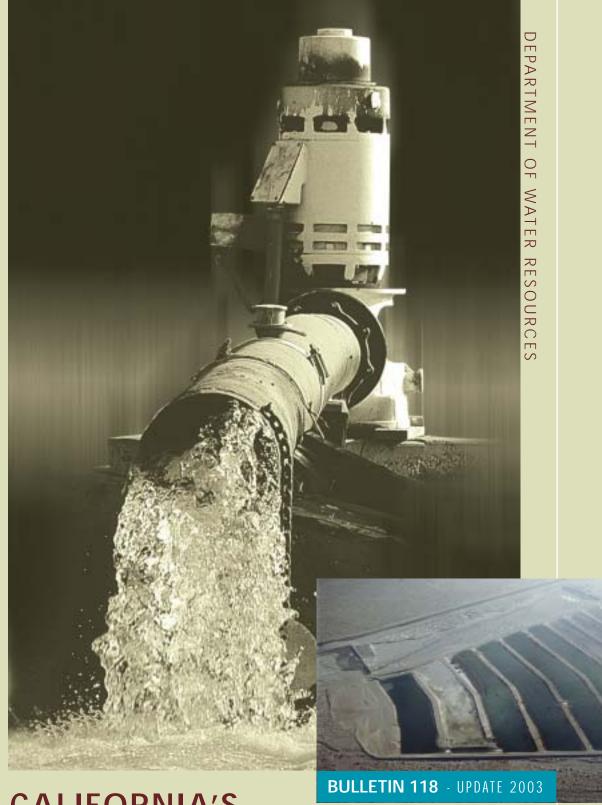
Appendix G: Supplemental Water Supply Information

• DWR Groundwater Bulletin 118



CALIFORNIA'S

GROUNDWATER

Sacramento River Hydrologic Region

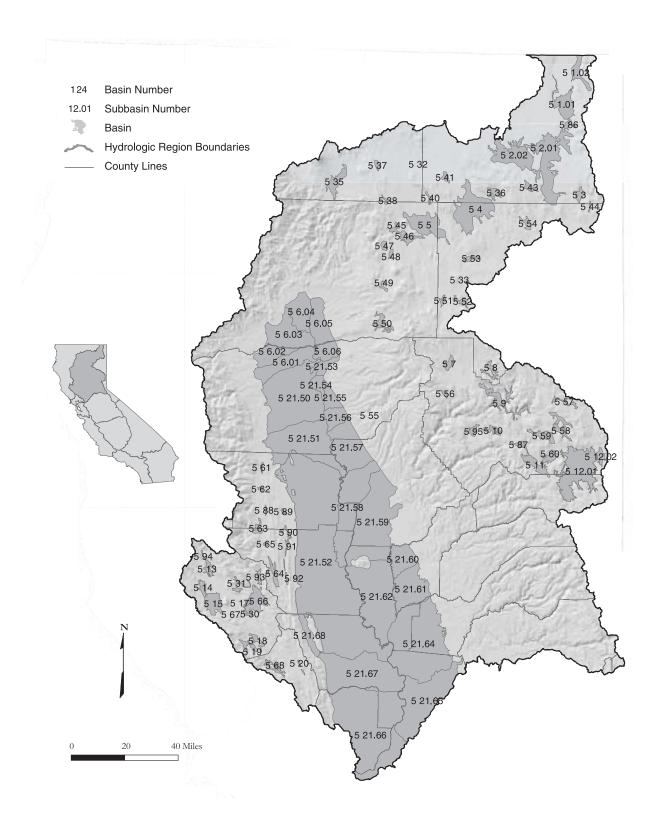


Figure 33 Sacramento River Hydrologic Region

Basins and Subbasins of the Sacramento River Hydrologic Region

Basin/subbasins	Basin name	Basin/subbasins	Basin name
5-1	Goose Lake Valley	5-30	Lower Lake Valley
5-1.01	Lower Goose Lake Valley	5-31	Long Valley
5-1.02	Fandango Valley	5-35	Mccloud Area
5-2	Alturas Area	5-36	Round Valley
5-2.01	South Fork Pitt River	5-37	Toad Well Area
5-2.02	Warm Springs Valley	5-38	Pondosa Town Area
5-3	Jess Valley	5-40	Hot Springs Valley
5-4	Big Valley	5-41	Egg Lake Valley
5-5	Fall River Valley	5-43	Rock Prairie Valley
5-6	Redding Area	5-44	Long Valley
5-6.01	Bowman	5-45	Cayton Valley
5-6.02	Rosewood	5-46	Lake Britton Area
5-6.03	Anderson	5-47	Goose Valley
5-6.04	Enterprise	5-48	Burney Creek Valley
5-6.05	Millville	5-49	Dry Burney Creek Valley
5-6.06	South Battle Creek	5-50	North Fork Battle Creek
5-7	Lake Almanor Valley	5-51	Butte Creek Valley
5-8	Mountain Meadows Valley	5-52	Gray Valley
5-9	Indian Valley	5-53	Dixie Valley
5-10	American Valley	5-54	Ash Valley
5-11	Mohawk Valley	5-56	Yellow Creek Valley
5-12	Sierra Valley	5-57	Last Chance Creek Valley
5-12.01	Sierra Valley	5-58	Clover Valley
5-12.02	Chilcoot	5-58 5-59	Grizzly Valley
5-13	Upper Lake Valley	5-60	Humbug Valley
5-14	Scotts Valley	5-61	Chrome Town Area
5-15	Big Valley	5-62	Elk Creek Area
5-16	High Valley		
5-17	Burns Valley	5-63	Stonyford Town Area
5-18	Coyote Valley	5-64	Bear Valley
5-19	Collayomi Valley	5-65	Little Indian Valley
5-20	Berryessa Valley	5-66	Clear Lake Cache Formation
5-21	Sacramento Valley	5-68	Pope Valley
5-21.50	Red Bluff	5-86	Joseph Creek
5-21.51	Corning	5-87	Middle Fork Feather River
5-21.52	Colusa	5-88	Stony Gorge Reservoir
5-21.53	Bend	5-89	Squaw Flat
5-21.54	Antelope	5-90	Funks Creek
5-21.55	Dye Creek	5-91	Antelope Creek
5-21.56	Los Molinos	5-92	Blanchard Valley
5-21.50	Vina	5-93	North Fork Cache Creek
5-21.58	West Butte	5-94	Middle Creek
5-21.59	East Butte	5-95	Meadow Valley
5-21.60	North Yuba		
5-21.61	South Yuba		
5-21.62	Sutter		
5-21.64	North American		
5-21.65	South American		
5-21.66	Solano		
5-21.67	Yolo		
5-21.68	Capay Valley		

Description of the Region

The Sacramento River HR covers approximately 17.4 million acres (27,200 square miles). The region includes all or large portions of Modoc, Siskiyou, Lassen, Shasta, Tehama, Glenn, Plumas, Butte, Colusa, Sutter, Yuba, Sierra, Nevada, Placer, Sacramento, El Dorado, Yolo, Solano, Lake, and Napa counties (Figure 33). Small areas of Alpine and Amador counties are also within the region. Geographically, the region extends south from the Modoc Plateau and Cascade Range at the Oregon border, to the Sacramento-San Joaquin Delta. The Sacramento Valley, which forms the core of the region, is bounded to the east by the crest of the Sierra Nevada and southern Cascades and to the west by the crest of the Coast Range and Klamath Mountains. Other significant features include Mount Shasta and Lassen Peak in the southern Cascades, Sutter Buttes in the south central portion of the valley, and the Sacramento River, which is the longest river system in the State of California with major tributaries the Pit, Feather, Yuba, Bear and American rivers. The region corresponds approximately to the northern half of RWQCB 5. The Sacramento metropolitan area and surrounding communities form the major population center of the region. With the exception of Redding, cities and towns to the north, while steadily increasing in size, are more rural than urban in nature, being based in major agricultural areas. The 1995 population of the entire region was 2.372 million.

The climate in the northern, high desert plateau area of the region is characterized by cold snowy winters with only moderate precipitation and hot dry summers. This area depends on adequate snowpack to provide runoff for summer supply. Annual precipitation ranges from 10 to 20 inches. Other mountainous areas in the northern and eastern portions of the region have cold wet winters with large amounts of snow, which typically provide abundant runoff for summer supplies. Annual precipitation ranges from 40 to more than 80 inches. Summers are generally mild in these areas. The Coast Range and southern Klamath Mountains receive copious amounts of precipitation, but most of the runoff flows to the coast in the North Coastal drainage. Sacramento Valley comprises the remainder of the region. At a much lower elevation than the rest of the region, the valley has mild winters with moderate precipitation. Annual precipitation varies from about 35 inches in Redding to about 18 inches in Sacramento. Summers in the valley are hot and dry.

Most of the mountainous portions of the region are heavily forested and sparsely populated. Three major national forests (Mendocino, Trinity, and Shasta) make up the majority of lands in the Coast Range, southern Klamath Mountains, and the southern Cascades; these forests and the region's rivers and lakes provide abundant recreational opportunities. In the few mountain valleys with arable land, alfalfa, grain and pasture are the predominant crops. In the foothill areas of the region, particularly adjacent to urban centers, suburban to rural housing development is occurring along major highway corridors. This development is leading to urban sprawl and is replacing the former agricultural production on those lands. In the Sacramento Valley, agriculture is the largest industry. Truck, field, orchard, and rice crops are grown on approximately 2.1 million acres. Rice represents about 23 percent of the total irrigated acreage.

The Sacramento River HR is the main water supply for much of California's urban and agricultural areas. Annual runoff in the HR averages about 22.4 maf, which is nearly one-third of the State's total natural runoff. Major water supplies in the region are provided through surface storage reservoirs. The two largest surface water projects in the region are USBR's Shasta Lake (Central Valley Project) on the upper Sacramento River and Lake Oroville (DWR's State Water Project) on the Feather River. In all, there are more than 40 major surface water reservoirs in the region. Municipal, industrial, and agricultural supplies to the region are about 8 maf, with groundwater providing about 2.5 maf of that total. Much of the remainder of the runoff goes to dedicated natural flows, which support various environmental requirements, including in-stream fishery flows and flushing flows in the Delta.

Groundwater Development

Groundwater provides about 31 percent of the water supply for urban and agricultural uses in the region, and has been developed in both the alluvial basins and the hard rock uplands and mountains. There are 88 basins/ subbasins delineated in the region. These basins underlie 5.053 million acres (7,900 square miles), about 29 percent of the entire region. The reliability of the groundwater supply varies greatly. The Sacramento Valley is recognized as one of the foremost groundwater basins in the State, and wells developed in the sediments of the valley provide excellent supply to irrigation, municipal, and domestic uses. Many of the mountain valleys of the region also provide significant groundwater supplies to multiple uses.

Geologically, the Sacramento Valley is a large trough filled with sediments having variable permeabilities; as a result, wells developed in areas with coarser aquifer materials will produce larger amounts of water than wells developed in fine aquifer materials. In general, well yields are good and range from one-hundred to several thousand gallons per minute. Because surface water supplies have been so abundant in the valley, groundwater development for agriculture primarily supplement the surface supply. With the changing environmental laws and requirements, this balance is shifting to a greater reliance on groundwater, and conjunctive use of both supplies is occurring to a greater extent throughout the valley, particularly in drought years. Groundwater provides all or a portion of municipal supply in many valley towns and cities. Redding, Anderson, Chico, Marysville, Sacramento, Olivehurst, Wheatland, Willows, and Williams rely to differing degrees on groundwater. Red Bluff, Corning, Woodland, Davis, and Dixon are completely dependent on groundwater. Domestic use of groundwater varies, but in general, rural unincorporated areas rely completely on groundwater.

In the mountain valleys and basins with arable land, groundwater has been developed to supplement surface water supplies. Most of the rivers and streams of the area have adjudicated water rights that go back to the early 1900s, and diversion of surface water has historically supported agriculture. Droughts and increased competition for supply have led to significant development of groundwater for irrigation. In some basins, the fractured volcanic rock underlying the alluvial fill is the major aquifer for the area. In the rural mountain areas of the region, domestic supplies come almost entirely from groundwater. Although a few mountain communities are supplied in part by surface water, most rely on groundwater. These groundwater supplies are generally quite reliable in areas that have sufficient aquifer storage or where surface water replenishes supply throughout the year. In areas that depend on sustained runoff, water levels can be significantly depleted in drought years and many old, shallow wells can be dewatered. During 2001, an extreme drought year on the Modoc Plateau, many well owners experienced problems with water supply.

Groundwater development in the fractured rocks of the foothills of the southern Cascades and Sierra Nevada is fraught with uncertainty. Groundwater supplies from fractured rock sources are highly variable in terms of water quantity and water quality and are an uncertain source for large-scale residential development. Originally, foothill development relied on water supply from springs and river diversions with flumes and ditches for conveyance that date back to gold mining era operations. Current development is primarily based on individual private wells, and as pressures for larger scale development increase, questions about the reliability of supply need to be addressed. Many existing foothill communities have considerable experience with dry or drought year shortages. In Butte County residents in Cohasset, Forest Ranch, and Magalia have had to rely on water brought up the ridges in tanker trucks. The suggested answer has been the development of regional water supply projects. Unfortunately, the area's development pattern of small, geographically dispersed population centers does not lend itself to the kind of financial base necessary to support such projects.

Groundwater Quality

Groundwater quality in the Sacramento River HR is generally excellent. However, there are areas with local groundwater problems. Natural water quality impairments occur at the north end of the Sacramento Valley in the Redding subbasin, and along the margins of the valley and around the Sutter Buttes, where Cretaceousage marine sedimentary rocks containing brackish to saline water are near the surface. Water from the older underlying sediments mixes with the fresh water in the younger alluvial aquifer and degrades the quality. Wells constructed in these areas typically have high TDS. Other local natural impairments are moderate levels of hydrogen sulfide in groundwater in the volcanic and geothermal areas in the western portion of the region. In the Sierra foothills, there is potential for encountering uranium and radon-bearing rock or sulfide mineral deposits containing heavy metals. Human-induced impairments are generally associated with individual septic system development in shallow unconfined portions of aquifers or in fractured hard rock areas where insufficient soil depths are available to properly leach effluent before it reaches the local groundwater supply.

Water Quality in Public Supply Wells

From 1994 through 2000, 1,356 public supply water wells were sampled in 51 of the 88 basins and subbasins in the Sacramento River HR. Samples analyzed indicate that 1,282 wells, or 95 percent, met the state primary MCLs for drinking water. Seventy-four wells, or 5 percent, have constituents that exceed one or more MCL. Figure 34 shows the percentages of each contaminant group that exceeded MCLs in the 74 wells.

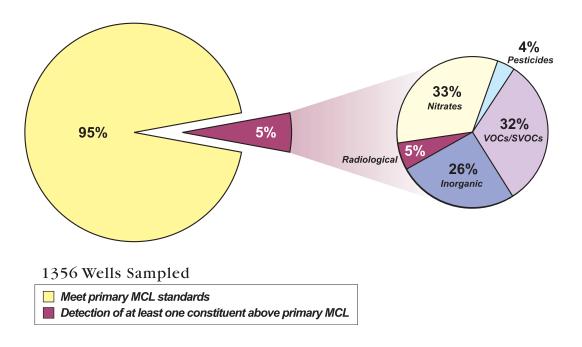


Figure 34 MCL exceedances in public supply wells in the Sacramento River Hydrologic Region

Table 25 lists the three most frequently occurring contaminants in each of the six contaminant groups and shows the number of wells in the HR that exceeded the MCL for those contaminants.

Table 25 Most frequently occurring contaminants by contaminant group in the Sacramento River Hydrologic Region

Contaminant group	Contaminant - # of wells	Contaminant - # of wells	Contaminant - # of wells
Inorganics – Primary	Cadmium – 4	Chromium (Total) – 3	3 tied at 2
Inorganics – Secondary	Manganese – 221	Iron – 166	Specific Conductance – 3
Radiological	Gross Alpha – 4		
Nitrates	Nitrate (as NO ₃) – 22	Nitrate + Nitrite - 5	Nitrate Nitrogen (NO ₃ -N) – 2
Pesticides	Di (2-Ethylhexyl) phthalate-4		
VOCs/SVOCs	PCE – 11	TCE – 7	Benzene – 4

PCE = Tetrachloroethylene

TCE = Trichloroethylene

VOC = Volatile Organic Compounds

SVOC = Semivolatile Organic Compound

Changes from Bulletin 118-80

Some modifications from the groundwater basins presented in Bulletin 118-80 are incorporated in this report. These are listed in Table 26.

Table 26 Modifications since Bulletin 118-80 of groundwater basins and subbasins in Sacramento River Hydrologic Region

Basin name	New number	Old number	
Fandango Valley	5-1.02	5-39	
Bucher Swamp Valley	deleted	5-42	
Modoc Plateau Recent Volcanic Areas	deleted	5-32	
Modoc Plateau Pleistocene Volcanic Areas	deleted	5-33	
Mount Shasta Area	deleted	5-34	
Sacramento Valley Eastside Tuscan Formation Highlands	deleted	5-55	
Clear Lake Pleistocene Volcanics	deleted	5-67	

No additional basins were assigned to the Sacramento River HR in this revision. However, four basins have been divided into subbasins. Goose Lake Valley Groundwater Basin (5-1) has been subdivided into two subbasins, Fandango Valley (5-39) was modified to be a subbasin of Goose Lake Valley. Redding Area Groundwater Basin has been subdivided into six subbasins, Sierra Valley Groundwater Basin has been subdivided into two subbasins, and the Sacramento Valley Groundwater Basin has been subdivided into 18 subbasins.

There are several deletions of groundwater basins from Bulletin 118-80. Bucher Swamp Valley Basin (5-42) was deleted due to a thin veneer of alluvium over rock. Modoc Plateau Recent Volcanic Areas (5-32), Modoc Plateau Pleistocene Volcanic Areas (5-33), Mount Shasta Area (5-34), Sacramento Valley Eastside Tuscan Formation Highlands (5-55), and Clear Lake Pleistocene Volcanics (5-67) are volcanic aquifers and were not assigned basin numbers in this bulletin. These are considered to be groundwater source areas as discussed in Chapter 6.

Table 27 Sacramento River Hydrologic Region groundwater data

Read Subbability Description of the part of the pa									[í
S-10.02 Parcia Name Area (cree) Area					Well Yie	(mdg) spj	Iy	pes of Monit	oring	SCI	TDS (mg/L)
5.101 CONCEL LAKE 36,000 B 2,000 9 9 5.102 FANDANCO VALLEY 18,500 B 2,000 3 5.201 ALLIVAS AGEA 18,500 B 2,000 3 5.202 MANAN SPRINGO VALLEY 67,000 B 4,000 1075 9 5.203 WARDING SPRITT RIVER 67,000 B 4,000 880 19 5.601 MONDAN SPRINGS 5,400 B 1,500 266 16 7 5.601 RESPUNDOD 8,530 B 1,500 266 11 3 5.601 BOWANA 8,530 B 1,500 266 11 3 5.601 BOWANA 8,530 B 1,800 4 1 1 5.603 EVITERALISE 8,530 B 1,800 4 1 1 2 <tr< td=""><td>Basin/Subbasin</td><td>Basin Name</td><td>Area (acres)</td><td>Groundwater Budget Type</td><td>Maximum</td><td>Average</td><td>Levels</td><td>Quality</td><td>Title 22</td><td>Average</td><td>Range</td></tr<>	Basin/Subbasin	Basin Name	Area (acres)	Groundwater Budget Type	Maximum	Average	Levels	Quality	Title 22	Average	Range
5-101 LONDANGO VALLEY 8,6000 B -, 400 9 9 5-101 ANDANGO VALLEY 18,500 B 2,000 -, 3 - 5-201 ANTIVEAS, NEAR 14,000 B 5,000 1,075 9 - 5-202 MOUTH PORK PITT RIVER 14,000 B 4,000 80 9 - 5-202 MONTHALEY 86,000 B 4,000 80 19 - 5-202 HENDING, AREA 86,200 B 4,000 80 19 - 5-601 BOWALLEY 86,200 B 1,500 26 11 7 5-602 ANDERSON 45,320 B 1,500 26 11 0 5-603 ANDERSON 45,320 B 1,800 46 11 0 5-603 ANDERSON 48,330 B 1,800 46 11 0 5-603 ANDERRON 48,400 B	5-1	GOOSE LAKE VALLEY									
\$-100 FANDAWOO VALLEY IB-500 B 2,000 1,075 9 - \$-201 SALTURAS AREA 14,000 B -2,000 1,075 9 - \$-202 WARM SPRINGS VALLEY 6,000 B -4,000 384 - - \$-202 WARM SPRINGS VALLEY 6,000 B 4,000 389 - - \$-501 BIGVALLEY 5,000 B 4,000 389 - - \$-501 BIGVALLEY 5,000 B 1,500 266 16 7 \$-501 BIGVALLEY 5,000 B 1,500 266 11 3 \$-501 BOWANA 5,200 B 1,500 266 11 3 \$-501 BOWANA 5,200 B 1,500 266 11 3 \$-501 ROSEWOOD 8 3,000 B 1,500 266 11 1 4 \$-502	5-1.01	LOWER GOOSE LAKE	36,000	В	'	400	6	6	-	183	68 - 528
5.2.01 SOLTHEORIE PITE RIVER 14,000 B 5,000 1,075 9 - 5.2.02 WARMA SPRINCIS VALLEY 68,000 B 4,000 334 3 - 5.2.02 WARMA SPRINCIS VALLEY 6,700 B 4,000 880 19 - 5.6.01 BIO VALLEY 6,700 B 4,000 880 19 - 5.6.01 BOWAMAN 85,330 B 1,500 266 16 7 5.6.02 ROSEWOOD 45,320 B 1,500 264 11 10 5.6.03 ANDEREON 46,320 B 1,600 36 11 10 5.6.04 BOWALLEY 7,130 B 1,600 36 11 10 5.6.05 MILLVILLEY 60,300 B 7,00 38 1 1 4 5.6.06 MILLVILLEY 6,300 B 1,00 3,0 1 1 4 <td< td=""><td>5-1.02</td><td>FANDANGO VALLEY</td><td>18,500</td><td>В</td><td>2,000</td><td>1</td><td>3</td><td>1</td><td>ı</td><td>'</td><td>1</td></td<>	5-1.02	FANDANGO VALLEY	18,500	В	2,000	1	3	1	ı	'	1
5-2.07 WAMAN SPRINGS VALLEY 68,000 B 4,000 314 9 - 5-2.07 BONTH ROKE PITT RIVER 6700 B 4,000 304 - - FALL RUMEN VALLEY 6,700 B 4,000 266 16 7 5-6.01 BIOWAMAN 85,330 B 2,000 266 11 0 5-6.02 BOWAMAN 85,330 B 2,000 366 11 0 5-6.03 BOWAMAN 85,330 B 1,800 254 6 1 5-6.03 BUTTERNEISE 60,300 B 1,800 254 6 1 5-6.04 ENTERPRISE 60,300 B 1,800 254 6 1 5-6.05 SILLARANOR VALLEY 32,300 B 1,800 254 6 5 5-6.06 SILLARANOR VALLEY 8,150 B 1,60 4 1 1 5-6.07 SILLARANOR VALLEY <	5-2	ALTURAS AREA								357	180 - 800
\$-2.00 BMOWAN SPRINGS VALLEY 67.00 B 4.00 38.0 - HEGN VALLEY 67.00 B 4.00 38.0 19 - S-6.01 BIC VALLEY 5.200 B 4.00 38.0 19 - S-6.01 REDINGY AREA 8.48.0 B 1.500 2.6 16 7 S-6.02 ROSEWOOD 45.330 B 2.0 2.6 11 10 S-6.03 ANDERSON 45.330 B 1.800 46 11 10 S-6.04 ANDERSON 46.200 B 1.800 46 11 10 S-6.05 ANDERSON 46.200 B 7.0 2.6 11 10 S-6.06 ANDERSON 46.200 B 7.0 2.6 11 10 S-6.05 ANDERSON 46.200 B 7.0 2.6 11 10 S-6.06 ANDERSON 46.200 B 7.0	5-2.01	SOUTH FORK PITT RIVER	114,000	В	5,000	1,075	6	1	∞	1	1
BIG VALLEY PAGE P	5-2.02	WARM SPRINGS VALLEY	68,000	В	400	314	3	1	11	1	1
BIOLINALIEY 92,000 B 4,000 880 19 9 5-6.01 REDDING AREA 54,800 B 1,500 266 16 7 5-6.02 ROSEWOOD 8 2,000 589 8 2 5-6.02 ROSEWOOD 8 2,000 589 8 2 5-6.03 ROSEWOOD 8 2,000 589 8 1 5-6.04 ROSEWOOD 8 7,00 589 8 1 1 1 5-6.05 MILLVILLE 6,900 B 7,00 264 1 1 1 5-6.05 MILLVILLE 7,150 B 7,00 264 1 1 1 5-6.04 ENTERPRISE 8,150 B 7,00 264 1 1 1 5-6.05 MILLVILLE 7,150 B 7 7 7 7 7 7 7 7 7 7 7	5-3	JESS VALLEY	6,700	В		3,000	1	1	1	1	1
S-6.01 RODING AREA S4.80 B 1.50 206 16 7 S-6.01 BOWANAN 85.330 B 2.000 589 8 2 S-6.02 RONDNG AREA 85.330 B 2.000 589 8 2 S-6.02 ANDERSOND 45.320 B - - - - - S-6.03 ANDERSON 60.900 B 7.00 2.66 11 3 S-6.04 ENTERPRISE 60.900 B 7.00 2.66 11 3 S-6.05 SOLTH BATTLE CREEK 7.150 B - - - 0	5-4	BIG VALLEY	92,000	В	4,000	088	19	6	10	260	141 - 633
S-6.01 BOWNANN 85.30 B 2.000 589 8 S-6.02 BOWNANN 45.320 B - 4 - S-6.04 RANDERGON 45.320 B - - 4 - S-6.04 RANDERGON 60,900 B 1.00 46 11 10 S-6.05 MILLYILLE 60,900 B 7.00 2.4 - - 0 0 0 S-6.05 MILLYILLE 7.150 B - - 0 <t< td=""><td>5-5</td><td>FALL RIVER VALLEY</td><td>54,800</td><td>В</td><td>1,500</td><td>266</td><td>16</td><td>7</td><td>3</td><td>174</td><td>115 - 232</td></t<>	5-5	FALL RIVER VALLEY	54,800	В	1,500	266	16	7	3	174	115 - 232
5-601 BOWMANN 85.330 B 2.00 589 8 2 5-602 ROSEWOOD 5-604 ROSEWOOD B - -4 1.1 10 5-604 ENTERGON B 1,800 46 11 10 5-604 ENTERGON 67,900 B 700 266 11 10 5-605 SOUTH BATTLE CREEK 67,900 B 70 266 11 10 5-605 SOUTH BATTLE CREEK 71,90 B - - - 0 0 0 AMERICAN VALLEY 71,90 B - <td< td=""><td>5-6</td><td>REDDING AREA</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	5-6	REDDING AREA									
5-602 ROSEWOOD 45.320 B 4 5-604 ANDERSON 98.300 B 1.80 266 11 10 5-604 ANDERSON 60.300 B 7.00 266 11 10 5-605 MILLYILE CREEK 3.730 B 10 0 5-605 MILLYILLEY 6.800 B 10 0 1 AARENCAN VALLEY 2.150 B	5-6.01	BOWMAN	85,330	В	2,000	589	8	2	13	1	70 - 247
5-6.03 ANDERSON 98,500 B 1,800 46 11 10 5-6.04 MILLYILLE 60,900 B 700 266 11 3 5-6.05 MILLYILLE 67,900 B 70 246 11 10 5-6.05 MILLYILLE 7,150 B - - 1 - - MOUNTAIN MEADOWS VALLEY 8,150 B -	5-6.02	ROSEWOOD	45,320	В	I	1	4	ı	ı	1	118 - 218
5-604 ENTERPRISE 60,900 B 700 266 11 3 5-605 MILLVILLE 67,900 B 50 254 0 5 5-605 MILLVILLE 32,300 B - - 0 0 5 5-606 SOUTH BATILLE CREEK 32,300 B - - 0 0 4 ACRILLOY REALAMANOR VALLEY 8,150 B - - - 0 0 -	5-6.03	ANDERSON	98,500	В	1,800	46	11	10	69	194	109-320
5-606 MILLYILLE 67,900 B 500 254 6 5 5-606 SOUTH BATTLE CREEK 32,300 B - - 0 0 1-AKE ALMANOR VALLEY 7,150 B - - - 0 0 1 NDIAN VALLEY 8,150 B - - - - - 4 1 NDIAN VALLEY 6,800 B -	5-6.04	ENTERPRISE	60,900	В	002	266	11	3	43	-	160 - 210
5-606 SOUTH BATTLE CREEK 32,300 B - - 0 0 IACKE ALMANOR VALLEY 7,150 B - - - 10 - INDIAN VALLEY 8,150 B -	5-6.05	MILLVILLE	67,900	В	500	254	9	5	4	140	1
LAKE ALMANOR VALLEY 7,150 B	5-6.06	SOUTH BATTLE CREEK	32,300	В	1	1	0	0	0	360	1
MOUNTAIN MEADOWS VALLEY	5-7	LAKE ALMANOR VALLEY	7,150	В	-	1	10	4	4	105	53 - 260
INDIAN VALLEY	5-8	MOUNTAIN MEADOWS VALLEY	8,150	В	I	1	1	1	ı	1	1
AMERICAN VALLEY 6,800 B 40 40 4 S-12.01 SIERRA VALLEY 19,000 B - 500 1 2 5-12.01 SIERRA VALLEY 117,700 B 1,500 640 34 15 5-12.02 CHILCOOT 7,550 B - - 15 - 5-12.02 CHILCOOT 7,250 B - - 15 - 6-12.02 CHILCOOT 7,250 B - - 15 - 8 COTTS VALLEY 7,250 B 1,470 475 49 11 BIG VALLEY 2,360 B 1,470 475 49 11 COY OF VALLEY 2,360 B 1,470 475 49 11 BERNYESSA VALLEY 6,530 B 1,000 121 10 4 COLLAYOMI VALLEY 6,500 B 1,000 121 0 1 S-21:50 <t< td=""><td>5-9</td><td>INDIAN VALLEY</td><td>29,400</td><td>В</td><td>1</td><td>1</td><td>_</td><td>4</td><td>6</td><td>1</td><td>1</td></t<>	5-9	INDIAN VALLEY	29,400	В	1	1	_	4	6	1	1
S-12.01 SIERRA VALLEY 19,000 B - 500 1 2 S-12.01 SIERRA VALLEY 11,700 B 1,500 640 34 15 S-12.02 CHILCOOT 7,550 B - - 15 - - 15 - - 15 - - 15 - - 15 - - 15 - - 15 - - 15 - - 15 - - 15 - - 15 - - 15 - - 15 - - - 15 - - - 15 - <	5-10	AMERICAN VALLEY	6,800	В	40	40		4	11	-	1
SIERRA VALLEY 117700 B 1,500 640 34 15 5-12.01 SIERRA VALLEY 7,550 B - 15 - 5-12.02 CHILCOOT 7,250 B - 15 - 5-12.02 CHILCOOT 7,320 B - 15 - SCOTTS VALLEY 7,320 B 1,700 171 9 1 - BIG VALLEY 7,320 B 1,700 171 9 1 - BIGNS VALLEY 2,360 B 1,000 37 5 2 2 COVATYONI VALLEY 5,300 B 1,000 121 4 6 3 1 5 COLLAYOMI VALLEY 6,500 B 1,000 121 0 - - 0 - - 0 - - - 0 - - - 0 - - - -	5-11	MOHAWK VALLEY	19,000	В	_	500	1	2	15	248	210 - 285
5-12.01 SIERRA VALLEY 117,700 B 1,500 640 34 15 5-12.02 CHILCOOT 7,550 B - - 15 - S-12.02 CHILCOOT 7,260 B 9.0 302 12 3 SCOTTS VALLEY 7,320 B 1,200 171 9 11 BIG VALLEY 2,360 B 1,470 475 49 11 HIGH VALLEY 2,360 B 1,00 37 5 2 BIGNIS VALLEY 6,530 B 0 46 6 3 COLAYOTE VALLEY 6,530 B 1,000 121 0 - BERRYESSA VALLEY 6,530 B 1,000 121 0 - SACRAMENTO VALLEY 1,400 C - - 0 - - SACRAMENTO VALLEY 2,66,750 B 1,200 34 3 1 S-21,51 CO		SIERRA VALLEY									
5-12.02 CHILCOOT 7,550 B - - 15 - SCOTTS VALLEY 7,260 B 900 302 12 3 B SCOTTS VALLEY 7,320 B 1,700 171 9 1 HGH VALLEY 2,4210 B 1,00 37 5 2 BURNS VALLEY 2,360 B 1,00 37 5 2 COYOTE VALLEY 2,360 B 1,00 44 6 3 COYOTE VALLEY 6,530 B 800 446 6 3 COLLAYOMI VALLEY 6,500 B 1,000 121 10 4 BERRYESSA VALLEY 1,400 C - - 0 - 0 S-21.50 RERD BLUFF 1,400 C - 0 - 0 0 S-21.51 CORNING 20,540 B 3,500 977 29 7 S-21.52 COL	5-12.01	SIERRA VALLEY	117,700	В	1,500	640	34	15	6	312	110 - 1,620
UPPER LAKE VALLEY 7,260 B 900 302 12 3 SCOTTS VALLEY 7,320 B 1,200 171 9 1 BIG VALLEY 2,360 B 1,470 475 49 11 HIGH VALLEY 2,360 B 1,470 475 49 11 BURNS VALLEY 2,360 B - 30 1 5 COYOTE VALLEY 6,530 B 800 446 6 3 COLLAYOMI VALLEY 6,530 B 1,000 121 10 4 S-21.50 REDRAYESSA VALLEY 1,400 C - 0 - 0 - S-21.51 COLLAYOMI VALLEY 1,400 C - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - - - - -	5-12.02	CHILCOOT	7,550	В	ı	ı	15	ı	8	1	ı
SCOTTS VALLEY 7,320 B 1,200 171 9 1 BIG VALLEY 24,210 B 1,470 475 49 11 BURNS VALLEY 2,360 B 100 37 5 2 COVATE VALLEY 6,530 B 0 46 6 3 COLLAYOMI VALLEY 6,500 B 1,000 121 10 4 BERRYESSA VALLEY 1,400 C - - 0 - - SACRAMENTO VALLEY 1,400 C - - 0 - - SACRAMENTO VALLEY 1,400 C - - 0 - - SACRAMENTO VALLEY 26,575 B 1,200 363 30 10 5-21.51 CORNING 20,540 B 3,500 977 29 7 5-21.52 COLUSA 20,770 B 3,300 8 1 5 5-21.54	5-13	UPPER LAKE VALLEY	7,260	В	006	302	12	3	9	1	1
BIG VALLEY 24,210 B 1,470 475 49 11 HIGH VALLEY 2,360 B 100 37 5 2 BURNS VALLEY 2,360 B - 30 1 5 COLYOTE VALLEY 6,530 B 800 446 6 3 COLYOTE VALLEY 6,500 B 1,000 121 10 4 SACRAMENTO VALLEY 6,500 B 1,000 7 - 0 - SACISO RED BLUFF 1,400 C - 0 - 0 - 5-21.51 CORNING 20,500 B 1,200 363 30 10 5-21.52 COLUSA 918,380 B 5,600 984 98 30 1 5-21.53 BEND - 27,70 B 3,300 890 8 1 5-21.54 ANTELOPE 27,730 B 3,300 80 1 <td>5-14</td> <td>SCOTTS VALLEY</td> <td>7,320</td> <td>В</td> <td>1,200</td> <td>171</td> <td>6</td> <td>1</td> <td>6</td> <td>158</td> <td>140 - 175</td>	5-14	SCOTTS VALLEY	7,320	В	1,200	171	6	1	6	158	140 - 175
HIGH VALLEY 2,360 B 100 37 5 2 BURNS VALLEY 2,900 B - 30 1 5 COYOTE VALLEY 6,530 B 800 446 6 3 COLLAYOMI VALLEY 6,500 B 1,000 121 10 4 BERRYESSA VALLEY 1,400 C - - 0 - 5-21.50 RED BLUFF 266,750 B 1,200 363 30 10 5-21.51 CORNING 20,5640 B 5,600 984 98 30 1 5-21.52 COLUSA 18,380 B 5,600 984 98 1 5-21.53 BEND 20,770 B - 27,730 B 3,300 890 8 1 5-21.54 DYE CREEK 27,730 B 3,850 1,212 23 5 5-21.57 VINA 125,640 B 4,000	5-15	BIG VALLEY	24,210	В	1,470	475	49	11	7	535	270 - 790
BURNS VALLEY 2,900 B - 30 1 5 COYOTE VALLEY 6,530 B 800 446 6 3 COLLAYOMI VALLEY 6,530 B 1,000 121 10 4 BERRYESSA VALLEY 1,400 C - - 0 - 0 - S-21.50 RED BLUFF 266,750 B 1,200 363 30 10 5-21.51 CORNING 205,640 B 3,500 977 29 7 5-21.52 COLUSA 18,710 B 3,500 984 98 30 5-21.53 BEND 20,770 B 3,300 890 8 10 5-21.54 ANTELOPE 27,730 B 3,300 890 8 1 5-21.55 DYE CREEK 27,730 B 3,850 1,212 2 2 5-21.57 VINA 1,81,600 B 3,850 1,212<	5-16	HIGH VALLEY	2,360	В	100	37	5	2	ı	298	480 - 745
COYOTE VALLEY 6,530 B 800 446 6 3 COLLAYOMI VALLEY 6,500 B 1,000 121 10 4 BERRYESSA VALLEY 1,400 C - - 0 - S-21.50 RED BLUFF 266,750 B 1,200 363 30 10 5-21.51 CORNING 205,640 B 3,500 977 29 7 5-21.52 COLUSA 18,380 B 5,600 984 98 30 10 5-21.53 BEND 20,770 B 5,600 984 98 30 1 5-21.54 ANTELOPE 18,710 B 3,300 890 8 1 5-21.55 DYE CREEK 27,730 B 3,300 890 8 1 5-21.56 LOS MOLINOS 1,25,640 B 3,850 1,212 2 5 5-21.57 VINA 1,81,600 B	5-17	BURNS VALLEY	2,900	В	ı	30		S	ı	335	280 - 455
COLLAYOMI VALLEY 6,500 B 1,000 121 10 4 BERRYESSA VALLEY 1,400 C - - 0 - - S-21.50 RED BLUFF 266,750 B 1,200 363 30 10 5-21.51 CORNING 205,640 B 3,500 977 29 7 5-21.52 COLUSA 18,380 B 5,600 984 98 30 10 5-21.53 BEND 20,770 B 5,600 984 98 30 1 5-21.54 ANTELOPE 18,710 B 800 575 4 5 5-21.55 DYE CREEK 27,730 B 3,300 890 8 1 5-21.56 LOS MOLINOS 33,170 B 3,850 1,212 2 5 5-21.57 VINA 4,000 1,833 32 8 1	5-18	COYOTE VALLEY	6,530	В	800	446	9	3	3	288	- 1
SACRAMENTO VALLEY 1,400 C - 0 - - 0 -	5-19	COLLAYOMI VALLEY	6,500	В	1,000	121	10	4	3	202	150 - 255
SACRAMENTO VALLEY 266,750 B 1,200 363 30 10 5-21.50 RED BLUFF 266,750 B 1,200 363 30 10 5-21.51 CORNING 205,640 B 3,500 977 29 7 5-21.52 COLUSA 918,380 B 5,600 984 98 30 1 5-21.53 BEND - 207,70 B - 275 0 3 1 5-21.54 ANTELOPE 18,710 B 800 575 4 5 5-21.55 DYE CREEK 27,730 B 1,000 500 3 1 5-21.56 LOS MOLINOS 33,170 B 1,000 500 3 3 5-21.57 VINA 125,640 B 4,000 1,813 3 8 1 5-21.58 WEST BUTTE 1,81,600 B 4,000 1,833 32 8 8	5-20	BERRYESSA VALLEY	1,400	C	ı	1	0	ı	0	1	1
RED BLUFF 266,750 B 1,200 363 30 10 CORNING 205,640 B 3,500 977 29 7 COLUSA 918,380 B 5,600 984 98 30 1 BEND 20,770 B - 275 0 3 1 ANTELOPE 18,710 B 800 575 4 5 DYECREK 27,730 B 3,300 890 8 1 LOS MOLINOS 33,170 B 1,000 500 3 3 VINA 125,640 B 4,000 1,833 32 8	5-21	SACRAMENTO VALLEY									
CORNING CORNING 205,640 B 3,500 977 29 7 COLUSA 918,380 B 5,600 984 98 30 1 BEND 20,770 B - 275 0 3 1 ANTELOPE 18,710 B 800 575 4 5 DYECREK 27,730 B 3,300 890 8 1 LOS MOLINOS 33,170 B 1,000 500 3 3 VINA 125,640 B 4,000 1,212 23 5 WEST BUTTE 181,600 B 4,000 1,833 32 8	5-21.50	RED BLUFF	266,750	В	1,200	363	30	10	26	207	120 - 500
COLUSA 918,380 B 5,600 984 98 30 1 BEND 20,770 B - 275 0 3 1 ANTELOPE 18,710 B 800 575 4 5 DYECREK 27,730 B 3,300 890 8 1 LOS MOLINOS 33,170 B 1,000 500 3 3 VINA 125,640 B 4,000 1,212 23 5 WEST BUTTE 181,600 B 4,000 1,833 32 8	5-21.51	CORNING	205,640	В	3,500	716	29	7	30	286	130 - 490
BEND 20,770 B - 275 0 3 ANTELOPE 18,710 B 800 575 4 5 DYE CREEK 27,730 B 3,300 890 8 1 LOS MOLINOS 33,170 B 1,000 500 3 3 VINA 125,640 B 3,850 1,212 23 5 WEST BUTTE 181,600 B 4,000 1,833 32 8	5-21.52	COLUSA	918,380	В	5,600	984	86	30	134	391	120 - 1,220
ANTELOPE 18,710 B 800 575 4 5 DYE CREEK 27,730 B 3,300 890 8 1 LOS MOLINOS 33,170 B 1,000 500 3 3 VINA 125,640 B 3,850 1,212 23 5 WEST BUTTE 181,600 B 4,000 1,833 32 8	5-21.53	BEND	20,770	В	1	275	0	3	6		334-360
DYE CREEK 27,730 B 3,300 890 8 1 LOS MOLINOS 33,170 B 1,000 500 3 3 3 VINA 125,640 B 3,850 1,212 23 5 WEST BUTTE 181,600 B 4,000 1,833 32 8	5-21.54	ANTELOPE	18,710	В	800	575	4	5	22	296	1
LOS MOLINOS 33,170 B 1,000 500 3 3 3 VINA 125,640 B 3,850 1,212 23 5 WEST BUTTE 181,600 B 4,000 1,833 32 8	5-21.55	DYE CREEK	27,730	В	3,300	890	8	1	3	240	159 - 396
VINA 125,640 B 3,850 1,212 23 5 WEST BUTTE 181,600 B 4,000 1,833 32 8	5-21.56	LOS MOLINOS	33,170	В	1,000	500	3	3	6	217	
WEST BUTTE	5-21.57	VINA	125,640	В	3,850	1,212	23	5	69	285	48 - 543
	5-21.58	WEST BUTTE	181,600	В	4,000	1,833	32	8	36	293	130 - 676

Table 27 Sacramento River Hydrologic Region groundwater data (continued)

				Well Yields (gpm)	ds (gpm)	Ty	Types of Monitoring	oring	TDS (mg/L)	mg/L)
Basin/Subbasin	Basin Name	Area (acres)	Groundwater Budget Type	Maximum	Average	Levels	Quality	Title 22	Average	Range
1		(200		000	0 0	Ç		1	200	, I
5-21.39	EAST BUILE	700,400	Q V	4,300	1,019	645	4	44 6	CC7	122 - 370
5-21.60	NOKI'H Y UBA	100,400	ی	4,000	1	21	1	32	1	1
5-21.61	SOUTH YUBA	107,000	C	4,000	1,650	56	1	9	1	1
5-21.62	SUTTER	234,000	C	1	1	34	1	115	1	1
5-21.64	NORTH AMERICAN	351,000	A	1	800	121	1	339	300	150 - 1,000
5-21.65	SOUTH AMERICAN	248,000	C	1	1	105	1	247	221	24-581
5-21.66	SOLANO	425,000	C	1	1	123	23	136	427	150 - 880
5-21.67	YOLO	226,000	В	4,000+	1,000	127	20	185	880	480 - 2,060
5-21.68	CAPAY VALLEY	25,000	C	1	1	11	1	3	'	
5-30	LOWER LAKE VALLEY	2,400	В	100	37		3	S	568	290 - 1,230
5-31	LONG VALLEY	2,600	В	100	63	1	1	1	ı	1
5-35	MCCLOUD AREA	21,320	В	1	380	1	1	1	1	1
5-36	ROUND VALLEY	7,270	В	2,000	800	2				148 - 633
5-37	TOAD WELL AREA	3,360	В	1	1	1	1	-	•	1
5-38	PONDOSA TOWN AREA	2,080	В	1	-	-	-	-	-	1
5-40	HOT SPRINGS VALLEY	2,400	В	-	-	=	-	-	-	-
5-41	EGG LAKE VALLEY	4,100	В	1	20	1	1	-	1	1
5-43	ROCK PRAIRIE VALLEY	5,740	В	1	-	-	-	-	-	1
5-44	LONG VALLEY	1,090	В	1	1	-	1	1	1	1
5-45	CAYTON VALLEY	1,300	В	1	400	1	1	-	1	1
5-46	LAKE BRITTON AREA	14,060	В	1	-	-	-	2	-	1
5-47	GOOSE VALLEY	4,210	В	1	1	-	1	-	-	1
5-48	BURNEY CREEK VALLEY	2,350	В	•	1	-	1	2	-	'
5-49	DRY BURNEY CREEK VALLEY	3,070	В	-	-	-	-	-	-	•
5-50	NORTH FORK BATTLE CREEK VALLEY	12,760	В	1	1	1	ı	3	'	1
5-51	BUTTE CREEK VALLEY	3,230	В	•	1	1	1	-	1	1
5-52	GRAYS VALLEY	5,440	В	-	-	_	-	-	1	1
5-53	DIXIE VALLEY	4,870	В	-	-	-	-	-	-	-
5-54	ASH VALLEY	6,010	В	3,000	2,200	1	1	-	1	1
5-56	YELLOW CREEK VALLEY	2,310	В		1	1	1	1	1	1
5-57	LAST CHANCE CREEK VALLEY	4,660	В	1	1	_	1	1	1	1
5-58	CLOVER VALLEY	16,780	В	1	-	_	1	1	ı	1
5-59	GRIZZLY VALLEY	13,400	В	1	-	1	1	1	1	1
5-60	HUMBUG VALLEY	086'6	В	1	1	-	1	8	1	1
5-61	CHROME TOWN AREA	1,410	В	1	1	1	1	-	•	1
5-62	ELK CREEK AREA	1,440	В	1	-	-	-	-	-	1
5-63	STONYFORD TOWN AREA	6,440	В	1	1	-	1	-	-	1
5-64	BEAR VALLEY	9,100	В	1	-	1	-	-	-	1
5-65	LITTLE INDIAN VALLEY	1,270	В	-	-	-	-	-	-	•
2-66	CLEAR LAKE CACHE FORMATION	30,000	В	245	52		1	4	1	1
5-68	POPE VALLEY	7,180	C	ı	1	1	ı	1	'	1
5-86	JOSEPH CREEK	4,450	В	1	1	1	'			

Table 27 Sacramento River Hydrologic Region groundwater data (continued)

		6 6 6					,			
				Well Yields (gpm)	ds (gpm)	Tyl	Types of Monitoring	oring	TDS (mg/L)	ng/L)
Basin/Subbasin	Basin Name	Area (acres)	Groundwater Budget Type Maximum	Maximum	Average Levels	Levels	Quality	Title 22	Average	Range
5-87	MIDDLE FORK FEATHER RIVER	4,340	В	-	1	1	1	2	1	1
5-88	STONY GORGE RESERVOIR	1,070	В	1	1	1	1	1	1	1
5-89	SQUAW FLAT	1,300	C	1	1		1	1	1	1
5-90	FUNKS CREEK	3,000	C	1	1	1	1	1	1	1
5-91	ANTELOPE CREEK	2,040	В	1	1	1	1	1	1	1
5-92	BLANCHARD VALLEY	2,200	В	1	1	•	1	1	1	1
5-93	NORTH FORK CACHE CREEK	3,470	C	-	1	1	1	1	1	1
5-94	MIDDLE CREEK	200	В	1	75	•	1	1	1	1
5-95	MEADOW VALLEY	5,730	В	-	-	-	-	1	-	1

gpm - gallons per minute mg/L - milligram per liter TDS -total dissolved solids