologic Unit 17100103, near Sunnydale.

Owner: Washington State, Department of Ecology.

AQUIFER .-- Unidentified sand and gravel unit of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled observation well, confined, diameter 6 in, depth 82 ft.

DATUM.--Elevation of land-surface datum is 217.65 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; 6 in diameter perforated casing from 74 to 82 ft, water level measured in 2 in diameter piezometer. A pressure transducer and data logger were installed on Nov. 6, 2001. Water levels were recorded at 1-hr intervals. The water levels below (starting with Nov. 10, 2001) are average daily values for the dates given.

PERIOD OF RECORD.--August 1988, November 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest static water level measured, 12.25 ft below land-surface datum, Mar. 9, 1999; lowest measured, 41.60 ft below land-surface datum, Nov. 13, 2001.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

	Water		Water		Water		Water
Date	Level	Date	Level	Date	Level	Date	Level
NOV 1	41.00	JAN 20	16.97	APR 15	18.19	JUL 10	25.28
NOV 5	41.19	JAN 25	16.49	APR 20	18.24	JUL 15	25.28
NOV 6	41.25	JAN 30	14.97	APR 25	18.51	JUL 20	26.46
NOV 10	41.43	FEB 5	15.20	APR 30	18.86	JUL 25	27.09
NOV 15	40.62	FEB 10	15.55	MAY 5	19.30	JUL 30	27.74
NOV 20	35.57	FEB 15	15.85	MAY 10	19.74	AUG 5	28.51
NOV 25	30.19	FEB 20	16.36	MAY 15	20.17	AUG 10	29.13
NOV 30	27.02	FEB 25	16.45	MAY 20	20.58	AUG 15	29.73
DEC 5	23.19	FEB 28	16.45	MAY 25	21.04	AUG 20	30.33
DEC 10	21.32	MAR 5	16.79	MAY 30	21.47	AUG 25	30.93
DEC 15	19.84	MAR 10	17.30	JUN 5	21.98	AUG 30	31.51
DEC 20	16.18	MAR 15	17.13	JUN 10	22.39	SEP 5	32.20
DEC 25	16.47	MAR 20	16.75	JUN 15	22.84	SEP 10	32.71
DEC 30	16.83	MAR 25	16.33	JUN 20	23.28	SEP 15	33.22
JAN 5	17.39	MAR 30	16.69	JUN 25	23.75	SEP 20	33.74
JAN 10	16.66	APR 5	17.34	JUN 30	24.25	SEP 25	34.25
JAN 15	16.64	APR 10	17.92	JUL 5	24.76	SEP 30	34.71

465033122570203. Local number, 16N/02W-29L02P3.

LOCATION.--Lat 46°50'33.6", long 122°57'31.8", Hydrologic Unit 17100103, near Sunnydale.

Owner: Washington State, Department of Ecology.

AQUIFER.--Unidentified sand and gravel unit of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled observation well, confined, diameter 6 in, depth 48 ft.

DATUM.--Elevation of land-surface datum is 217.65 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; perforated 6 in diameter casing from 41 to 48 ft, water level measured in 6 in casing. A pressure transducer and data logger were installed on Apr. 6, 2001 and removed on Nov. 6, 2001. Water levels were recorded at 1-hr intervals. The water levels below (from Oct. 5 through Oct. 20, 2001) are average daily values for the dates given.

PERIOD OF RECORD.--August 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest static water level measured, 10.92 ft below land-surface datum, Mar. 4, 1992; lowest measured, 41.20 ft below land-surface datum, Nov. 6, 2001.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

	Water		Water		Water		Water
Date	Level	Date	Level	Date	Level	Date	Level
OCT 5	39.20	NOV 1	40.99	DEC 6	23.11	APR 2	16.64
OCT 10	39.54	NOV 4	41.10	JAN 4	16.85	MAY 30	21.42
OCT 15	39.81	NOV 6	41.20	JAN 24	16.88	JUL 24	26.98
OCT 20	40.10	NOV 15	40.56	FEB 20	15.90		

WHITMAN COUNTY

470045117211701. Local number, 18N/43E-35L01.

LOCATION.--Lat 47°00'45", long 117°21'17", Hydrologic Unit 17060108, near Steptoe.

Owner: Johnathan Scholz.

AQUIFER.--Wanapum Basalt of the Yakima Basalt Subgroup of the Columbia River Basalt of Miocene Age.

WELL CHARACTERISTICS.--Drilled unused domestic well, water table, diameter 6 in, depth 132 ft.

DATUM.--Elevation of land-surface datum is 2,331 ft above NGVD of 1929.

REMARKS.--Monitored depth interval; uncertain, probably 6 in diameter open end casing at 132 ft, water level measured in 6 in casing.

PERIOD OF RECORD.--1940-73, 1977, October 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest static water level measured, 5.10 ft below land-surface datum, Mar. 20, 1949; lowest measured, 19.16 ft below land-surface datum, June 25, 1959.

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
NOV 2	12.52	FEB 13	7.65	MAY 20	7.88	JUL 22	10.46
DEC 1	9.63	APR 2	5.82	JUN 17	9.53	SEP 4	10.99

LOCAL IDEN	TIFIER	STATION NO.	GEO- LOGIC UNIT	DATE	TIME	DEPTH BELOW LAND SUR- FACE (WATER LEVEL) (FEET) (72019)	DEPTH OF WELL TOTAL (FEET) (72008)	ELEVA- TION OF LAND SURFACE DATUM (FT ABOVE NGVD) (72000)	TUR- BIDITY FIELD WATER UN- FLTRD (NTU) (61028)	BARO- METRIC PRES- SURE (MM OF HG) (00025)
			FR	ANKLIN CO	YTNUC					
10N/29E-07R01	PN84	462141119130501	121RGLD	07-24-02	1620	41.84	72	540	0.5	752
13N/28E-11E02	PN17	463745119164601	121RGLD	07-23-02	1440	11.20	19	970	2.0	740
			А	DAMS COL	JNTY					
15N/29E-11E01	PN89	464819119091001	000OVBD	07-23-02	0845	7.02	38	1070	.2	732
			G	RANT COL	JNTY					
19N/26E-15B01	PN57	470850119323501	112GLCV	07-15-02	1200	67.95	79.5	1235	.3	740
19N/25E-06H01	PN49	471013119433401	112GLCV	07-16-02	0845	44.90	67	1220	.2	730
			TH	URSTON C	OUNTY					
18N/01W-36B01	UR-12	470035122444601	112GLCV	08-20-02	1100	37.60	51	200	.9	755
18N/01W-28G03	UR-04A	470110122484201	112GLCV	08-20-02	1300	58.36	67	220	.7	755
			Р	IERCE COI	UNTY					
18N/03E-13K01	UR-24	470240122214501	112GLCV	08-22-02	1030	30.24	47	490	4.4	752
19N/02E-26P01	LC-149C	470603122305101	112GLCV	08-19-02	1330		48	306.12	1.2	754
19N/03E-21C01	UR-32	470732122252801	112GLCV	08-21-02	1030	30.99	41.4	350	.8	758
20N/043-36P02	UR-35B	471018122143302	112GLCV	08-21-02	1300	42.30	52	400	4.8	758
			WH	IATCOM CO	YTNUC					
39N/04E-08G01	AG03	485303122190901	112GLCV	09-18-02	1110	8.00	29	115	.4	764
40N/03E-03G02	AG06	485917122241901	112SUMS	08-28-02	1050	14.87	28	140.00	.3	757
			BR	ITISH COL	UMBIA					
092G.009.1.2.1-A	BB4	490011122193201	112SUMS	08-27-02	1500	76.50	96	213	.3	760
092G.008.2.2.2-99	ABB1	490042122241001	112SUMS	09-17-02	1410	10.35	26	150	.4	757
092G.009.1.1.4-18	3 BC-A-25	490101122221501	112SUMS	08-27-02	0950	16.67	25	170	.9	763

LOCAL IDENTII	FIER	DATE	SPE- CIFIC CONDUC- TANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAN- DARD UNITS) (00400)	TEM- PER- ATURE AIR (DEG C) (00020)	TEM- PER- ATURE WATER (DEG C) (00010)	OXYGEN DIS- SOLVED (MG/L) (00300)	OXY- GEN DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NON- CARB DIS- SOLVED FLD AS CACO3 (MG/L) (00904)	CAL- CIUM DIS- SOLVED (MG/L AS CA) (00915)
					FRANKLIN	COUNTY					
10N/29E-07R01	PN	07-24-02	934	7.5	37.0	15.2	5.7	58	280		68.4
13N/28E-11E02	PN	07-23-02	885	7.3	32.9	15.2	1.9	20	390		82.4
					ADAMS C	OUNTY					
15N/29E-11E01	PN	07-23-02	589	7.7	25.4	13.1	6.1	61	260	33	40.2
					GRANT C	OUNTY					
19N/26E-15B01	PN	07-15-02	508	8.2	27.4	16.2	6.6	69	170	23	51.4
19N/25E-06H01	PN	07-16-02	858	7.7	24.4	14.6	6.4	65	280	97	56.1
					THURSTON	COUNTY					
18N/01W-36B01	UR	08-20-02	134	6.4	20.6	11.5	9.4	87	48	11	13.9
18N/01W-28G03	UR	08-20-02	147	6.1	21.4	11.6	8.1	75	53	18	14.1
					PIERCE C	OUNTY					
18N/03E-13K01	UR	08-22-02	172	6.0	20.5	10.5	5.2	48	52	25	14.2
19N/02E-26P01	LC	08-19-02	120	6.7	19.1	11.1	9.6	88	48		11.7
19N/03E-21C01	UR	08-21-02	168	6.3	20.0	10.8	8.4	76	52	17	15.1
20N/043-36P02	UR	08-21-02	266	7.1	19.9	11.1	6.0	55	110	1	15.2
					WHATCOM	COUNTY					
39N/04E-08G01	AG	09-18-02	387	6.5	17.5	10.7	.2	2	180	75	24.5
40N/03E-03G02	AG	08-28-02	269	6.1	27.5	9.5	9.0	79	100	87	29.7
					BRITISH CO	DLUMBIA					
092G.009.1.2.1-AE	RR	08-27-02	395	6.4	27.3	10.8	7.2	65	160	100	43.7
092G.009.1.2.1-AE	עי	09-17-02	393 444	5.6	19.8	11.8	.2	2	170	150	52.2
092G.009.1.1.4-18		08-27-02	103	6.0	20.3	10.1	8.7	77	34	20	10.4
0,20.00,.1.1. T -10		00 27 02	103	0.0	20.5	10.1	0.7	, ,	5-7	20	10.4

LOCAL IDENT	TIFIER	DATE	MAG- NESIUM DIS- SOLVED (MG/L AS MG) (00925)	SODIUM DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PER- CENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WATER DIS TOT IT FIELD (MG/L AS CACO3) (39086)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	CARBO- NATE WATER DIS IT FIELD (MG/L AS CO3) (00452)	CHLOR- IDE DIS- SOLVED (MG/L AS CL) (00940)
					FRANKLIN	OUNTY					
10N/29E-07R01	PN	07-24-02	25.2	83.9	38	2	17.8	361	440	0	23.9
13N/28E-11E02	PN	07-23-02	44.0	41.7	19	.9	5.08	410	499	0	11.5
					ADAMS	COUNTY					
15N/29E-11E01	PN	07-23-02	38.6	35.4	23	1	1.36	227	277	0	15.8
					GRANT	COUNTY					
19N/26E-15B01	PN	07-15-02	10.7	32.9	28	1	8.28	150	183	0	10.3
19N/25E-06H01	PN	07-16-02	33.6	61.6	32	2	5.62	182	222	0	27.7
					THURSTO	N COUNTY					
18N/01W-36B01	UR	08-20-02	3.22	5.53	20	.3	.70	37	45	0	5.26
18N/01W-28G03	UR	08-20-02	4.21	6.43	21	.4	.93	35	43	0	5.21
					PIERCE	COUNTY					
18N/03E-13K01	UR	08-22-02	4.13	8.63	26	.5	.93	28	34	0	9.06
19N/02E-26P01	LC	08-19-02		4.61	17	.3	.94	50	60	0	2.31
19N/03E-21C01	UR	08-21-02		8.91	27	.5	1.08	34	42	0	6.64
20N/043-36P02	UR	08-21-02	17.4	8.41	14	.3	3.11	108	132	0	5.44
					WHATCOM	I COUNTY					
39N/04E-08G01	AG	09-18-02	28.8	7.10	8	.2	2.44	105	128	0	9.16
40N/03E-03G02	AG	08-28-02	6.90	5.18	10	.2	1.34	16	20	0	4.31
					BRITISH C	OLUMBIA					
092G.009.1.2.1-AI	3B	08-27-02	12.3	9.49	11	.3	1.59	55	68	0	8.15
092G.008.2.2.2-99		09-17-02	9.70	8.93	10	.3	5.54	17	21	0	21.7
092G.009.1.1.4-18		08-27-02	1.96	3.45	18	.3	.76	14	17	0	2.86

LOCAL IDENT	IFIER	DATE	FLUOR- IDE DIS- SOLVED (MG/L AS F) (00950)	SILICA DIS- SOLVED (MG/LAS SIO2) (00955)	SUL- FATE DIS- SOLVED (MG/L AS SO4) (00945)	BRO- MIDE DIS- SOLVED (MG/L AS BR) (71870)	SOLIDS RESI- DUE AT 180 DEG C DIS- SOLVED (MG/L) (70300)	SOLIDS SUM OF CONSTI- TUENTS DIS- SOLVED (MG/L) (70301)	SOLIDS DIS- SOLVED (TONS PER AC-FT) (70303)	NITRO- GEN DIS- SOLVED (MG/L AS N) (00602)	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS N) (00613)
				ı	FRANKLIN	COUNTY					
10N/29E-07R01	PN	07-24-02	0.82	40.0	73.3	0.11	595	603	0.81	12	< 0.008
13N/28E-11E02	PN	07-23-02	.65	36.1	57.4	.05	546	535	.74	2.5	<.008
					ADAMS (COUNTY					
15N/29E-11E01	PN	07-23-02	.44	48.1	52.0	.09	394	390	.54	4.8	<.008
					GRANT C	OUNTY					
19N/26E-15B01	PN	07-15-02	.28	38.4	36.2	.04	331	328	.45		<.008
19N/25E-06H01	PN	07-16-02	.49	56.9	78.8	.12	584	561	.79	30	<.008
				1	HURSTON	COUNTY					
18N/01W-36B01	UR	08-20-02	<.10	22.8	10.3	<.03	96	93	.13		<.008
18N/01W-28G03	UR	08-20-02	<.10	27.2	10.7	<.03	108	105	.15		<.008
					PIERCE (COUNTY					
18N/03E-13K01	UR	08-22-02	<.10	18.5	8.6	E.02	119	114	.16		<.008
19N/02E-26P01	LC	08-19-02	<.10	24.0	4.9	<.03	92	84	.12		<.008
19N/03E-21C01	UR	08-21-02	<.10	20.9	14.2	E.02	108	112	.15		<.008
20N/043-36P02	UR	08-21-02	E.09	44.0	11.1	.07	179	181	.24		E.005
				,	WHATCOM	COUNTY					
39N/04E-08G01	AG	09-18-02	E.07	33.6	58.1	.07	265	252	.36		.056
40N/03E-03G02	AG	08-28-02	<.10	14.5	23.0	.27	201	181	.27		<.008
				ı	BRITISH C	OLUMBIA					
092G.009.1.2.1-A	BB	08-27-02	<.10	24.0	25.8	.05	290	265	.39		<.008
092G.008.2.2.2-99)	09-17-02	<.10	14.7	70.2	E.02	331	295	.45	23	.020
092G.009.1.1.4-18	3	08-27-02	<.10	15.2	5.1	<.03	84	76	.11		<.008

LOCAL IDENT	IFIER	DATE	NITRO- GEN NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN AMMO- NIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN AMMO- NIA + ORGAN- IC DIS (MG/L AS N) (00623)	ORTHO- PHOS- PHATE DIS- SOLVED (MG/L AS P) (00671)	CAR- BON ORGAN- IC DIS- SOLVED (MG/L AS C) (00681)	ALUMI- NUM DIS- SOLVED (UG/L AS AL) (01106)	ANTI- MONY DIS- SOLVED (UG/L AS SB) (01095)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM DIS- SOLVED (UG/L AS BA) (01005)
					FRANKLIN	COUNTY					
10N/29E-07R01	PN	07-24-02	11.8	< 0.04	0.25	0.05	6.2	<1	0.23	6.2	72
13N/28E-11E02	PN	07-23-02	2.16	<.04	.33	E.01	8.3	<1	.27	3.4	62
					ADAMS C	COUNTY					
15N/29E-11E01	PN	07-23-02	4.67	<.04	.14	<.02	E.3	<1	.10	4.5	149
					GRANT C	OUNTY					
19N/26E-15B01	PN	07-15-02	11.1	<.04	E.07	.04	1.0	2	.20	8.6	42
19N/25E-06H01	PN	07-16-02	29.4	<.04	.17	E.02	4.6	<1	.09	10.5	157
				٦	THURSTON	COUNTY					
18N/01W-36B01	UR	08-20-02	2.14	<.04	<.10	E.01		<1	E.03	E.2	3
18N/01W-28G03	UR	08-20-02	3.45	<.04	<.10	E.01		<1	.09	.2	4
					PIERCE C	COUNTY					
18N/03E-13K01	UR	08-22-02	7.41	<.04	E.07	E.01		1	.05	E.1	3
19N/02E-26P01	LC	08-19-02	.37	<.04	<.10	E.01		<1	<.05	.4	2
19N/03E-21C01	UR	08-21-02	4.71	<.04	E.07	<.02		<1	.06	.3	3
20N/043-36P02	UR	08-21-02	2.54	<.04	<.10	.03		<1	<.05	2.2	5
				,	WHATCOM	COUNTY					
39N/04E-08G01	AG	09-18-02	5.69	<.04	E.06	<.02		<1	.14	.4	67
40N/03E-03G02	AG	08-28-02	19.4	<.04	E.05	<.02		<1	E.05	.2	6
					BRITISH C	OLUMBIA					
092G.009.1.2.1-AI	ЗВ	08-27-02	24.2	<.04	E.08	<.02		<1	.06	.2	14
092G.008.2.2.2-99		09-17-02	22.8	<.04	.15	<.02		16	.08	E.1	154
092G.009.1.1.4-18		08-27-02	6.35	<.04	<.10	<.02		2	E.04	E.1	4

LOCAL IDENT	IFIER	DATE	BERYL- LIUM DIS- SOLVED (UG/L AS BE) (01010)	BORON DIS- SOLVED (UG/L AS B) (01020)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM DIS- SOLVED (UG/L AS CR) (01030)	COBALT DIS- SOLVED (UG/L AS CO) (01035)	COPPER DIS- SOLVED (UG/L AS CU) (01040)	IRON DIS- SOLVED (UG/L AS FE) (01046)	LEAD DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)
					FRANKLIN	COUNTY					
10N/29E-07R01	PN	07-24-02	< 0.06	50	0.06	1.5	0.25	1.8	<10	E.05	12.9
13N/28E-11E02	PN	07-23-02	<.06	70	<.04	E.5	.21	2.5	<10	.10	7.4
					ADAMS C	OUNTY					
15N/29E-11E01	PN	07-23-02	<.06	16	<.04	<.8	.09	1.0	<10	.08	4.3
					GRANT C	OUNTY					
19N/26E-15B01	PN	07-15-02	<.06	12	<.04	E.8	.11	.8	<10	<.08	4.2
19N/25E-06H01	PN	07-16-02	<.06	30	<.04	<.8	.18	1.1	<10	<.08	4.0
				•	THURSTON	COUNTY					
18N/01W-36B01	UR	08-20-02	<.06	<7	<.04	1.2	.20	.5	<10	<.08	E.3
18N/01W-28G03	UR	08-20-02	<.06	11	<.04	E.5	.17	.7	<10	<.08	1.5
					PIERCE C	OUNTY					
18N/03E-13K01	UR	08-22-02	<.06	40	<.04	<.8	.13	.3	12	<.08	.4
19N/02E-26P01	LC	08-19-02	<.06	<7	<.04	1.2	.05	.3	<10	E.07	.7
19N/03E-21C01	UR	08-21-02	<.06	24	<.04	<.8	.47	.8	<10	.08	.3
20N/043-36P02	UR	08-21-02	<.06	E6	<.04	1.9	.10	.6	<10	.10	3.8
					WHATCOM	COUNTY					
39N/04E-08G01	AG	09-18-02	<.06	46	<.04	<.8	.73	.7	10	<.08	1.0
40N/03E-03G02	AG	08-28-02	<.06	28	E.02	<.8	.10	.4	<10	<.08	<.3
					BRITISH CO	DLUMBIA					
092G.009.1.2.1-AI	3B	08-27-02	<.06	28	E.03	<.8	.09	.7	E6	<.08	1.0
092G.008.2.2.2-99		09-17-02	<.06	86	.22	<.8	.69	1.1	298	<.08	<.3
092G.009.1.1.4-18 08-2		08-27-02	<.06	15	<.04	<.8	.06	.6	<10	.08	<.3

LOCAL IDENT	LOCAL IDENTIFIER DATE			MOLYB- DENUM DIS- SOLVED (UG/L AS MO) (01060)	NICKEL DIS- SOLVED (UG/L AS NI) (01065)	SELEN- IUM DIS- SOLVED (UG/L AS SE) (01145)	SILVER DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM DIS- SOLVED (UG/L AS SR) (01080)	THAL- LIUM DIS- SOLVED (UG/L AS TL) (01057)	VANA- DIUM DIS- SOLVED (UG/L AS V) (01085)	ZINC DIS- SOLVED (UG/L AS ZN) (01090)
					FRANKLIN	COUNTY					
10N/29E-07R01	PN	07-24-02	0.2	14.0	1.35	0.6	<1	503	< 0.04	9.0	<1
13N/28E-11E02	PN	07-23-02	.1	3.1	.20	.5	<1	510	<.04	5.6	1
					ADAMS (COUNTY					
15N/29E-11E01	PN	07-23-02	E.1	1.0	.07	.3	<1	631	<.04	31.4	<1
					GRANT C	COUNTY					
19N/26E-15B01	PN	07-15-02	.2	1.4	.69	E.2	<1	206	E.04	30.0	<1
19N/25E-06H01	PN	07-16-02	.1	3.3	.18	1.0	<1	572	<.04	45.8	1
				-	THURSTON	COUNTY					
18N/01W-36B01	UR	08-20-02	.2	E.2	.33	<.3	<1	89.8	<.04	.7	1
18N/01W-28G03	UR	08-20-02	1.0	1.1	.64	E.2	<1	114	E.03	1.8	3
					PIERCE (COUNTY					
18N/03E-13K01	UR	08-22-02	.5	<.2	.58	<.3	<1	104	<.04	.7	1
19N/02E-26P01	LC	08-19-02	.1	E.2	.22	<.3	<1	53.0	<.04	1.1	<1
19N/03E-21C01	UR	08-21-02	.3	E.2	.54	<.3	<1	93.1	<.04	.6	2
20N/043-36P02	UR	08-21-02	.2	.6	.85	.4	<1	74.4	E.03	7.6	3
					WHATCOM	COUNTY					
39N/04E-08G01	AG	09-18-02	37.9	.5	18.5	2.1	<1	203	<.04	1.3	<1
40N/03E-03G02	AG	08-28-02	.1	E.2	.15	.4	<1	158	<.04	.4	<1
					BRITISH C	OLUMBIA					
092G.009.1.2.1-A	ВВ	08-27-02	1.0	E.1	1.68	E.3	<1	181	<.04	.9	3
092G.008.2.2.2-99)	09-17-02	145	E.2	2.49	<.3	<1	249	E.03	.6	2
092G.009.1.1.4-18	3	08-27-02	.6	E.2	.29	E.2	<1	72.9	<.04	.5	2

LOCAL IDENT	TFIER	DATE	2,6-DI- ETHYL- ANILINE WAT FLT 0.7 U GF REC (UG/L) (82660)	ACETO- CHLOR WATER FLTRD REC (UG/L) (49260)	ALA- CHLOR WATER DISS REC (UG/L) (46342)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	ATRA- ZINE WATER DISS REC (UG/L) (39632)	BEN- FLUR- ALIN WAT FLD 0.7 U GF REC (UG/L) (82673)	BUTYL- ATE WATER DISS REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF REC (UG/L) (82680)	CARBO- FURAN WATER FLTRD 0.7 U GF REC (UG/L) (82674)
				F	RANKLIN	COUNTY					
10N/29E-07R01	PN	07-24-02	< 0.006	< 0.006	< 0.004	< 0.005	0.033	< 0.010	< 0.002	< 0.041	< 0.020
13N/28E-11E02	PN	07-23-02	<.006	<.006	<.004	<.005	.014	<.010	<.002	<.041	<.020
					ADAMS C	OUNTY					
15N/29E-11E01	PN	07-23-02	<.006	<.006	<.004	<.005	<.007	<.010	<.002	<.041	<.020
					GRANT C	OUNTY					
19N/26E-15B01	PN	07-15-02	<.006	<.006	<.004	<.005	.021	<.010	<.002	<.041	<.020
19N/25E-06H01	PN	07-16-02	<.006	<.006	<.004	<.005	<.007	<.010	<.002	<.041	<.020
				T	HURSTON	COUNTY					
18N/01W-36B01	UR	08-20-02	<.006	<.006	<.004	<.005	<.007	<.010	<.002	<.041	<.020
18N/01W-28G03	UR	08-20-02	<.006	<.006	<.004	<.005	<.007	<.010	<.002	<.041	<.020
					PIERCE C	OUNTY					
18N/03E-13K01	UR	08-22-02	<.006	<.006	<.004	<.005	<.007	<.010	<.002	<.041	<.020
19N/02E-26P01	LC	08-19-02	<.006	<.006	<.004	<.005	<.007	<.010	<.002	<.041	<.020
19N/03E-21C01	UR	08-21-02	<.006	<.006	<.004	<.005	<.007	<.010	<.002	<.041	<.020
20N/043-36P02	UR	08-21-02	<.006	<.006	<.004	<.005	<.007	<.010	<.002	<.041	<.020
				W	/HATCOM	COUNTY					
39N/04E-08G01	AG	09-18-02	<.006	<.006	<.004	<.005	<.007	<.010	<.002	<.041	<.020
40N/03E-03G02	AG	08-28-02	<.006	<.006	<.004	<.005	E.003	<.010	<.002	<.041	E.006
				В	RITISH CO	DLUMBIA					
092G.009.1.2.1-Al	ВВ	08-27-02	<.006	<.006	<.004	<.005	<.007	<.010	<.002	<.041	<.020
092G.008.2.2.2-99)	09-17-02	<.006	<.006	<.004	<.005	<.007	<.010	<.002	<.041	<.020
092G.009.1.1.4-18	;	08-27-02	<.006	<.006	<.004	<.005	.046	<.010	<.002	<.041	<.020

LOCAL IDENT	IFIER	DATE	CHLOR- PYRI-FOS DIS- SOLVED (UG/L) (38933)	CYAN- AZINE WATER DISS REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF REC (UG/L) (82682)	DE- ETHYL- ATRA- ZINE WATER DISS REC (UG/L) (04040)	DIAZ- INON DIS- SOLVED (UG/L) (39572)	DIEL- DRIN DIS- SOLVED (UG/L) (39381)	DISUL- FOTON WATER FLTRD 0.7 U GF REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF REC (UG/L) (82668)	ETHAL- FLURA- LIN WAT FLT 0.7 U GF REC (UG/L) (82663)
				FR	ANKLIN C	OUNTY					
10N/29E-07R01	PN	07-24-20	< 0.005	< 0.018	< 0.003	E.043	< 0.005	< 0.005	< 0.02	< 0.002	< 0.009
13N/28E-11E02	PN	07-23-02	<.005	<.018	<.003	E.006	<.005	<.005	<.02	<.002	<.009
				A	DAMS CO	UNTY					
15N/29E-11E01	PN	07-23-02	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
				G	RANT CO	UNTY					
19N/26E-15B01	PN	07-15-02	<.005	<.018	<.003	E.013	<.005	<.005	<.02	<.002	<.009
19N/25E-06H01	PN	07-16-02	<.005	<.018	<.003	E.007	<.005	<.005	<.02	<.002	<.009
				TH	JRSTON C	OUNTY					
18N/01W-36B01	UR	08-20-02	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
18N/01W-28G03	UR	08-20-02	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
				Р	IERCE CO	UNTY					
18N/03E-13K01	UR	08-22-02	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
19N/02E-26P01	LC	08-19-02	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
19N/03E-21C01	UR	08-21-02	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
20N/043-36P02	UR	08-21-02	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
				WH	IATCOM C	OUNTY					
39N/04E-08G01	AG	09-18-02	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
40N/03E-03G02	AG	08-28-02	<.005	<.018	<.003	E.003	<.005	<.005	<.02	<.002	<.009
				BR	ITISH COL	UMBIA					
092G.009.1.2.1-AF	зв	08-27-02	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
092G.008.2.2.2-99		09-17-02	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009
092G.009.1.1.4-18		08-27-02	<.005	<.018	<.003	E.009	<.005	<.005	<.02	<.002	<.009

LOCAL IDENT	LOCAL IDENTIFIER DATE			FONO- FOS WATER DISS REC (UG/L) (04095)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF REC (UG/L) (82666)	MALA- THION DIS- SOLVED (UG/L) (39532)	AZIN- PHOS	METHYL- PARA- THION WAT FLT 0.7 U GF REC (UG/L) (82667)	METOL- ACHLOR WATER DIS- SOLVED (UG/L) (39415)	METRI- BUZIN SENCOR WATER DIS- SOLVED (UG/L) (82630)
				ı	RANKLIN (COUNTY					
10N/29E-07R01	PN	07-24-02	< 0.005	< 0.003	< 0.004	< 0.035	< 0.027	< 0.050	< 0.006	<.013	<.006
13N/28E-11E02	PN	07-23-02	<.005	<.003	<.004	<.035	<.027	<.050	<.006	<.013	.028
					ADAMS CO	OUNTY					
15N/29E-11E01	PN	07-23-02	<.005	<.003	<.004	<.035	<.027	<.050	<.006	<.013	<.006
					GRANT CO	DUNTY					
1011/2/27 15701	D	07.45.00	005	202	004	00.5	0.25	0.50	001	0.1.2	006
19N/26E-15B01 19N/25E-06H01	PN PN	07-15-02 07-16-02	<.005 <.005	<.003 <.003	<.004 <.004	<.035 <.035	<.027 <.027	<.050 <.050	<.006 <.006	<.013 <.013	<.006 .009
191W23E-001101	111	07-10-02	<.003	<.003	<.004	<.033	<.027	<.030	<.000	<.013	.009
				Т	HURSTON	COUNTY					
18N/01W-36B01	UR	08-20-02	<.005	<.003	<.004	<.035	<.027	<.050	<.006	<.013	<.006
18N/01W-28G03	UR	08-20-02	<.005	<.003	<.004	<.035	<.027	<.050	<.006	<.013	<.006
					PIERCE CO	OUNTY					
18N/03E-13K01	UR	08-22-02	<.005	<.003	<.004	<.035	<.027	<.050	<.006	<.013	<.006
19N/02E-26P01	LC	08-19-02	<.005	<.003	<.004	<.035	<.027	<.050	<.006	<.013	<.006
19N/03E-21C01	UR	08-21-02	<.005	<.003	<.004	<.035	<.027	<.050	<.006	<.013	<.006
10N/043-36P02	UR	08-21-02	<.005	<.003	<.004	<.035	<.027	<.050	<.006	<.013	<.006
				١	WHATCOM (COUNTY					
39N/04E-08G01	AG	09-18-02	<.005	<.003	<.004	<.035	<.027	<.050	<.006	<.013	<.006
40N/03E-03G02	AG	08-28-02	<.005	<.003	<.004	<.035	<.027	<.050	<.006	<.013	<.006
				E	BRITISH CO	LUMBIA					
092G.009.1.2.1-AI	3B	08-27-02	<.005	<.003	<.004	<.035	<.027	<.050	<.006	<.013	<.006
092G.008.2.2.2-99		09-17-02	<.005	<.003	<.004	<.035	<.027	<.050	<.006	<.013	<.006
092G.009.1.1.4-18		08-27-02	<.005	<.003	<.004	<.035	<.027	<.050	<.006	<.013	<.006

			MOLI-								
	LOCAL IDENTIFIER DATE			NAPRO- PAMIDE WATER FLTRD 0.7 U GF REC (UG/L)	P,P'-DDE DIS- SOLVED (UG/L)	PARA- THION DIS- SOLVED (UG/L)	PEBU- LATE WATER FLTRD 0.7 U GF REC (UG/L)	PENDI- METH- ALIN WAT FLT 0.7 U GF REC (UG/L)	PERME- THRIN CIS WAT FLT 0.7 U GF REC (UG/L)	PHO- RATE WATER FLTRD 0.7 U GF REC (UG/L)	PRO- METON WATER DISS REC (UG/L)
LOCAL IDENT	IFIER	DATE	(82671)	(82684)	(34653)	(39542)	(82669)	(82683)	(82687)	(82664)	(04037)
				F	RANKLIN (COUNTY					
10N/29E-07R01	PN	07-24-02	< 0.002	< 0.007	< 0.003	< 0.010	< 0.004	< 0.022	< 0.006	< 0.011	< 0.01
13N/28E-11E02	PN	07-23-02	<.002	<.007	<.003	<.010	<.004	<.022	<.006	<.011	<.01
					ADAMS CO	OUNTY					
15N/29E-11E01	PN	07-23-02	<.002	<.007	<.003	<.010	<.004	<.022	<.006	<.011	<.01
					GRANT CO	DUNTY					
19N/26E-15B01	PN	07-15-02	<.002	<.007	<.003	<.010	<.004	<.022	<.006	<.011	<.01
19N/25E-06H01	PN	07-16-02	<.002	<.007	<.003	<.010	<.004	<.022	<.006	<.011	<.01
				т	HURSTON	COUNTY					
18N/01W-36B01	UR	08-20-02	<.002	<.007	<.003	<.010	<.004	<.022	<.006	<.011	<.01
18N/01W-28G03	UR	08-20-02	<.002	<.007	<.003	<.010	<.004	<.022	<.006	<.011	<.01
					PIERCE C	YTNUC					
18N/03E-13K01	UR	08-22-02	<.002	<.007	<.003	<.010	<.004	<.022	<.006	<.011	<.01
19N/02E-26P01	LC	08-19-02	<.002	<.007	<.003	<.010	<.004	<.022	<.006	<.011	<.01
19N/03E-21C01	UR	08-21-02	<.002	<.007	<.003	<.010	<.004	<.022	<.006	<.011	<.01
20N/043-36P02	UR	08-21-02	<.002	<.007	<.003	<.010	<.004	<.022	<.006	<.011	<.01
				V	VHATCOM	COUNTY					
39N/04E-08G01	AG	09-18-02	<.002	<.007	<.003	<.010	<.004	<.022	<.006	<.011	<.01
40N/03E-03G02	AG	08-28-02	<.002	<.007	<.003	<.010	<.004	<.022	<.006	<.011	<.01
				E	BRITISH CO	LUMBIA					
092G.009.1.2.1-AE	3B	08-27-02	<.002	<.007	<.003	<.010	<.004	<.022	<.006	<.011	<.01
092G.008.2.2.2-99		09-17-02	<.002	<.007	<.003	<.010	<.004	<.022	<.006	<.011	<.01
092G.009.1.1.4-18		08-27-02	<.002	<.007	<.003	<.010	<.004	<.022	<.006	<.011	<.01

LOCAL IDENT	LOCAL IDENTIFIER DATE			PROPA- CHLOR WATER DISS REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD0.7 U GF REC (UG/L) (82685)	SIMA- ZINE WATER DISS REC (UG/L) (04035)	TEBU- THIU- RON WATER FLTRD 0.7 U GF REC (UG/L) (82670)	TER- BACIL WATER FLTRD 0.7 U GF REC (UG/L) (82665)	TERBU- FOS WATER FLTRD 0.7 U GF REC (UG/L) (82675)	THIO- BEN- CARB WATER FLTRD 0.7 U GF REC (UG/L) (82681)
					FRANKLIN	COUNTY					
10N/29E-07R01	PN	07-24-02	< 0.004	< 0.010	< 0.011	< 0.02	0.006	< 0.02	< 0.034	< 0.02	< 0.005
13N/28E-11E02	PN	07-23-02	<.004	<.010	<.011	<.02	.018	<.02	<.034	<.02	<.005
					ADAMS (COUNTY					
15N/29E-11E01	PN	07-23-02	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005
					GRANT (COUNTY					
19N/26E-15B01	PN	07-15-02	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005
19N/25E-06H01	PN	07-16-02	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005
				7	THURSTON	N COUNTY					
18N/01W-36B01	UR	08-20-02	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005
18N/01W-28G03	UR	08-20-02	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005
					PIERCE (COUNTY					
18N/03E-13K01	UR	08-22-02	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005
19N/02E-26P01	LC	08-19-02	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005
19N/03E-21C01	UR	08-21-02	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005
20N/043-36P02	UR	08-21-02	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005
				,	WHATCON	COUNTY					
39N/04E-08G01	AG	09-18-02	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005
40N/03E-03G02	AG	08-28-02	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005
				ı	BRITISH C	OLUMBIA					
092G.009.1.2.1-AE	ЗВ	08-27-02	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005
092G.008.2.2.2-99		09-17-02		<.010	<.011	<.02	.013	<.02	<.034	<.02	<.005
092G.009.1.1.4-18		08-27-02		<.010	<.011	<.02	.018	<.02	<.034	<.02	<.005

LOCAL IDENTI	IFIER	DATE	TRIAL- LATE WATER FLTRD 0.7 U GF REC (UG/L) (82678)	TRI- FLUR- ALIN WATER FLTRD 0.7 U GF REC (UG/L) (82661)	1,1,1- TRI- CHLORO- ETHANE TOTAL (UG/L) (34506)	1,1,2- TRI- CHLORO- ETHANE TOTAL (UG/L) (34511)	1,1-DI- CHLORO- ETHANE TOTAL (UG/L) (34496)	1,1,-DI- CHLOR- OETHY- LENE TOTAL (UG/L) (34501)	1,1-DI- CHLOR- OPRO- PENE WAT WH TOTAL (UG/L) (77168)	123- TRI- CHLOR- OPRO- PANE WATER WHOLE TOTAL (UG/L) (77443)	1,2- DIBRO- MO- ETHANE WATER WHOLE TOTAL (UG/L) (77651)
					FRANKLIN	COUNTY					
10N/29E-07R01	PN	07-24-02	< 0.002	< 0.009							
13N/28E-11E02	PN	07-23-02	<.002	<.009							
					ADAMS C	OUNTY					
15N/29E-11E01	PN	07-23-02	<.002	<.009							
					GRANT C	OUNTY					
19N/26E-15B01	PN	07-15-02	<.002	<.009							
19N/25E-06H01	PN	07-16-02	<.002	<.009							
					THURSTON	COUNTY					
18N/01W-36B01	UR	08-20-02	<.002	<.009	< 0.03	< 0.06	< 0.04	< 0.04	< 0.05	< 0.16	< 0.04
18N/01W-28G03	UR	08-20-02	<.002	<.009	<.03	<.06	<.04	<.04	<.05	<.16	<.04
					PIERCE C	OUNTY					
18N/03E-13K01	UR	08-22-02	<.002	<.009	<.03	<.06	<.04	<.04	<.05	<.16	<.04
19N/02E-26P01	LC	08-19-02	<.002	<.009	<.03	<.06	<.04	<.04	<.05	<.16	<.04
19N/03E-21C01	UR	08-21-02	<.002	<.009	<.03	<.06	<.04	<.04	<.05	<.16	<.04
20N/043-36P02	UR	08-21-02	<.002	<.009	<.03	<.06	<.04	<.04	<.05	<.16	<.04
					WHATCOM	COUNTY					
39N/04E-08G01	AG	09-18-02	<.002	<.009	<.03	<.06	<.04	<.04	<.05	<.16	<.04
40N/03E-03G02	AG	08-28-02	<.002	<.009	<.03	<.06	<.04	<.04	<.05	<.16	<.04
					BRITISH CO	OLUMBIA					
092G.009.1.2.1-AE	BB	08-27-02	<.002	<.009	<.03	<.06	<.04	<.04	<.05	<.16	<.04
092G.008.2.2.2-99		09-17-02	<.002	<.009	<.03	<.06	<.04	<.04	<.05	<.16	<.04
092G.009.1.1.4-18		08-27-02	<.002	<.009	<.03	<.06	<.04	<.04	<.05	<.16	<.04

LOCAL IDENT	IFIER	DATE	1,2-DI- CHLORO- ETHANE TOTAL (UG/L) (32103)	1,2-DI- CHLOR- OPRO- PANE TOTAL (UG/L) (34541)	TRANS- 1,2-DI- CHLOR- OETHENE TOTAL (UG/L) (34546)	2,2-DI- CHLOR- OPRO- PANE WATWH TOTAL (UG/L) (77170)	2-BUTENE TRANS- 1,4-DI- CHLORO UNFLTRD RECOVER (UG/L) (73547)	2-HEX- ANONE WATER WHOLE TOTAL (UG/L) (77103)	ACETONE WATER WHOLE TOTAL (UG/L) (81552)	O- NITRILE	1,2,3- TRI- CHLOR- OBEN- ZENE WAT WH REC (UG/L) (77613)
					FRANKLIN	COUNTY					
10N/29E-07R01	PN	07-24-02									
13N/28E-11E02	PN	07-23-02									
					ADAMS C	OUNTY					
15N/29E-11E01	PN	07-23-02									
					GRANT C	OUNTY					
19N/26E-15B01	PN	07-15-02									
19N/25E-06H01	PN	07-16-02									
					THURSTON	COUNTY					
18N/01W-36B01	UR	08-20-02	< 0.1	< 0.03	< 0.03	<.05	<.7	<.7	<7	<1	<.3
18N/01W-28G03	UR	08-20-02	<.1	<.03	<.03	<.05	<.7	<.7	<7	<1	<.3
					PIERCE C	OUNTY					
18N/03E-13K01	UR	08-22-02	<.1	<.03	<.03	<.05	<.7	<.7	<7	<1	<.3
19N/02E-26P01	LC	08-19-02	<.1	<.03	<.03	<.05	<.7	<.7	<7	<1	<.3
19N/03E-21C01	UR	08-21-02	<.1	<.03	<.03	<.05	<.7	<.7	<7	<1	<.3
20N/043-36P02	UR	08-21-02	<.1	<.03	<.03	<.05	<.7	<.7	<7	<1	<.3
					WHATCOM	COUNTY					
39N/04E-08G01	AG	09-18-02	<.1	<.03	<.03	<.05	<.7	<.7	<7	<1	<.3
40N/03E-03G02	AG	08-28-02	<.1	.15	<.03	<.05	<.7	<.7	<7	<1	<.3
					BRITISH CO	DLUMBIA					
092G.009.1.2.1-AI	3B	08-27-02	<.1	E.09	<.03	<.05	<.7	<.7	<7	<1	<.3
092G.008.2.2.2-99		09-17-02	<.1	.10	<.03	<.05	<.7	<.7	<7	<1	<.3
092G.009.1.1.4-18		08-27-02	<.1	<.03	<.03	<.05	<.7	<.7	<7	<1	<.3

			BEN- ZENE 123-TRI-	BEN- ZENE	BEN- ZENE	BEN- ZENE 135-TRI-	BENZENE 1,3-DI-	BEN- ZENE 1,4-DI-	ISO- PROPYL- BEN-	BEN- ZENE	BEN- ZENE
			METHYL- WATER UNFLTRD RECOV	1,2,4-TRI- CHLORO WAT UNF REC	124-TRI- METHYL UNFILT RECOV	METHYL WATER UNFLTRD REC	CHLORO WATER UNFLTD REC	CHLORO WATER UNFLTD REC	ZENE WATER WHOLE REC	N-BUTYL WATER UNFLTD REC	N-PROPY WATER UNFLTD REC
LOCAL IDENT	IFIER	DATE	(UG/L) (77221)	(UG/L) (34551)	(UG/L) (77222)	(UG/L) (77226)	(UG/L) (34566)	(UG/L) (34571)	(UG/L) (77223)	(UG/L) (77342)	(UG/L) (77224)
_					FRANKLIN	N COUNTY					
10N/29E-07R01	PN	07-24-02									
13N/28E-11E02	PN	07-23-02									
					ADAMS	COUNTY					
15N/29E-11E01	PN	07-23-02									
					GRANT	COUNTY					
19N/26E-15B01	PN	07-15-02									
19N/25E-06H01	PN	07-16-02									
				•	THURSTO	N COUNTY					
18N/01W-36B01	UR	08-20-02	<.1	<.1	<.06	<.04	< 0.03	< 0.05	< 0.06	< 0.2	< 0.04
18N/01W-28G03	UR	08-20-02	<.1	<.1	<.06	<.04	<.03	<.05	<.06	<.2	<.04
					PIERCE	COUNTY					
18N/03E-13K01	UR	08-22-02	<.1	<.1	<.06	<.04	<.03	<.05	<.06	<.2	<.04
19N/02E-26P01	LC	08-19-02	<.1	<.1	<.06	<.04	<.03	<.05	<.06	<.2	<.04
19N/03E-21C01	UR	08-21-02	<.1	<.1	<.06	<.04	<.03	<.05	<.06	<.2	<.04
20N/043-36P02	UR	08-21-02	<.1	<.1	<.06	<.04	<.03	<.05	<.06	<.2	<.04
					WHATCOM	I COUNTY					
39N/04E-08G01	AG	09-18-02	<.1	<.1	<.06	<.04	<.03	<.05	<.06	<.2	<.04
40N/03E-03G02	AG	08-28-02	<.1	<.1	<.06	<.04	<.03	<.05	<.06	<.2	<.04
					BRITISH C	OLUMBIA					
092G.009.1.2.1-AE	ВВ	08-27-02	<.1	<.1	<.06	<.04	<.03	<.05	<.06	<.2	<.04
092G.008.2.2.2-99		09-17-02	<.1	<.1	<.06	<.04	<.03	<.05	<.06	<.2	<.04
092G.009.1.1.4-18		08-27-02	<.1	<.1	<.06	<.04	<.03	<.05	<.06	<.2	<.04

LOCAL IDENT	IFIER	DATE	BEN- ZENE O-DI- CHLORO WATER UNFLTD REC (UG/L) (34536)	BEN- ZENE SEC- BUTYL WATER UNFLTD REC (UG/L) (77350)	BEN- ZENE TERT- BUTYL WATER UNFLTD REC (UG/L) (77353)	BEN- ZENE TOTAL (UG/L) (34030)	BRO- MO-BEN- ZENE WATER WHOLE TOTAL (UG/L) (81555)	BRO- MO- ETHENE WATER UNFLTD REC (UG/L) (50002)	BROMO- FORM TOTAL (UG/L) (32104)	CAR-BON DI- SULFIDE WATER WHOLE TOTAL (UG/L) (77041)	CARBON TETRA- CHLOR- IDE TOTAL (UG/L) (32102)
				I	FRANKLIN	COUNTY					
10N/29E-07R01	PN	07-24-02									
13N/28E-11E02	PN	07-23-02									
					ADAMS C	OUNTY					
15N/29E-11E01	PN	07-23-02									
					GRANT C	OUNTY					
19N/26E-15B01	PN	07-15-02									
19N/25E-06H01	PN	07-16-02									
				7	HURSTON	COUNTY					
18N/01W-36B01	UR	08-20-02	< 0.03	< 0.03	< 0.05	< 0.04	< 0.04	<0.1	< 0.06	< 0.07	< 0.06
18N/01W-28G03	UR	08-20-02	<.03	<.03	<.05	<.04	<.04	<.1	<.06	<.07	<.06
					PIERCE C	OUNTY					
18N/03E-13K01	UR	08-22-02	<.03	<.03	<.05	<.04	<.04	<.1	<.06	<.07	<.06
19N/02E-26P01	LC	08-19-02	<.03	<.03	<.05	<.04	<.04	<.1	<.06	<.07	<.06
19N/03E-21C01	UR	08-21-02		<.03	<.05	<.04	<.04	<.1	<.06	<.07	<.06
20N/043-36P02	UR	08-21-02	<.03	<.03	<.05	<.04	<.04	<.1	<.06	<.07	<.06
				'	WHATCOM	COUNTY					
39N/04E-08G01	AG	09-18-02	<.03	<.03	<.05	<.04	<.04	<.1	<.06	<.07	<.06
40N/03E-03G02	AG	08-28-02	<.03	<.03	<.05	<.04	<.04	<.1	<.06	<.07	<.06
				ı	BRITISH CO	DLUMBIA					
092G.009.1.2.1-AI	3B	08-27-02	<.03	<.03	<.05	<.04	<.04	<.1	<.06	<.07	<.06
092G.008.2.2.2-99		09-17-02	<.03	<.03	<.05	<.04	<.04	<.1	<.06	<.07	<.06
092G.009.1.1.4-18		08-27-02	<.03	<.03	<.05	<.04	<.04	<.1	<.06	<.07	<.06

CHLOR BROMO CHLOR BROMO CHLOR CHL												
10N/29E-07R01 PN 07-24-02	LOCAL IDENTI	FIER	DATE	OBEN- ZENE TOTAL (UG/L)	ODI- BROMO- ME- THANE TOTAL (UG/L)	ETHANE TOTAL (UG/L)	OFORM TOTAL (UG/L)	DI- CHLORO- ETHENE WATER TOTAL (UG/L)	DI- CHLOR- OPRO- PENE TOTAL (UG/L)	BROMO CHLOR- OPRO- PANE WATER WHOLE TOT REC (UG/L)	BROMO- ETHANE WATER WHOLE REC (UG/L)	BROMO- DI- CHLORO- METH- ANE TOTAL (UG/L) (32101)
13N/28E-11E01						FRANKLIN	COUNTY					
SADAMS COUNTY	10N/29E-07R01	PN	07-24-02									
15N/29E-11E01	13N/28E-11E02	PN	07-23-02									
19N/26E-15B01						ADAMS C	OUNTY					
19N/26E-15B01 PN 07-15-02	15N/29E-11E01	PN	07-23-02									
19N/25E-06H01						GRANT C	OUNTY					
THURSTON COUNTY 18N/01W-36B01 UR 08-20-02 <0.03 <0.2 <0.1 <0.02 <0.04 <0.09 <0.5 <0.05 <0.05 <0.05 <1.05 <0.05 <1.05 <0.05 <1.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0	19N/26E-15B01	PN	07-15-02									
18N/01W-36B01 UR 08-20-02 <0.03 <0.2 <0.1 <0.02 <0.04 <0.09 <0.5 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <	19N/25E-06H01	PN	07-16-02									
18N/01W-28G03						THURSTON	COUNTY					
PIERCE COUNTY 18N/03E-13K01 UR 08-22-02 <.03	18N/01W-36B01	UR	08-20-02	< 0.03	< 0.2	< 0.1	< 0.02	< 0.04	< 0.09	< 0.5	< 0.05	< 0.05
18N/03E-13K01 UR 08-22-02 <.03	18N/01W-28G03	UR	08-20-02	<.03	<.2	<.1	<.02	<.04	<.09	<.5	<.05	<.05
19N/02E-26P01 LC 08-19-02 <.03 <.2 <.1 <.02 <.04 <.09 <.5 <.05 <.05						PIERCE C	OUNTY					
19N/03E-21C01 UR 08-21-02 <.03 <.2 <.1	18N/03E-13K01	UR	08-22-02	<.03	<.2	<.1	E.07	<.04	<.09	<.5	<.05	<.05
20N/043-36P02 UR 08-21-02 <.03 <.2 <.1 <.02 <.04 <.09 <.5 <.05 <.05 <.05 <.05 <.05 <.05 <.05	19N/02E-26P01	LC	08-19-02	<.03	<.2	<.1	<.02	<.04	<.09	<.5	<.05	<.05
### WHATCOM COUNTY 39N/04E-08G01	19N/03E-21C01	UR	08-21-02	<.03	<.2	<.1	.26	<.04	<.09	<.5	<.05	E.05
39N/04E-08G01 AG 09-18-02 <.03 <.2 <.1 <.02 <.04 <.09 <.5 <.05 <.05 <.05 <.05 <.05 <.05 <.05	20N/043-36P02	UR	08-21-02	<.03	<.2	<.1	<.02	<.04	<.09	<.5	<.05	<.05
40N/03E-03G02 AG 08-28-02 <.03 <.2 <.1 <.02 <.04 E.09 <.5 <.05 <.05 BRITISH COLUMBIA 092G.009.1.2.1-ABB 08-27-02 <.03 <.2 <.1 E.04 <.04 <.09 <.5 <.05 <.05 092G.008.2.2.2-99 09-17-02 <.03 <.2 <.1 <.02 <.04 <.09 <.5 <.05 <.05						WHATCOM	COUNTY					
BRITISH COLUMBIA 092G.009.1.2.1-ABB 08-27-02 <.03	39N/04E-08G01	AG	09-18-02	<.03	<.2	<.1	<.02	<.04	<.09	<.5	<.05	<.05
092G.009.1.2.1-ABB 08-27-02 <.03	40N/03E-03G02	AG	08-28-02	<.03	<.2	<.1	<.02	<.04	E.09	<.5	<.05	<.05
092G.008.2.2.2-99						BRITISH CO	DLUMBIA					
	092G.009.1.2.1-AB	В	08-27-02	<.03	<.2	<.1	E.04	<.04	<.09	<.5	<.05	<.05
092G.009.1.1.4-18	092G.008.2.2.2-99		09-17-02	<.03	<.2	<.1	<.02	<.04	<.09	<.5	<.05	<.05
	092G.009.1.1.4-18		08-27-02	<.03	<.2	<.1	<.02	<.04	<.09	<.5	<.05	<.05

LOCAL IDENTIFIER DATE		DI- CHLOR- O-DI- FLUOR- OMETH- ANE TOTAL (UG/L) (34668)	DI- ISOPRO- PYL- ETHER WATER UNFLTD REC (UG/L) (81577)		ETHANE, 1,1,2,2- TETRA- CHLORO- WAT UNF REC (UG/L) (34516)	ETHANE HEXA- CHLORO WATER UNFLTD REC (UG/L) (34396)	ETHER ETHYL WATER UNFLTD REC (UG/L) (81576)	ETHER TERT- BUTYL ETHYL UNFLTD REC (UG/L) 50004)	ETHER TERT- PENTYL METHYL UNFLTD REC (UG/L) (50005)	ETHYL- BEN- ZENE TOTAL (UG/L) (34371)	
				F	RANKLIN C	OUNTY					
10N/29E-07R01	PN	07-24-02									
13N/28E-11E02	PN	07-23-02									
					ADAMS CO	UNTY					
15N/29E-11E01	PN	07-23-02									
					GRANT CO	UNTY					
19N/26E-15B01	PN	07-15-02									
19N/25E-06H01	PN	07-16-02									
				TI	HURSTON (COUNTY					
18N/01W-36B01	UR	08-20-02	< 0.18	< 0.10	< 0.03	< 0.09	< 0.2	< 0.2	< 0.05	< 0.08	< 0.03
18N/01W-28G03	UR	08-20-02	<.18	<.10	<.03	<.09	<.2	<.2	<.05	<.08	<.03
					PIERCE CO	UNTY					
18N/03E-13K01	UR	08-22-02	<.18	<.10	<.03	<.09	<.2	<.2	<.05	<.08	<.03
19N/02E-26P01	LC	08-19-02	<.18	<.10	<.03	<.09	<.2	<.2	<.05	<.08	<.03
19N/03E-21C01	UR	08-21-02	<.18	<.10	<.03	<.09	<.2	<.2	<.05	<.08	<.03
20N/043-36P02	UR	08-21-02	<.18	<.10	<.03	<.09	<.2	<.2	<.05	<.08	<.03
				W	/HATCOM C	COUNTY					
39N/04E-08G01	AG	09-18-02	<.18	<.10	<.03	<.09	<.2	<.2	<.05	<.08	<.03
40N/03E-03G02	AG	08-28-02	<.18	<.10	<.03	<.09	<.2	<.2	<.05	<.08	<.03
				В	RITISH CO	LUMBIA					
092G.009.1.2.1-AE	BB	08-27-02	<.18	<.10	<.03	<.09	<.2	<.2	<.05	<.08	<.03
092G.008.2.2.2-99		09-17-02	<.18	<.10	<.03	<.09	<.2	<.2	<.05	<.08	<.03
092G.009.1.1.4-18		08-27-02	<.18	<.10	<.03	<.09	<.2	<.2	<.05	<.08	<.03

						METHA-			METH-		
			FURAN,		ISO-	CRY-	METHA-	METHA-	ANE	METHYL	
			TETRA-	HEXA-	DUR-	LATE-	CRYLATE-	CRYLO-	BROMO-	ACRY-	METHYL-
			HYDRO-	CHLOR-	ENE	ETHYL	METHYL	NITRILE	CHLORO-	LATE	IODIDE
			WATER	OBUTA-	WATER	WATER	WATER	WAT	WAT	WATER	WATER
			UNFLTD	DIENE	UNFLTD	UNFLTD	UNFLTD	UNFLTD	UNFLTD	UNFLTD	UNFLTD
			REC	TOTAL	REC	REC	REC	REC	REC	REC	REC
LOCAL IDENT		DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)
LOCAL IDENT	IFIER	DATE	(81607)	(39702)	(50000)	(73570)	(81597)	(81593)	(77297)	(49991)	(77424)
					FRANKLIN	OUNTY					
10N/29E-07R01	PN	07-24-02									
13N/28E-11E02	PN	07-23-02									
					ADAMS	COUNTY					
15N/29E-11E01	PN	07-23-02									
					GRANT	COUNTY					
19N/26E-15B01	PN	07-15-02									
19N/25E-06H01	PN	07-16-02									
					THURSTO	N COUNTY	•				
18N/01W-36B01	UR	08-20-02	<2	< 0.1	< 0.2	< 0.2	< 0.3	< 0.6	< 0.07	<2.0	< 0.25
18N/01W-28G03	UR	08-20-02	<2	<.1	<.2	<.2	<.3	<.6	<.07	<2.0	<.25
					PIERCE	COUNTY					
18N/03E-13K01	UR	08-22-02	<2	<.1	<.2	<.2	<.3	<.6	<.07	<2.0	<.25
19N/02E-26P01	LC	08-19-02	<2	<.1	<.2	<.2	<.3	<.6	<.07	< 2.0	<.25
19N/03E-21C01	UR	08-21-02	<2	<.1	<.2	<.2	<.3	<.6	<.07	< 2.0	<.25
20N/043-36P02	UR	08-21-02	<2	<.1	<.2	<.2	<.3	<.6	<.07	<2.0	<.25
					WHATCOM	I COUNTY					
39N/04E-08G01	AG	09-18-02	<2	<.1	<.2	<.2	<.3	<.6	<.07	<2.0	<.25
40N/03E-03G02	AG	08-28-02	<2	<.1	<.2	<.2	<.3	<.6	<.07	<2.0	<.25
					BRITISH C	OLUMBIA					
092G.009.1.2.1-AI	3B	08-27-02	<2	<.1	<.2	<.2	<.3	<.6	<.07	<2.0	<.25
092G.008.2.2.2-99		09-17-02	<2	<.1	<.2	<.2	<.3	<.6	<.07	< 2.0	<.25
092G.009.1.1.4-18		08-27-02	<2	<.1	<.2	<.2	<.3	<.6	<.07	< 2.0	<.25

LOCAL IDENT	IFIER	DATE	METHYL- TERT- BUTYL- ETHER WAT UNF REC (UG/L) (78032)	METHYL- BRO- MIDE TOTAL (UG/L) (34413)	METHYL- CHLOR- IDE TOTAL (UG/L) (34418)	METH- YLENE- CHLOR- IDE TOTAL (UG/L) (34423)	METHYL- ETHYL KETONE WATER WHOLE TOTAL (UG/L) (81595)	METHY- ISO- BUTYL- KETONE WAT WH TOTAL (UG/L) (78133)	META/- PARA- XYLENE WATER UNFLTD REC (UG/L) (85795)	NAPH- THA- LENE TOTAL (UG/L) (34696)	O- CHLOR- OTOL- UENE WATER WHOLE TOTAL (UG/L) (77275)
					FRANKLIN	COUNTY					
10N/29E-07R01	PN	07-24-02									
13N/28E-11E02	PN	07-23-02									
					ADAMS C	OUNTY					
15N/29E-11E01	PN	07-23-02									
					GRANT C	OUNTY					
19N/26E-15B01	PN	07-15-02									
19N/25E-06H01	PN	07-16-02									
	THURSTON COUNTY										
18N/01W-36B01	UR	08-20-02	< 0.2	< 0.3	< 0.2	< 0.2	<5.0	< 0.4	< 0.06	< 0.5	< 0.03
18N/01W-28G03	UR	08-20-02	<.2	<.3	<.2	<.2	< 5.0	<.4	<.06	<.5	<.03
					PIERCE C	OUNTY					
18N/03E-13K01	UR	08-22-02	<.2	<.3	<.2	E.1	<5.0	<.4	<.06	<.5	<.03
19N/02E-26P01	LC	08-19-02		<.3	<.2	<.2	< 5.0	<.4	<.06	<.5	<.03
19N/03E-21C01	UR	08-21-02		<.3	<.2	<.2	< 5.0	<.4	<.06	<.5	<.03
20N/043-36P02	UR	08-21-02	<.2	<.3	<.2	<.2	<5.0	<.4	<.06	<.5	<.03
					WHATCOM	COUNTY					
39N/04E-08G01	AG	09-18-02	<.2	<.3	<.2	<.2	< 5.0	<.4	<.06	<.5	<.03
40N/03E-03G02	AG	08-28-02	<.2	<.3	<.2	<.2	< 5.0	<.4	<.06	<.5	<.03
					BRITISH CO	DLUMBIA					
092G.009.1.2.1-AE	3B	08-27-02	<.2	<.3	<.2	<.2	<5.0	<.4	<.06	<.5	<.03
092G.008.2.2.2-99		09-17-02		<.3	<.2	<.2	<5.0	<.4	<.06	<.5	<.03
092G.009.1.1.4-18		08-27-02	<.2	<.3	<.2	.9	< 5.0	<.4	<.06	<.5	<.03

LOCAL IDENT	IFIER	DATE	O- XYLENE WATER WHOLE TOTAL (UG/L) (77135)	P-ISO- PROPYL- TOLUENE WATER WHOLE REC (UG/L) (77356)	1234- TETRA- METHYL- BENZENE UNFLTD REC (UG/L) (49999)	1,3-DI- CHLOR- OPRO- PANE WAT WH TOTAL (UG/L) (77173)	PRO- PENE 3- CHLORO- WATER UNFLTD REC (UG/L) (78109)	STY- RENE TOTAL (UG/L) (77128)	TETRA- CHLOR- OETH- YLENE TOTAL (UG/L) (34475)	TOLUENE- O-ETHYL WATER UNFLTD REC (UG/L) (77220)	TOLUENE P-CHLOR WATER UNFLTD REC (UG/L) (77277)
FRANKLIN COUNTY											
10N/29E-07R01	PN	07-24-02									
13N/28E-11E02	PN	07-23-02									
					ADAMS C	OUNTY					
15N/29E-11E01	PN	07-23-02									
					GRANT C	OUNTY					
19N/26E-15B01	PN	07-15-02									
19N/25E-06H01	PN	07-16-02									
					THURSTON	COUNTY					
18N/01W-36B01	UR	08-20-02	< 0.07	< 0.07	< 0.2	< 0.1	< 0.07	< 0.04	< 0.03	< 0.06	< 0.05
18N/01W-28G03	UR	08-20-02	<.07	<.07	<.2	<.1	<.07	<.04	<.03	<.06	<.05
					PIERCE C	OUNTY					
18N/03E-13K01	UR	08-22-02	<.07	<.07	<.2	<.1	<.07	<.04	<.03	<.06	<.05
19N/02E-26P01	LC	08-19-02	<.07	<.07	<.2	<.1	<.07	<.04	<.03	<.06	<.05
19N/03E-21C01	UR	08-21-02	<.07	<.07	<.2	<.1	<.07	<.04	E.02	<.06	<.05
20N/043-36P02	UR	08-21-02	<.07	<.07	<.2	<.1	<.07	<.04	<.03	<.06	<.05
					WHATCOM	COUNTY					
39N/04E-08G01	AG	09-18-02	<.07	<.07	<.2	<.1	<.07	<.04	<.03	<.06	<.05
40N/03E-03G02	AG	08-28-02	<.07	<.07	<.2	M	<.07	<.04	<.03	<.06	<.05
					BRITISH CO	OLUMBIA					
092G.009.1.2.1-AI	3B	08-27-02	<.07	<.07	<.2	<.1	<.07	<.04	<.03	<.06	<.05
092G.008.2.2.2-99		09-17-02	<.07	<.07	<.2	<.1	<.07	<.04	<.03	<.06	<.05
092G.009.1.1.4-18		08-27-02	<.07	<.07	<.2	<.1	<.07	<.04	<.03	<.06	<.05

LOCAL IDENT	IFIER	DATE	TOLUENE TOTAL (UG/L) (34010)	TRANS- 1,3-DI- CHLORO- PROPENE TOTAL (UG/L) (34699)	TRI- CHLORO- ETHYLENE TOTAL (UG/L) (39180)	TRI- CHLORO- FLUORO- METHANE TOTAL (UG/L) (34488)	VINYL CHLORIDE TOTAL (UG/L) (39175)	URANIUM NATURAL DISSOLVED (UG/L) (22703)	
			F	RANKLIN CO	DUNTY				
10N/29E-07R01	PN	07-24-02						25.6	
13N/28E-11E02	PN	07-23-02						11.1	
				ADAMS COL	УТИ				
15N/29E-11E01	PN	07-23-02						17.5	
				GRANT COL	JNTY				
19N/26E-15B01	PN	07-15-02						5.43	
19N/25E-06H01	PN	07-16-02						6.50	
THURSTON COUNTY									
18N/01W-36B01	UR	08-20-02	< 0.05	< 0.09	< 0.04	< 0.09	< 0.1	E.01	
18N/01W-28G03	UR	08-20-02	<.05	<.09	<.04	<.09	<.1	<.02	
				PIERCE COI	UNTY				
18N/03E-13K01	UR	08-22-02	<.05	<.09	<.04	<.09	<.1	<.02	
19N/02E-26P01	LC	08-19-02	<.05	<.09	<.04	<.09	<.1	E.01	
19N/03E-21C01	UR	08-21-02	<.05	<.09	<.04	<.09	<.1	<.02	
20N/043-36P02	UR	08-21-02	<.05	<.09	<.04	<.09	<.1	.21	
			W	/НАТСОМ С	OUNTY				
39N/04E-08G01	AG	09-18-02	<.05	<.09	<.04	<.09	<.1	.02	
40N/03E-03G02	AG	08-28-02	<.05	E.10	<.04	<.09	<.1	<.02	
			В	RITISH COL	UMBIA				
092G.009.1.2.1-AE	BB	08-27-02	<.05	<.09	<.04	<.09	<.1	E.02	
092G.008.2.2.2-99		09-17-02	<.05	<.09	<.04	<.09	<.1	<.02	
092G.009.1.1.4-18		08-27-02	<.05	<.09	<.04	<.09	<.1	<.02	

Geologic Units:

000OVBD - UNCLASSIFIED OVERBURDEN

112GLCV - GLACIO-FLUVIATILE

121RGLD - UNDIFFERENTIATED RINGOLD FORMATION

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near Kid Valley	499
South Fork, at Toutle	
Tucannon River near Starbuck	
Tulalip Creek above East Branch, near Tulalip	
East Branch near mouth, near Tulalip	
near Tulalip	
Twisp River above Newby Creek, near Twisp	
near Twisp	
MVID West Diversion near Twisp	
TVPI Diversion near Twisp	
T TT DIVERSION HEAT TWISP	
Walla Walla River near Touchet	466
Warm Creek near Welcome	
Weallup Lake near Tulalip	
Wenatchee River at Monitor	
at Peshastin	
at Plain	
White River above Boise Creek, at Buckley	
at Buckley	
at Tacoma Avenue Bridge at Sumner	
Canal at Buckley	
near Auburn	
near Buckley	
near Sumner	
White Salmon River near Underwood	
Willapa River near Willapa	
Wolf Creek below Diversion, near Winthrop	
Wynoochee Lake near Grisdale	
Wynoochee River above Black Creek, near Montesano	
above Save Creek, near Aberdeen	
near Grisdale	
near Onsuare	12
Yakima River above Ahtanum Creek, at Union Gap	/15
at Kiona	
at Mabton	
at Umtanum	
Yale Reservoir near Yale	
Taic reservoir fical Taic	404

CONVERSION FACTORS

Multiply	Ву	To obtain				
	Length					
inch (in.)	$2.54 \times 10^{1} $ 2.54×10^{-2}	millimeter meter				
foot (ft)	3.048×10^{-1}	meter				
mile (mi)	1.609×10^0	kilometer				
	Area					
acre	$4.047x10^3$	square meter				
	4.047×10^{-1}	square hectometer				
	4.047×10^{-3}	square kilometer				
square mile (mi ²)	2.590×10^0	square kilometer				
	Volume					
gallon (gal)	3.785×10^{0}	liter				
	3.785×10^{0}	cubic decimeter				
	3.785×10^{-3}	cubic meter				
million gallons (Mgal)	3.785×10^3	cubic meter				
	3.785×10^{-3}	cubic hectometer				
cubic foot (ft ³)	2.832×10^{1}	cubic decimeter				
_	2.832×10^{-2}	cubic meter				
cubic-foot-per-second day [(ft ³ /s) d]	2.447×10^3	cubic meter				
	2.447×10^{-3}	cubic hectometer				
acre-foot (acre-ft)	1.233×10^3	cubic meter				
	1.233×10^{-3}	cubic hectometer				
	1.233×10^{-6}	cubic kilometer				
	Flow					
cubic foot per second (ft ³ /s)	2.832×10^{1}	liter per second				
•	2.832×10^{1}	cubic decimeter per second				
	2.832×10^{-2}	cubic meter per second				
gallon per minute (gal/min)	6.309×10^{-2}	liter per second				
	6.309×10^{-2}	cubic decimeter per second				
	6.309×10^{-5}	cubic meter per second				
million gallons per day (Mgal/d)	4.381×10^{1}	cubic decimeter per second				
	4.381×10^{-2}	cubic meter per second				
	Mass					
ton (short)	9.072x10 ⁻¹	megagram or metric ton				

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows: °F = (1.8 \times °C) + 32 U.S. DEPARTMENT OF THE INTERIOR U.S. Geological Survey 1201 Pacific Avenue, Suite 600 Tacoma WA 98402