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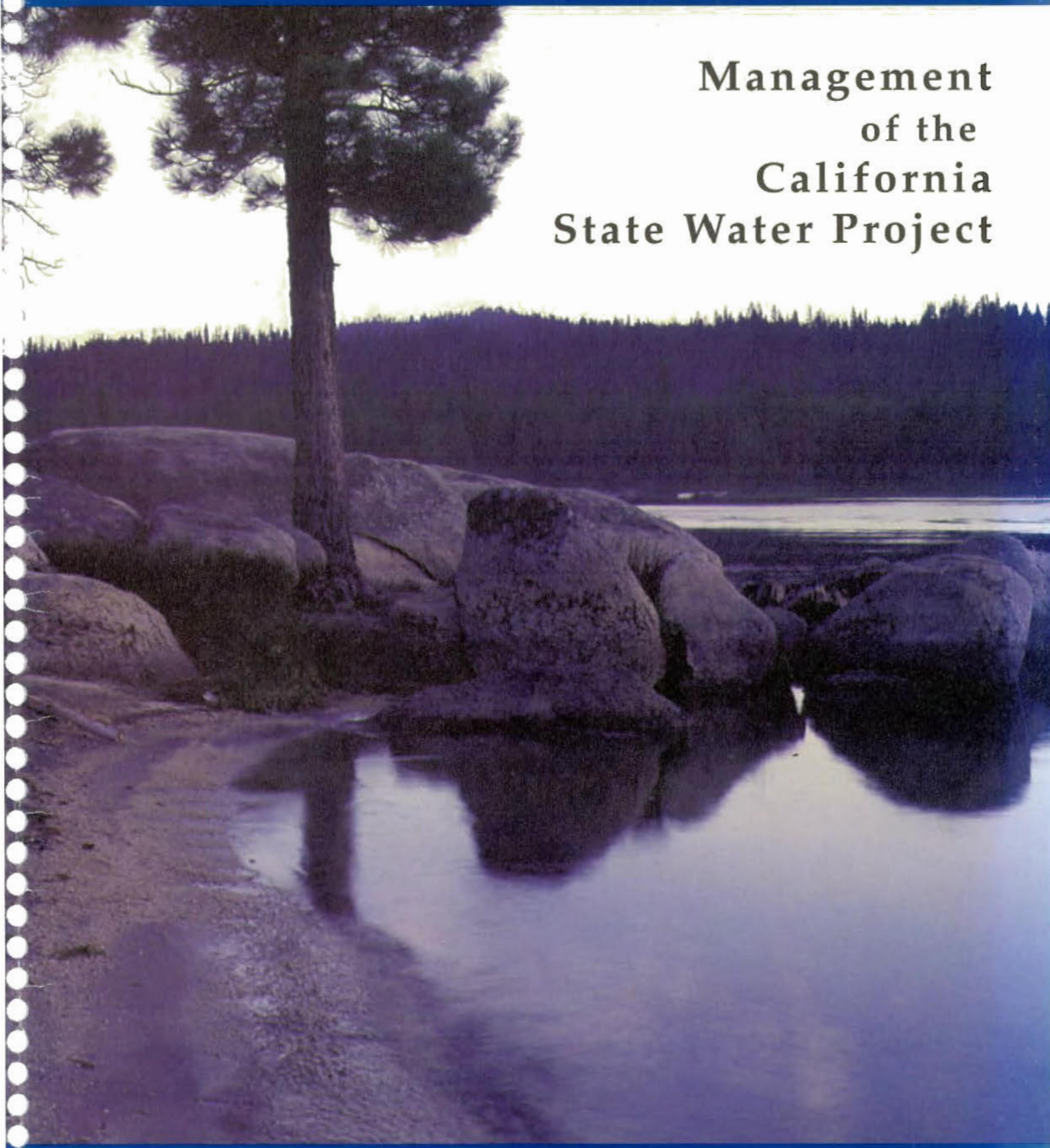
Management of the California State Water Project



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Management of the California State Water Project

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Pete Wilson, Governor
State of California

Douglas P. Wheeler, Secretary for Resources
The Resources Agency

David N. Kennedy, Director
Department of Water Resources

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Foreword

Bulletin 132-97, *Management of the California State Water Project*, continues the Bulletin 132 annual series begun in 1963. Bulletin 132-97 updates water supply planning, construction, financing, management, and operation activities of the State Water Project. Appendix B contains data and computations used to determine the State Water Project contractors' Statement of Charges for 1998. Appendix B was previously published as an individual document.

The bulletin discusses significant events and issues that affect SWP management and operations. Some items may be discussed in more than one bulletin since departmental programs are based on either the water year, calendar year, or fiscal year. The bulletin covers the period from October 1, 1995, to June 30, 1997.

Bulletin 132-97 also discusses the new year's floods of December 1996 and January 1997; the 40th anniversary of the Department of Water Resources; water supply and delivery; continued construction of the Coastal Branch, Phase II; plans for the East Branch Extension; the tunnel intake reconstruction project at Silverwood Lake; reorganization of the divisions of Planning and Local Assistance; implementation of the Monterey Agreement; amendments to water contracts; and Delta planning and activities. There is also a memorial page for Clair A. Hill, a long-time supporter of California water issues.

Stephen S. Kashiwada
for David N. Kennedy
Director

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Appendix D: Costs of Recreation and Fish and Wildlife Enhancement (bound separately)
Appendix E: Water Operations in the Sacramento-San Joaquin Delta (bound separately)
Appendix F: San Joaquin Valley Post-Project Economic Impact (discontinued)

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California Water Commission

The California Water Commission serves as a policy advisory body to the Director of Water Resources on all California water resources matters. The nine-member citizen commission provides a water resources forum for the people of the State, acts as a liaison between the legislative and executive branches of State Government, and coordinates federal, State, and local water resources efforts.

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Clair A. Hill
1909-1998

Clair A. Hill, an early proponent of water planning and management in California, died April 11, 1998, in Redding, California, at the age of 89. Mr. Hill was also known as the "Father of Whiskeytown Lake" and "Mr. Water of Northern California." Mr. Hill, a third-generation Californian, was born and grew up in Redding. He studied forestry at Oregon State University and worked in Northern California logging camps during the summers. He graduated from Stanford in 1934 with a degree in civil engineering. Mr. Hill worked as an engineer for Standard Oil Company in San Francisco and later for the California Division of Highways (now Caltrans). He returned to Redding in 1938 to become a deputy county surveyor and opened his own surveying office during this period.

In 1941, Mr. Hill joined the U.S. Army. He served as an officer in a bomb disposal and ordinance unit in Alaska's Aleutian Islands during World War II.

After the war, Mr. Hill returned to Redding and reorganized Clair A. Hill and Associates as an engineering firm. By 1950, there were three engineers, an architect, and two survey crews. The firm's responsibility and reputation grew, with offices in California and Alaska. His association with CH2M began in 1956 during an Oregon housing development project. The association continued for 15 years until 1971 when the companies merged and became CH2MHILL. One early collaboration of the two companies was the Lake Tahoe Advanced Wastewater Treatment Facility, the first of its kind in North America. The Lake Tahoe project received national acclaim for its innovative wastewater treatment methods. Today, Mr. Hill's original engineering company with 16 employees is part of an organization of 4,000 employees in about 50 offices worldwide.

Mr. Hill retired in 1974 but remained active as a consultant and adviser to CH2MHILL until recently.

Mr. Hill took an active interest in government and community affairs. He was known as a major contributor to California's water-supply planning and management. His participation dated to the earliest days of statewide water planning. His lobbying for water-supply issues led to the damming of Clear Creek and the creation of Whiskeytown Lake. He encouraged the U.S. Bureau of Reclamation to change its plan for the Central Valley Project and include Whiskeytown Dam as a means of providing more irrigation water for farmland in the Sacramento Valley. In 1988, Congress renamed the dam the Clair A. Hill Whiskeytown Dam, a rare honor for a living person.

Mr. Hill was part of the statewide Water Resources Investigations that produced the first state water plan, Bulletin No. 3, *The California Water Plan*, in 1957. He served on the California Water Commission from 1949 until 1996, including 18 years as its chair. He was the Commission's only honorary life member. Last year, he was one of eight civil engineers in the country to receive Honorary Lifetime Membership in the American Society of Civil Engineers. He was the first recipient of the Association of California Water Agencies' Lifetime Achievement Award. The National Academy of Engineering elected him to membership in 1992.

Philip G. Hall, CH2MHILL's board chairman, said "It was my pleasure to work for and with Clair during my years in California. During that time, and even more so as time has passed, I've come to appreciate that there is probably no one who has contributed as much to the water infrastructure and agricultural development of California as Clair A. Hill. Anyone who draws a glass of water in California today, or enjoys fresh produce from the Central Valley, has Clair Hill in part to thank for those blessings."

Introduction

The State Water Project

A view of Antelope Lake

California's diverse climate and geography range from desert to alpine to subtropical. It contains both the highest and lowest elevations in the coterminous United States—within 85 miles of each other. In a typical year, some areas receive as little as 2 inches of rain while others receive more than 100 inches. These contrasts complicate the water needs and supply of water—perhaps the most vital resource of any land.

Regardless of the amount of rainfall, people settled in all areas of the State. Since the earliest settlers, Californians have faced the problem of how best to conserve, control, and deliver water. Remains of aqueducts, canals, and dams are still found near some of California's missions.The first recorded aqueduct was 6 miles long; it was built in 1770 to serve the San Diego mission. In the early twentieth century, several cities—San Francisco and Los Angeles among them—built aqueducts to bring water from the Sierra Nevada.

In 1951, after many years of discussion and study, the Legislature authorized construction of a water storage and supply system to capture and store runoff in Northern California and deliver it to areas of need throughout the State. Eight years later, the Legislature passed the Burns-Porter Act, which provided the mechanism for obtaining funds necessary to construct the initial facilities. In 1960, California voters approved an issue of $1.75 billion in general obligation bonds, as authorized in the act, thereby obtaining funds to build the State Water Project. The first water was delivered in 1962.

Today the SWP, managed by the Department of Water Resources, is the largest state-built, multipurpose water project in the country. The SWP was designed and built to deliver water, control floods, generate power, provide recreational opportunities, and enhance habitats for fish and wildlife. Approximately 19 million of California's estimated 32 million residents benefit from water from the SWP. SWP water irrigates approximately 600,000 acres of farmland.

Water Delivery Facilities

The SWP depends on a complex system of dams, reservoirs, power plants, pumping plants, canals, and aqueducts to deliver water. Although initial transportation facilities were essentially completed in 1973, other facilities have been built since then, and still others are under construction or are scheduled to be built as needed (Figure I-1). The SWP facilities include 28 dams and reservoirs, 22 pumping and generating plants, and (with scheduled completion of the Coastal Branch, Phase II, in July 1997) approximately 660 miles of aqueducts.

Facilities were designed and built to meet demands for water through 1990; these demands were projected to be about 4.0 million acre-feet. Actual demand, however, has not developed as projected, owing to circumstances such as slower population growth, changes in local use, local water conservation programs, and conjunctive-use programs. The most SWP entitlement water delivered to date was about 2.8 million acre-feet in 1989.

Project Design

The water stored and delivered by the SWP conservation and transportation facilities originates from rainfall and snowmelt runoff in Northern and Central California watersheds, where most of the State's precipitation occurs. Agencies or districts in the Southern California, Central Coastal, San Joaquin Valley, South Bay, North Bay, and Upper Feather River areas receive water from the SWP.

Figure I-1
Names and Locations of Primary Water Delivery Facilities
Current and Projected, June 30, 1997

Three small reservoirs—Lake Davis, Frenchman Lake, and Antelope Lake—are the northernmost SWP facilities. Situated on Feather River tributaries in Plumas County, these lakes are used primarily for recreation; they also provide water to the city of Portola and local agencies that have water rights agreements with the Department.

Downstream from these three lakes is Lake Oroville, the keystone of the SWP. Lake Oroville conserves water from the Feather River watershed. Created by Oroville Dam, the tallest earthfill dam in the Western Hemisphere, Lake Oroville is the project's largest storage facility, with a capacity of about 3.5 million acre-feet. (An acre-foot consists of about 326,000 gallons.)

Releases from Lake Oroville flow down the Feather River to the Sacramento River, which drains the northern portion of California's great Central Valley. The Sacramento River flows into the Sacramento-San Joaquin Delta—738,000 acres of land interlaced with channels that receive runoff from 40 percent of the State's land area. The SWP, along with the federal Central Valley Project and local agencies, diverts water from the Delta.

From the northern Delta, Barker Slough Pumping Plant diverts water for delivery to Napa and Solano counties through the North Bay Aqueduct, completed in 1988. Near Byron, in the southern Delta, the SWP diverts water into Clifton Court Forebay for delivery south of the Delta. The Banks Pumping Plant lifts water from Clifton Court Forebay into Bethany Reservoir; from Bethany Reservoir, the South Bay Pumping Plant lifts water into the South Bay Aqueduct, supplying Alameda and Santa Clara counties. The South Bay Aqueduct provided initial deliveries in 1962 and has been fully operational since 1965.

Most of the water delivered to Bethany Reservoir from Banks Pumping Plant flows into the California Aqueduct. This 444-mile-long main aqueduct conveys water to the primarily agricultural lands of the San Joaquin Valley and the primarily urban regions of Southern California.

The California Aqueduct winds along the west side of the San Joaquin Valley. It transports water to O'Neill Forebay, Gianelli Pumping-Generating Plant, and San Luis Reservoir. The San Luis Reservoir is jointly owned by the Department and the U.S. Bureau of Reclamation, which operates the Central Valley Project. San Luis Reservoir has a storage capacity of more than 2 million acre-feet; the Department's share of gross storage in the reservoir is about 1,062,000 acre-feet.

SWP water not stored in San Luis Reservoir, and water eventually released from San Luis, continues to flow south through the San Luis Canal, a portion of the California Aqueduct jointly owned by the Department and USBR.

As the water flows through the San Joaquin Valley, it is raised over 1,000 feet by four pumping plants—Dos Amigos, Buena Vista, Teerink, and Chrisman—before reaching the foot of the Tehachapi Mountains.

In the San Joaquin Valley near Kettleman City, the existing Coastal Branch Aqueduct stub serves agricultural areas west of the California Aqueduct. This branch is being extended to serve municipal and industrial water users in San Luis Obispo and Santa Barbara counties. The extended Coastal Branch is scheduled to be completed in July 1997.

The remaining water conveyed by the California Aqueduct is delivered to Southern California, where about two-thirds of California's population lives. Before that water can be delivered, it must first cross the Tehachapi Mountains. Pumps at Edmonston Pumping Plant, situated at the foot of the mountains, raise the water 1,926 feet—the highest single lift of any pumping plant in the world. Then the water enters 8.5 miles of tunnels and siphons as it flows into the Antelope Valley, where the California Aqueduct divides into two branches, the East Branch and the West Branch.

The East Branch of the California Aqueduct carries water through the Antelope Valley into Silverwood Lake in the San Bernardino Mountains. From Silverwood Lake, the water flows through the San Bernardino Tunnel into the Devil Canyon Powerplant. The water continues down the East Branch to Lake Perris, the southernmost SWP reservoir, which is also the project's most popular destination for recreationists.

Water in the West Branch of the California Aqueduct flows through the Warne Powerplant into Pyramid Lake in Los Angeles County. From there it flows through the Angeles Tunnel and Castaic Powerplant into Elderberry Forebay and Castaic Lake, terminus of the West Branch.

The energy needed to operate the SWP, the single largest user of electrical power in California, comes from a combination of its own hydroelectric and coal-fired generation plants and power purchased from other utilities. The project's eight hydroelectric power plants, which include three pumping-generating plants, and one coal-fired plant produce enough electricity in a normal year to supply about two-thirds of the project's necessary power.

Tables I-1 through I-5 present statistical information about primary reservoirs, primary dams, pumping plants, power plants, and aqueducts. Additional information regarding operation of the plants under full development can be found in Chapter 11.

Table I-1
Physical Characteristics of Primary Storage Facilities

Facility	*Gross Capacity (Acre-feet)*	*Surface Area (Acres)*	*Shoreline (Miles)*
Antelope Lake	22,600	930	15
Frenchman Lake	55,500	1,580	21
Lake Davis	84,400	4,030	32
Lake Oroville	3,537,600	15,800	167
Thermalito Forebay	11,800	630	10
Thermalito Afterbay	57,000	4,300	26
Thermalito Diversion Pool	13,400	320	10
Clifton Court Forebay	31,300	2,180	8
Bethany Reservoir	5,100	180	6
Lake Del Valle	77,100	1,060	16
San Luis Reservoir	2,027,800	12,520	65
SWP storage, 1,062,183 AF			
O'Neill Forebay	56,400	2,700	12
SWP storage, 29,500 AF			
Los Banos Reservoir	34,600	620	12
Quail Lake	7,600	290	3
Pyramid Lake	171,200	1,300	21
Elderberry Forebay	32,500	500	7
Castaic Lake	323,700	2,240	29
Silverwood Lake	75,000	980	13
Lake Perris	131,500	2,320	10

Additional Construction

The initial facilities of the SWP were designed and constructed to meet projected demands through about 1990. Additional SWP facilities were tentatively scheduled to meet increased demands beyond that date. It was also anticipated that population growth in delivery service areas and areas of water supply origin would influence the final schedule for the additional SWP facilities. Increased costs, unrealized population growth, and increased non-SWP demands for limited water supplies delayed the construction schedule for some planned additional facilities.

In response to changes in water management policy, the Department continues to reassess plans for the additional facilities that will incorporate increased environmental safeguards while also increasing the SWP delivery yield. Developing those plans involves the time-consuming process of finding technically suitable projects and satisfying the many complex environmental procedures, laws, and regulations.

In the late 1980s, the Department began planning the offstream storage complex Los Banos Grandes in Merced County. The Department also developed alternative methods of storing water, including the Kern Water Bank, a conjunctive-use groundwater storage facility. Initial planning for these projects was completed. However, environmental concerns about the Sacramento-San Joaquin Delta and its effect on water management, along with concerns about how best to transfer water across the Delta, suspended additional planning for Los Banos Grandes until those concerns have been addressed.

The signing of the Monterey Agreement in December 1994 set the principles for transferring the Kern Fan Element of the Kern Water Bank from the Department to two agricultural contractors, Kern County Water Agency and Dudley Ridge Water District. The transfer occurred August 9, 1996.

The Department continues to plan, design, and construct transportation and power-producing facilities for the SWP. Mojave Siphon Powerplant was completed in 1996. The enlarged Devil Canyon Powerplant and the new Devil Canyon Powerplant Second Afterbay became operational in 1995. In addition, the second phase of the Coastal Branch of the California Aqueduct should be completed in July 1997. Upon completion, the Coastal Branch can transport about 50,000 acre-feet annually to San Luis Obispo and Santa Barbara counties.

Table I-2
Physical Characteristics of Primary Dams

Facility	Crest Elevation (Feet)	Structural Height (Feet)	Crest Length (Feet)	Structural Volume (Thousand Cubic Yards)
Antelope	5,025	120	1,320	380
Frenchman	5,607	139	720	537
Grizzly Valley	5,785	132	800	253
Oroville	922	770	6,920	80,000
Thermalito Diversion	233	143	1,300	154
Thermalito Forebay	231	91	15,900	1,840
Thermalito Afterbay	142	39	42,000	5,020
Clifton Court Forebay	14	30	36,500	2,440
Bethany	250	121	3,940	1,400
Del Valle	773	235	880	4,150
Sisk	554	385	18,600	77,645
O'Neill	233	88	14,350	3,000
Los Banos Detention	384	167	1,370	2,100
Pyramid	2,606	400	1,090	6,000
Elderberry Forebay	1,550	200	1,990	6,000
Castaic	1,535	425	4,900	46,000
Cedar Springs	3,378	249	2,230	7,600
Perris	1,600	128	11,600	20,000

Table I-3
Pumping Plant Characteristics

Facility	Number of Units	Normal Static Head (Feet)	Total Flow at Design Head (cfs)	Total Motor Rating (hp)
Thermalito	3 (p-g)	85-101	9,120	120,000
Hyatt	3 (p-g)	410-660	5,610	519,000
Barker Slough	9	95-120	228	4,800
Cordelia	11	104-439	138	5,600
Banks	11	236-252	10,670	333,000
South Bay	9	566	330	27,750
Del Valle	4	0-38	120	1,000
Gianelli	8 (p-g)	99-327	11,000	504,000
Dos Amigos	6	107-125	15,450	240,000
Las Perillas	6	55	461	4,050
Badger Hill	6	151	454	11,750
Devil's Den (a	6	521	134	10,500
Bluestone (a	6	481	134	10,500
Polonio Pass (a	6	533	134	10,500
Buena Vista (a	10	205	5,405	144,500
Teerink (a	9	233	5,445	150,000
Chrisman (a	9	518	4,995	330,000
Edmonston (a	14	1,926	4,480	1,120,000
Oso	8	231	3,252	93,800
Pearblossom	9	539-546	2,575	203,200

a) These plants have one unit in reserve.

Table I-4
Power Plant Characteristics, by Type and Facility

Type and Facility	Number of Units	Normal Static Head (Feet)	Total Flow at Design Head (cfs)	Total Generator Rating (kw)
Hydro				
Thermalito				
Diversion Dam	1	63-77	615	3,000
Thermalito	4 (3 p-g)	85-101	17,400	115,000
Hyatt	6 (3 p-g)	410-675	16,950	644,250
Gianelli	8 p-g	99-327	16,960	424,000
SWP share				222,100
Alamo	1	115-141	1,740	17,000
Warne	2	719-739	1,564	74,300
Mojave Siphon	3	95-146	2,880	32,400
Devil Canyon	4	1,406	2,940	280,000
Thermal				
Reid Gardner, Unit 4	1 (a			275,000
SWP ownership share				169,500

a) Life of the plant is expected to extend through 2013.

Table I-5
Total Miles of Aqueducts

Facility	Channel and Reservoir	Canal	Pipeline	Tunnel	Total
North Bay Aqueduct	0.0	0.0	27.4	0.0	27.4
South Bay Aqueduct	0.0	8.4	32.9	1.6	42.9
Subtotal	0.0	8.4	60.3	1.6	70.3
California Aqueduct, Main Line					
Delta to O'Neill Forebay	1.4	67.0	0.0	0.0	68.4
O'Neill Forebay to Kettleman City	2.2	103.5	0.0	0.0	105.7
Kettleman City to Edmonston Pumping Plant	0.0	120.9	0.0	0.0	120.9
Edmonston Pumping Plant to Tehachapi Afterbay	0.0	0.2	2.5	7.9	10.6
Tehachapi Afterbay to Lake Perris	2.9	93.4	38.3	3.8	138.4
Subtotal	6.5	385.0	40.8	11.7	444.0
California Aqueduct Branches					
West Branch	9.2	9.1	6.4	7.2	31.9
Coastal Branch (a	0.0	15.0	97.9	2.7	115.6
Subtotal	9.2	24.1	104.3	9.9	147.5
Total	**15.7**	**417.5**	**205.4**	**23.2**	**661.8**

a) Last section of pipe was laid on 4/28/97; Coastal Branch, Phase II, is scheduled to begin operation in July 1997.

Methods of Financing

Project facilities have been constructed with four general types of financing: general obligation bonds and tideland oil revenues (under the Burns-Porter Act—approved by the Legislature in 1959; and the bond issue approved by voters in 1960); revenue bonds; and capital resources. Repayment of these funds and the operations, maintenance, power, and replacement costs associated with water supply are paid by the 29 agencies or districts that have long-term contracts with the Department for SWP water; those costs are repaid as they are incurred.

The contracts initially provided for a combined maximum annual entitlement of 4,230,000 acre-feet of water supply. As a result of contract amendments in the 1980s and the Monterey Agreement, the current combined maximum annual entitlement totals 4,172,786 acre-feet. The contracts are in effect for the longest of the following periods: (1) the project repayment period, which extends to the year 2035; (2) 75 years from the date of the contract; or (3) the period ending with the latest maturity date of any bond used to finance the construction costs of project facilities.

Long-Term Contracting Agencies

From 1963 through 1967, 32 agencies or districts signed long-term water supply contracts with the Department. However, in 1965, the city of West Covina was annexed to the Metropolitan Water District of Southern California, and in 1981 Hacienda Water District was assigned to Tulare Lake Basin Water Storage District. On January 1, 1992, Castaic Lake Water Agency assumed all rights and obligations granted to Devil's Den Water District according to its long-term supply contract. The 29 agencies or districts that now have long-term contracts with the Department are listed in Figure I-2 and Table I-6.

Figure I-2 shows the location of each contracting agency or district and lists the first year of SWP delivery service for each. Table I-6 presents information about each contracting agency.

Figure I-2
Names, Locations, and First Year of Service of Long-Term Contracting Agencies, June 30, 1997

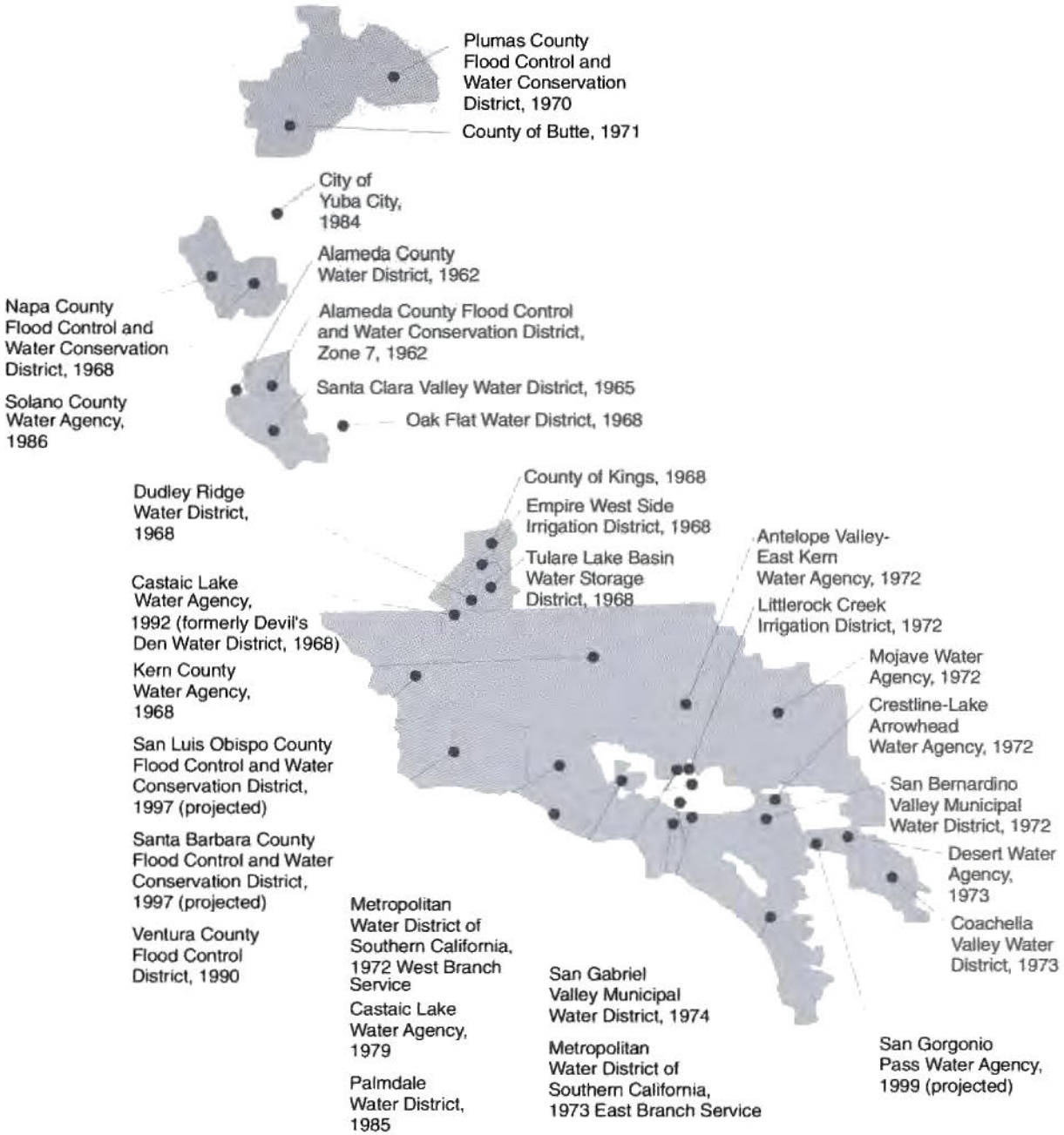


Table I-6
Long-Term Water Supply Contracting Agencies, by Area

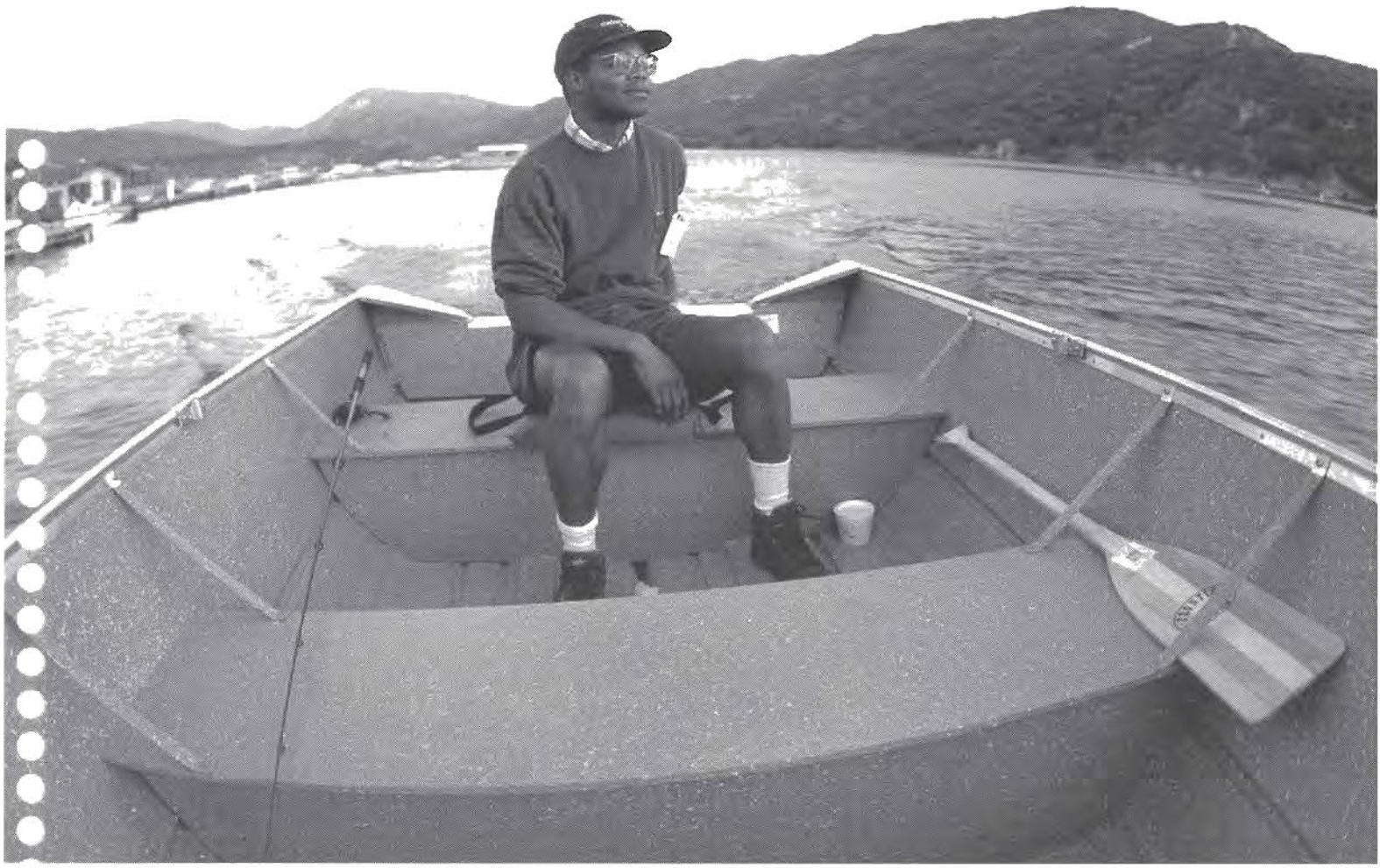
Contracting Agency	Cumulative Deliveries through December 31, 1996 (Acre-Feet) (a	Maximum Annual Entitlement (Acre-Feet)	Payments through December 31, 1996 (Dollars)	Gross Area as of July 1, 1997 (Acres)	Assessed Valuation 1996-97 (Dollars) (b	Estimated Population July 1, 1997
Upper Feather River Area						
City of Yuba City	6,204	9,600	1,522,267	5,107	1,126,662,000	34,350
County of Butte	7,884	27,500	449,704	1,069,000	6,239,500,000	172,600
Plumas County Flood Control and Water Conservation District	10,241	2,700	897,361	1,676,056 (c	1,973,575,825 (c	21,200
Subtotal	24,329	39,800	2,869,332	2,750,163	9,339,737,825	228,150
North Bay Area						
Napa County Flood Control and Water Conservation District	156,208	25,000	34,352,485	508,000	9,825,260,469	120,828
Solano County Water Agency	216,635	42,000	40,958,756	537,600	18,080,317,459	377,560
Subtotal	372,843	67,000	75,311,241	1,045,600	27,905,577,928	498,388
South Bay Area						
Alameda County Flood Control and Water Conservation District-Zone 7	636,482	46,000	47,653,745	272,000	12,592,234,275	161,600
Alameda County Water District	688,806	42,000	52,153,900	64,640	22,195,107,000	296,000
Santa Clara Valley Water District	2,605,332	100,000	168,425,911	849,000	115,100,000,000	1,653,000
Subtotal	3,930,620	188,000	268,233,556	1,185,640	149,887,341,275	2,110,600
San Joaquin Valley Area						
County of Kings	67,822	4,000	2,372,447	893,300	3,953,722,580	118,204
Castaic Lake Water Agency	414,141				10,872,299,000	
Dudley Ridge Water District	1,455,585	57,700	38,129,615	29,330	34,425,510	36
Empire West Side Irrigation District	88,875	3,000	2,078,998	7,400	(e	50
Kern County Water Agency	22,172,590	1,153,400	889,957,494	5,161,000	33,768,700,000	603,300
Oak Flat Water District	147,292	5,700	3,080,019	4,500	(e	10
Tulare Lake Basin Water Storage District	3,297,325	118,500	77,274,257	189,519	152,288,305	120
Subtotal	27,643,630	1,342,300	1,012,892,830	6,285,049	48,781,435,395	721,720
Central Coastal Area						
San Luis Obispo County Flood Control and Water Conservation District	100	25,000	20,860,109	2,131,300	14,347,448,466	232,428
Santa Barbara County Flood Control and Water Conservation District	1,240	45,486	50,044,978	1,775,296	10,296,310,227	394,580
Subtotal	1,340	70,486	70,905,087	3,906,596	24,643,758,693	627,008
Southern California Area						
Antelope Valley-East Kern Water Agency	914,916	138,400	198,727,337	1,525,029	11,670,354,723	230,000
Castaic Lake Water Agency (d	202,286	54,200	93,107,451	133,700	10,872,299,000	150,250
Coachella Valley Water District	381,289	23,100	88,417,420	637,600	11,132,616,000	200,000
Crestline-Lake Arrowhead Water Agency	30,899	5,800	12,561,383	55,100	1,500,527,807	25,000
Desert Water Agency	615,806	38,100	117,682,985	208,800	4,188,725,000	62,000
Littlerock Creek Irrigation District	12,803	2,300	3,477,099	10,000	106,085,538	2,900
Metropolitan Water District of Southern California	15,114,300	2,011,500	4,212,333,139	3,289,593 (f	671,699,559,000 (f	14,500,000 (f
Mojave Water Agency	132,986	50,800	87,799,372	3,160,400	13,264,223	333,000
Palmdale Water District	71,943	17,300	26,553,023	73,900	1,956,651,000	90,000
San Bernardino Valley Municipal Water District	287,203	102,600	214,006,226	210,000	14,400,000,000	600,000
San Gabriel Valley Municipal Water District	190,276	28,800	67,257,377	17,865	8,664,992,778	210,000
San Gorgonio Pass Water Agency	0	17,300	31,352,462	140,600	1,945,425,320	44,600
Ventura County Flood Control District	5,824	20,000	25,502,385	308,252	21,957,265,429	457,000
Subtotal	17,959,531	2,510,200	5,178,777,659	9,770,839	760,107,765,818	16,904,750
Total, State Water Project	49,933,293	4,217,786	6,608,989,705	24,943,887 (g	1,020,665,616,934 (g	21,090,616 (g
Total, State of California				100,314,000	1,876,326,000,000 (h	32,383,000 (h

a) All water delivered to long-term SWP contractors, including carryover entitlement, interruptible entitlement, surplus, unscheduled, exchange, permit, purchased, local, and non-SWP water.
b) Statutes of 1978, Chapter 1207, added Section 135 to the Revenue and Taxation Code, requiring assessment at 100 percent of full value for the 1981-1982 fiscal year and fiscal years thereafter.
c) Total of all Plumas County Flood Control and Water Conservation District, including Last Chance Creek Water District.
d) District includes land in the San Joaquin Valley Area formerly known as Devil's Den Water District.
e) Assessed valuation not available on an agency area breakdown.
f) Total for MWD, including Calleguas Municipal Water District, which is common to MWD and Ventura County Flood Control District.
g) Includes duplicate values. Some areas that are within two or more agencies are included in each agency's total.
h) Source: *California Statistical Abstract*, published by the State Department of Finance in November 1997.

Part I

The Year in Review

Chapter 1
Executive Summary



Fishing? Boating? Relaxing? At Silverwood Lake

Bulletin 132-97, *Management of the California State Water Project*, continues the annual series begun in 1963. This thirty-fifth edition reports planning, financing, constructing, managing, and operating activities of the State Water Project. The SWP is operated and maintained by the California Department of Water Resources. Bulletin 132-97 also discusses significant SWP events and reports on issues that affect SWP management and operations. It covers water year 1995-1996 (October 1, 1995, to September 30, 1996), calendar year 1996, and fiscal year 1996-1997 (July 1, 1996, to June 30, 1997). Because these reporting periods overlap to some degree, some events may be discussed in more than one bulletin.

Hydrologic Conditions

At the beginning of water year 1995-1996, storage in the major reservoirs was 28.1 million acre-feet, 130 percent of average. Winter arrived the second week of December and brought with it the strongest storm in more than a decade. By the end of December, precipitation was 135 percent of average for the month and seasonal totals were 80 percent of average. Statewide runoff in November was 30 percent of average.

On December 31, total SWP reservoir storage was about 1.38 million acre-feet more than the previous year. Lake Oroville alone contained 2.7 million acre-feet, compared to 1.67 million acre-feet at the same time last year.

February was the third month in a row with above average precipitation in Northern California. Runoff, also much above average, caused some moderate flood control releases from reservoirs in the Sierra foothills.

Spring 1996 was about average until mid-May. Several days of uncommon rain in the northern and central Sierra pushed mountain river runoff to flood levels. Total May precipitation in the northern Sierra was 350 percent of average. Seasonal totals since the beginning of the water year were 125 percent of average. May runoff was 150 percent of normal.

By midsummer, statewide precipitation was about 115 percent of average and reservoir storage was still above normal.

Water year 1996 ended with above-average precipitation for most of California. Total water year runoff was 120 percent of average, compared to 180 percent at the same time in 1995. Reservoir storage remained about 120 percent compared to 130 percent the prior year. Figure 1-1 and Chapter 9 provide more detailed information.

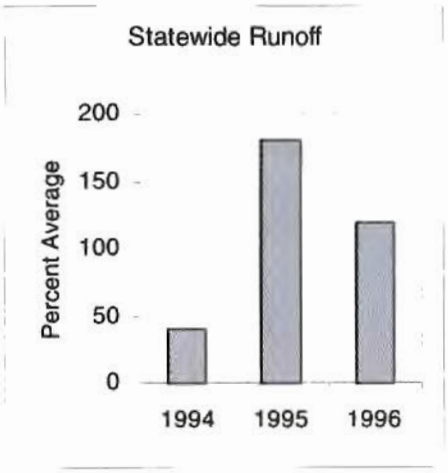
40th Anniversary

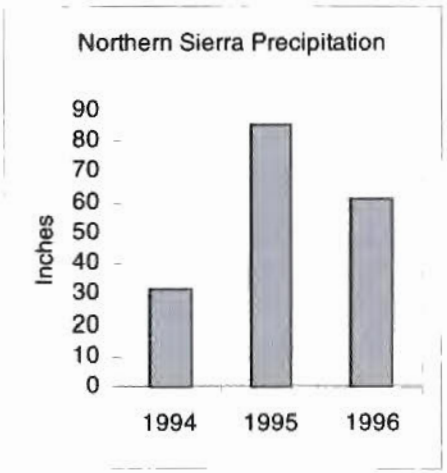
On July 5, 1996, the Department of Water Resources marked its 40th year of service to the people of California. When created by legislative mandate in 1956, the Department focused on investigating the State's water resources and planning a project that would convey water from the North with its abundant supplies to the arid South.

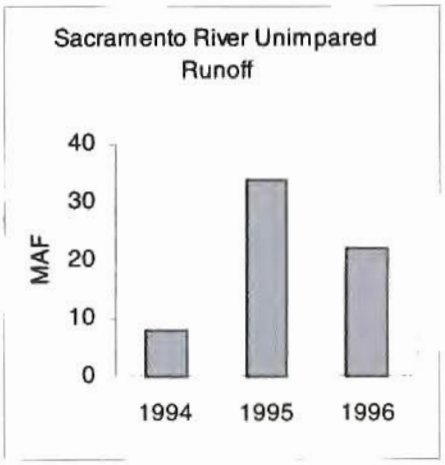
In 1957, the Department completed *The California Water Plan*. This plan, together with plans for a proposed Feather River Project, became the basis for the SWP. Although construction began on the SWP in 1957, it was not officially authorized until the passage of the Burns-Porter Act in 1959 and a $1.75 billion bond issue in 1960. Today, the SWP is the largest state-built, multipurpose project in the nation.

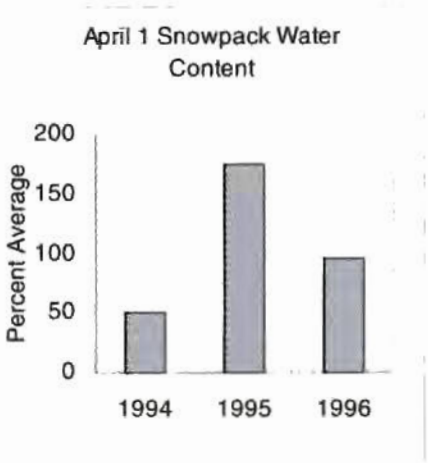
Operating and maintaining the SWP, as well as administering its long-term contracts, are presently the Department's major focus. However, its responsibilities also include water quality improvement, water management strategies, flood control and forecasting, local assistance programs, environmental protection, water conservation, dam safety, and public education.

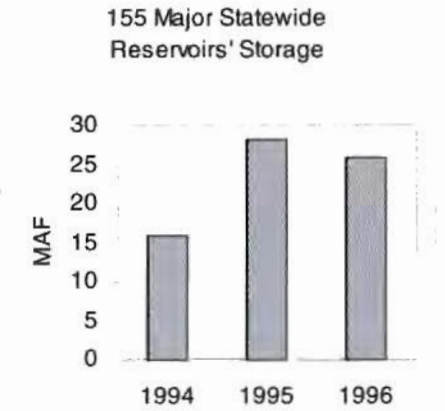
Figure 1-1
Key Hydrological Measurements, Water Years 1994-1996











All figures are for September 30, except for the April 1 chart

New Year's Floods

A heavy snowfall in December 1996 produced snows at low elevations. By late December 1996, precipitation was well above average. December in the northern Sierra was the second wettest of record, surpassed only by 1955. The snowfall was followed by torrential rains from December 26 to January 2. During that week, about 40 percent of an average year's total precipitation fell at high elevations. The storm produced a 3-day record flood volume on major rivers from Shasta Dam to the southern Sierra. Runoff during December was about three times the average. The huge runoff amount exceeded the flood control capacity of several reservoirs and resulted in spills of excess water.

Rainfall at lower elevations was also above average. Overall, the Sacramento River flood control system reduced peak flows on the system. However, there were two serious levee breaks in the Sacramento Valley—one on the Feather River south of Marysville and another on the Sutter Bypass west of Yuba City. Table 1-1 shows comparisons of high stages at selected stations.

The uncontrolled Cosumnes River, the Tuolumne River near Modesto, and the San Joaquin River near Fresno all experienced major flooding. Levees along the rivers proved inadequate for flood control during storms of this magnitude, raising serious concerns about the flood protection potential of the levee system.

Many of the levees on the Sacramento and San Joaquin river systems were originally constructed more than 100 years ago. The newest of the major river levees (along the north side of the American River) was constructed by the U.S. Army Corps of Engineers more than 40 years ago. These river systems combined have about 1,800 miles of flood control project levees, 1,300 miles of designated floodways, several thousand acres of project channels, and 55 other major flood control works, i.e., overflow weirs and bypasses. Naturally, continued vigilance and maintenance of these structures are critical elements of flood control. These duties are shared by federal, State, local, and private entities.

Another strong storm system arrived January 20. Fortunately, a break in heavy storms allowed flood control systems to drain and partly restore reservoir flood control space on the Sacramento and San Joaquin systems. Although this storm was only about two-thirds as strong as its predecessor, it was heavier in some lower-elevation areas and resulted in significant local stream flooding.

The late December/early January and late January storms caused extremely high inflows to Lake Oroville. On January 1, 1997, a record 302,000 cfs raised Oroville storage into flood control space. The Department operates Oroville with 21 percent vacant space to use as flood control storage. This amount of flood control space was restored January 12; the space was encroached again on January 22 when another strong storm series brought more flood water.

On January 11, the SWP began accepting flood water into the California Aqueduct through the Kern River Intertie. This action decreased flooding in the Tulare Lake Basin. By the end of February, about 50,000 acre-feet of flood water from the Kern River Intertie had entered the Aqueduct.

During the past 40 years, the Department has achieved an impressive record of milestones. Among them are completing initial and additional facilities of the SWP; becoming a bulk power agency to better manage power needs; establishing a Coordinated Operation Agreement between the SWP and the federal Central Valley Project; initiating a California Water Bank to facilitate water transfers and sales during drought years; signing the Bay-Delta Accord—a major agreement affecting Delta water supplies, water quality, and environmental restoration; the expected completion of Phase II of the Coastal Branch Aqueduct; and negotiating the Monterey Agreement, which changed SWP contract terms and methods to allocate, store, and sell water.

1996 Water Deliveries

In 1996, the SWP delivered a total of 3,733,767 acre-feet of water to 25 long-term water contractors and 17 other agencies. Total 1996 SWP deliveries included 2,543,472 acre-feet of entitlement, 3,907 acre-feet of recreation/fish and wildlife water, and 1,185,218 acre-feet of nonentitlement water delivered to satisfy agreements made with SWP contractors and other agencies, including the U.S. Bureau of Reclamation. Table 1-2 presents information about water deliveries through 1996.

Entitlement Water

Entitlement water delivered includes 2,382,866 acre-feet of entitlement water; 131,959 acre-feet of

Table 1-1
Historical Comparison of Flood Peaks for 1997, 1995, and 1986
(Preliminary data in feet)

Station	1997	1995	1986	Previous Record
Sacramento River				
Above Bend Bridge	30.6	30.6	32.8	36.6 January 1970
Ord Ferry	118.7	119.0	118.3	119.8 January 1970
Colusa	68.6	67.6	68.0	68.5 March 1983
Fremont Weir	42.5	38.6	41.7	41.7 February 1986
Sacramento, I St.	30.4	27.2	30.7	30.7 February 1986
Feather River				
Yuba City	78.2	67.6	76.3	76.3 February 1986
Nicolaus	50.4	45.0	49.1	49.1 February 1986
American River				
H Street	42.7	35.2	43.4	43.4 February 1986
Cosumnes River				
Michigan Bar	18.3	11.5	14.8	14.8 February 1986
Tuolumne River				
Modesto	70.9	56.6	55.2	69.2 December 1950
San Joaquin River				
Newman	66.1	64.8	64.7	65.9 February 1969
Vernalis	34.9	26.8	29.9	34.6 January 1969

1995 carryover entitlement water delivered in 1996; and 28,647 acre-feet of interruptible water delivered to three long-term water contractors. Interruptible water is a category developed as part of the Monterey Agreement.

Water Transfers. Transfers of entitlement water in 1996 included 200,513 acre-feet of entitlement water transferred between six SWP long-term contractors and three non-SWP water agencies.

Water for Recreation, Fish, and Wildlife. The SWP delivered 3,907 acre-feet of water for recreational use and fish and wildlife as follows:

- 715 acre-feet for recreational use at Lake Del Valle, O'Neill Forebay, Silverwood Lake, Lake Perris, and Castaic Lake;
- 2,362 acre-feet to Castaic Lake and Castaic Lagoon, an impoundment downstream from Castaic Lake devoted entirely to recreation;
- 829 acre-feet for wildlife management in the Pilibos Wildlife Area near O'Neill Forebay; and
- 1 acre-foot to maintain a trout fishery in Piru Creek.

Non-SWP Water Deliveries

In 1996, SWP facilities were used to deliver non-SWP water for various agencies, including Central Valley Project water for USBR. This category also includes non-SWP water transferred between agencies.

The Department used SWP facilities to convey CVP water; water transferred from Byron-Bethany Irrigation District to Alameda County Flood Control and Water Control District-Zone 7; water rights water; and water acquired by Westlands Water District from Kings River Water Association for delivery to WWD.

In 1996, the Department conveyed 213,762 acre-feet of CVP water through SWP facilities. The Department regularly conveys CVP water under agreements with CVP contractors that receive water from the USBR through the Cross Valley Canal. Other agencies or corporations, including the U.S. Department of Veterans Affairs, U.S. Fish and Wildlife Service, and Musco Olive Products, Inc., also receive CVP water from SWP facilities through agreements between the Department and USBR.

Table 1-2
Water Delivered by Category, 1962 through 1996

Water Delivered (Acre-feet)									
	Entitlement Water (a			Other Water Deliveries					
				Surplus and Unscheduled					
Year	Municipal/ Industrial (1)	Agricultural (2)	Total (3)	Municipal/ Industrial (4)	Agricultural (5)	Other Water (b (6)	Feather River Diversions (c (7)	Recreation Water (8)	Total Deliveries (9)
1962	--	--	--	--	--	18,289	--	--	18,289
1963	--	--	--	--	--	22,456	--	--	22,456
1964	--	--	--	--	--	32,507	--	--	32,507
1965	--	--	--	--	--	44,105	--	--	44,105
1966	--	--	--	--	--	67,928	--	--	67,928
1967	5,747	5,791	11,538	0	0	53,605	--	--	65,143
1968	46,472	125,237	171,709	10,000	111,534	14,777	866,926	--	1,174,946
1969	34,434	158,586	193,020	0	72,397	18,829	794,374	--	1,078,620
1970	47,996	185,997	233,993	0	133,024	38,080	759,759	--	1,164,856
1971	85,286	272,054	357,340	2,400	293,619	44,119	778,362	8	1,475,848
1972	181,066	430,735	611,801	22,205	401,759	66,638	817,398	6,489	1,926,290
1973	293,824	400,564	694,388	3,161	293,255	42,511	800,743	1,155	1,835,213
1974	418,521	455,556	874,077	4,753	412,923	46,224	911,613	2,118	2,251,708
1975	641,621	582,369	1,223,990	21,043	601,859	63,793	862,218	3,377	2,776,280
1976	818,588	554,414	1,373,002	32,488	547,622	115,217	946,440	1,745	3,016,514
1977	280,919	293,236	574,155	0	0	389,065	581,994	1,111	1,546,325
1978	742,385	710,314	1,452,699	3,566	13,348	121,225	786,517	1,691	2,379,046
1979	690,659	969,237	1,659,896	66,081	582,308	187,630	882,549	1,766	3,380,230
1980	730,545	799,204	1,529,749	19,722	384,835	46,459	875,045	2,131	2,857,941
1981	1,057,273	852,289	1,909,562	12,000	896,428	279,161	838,557	4,688	3,940,396
1982	928,721	821,303	1,750,024	0	215,873	154,882	776,330	4,646	2,901,755
1983	483,499	701,370	1,184,869	0	13,019	181,453	602,905	7,849	1,990,095
1984	725,925	862,694	1,588,619	3,663	259,254	381,024	832,332	7,040	3,071,932
1985	992,538	1,002,915	1,995,453	9,638	298,034	404,842	870,008	4,033	3,582,008
1986	998,611	997,025	1,995,636	2,595	34,025	193,606	791,737	3,865	3,021,464
1987	1,096,368	1,033,718	2,130,086	6,949	107,958	377,592	831,947	7,672	3,462,204
1988	1,316,820	1,068,302	2,385,122	0	0	507,076	794,834	4,889	3,691,921
1989	1,602,454	1,251,293	2,853,747	0	0	474,559	830,500	8,135	4,166,941
1990	1,876,072	706,079	2,582,151	0	90	424,697	875,099	9,262	3,891,299
1991	536,669	12,444	549,113	3,521	0	551,051	565,395	4,879	1,673,959
1992	961,649	509,805	1,471,454	1,156	0	144,789	613,978	2,605	2,233,982
1993	1,064,866	1,250,369	2,315,235	0	0	254,854	822,589	2,609	3,395,287
1994	1,183,142	678,834	1,861,976	0	0	236,739	874,018	8,200	2,980,933
1995	819,554	1,211,869	2,031,423	0	0	62,836	860,077	2,575	2,956,911
1996	1,157,729	1,385,743	2,543,472	0	0	251,391	934,997	3,907	3,733,767
Total	**21,819,953**	**20,289,346**	**42,109,299**	**224,941**	**5,673,164**	**6,329,598**	**23,379,241**	**108,445**	**77,824,688**

a) Includes amounts of deliveries of carryover entitlement water and advance entitlement water.
b) Includes amounts of SWP and non-SWP water conveyed for SWP and non-SWP water contractors.
c) Includes amounts of water diverted according to various water rights agreements.

Water rights water is transferred through SWP facilities to long-term SWP contractors and other agencies under various local water rights agreements. In 1996, 970,703 acre-feet of water rights water were delivered to the Feather River, North Bay, South Bay, and Southern California areas.

Nine agencies in the Feather River Service area received 934,997 acre-feet of regulated local supplies through agreements with the Department. Those non-SWP agencies hold water rights to Feather River water that predate operation of the SWP.

Monterey Agreement

The Monterey Agreement was executed by the Department and the SWP long-term water contractors on December 1, 1994. This agreement established the Monterey Principles for amending the Department's SWP water contracts with the long-term contractors.

As water allocation concerns intensified during the 1987-1992 drought, the Department and water contractors decided to update management of the SWP by substantially revising SWP long-term contracts

State Water Project Principles for the "Monterey Agreement"

1. **Water Allocations.** Allocations are based on entitlement.
2. **Water Allocations When Requests Exceed Available Supply.** Initial agricultural deficiency is eliminated; Article 18(b) [permanent shortage provision] is eliminated.
3. **Kern Water Bank.** Kern Fan Element property is transferred to agricultural contractors; agricultural contractors permanently retire 45,000 acre-feet of entitlement.
4. **Permanent Sales of Entitlement.** Agricultural contractors commit to allow up to 130,000 acre-feet of entitlement to be sold to urban contractors, on a willing buyer-willing seller basis.
5. **Restructuring to Ensure Financial Integrity of the SWP.** Contractor payments in excess of SWP financial obligations are returned to the contractors as follows: money for agricultural contractors is put into a trust fund for rate management; money for urban contractors is distributed directly to them.
6. **Terminal Reservoirs-Points of Delivery.** The contractors paying for the terminal reservoirs gain increased control/management of those reservoirs.
7. **Interruptible Water Service Program.** Current categories of surplus, wet weather, and Article 12(d) [shortage makeup provision] water are replaced by a single category of interruptible water, which is allocated based on entitlement and delivered at the melded SWP power rate.
8. **Nonproject Water Transport.** Contractors have the right to transport nonproject water in SWP facilities, at the melded SWP power rate.
9. **Water Storage Outside Service Area.** Rules for carryover in SWP conservation facilities are expanded; there are no limits on groundwater storage of SWP water outside a contractor's service area.
10. **Turnback Water Pool Sales.** An annual turnback pool is created under which water allocated but not needed by a contractor may be sold to interested contractors and/or the Department at a percentage of the Delta Water Rate, or to noncontractors.
11. **Conforming Contract Amendments.** SWP contracts are to be amended to conform to these principles.
12. **Project Improvements.** The Department reaffirms its obligation to complete the SWP.
13. **Integrated Package.** The principles come as a package—a contractor can participate in all or none of the provisions.
14. **No Precedent.** If the amendments are not entered into, the parties agree not to use these principles in court proceedings.

and their administration. The Monterey Agreement was released to the public December 16, 1994, in the form of 14 principles (see sidebar State Water Project Principles for the "Monterey Agreement" below).

Monterey Agreement Litigation

The Planning and Conservation League filed a lawsuit against the Department and the Central Coast Water Authority in California Superior Court in December 1995, challenging the Monterey Agreement, which was designed to be effective when all lawsuits challenging it were resolved. The lawsuit alleged that the environmental impact report was inadequate; that Central Coast Water Authority, lead agency for the EIR, was improperly named; and that the Kern Water Bank was improperly transferred to Kern County Water Agency. In May 1996, the Court ruled in favor of the Department and CCWA on all cases of action; in August 1996, the Court entered judgment in favor of the Department and CCWA.

In May 1995, San Bernardino Municipal Water District filed a cross-complaint against the Department as part of the Monterey litigation. On October 22, 1996, the Department and San Bernardino entered into an agreement, dismissing the San Bernardino cross-complaint. The Department and San Bernardino agreed to enter into studies to resolve the problems caused by high groundwater levels in the district's service area.

Implementation

On August 9, 1996, the Kern Fan Element of the Kern Water Bank was transferred to the Kern County Water Agency. An annual entitlement of 45,000 acre-feet of agricultural water—40,670 acre-feet from Kern County and 4,330 acre-feet from Dudley Ridge Water District—was permanently transferred to the Department and retired.

The goals of the Monterey Agreement—increased reliability of existing water supplies, stronger financial management of the SWP, and increased water management flexibility by providing more tools to local water agencies—were increasingly realized as a number of contractors implemented provisions allowed under their Monterey Amendments.

Under the Monterey Amendments, 130,000 acre-feet of agricultural entitlement water may be sold permanently to contractors for urban use. Kern County Water Agency sold 25,000 acre-feet of its entitlement water to Mojave Water Agency, the first sale under this provision.

Santa Barbara County Flood Control and Water Conservation District's Table A entitlement was reduced for 2 years, in accordance with provisions of the Monterey Amendments that allow contractors to temporarily reduce their Table A entitlement and receive rate reductions.

Two contractors, Alameda County Water District and Santa Clara Valley Water District, stored and later recovered a portion of their 1996 entitlement water and other water supplies from groundwater basins. This action was in accordance with the provisions of the Monterey Amendments that encourage operational flexibility for the SWP, such as groundwater storage of SWP water outside a contractor's service area for later use within the service area.

Turnback Water Pool Program. The turnback water pool program, in its second year of operation, allowed SWP contractors to offer a portion of their approved 1997 entitlement water for sale in a turnback pool for use outside their service area. The turnback water was allocated among selling and purchasing contractors based on supply and demand. Thirteen contractors participated in the program.

See Chapter 1, Bulletin 132-96, for a complete listing of operational changes in the SWP resulting from the Monterey Agreement.

Amendments to Water Contracts

Four SWP contractors signed Monterey Amendments to their water contracts in December 1996 and one SWP water contractor signed a Monterey Amendment in March 1997, joining the 20 other long-term water supply contractors who had previously executed Monterey Amendments. See Chapter 10 for a complete listing of these contractors.

Coastal Branch, Phase II

On October 30, 1995, the Superior Court in San Luis Obispo County ruled on the Canyon and Streams Alliance lawsuit regarding the adequacy of the supplement to the final environmental impact report. The court ruled that the objections were not raised in

a timely manner and were without merit because changes did not result in significant new impacts.

Construction began on the project in late 1993. Crews excavated millions of cubic yards of earth, drilled new tunnels, renovated an existing mile-long tunnel, and buried more than 20,000 sections of pipe at least 5 feet below the surface. Boring machines tunneled under streambeds and highways.

A 100-mile fiber optic cable allows technicians in Sacramento and at the Polonio Pass Treatment Plant to monitor and operate the facilities 24 hours a day. Portable computers can also be used by field personnel to monitor operations.

The Coastal Branch pipeline—about 100 miles long, the longest in the SWP—winds through Kern, San Luis Obispo, and Santa Barbara counties. The Department worked with the Central Coast Water Authority to construct the project. Gravity and pressure move the water. (See Chapter 13.)

The last section of pipe for the Coastal Branch was set in place April 28, 1997. The 40-foot section of pipeline is located east of San Luis Obispo. It is part of the project constructed to move water 143 miles from the California Aqueduct to Vandenberg Air Force Base. At Vandenberg, it links to a 42-mile-long locally-owned pipeline that runs into Lake Cachuma in Santa Barbara County. Dedication of the facility is scheduled for July 18, 1997.

East Branch Extension

In July 1995, the Department completed a feasibility study to extend the East Branch of the SWP from the Devil Canyon Powerplant to the San Gorgonio Pass Water Agency service area. San Gorgonio and San Bernardino Valley Municipal Water District agreed to participate in a two-phase project to meet present water needs and financial capability. The East Branch Extension will bring SWP water to Yucaipa, Calimesa, Beaumont, Banning, and other communities as early as 1999.

The completed East Branch Extension will be a 33-mile pipeline linking parts of San Bernardino's service area and the eastern part of San Gorgonio's service area to the California Aqueduct. Phase I will include construction of 13.5 miles of new pipeline and use 19.5 miles of pipeline owned by San Bernardino as an interim delivery system. When the needs of San Gorgonio surpass 16 cfs, Phase II of the EBX will be constructed and bypass the San Bernardino pipelines. (See Figure 1-2.)

On August 20, 1996, San Bernardino and San Gorgonio agencies signed an agreement to participate in the East Branch Extension. San Gorgonio is the last SWP contractor to receive SWP water through direct delivery or exchange. The Department will proceed with the final design and construction of the Phase I facilities.

The project schedule was revised to include a supplement to the final environmental impact report. The supplement will cover alignment changes on the Singleton Pipeline and the addition of the Crafton Hills Pipeline and Reservoir. By October 1996, the entire alignment had been flown and aerial photographs taken. Topographic mapping began and team members walked the proposed Crafton Hills alignment and agreed on a route.

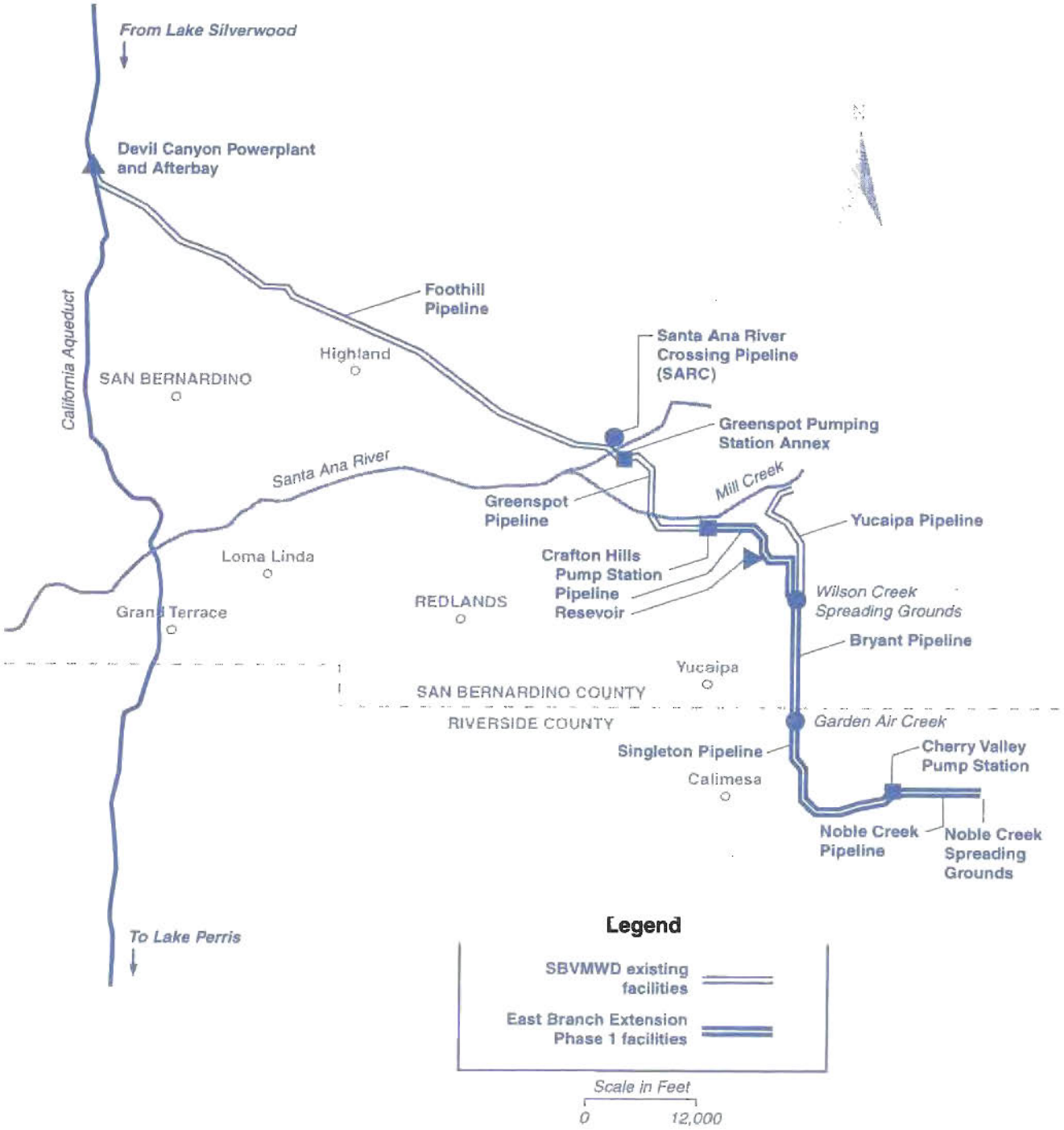
By December 1996, the first draft of the project management plan had been prepared and distributed. Topographic mapping was well under way and geologic exploration began.

The administrative draft of the supplemental environmental impact report was completed and reviewed by selected team members and representatives of the participating water agencies. On June 18, 1997, a meeting was held in San Bernardino to discuss incorporation of the comments. Coordination meetings were also held to discuss surveying for property descriptions, writing property descriptions, drawing appraisal maps, appraising the properties, and acquiring the easements.

San Bernardino Tunnel Intake Reconstruction Project at Silverwood Lake

At the south end of Silverwood Lake, water enters the San Bernardino Tunnel to continue its journey down the East Branch through Devil Canyon Powerplant to Lake Perris. In 1988, Department engineers began studies of the 3.8 mile-long tunnel and the intake tower to optimize power production at Devil Canyon. Their findings indicated that the tower, designed in 1967, might be damaged if an earthquake

Figure 1-2
East Branch Extension Project, Phase I



of magnitude 5.5 or larger occurred along the San Andreas Fault. Such a failure would interrupt vital water deliveries to Southern California.

The Department was then ordered by the Federal Energy Regulatory Commission to strengthen or replace the intake tower. The decision was made to construct a new seismically-stable structure next to the existing tower. The new tower would stand 125 feet high and draw water from one or a combination of four different tiers.

The Department's initial plan to start construction in fall 1994 was delayed by litigation from environmental groups who felt that mitigation plans to protect the lake's wildlife and fishery were insufficient. A year later, work began on the structure. Construction plans required two drawdowns. The first drawdown in September 1995 lowered the lake 43 feet below its normal level, and the second in October 1996 took the lake level down another 50 feet.

During the project, environmental specialists from the Department's Southern District monitored environmental compliance and worked with other agencies on programs to protect the lake's bald eagle population and enhance its fishery, as well as to mitigate impacts to the recreational use of Silverwood Lake.

The new San Bernardino tunnel intake structure became operational in early March 1997. This event allowed the SWP to begin refilling the lake to meet heavier water demands of downstream users during warmer weather. The project was essentially completed a few months later, and a celebration was planned for July to publicize Silverwood Lake State Recreation Area's reopening and its 25th anniversary.

Reorganization of the Division of Planning and Division of Local Assistance

As the Coastal Branch Project neared completion with no comparable work projects in sight, questions about the workload and focus of the Division of Planning led the Department to contract with Cooperative Personnel Services to reevaluate the roles of the Division of Planning and the Division of Local Assistance.

The divisions and offices affected by the reevaluation include: Division of Local Assistance, Division of Planning, Environmental Services Office, and the Office of Water Education. The proposed changes include:

- The Division of Planning was renamed the Office of State Water Project Planning, in line with its new focus on SWP activities and needs;
- The Division of Local Assistance was renamed the Division of Planning and Local Assistance;
- The Statewide Planning Branch was transferred from the Division of Planning to the Division of Planning and Local Assistance;
- Delineators and drafting personnel from the Statewide Planning Branch moved to Graphic Services in the Office of Water Education;
- The Environmental Support Section from the Division of Planning will be renamed the Environmental Documentation and Review Branch and transferred to the Environmental Services Office;
- Several organizational changes were made in the San Joaquin District and Central District of the Division of Planning and Local Assistance; and
- Certain branches and sections of the Office of State Water Project Planning and the Division of Planning and Local Assistance were renamed and staffing realigned to better reflect their functions.

The Office of State Water Project Planning will focus on SWP needs. The Division of Planning and Local Assistance will have a statewide focus that includes support for SWP planning activities in the districts.

Three implementation committees were formed to work out details of the changes. The reorganization took effect July 1, 1997.

Part II

State Water Project Management

Chapter 2

Future Storage and Delivery Capabilities

Laying the last pipe section of the Coastal Branch, Phase II

Significant Events

- Construction of Phase II of the Coastal Branch is scheduled to be completed with dedication planned for July 1997. Initial operation of the aqueduct provides water service to Santa Barbara and San Luis Obispo counties.

To meet the water deliveries specified in water service contracts, the Department of Water Resources will need to construct additional storage and delivery facilities as part of the State Water Project. In planning and developing those facilities, however, the Department faces two significant challenges: (1) finding technically suitable projects; and (2) satisfying many complex environmental procedures, laws, and regulations. Many of the environmental concerns center on the effects that additional storage and delivery facilities may have on the water quality and environment of the Sacramento-San Joaquin Delta. The Delta is the critical link in the SWP conveyance system. As such, developing additional SWP facilities depends on resolution of Delta conflicts.

In 1995, the CALFED Bay-Delta Program began developing the comprehensive, long-term solution for the Delta. The Program is a component of a process defined in the State-federal framework agreement signed in June 1994. This agreement calls for a cooperative and coordinated process to solve long-term water quality and ecosystem problems in the Bay-Delta Estuary. The signers of the agreement, known collectively as CALFED, became responsible for setting water quality standards and developing long-term solutions to fish and wildlife, water supply reliability, flood control, and water quality problems in the estuary.

The Department has vigorously supported this effort as a means of developing and managing the State's water resources for the benefit of its citizens and the environment and of meeting the water delivery commitments of the SWP. The Department is also developing a planning strategy for the SWP that is intended to lay the groundwork for developing additional SWP water supplies. The progress of the planning strategy depends on the evolution of the CALFED Bay-Delta Program and the support of the SWP contractors.

SWP Planning Strategy

Because of the need for additional water supplies for the SWP, along with the impacts of new constraints on Delta exports, the Department initiated efforts in 1994 to formulate a new planning strategy for the SWP Future Water Supply Program. The Department held initial meetings with all interested SWP contractors to discuss regional water management issues, requirements for SWP supply reliability, and strategies for implementing new demand reduction and supply development projects.

The end product of the SWP planning strategy is expected to be a detailed plan comprised of water-demand reduction and supply-enhancement programs and their implementation schedules. The plan would specify how the SWP would meet interim (10-year planning horizon) and long-term (year 2020 and beyond) water demands of SWP service areas according to service-area-specific ranges of desired reliability. During 1997, the SWP contractors began compiling information regarding: (1) how much additional SWP water each contractor is interested in procuring in normal years and in years with only 50 percent SWP deliveries, and (2) how much each is willing to pay for this water. The Department will use this information to identify projects that provide the requested water at the desired price. This program will continue to be closely coordinated with the SWP contractors and will be modified, as necessary, to meet their changing needs. It will also incorporate relevant portions of the CALFED Bay-Delta Program's long-term solution.

Coastal Branch Delivery Facilities

In keeping with the Department's efforts to have appropriate delivery facilities in place, the Coastal Branch of the California Aqueduct was planned,

designed, and constructed in two phases. The first phase was completed in the late 1960s and delivers water for agricultural use to contractors in northwestern Kern County. The Phase I facilities include two pumping plants and a 14.8-mile coastal stub canal extending from Avenal Gap to the vicinity of Devil's Den in northwestern Kern County. Berrenda Mesa Water District, a member of Kern County Water Agency, receives water through the Phase I facilities. The second phase became operational in mid-1997 and delivers water for municipal and industrial use to Santa Barbara County Flood Control and Water Conservation District and San Luis Obispo County Flood Control and Water Conservation District.

Phase II Facilities

In October 1986, SBCFCWCD and SLOCFCWCD requested that the Department conduct the planning and environmental studies needed to complete Coastal Branch, Phase II. The final EIR was released in May 1991; the notice of determination and summary of findings were issued in July 1992.

SBCFCWCD and SLOCFCWCD were notified, as required in paragraph 45(d) of the water supply contracts, that the Department would start final design on Phase II in June 1992. The two districts notified the Department of their requests for entitlement water.

Phase II Construction

The Phase II project was divided into six construction reaches. In early 1994, the Department began acquiring rights-of-way and obtaining additional permits necessary to construct the project, and began construction of the first two reaches. Four addenda and one supplement to the final EIR were prepared to document changes in the project. With mitigation, the project caused no significant long-term impacts. All significant impacts were short-term and were associated with construction (traffic, noise, and air quality). A legal challenge to the adequacy of the supplement to the EIR was resolved in favor of the Department.

Construction of Phase II of the Coastal Branch involved laying 100 miles of buried pipe from the existing Phase I terminus near Devil's Den to the end of Reach 6 at Vandenberg Air Force Base. Other facilities constructed include Devil's Den, Bluestone, and Polonio Pass pumping plants, and two water-storage facilities. The two tank facilities provide hydraulic stability and control in operating the project. A regional water treatment plant owned and operated by the local water purveyors (Central Coast Water Authority) was constructed at Tank Site 1 at Polonio Pass. The Department contracted CCWA to construct Reaches 5B and 6. With the exception of an erosion control and seeding contract, which is expected to extend into 1998, all construction is expected to be complete by late 1997 with water service beginning in the summer of 1997.

Los Banos Grandes

One often-cited approach for improving the water supply reliability and operational flexibility of the SWP is through water banking south of the Sacramento-San Joaquin Delta. Water banking moves water from the Delta during periods of high flows in the winter into storage facilities located south of the Delta for later release during dry periods.

Since the 1960s, the Department has conducted a number of studies to evaluate potential south-of-the-Delta off-stream reservoir sites. These studies led to the December 1990 *Los Banos Grandes Facilities Feasibility Report,* recommending construction of a 1.73 million acre-foot reservoir and associated facilities on Los Banos Creek in western Merced County.

The Department designed the LBG facilities as a primary south-of-the-Delta water bank. A major purpose of the facilities would be to reduce the frequency and magnitude of projected water shortages by increasing dependability of existing water supplies available to SWP contractors. Improving reliability of SWP supplies would reduce the likelihood of long-term water shortages that could occur more frequently as demand increases.

In addition to improving the reliability of the SWP water supply, LBG would benefit Delta fisheries by providing additional flexibility to operate existing and planned delivery systems and by shifting Delta pumping to months with least significant effects on fisheries.

Investigations and Status

A feasibility report and draft environmental impact report for the proposed LBG project were completed in December 1990. The final EIR and statement were scheduled to be completed in 1993; construction of facilities was to begin in mid-1995. However, since the release of the 1990 reports, several events occurred to curtail the availability of exports from the Sacramento-San Joaquin Delta. The U.S. Fish and Wildlife Service and National Marine Fisheries Service mandated measures to protect delta smelt and winter-run chinook salmon. These two Delta fish species are listed under the federal Endangered Species Act. The State Water Resources Control Board and the federal Environmental Protection Agency proposed new flow and water quality standards for the Delta. These actions significantly reduce the amount of Delta flows anticipated to be available for diversion and storage in the proposed LBG facilities.

LBG or an alternative off-aqueduct reservoir south of the Delta may yet be selected as a component of the CALFED Bay-Delta solution. While the CALFED selection process continues, work on LBG is limited to preserving the viability of environmental data collected at the LBG site, and evaluating mitigation techniques for potential project impacts.

This work includes:

- periodic field surveys for threatened and endangered species;
- continued monitoring of the Sycamore Pilot Program, developed by the Department to evaluate survival parameters for sycamore trees in the reservoir area; and
- evaluation and resolution of issues related to potential barriers to movements of the San Joaquin kit fox.

Kern Water Bank

The Kern Water Bank is a conjunctive-use, groundwater-banking program proposed by the Department in cooperation with Kern County Water Agency and local water districts. KWB is broadly defined as all opportunities to store and extract SWP water in the Kern County groundwater basin. The goal of KWB is to augment the dependable water supply of the SWP by storing water available from the Delta during wet periods in the Kern County groundwater basin for use during dry periods.

The proposed KWB consisted of eight separate projects or elements. In 1988, the Department purchased 20,000 acres of property overlying the Kern River alluvial fan for a direct recharge project known as the Kern Fan Element. Seven other local elements involving direct and in-lieu recharge programs were proposed by local water districts in Kern County to expand their conjunctive use capabilities. These were studied under the KWB planning efforts. Together, the eight elements could store as much as 3,000,000 acre-feet and, under 1988 regulations controlling Delta exports, provide about 400,000 acre-feet of additional water in dry and critically-dry years.

The Department's efforts to implement the KFE effectively ended in December 1994 with the signing of the Monterey Agreement. The Agreement set the principles for transferring the KFE property from the Department to designated agricultural contractors

Endangered Species Act

In planning, constructing, and operating the SWP, the Department must consider the effects its actions will have on organisms, plants, birds, reptiles, fish, and mammals listed as threatened or endangered according to the Federal Endangered Species Act (Title 16, United States Code sections 1531-1544 [1973]) and the California Endangered Species Act (California Fish and Game Code sections 2050-2098 [1984]). An endangered species is one in danger of extinction in all or a significant portion of its range; a threatened species is one likely to become endangered. These acts are designed to protect threatened and endangered species by:

- ensuring federal and State agencies adopt measures to protect the species during the design, construction, and operation of projects and in taking other forms of agency action; and
- prohibiting the taking of endangered species.

One important aspect of the acts is preserving habitat critical to the survival of the threatened or endangered species.

(primarily KCWA). The Department terminated its activities along with program funding. The local conjunctive-use elements are being evaluated by the CALFED Bay-Delta Program for possible incorporation into a long-term solution.

Environmental Policy Acts

The National Environmental Policy Act (Title 42 United States Code sections 4321-4370 [1970]) and the California Environmental Quality Act (California Public Resources Code sections 21000-21177 [1970]) compel government agencies to document and consider environmental consequences of their actions in their decision-making process. NEPA states that it is the goal of the federal government to use all practicable means consistent with other considerations of national policy to protect and enhance the quality of the environment. All federal agencies must prepare an environmental impact statement, including a discussion of mitigation measures and alternatives, for actions significantly affecting environmental quality.

The California Environmental Quality Act is patterned after NEPA. According to CEQA, agencies are required to (1) disclose, through an environmental impact report, the significant effects proposed projects would have on the environment; and (2) search for ways to reduce or avoid environmental damage.

CEQA applies only to projects directly undertaken, funded, or approved by State or local agencies. NEPA applies to projects directly undertaken, funded, or approved by federal agencies. The Department conducts many projects in cooperation with federal agencies. In those cases both CEQA and NEPA must be followed.

NEPA requires that mitigation measures and alternatives be disclosed to the public in the EIS, but it does not generally require federal agencies to adopt such mitigation measures or alternatives. CEQA, on the other hand, does impose substantive duties on all California government agencies approving projects with significant environmental impacts to adopt alternatives or mitigation measures that they find to be feasible to substantially lessen these impacts, unless there are overriding reasons why they cannot. When a project is subject to both CEQA and NEPA, both laws encourage the agencies to cooperate in planning the project and preparing joint environmental documents.

Through the environmental review process, citizens can learn about those significant effects and, if the project is approved, the reasons for approving the project. The review process requires agencies to:

- describe the proposed project;
- identify the lead and cooperating agencies involved in the project;
- determine the scope of study with the public;
- prepare and distribute a draft EIS or EIR;
- respond to comments received on the draft;
- prepare the final EIS or EIR;
- make findings and adopt feasible alternatives or mitigation measures to avoid significant effects, if applicable;
- adopt a monitoring plan to ensure mitigation measures are viable; and
- prepare and file applications for permits required to implement the project if the project is approved.

The scoping phase, which occurs early in the review process, is particularly important because it enables government agencies to identify issues and topics to be considered when preparing the report. Information gathered in the scoping phase helps agencies identify and evaluate reasonable alternatives; identify potential environmental impacts of the project; determine data and information needed; develop a work schedule; and allocate resources for preparing and distributing the draft environmental document for public review and comment.

NEPA requires a lead agency to involve the public during scoping, while CEQA does not. CEQA, however, does encourage public involvement at this stage. Members of the public may raise issues during the scoping phase and not just after the draft environmental document is prepared. Thus, the CEQA process leads to changes in projects through the development, consideration, and adoption of alternatives or enforceable mitigation measures to avoid or reduce any potential significant adverse effects on the environment.

Information for this chapter was provided by the Division of Planning and Local Assistance and the Office of State Water Project Planning.

Chapter 3

Water Supply Development

Water conservation—an important part of water supply

Significant Events

- Passage of Proposition 204 in November 1996 provided funds for future water-supply development.

To meet State Water Project contractors' increasing need for water, the Department of Water Resources investigates and implements plans to augment the SWP water supply.

The Department's plans include:

- developing programs to transfer water, either through programs such as the drought water bank or transfers between SWP long-term contractors and/or other agencies, including the Central Valley Project contractors;
- establishing conjunctive-use programs; and
- using SWP funds to develop local water supplies.

Water Transfers

Before 1991, most water transfers in California were conducted on a limited basis. SWP facilities transferred water to SWP long-term contractors and other agencies in California—most notably to CVP contractors.

However, in February 1991, after 4 drought years and 3 winter months of meager precipitation, California began its first large-scale water transfer program when the Governor established the 1991 Drought Water Bank. As the drought continued into 1992, he established the 1992 Drought Water Bank in March based on the successful 1991 program. The Department administered both water banks and, when necessary, used SWP facilities to transfer the water.

In 1993, with a plentiful water supply, no water bank was established. To facilitate future drought water banks, however, the Department issued a final programmatic environmental impact report in November 1993. The EIR outlines the framework for future water bank operations under specified drought conditions.

Based on its experience in managing the 1991 and 1992 water banks, the Department also published *Water Transfers in California: Translating Concept into Reality.* Released in November 1993, this report presents an overview of issues involved in water transfers and provides guidance for individuals and agencies interested in implementing a water transfer. Recognizing that water transfers will undoubtedly play a major role in California's future, the publication discusses lessons learned and challenges that remain for water managers and others concerned with water transfers.

The following sections briefly describe water transfer activities. Chapter 10 describes specific information.

Drought Water Banks

The 1991 and 1992 Drought Water banks successfully arranged water transfers to meet critical agricultural, urban, and fish and wildlife needs on a short-term basis. In 1992, 15 percent of the water went to wildlife refuges.

Following a wet 1993, when a water bank was not activated, a dry 1993-1994 winter along with severe water-export restrictions in the Delta resulted in major cutbacks in 1994 water deliveries to SWP and CVP contractors. In June 1994, Director Kennedy announced the activation of a 1994 Drought Water Bank. Water bank activities were immediately initiated that resulted in the acquisition and transfer of enough water to meet all 1994 critical needs.

1995 Drought Water Bank

In anticipation of a dry 1995, the Department organized the 1995 Drought Water Bank Program in late 1994. The program purchased water supply options on 29,050 acre-feet of water from willing sellers while the bank was in an inactive status. If the bank had been activated, the Department would have exercised these options to meet critical needs of participating SWP and non-SWP contractors. Although the program was not activated due to abundant precipitation and snowpack throughout the State, the option purchases did improve water supply reliability for participating agencies.

Supplemental Water Acquisitions

During 1994, the Department began drafting a programmatic environmental impact report for the Supplemental Water Purchase Program. This EIR was released in February 1997 and described a 6-year program—outside the scope of a Drought Water Bank Program—intended to acquire up to 400,000 acre-feet annually from willing sellers for use by participating SWP contractors. Water for the program would be secured either through direct purchases or by the purchase of water supply options. However, comments received were highly critical of the groundwater pumping component of the program. Subsequently, the groundwater pumping component was removed, leaving only reservoir storage as a possible source of water under this program. The Department continues to explore possibilities of purchasing water via short-term transfers.

State Water Project Conveyance

The Department arranges for the temporary transfer of water through SWP facilities for SWP long-term contractors as well as for other agencies. Those transfers can take three forms: (1) water exchanges among SWP long-term contractors or among contractors and non-SWP contracting entities, (2) entitlement water transfers between long-term SWP contractors; or (3) transfers of nonproject water to non-SWP and SWP agencies. Most temporary water transfers must be approved by the State Water Resources Control Board in accordance with Sections 1725 through 1728 of the *California Water Code.*

Conjunctive-Use Program

Conjunctive use of surface water and groundwater provides important benefits in water management. Historically, conjunctive-use management grew from local efforts to manage erratic water supplies. Increasing recognition focuses on the potential for conjunctive use to help alleviate regional and statewide water shortages and meet local needs. Cooperatively, local agencies and potential beneficiaries of conjunctive-use programs increase the flexibility of overall water management to improve efficiency and develop creative solutions to potential problems that may be beyond their individual grasp.

Conjunctive use is a water-management method wherein surface water is stored underground in times of abundant supply for use in dry periods when shortages are being experienced. Carefully planned and implemented conjunctive-use programs can operate without causing significant adverse impacts. However, the effect of such programs on native vegetation and Rutland habitat, fish and wildlife resources, and third parties, as well as potential land subsidence and degradation of water quality in the aquifer, must be evaluated.

The Department has long recognized the importance of conjunctive management. It was an integral part of *The California Water Plan* (Bulletin 3) published in 1957. Since that time, the Department has continued to investigate the potential for conjunctive use, frequently called groundwater banking, to contribute to water management.

The Sacramento Valley

Beginning in 1992, the Department undertook a more intensive evaluation of the Sacramento Valley in an effort to identify relatively small scale, cooperative conjunctive-use projects that could augment State Water Project supplies. Capsule descriptions of the projects under investigation are presented below:

Lower Colusa Basin. The Department completed a cooperative prefeasibility investigation of the Lower Colusa Basin in northern Yolo and southern Colusa counties. Reclamation District No. 108, the Yolo-Zamora, and Colusa County water districts cooperated in this study. The proposed project would develop up to 34,000 acre-feet of dry-year supply for the SWP while helping alleviate problems resulting from land subsidence in the project area. In wet years, the SWP would supply water for in-lieu recharge, thereby increasing groundwater storage in the area. In dry years, water would be returned to the SWP through groundwater substitution—surface water users would pump groundwater for a portion of their supply and release an equivalent amount of surface water to the Department for its use.

American Basin. The Department completed a feasibility investigation for a conjunctive-use project in the American Basin area of Sutter, Placer, and Sacramento counties. The proposed project would develop up to 55,000 acre-feet of dry-year supply for the SWP. As with the Lower Colusa Basin, this would be accomplished through a combination of in-lieu

recharge in wetter years and groundwater substitution in dry years. Local cooperators include South Sutter Water District, Pleasant Grove-Verona and Natomas Central Mutual water companies, Placer County Water Agency, and Reclamation District No. 1001. In 1996, the American Basin Program became a pilot project to test the implementation of a new approach to project management by the Department and its contractors. This is referred to as "Opt in/out" and provides for individual contractors to fund and participate in projects with the benefits being reserved for those participants. Nine SWP contractors elected to participate in the pilot program. Negotiations are under way among the Department, the participating SWP contractors, and the local agencies to develop a memorandum of understanding that will govern activities during the environmental impact assessment and permitting phases of project development.

Butte Basin. The Department has been actively evaluating the effects of water transfers that involved the Butte Basin. These transfers identified a substantial degree of resiliency that makes the basin attractive for conjunctive operation. However, significant uncertainty surrounds the amount of "new" water that can be developed. In addition, controversy surrounds the perceived impacts of drought water bank transfers on other groundwater users in the basin. The Department has proposed development of demonstration or test projects to help sort out these issues and is working with local interests to find a mutually acceptable approach.

Provident Irrigation District. The Department completed a preliminary assessment of the conjunctive use potential of the Provident Irrigation District area in Glenn County. The Department and the District are discussing the potential for developing a demonstration project for the area or, alternatively, a more detailed investigation.

Local Agency Concerns. Institutions and individuals in the Sacramento Valley are faced with a confusing array of proposals for water transfers and/or conjunctive use activities. These include the Department's Supplemental Water Purchase Program, the CALFED Bay-Delta Program's inclusion of conjunctive use and its outreach program, attempts to negotiate Delta settlement issues, and other proposals. All these activities have fostered an atmosphere of fear and distrust at the local level. The Department continues to work with local agencies and other interested parties to address their concerns and inform them about the potential for conjunctive use as an element of overall resource development and management. Local agencies are increasingly active in developing groundwater management programs and are trying to assert increased local control over water supply development and use. The counties are particularly active in adopting ordinances to regulate the groundwater portions of water transfers through permitting processes. The contentious environment that has developed is expected to slow the development of conjunctive-use projects, although the magnitude of the impact is very uncertain.

Local Water Supply Projects

Local projects to augment water supply may be financed with SWP funds and become units of the SWP if the Department determines that the projects are structurally, economically, financially, and contractually feasible as well as environmentally acceptable. SWP water contractors benefit from increased water supplies or reduced demands resulting from the projects.

Should construction costs of the local project exceed available SWP funds, local participation in financing the construction will be required. In addition, SWP funding will not exceed the actual construction costs and the local project will not become a unit of the SWP until all participants sign an agreement.

For a project to be financed by the SWP, the Department must be assured that:

- appropriate water supply contracts will be amended;
- yield developed by a local project as a unit of the SWP will become part of the SWP yield, whether for the life of the project or for an interim period; and
- the local project will not adversely affect the costs of water deliveries to nonparticipating SWP contractors.

The Department conducts a feasibility study of local projects only when conceptual and reconnaissance

reports support the project and SWP water contractors agree that the project is advantageous.

At this time, no local projects are being considered by the Department.

Central Valley Project Improvement Act of 1992

The Central Valley Project Improvement Act (PL 102-575; 106 Stat. 4706) made protection, restoration, and enhancement of fish and wildlife a major purpose of the CVP. Because it requires specific water supply actions, the CVPIA directly affects the joint activities of the CVP and SWP. The act indirectly influences SWP operations by addressing several Delta environmental issues.

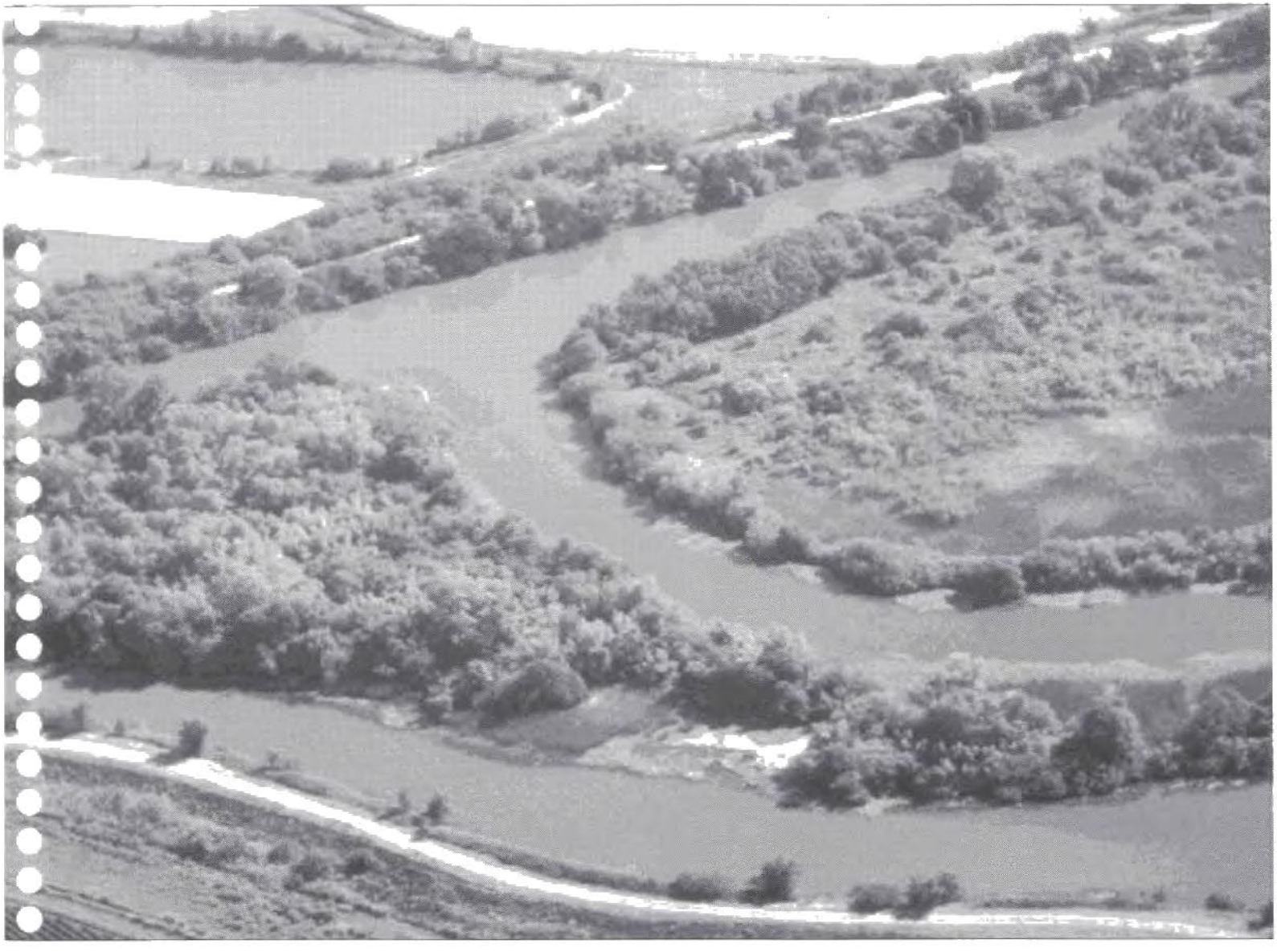
The CVPIA is designed to (1) protect, restore, and enhance fish, wildlife, and associated habitats in the Central Valley and Trinity River basins; (2) address impacts of CVP on fish, wildlife, and associated habitats; (3) improve operational flexibility of the CVP; (4) encourage expanded use of voluntary water transfers and water conservation; (5) contribute to efforts to protect the Sacramento-San Joaquin Delta and estuary; and (6) achieve a reasonable balance among competing demands for CVP water, including fish and wildlife, agricultural, municipal, and power uses.

In addition to imposing further limitations on new and renewed CVP contracts and encouraging voluntary transfers of CVP water, the CVPIA requires the implementation of a program to ensure that by 2002, natural production of anadromous fish will be sustainable at population levels twice the average sustained from 1967 to 1991. The CVPIA also requires the dedication and management of an additional 800,000 acre-feet of CVP yield for fish and wildlife needs.

The CVPIA also specifies measures to restore fish and wildlife and their habitat. Several measures—including installing a structural temperature control device at Shasta Dam, constructing specified Delta barriers, and acquiring supplemental wildlife refuge water—require cost sharing by the State of California. USBR is establishing guidelines and procedures to implement the CVPIA requirements. The Department works closely with USBR as these programs develop to manage any effects on SWP operations and minimize adverse impacts to threatened and endangered species.

Information in this chapter was contributed by the State Water Project Analysis Office, the Division of Planning and Local Assistance, and the Office of State Water Project Planning.

Chapter 4
Delta Resources



Delta waterways and islands

Significant Events

- The Department and the U.S. Bureau of Reclamation released the Draft Environmental Impact Report and Draft Environmental Impact Statement for the proposed Interim South Delta Program.
- Permits were secured to allow a 5-year extension of the Temporary Barriers Program.
- In 1996, the south Delta temporary barrier at Grant Line Canal was installed and operated for the first time.
- Staff from the Department's Delta Planning Branch were transferred to the CALFED Bay-Delta Program to assist in the development of a long-term Bay-Delta solution.

Over the past 40 years many programs have been developed and implemented by federal and State agencies, including the Department of Water Resources, to manage the Delta as both a unique environmental resource and as one of California's major water supply sources.

The common goals of these programs have been to:

- improve water supply reliability to the SWP, CVP, and other Delta water users;
- determine levels of flow and salinity necessary to protect fish and wildlife habitat; and
- devise methods to control flooding, protect fish and wildlife, and provide recreational activities.

Delta Water Management Programs

Over the last decade or so, the Department's planning programs focused on solving water management problems in three distinct areas of the Sacramento-San Joaquin Delta: the north Delta, west Delta, and south Delta (Figure 4-1). In 1992, the Governor issued his water policy, which redirected the Department's Delta planning programs to emphasize solutions that could be implemented relatively quickly to improve conditions in the Delta. Meanwhile, long-term Delta solutions would be deferred to a separate process that would include public involvement from all interest groups. As part of his policy to "fix the Delta," the Governor directed that actions in the south Delta be implemented in the short term.

In June 1994, a Framework Agreement between the federal and State governments defined a cooperative process for developing a long-term solution to the water supply, water quality, and ecosystem problems of the Delta. The CALFED Bay-Delta Program, a component of the process, is conducting the required technical analyses and developing the environmental documentation for the long-term solution. The program includes extensive public outreach and input.

Interim South Delta Program

To comply with the Governor's water policy, the Interim South Delta Program requires accelerated construction of south Delta facilities that can improve Delta water conditions while the Bay-Delta Program's long-term solution is developed and implemented. The Interim South Delta Program is designed to improve water levels and circulation in south Delta channels for local agricultural diversions. The program will also improve south Delta hydraulic conditions to increase diversions into Clifton Court Forebay, thereby maximizing the frequency of full pumping at Banks Pumping Plant.

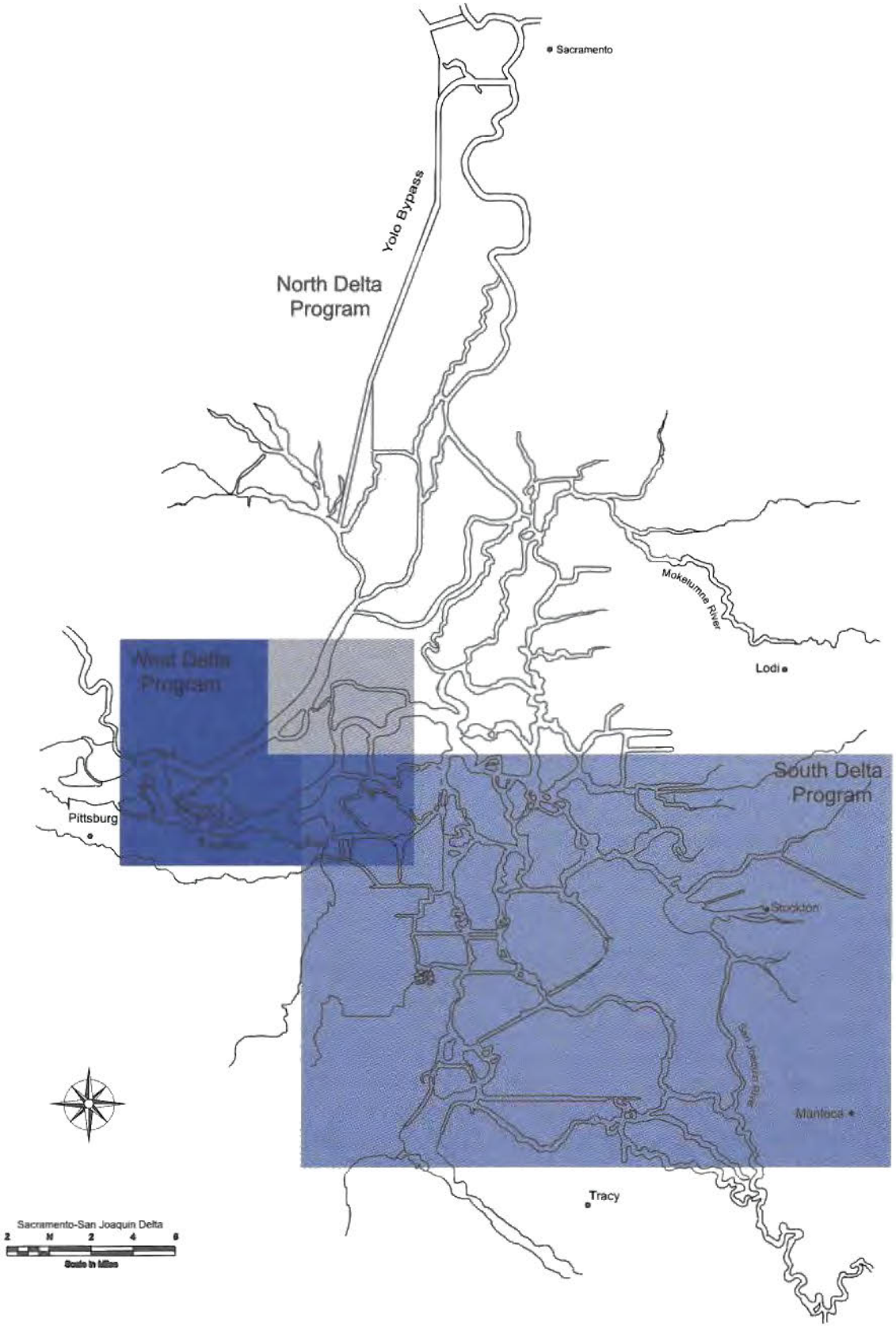
Preferred Alternative

The Department and the U.S. Bureau of Reclamation would implement the preferred alternative, which consists of:

- three flow-control structures in south Delta channels to improve local water levels and circulation;
- a fish-control structure to improve fish migration in the San Joaquin River;
- approximately 5 miles of dredging in existing south Delta channels to improve conveyance and circulation;
- an additional intake to Clifton Court Forebay north of the existing intake; and
- a permit from the U.S. Army Corps of Engineers to increase diversions into Clifton Court Forebay.

The proposal for increasing diversions into Clifton Court Forebay would allow Banks Pumping Plant to pump up to its maximum design capacity of about 10,300 cubic feet per second with fewer restrictions. It would also improve the reliability of SWP water supply and increase operational flexibility. In addition, the proposal to construct flow-control structures in south Delta channels would allow the Department and USBR to meet the obligations of a pending agreement with South Delta Water Agency to improve conditions for local agricultural diversions. The fish-control structure would benefit both spring and fall salmon migrations in the San Joaquin River.

Figure 4-1
Boundaries of North, West, and South Delta Water Management Programs



Environmental Review Process

A draft EIR/EIS for the ISDP was released in August 1996; the final EIR/EIS is scheduled for release in mid-1998. Once the final EIR/EIS is completed, a notice of determination and record of decision will be filed. State and federal regulatory agencies may then act on permits required to construct and operate the proposed facilities.

The key permits required will be issued by the Corps according to Section 404 of the Federal Water Pollution Control Act (Clean Water Act) for dredging operations and Section 10 of the Rivers and Harbors Act for navigation. Approval for the permit must be coordinated with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, the Environmental Protection Agency, and the California Department of Fish and Game.

New Temporary Barriers Project

The Department has installed and operated temporary barrier facilities in the south Delta since 1990 to improve south Delta conditions and collect data needed to design and operate permanent barrier facilities, as proposed in the Interim South Delta Program. Data collected in the Temporary Barriers Program has assessed the barriers' ability to reduce or eliminate adverse water levels and improve local hydraulic circulation patterns.

In addition, biological monitoring programs have been conducted to:

- look at alternative timing patterns for barrier operations;
- determine potential effects of barriers on Delta fish and vegetation;
- evaluate and review computer model calibration; and
- develop comprehensive environmental information for the design and operation of permanent barrier facilities.

Temporary rock barriers are being tested at four sites:

- Old River at head, in Old River where it splits from the San Joaquin River;
- Old River near Tracy, in Old River one-half mile east of the Tracy Pumping Plant intake and about 8 miles northwest of the city of Tracy;
- Middle River, just south of the confluence of Middle River, Trapper Slough, and North Canal; and
- Grant Line Canal, 420 feet east of the Tracy Boulevard Bridge.

The barrier at the head of Old River prevents San Joaquin River flow from entering Old River and flowing toward export facilities. The additional flow in the San Joaquin River assists in guiding San Joaquin salmon to the ocean in the spring and improves dissolved oxygen levels for upstream salmon migration in the fall. The other barriers have culverts with flap gates that improve water levels and circulation in south Delta channels during the irrigation season.

The Old River at head barrier has been installed in the fall since 1963 and intermittently in the spring since 1992; the Old River near Tracy barrier has been installed since 1991; the Middle River barrier has been installed since 1987. The Grant Line Canal barrier was installed and operated for the first time in July 1996.

Interim North Delta Program

In fall 1995, the Department suspended Interim North Delta Program planning activities in deference to the ongoing efforts of the CALFED Bay-Delta Program. The CALFED Bay-Delta Program is addressing the issues identified in the INDP in a comprehensive manner, with input from involved stakeholders, regulatory agencies, and cooperating agencies. As a participant in this process, the Department provides logistical and technical support to help assure solutions that are technically and economically sound, so that the large body of information developed as part of the INDP is fully integrated into the CALFED process.

West Delta Program

The objectives of the West Delta Program are to effectively manage SWP-owned lands on Sherman and Twitchell islands (approximately 12,000 acres total); improve the integrity of local levees; implement land-use management to control subsidence and

soil erosion on Sherman and Twitchell islands; implement mitigation requirements associated with the Temporary Barriers Program and proposed Interim South Delta Program; and provide diverse habitat for wildlife and waterfowl.

Other benefits of this program include:

- increased flood control, including protection for highways and utilities;
- additional protection of water quality in the Delta;
- increased reliability of the SWP water supply;
- additional opportunities for recreation in the Delta;
- reduced fish losses;
- improved water quality;
- increased wetlands and wildlife habitats; and
- increased terrestrial biodiversity.

The Department also contracted with a consultant to develop preliminary wildlife management plans for the two islands. The plans are designed to benefit species of wildlife that occupy wetland, upland, and riparian habitats and to provide recreational opportunities for hunting and viewing. In addition, property acquired and potential habitat developed through the Department could be available as mitigation for impacts associated with current and future Delta water management programs, including those being proposed by the Department and the CALFED Bay-Delta Program.

The Department is a major landowner on both Twitchell and Sherman islands, with two trustees on both Reclamation District 1601 (Twitchell Island) and Reclamation District 341 (Sherman Island). This permits the Department to improve the management and accountability of the operation of both districts. The reclamation districts provide for levee maintenance, island drainage, and some internal water supply. The district has the ability to assess the land for operation of the public districts.

Delta Flood Control Program

The Sacramento-San Joaquin Delta is one of California's most valuable and irreplaceable resources; without adequate levee protection, the Delta as we know it today would be lost. The levees serve many diverse needs. They protect valuable wildlife habitat, farms, homes, urban areas, recreational developments, highways and railroads, natural gas fields, utility lines, major aqueducts, and other public developments. The levees are also critical to protecting Delta water quality and serve a significant function in the State's water transfer system. The State Legislature recognized the importance of the Delta following the floods of the early 1980s and enacted the Delta Flood Protection Act of 1988, (SB 34 [Water Code Sections 12310 *et seq.* and 12980 *et seq.*]). With SB 34 the Legislature declared that, "...the Delta is endowed with many invaluable and unique resources and that these resources are of major statewide significance."

In SB 34, the Legislature declared its intent to appropriate $12 million annually through fiscal year 1998-99 for the Delta Flood Protection Fund. Six million dollars of the appropriation are for local assistance under the Delta Levee Maintenance Subventions Program. The remaining $6 million are for Special Delta Flood Control Projects, including subsidence studies and monitoring on Bethel, Bradford, Holland, Hotchkiss, Jersey, Sherman, Twitchell, and Webb islands, and the towns of Thornton and Walnut Grove. Currently, the program has received over $86 million in funds and, coupled with local funds, has realized $115 million in levee improvements. However, State budget cuts have resulted in the program being underfunded by over $21 million.

Delta Levee Maintenance Subventions Program

The Subventions Program provides funding, as a reimbursement, to local Delta reclamation districts to assist levee maintenance, repair, and rehabilitation in compliance with the State's Flood Hazard Mitigation Plan objectives. A portion of the levees of northern Suisun Bay are included in the program. Each year, districts that want to participate in the program prepare a work plan and file applications with the State Reclamation Board for funding.

After applications and work plans are reviewed, the Department requests their approval by the Board. The Board is also requested to approve each district's maximum possible reimbursement (up to 75 percent

for levee work and habitat mitigation) and maximum advanced reimbursement amount based on the program's reimbursement prioritizing scheme and available funding.

Upon Board approval, agreements are executed between the Board and each participating district stating that eligible work will be completed during the fiscal year. All work must be performed in compliance with appropriate State and federal laws including the California Environmental Quality Act, the State and federal Endangered Species Acts, Section 1600 of the Fish and Game Code, Section 404 of the Clean Water Act, and approval by DFG that a net long-term habitat improvement of riparian, fisheries, and wildlife habitat will result.

Special Projects

The Special Flood Control Projects Program assists the eight western islands, other locations in the Delta and northern Suisun Bay, and the towns of Thornton and Walnut Grove. In July 1989, the Legislature approved a plan of action for flood control for the towns of Thornton and Walnut Grove.

For the eight western Delta islands, the California Water Commission approved a report of initial or "fast-track" actions in September 1989 and approved the long-term actions and priorities in May 1990. The long-term plans are being used by the Department to determine how to best use appropriations to protect the eight western Delta islands. Those protections include: rehabilitating threatened levees through the use of imported dredged material; verifying elevations in the Delta through the use of Global Positioning System equipment; and upgrading levees to the standards included in Bulletin 192-82, *Delta Levees Investigation*.

Some of the projects already completed or in progress through the Special Projects Program include:

- Bethel Island Phase I (1995) - 5,200 feet of long-term landside levee improvements;
- Bethel Island Phase II (1995) - 5,100 feet of long-term landside levee improvements;
- Hotchkiss Tract Phase I HMP (1996) - 2,700 feet of levee improvement to the Hazard Mitigation Plan standard;
- Twitchell Island levee setback (1995) - 3,000 feet of levee setback;
- Sherman Island cross levee repair (1995) - upgrade to HMP standard;
- Sherman Island long-term levee improvements (1996) - construction of stability berms along portions of levee adjacent to Mayberry Slough and the San Joaquin River;
- Bradford Island (1996) - construction of stability berm to address severe cracking and foundation deformation; and
- Webb Tract (1996) - 4,400 feet of levee repairs for areas with stability and seepage problems.

Subsidence Investigations

Organic soils in the Sacramento-San Joaquin Delta have subsided up to 25 feet since the Delta islands were drained in the late 1800s, primarily due to oxidation of the soil organic matter. The Legislature recognized the problem and, with the Delta Flood Protection Act, requested the Department to monitor subsidence and study its causes.

Accordingly, the Department and the U.S. Geological Survey conduct an ongoing subsidence investigation in the Delta. After reviewing preliminary data provided by USGS, the Department concluded that:

- land management practices substantially influence subsidence rates;
- permanent shallow flooding can stop the microbial subsidence processes;
- cultivation practices that raise soil temperature and lower the water table dramatically increase oxidation of the peat soils;
- conversion of highly organic peat soils to carbon dioxide gas appears to be the primary cause of subsidence; and
- the presence of vegetation mats suggests that shallow permanent flooding will reverse subsidence through biomass accretion.

Subsequent research will focus on maximizing soil accretion by growing organic material (tules). A 25-

acre test area was constructed on Twitchell Island and will be managed to maximize soil accretion.

Upland Relocation of Dredged Material

As local sources of fill material for levee repair are depleted, new economical sources must be located. The Department, in coordination with the Corps, local reclamation districts, and the Central Valley Regional Water Quality Control Board, implemented three pilot projects to demonstrate the viability of relocating material from the San Francisco Bay Area.

The first project on Sherman Island (Reclamation District 341) used about 1,600 cubic yards of sediment dredged from Suisun Bay as part of a 2,500-cubic-yard experimental toe berm. The berm was built on the toe of a levee reach along the San Joaquin River. As a condition of allowing the import of dredged sediment from the San Francisco Bay area to Sherman Island for levee rehabilitation, the CVRWQCB required an extensive program of soil and water monitoring. No soil or water quality problems were found.

The second project on Twitchell Island (Reclamation District 1601) transported about 50,000 cubic yards of sediment to the island. The sediment was dredged from Suisun Bay, transported from the Corps' storage site on Simmons Island, and used as part of a major rehabilitation of the San Joaquin River levee on Twitchell Island. The dredged sediment was used with the permission of the CVRWQCB, which required, as a condition for its approval, that a water quality monitoring program be undertaken on Twitchell Island. No adverse salinity impacts have been measured.

A third project, the Jersey Island Demonstration Project, consisted of levee-stabilizing berms using about 65,000 cubic yards of sediment dredged from navigation channels in Suisun Bay and New York Slough. The project entailed extensive cooperation and planning among the Department, the Corps, Reclamation District 830 on Jersey Island, and DFG. In addition, the CVRWQCB required a very extensive and expensive monitoring and testing program as part of the waste discharge permit issued for the project. The monitoring and reporting required by the CVRWQCB have not identified any adverse impacts.

Currently, the Special Projects Program is being coordinated with the CVRWQCB and the Long-Term Management Strategy to develop dredge material re-handling facilities on Sherman Island. The intent of these sites is to establish monitoring programs so that all LTMS dredging adjacent to these sites will be stockpiled for later use in levee improvement projects.

Levee Upgrades

The Department is funding upgrades to the levees according to standards contained in Bulletin 192-82, *Delta Levees Investigation*. According to those standards, the agricultural levees must be raised to provide 1.5 feet of freeboard for a 300-year flood and widened to a 16-foot crown width, with a waterside slope of at least 3 horizontal to 1 vertical.

Clean Water Act

Section 404 of the Federal Water Pollution Control Act (Title 33, United States Code Section 1344 [1977]), also known as the Clean Water Act, requires that a permit be obtained from the U.S. Army Corps of Engineers for any activity that results in discharge of dredged material or placement of fill material in the waters of the United States. Section 404 has been broadly interpreted by the federal courts to include structures or fills introduced into waters within a state that may be used for interstate or foreign commerce. Section 402 of the Clean Water Act established a permit system known as the National Pollutant Discharge Elimination System to regulate point sources of discharges in navigable waters of the United States.

The Porter-Cologne Water Quality Control Act is California's comprehensive water quality control law and is a complete regulatory program designed to protect water quality and beneficial uses of the State's water. In 1972, the Porter-Cologne Act was amended to give California the authority and ability to operate the NPDES permits program. These laws require regional water quality plans to be adopted and implemented by issuing waste discharge requirements to each discharger of waste that could impact the waters of the State.

In August 1991, the Corps, the State Reclamation Board, and the Department signed a feasibility cost-sharing agreement for a special study of the Sacramento-San Joaquin Delta. Updating an earlier 1982 study, the 1991 special study provides for investigating solutions for Delta flood protection, salinity

intrusion, recreation, and navigation. In accordance with the Water Resources Development Act of 1986 and the federal policy of incurring no net loss of habitat, the 1991 study includes environmental and wildlife habitat restoration measures. The study will also consider the Department's management plans for water supply and flood control when developing alternatives for a comprehensive Delta plan.

U.S. Army Corps of Engineers

In addition to its historical leadership in flood control, the U.S. Army Corps of Engineers regulates structures or work affecting navigable waters of the United States according to Section 10 of the Rivers and Harbors Act (Title 33, United States Code, Section 403 [1899]) and any activity which results in discharges of dredged or fill material into waters of the United States (which includes wetlands) according to Section 404 of the Clean Water Act.

U.S. Bureau of Reclamation

The U.S. Bureau of Reclamation manages the operation of the Central Valley Project and shares with the Department responsibilities for meeting water quality and flow objectives in the Delta. The Central Valley Project delivers about 7 million acre-feet of water a year to contractors in the Sacramento and San Joaquin valleys and parts of the San Francisco Bay area. Under the requirements of the CVP Improvement Act, USBR also supplies water for fisheries and wildlife refuges in the Central Valley.

Because the Department and USBR share Delta responsibilities, the Department coordinates SWP operations with USBR according to terms and conditions of the Coordinated Operation Agreement, signed in 1986. That agreement replaced an earlier system of year-to-year agreements regarding the responsibilities of the Department and USBR in the Delta. The COA is significant in that the federal government agreed to accept a significant portion of responsibility for meeting the State Water Resources Control Board's water quality requirements for the Delta with certain restrictions as to limitations of State and federal authorities.

The special study is divided into two phases. Phase I began in September 1991 and ended in March 1993. The Phase I report, called the Initial Report, describes problems, possible solutions, and opportunities to improve and/or provide flood protection, fish and wildlife habitat, water quality, recreation, and navigation. The Initial Report included a plan that identifies existing and future land uses in years 2000, 2020, and 2040. The report also included a discussion on developing a comprehensive plan, primarily for flood control, navigation, and environmental restoration. Phase II is due to go to construction in June 1998.

Phase II of the special study is in progress. In Phase II, a Regional Planning Report for environmental restoration, flood control, and navigation is to be developed. The purpose of this report is to develop a region-wide plan for the Corps involvement in the Delta that links with the planning efforts of others. The Regional Planning Report will incorporate and be closely coordinated with the long-term policies and plans of CALFED. Other Phase II efforts are to:

- design and construct a levee test section;
- study borrow material sources; and
- study dredge material reuse.

In addition, a planned joint program will investigate other reuse opportunities and technical studies of sediment traps, water quality effects of sediment reuse, subsidence control, and habitat restoration. These studies will demonstrate the value of sediment reuse and will continue to build momentum for developing solutions to Delta problems, particularly for flood control issues.

Delta Water Rights Management

Several agencies in the western Delta have rights to usable water in the Delta. To manage those water rights and resolve issues associated with them, the Department negotiated water rights management contracts with some of the agencies concerned. Those agencies serve agricultural, municipal, and industrial users of Delta water.

Delta Agricultural Water Users

In 1974, the Delta Water Agency was replaced by six Delta agricultural water agencies—North Delta Water Agency, South Delta Water Agency, Central Delta Water Agency, East Contra Costa Irrigation District, Contra Costa County Water Agency, and Byron-Bethany Irrigation District. Two of those agencies—North Delta Water Agency and East Contra Costa Irrigation District—signed water rights management contracts with the Department in 1981.

South Delta Water Agency v. United States, et al.

In 1982, the South Delta Water Agency filed suit in Federal District Court for the Eastern District of California against the United States, the Department of the Interior, the U.S. Bureau of Reclamation, and the Department. This case involves the effects of operations by the Central Valley Project (operated by the USBR) and the State Water Project on the SDWA service area, and the effect of the Department of Interior's designation of the boundaries of the New Melones Reservoir service area as not including the SDWA service area. In its suit, SDWA asked for declaratory and injunctive relief, which, if granted, would have restricted certain Delta operations.

The United States and the SDWA settled the agency's motion for preliminary injunction to prevent the United States from signing contracts for New Melones water. The motion was settled by parties agreeing to a stipulation that any contracts entered into by the United States are subject to any superior rights in the southern Delta that are determined in this litigation. In October 1986, the USBR, the Department, and the SDWA signed a framework agreement to settle the lawsuit. The parties agreed to work together to develop mutually acceptable, long-term solutions and to stay all actions in the litigation while negotiating a settlement.

In August 1990, a draft agreement for settlement of the lawsuit was completed. The proposed settlement includes provisions for constructing, operating, and maintaining temporary (and later permanent) barriers in south Delta channels to improve water levels and circulation. In addition, according to the contract, USBR will take interim actions to improve the quality and quantity of water that flows into the south Delta from the San Joaquin River. The Department and the SDWA are authorized to sign the agreement. USBR is currently seeking Congressional authorization to sign the contract. The Department has proceeded with designing, constructing, and operating the temporary barrier facilities as part of the testing program included in the proposed contract. USBR and the Department will share equally the costs associated with the barrier facilities.

The Department also negotiated contracts, or is requesting negotiations, with other agencies to provide for water level, circulation, and quality needs in certain areas.

South Delta Water Agency Contract

In September 1990, the Department completed negotiations for a long-term agreement with the SDWA and USBR. The Department and SDWA are authorized to sign the agreement. USBR is currently seeking Congressional approval to sign the agreement, which includes provisions to address SDWA concerns about the quality of water entering SDWA through the San Joaquin River system.

Under the proposed SDWA contract, the parties agree to proceed with the design, construction, and operation of certain barrier facilities in the channels of the south Delta. The facilities resolved those portions of the lawsuit that SDWA filed in 1982 regarding the alleged effects of export pumping by the SWP and/or the Central Valley Project on water levels, quality, and circulation in the south Delta.

Since 1990, the Department has installed and operated temporary barrier facilities in the south Delta to improve south Delta conditions and collect data needed to design and operate permanent barrier facilities as proposed in the Interim South Delta Program. Data collected in the Temporary Barriers Program has assessed the barriers ability to reduce or eliminate adverse water levels and improve local hydraulic circulation patterns.

In addition to providing for barrier facilities, the proposed agreement between the Department, SDWA, and USBR defines amounts of certain interim releases from New Melones Reservoir and other related actions to be taken by USBR. Those measures will provide a temporary solution to a portion of the 1982 litigation concerning San Joaquin River flows and water quality measured at Vernalis.

Western Delta Industrial Water Users

Some industries near the cities of Antioch and Pittsburg in the western Delta use offshore water in their manufacturing process. When offshore water quality falls below the industries' requirements, a substitute supply is provided through the Contra Costa Canal.

According to terms of a contract executed in 1987, the Department makes payments to the operator of a mill located in the western Delta, Fibreboard Corporation and its successors (now Gaylord Container Corporation), when water suitable for the mill's use is not available for a calculated number of days during the water year. If water is deemed suitable for fewer than the number of days to which Gaylord is entitled,

the Department compensates Gaylord for added costs of purchasing a substitute water supply and treating water needed to operate the mill. According to the Department's initial interpretation of the contract provisions, the Department has made payments to Gaylord totaling $2,621,339.58.

On November 19, 1991, the Department negotiated an agreement with Gaylord Corporation regarding another mill Gaylord owns, downstream of the mill purchased from Fibreboard. The provisions of that agreement are similar to those contained in the 1987 water entitlement agreement, and payments to date were $386,776.30.

Determination of Payments. The contracts contain a chart based on the relationship between the Sacramento River Index and the number of days the corporation is entitled to water of suitable quality. Days for payment is the difference between the entitlement days and actual days of suitable quality. The payment formula is the same in both contracts except for one factor relating to the method of obtaining water from the San Joaquin River. The second mill incurs no measurable pumping costs when taking process water from the river.

There was an unresolved disagreement regarding interpretation of the contract and Gaylord filed a suit in the Sacramento Superior Court (see Chapter 8). In January 1996, a settlement was reached. The parties agreed to dismiss the lawsuit and resolve all outstanding issues by canceling the contract. This contract covered the Department's payment of $3,000,000 to satisfy and discharge the Department's obligations to Gaylord for water quality and water supply. If the Fiberboard plant reopens and is in full operation by January 18, 2003, the additional amount of $2,500,000 would be payable to Gaylord.

Western Delta Municipal Water Users

To compensate the Contra Costa Water District and the City of Antioch for purchasing water of usable quality when such water is not available offshore in the Antioch-Pittsburg area, the Department signed contracts with those agencies in 1967 (Contra Costa Water District) and 1968 (City of Antioch).

According to terms of the contracts, the Department compensates each agency for additional costs of purchasing a substitute water supply from the Contra Costa Canal to replace offshore water supplies of usable quality lost because of SWP operations. Credits for the number of days of above-average offshore water supplies of usable quality accrue to offset the number of below-average days in future years.

Information in this chapter was contributed by the Division of Planning and Local Assistance and the Central District.

Chapter 5

Environmental Programs

Red-tailed hawk

Significant Events

- The Department released the Draft Environmental Impact Report for the SWP Supplemental Water Purchase Program in February 1997.
- The Department and the U.S. Bureau of Reclamation, in consultation with State and federal fishery agencies, shifted some of the Delta exports from the spring to the fall to protect delta smelt and chinook salmon. USBR also closed the Delta Cross Channel Gates in November 1996 to protect out-migrating winter-run and other salmon smolts.
- The California Department of Fish and Game approved and the Department began implementing six new fishery projects to offset fish losses at Banks Pumping Plant.
- The U.S. Fish and Wildlife Service and the National Marine Fisheries Service postponed decisions for listing the Sacramento splittail and the Central Valley populations of chinook salmon and steelhead as threatened or endangered species under the federal Endangered Species Act until after late 1997. The California Fish and Game Commission decided the spring-run salmon did not warrant listing under the California Endangered Species Act in 1996, but the decision was overturned in the courts.
- The high-flow fish evaluation study in the low-flow section of the Feather River began October 10, 1996. Increased flows of about 1,600 cfs were monitored by Environmental Services Office staff to evaluate effects on salmon spawning. A corresponding reduction in Thermalito Afterbay River Outlet releases was made to maintain the Feather River at about 2,400 cfs. The study was planned to continue until January 16, 1997, but was canceled because of heavy December storms that required very high releases.

The Department of Water Resources has developed several programs and taken measures to avoid, minimize, or offset adverse impacts that might result from construction and operation of State Water Project facilities. These programs and measures are undertaken in addition to the environmental documentation and mitigation activities required to obtain approvals for any additional project facilities.

Water Transfers

A Draft Environmental Impact Report for the Supplemental Water Purchase Program was released for public review in February 1997. The proposed program would enable participating contractors to purchase up to 400,000 acre-feet of water from groundwater substitution and surplus surface supplies to meet their Table A entitlement in any given year through the year 2002. The draft EIR addresses potential environmental impacts related to groundwater substitution, fisheries in the Delta, reservoir releases, tributary flows, and possible impacts to reservoir-related recreation. Because of public concerns over the draft EIR, the Department held several additional public workshops on the program and extended the public comment period into the summer of 1997. Comments received were highly critical of the groundwater pumping component of the program. Subsequently, the groundwater pumping component was removed, leaving only reservoir storage as a possible source of water under this program.

Real-Time Monitoring

One of the principles of the December 15, 1994, Delta Accord states that: "To the maximum extent possible, real-time monitoring will be used to make decisions regarding operational flexibility." In 1996, efforts were devoted to refining the real-time fish-monitoring program in the Delta, along with an associated process to use the data in assessing the need to modify water project operations in the spring.

Monitoring fish in the Delta on a real-time basis means collecting fish distribution and abundance data and providing an interpretation of that data within 36 hours of initial collection. Specific goals of the 1996 real-time monitoring program were to:

- refine the logistics of collecting and processing data in a real-time mode;
- determine if the movement of chinook salmon smolts, delta smelt, and splittail through the Delta can be followed and predicted;
- determine if predictable relationships exist between fish catches in the sampling program and fish salvage at the CVP and SWP;
- determine if the movement of fish and water are related and what factors may affect this relationship; and
- provide information to facilitate decisions regarding water project flexibility.

In 1996, operation of the field data reporting aspects of the program and preparation of daily summary reports were carried out by the Data Review Team.

During real-time monitoring, data collection was accomplished through an intensive sampling program from April 1 through June 30. The program consisted of three parts:

- enumeration of fish salvaged at the CVP and SWP fish facilities;
- daily sampling at 13 sites in the Delta; and
- biweekly, Delta-wide fish distribution surveys, targeting juvenile fish.

Another group, the Data Summary Team, monitored results of the field data along with salvage counts from the State and federal export facilities. Based on the available information, the Data Summary Team prepared recommendations designed to minimize the impacts of water project operations on fish. Data Summary Team recommendations were forwarded to the CALFED Operations Group for its use in making decisions about water project operations.

Uses of Real-Time Monitoring

In 1996, monitoring at the SWP and CVP showed high salvage levels of delta smelt during May and June. However, daily sampling at the 13 Delta sites and biweekly survey results both showed the delta smelt population was concentrated around Chipps Island by early May. This distribution held through May and June, bolstered by high spring outflow. As a result, no operational response was necessary during the period of elevated salvage. These results also indicated the lack of a predictable relationship between fish catches in the sampling program and fish salvage at the CVP and SWP export facilities.

Biological Opinions and Other Operational Considerations

In most years, the delta smelt spends its entire life cycle in the Delta and Suisun Bay and can therefore be affected by project operations. Juvenile winter-run chinook salmon passing through the estuary on their way to the ocean may be impacted by: (1) project-induced changes in Delta flow patterns; and (2) direct losses at the pumps. The Department and USBR coordinated the project's operations to meet the requirements in the National Marine Fishery Service, U.S. Fish and Wildlife Service, and the Department of Fish and Game biological opinions for winter-run salmon and delta smelt.

These State and federal biological opinions determined that the project pumping, Delta outflow, and other operational criteria stipulated in the 1994 Principles for Agreement include all the Delta actions needed to avoid jeopardizing the two species. They also specify the level of incidental take of these species that is permitted before the Department and USBR are to reconsult and assess if additional actions are needed to reduce take. The winter-run take is determined at each smolt out-migration season and is based on a percentage of the estimated winter-run smolts out-migrating that year. The delta smelt take is specified by month and by two water year types (i.e., wet/above-average and below normal/dry/ critical), based on historical salvage at the SWP and CVP fish screens.

Pumping Curtailments

Between April 15 and May 15, 1996, USBR and the Department coordinated the operation of their south Delta pumping plants to meet a ratio between the flow of the San Joaquin River at Vernalis and their combined diversions of approximately 4:1, an objective of the draft Anadromous Fish Restoration Program developed under the Central Valley Project Improvement Act. This objective was originally proposed by the USFWS as a use of the so-called "(b)(2) water" under Section 3406(b)(2) of the CVPIA. Substantial disagreement within the stakeholder community developed about the propriety of using (b)(2) water for additional Delta outflow above the level required in the Bay-Delta Accord. While the Department of the Interior believed that such use of (b)(2) water could be appropriate, a decision was made not to use (b)(2) water in 1996 to meet the 4:1 objective. USBR elected to use the flexibility afforded under SWRCB Water Right Order 95-6 to conduct the export reduction with the understanding that efforts would be made to make up the water in the fall. The Department voluntarily assisted in implementing this operation, which resulted in lower combined exports than would have occurred under the Water Quality Control Plan as adopted in WR Order 95-6. The 4:1 objective also resulted in lower exports than suggested by the Vernalis flow and export ratio objective contained in the USFWS revised (March 6, 1996) biological opinion for the protection of delta smelt.

U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service, an agency within the Department of the Interior, has the mission to "conserve, protect and enhance fish, wildlife and their habitats for the continuing benefits of the American people." Among the responsibilities of USFWS is administration of the federal Endangered Species Act to provide protection for terrestrial and aquatic plants and animals, except anadromous fish. USFWS also works with federal, State, and local agencies and interests in matters regarding wetland protection.

Within California, USFWS is responsible for biological opinions, critical habitat, and recovery plans for such threatened and endangered species as the delta smelt. Biological opinions issued by USFWS, particularly the delta smelt opinion, significantly affect SWP and CVP operations. Close interagency coordination is required to operate the projects in conformance with the biological opinion. The Department also works with USFWS to minimize environmental impacts related to SWP maintenance.

During the period May 16 through 24, 1996, USBR and the Department also coordinated their south Delta pumping operations to reduce their combined take of delta smelt. Together they provided a ramping or transition from the lower rates of export during the April 15 to May 15 pulse period to the higher rates possible under the prevailing export/inflow criterion of 35 percent. During this ramping period, about 11,000 acre-feet of CVP water was pumped by the SWP to reduce the overall impact on CVP exports. These actions were taken after consulting with USFWS and its delta smelt working group.

Overall, the CVP, with the Department's cooperation, reduced its south Delta exports about 130,000 acre-feet in spring 1996 to protect fish. Of this, about 64,000 acre-feet was used to meet the delta smelt biological opinion's San Joaquin River pulse flow objective; 42,000 acre-feet was used for additional voluntary reductions to meet the draft AFRP objective for the 4:1 ratio; and 24,000 acre-feet was used for the May 16 to 24 ramping to reduce take of delta smelt. These amounts were recovered in the fall under the terms of WR Order 95-6.

National Marine Fisheries Service

The National Marine Fisheries Service has primary responsibility for the conservation, management, and development of living marine resources and for the protection of certain marine mammals and endangered species under numerous federal laws. As a federal agency within the U.S. Department of Commerce, NMFS has responsibilities to the commercial and marine recreational fishing industries and to the general public. NMFS also administers the federal Endangered Species Act with respect to marine and anadromous species such as the winter-run salmon. The mission of NMFS is to "achieve a continued optimum utilization of living marine resources for the benefit of the nation."

NMFS issues biological opinions, critical habitat designations, and recovery plans on winter-run chinook salmon and other anadromous salmonids in California and ensures that conditions specified in these opinions are met by the responsible agencies, including the Department of Water Resources.

The final estimate of winter-run-sized salmon take (October 1, 1995, through May 31, 1996) was 7,353 smolts, greater than the 1996 incidental take statement level of 3,301 smolts. NMFS concluded that no operational changes were needed during the year, however, because most of the smolts associated with the high take were predominately fall-run salmon that had grown faster than in other years due to warmer water temperatures. Therefore, no take-related pumping curtailments were required during 1996 for winter-run chinook salmon protection since incidental take was deemed less than specified in the incidental take statement.

The 1995 delta smelt biological opinion specifies a 14-day running average and monthly total take levels. On May 16, 1996, the monthly take was exceeded, triggering formal reconsultation between the Department, USBR, USFWS, and DFG. The agencies decided to breach the head of Old River fish barrier and shift a portion of the CVP diversions to SWP facilities (as mentioned above) where lower densities of smelt were present. The barrier was breached on May 16, 1996.

Delta Cross Channel Standards

The winter-run chinook salmon biological opinion and May 1995 amendment, as well as the SWRCB Water Quality Control Plan, address operation of the Delta Cross Channel gates. From November 1 through January 31, the gates may be closed upon request by the fishery agencies for a total of 45 days if migratory juvenile salmon are present. The gates must be closed between February 1 and May 20. Between May 21 and June 15, Delta Cross Channel gates are to be closed for 4 consecutive days each week, excluding weekends. No Delta Cross Channel operational measures were specified in the 1995 delta smelt biological opinion.

Delta Cross Channel gates closed on November 12, 1996, at the request of fishery agencies to create desired hydraulic conditions to reduce the movement of winter-run salmon smolts into the central Delta where mortality was thought to be high. The Cross Channel gates were reopened November 15 and closed again November 20. They remained closed until the following spring.

Sacramento and San Joaquin River Flow Requirements

The winter-run biological opinion amendment (May 1995) and long-term delta smelt biological opinion (March 1995) refer to the 1994 Principles for Agreement and SWRCB draft Water Quality Control Plan for river flow requirements. These documents stipulate that the base flow from the Sacramento River is to have a minimum monthly average flow rate that varies by month and depends on water year type. For example, during September through December, a minimum flow of 3,000-4,500 cubic feet per second is required past Rio Vista. A pulse flow is also provided in April and May to move delta smelt larvae spawned on the San Joaquin River to suitable rearing habitat in Suisun Bay.

As indicated in the preceding sections, the distribution and abundance of threatened and endangered fish have been an increasingly important factor in determining SWP and CVP operations. They are particularly important in years when their distribution is limited or concentrated near the south Delta pumping plants, and in years when overall abundance is low.

Population Estimates

Figure 5-1 shows estimates of returning adult winter-run chinook salmon through 1996. The estimated escapement for 1996 was 940, which more than replaced the estimated 341 adults in the parent stock of 1993.

Figures 5-2 and 5-3 show abundance trends of delta smelt through 1996 for the fall midwater trawl and summer tow-net indexes. In 1996, a low summer index was followed by an even lower fall index, suggesting the population of adult delta smelt declined through 1996. By contrast, in 1995, a low summer index was followed by the seventh highest fall index on record. Scientists do not know what causes these variations that occur within and between years.

Figure 5-1
Estimated Total Winter-Run Chinook Salmon Escapement, 1967 through 1996

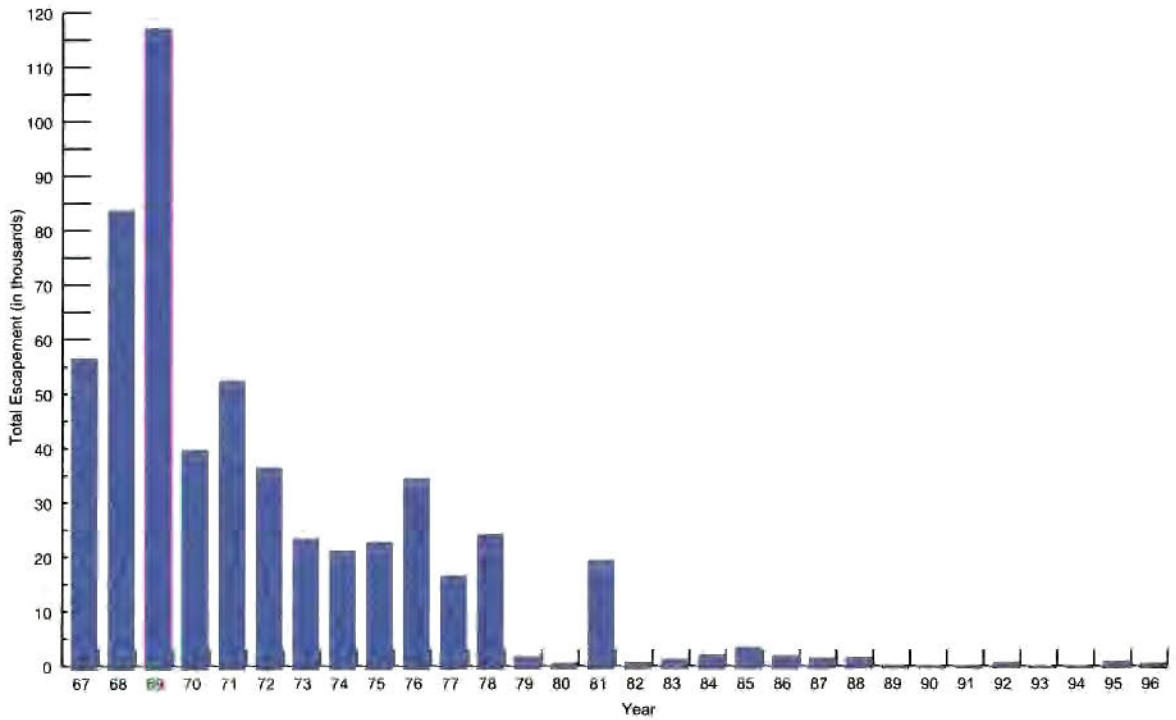


Figure 5-2
Delta Smelt Fall Midwater Trawl Abundance Indexes, 1967 through 1996

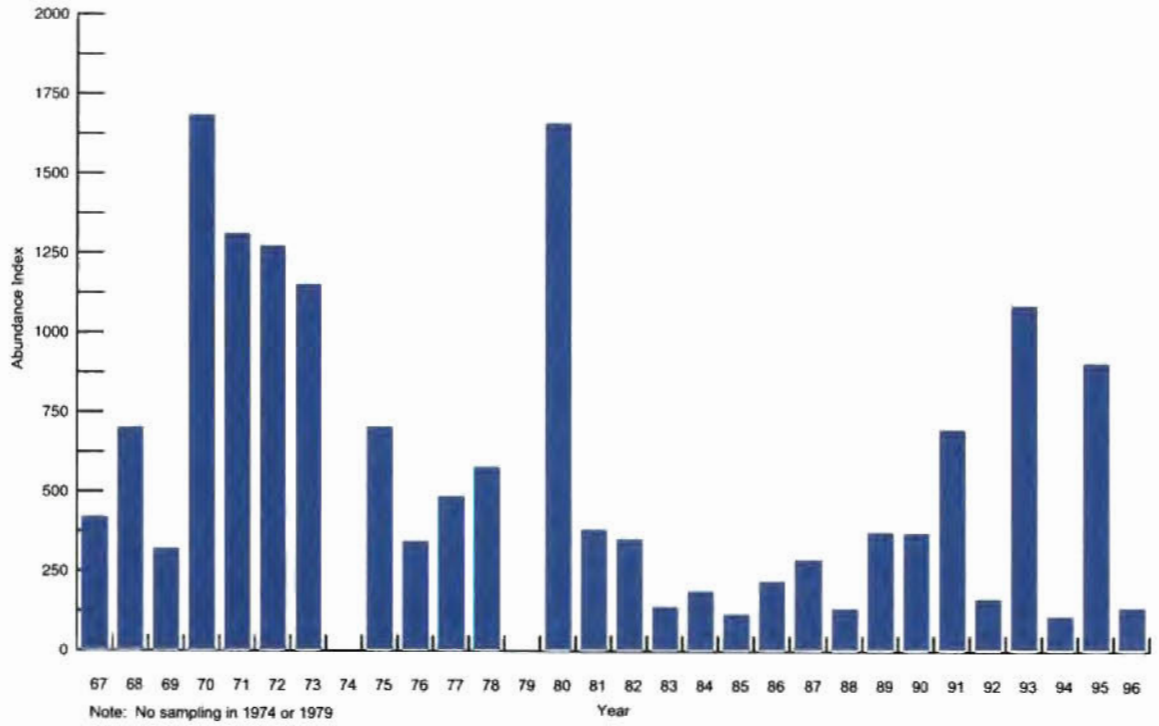


Figure 5-3
Delta Smelt Summer Tow-Net Indexes, 1959 through 1996

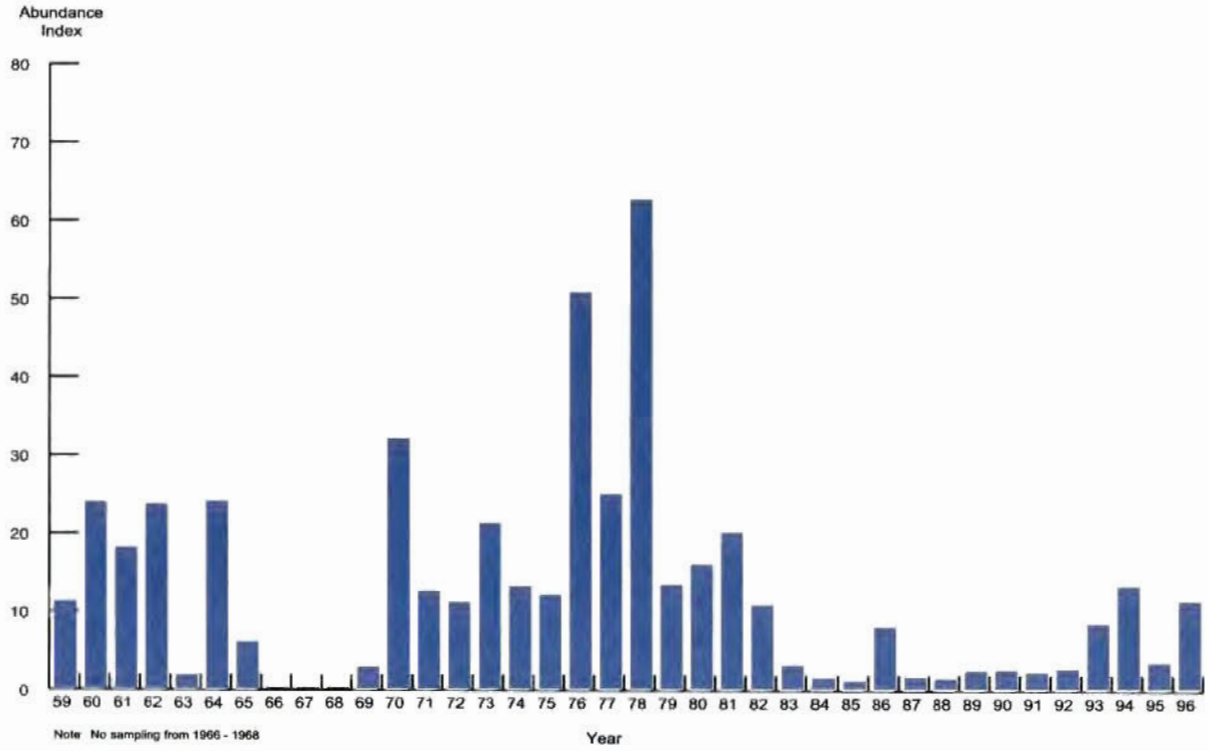


Figure 5-4 shows the fall midwater trawl indexes for Sacramento splittail for the period 1967-1996. Results for 1996 were a clear improvement over low indexes during the recent 6-year drought. However, it was lower than the exceptionally high splittail abundance of 1995, when record or near-record levels were observed for most of the splittail abundance indexes.

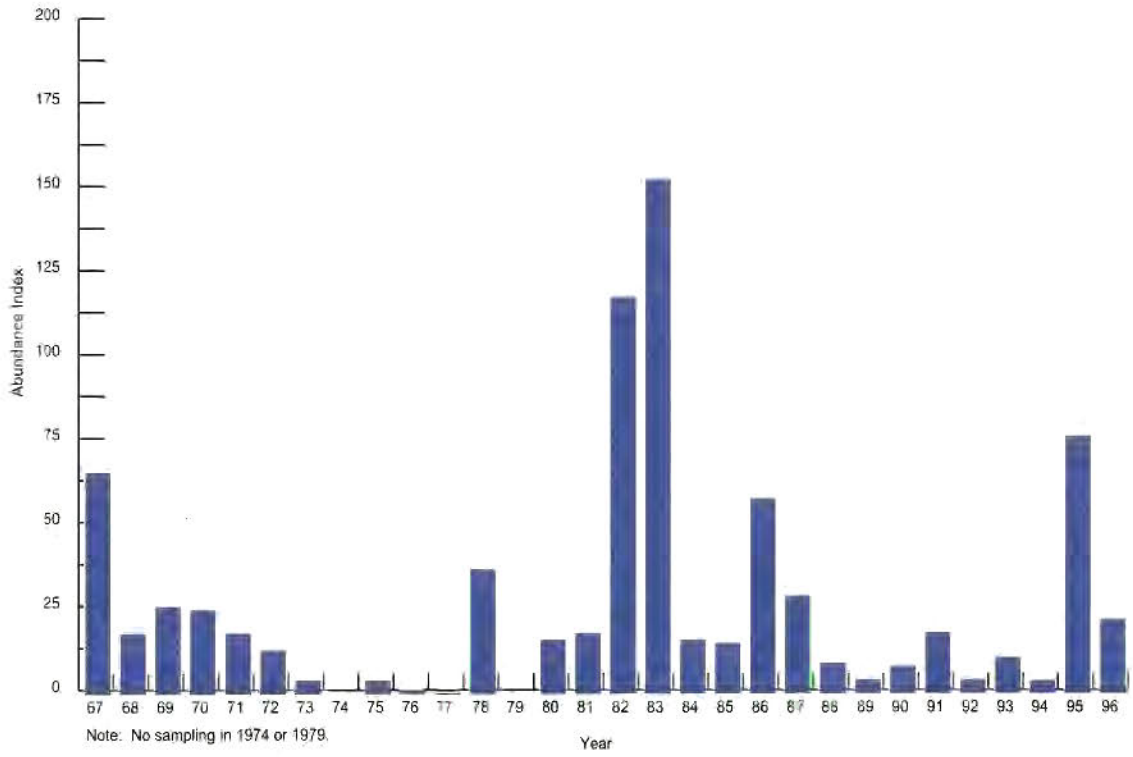
Petitions for Additional Listings

Federal fish and wildlife agencies are considering petitions to list additional fish species as threatened or endangered. Listing would increase the emphasis that these species would be given in determining project operations. The USFWS decision to list splittail as threatened was postponed until at least late 1997. NMFS may act on coastwide petitions to list steelhead trout in 1997 and chinook salmon in 1998. In March 1996, the California Fish and Game Commission concluded that there was insufficient evidence to support the listing of spring-run salmon as endangered. This decision was challenged and overturned by the courts. The Commission reconsidered its decision in June 1997.

Georgiana Slough Acoustical Barrier

Past studies conducted under the auspices of the Interagency Ecological Program demonstrated that juvenile Sacramento Valley chinook salmon migrating toward the ocean are more likely to survive if they stay in the main river channel when moving through the Delta. Those juveniles leaving the Sacramento River by way of the Delta Cross Channel or Georgiana Slough appear to survive at about one-half the rate of those staying in the river. Survival is indexed by releasing large groups of specially tagged fish at various locations in the river and recovering some of the tags from netting fish downstream of the Delta (near Chipps Island) and from the ocean fishery. The winter-run biological opinion requires that

Figure 5-4
Splittail Abundance Index, Fall Midwater Trawl, 1967 through 1996



the Delta Cross Channel gates be closed during the period when winter-run juveniles are actively swimming downstream. This closure also protects a portion of the late-fall, spring, and fall runs.

Between 1993 and 1996, the Department and USBR funded a study to determine if more out-migrating salmon could be kept in the main channel by an acoustical barrier across the mouth of Georgiana Slough. With assistance from the San Luis and Delta-Mendota Water Authority, the Department and DFG conducted these studies through the IEP.

Results of the 1993 and 1994 studies indicated that the acoustical barrier appeared to deter juvenile salmon from entering the slough. Studies in spring 1996, a high-flow year, did not show any differences in guidance with the same array alignment. The barrier was not installed in spring 1995 due to excessive flows. The guidance efficiency appears to vary with flow and tidal stage and is highly variable with increasing flows in the river. Lower average daily river flows on the Sacramento River have shown efficiencies above 50 percent, while higher river flows (above 20,000 cfs at Freeport) have not shown any significant effect.

Extensive field and laboratory tests have been conducted on both juvenile and adult fish to investigate the effects of sound exposure. Agencies have not been so concerned with exact guidance efficiencies, but with the possible negative effects sound may have on the area. To date, no significant negative effects have been found. This work included investigations on delta smelt, chinook salmon, and other fish. Barrier operations in the fall of 1994 and 1995 were used to evaluate the potential delay in migration of adult salmon.

Due to the potential for juvenile salmon guidance in low-flow years, the barrier may be reinstalled for further tests in spring 1998 or later, when flows are below normal.

Skinner Fish Protective Facility

The Skinner Fish Facility is located between Clifton Court Forebay and Banks Pumping Plant at the intake to the California Aqueduct. It is an original feature of the SWP, built to salvage fish from water being pumped from the Delta. Salvaged fish are transported by truck to release sites where they are less likely to return to the vicinity of the pumps in the southern Delta.

The Department has significantly improved the fish protective facilities since its construction in the mid-1960s. In the early 1980s, the screens themselves were improved and a new secondary screening system was added. In the late 1980s, the Department began work on a holding tank building to improve efficiency of the fish salvage process and reduce stress (and losses) of the salvaged fish. The new holding tanks are operational and provide fish protection and flexibility for the Department to comply with requirements of the biological opinions for delta smelt and winter-run chinook salmon.

The Department will continue to investigate and implement operational and structural improvements as appropriate. The nearby federal Tracy Fish Facility will conduct a series of biological and hydraulic tests to evaluate possible improvements to its secondary screening and fish holding system in 1998 and beyond. The Department will participate in these evaluations and determine whether similar changes should be implemented at the Skinner Fish Facility.

Mitigation Projects

In 1986, the Department and DFG signed an agreement to mitigate for the direct losses of fish at the intake to the Aqueduct. Since 1986, the agreement annually provides funds to implement fishery projects to replace fish lost at the intake facilities. It also provides $15 million for additional projects to compensate for substantial losses prior to 1986. Although the agreement focuses on chinook salmon, striped bass, and steelhead, it also considers other fish. Since 1986, the Department has spent a total of $17 million on mitigation projects developed under this agreement, which includes improving salmon spawning and rearing habitat, planting hatchery-reared striped bass, and implementing a conjunctive-use project to improve salmon migration in Mill Creek (Tehama County).

In 1996, DFG and the Department amended the agreement to: (1) provide an additional 5 years to spend the remaining $9 million of the $15 million lump sum provided in the agreement; and (2) specify the likely location of the remaining funds. Because of difficulties in developing mitigation projects, the Department could not spend the full $15 million in the 10 years required by the original agreement. The remaining funds were tentatively allocated to provide:

- $2 million for screening diversions in Suisun Marsh;
- $1 million for predator-isolation projects on San Joaquin River tributaries;
- $2 million for a conjunctive-use project to improve spring-run salmon migration in Deer Creek (Tehama County); and
- $4 million for a salmon conservation hatchery on the Tuolumne River.

Other mitigation projects approved in 1996 for implementation from the agreement's annual and $15 million funds include:

- increased game law enforcement to better protect spring-run salmon in the upper Sacramento River and tributaries;
- design and construction of several fish screens and ladders on Butte Creek to improve survival of migrating salmon, particularly the spring-run, and steelhead;
- stocking 100,000 yearling striped bass;
- planning and constructing several salmon habitat projects on the Stanislaus, Tuolumne, and Merced rivers to improve salmon survival by eliminating predator habitat from rearing areas and migration pathways and by improving salmon-spawning habitat;
- constructing seven fish screens in the Suisun Marsh; and
- operating a pen to acclimate hatchery-reared salmon during their release into San Francisco Bay to improve their survival.

Feather River Fish Studies

Joint Department and DFG salmon studies continued in 1996 on the lower Feather River and Feather River Hatchery. These studies will help support the Department in the upcoming process to renew the FERC license for the Oroville facilities.

As in 1995, studies were performed in 1996 to evaluate the effects of increased flows in the low-flow section of the river on salmon spawning. Flows were increased from the usual level of 600 cfs to 1,600 cfs during the salmon spawning and early rearing period. Higher flows could potentially increase the amount of spawning habitat, but would result in lost power-generating capacity because the flows bypass the turbines.

Unfortunately, the 1996 study was disrupted by flood releases in December and January. As a result, Department staff focused their efforts on analyses of the 1995 study data and historical data. Initial results suggest that superimposition of spawning is a major problem in the river, particularly in the low-flow channel. Superimposition occurs when salmon spawn repeatedly in the same location, digging up previously deposited eggs and smothering other nests, resulting in decreased egg survival. This type of excessively localized spawning activity appears to be related to salmon density, but also to flow distribution. It appears that a higher proportion of flow from the low-flow channel may attract more salmon to the upper reach of the river, exacerbating superimposition problems. This effect may cancel out benefits from increased spawning area that is available at higher flows. A yearly trend toward higher densities of salmon spawning immediately downstream of Feather River Fish Hatchery also suggests that hatchery operations may also play a role. This hypothesis will be tested in the coming years using results from a tagging program at the hatchery. Hundreds of thousands of coded-wire tagged juvenile salmon are being released into the Feather River and estuary to evaluate their distribution and survival.

Information in this chapter was contributed by the Environmental Services Office.

Chapter 6

Water Quality Programs

Aerial view of Bryte Laboratory

Significant Events

- The Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Estuary (1995 Bay-Delta Plan) guided the operations of the SWP in the Sacramento-San Joaquin Delta. The CALFED Operations Group (CVP/SWP Operations-Endangered Species Coordination Group) provided guidance and plans of operation that incorporated a real-time monitoring program for the benefit of estuarine habitat and biota.

- Water quality testing was conducted at the California Aqueduct along with dredging of large quantities of sediment brought into the Aqueduct during 1995 storms. Test results indicated that the dredging activity had little or no influence on downstream water quality.

- In 1996, the benthic-monitoring program expanded from six to ten sites to sample a wider range of benthic-habitat types throughout the Delta and Suisun and San Pablo bays. As a result of the more environmentally-diverse sampling, several new benthic species were added to the species list.

Many Californians rely on the State Water Project for part or all of their daily water needs. Water for agriculture, industry, power generation, recreation, and fish and wildlife needs also comes from the SWP. The Department monitors SWP water quality throughout the system, using an automated network of continually operating recorders and laboratory analyses of field samples collected weekly, monthly, quarterly, or annually.

Delta Activities

The State Water Resources Control Board sets water quality objectives for various beneficial water uses; the Department of Health Services establishes maximum contaminant levels for treated drinking water. Additional contractual water quality objectives at points of delivery are set by Article 19 of the long-term SWP water supply contracts. Water quality in the Delta and Suisun Marsh is protected under the SWRCB Decision 1485, as amended by Water Right Orders 95-1 and 95-6, to be consistent with the *Principles for Agreement on Bay-Delta Standards* (December 15, 1994).

The *Principles for Agreement*, formulated by CALFED and representatives of several urban, agricultural, and environmental groups, are intended to be effective for 3 years until the adoption of final Delta water quality standards. The Agreement established new outflow standards, modified implementation of the Endangered Species Act to increase water project operations flexibility, and contained a funding mechanism for nonflow related measures (Category III).

Both the CVP and SWP operate in accordance with biological opinions for winter-run chinook salmon and delta smelt. The opinions for winter-run salmon and delta smelt were revised May 17, 1995, and March 6, 1995, respectively, to conform with the 1994 *Principles for Agreement*.

The Department conducts extensive monitoring activities to protect beneficial uses of water in the Delta and Suisun Marsh as required by SWRCB D-1485, amended by WR 95-6, that included some but not all of the water quality objectives put forth in the SWRCB's 1995 Water Quality Control Plan. The Department and the U.S. Bureau of Reclamation agreed to operate under the *Principles for Agreement* shortly after its release in December 1994. In addition, National Marine Fisheries Service and U.S. Fish and Wildlife Service, through ESA, issued operations criteria for the SWP and CVP. Figure 6-1 shows water quality monitoring sites throughout the Sacramento-San Joaquin Delta.

Water Supply Conditions

Water Year Classifications and Water Supply Indexes

The 1995-96 water year was classified as "above average" for most of California. It came on the heels of the 1994-95 water year, which was the second wettest water year of record (since 1922) in the Sacramento River region. December through February produced well-above-average precipitation in Northern and Central California, following an extremely dry October and November. Rainfall and outflow were heaviest in the northern Sierra from February through mid-March. During this period, both the State and federal shares of San Luis Reservoir filled, and the New Melones Reservoir reached flood storage for the first time since 1986.

Later, Northern California storms produced the third wettest May of record, exceeded only in 1957 and 1990, with more than triple the normal precipitation. May storm inflows forced flood releases from Oroville and Folsom reservoirs and produced an unseasonably late overflow through Fremont Weir into the Yolo Bypass. The 1996 calendar year ended with the second wettest December of record for the northern Sierra; seasonal precipitation was exceeded only in December 1955.

Figure 6-1
Water Quality Monitoring Sites in the Sacramento-San Joaquin Delta

Station Number	Station Name
C3	Sacramento River at Greens Landing
C7	San Joaquin River at Mossdale Bridge
C9	West Canal at mouth of intake to Clifton Court Forebay
C10	San Joaquin River near Vernalis
D4	Sacramento River above Point Sacramento
D6	Suisun Bay off Bulls Head Point near Martinez
D7	Grizzly Bay at Dolphin near Suisun Slough
D8	Suisun Bay off Middle Point near Nichols
D9	Honker Bay near Nichols
D10	Sacramento River at Chipps Island
D11	Sherman Lake near Antioch
D12	San Joaquin River at Antioch Ship Channel
D14A	Big Break near Oakley
D15	San Joaquin River at Jersey Point
D16	San Joaquin River at Twitchell Island
D19	Franks Tract near Russo's Landing
D22	Sacramento River at Emmaton
D24	Sacramento River below Rio Vista Bridge
D26	San Joaquin River at Potato Point
D28A	Old River opposite Ranch Del Rio
D41	San Pablo Bay near Pinole Point
MD7A	Little Potato Slough at Buckley Cove
MD10	Disappointment Slough at Bishop Cut
P8	Middle River at Buckley Cove
P10A	Middle River at Union Point
P12	Old River at Tracy Road Bridge

The State Water Resources Control Board's 1995 Bay-Delta Plan contains objectives conditioned by water year type, which, in general, become less stringent in more critically-dry years. The water year classification system provides relative estimates of a basin's available water supply from the amounts of rainfall, snowmelt runoff, and groundwater accretion rates. Water year types can be classified as wet, above-normal, normal, dry, and critical.

The Bay-Delta Plan applies a water-supply forecast tool, called the Sacramento River Hydrologic Region 40-30-30 Water Supply Index, to replace the Sacramento River Index. SWRCB first introduced the 40-30-30 Water Supply Index in its 1991 Water Quality Control Plan for Salinity. The Bay-Delta Plan proposes to further refine the 40-30-30 Water Supply Index by eliminating the subnormal snowmelt and "year-following-dry or critical year" provisions found in Water Right Decision 1485.

The Sacramento Valley Unimpaired Runoff sums the major flows into the Sacramento Basin. The varying factors summed in the 40-30-30 Index are percentages of the following: the contribution of the current year's April-July SVUR (40 percent), projected current October through March SVUR (30 percent), and the previous year's 40-30-30 Index (30 percent), with a 10-million-acre-feet capacity limit.

The 1995 Bay-Delta Plan also includes a San Joaquin River Basin 60-20-20 Index, which uses methods similar to the Sacramento River 40-30-30 Index. The sum of both indexes—the Eight River Index—is used to determine the duration of the fish and wildlife salinity/flow standard at Chipps Island and, under specific conditions, at Port Chicago during February through June.

The April-July SVUR forecast for May 1, 1996, was 7.0 million acre-feet and 105 percent of average. The resulting 40-30-30 Index was 9.7 million acre-feet. Although less than the 1994-95 40-30-30 Index of 12.4 million acre-feet, the water year was still classified as "wet" for all beneficial uses. The San Joaquin 60-20-20 Index was also classified as wet for 1996, with a value of 4.1 million acre-feet. The Eight River Index was 13.8 million acre-feet.

Operations under the Agreement, Amended D-1485, and the Winter-Run and Delta Smelt Biological Opinion

The Department and USBR agreed to operate the projects in accordance with the *Principles for Agreement* beginning January 1995. The agreement established water quality, flow, and operational criteria for the estuary. Operations of the CVP and SWP were to be assisted by the CALFED Ops Group through coordination with CVPIA and ESA requirements. The Ops Group, formed in 1994 by the Framework Agreement between the Governor's Water Policy Council of the State of California and the Federal Ecosystem Directorate, consists of representatives from seven State and federal agencies.

The agreement also expands "real-time monitoring" of fish movements and conditions in the estuary to aid daily water management. The purpose of real-time monitoring is to protect targeted fish species from entrainment at the Delta facilities of the SWP and CVP and provide water supply reliability. See Chapter 5 for more environmental issues.

Water Quality Standards

High seasonal flows and water releases (both pulse and attraction flows) to benefit migrating fish helped maintain all electrical conductivity values well below objectives.

In 1996, all water quality requirements for wet-year conditions were met. Specific water quality requirements are set to benefit municipal, agricultural, and fish and wildlife uses. The SWRCB wet-year municipal and industrial water quality standard for chloride at the Contra Costa Canal Intake near Rock Slough was easily met throughout the entire year. An additional year-round municipal and industrial standard for maximum chloride levels of 250 mg/l was also met at the Contra Costa Canal, Tracy Pumping Plant, Clifton Court Forebay, Barker Slough, and Cache Slough.

Agricultural objectives met in 1996 included an EC standard of 0.45 µS/cm (14-day running average) during the irrigation season (April through mid-August), set at Emmaton, Jersey Point, Terminous,

Andreas in the western and central Delta. Year-round salinity standards set in the southern Delta on the San Joaquin River and at Tracy and Clifton Court Forebay were also met.

State Water Resources Control Board

The State Water Resources Control Board, established by the California Legislature in 1967, oversees water rights and water quality for California. Among its many responsibilities, the SWRCB issues permits for the use of all water except groundwater and riparian water; distributes State and federal loans and grants for constructing sewage facilities; adopts water quality control plans, regulations, and policies; and sets water quality standards for the Delta.

To implement its mandate to set Delta water quality standards, the SWRCB issued Water Right Decision 1485: Sacramento-San Joaquin Delta and Suisun Marsh in 1978. That decision focused on SWP and CVP water right permits and operations, requiring the SWP and CVP to maintain Delta water quality as it would have existed without the projects. However, after Decision 1485 was adopted, various water users as well as the federal government challenged it in court. Since then, the Board updated its Water Quality Control Plan. It was adopted on May 2, 1995. Water Right Order 95-6 amended D-1485 to be consistent with the plan on June 8, 1995. Water Right Order 95-6 modifies the standards for Suisun Marsh and allows the CVP and SWP to use either project's Delta pumping plant to pump project water to increase fish protection and maintain project delivery capability.

Estuarine Habitat Protection Standard (X2)

The estuarine habitat protection standard incorporates a modified X2 criteria or geographic isohaline first established in the 1994 delta smelt biological opinion. The upstream movement of a 2 ppt isohaline (2 parts per thousand of salt in the water), measured as 2.64 µS/cm at the surface, is maintained within a certain range of positions in the estuary by adequate outflow. These positions (Chipps Island or Port Chicago during February through June) are associated with fish and biota abundances.

The number of days per month when the daily averaged EC maximum (2.65 µS/cm) is in effect at Chipps Island or, under specific conditions, at Port Chicago, are conditioned by the previous month's Eight River Index. This EC maxima may alternately be met with specific Delta outflow set at a 3-day average of 11,400 cfs or 29,000 cfs, when the X2 position is at Chipps Island or Port Chicago, respectively. The Port Chicago standard is in effect during months when the Port Chicago 14-day EC average immediately prior to the first day of the month is less than or equal to 2.64 µS/cm. The February Port Chicago objective is only in effect when the January Eight River Index is greater than 1 million acre-feet. During 1996, the Eight River Index for January through May was 2.42 million acre-feet, 6.22 million acre-feet, 4.24 million acre-feet, 3.98 million acre-feet, and 5.43 million acre-feet, respectively.

The Port Chicago recorder was not available from late January through early March. However, high outflow during February, March, and April met the alternate flow standard for the required number of days. During May and June, Port Chicago EC values met the specific number of days required for EC values less than 2.64 µS/cm.

Flow and Export Standards

D-1485 sets year-round minimum salmon migration flows in the Sacramento River at Rio Vista between 1,000 and 5,000 cfs using 30-day running averages. The winter-run salmon biological opinion also includes operations to meet wet year mean monthly flow objectives—3,000 cfs, 4,000 cfs, and 4,500 cfs for September, October, and November through December, respectively. During these periods, the 7-day running average cannot be more than 1,000 cfs below the monthly average.

The ESA biological opinions for winter-run salmon also included base flows in the San Joaquin River at Vernalis at 3,420 cfs for the periods from February to April 14 and May 16 to June 30.

The San Joaquin River spring pulse flow for April 15 to May 15 is set at a period mean of 8,620 cfs at Vernalis, with a 7-day average not less than 20 percent of period mean (greater than 6,896 cfs). An additional October requirement calls for a minimum monthly San Joaquin River flow rate of 1,000 cfs with an additional 28,000 acre-feet pulse/attraction flow to bring San Joaquin River flows to 2,000 cfs. The timing and duration of the pulse/attraction flow is based on real-time monitoring data and determinations made by the CALFED Ops Group. San Joaquin

River flow at Vernalis averaged 18,365 cfs for February to June.

Water Right Order 95-6 allows the CVP and SWP to use either project's pumping plants to pump project water to increase fish protection, with concurrence of the Ops Group and permission of SWRCB. Water Right Order 95-6 eliminated the D-1485 May to July export limits, but added new export restrictions based on the ratio of total Delta exports to Delta inflow. The ratio varies by month and is conditioned by the previous month's Eight River Index. During the April-May San Joaquin River pulse flow period, additional export restrictions may apply.

The actual export amount is calculated using the combined inflow rate for Clifton Court Forebay (excluding Byron-Bethany Irrigation District diversions from Clifton Court Forebay) added to the Tracy Pumping Plant diversion. The export/inflow ratio is then determined by dividing this sum by the total inflow into the Delta. The export/inflow ratio limit is reported as a 3-day running average, the Delta inflow as a 14-day running average. This changes during CVP or SWP storage withdrawals for export from upstream reservoirs, when both export rate and the Delta inflow are 3-day running averages.

In all water-year types, the February to June maximum combined export rate is 35 percent of Delta inflow; this may be relaxed in February during drier years to between 35 percent and 45 percent. During July to January, the export/inflow ratio rises to 65 percent. The actual export/inflow ratio averaged only 29 percent during 1996, well below allowable limits. During the more restrictive February to June period (35 percent objective), high flows and limited downstream demand dropped the ratio to only 10 percent.

Exports may also be limited during the 30-day April 15 to May 15 pulse flow period to 1,500 cfs or 100 percent of the San Joaquin River flow at Vernalis, whichever is greater. This export limit can be used in lieu of the 35 percent export limit only if it results in more restrictive conditions. Input from the CALFED Ops group and real-time monitoring events are also considered in setting exports.

On April 26, 1996, the CALFED Management Team met to resolve issues brought forward by the Bay-Delta Program staff and the CALFED Ops Group on flow availability from upstream dam releases to meet the Vernalis pulse flow objective. An agreement was reached that limited the combined CVP/SWP exports to 25 percent of the San Joaquin River flow at Vernalis during the pulse-flow period (April 15 to May 15). USBR agreed to purchase and/or release additional water to sustain higher pulse flows to help carry out-migrating salmon through the Delta. The agreement allowed an adjustment of the wet-year pulse flow objective (between 7,330 cfs and 8,620 cfs) to flows that averaged about 6,500 cfs. It also supported the export of "make-up" water to be pumped by the SWP for the CVP in the fall.

From April 15 to May 15, combined CVP/SWP exports averaged about 1,600 cfs, less than 25 percent of the Vernalis period flow (6,500 cfs). This represented a decrease of about 85 percent at the beginning of April. The period's export/inflow ratio dropped to only 4 percent, with SWP exports at Banks Pumping Plant averaging only 701 cfs.

An estimated 200,000 acre-feet of combined short-term water loss to the two projects was projected to be recovered by make-up pumping later in the year.

On October 2, 1996, the CALFED Ops Group called an emergency meeting to develop an operational plan allowing Banks Pumping Plant to pump make-up water for the CVP before forwarding a petition to SWRCB to allow a joint point of diversion, as was done in previous years. The operational plan identified a course of action to be taken if any impact to sensitive Delta species occurred during the make-up pumping. Subsequently, on October 9, the CALFED Ops Group sent a statement of general consensus to SWRCB regarding the USBR operational plan. Pumping was approved and began October 12. The SWP exported almost 130,000 acre-feet for CVP between October 13 and November 14, which constituted almost 40 percent of Banks exports during the period.

In late October, the CALFED Ops Group approved tests proposed by the Anadromous Fishery Restoration Plan and the San Joaquin Tributary Association that required higher pumping rates at Banks. Since the SWP share of San Luis Reservoir was already full, an additional 46,324 acre-feet were exported for

the CVP through Banks during the fish-testing period (December 12 to 16).

Delta Outflow

Delta outflow cannot be measured directly due to the major tidal influence in the Delta. An approximation of Delta outflow is calculated instead using measured inflows, exports, and estimated Delta water use. The Net Delta Outflow Index, introduced in the 1995 Bay-Delta Plan, guided operations in 1996. It provides a more accurate method for calculating Delta outflow by including inflows of the Yolo Bypass system, the eastside stream system (the Mokelumne, Cosumnes, and Calaveras rivers), San Joaquin River at Vernalis, and the Sacramento Regional Treatment Plant.

The NDOI calculated flows cannot be directly compared to the Delta Outflow Index used prior to 1995 because the Sacramento River bypass flows and several eastside stream flows were not incorporated into the DOI. The calculation of Delta consumptive use also differs in NDOI.

During 1996, the Yolo Bypass flows contributed about 14 percent of total Delta inflow and over 27 percent of inflow during the high-flow period of February through mid-March. The NDOI averaged 39,476 cubic feet per second (daily rate) during calendar year 1996.

In 1996, sustained excess outflow conditions (as defined by the Coordinated Operating Agreement) predominated for 299 days, or 82 percent of the year. Three major periods between early January and mid-June sustained flows over 100,000 cfs. A peak of sustained daily flows over 150,000 cfs occurred from February 22 to 28, which also included 3 days over 200,000 cfs.

Excess conditions allowed greater flexibility in project operations; however, two new outflow designations restricted exports during excess periods. A fish-related restriction applies when export pumping may impact endangered or threatened Delta fisheries. Exports are also restricted during excess flows to balance the export/inflow ratios within set objectives. These restrictions were in effect during about 20 percent of the designated "excess" outflow days.

During February through June, the wet year NDOI objective is 7,100 cfs, calculated as a 3-day running average. The NDOI objective can be relaxed with recommendation of the CALFED Ops Group during drier years. The 3-day running average for the February through June period never fell below 9,000 cfs and averaged over 65,000 cfs. Numerical limits for July through December vary between monthly minimums of 8,000 cfs (July) and 4,000 to 4,500 cfs (August to October and November to December). July NDOI averaged over 10,000 cfs and mean monthly NDOI never fell below 4,800 cfs from August through December. A winter storm deluge during the last half of December sustained a mean NDOI over 100,000 cfs.

Temporary Delta Barriers

South Delta Barriers

Several barriers are installed annually in the south Delta as part of the South Delta Temporary Barriers Project, an experimental program for long-range south Delta planning. The Temporary Barriers Project began in 1991 following the 1990 release of the *South Delta Water Management Program Draft Environmental Impact Report/Environmental Impact Statement*. The program was designed to resolve local south Delta water supply issues within the larger context of the Department's water banking program. The program included proposals to construct up to four barriers in the south Delta during a 5-year test period to precede construction of the permanent barriers. The barriers will improve local water levels and circulation patterns, protect fishery resources, and meet other South Delta Water Management Program objectives. Barriers are located on Middle River, Old River at Tracy, and Old River at head.

In 1995, the Department applied for permits with Department of Fish and Game and the U.S. Army Corps of Engineers for a barrier on Grant Line Canal, east of the Tracy Boulevard Bridge. The Grant Line barrier is the last barrier proposed in the South Delta Temporary Barriers Project. It will enhance water levels, quality and circulation, and fish migration in the south Delta and improve agricultural operations as specified under the South Delta Water Agency Agreement. In 1996, the Grant Line Canal barrier installation was postponed due to concern for nearby

endangered Swainson's hawk nesting sites. The temporary barrier project was scheduled to end in 1995; however, the Department received a 5-year program extension.

The Middle River barrier is a temporary, tidally-controlled barrier installed near Victoria Canal, about one-half mile south of the confluence of Middle River and Trapper Slough. In 1996, the barrier on Middle River was installed on May 18 and removed by September 29. Prior to inclusion in the SDTBP, it had been placed annually since 1987 as specified in earlier agreements with the Department and South Delta Water Agency (1986).

The Old River barrier at Tracy is a temporary barrier that has been installed annually in spring since 1991. The barrier is placed on Old River, east of the Delta-Mendota Canal intake at Tracy Pumping Plant. The Old River barrier at Tracy provides benefits similar to those of the Middle River barrier. Construction of the Old River barrier at Tracy began May 12 but was delayed on May 17 due to high flows. Construction resumed on June 5 for completion by June 10. Removal was completed October 16.

Since 1969, a spring barrier has been placed across Old River at its head—where it meets the San Joaquin River—to prevent salmon from straying from their migration path into interior Delta sloughs and channels. The spring Old River barrier at head was installed May 6. It was breached May 16 on an emergency basis. Full removal wasn't completed until September 9, 1996.

During late summer and early fall each year, dissolved oxygen concentrations in the Stockton Ship Channel are closely monitored because they can deteriorate to critically low levels (<5.0 mg/l), cause physiological stress to fish, and block upstream migration of salmon.

These conditions result from many factors, including low stream inflows, intermittent reverse-flow conditions in the San Joaquin River past Stockton, warm water temperatures, reduced tidal mixing, and high baseline biochemical oxygen demand levels as the result of regulated discharges in the Stockton area. If the deterioration persists, a temporary rock barrier is usually installed in the fall at the head of Old River to increase net flows down the San Joaquin River past Stockton to help alleviate the potential dissolved oxygen problems, particularly in the eastern channel. The barrier was installed on October 3, 1996, about a month later than usual, because September average daily flows in the San Joaquin River past Vernalis were > 2,000 cfs. These relatively high levels were the result of the residual effects of the wet 1996 water year.

Compliance monitoring of dissolved oxygen levels in the channel was conducted by vessel from August through November 1996. Monitoring from August through early October 1996 showed a distinct dissolved oxygen sag in the eastern end of the channel, with the lowest surface and bottom values (levels <5.0 mg/l) at, or immediately west of, Rough and Ready Island. This depression appeared to be due primarily to the persistence of warm water temperatures (21-27°C) and average daily San Joaquin River flows of 2,500 cfs or less past Vernalis throughout the late summer and early fall.

Although the barrier was completed in early October, improved flow conditions in the San Joaquin River and the eastern Stockton Ship Channel did not occur until mid-October, when average daily flows approached 4,000 cfs and reverse-flow conditions past Stockton were eliminated. Post-barrier monitoring on October 25 and November 12, 1996, showed a dramatic improvement in dissolved oxygen conditions throughout the channel, with the depression eliminated and all dissolved oxygen levels ≥7.5 mg/l, due primarily to the full effects of the barrier and significantly cooler water temperatures (13-16°C). The barrier was removed November 19, 1996, due to acceptable dissolved oxygen levels within the channel and anticipated further increases in San Joaquin River flows.

Biological Surveys

The Department surveys benthic organism density and diversity along with phytoplankton biomass and community composition in the Sacramento-San Joaquin Delta and Suisun and San Pablo bays (the San Francisco Bay-Delta estuary). These surveys are conducted in response to the mandate of Water Right Decision 1485 as amended by Water Quality Control

Plan 95-1WR adopted in May 1995, and as part of the Interagency Ecological Program.

Benthic Monitoring

The benthic monitoring program is designed to record abundance and distribution trends in macrobenthic (bottom dwelling) organism populations, and to detect and document the introduction of exotic species into the San Francisco Bay/Sacramento-San Joaquin Delta system. In 1996, the benthic monitoring program expanded from six to ten sites to sample a wider range of benthic-habitat types throughout the Delta and Suisun and San Pablo bays. Bottom grab samples and sediment samples were taken monthly from each site. As a result of the more environmentally diverse sampling, several new benthic species were added to the species list in 1996. The species are as follows:

- Two new microturbellarian species. One species of flatworm was found near Collinsville in January 1996 and another was found near Rio Vista in September 1996.
- *Limnodrilus claparedianus*. This rare Tubificid worm was initially found at Clifton Court in January 1996. It was subsequently detected in samples from the San Joaquin River near Stockton in March and at Old River in April 1996.
- *Tubificoides wasselli*. Generally considered more of a marine worm, *T. wasselli* is not usually seen as far inland as San Pablo Bay, where it was found in January 1996.
- An Amphiurid. This small starfish, commonly seen in southern San Francisco Bay, was found in San Pablo Bay near Pinole Point in January 1996.
- *Cryptotendipes* sp. This new species of midge larvae was found in the San Joaquin River near Stockton in March 1996.
- A nudibranch. This new species of sea slug was found in San Pablo Bay, near Pinole Point, in August 1996.
- A Cephalaspidean. This soft-bodied mollusk with an internal snail-like shell was found near Pinole Point in San Pablo Bay in August, and near the mouth of the Petaluma River in December 1996.

Benthic assemblages at all sampling stations continue to be dominated, in biomass and number, by introduced Asian clam species. *Potamocorbula amurensis* thrives in the brackish to saline waters in San Pablo Bay, Carquinez Strait, and Grizzly Bay. *Corbicula fluminea* dominates in the fresher waters near Collinsville, Twitchell Island, Rio Vista, Buckley Cove, Old River, and Clifton Court.

Phytoplankton Monitoring

Phytoplankton are free-floating microscopic plants in the water column. They form the base of the aquatic food web and, therefore, directly influence the health of the Bay-Delta estuary. Their standing stock or biomass in the water column is estimated by concentrations of the photosynthetic pigment chlorophyll *a*.

During 1996, chlorophyll *a* concentrations were generally low throughout the estuary, due to high outflows that transport phytoplankton downstream. As usual, the highest chlorophyll *a* concentrations occurred during a mixed diatom bloom in the southern Delta at Vernalis, reaching 25-30 µg/l in June and July. These concentrations, however, were low compared with previous years, where concentrations often reached at least 50 µg/l and were associated with blooms of *Aulacoseira granulata*. Chlorophyll *a* concentrations also remained low in the eastern Delta, where concentrations did not exceed 8 µg/l. In Suisun Bay and the western Delta, monthly average chlorophyll *a* concentrations remained below 3.5 µg/l —common since 1987 when the clam *Potamocorbula amurensis* became established in this region of the estuary. In contrast, downstream in San Pablo Bay, an increase in flagellates during May and July pushed chlorophyll *a* concentrations to 12 and 9 µg/l, respectively. These values were similar to those measured in the early 1980s. The revised sampling program in 1996 also measured chlorophyll *a* concentrations at 2 and 6 µS/cm, which commonly occur between Suisun Bay and the western Delta. Concentrations peaked at 3 and 5 µg/l in April and August and were 1-2 µg/l higher at 6 µS/cm than at 2 µS/cm.

Activities Outside the Delta

Activities conducted outside the Delta include scheduled routine SWP water quality monitoring as well as special studies. Most of these special studies are in response to fish and wildlife and water quality issues

of importance to agencies that provide domestic water supply. These agencies face increasingly stringent regulations and look to the SWP to deliver high quality raw water.

Water Quality Monitoring

The Division of Operations and Maintenance collects detailed water quality information on the concentration and distribution of chemical, biological, and physical parameters at 33 aqueduct and reservoir sites located throughout SWP facilities. Twenty stations are situated south of the Delta at reservoirs, pumping plants, power plants, and check structures of the South Bay, Coastal Branch, and California Aqueduct. Other monitoring activities are conducted on the Feather River and at State reservoirs north of the Delta—Lake Oroville, Antelope Lake, Frenchman Lake, and Lake Davis.

The Water Quality Program of the SWP was established in 1968 with completion of the California Aqueduct. Over 60 different chemical constituents are monitored monthly, quarterly, or annually. In addition, 20 automated stations are maintained for continuous monitoring of aqueduct water. Figure 6-1 shows water quality monitoring sites throughout the Sacramento-San Joaquin Delta.

The Department maintains an analytical laboratory, the Bryte Laboratory in West Sacramento. The Bryte Laboratory processes most SWP laboratory water quality assessments (see sidebar on page 64). The Department also contracts for some laboratory services. Water samples from 15 SWP stations are analyzed monthly to determine levels of dissolved solids and concentrations of nutrients, chloride, sulfate, sodium, trace metals, and other constituents. Herbicides, pesticides, organic substances, and phytoplankton are monitored less frequently. In 1995 and 1996, new instruments included a fluorometer with optics to detect hydrocarbons. This was installed to detect any diesel fuel spills during construction on Lake Silverwood. A similar instrument was also installed at the headworks of the Banks Pumping Plant.

Selected SWP water quality data are available electronically through the Department Internet home page (http://www.water.ca.gov) and reported monthly in the State Water Project Operations Data Report. Table 6-1 presents laboratory results of sampling at several representative stations during 1996.

Delta exports are normally the primary source of water in SWP facilities and reservoirs south of the Delta. Most Delta water is exported south during the winter and spring when the greatest freshwater outflow occurs; as a result, reservoirs south of the Delta are usually supplied with the highest quality water. San Luis Reservoir, the only SWP conservation storage facility between the Delta and Southern California, is usually filled by May 1.

Municipal Water Quality Investigations Program

The Sacramento-San Joaquin Delta provides drinking water for about two-thirds of California's population. Because the Delta is a relatively unprotected watershed, water quality degradation is possible from many sources, including abandoned mines, industrial and municipal waste water discharges, storm water runoff from cities, agricultural discharges, recreational activities, and illegal dumping. The Municipal Water Quality Investigations Program was established to evaluate the suitability of Delta water as a drinking water source, to identify sources of water quality degradation, and to evaluate means of eliminating or preventing degradation of Delta water quality.

Participants in the program include Contra Costa Water District and the municipal water contractors of the SWP. Program advisors include representatives of participating agencies, including the Environmental Protection Agency, California Department of Health Services, and California Urban Water Agencies. Because water quality concerns change rapidly with new drinking water regulations and water quality issues, the MWQI program must be flexible enough to adapt to changing requirements. The former Delta Health Aspects Monitoring and Delta Island Drainage Investigations programs merged into the MWQI program in 1990, and the program has continued to evolve.

The program's initial focus was to compile a comprehensive database on drinking water quality in the

Table 6-1
1996 Water Quality at Selected State Water Project Locations

Constituents	*Units*	*Reporting Limit < than*	*Thermalito Afterbay Outlet to Feather River mean*	*North Bay Aqueduct Barker Slough Pumping Plant mean*	*Banks Pumping Plant mean*	*Delta-Mendota Canal Upstream McCabe RD mean*	California Aqueduct at *O'Neill (Check 13) mean*	*Kettlemen City (Check 21) mean*	*Highway 119 (Check 29) mean*	*Tehachapi Afterbay (Check 41) mean*	*Devil Canyon near San Bernardino mean*	*Article 19 Objectives Month/10 year Average or Maximum*
Alkalinity	mg/L	N/A	35	96	58	67	66	68	71	69 (a	69 (a	-
Arsenic	mg/L	0.001	<0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.05 max
Boron	mg/L	0.1	<0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2 (a	0.2	-
Bromide	mg/L	0.01	<0.01 (d	0.04	0.11	0.15	0.14	0.16 (c	NR	0.14	0.13	-
Calcium	mg/L	1	7	15	15	20	18	18	19	18	18	-
Total Organic Carbon	mg/L	1	NR	8	4	4	4	4	NR	4	4	-
Chlorides	mg/L	1	1	20	37	49	47	50	51	48 (a	43	110/55
Chromium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-
Copper	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	3 max
Flouride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1(11) (a	<0.1(11)	1.5 max
Hardness	mg/L	1	30	94	74	94	88	90	91	89	87	180/110
Iron	mg/L	0.005	0.011	0.047	0.026	0.027	0.036	0.053	0.017	0.023	0.109	-
Lead	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-
Magnesium	mg/L	1	3	14	9	11	10	11	11	10 (a	10	125 max
Manganese	mg/L	0.005	0.006	0.022	0.021	0.025	0.011	0.011	0.034	0.022	0.057	-
Nitrate + Nitrite	mg/L	0.01	0.04 (b	0.65	0.55	NR	NR	NR	NR	0.68	0.54	-
Phosphorus-Ortho	mg/L	0.01	0.01	0.09	0.07	NR	NR	NR	NR	0.10	0.06	-
Phosphorus-Total	mg/L	0.01	0.02	0.22	0.11	NR	NR	NR	NR	0.15	0.11 (a	-
Selenium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001 b)	<0.001	<0.001	<0.001	0.05 max
% Sodium	mg/L	N/A	3	25	30	42	38	39	41	38 (a	34 (a	50/40
Specific Conductance	µS/cm	5	75	304	306	401	372	387	396	374 (a	343 (b	-
Sulfate	mg/L	1	2	24	30	45	36	37	38	36 (a	32 (a	110/20
Total Dissolved Solids	mg/L	1	53	177	174	232	212	219	223	214 (a	201 (a	440/220
Trihalomethane Formation Potential	µg/l	1	NR	846	430	419	436	360 (d	301 (c	433	429	
Zinc	mg/L	0.005	<0.005	0.006	0.005	<0.005	0.005	<0.005	<0.005	0.005	0.005	15 max

Notes: Turbidity is measured by a continuously-recording Nephelometer and expressed as NTU (Nepheleometer Turbidity Units), and specific conductance is measured by continuous electrical conductivity recorders, except at Thermalito Afterbay and Check 29, which are based on single monthly samples . Values for chlorides, dissolved solids, hardness, percentages of sodium, and sulfate are correlated from specific conductance except at Thermalito Afterbay and Check 29, which are analytical values. All other selected constituents are the yearly mean of laboratory analytical values sampled monthly. Nondetectable values are assumed equal to reporting limits for calculation of mean. Thermalito Afterbay was not sampled in February 1996; data are means of 11 values unless indicated otherwise.

NR = data not collected or recorded at this location.
a) mean of eleven values.
b) mean of ten values.
c) mean of four values.
d) mean of three values.

Delta. Since then, the program has investigated ways of managing Delta lands and waters to minimize adverse impacts on drinking water quality. The program identified sources of contaminants in the Delta and assessed their significance for drinking water quality and water treatment. Through extensive investigations, the program identified agricultural drainage as a major source of natural organic matter that could hinder water treatment to meet drinking water standards.

In addition to monitoring water quality in the Delta, the program now includes studies on source water improvement and management. Several studies developed and tested possible solutions to drinking water problems of the Delta and other watersheds of the SWP.

As required by the Department of Health Services, a 5-year update of the sanitary survey of the SWP resulted in the report, *California State Water Project Sanitary Survey Update Report 1996*. This survey documented water quality conditions and identified potential sources of contamination within the SWP. In addition, the report included recommendations for further investigations and corrective actions. Based on these recommendations, activities and investigations within the MWQI program addressed these water quality issues.

The sanitary survey identified the Barker Slough watershed as having the most challenging water quality conditions in the SWP. Water quality problems identified within this watershed included high levels of turbidity and microbial contaminants, as well as high concentrations of organic carbon, aluminum, iron, and manganese.

The North Bay Aqueduct/Barker Slough Watershed Study was initiated based on these problems. The study was divided into two phases. Phase I began July 1, 1996. The second phase will begin after all sampling for Phase I (July 1, 1996 to June 30, 1997) is completed and reviewed by the Department and the North Bay Aqueduct Technical Advisory Committee. Phase I is designed to quantify water quality constituents at the screening level. Phase II will be designed to investigate specific pollutants and identify mitigation measures for those pollutants.

In response to a recommendation of the sanitary survey report, the MWQI Program, in coordination with the Division of Operations and Maintenance and the Metropolitan Water District of Southern California, implemented a Coordinated Pathogen Monitoring Program for the SWP and the Delta. This monitoring program began in fall 1996 and will continue through April 1998. The program evaluates the microbiological status of SWP source waters.

Other components of the MWQI program include:

- predictive computer models developed to determine the costs of treating water from different Delta locations;
- additional monitoring of newly regulated and potentially regulated chemicals to assess the vulnerability of Delta water supplies to these contaminants; and
- installation and testing of new instrumentation to provide real-time water quality data to improve Delta water quality.

Quality Assurance/Quality Control

The water-related data collected by the Department must be scientifically supportable. To help protect the Department's large investment in water-related data, the Quality Assurance/Quality Control Program was created in 1992. Under the QA/QC program, guidance documents are published, training courses are implemented, and technical support is provided to managers of water data collection programs throughout the Department.

In addition to its basic mission of supporting and strengthening the validity, integrity, and credibility of water data collected by the Department, the QA/QC program also provides leadership in efficient planning and execution of data collection activities. To minimize cost, it is necessary to carefully plan, implement, interpret, and evaluate data collection activities. Good data collection programs begin with identifying the data collection goal and establishing the data quality objectives to meet the goal. This planning is done before actual data collection and assures that the correct type and amount of data are collected to meet program objectives. Through this process, the Department avoids collecting inadequate, irrelevant, or extraneous data, and thereby avoids waste.

Collectively, these and other MWQI studies and activities are designed and conducted to address major water quality and water supply issues, such as (1) the Delta's ability to meet user needs, (2) the ability to meet stricter State and federal regulations, and (3) the ability to obtain reliable, clean water supplies in the future. Each study or activity serves to discover, test, and assess possible solutions to problems in the Delta and other watersheds of the SWP and assures that future demands for safe, potable water supplies can be met.

Bryte Chemical Laboratory

Bryte Chemical Laboratory, established in 1951, continues to perform the majority of chemical and other related analyses requested to support the Department's water quality programs. Thousands of water samples are analyzed for minerals, nutrients, metals, pesticides, and other constituents. Bryte Laboratory continues to manage all analytical contracts with outside laboratories according to the Master Contract Policy approved in fiscal year 1994-1995. The laboratory is working with the Quality Assurance/Quality Control Program to replace one contract that expires at the end of fiscal year 1996-1997.

Analytical procedures and methods are continually updated and evaluated by the laboratory. Several new methods were added to the list of available services after extensive testing and development. One new procedure involved the reactivity of chlorine with naturally occurring organic matter to form disinfection by-products. The new method will characterize formation potentials of trihalomethanes and haloacetic acids based on the reactivity of chlorine with natural organic matter found in water. In addition, methyl tertiary-butyl ether, an oxygenate additive to gasoline, was added to an existing laboratory method involving the analysis of volatile organic compounds. This addition allowed the laboratory to perform the required analyses for a MTBE survey. This survey is a part of a larger survey being conducted by the Association of California Water Agencies. It began in May 1997 and is scheduled to end in November 1997.

The laboratory purchased two analytical instruments during fiscal year 1996-1997 to modernize and expand the laboratory's analytical capabilities. The inductively coupled plasma/mass spectrometer used in trace-metal analysis was installed and the applicable EPA methods evaluated. After the method performance evaluation and certification were completed, the laboratory was able to lower many detection limits reported for trace metals. The new instrument allowed the laboratory to reduce the cost of analysis by 35 percent. This is entirely due to the efficiency and reduced analytical time provided by the new ICP/MS. A gas chromatograph/mass spectrometer was also purchased to analyze organic compounds. This analytical instrument should be installed in September 1997 and is expected to increase and expand laboratory capabilities and provide greater efficiency and cost savings.

Bryte Laboratory

The Department's extensive water quality investigations result in thousands of samples annually that require laboratory analysis. Bryte Laboratory, located in West Sacramento, analyzes these samples. The laboratory, which is organized within the Division of Planning and Local Assistance, provides service to clients throughout the Department and to other agencies. A wide range of analyses are performed, including minerals, nutrients, metals, and pesticides. The laboratory undergoes continual modernization as new substances become the focus of attention, and as newer, more accurate, analytical methodology is developed. Because of rapid developments in the field of water quality, the laboratory is constantly evolving, like the programs it serves.

Implementation of the Field and Laboratory Information Management System occurred during fiscal year 1996-1997. This system allows electronic transfer of samples for analysis to the laboratory, simplifying the transfer process. It provides users with information on all analytical services available through Bryte Laboratory, including costs. It also provides users with sample requirements for each analysis requested, such as types of containers needed, sample volumes necessary, and the type of sample preservation required. The new system is designed to store all current analytical data, including all required QA/QC data pertaining to sample analysis. It is designed to log, track, and assign sample analyses to the appropriate chemist in the laboratory. FLIMS will then generate the final reports to the requestor in hard

copy and, if required, in electronic format suitable for the user. The implementation and beta testing of FLIMS is scheduled to be completed at the end of calendar year 1997, with full implementation by early 1998.

Quality Assurance/Quality Control

The Quality Assurance/Quality Control Program was established in 1992. It ensures that data produced by the Department's annual multimillion dollar investment in environmental monitoring activities meet high quality standards and are scientifically defensible. In accordance with departmental QA/QC policy, the QA/QC program is responsible for:

- integrating QC procedures into environmental monitoring activities;
- developing a QA/QC management plan;
- coordinating QA/QC activities through an assigned QA officer;
- requiring all in-house and contract laboratories that provide analytical services for the Department to follow EPA approved (or equivalent) analytical procedures and standards of practice; and
- implementing QC procedures in the most cost-effective manner without compromising data quality objectives.

Several QA/QC technical documents have been published to provide information, assistance, and training in QA/QC practices and principles. These technical documents include:

- *Quality Assurance Guidelines for Analytical Laboratories*;
- *Sampling Manual for Environmental Measurements*;
- *Compilation of Federal and State Drinking Water Standards and Criteria*;
- *Compendium of Water Quality Investigations in the Sacramento-San Joaquin Delta*;
- *Guidelines for Preparing Quality Assurance Project Plans*; and
- *Compilation of Soil and Sediment Standards, Criteria, and Guidelines*.

During fiscal year 1996-1997, two technical documents were updated, *Quality Assurance Guidelines for Analytical Laboratories* and *Compilation of Federal and State Drinking Water Standards and Criteria*.

In addition, the following technical documents were updated or were being developed:

- *Compendium of Water Quality Investigations in the Sacramento-San Joaquin Delta*;
- *Guidelines for Preparing Quality Assurance Project Plans*; and
- *Quality Assurance Management Plan for Environmental Monitoring Programs*.

Because of a large number of requests for an introductory course in QA/QC principles, two sessions of the QA/QC training course—*Introduction to Quality Assurance/Quality Control in Environmental Monitoring Programs*—were held during fiscal year 1996-1997. Trainees included not only employees of the Department, but also employees of member agencies of the State Water Contractors.

During fiscal year 1996-1997, the QA/QC Program assumed a more proactive role to assure that all in-house and contract laboratories providing analytical services for the Department complied with QA/QC procedures, standards, and requirements. To fulfil this role, the QA/QC Program:

- conducted on-site surveys and audits of operations at in-house and contract laboratories;
- attended DHS certification review surveys of in-house laboratories;
- implemented a scheduled program of performance evaluations of all in-house and contract laboratories; and
- continued planning and development of the Department's Field and Laboratory Information Management System for storage, retrieval, and analysis of QA/QC and environmental data.

Other services provided by the QA/QC Program include assisting other Department programs in developing quality assurance project plans, evaluating QA/QC data to determine the accuracy and precision of environmental data generated for the program, and testing and evaluating the performance of environmental monitoring equipment. Ongoing assistance

is provided to all departmental environmental monitoring programs, including those within the Division of Planning and Local Assistance, Division of Operations and Maintenance, Environmental Services Office, and the Interagency Ecological Program.

Suisun Marsh Activities

The Suisun Marsh

Suisun Marsh is made up of about 59,000 acres of tidal and managed brackish water wetlands and 30,000 acres of bays and sloughs. It is the largest contiguous estuarine marsh remaining in the United States. Situated in southern Solano County, west of the Sacramento-San Joaquin Delta and north of Suisun Bay, the marsh encompasses more than 10 percent of California's remaining natural wetlands (Figure 6-2). In addition, the marsh is the resting and feeding ground for thousands of waterfowl migrating on the Pacific Flyway.

Since the early 1970s, the Department, the California Legislature, the SWRCB, USBR, and other agencies have focused on preserving the Suisun Marsh as a unique environmental resource. As part of its responsibility for protecting Suisun Marsh, the SWRCB included water quality standards for the marsh in Water Right Decision 1485 and Water Right Order 95-6 (amending D-1485), which apply to SWP and CVP operations. In 1987, the Department, USBR, DFG, and the Suisun Resource Conservation District signed the Suisun Marsh Preservation Agreement (see sidebar). The Preservation Agreement contains provisions for actions to control channel water and soil salinity to mitigate for impacts of the SWP, CVP, and other upstream diverters on managed wetlands in Suisun Marsh.

Suisun Marsh Preservation Agreement Activities

Amending the Suisun Marsh Preservation Agreement. In August 1995, representatives of the Department, USBR, DFG, and SRCD began negotiating to update the Suisun Marsh Preservation Agreement. To help meet interior marsh water quantity and water quality needs for managed wetlands, the Department and USBR constructed the Initial Facilities and the Suisun Marsh Salinity Control Gates. The four parties now agree that the additional large-scale facilities suggested for Phases III through VI of the Plan of Protection for the Suisun Marsh are not necessary for salinity control in Suisun Marsh because of the greater-than-anticipated effectiveness of the SMSCG and the higher outflows resulting from the 1995 Water Quality Control Plan. At the same time, the parties identified the following actions to improve water and habitat management, lower channel water salinity and soil salinity in the western marsh, and provide funds for wetland management in response to prolonged drought conditions:

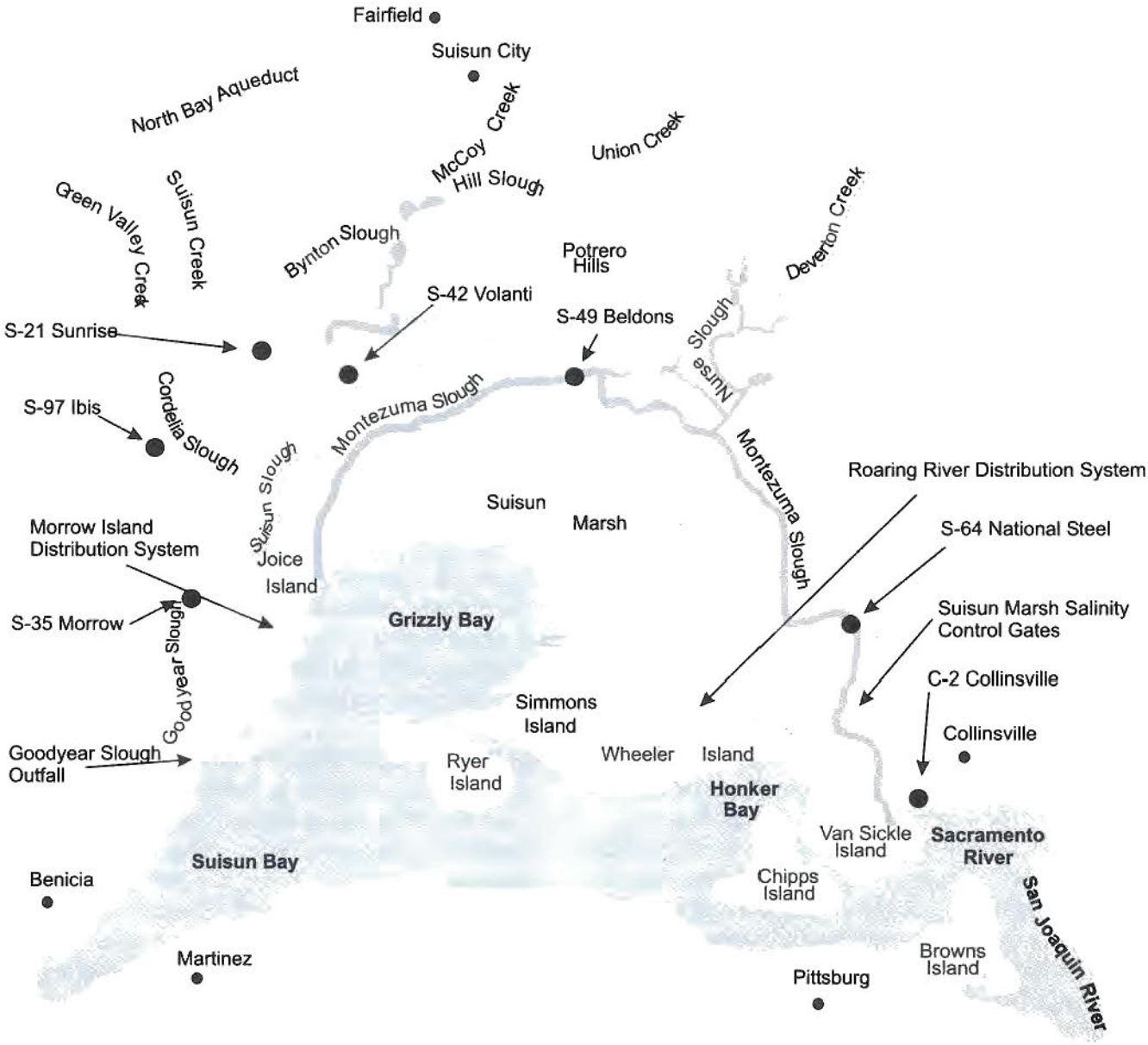
- meet channel water salinity standards in Order 95-6;

Suisun Marsh Preservation Agreement

In 1986, federal legislation (Public Law 99-546) authorized funds to USBR to protect Suisun Marsh. On March 2, 1987, the Department, USBR, DFG, and the SRCD signed the Suisun Marsh Preservation Agreement. The objective of the SMPA is to assure that USBR and the Department mitigate for any adverse effects of the Central Valley Project and State Water Project on managed wetlands in the marsh, as well as a portion of the adverse effects of other upstream diversions. Under the original agreement, this objective is accomplished by constructing large-scale facilities in the marsh to maintain a dependable supply of adequate quality water within Suisun Marsh Channels. A component of the large-scale facilities is the Suisun Marsh Salinity Control Gates facility, declared operational November 22, 1989 (about 1 year after initial operation).

On August 4, 1995, the Suisun Marsh Coordinators representing the four agencies party to the SMPA began discussions directed at updating the agreement, pursuant to SMPA Articles 4 and 17. Representatives from USBR, the Department, DFG, and the SRCD established an ad hoc Negotiating Team, Technical Group, Drafting Committee, and Environmental Documentation Team. Beginning September 1995, the SMPA Negotiation Team met monthly in Sacramento and made significant progress in developing the basis to amend the agreement. Representatives from the SWP and CVP contractors actively participated in the negotiations. Updating the SMPA will reflect future hydrologic and salinity conditions in the Suisun Marsh as prescribed by the SWRCB 1995 Water Quality Control Plan and Order 95-6 and will place more emphasis on improving water and land management practices and facilities on managed wetlands.

Figure 6-2
Compliance and Monitoring Stations in the Suisun Bay and Marsh



- convert S-35 and S-97 from compliance stations to monitoring stations;
- set criteria for operating the Suisun Marsh Salinity Control Gates in September;
- implement Water Manager Program;
- update existing management plans;
- implement Joint-Use Facilities Program; Managed Wetland Improvement Fund;
- install portable diversion pumps with fish screens;
- install portable drainage pumps;
- realign and stabilize Roaring River Distribution System turnouts; and
- establish the Drought Response Fund.

The SMPA negotiators pursued an alternative with the Fairfield Suisun Sewer District to construct an intertie between the treatment plant and Green Valley Creek and discharge treated effluent into the northwestern portion of the marsh. However, FSSD notified the SMPA parties that too many obstacles prevent this project from proceeding at this time.

During 1996, the parties continued working to complete the SMPA Amendment Three and an initial study/environmental assessment for CEQA/NEPA compliance. SWRCB included the above joint actions as an alternative in the environmental impact report and is preparing to implement the 1995 WQCP.

Comprehensive Suisun Marsh Data Review. The Suisun Marsh Preservation and Monitoring agreements require a long-term review of the data collected by the monitoring program. Data have been collected since 1985, including specific conductance of channel water, pond water, and soil water; pond stage; vegetation occurrence and production; waterfowl use; fish abundance and distribution; and salt marsh harvest mouse presence. Data review began in spring 1996. An ad hoc technical team was established in 1996, with representatives from the Department, DFG, and SRCD to conduct this review. Efforts thus far have sought to determine if there are relationships between the specific conductance of applied water, pond water, and soil water; vegetation occurrence; and waterfowl usage. The Suisun Marsh monitoring program will be updated based on the findings and recommendations of the Comprehensive Review Team.

Individual Ownership Cost Share Program. The Individual Ownership Cost Share Program is a component of the Suisun Marsh Preservation Agreement designed to improve water management on private ownerships within the Suisun Marsh. Funded improvements include replacing, lowering, and/or enlarging drainage structures and purchasing pumps to assist drainage. The program began in 1987 with a 50 percent reimbursement by the Department and USBR; however, participation in the program has greatly increased since 1994 when the Suisun Marsh Coordinators increased the Department and USBR cost share reimbursement to 75 percent.

Seventeen applications were submitted and paid during 1996. The total cost of these improvements was $498,812— $392,815 paid to SRCD and distributed to the landowners. The Department and USBR have spent $932,516 since the program began in 1987.

Lower Joice Island Water Intake Fish Screen. In 1996, the Department evaluated three fish screen designs and cost estimates for the project, two from the Department and one from SRCD. In April 1996, the Department decided to postpone installation of the screen by 1 year to evaluate the effectiveness of the five fish screens SRCD installed in summer 1996. The Department and USBR selected a fish screen design in March 1997 after evaluating the performance report for the SRCD fish screens. The Department plans to install the screen by October 1997.

Initial Facilities Maintenance

Initial facilities listed in the SMPA include the Morrow Island Distribution System, Roaring River Distribution System, and Goodyear Slough Outfall Structure (Figure 6-2). These facilities are described in the Plan of Protection for the Suisun Marsh (see sidebar) to mitigate, in part, for effects on the Suisun Marsh caused by the CVP and SWP. In addition to routine maintenance conducted on the three facilities, the Department also conducted the following activities during 1996.

Morrow Island Distribution System. The Morrow Island Distribution System was constructed in 1980 and consists of two ditches—M-line and C-line—that connect Goodyear Slough to Suisun Slough and Grizzly Bay through Morrow Island. The distribution system allows less saline water from Goodyear

Plan of Protection for Suisun Marsh

The Plan of Protection for Suisun Marsh, published under the requirements of Decision 1485, was designed to ensure that Decision 1485 standards are met. The plan contained a proposal to monitor water quality; develop management plans for managed wetlands; install, in phases, physical facilities to control channel water salinity for interior marsh sloughs; and provide mitigation for construction impacts associated with physical facilities.

The plan also included a programmatic environmental impact report that discussed actions identified in the plan and the effects of each action. According to the plan, the Department and USBR, as lead agencies, would prepare supplemental environmental documentation if new significant impacts were identified during the planning and implementation of subsequent actions.

At USBR's request, the SWRCB reset the timetable to comply with the conditions in Decision 1485 from a completion date of October 1, 1984, to a staged implementation plan to be completed by October 1, 1997. The revised time schedule was specified in a letter issued on December 5, 1985, and specific revisions were made to Table II of Decision 1485. The revision also includes options for compliance times and locations for salinity compliance stations.

The Plan of Protection suggests six phases to provide protection for the Suisun Marsh. Phase I (Initial Facilities) and Phase II (Suisun Marsh Salinity Control Gates) are complete. In 1990, Phases III and IV, directed at the western Suisun Marsh, were combined and identified as the Western Suisun Marsh Salinity Control Project. Discussions about Phase V, the Grizzly Island Distribution System, were initiated with SRCD in 1993. The Potrero Hills Ditch was identified as Phase VI. In 1995, the Department, USBR, DFG, and SRCD agreed that the additional large-scale facilities in Phases III through VI are not necessary for salinity control in the Suisun Marsh because of the Delta hydrology resulting from implementation of the 1995 Bay-Delta Plan, and the effectiveness of the Suisun Marsh Salinity Control Gates. The parties arrived at this decision based on data collection with SMSCG operation and departmental model studies conducted in support of the 1995 Bay-Delta Plan and EIR for its implementation as described in this section.

Slough to be tidally pumped as needed to flood the eastern side of Morrow Island.

The proposed maintenance includes removing accumulated sediment from the distribution ditch to restore adequate capacity and flows, using the dredge material to rebuild the levees to their original design elevation, and replacing the outlet culverts on C-line and M-line.

In 1996, Department staff conducted the following activities:

- continued preparation of environmental documentation;
- obtained right-of-way agreements with property owners;
- conducted sediment and soil sampling to update environmental documentation, and
- completed maintenance of the leaky C-Line outfall culvert.

MIDS maintenance dredging began in 1997. After the material dries (about a year) and is reshaped, the levees will be rebuilt and the roadways resurfaced with gravel.

In October 1996, emergency repairs were conducted on the M-Line of the MIDS. A 5-foot diameter sinkhole located over the eastern culvert pipe was temporarily filled and clearance was obtained to complete further emergency repairs. Examination of the outfall culverts revealed that the culverts must be replaced because of excessive corrosion. The levee section at the culvert location is weakened from the sinkhole and requires repair. Department staff obtained the required clearance from the U.S. Army Corps of Engineers to replace the outfall. The work should be conducted in September or October 1997.

Roaring River Distribution System. The Roaring River Distribution System was completed and became operational in 1980. Fish screens were installed and tested on two intake culverts in 1980, and on the remaining six culverts in 1983. The screens at the Roaring River intakes were originally designed for an average approach velocity of 0.5 feet per second. (Design approach velocity is the design flow divided by the screen area.) However, the U.S. Fish and Wildlife Service's fish screen criteria is 0.2 fps approach velocity for the protection of delta smelt. The Department's Operations and Maintenance and Suisun Marsh Planning staff determined

that the 0.2 fps approach velocity could be attained by automating the intake slide gates.

During 1996, the Department's Operations and Maintenance staff developed a plan and purchased the necessary hardware and software to automate the slide gates on the eight intake culverts of the RRDS. The automation is intended to maintain the 0.2 fps fish screen criteria while providing more water to DFG and private wetland managers.

In November 1996, the Department designed and installed a flashboard riser on the existing drainage culvert on the eastern end of the distribution system. The flashboard riser will allow higher water levels to be maintained in the system, reducing the approach velocities through the fish screens and improving diversions from the distribution system. Rock was also placed under the discharge pipe in the distribution system to provide support and fill existing scour.

Suisun Ecological Workgroup

The Department convened the Suisun Ecological Workgroup in May 1995 at the request of the SWRCB in the 1995 Water Quality Control Plan and Water Right Order 95-6. SEW is a technical group established to review the scientific basis of the current channel water salinity standards in the Suisun Marsh and make recommendations to the SWRCB regarding current and future water quality objectives.

SEW consists of representatives from the Department, DFG, USFWS, SRCD, National Marine Fisheries Service, USBR, EPA, Regional Water Quality Control Board (San Francisco Bay Region), San Francisco Bay Conservation and Development Commission, California Native Plant Society, Ducks Unlimited, California Waterfowl Association, San Francisco Estuary Institute, and MWD, among others. In October 1995, five technical subcommittees were formed focusing on brackish marsh vegetation, waterfowl habitat, wildlife, aquatic habitat, and hydrodynamics and water quality.

During 1996, SEW met bimonthly. The major activity shifted to the technical subcommittees with SEW serving to review and comment on subcommittee work. The aim of the subcommittee work is to evaluate the effects of the Western Marsh Salinity Standards (1995 WQCP and Water Right Order 95-6) on various resources and to develop recommendations for resource-specific water quality objectives, future studies, and compliance monitoring reports. The subcommittees are scheduled to complete their analyses in 1997.

SEW's next step will be to evaluate the impacts of resource-specific water quality objectives and to develop appropriate multiresource (ecosystem) objectives. SEW plans to complete the evaluation by October 1998, when it will present its recommendations to the SWRCB.

In June 1996, a SEW home page (http://www.iep.water.ca.gov/sew/) was added to the Interagency Ecological Program fileserver. The home page contains meeting agendas, summaries, and subcommittee work plans. In the future, it will also contain consensus reports, maps, and other information.

In October 1996, SEW became an IEP Project Work Team. Benefits of becoming a PWT under IEP include:

- increased recognition;
- access to broader peer review process;
- more direct support from various groups involved in the IEP process; and
- SEW contribution to the IEP Newsletter.

Products required by IEP include quarterly reports, a yearly study plan, and an annual report.

Acid-Water Study

Habitat management practices in the Suisun Marsh produces water of various shades of red and orange, as well as acid soils. An agreement was made in 1995 between the Department, SRCD, USBR, DFG, the National Biological Service (now the Biological Resources Division of the U.S. Geological Survey) and the California Waterfowl Association to fund a study evaluating the extent, duration, distribution, and quality of acid/red water, and its effect on waterfowl use of the marsh. During 1996, the use of orange/red-hued water by wintering waterfowl was aerially monitored in the marsh and examined in an experimental pen study. The water chemistry (pH, specific conductance) and physical characteristics

(surface area, depth, turbidity, color) of orange/red-hued water and other colored (non-orange/red) water in the marsh were measured. Based on the results obtained from the first year of the study, no evidence was found to suggest that ducks avoid orange/red-hued water. The study was extended a second year to obtain additional information and verify the initial results. A report is expected by the end of 1997.

Fisheries Monitoring

The University of California at Davis has sampled for fish in the Suisun Marsh since 1979, with funding from the Department and USBR. During 1996, sampling continued as in previous years.

Data from the sampling indicate a continuation in the long-term trend of declining abundance of fish in the marsh. The decline seems independent of the operation of the Suisun Marsh Salinity Control Gates. From 1994 to 1995, researchers noted a geographic shift in the abundance and occurrence of larvae in the marsh. Because of the presence of delta smelt, longfin smelt, and splittail eggs and larvae, it is likely that these species used the marsh for spawning and rearing in 1995. Results from 1996 sampling was available in March 1997.

DFG has monitored neomysis and phytoplankton densities in the marsh since the late 1970s and young striped bass abundance since 1959. In 1996, monitoring continued as in previous years. Results from the 1996 sampling will be available in mid-1997.

Suisun Marsh Salinity Control Gate Activities

Suisun Marsh Salinity Control Gate Operation. The Suisun Marsh Salinity Control Gates are operated from September 1 to May 31, and only as needed to meet salinity standards, so as to minimize fish concerns related to predation and impedance. To date, the scheduling of gate operation and the installation or removal of the flashboards have varied for several reasons: because of existing salinity conditions, at the request of the fisheries agencies for sensitive species concerns, or to allow for special studies.

Because of low-salinity conditions in the marsh in winter 1996 (1995-1996 control season), SMSCG operation was not needed to meet salinity standards and the flashboards were not installed. This was the first time since the installation of the SMSCG that they were not needed for salinity control during an entire control season.

As a result of increasing salinity in the marsh, the flashboards were installed and the gates were operational from November 13 to 26, 1996 (1996-1997 control season). On November 27, operation of the SMSCG stopped because salinity in the marsh was well below the SWRCB standards. The gates remained open with the flashboards installed for the remainder of 1996.

Adult Salmon Migration Study. Studies to assess the effects of SMSCG operation on adult salmon migration were conducted in 1993 and 1994. The studies were done to fulfill a Corps permit requirement for the construction and operation of the SMSCG. Adult salmon were captured using gill nets, and sonic tags were inserted into their stomachs. Stationary and mobile hydrophones and receivers tracked movement of each tagged salmon.

In 1996, the results of the 1993 and 1994 studies were published in the following reports:

- *Adult Salmon Migration Monitoring During the Various Operational Phases of the Suisun Marsh Salinity Control Gates in Montezuma Slough (August-October 1993)*; and
- *Adult Salmon Migration Monitoring During the Various Operational Phases of the Suisun Marsh Salinity Control Gates in Montezuma Slough (September-November 1994).*

Results from the studies indicate that SMSCG operation may have delayed and/or blocked salmon migration upstream and decreased the number of salmon passing through the structure.

While the 1993 and 1994 adult salmon migration studies indicated that the SMSCG are affecting the migration of salmon, the biological significance of the effect on the chinook salmon population is unknown. The Department is currently assessing the population level implications and identifying poten-

tial mitigation measures. In 1997 the Department will distribute draft reports describing their findings to an interagency team for review. The Interagency Steering Committee will base recommendations for mitigation on the outcome of the evaluation.

Van Sickle Island Revegetation Monitoring. To install the SMSCG in Montezuma Slough, about 70,000 cubic yards of material were excavated and placed at Dredge Spoil Site No. 2 on Van Sickle Island by October 1988.

Permit conditions require an annual plant survey at the dredge spoil site for three growing seasons after the removal of dredge material to help determine the extent of reestablished salt marsh harvest mouse habitat. Under a departmental contract, a monitoring plan was prepared by DFG—*Monitoring Plan to Evaluate Habitat Recovery for the Salt Marsh Harvest Mouse at the Montezuma Slough Dredge Disposal Site on Van Sickle Island.*

In December 1996, DFG completed the *Monitoring Report for the Revegetation of Dredge Disposal Site Number 2 on Van Sickle Island*, which contains the results of the 1994 and 1995 salt marsh harvest mouse trapping and vegetation monitoring. Trapping efforts documented the presence of salt marsh harvest mouse in the area. Vegetation monitoring indicates that 8.4 acres of the dredge disposal site had revegetated, while 6.3 acres did not meet criteria established by the USFWS for suitable salt marsh harvest mouse habitat. Final vegetation monitoring will be conducted again in 1997 as outlined in the monitoring plan; however, further trapping is not necessary because salt marsh harvest mice have been documented on the site.

State Water Resources Control Board Activities

Water Quality Monitoring and Compliance. The Department's Environmental Services Office staff conducted SWRCB compliance monitoring within the Suisun Marsh during 1996 (Figure 6-2). During the 1995-96 control season, the salinity standards specified in Attachment B of D-1485 (as amended in Water Right Order 95-6) were in effect. Attachment B specifies compliance at four locations in the Suisun Marsh area. Three locations are within the marsh: National Steel (S-64); Beldons Landing (S-49); and Sunrise (S-21). One compliance location, Collinsville (C-2), is in the western Delta.

During winter 1996, the high outflow conditions in the Delta and localized tributary runoff into Suisun Marsh resulted in low specific conductance values measured in the marsh, and all salinity standards were met for the calendar year.

During 1996, ESO continued monitoring flow at two tributary locations and three tidal locations in the marsh. Data collected at these locations are used to help understand hydrological, tidal, and other factors that can influence salinity levels within the marsh. In conjunction with modeling studies, these data are used to help determine alternative methods of reducing salinity levels in the marsh during dry periods.

Suisun Marsh Annual Data Summary Report. Data collected and analyzed in the Suisun Marsh during water year 1994 were reported in the *Suisun Marsh Monitoring Program Data Summary.* In this annual report, published in July 1996, the Department presented results of studies and surveys in water year 1994 associated with:

- the SMSCG fishery impacts analysis;
- waterfowl food plant production;
- marsh-wide vegetation conditions;
- waterfowl populations;
- salt marsh harvest mouse population;
- channel salinities; and
- soil and pond water salinities on managed wetlands.

This report also discusses scheduled maintenance for departmentally-maintained mitigation facilities and monitoring program revisions.

Results for water years 1995 and 1996 will include a summary of data collected during the 1994-95 Western Suisun Marsh Salinity Control Test.

Suisun Marsh Technical Advisory Committee

During 1996, Department staff facilitated four Suisun Marsh technical advisory committee meetings. Meetings are scheduled quarterly to increase staff time and resource efficiency. These meetings

were attended by representatives from federal, State, and local agencies and Suisun Marsh landowners. Meeting notes were distributed to more than 60 people including SWRCB staff.

Suisun Marsh Expenditure History

Table 6-2 summarizes Suisun Marsh expenditures and reimbursements administered by the Department for calendar years 1968 through June 1997.

From 1968 through June 1997, the Department disbursed over $78 million for planning, design, environmental documentation, construction, maintenance, monitoring, and permit compliance in support of implementing the Plan of Protection for the Suisun Marsh, the Suisun Marsh Preservation Agreement, and to meet standards set by the SWRCB. USBR reimbursed the Department about $31.2 million (39.9 percent), and the California General Fund has reimbursed about $9.5 million (12.1 percent). These figures do not include up-front payments made by USBR for staff and other direct costs, as well as about $5.7 million in USBR interest payments during 1988 and 1989.

Annual figures are reported in Table 6-2 for the Department's up-front payments and cumulative expenditure balance, USBR reimbursements, and General Fund reimbursements.

Information in this chapter was contributed by the Environmental Services Office, the Division of Operations and Maintenance, and the Division of Planning and Local Assistance.

Table 6-2
Suisun Marsh Expenditure and Reimbursements, as of June 30, 1997 (in Dollars)

Calendar Year	Upfront Payment	USBR Reimbursement	General Fund Reimbursement	Cumulative Departmental Expenditure Balance (CXB)(a
1968	10,571	0	0	10,571
1969	34,182	0	0	44,753
1970	23,343	0	0	68,096
1971	1,042	0	0	69,138
1972	47	0	0	69,185
1973	0	0	0	69,185
1974	0	0	0	69,185
1975	2,709	0	0	71,894
1976	32,961	0	0	104,855
1977	37,475	0	0	142,331
1978	350,831	0	0	493,162
1979	3,660,096	0	0	4,153,258
1980	5,005,759	0	0	9,159,017
1981	2,964,977	0	0	12,123,995
1982	2,955,702	2,500,000	0	12,579,697
1983	2,754,091	0	0	15,333,788
1984	2,418,345	0	0	17,752,133
1985	2,332,776	0	0	20,084,909
1986	6,495,323	0	0	26,580,232
1987	13,600,701	0	0	40,180,933
1988	7,456,296	17,368,725	9,478,000 (b	20,790,504
1989	2,341,843	1,219,691	0	21,912,656
1990	3,030,016	695,450	0	24,247,222
1991	6,222,531	2,925,429	0	27,544,324
1992	2,737,242	1,174,655	0	29,106,910
1993	2,979,030	238,130	0	31,847,810
1994	3,192,130	1,962,549	0	33,077,391
1995	2,721,318	647,138	0	35,151,571
1996	3,401,913	1,482,396	0	37,071,088
1997	1,439,902 (g	942,805	0	37,568,185
1998	0 (h	0	0	0
1999	0	0	0	0
2000	0	0	0	0
Total	**$78,203,153 (c**	**$31,156,968 (c d**	**$9,478,000 (e**	**$37,568,185 (f**

a) CXB = (Previous Year's CXB + Departmental Upfront Payment) - (USBR + General Fund reimbursements.
b) Under State Assembly Bill 1442, the General Fund paid 20% of the Department's Upfront Payment through June 1988, amounting to $9,478,000.
c) Does not include USBR Upfront Payments for staff and other direct costs.
d) USBR has paid 39.9% of total Departmental Upfront Payment.
e) General Fund has paid 12.1% of total Departmental Upfront Payment.
f) The Department paid 48.0% of total Departmental Upfront Payment.
g) Includes January through June 1997.
h) For years 1998 to 2000, figures will be included when available.

USBR paid an additional $5,111,831 as interest in 1988.
USBR paid an additional $607,175 as interest in 1989.

Chapter 7

Local Assistance Programs

Repairs to the Sutter Bypass levee during January 1997 floods

Significant Events

- Two major events occurred under the Department's water conservation programs: (1) the Urban Water Conservation Council revised the *Best Management Practices* and (2) the Agricultural Water Management Council was formed. The Department is a signatory of the Memorandums of Understanding that created both councils, which are comprised largely of local water suppliers. In supporting them, the Department provides assistance to more than 140 agencies.
- The Department's California Irrigation Management Information System expanded to 93 weather stations and current data was put on an Internet site. The Department currently provides "real-time" evapotranspiration information to 30 local agencies and receives over 2,500 requests for CIMIS data each month.
- In 1996, the San Joaquin Valley Drainage Implementation Program adopted an Action Plan that will update the 1990 Drainage Management Plan.
- The Department, which stopped treating drainage at the research site near Tranquility in 1995, continued to help local agencies develop drainage treatment and reuse technologies.
- The Department continued to solicit proposals for drainage reduction projects from the SWP service area.
- The Department continued to fund and coordinate research on evaporation ponds in the SWP service area.

Through the Division of Planning and Local Assistance, the Department of Water Resources manages or participates in several programs to assist local agencies and benefit State Water Project contractors.

Davis-Grunsky Act Program

At the inception of the Davis-Grunsky Act Program, loans were made at the current market interest rate. In 1967, the legislature fixed the interest rate at 2.5 percent to be more accessible for the low-income agencies that the program was designed to assist. The maximum loan repayment period was set at 50 years. At the Department's discretion, some agencies were given an initial 10-year deferment with the accumulated interest amortized over the repayment period.

The Department's ongoing administration of the program provides oversight of the 32 recreation grant projects to ensure compliance with the contracts. Administration costs are recovered from the revenues provided by the repayment of Davis-Grunsky loans. The recreation grant contracts are being amended to reflect actual facilities constructed and the modification of the Department's function of fee oversight.

Current Activities

In fiscal year 1996-1997, the Davis-Grunsky Act program funded the following agencies and activities.

Big Bear Municipal Water District. Phase II repairs of Bear Valley Dam, San Bernardino County, have been delayed because Caltrans has not constructed the required replacement road downstream of the dam. The $380,000 of Davis-Grunsky grant contract funds approved for Phase II construction remain available to the district.

Littlerock Creek Irrigation District/Palmdale Water District. The Department has disbursed $2.7 million of the $3 million grant approved to repair this project in Los Angeles County. The recreational facilities associated with this project are complete. Project audit and subsequent release of the remaining $300,000 withheld is expected in the third quarter of 1998.

Agricultural Drainage Program

The Department continues to participate in the multiagency San Joaquin Valley Drainage Implementation Program. During December 1996, the program's Management Group approved in concept a "Proposed Action Plan," which was advanced by an association of local districts, the University of California, and the California Department of Food and Agriculture. The Proposed Action Plan will update the 1990 Management Plan and will be carried out in three stages.

The first stage will consist of two concurrent, coordinated, yet independent tasks. Firstly, subarea committees will assess the feasibility of adopting the management recommendations proposed in the management plan and will prepare reports on San Joaquin Valley drainage problem areas. Secondly, a set of technical committees will evaluate the current technical and economic management options, including salt utilization plans, which are proposed in the management plan.

During the second stage, an ad hoc Coordination Committee will synthesize the information from the first stage into a report and, based on technical and economic considerations, identify interactions and trade-offs among management options and develop a set of recommendations.

The third stage will use the recommendations formulated during the second stage, along with input from the public, to formulate an updated management plan and identify acceptable mechanisms that will encourage the adoption and voluntary implementation of the updated management plan.

The Department will participate in this effort at all stages, assist the subarea committees, and play a major role in drafting the technical committee reports. A data report for the Tulare Lake and Kern

County subarea, compiled by the Department at the request of the Subarea Committee, will be released in fall 1997.

Drainage Monitoring and Evaluation

The Department continues to participate in a cooperative program with the U.S. Bureau of Reclamation. The program makes salinity levels from the San Joaquin River system available through real-time monitoring equipment. This information system provides local, State, and federal agencies with real-time data to assist in managing drainage releases to the San Joaquin River. Although future funding from outside sources for this program has not been identified, the Department has made a commitment to continue this worthwhile program.

The Department continues to monitor shallow groundwater levels. Electrical conductivity data was collected in 1996 and an EC contour map of high groundwater areas has been drafted for the northern portion of the Department's San Joaquin District. The Department also continues to collect shallow groundwater samples for chemical analysis.

Drainage Reduction and Reuse

The Department continues to work on demonstration and education programs, promoting the practice of improved irrigation and drainage management techniques. The Department completed the following related reports:

- *Survey of Linear Irrigation System in California*;
- *Demonstration of Irrigation Scheduling Workshop and Follow-up Field Demonstration in Kern County*;
- *Shallow Groundwater Management*; and
- *Boron Accumulation and Toxicity in Agroforestry Systems*.

In addition, along with several other sponsors, the Drainage Reduction and Reuse Program sponsored advances in irrigation symposiums and workshops. Several presentations were made in areas such as irrigation systems technology and on-farm water and energy management. Recently developed information on irrigation and drainage practices demonstrated that surface and subsurface water management are the first steps for efficient water use.

Also, the Department sponsored a workshop to discuss the results of the linear move survey and ways to increase growers' awareness of such systems. The meeting was conducted in the Southern California Edison's AgTAC in Tulare.

The Department continued work on the following projects:

- Growth and Water Relations of Plant Species Suitable for Saline Drainage Water Reuse Systems;
- Study of On-Farm Irrigation and Drainage Management on Cracking Soils to Reduce Drainage; and
- Role of Agroforestry System in Reducing Selenium Concentration in Drainage Water by Volatilization Process.

These projects, initiated in the 1994-95 fiscal year, are continuing; reports will be available as they are completed. The Agricultural Drainage Reduction and Reuse Program completed the Request for Proposal in May 1997. The RFP solicited proposals to study and demonstrate new irrigation management practices in different geohydrological areas of the State, particularly the SWP service area. The new activities will include on-farm source control, water reuse, economic incentives, management of shallow groundwater, training, and education. The following list of proposals have been selected and are at different stages of the contracting process:

- Reduction of Drainage Preirrigation by Utilizing Sprinkler, Skip-row, and Alternate Furrow Irrigation in Cotton;
- Irrigation Management Education and Training Workshops;
- Educational Workshops for On-Farm Irrigation Management Advances for Source Reduction of Deep Percolation and Drainage; and
- Drain Water Reuse Agroforestry Trial.

These projects are mainly in the SWP service area.

Drainage Treatment

The Department continues to investigate technologies to treat agricultural drainage water. The studies and testing at the multiagency drainage treatment test

facility near Tranquillity, in western Fresno County, have been completed. The principal activity was a bacterial selenium reduction/removal test that achieved reduction rates of up to 90 percent in a 1994 pilot-scale operation. Upflow anaerobic sludge blanket reactors, fluidized bed reactors, and a packed bed reactor were tested. Slow sand filtration was evaluated as a final, polishing step. Operations ceased in November 1995. A summary operation report is being prepared.

The Department continues to provide assistance to local agencies in the development, collection, and evaluation of data from projects that investigate treatment and reuse of agricultural drainage water. The Flow-Through Wetland Project in the Tulare Lake Drainage District investigates selenium removal efficiencies of various species of wetland plants. The Department will continue to provide both biological and engineering assistance to this project. In other work, plans are being developed for a three-acre, salt-gradient solar pond system. This system, if agreements are reached, will be placed next to currently operating evaporation ponds and will demonstrate the ability to provide energy and store salts.

Evaporation Ponds

Operators of the agricultural evaporation ponds have implemented the waste-discharge requirements as adopted by the Central Valley Regional Water Quality Control Board in August 1994. Clean wetlands provide compensation for operation of the evaporation ponds; pond management for some systems have changed; and most structural modifications have been completed at the evaporation basins where required. Most of these mitigation procedures were developed by researchers funded through the Department's Evaporation Pond Investigation. As required, the pond operators compiled draft progress reports for the last 3 years of implementation and efficacy of these mitigation procedures. The Department is assisting the CVRWQCB in reviewing these reports (and any other required reports) for adequacy.

Petitions filed with the State Water Resources Control Board acted to strengthen the waste discharge requirements of the CVRWQCB. SWRCB held hearings on these petitions and remanded the EIRs of four operators back to the CVRWQCB for further environmental assessment. In response to the SWRCB's decision, and with guidance from the CVRWQCB, these four pond operators are rewriting their environmental impact reports on waste discharge permits. Several other pond operators came to agreement with the petitioners before the SWRCB finished its hearings and were not required to rewrite their EIRs.

The Department continues to fund and coordinate research on the evaporation ponds. A study on the nesting success of shore birds, conducted by the Biological Resources Division of the U.S. Geological Survey and funded by the Department, was completed, although the final report has been delayed.

The Westlake Demonstration Wetland, a cooperative project of the Department, Westlake Farms, USBR, U.S. Fish and Wildlife Service, and the Department of Fish and Game, has been operating since fall 1994. Information collected by the Department, USFWS, and consultants to Westlake Farms documented a high level of successful breeding by shore birds. This information has been valuable in the SWRCB proceedings discussed above and will help design shore bird wetlands throughout the western United States.

The Department drafted a report on a study that compares invertebrate productivity within the compensation wetlands and evaporation basins. This study will be useful to the evaporation pond operators and the regulatory agencies in assessing the usefulness of the mitigation wetlands.

During the next two years, the Department will conduct studies at Rainbow Ranch evaporation basin in Kern County. Operators are required to monitor selenium concentrations, along with other parameters, in shore bird eggs. Based on studies that the Department and USFWS conducted in the past, a relationship between water-borne selenium and selenium concentrations found in eggs has been described for the evaporation basins. For the last few years, the selenium levels in shore bird eggs at Rainbow Ranch have been lower than expected. Future studies conducted by the Department and Rainbow Ranch, Inc., will help explain why shore birds at their basin do not accumulate selenium within their tissues at the expected levels.

Environmental Impact Documents Review

The Environmental Review Section in the Division of Planning and Local Assistance screens State Clearinghouse documents and circulates SWP-related materials for review by the Department's four districts, as well as the divisions of Planning and Local Assistance, Operations and Maintenance, and Engineering. In addition, other divisions and offices are notified of activities and are requested to comment when their expertise is required.

Some environmental impact documents handled by the State Clearinghouse concern proposed activities that would affect the SWP. In 1989, an early warning system was developed by the Environmental Review Section under which State Clearinghouse documents are regularly reviewed to identify any public safety or liability issues arising from the proposed activities.

In the first year of operation, 25 environmental documents significant to the SWP were reviewed. In 1996, about 3,000 documents were screened by the Environmental Review Section with 124 referred for detailed review. The Division of Operations and Maintenance received 43 of these referrals. In addition to formal referrals, about 200 informal referrals were made to Department staff. These documents were referred to staff for information rather than comment.

Of the documents submitted for formal review, about 25 percent generated written comments submitted to the lead agency through the State Clearinghouse. These comments included safety and water supply concerns, encroachment on physical facilities, and water quality issues. Additional Department actions involving such items as encroachment permit submittals and informal comments have taken place, but cannot be tracked by the Environmental Review Section. From 1995 to 1996, the number of referrals for formal review and comment has increased by about 30 percent.

In December 1995, the weekly summary report on documents received from the State Clearinghouse became available by e-mail, increasing the reports' availability and speed of distribution, while actually reducing the distribution cost. In addition, the quality of information and speed of distribution increased enough to result in a greater number of requests for documents. The increase in requests was significant enough to start tracking document requests beginning in February 1996. Approximately 145 reports were requested by Department staff in 1996. Of these, nine were specifically related to SWP concerns. In addition, Environmental Review staff filled five requests by SWP contractors.

The Environmental Review Section ensures adequate review copies of documents of special interest to the Department. In 1996, the Environmental Review staff requested documents relating to the Mokelumne Aqueduct from the East Bay Municipal Utility District and documents on the Lake Perris Power Cove from the Department of General Services.

Water Conservation Bond Laws

To assist local agencies in obtaining financing for their water management programs, California voters passed three bond laws between 1984 and 1988 that authorized the Department to provide low-interest loans to fund project feasibility studies or construction activities. The Clean Water Bond Law of 1984 (Proposition 25) authorized $10.5 million for water conservation projects; the Water Conservation and Water Quality Bond Law of 1986 (Proposition 44) authorized $75 million for water conservation and groundwater recharge projects; and the Water Conservation Bond Law of 1988 (Proposition 82) authorized $60 million for water conservation, groundwater recharge, and new local water supply improvements.

Generally, construction loans were available for up to $5 million per project, with repayment up to 20 years at reduced interest rates for most programs. Among other loan approval criteria, applicants for these loans must demonstrate that project benefits exceed its costs. Typical types of projects fall under the following three categories:

Water Conservation

- Improvements to, or replacement of, distribution and storage systems;

- Lining and piping ditches;
- Water meters; and
- Water recycling distribution systems.

Groundwater Recharge

- Land and facilities for new artificial groundwater recharge; and
- Expansion of existing artificial groundwater recharge facilities.

Local Water Supply

- New conveyance and/or storage facilities;
- Groundwater facilities; and
- Desalination (ocean or brackish groundwater recovery).

Organized by project type, Table 7-1 summarizes the number of projects and funds committed for each of the three bond laws. As of June 30, 1997, more than $120 million has been committed to projects under all three bond laws, which amounts to most of the authorized funding.

In 1996, California voters approved the Safe, Clean, Reliable Water Supply Act (Proposition 204). It provides an additional $25 million for water conservation and groundwater recharge projects, $25 million for local projects, and $5 million for a single grant to finance groundwater recharge facilities in an area adversely impacted by the Base Closure and Realignment Act. Applications for funding under this program should be available from the Department's Division of Planning and Local Assistance in spring 1998, in accordance with regulations.

Table 7-1
Water Conservation Bond Laws Projects and Funding
(Millions of dollars)

Bond Law	*Type of Project*	*Number of Projects (a*	*Funding (a*
Clean Water Bond Law of 1984	Water Conservation	7	$ 9.7
Water Conservation/Water Quality Bond Law of 1986	Water Conservation	22	$36.0
	Groundwater Recharge	9	$28.0
	Subtotal	31	$64.0
Water Conservation Bond Law of 1988	Water Conservation	6	$13.5
	Groundwater Recharge	8	$24.3
	Local Water Supply	4	$ 9.0
	Subtotal	18	$46.8
Subtotals	*All Water Conservation*	35	$59.2
	All Groundwater Recharge	17	$52.3
	All Local Water Supply	4	$ 9.0
Total	**All Projects**	56	$120.5

a) Construction and feasibility loan commitments as of 6/30/97.

Information in this chapter was contributed by the Division of Planning and Local Assistance.

Chapter 8

Legislation and Litigation

Courtesy of The California State Capitol Museum, California Department of Parks and Recreation

The Assembly Chambers of the
California State Legislature

Significant Events

- Proposition 204 was approved by California voters on November 5, 1996, providing funding for a number of programs, including the Central Valley Improvement Program, Bay-Delta Agreement, flood control, Delta levee rehabilitation, water conservation and groundwater recharge, and other related projects.

Within the Department of Water Resources, the Assistant Director for Legislation monitors State and federal legislation introduced or enacted, including bills or laws that could impact the State Water Project. Similarly, the Office of the Chief Counsel tracks litigation of potential significance to the SWP and manages litigation involving SWP operations.

Legislation

AB 360 (Hannigan) (Chapter 601, Statutes of 1996) Delta Flood Protection Act Amendment
This law extends and broadens the authority of the Department to: (1) conduct special flood control projects at an additional eight islands in the West Delta, and on approximately 12 miles of levees bordering northern Suisun Bay; (2) improve riparian, fisheries, and wildlife habitat as part of special flood control and levee subventions projects; (3) add federal "project" levees to the special projects and subventions program; (4) assist the Resources Agency in preparing recommendations for beneficial reuse of dredge material; (5) prepare a Delta levee emergency response plan; (6) cooperate with the U.S. Army Corps of Engineers to develop and implement levee rehabilitation and environmental enhancement; and (7) continue to administer the program through July 1, 2006. Before SB 360 could become effective, Proposition 204 had to be approved by the voters. Proposition 204 was approved on November 5, 1996.

AB 1890 (Brulte) (Chapter 854, Statutes of 1996) Electric Industry Restructuring
This law amends the Public Utilities Act to require investor-owned and municipal utilities to seek Federal Energy Regulatory Commission approval to restructure California's electric industry to ensure reduced rates to consumers.

AB 2334 (Cortese) (Chapter 581, Statutes of 1996) Geothermal Heat Exchange Wells
This law requires the Department to develop standards for the construction, maintenance, abandonment, or destruction of geothermal heat exchange wells.

SB 900 (Costa) (Chapter 135, Statutes of 1996) Safe, Clean, Reliable Water Supply Act of 1996
This law would authorize $995 million in general obligation bonds for financing various programs, including Delta improvements, clean water and water recycling, water supply reliability, and CALFED Bay-Delta Ecosystem Restoration. Proposition 204 was approved by the voters on November 5, 1996. See Table 8-1 for programs to be funded by Proposition 204.

SB 1673 (Johnston) (Chapter 568, Statutes of 1996) Delta Protection Commission
This law would extend the existence of the Delta Protection Commission to January 1, 1999; require it to meet only bimonthly; and repeal the 10 percent assessment on fines for violations occurring in the Delta as a source of funding for the Commission.

Litigation

As of June 30, 1997, the Department was involved in a number of court cases related to management of the SWP. In addition, the Department monitored other cases that could significantly impact management of the SWP.

North Delta Water Agency v. State of California
In 1994, the North Delta Water Agency brought suit against the Department, seeking declaratory relief regarding departmental obligations under the 1981 water quality contract. The 1981 contract provides that the Department is to meet certain water quality standards, tested for at Emmaton at Sherman Island, and provide permits relocating the Emmaton standard to Threemile Slough upon completion of an

Table 8-1
Programs Funded by Proposition 204

Program	*Funding*
Central Valley Project Improvement Program	$93M, State share for fish/wildlife restoration required by CVPIA or the courts; administered by the Department and DFG.
Category III of Bay-Delta Agreement	$60M, nonflow related projects, administered by Resources Agency.
Delta Levee Rehabilitation	$25M, levee rehabilitation with net long-term habitat improvement; administered by DFG and the Department.
South Delta Barriers Program	$10M, State's share of nonfederal cost of south Delta barriers; administered by the Department.
Delta Recreation	$2M, public access to Delta land and water; Department of Parks and Recreation program.
CALFED Bay-Delta Program	$3M, to the Department for CALFED administration.
Water Pollution Control Facilities	$80M, loans to local agencies with 5:1 State/federal ratio, SWRCB program.
Small Communities Pollution Control Facilities	$30M, need-based grants to local communities for wastewater treatment facilities, SWRCB program.
Water Recycling Program	$60M, loans to local agencies for recycling projects, SWRCB program.
Agricultural Drainage Management Program	$30M: $27.5M for loans for projects, except injection wells, to reduce agricultural drainage problems; $2.5M for grants for Salton Sea, SWRCB program.
Delta Tributary Watershed Management Program	$15M, grants of up to $1M, administered by SWRCB, in consultation with DFG and Department of Forestry and Fire Protection, with written comments from Resources Agency.
Saltwater Intrusion Control	$10M, loans to local agencies to protect groundwater from saltwater intrusion, SWRCB program.
Lake Tahoe Water Quality	$10M, to Tahoe Conservancy for grants for land and improvements.
Feasibility Studies	$10M, to the Department for studies of off-stream storage, regional water recycling, desalination, and water transfer facilities for delivering Colorado River water.
Water Conservation/Ground Water Recharge	$30M: $25M for loans to departmental program for water conservation and groundwater recharge as revolving fund; $5M for grants for communities with base closure problems.
Local Projects	$25M, loans (up to $5M; or up to $1M for land acquisition) for water development and grants for feasibility studies (up to $500K); administered by the Department.
Sacramento Valley Water Management and Habitat Mitigation Measures	$25M, non-SWP/CVP funding to implement the SWRCB's Bay-Delta Water Quality Control Plan of May 22, 1995; departmental program.
River Parkway Program	$27M, restoration and habitat projects along rivers and streams; contingent upon appropriation by Legislature.
CALFED Bay-Delta Ecosystem Restoration Program	$390M, funds for CALFED recommendations for actions common to all alternatives, with trigger mechanism.
Flood Control	$60M, to the Department for flood control projects.
Trigger Mechanism	Incremental expenditure of funds tied to CALFED EIR/EIS and permits.
Continuous Appropriation	All programs, except river parkways.
Administrative Costs	All programs.
Low Interest Loans	All loan programs provide interest rates of 50 percent of current bond rate.

overland facility to service agricultural lands on Sherman Island.

Under the West Delta Wildlife Management Plan, the Department proposed to purchase land on Sherman Island from willing sellers in lieu of installing an overland facility. Delays in land acquisition occurred because of differences on land prices. In the 1994 lawsuit, the NDWA asserted that the 1991 settlement agreement expired at the end of that year and requested a judicial declaration that the Department was still obligated to meet the Emmaton standard.

In February 1995, the parties entered into a settlement agreement that included a 1-year interim agreement relating to water quality standards and drought relief, and an agreement regarding interpretation of the 1981 contract provisions relating to the overland facility.

Pursuant to the settlement agreement entered into in 1995, the contract between the Department and the North Delta Water Agency was amended to shift the monitoring station from Emmaton to Threemile Slough. The Department's purchase of land on Sherman Island was recognized to be in place of the planned overland facility.

Porgans, et al. v. Babbitt, et al.

On December 7, 1993, Patrick Porgans and the California Sportfishing Protection Alliance filed a claim based on the Department and the U.S. Bureau of Reclamation 1991-92 exceedances of Decision 1485 water quality standards in the Bay-Delta Estuary. The exceedance in the salinity standards occurred during the last 2 years of the 6-year drought, which were critically dry according to the classification set forth in D-1485. In 1992, SWRCB held a hearing where the Department, USBR, and other interested parties presented information on compliance with D-1485. In 1993, after closed sessions and a review of the record regarding impacts of the exceedance, the SWRCB noted that minimal harm occurred and that it would not take any action against the Department or USBR.

The case was removed to federal district court in March 1994, where the court dismissed the claim against the federal defendants. The case was remanded to State Superior Court. Plaintiffs requested to dismiss the case and the State Superior Court dismissed the action September 9, 1996.

Golden Gate Audubon Society v. State Water Resources Control Board

On May 31, 1991, several environmental groups filed a lawsuit to set aside the Water Quality Control Plan for the Bay-Delta Estuary adopted earlier that month by the SWRCB. The plan was adopted at the end of the second phase of the Bay-Delta hearings. In the suit, the groups allege that the plan is defective because it does not include flow objectives and that the California Environmental Quality Act was violated because the SWRCB failed to consider flow alternatives. The Department intervened in support of the SWRCB. In December 1994, the SWRCB circulated a *Draft Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary.* After public hearings and comments, the plan was adopted in May 1995; subsequently, the Audubon lawsuit was dismissed except for a claim against the SWRCB for attorneys' fees. The Sacramento County superior court judge ruled that the plaintiffs were not entitled to attorneys' fees.

San Joaquin Tributaries Association, et al. v. State Water Resources Control Board, et al.; County of San Joaquin, et al. v. State Water Resources Control Board, et al.; and Central Delta Water Agency, et al. v. United States, et al.

As discussed above, the SWRCB adopted a water quality control plan for the San Francisco Bay/Sacramento-San Joaquin estuary in May 1995, which is based on the December 15, 1994, Principles for Agreement. The plan specifies water quality objectives for the Bay-Delta estuary. In June 1995, the SWRCB adopted Water Rights Order 95-6, which implemented parts of the May 1995 Water Quality Control Plan on an interim basis. Three different related lawsuits have been filed challenging either the plan or Water Rights Order 95-6.

In *San Joaquin Tributaries Association, et al. v. State Water Resources Control Board, et al.*, a group of irrigation districts located on the San Joaquin River filed a lawsuit in superior court in June 1995 to set aside the May 1995 WQCP. The Department intervened in the case. The lawsuit raised a host of legal challenges, including insufficient evidence in the record to support the plan, noncompliance with CEQA, and violation of area-of-origin laws. The case was settled before it reached trial. The SWRCB agreed to hold a hearing to reconsider the Vernalis flow objective and plaintiffs dismissed the lawsuit.

In *County of San Joaquin, et al. v. State Water Resources Control Board, et al.*, a group of public entities that receive water from New Melones Reservoir and Delta entities filed a lawsuit in superior court challenging Water Rights Order 95-6 on the basis that it failed to comply with California Environmental Quality Act, violated the statutory no-injury rule, violated the area-of-origin laws, and denied plaintiffs' due process rights. The Department was named as a real party in interest in the lawsuit. In February 1996, the trial court dismissed the case, ruling that the USBR was an indispensable party to the

case and had not been properly joined in the case. Plaintiffs appealed the case in April 1996. In May 1997, the Third District Court of Appeal issued a published opinion, affirming the trial court's decision to dismiss the case on the basis that USBR was an indispensable party. Plaintiffs petitioned the California Supreme Court for review, which was denied.

In *Central Delta Water Agency, et al. v. United States, et al.*, three plaintiffs from the County of San Joaquin lawsuit filed an action in federal court, raising the same issues that they had raised earlier in State court, challenging the validity of Water Rights Order 95-6. The lawsuit named the Department and the Director of the Department as defendants.

In August 1996, the Department and the SWRCB filed a motion to dismiss the lawsuit on the basis of the Eleventh Amendment and other grounds. The motion was granted for both the Department and the SWRCB, except for due process claims against individual SWRCB members. This ended the Department's involvement in the lawsuit. A motion to dismiss filed by USBR was also granted with leave to amend for all claims except for the claim relating to the USBR's operation of New Melones. The Central Delta case was consolidated with another federal lawsuit, *Stockton East Water District v. United States*. In that lawsuit, Stockton East Water District challenged the USBR's operation of New Melones on a variety of legal theories.

Planning and Conservation League, Plumas County, and Santa Barbara Citizens Planning Association of Santa Barbara County v. Department of Water Resources and Central Coast Water Authority

The Planning and Conservation League filed a lawsuit on December 27, 1995, against the Department and Central Coast Water Agency, challenging the Department's implementation of the Monterey Amendment. The lawsuit alleged that the Department and CCWA had not complied with the California Environmental Quality Act. PCL amended the lawsuit February 13, 1996, alleging that the Department could not legally transfer the Kern Water Bank to Kern County Water Agency as part of the Monterey Amendment. PCL sought an injunction to stop the transfer.

After a hearing held May 17, 1996, a Sacramento County superior court judge ruled in favor of the Department and CCWA on all causes of action, and dismissed the lawsuit. In regard to the CEQA causes of action, the court ruled that the Department should have served as lead agency, but that this was a harmless error, not requiring the rewriting of the Monterey Agreement environmental impact report. The court also ruled that PCL had failed to join indispensable parties in the lawsuit, including the Metropolitan Water District of Southern California and Kern County Water Agency, in its cause of action to enjoin the transfer of the Kern Water Bank. On August 15, 1996, judgment was entered in favor of the Department and CCWA.

As a result of the trial court's ruling, the Department proceeded to implement the Monterey Amendment, including transferring the Kern Water Bank to Kern County Water Agency. On August 20, 1996, PCL appealed the decision to the Third District Court of Appeal and sought a writ to prevent further implementation of the Monterey Amendment during the appeal. The Department and CCWA opposed the writ. The Court of Appeal denied the writ application on September 26, 1996.

On November 26, 1996, Kern County Water Agency and other contractors moved to have the appeal dismissed as it related to the trial court's ruling on indispensable parties. The motion was based on PCL's failure to file the appeal on this ruling in a timely manner. The Court of Appeal ruled in favor of KCWA and the other indispensable parties and dismissed the appeal against them. PCL petitioned the California Supreme Court for review, which was granted on the issue of whether PCL filed its appeal in a timely manner. The Court of Appeal suspended the remainder of the appeal pending a decision by the Supreme Court. The Supreme Court is expected to issue an opinion in 1998.

On May 2, 1996, the San Bernardino Municipal Water District filed a cross-complaint against the Department as part of the Monterey litigation. On October 22, 1996, the Department and San Bernardino entered into an agreement dismissing the San Bernardino cross-complaint without prejudice. The Department and San Bernardino also agreed to enter

into studies to resolve the problems relating to high groundwater levels in San Bernardino's service area.

Southern California Bass Council, et al. v. State of California

In late November 1994, the Southern California Bass Council, the Sierra Club, and the Audubon Society filed suit against the Department, challenging under CEQA the Department's Mitigated Negative Declaration prepared for the reconstruction of the intake tower at Silverwood Reservoir. The Department was directed by the Federal Energy Regulatory Commission to replace the existing intake tower to the San Bernardino Tunnel because the existing tower did not meet current seismic standards. The petitioners claimed the Department's environmental documentation did not provide sufficient mitigation for adverse effects on the environment, including impacts on fisheries and the bald eagle.

At an April 1995 hearing in San Bernardino Superior Court, Judge John Kennedy, Jr., ruled that the Department's mitigation measures were indeed sufficient to minimize any significant impacts on the environment. The ruling validated the Department's plans to mitigate possible adverse effects on fish and wildlife resources, including the bald eagle, and recreation at the lake.

In June 1995, the petitioners filed an appeal from the trial court judgment. No order for stay (to prevent work from proceeding) was filed, and construction at Silverwood began in September 1995.

On October 17, 1996, the Court of Appeal affirmed the Mitigated Negative Declaration in all respects but one. As to fishery mitigation, the appellate court held that the Mitigated Negative Declaration should have included either a commitment to the specific nature and extent of restocking the fishery or specific standards under which the Department and the DFG would determine the nature and extent of restocking.

Petitioners then filed a petition for review with the California Supreme Court, seeking to invalidate the entire Mitigated Negative Declaration. On January 22, 1997, the California Supreme Court denied the petition for review, and jurisdiction was returned to the Superior Court. A hearing was held in San Bernardino Superior Court May 2, 1997, and the Department presented its Fishery Mitigation Plan. Further briefing occurred on the merits of the plan, and oral argument is scheduled for December 19, 1997. Work on replacement of the intake tower was substantially completed by May 1997.

Department of Water Resources v. Nevada Power Company

The Department and Nevada Power Company are co-owners of Reid Gardner Unit 4, a coal-fired electric generating plant near Las Vegas, Nevada. NPC operates the plant and bills the Department monthly for a portion of the costs of operation. A monthly transmission service charge, calculated according to a formula in the Participation Agreement for the plant, is included in the monthly bill. For several years, NPC has been including in the service charge the cost of constructing and operating a transmission line between Utah and Nevada. The Department believed that it received no benefit from the line, but NPC had refused to omit this part of the service charge from the Department's bill.

The Department filed suit in Sacramento County Superior Court in January 1995, seeking a declaration that the costs of the Utah/Nevada line be excluded from the Department's service charge, and seeking damages of $1.4 million, the amount that the Department had overpaid when the suit was filed. In fall 1994, the Department had filed a similar complaint with the Federal Energy Regulatory Commission, which had taken no action by the time the suit was filed. In November 1995, the Superior Court granted NPC's motion to stay the lawsuit pending some action by FERC, but in November 1996 the court lifted the stay because FERC had failed to act. The parties participated in a mediation in early 1997, which resulted in a settlement of the dispute. The settlement agreement specifies what may be included in the transmission service charge, requires NPC to pay the Department $250,000 in cash, and provides the Department with a specified quantity of transmission service, free of charge, for the remaining life of the Participation Agreement (an item that the Department valued at over $900,000). The superior court lawsuit and the FERC complaint have been dismissed.

City of Barstow v. City of Adelanto

This action is a stream/groundwater adjudication for the Mojave River Basin. The Department was named in a cross-complaint by the city of Adelanto, which alleged that the Department should be making additional releases of water, pursuant to Fish and Game Code Section 5937, for fish populations below Silverwood Lake. The Department's position is that there is no legal support for application of Section 5937 to imported water.

The Department claims no rights to the Mojave River. However, pursuant to an agreement with Las Flores Ranch, the Department provides water to the ranch through the Mojave Siphon based on flows of tributaries into Silverwood Lake. The original diversion works of Las Flores Ranch were rendered unusable by the construction of Cedar Springs Dam and Silverwood Lake. The cross-complaint against the Department was dismissed with prejudice in summer 1995.

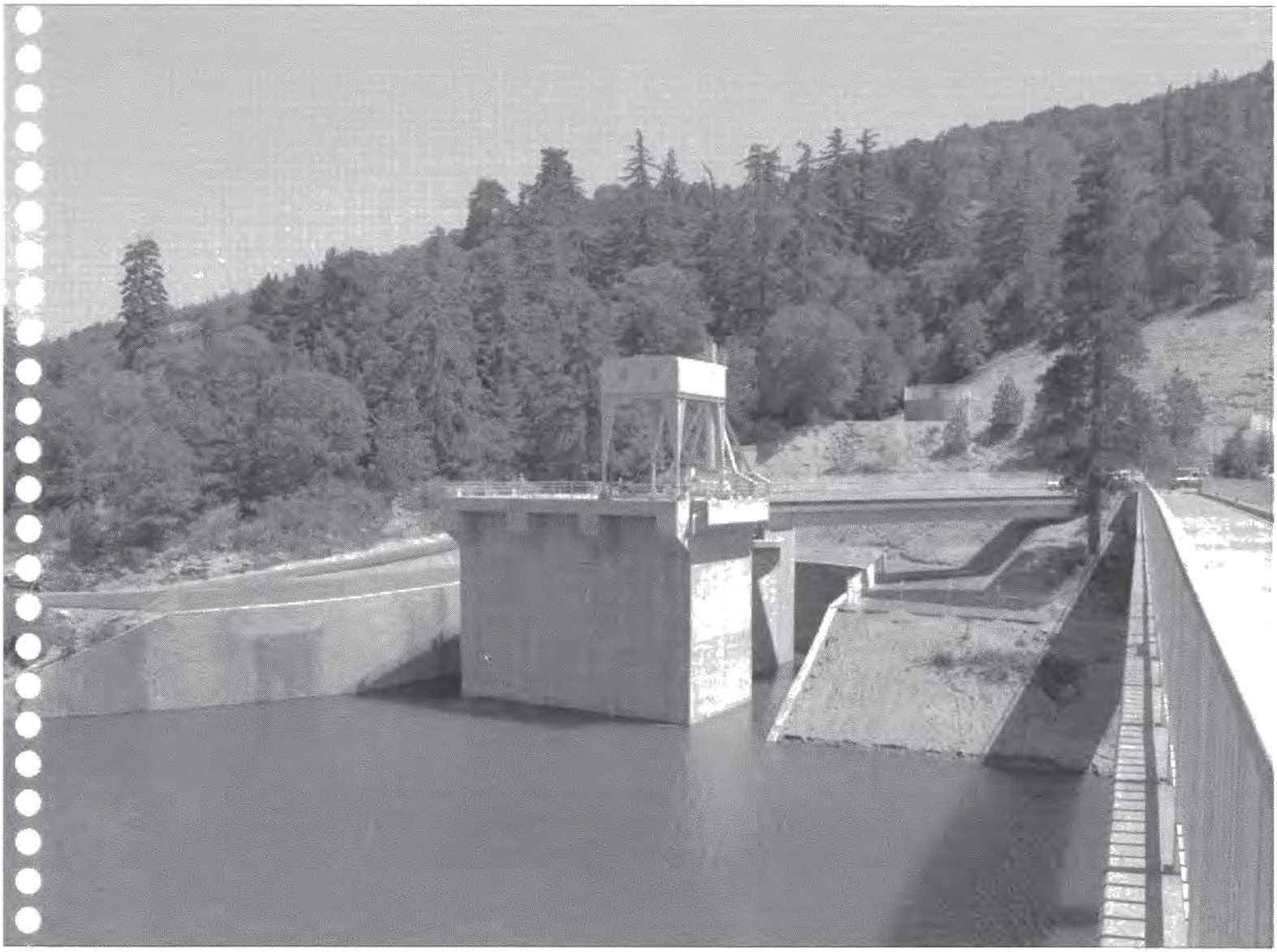
Information for this chapter was contributed by the Assistant Director for Legislation and the Office of the Chief Counsel.

Part III

State Water Project Operations

Chapter 9

Water Supply and Allocation



New outlet structures at Silverwood Lake

Significant Events

- On December 1, 1995, the Department approved 2,235,431 acre-feet of the 2,687,307 acre-feet requested entitlement water for long-term SWP contractors in 1996. SWP supplies were projected to meet at least 75 percent of most SWP contractors' requests.
- By March 4, 1996, because of late storms, the Department had approved 90 percent of Table A or the initial request, whichever was less. A total 2,508,443 acre-feet was approved.
- On March 8, 1996, updated snow survey information prompted the Department to further increase the approvals to 100 percent. A total 2,701,707 acre-feet was approved.
- On December 2, 1996, the Department approved 2.4 million acre-feet of the 3 million acre-feet of requested entitlement water for long-term SWP contractors in 1997. SWP supplies were projected to meet at least 70 percent of most SWP contractors' requests. Interruptible water was made available to SWP contractors on December 2.
- SWP water deliveries for 1996 through December 31 were 2.4 million acre-feet, representing a combination of annual entitlement, carryover, interruptible, and exchange waters. This is 400,000 acre-feet more than delivered during the same period in 1995.

To meet contracted obligations to the State Water Project long-term water supply contractors, the Department of Water Resources monitors precipitation, calculates runoff, and operates facilities as required.

During each water year, from October 1 through September 30, the Department monitors and records precipitation, runoff, and reservoir water storage.

Water Year 1995-1996

Precipitation and Runoff

Water year 1995-1996 was the second wet year in a row, although not as wet as the previous year. The year started dry with less than 10 percent of average rainfall during the fall months. These were followed by 3 consecutive wet winter months. March and April were near average for most of California. Only the far south was drier than average. Following the extremely wet 1994-1995 and the extremely dry 1993-1994 water years, this water year was the closest to average in the last 20 years. The May 1 outlook was for moderately above-normal runoff, with 110 percent of average snowmelt runoff.

A surprise winter-like storm hit the central and northern Sierra in mid-May and dumped more than three times the average rainfall for the month. Reservoir storage was already high as operators tried to top off storage from spring snowmelt. The rain boosted mountain runoff to flood levels, especially in the central Sierra. The heavy inflow required flood control releases at most major foothill reservoirs. Statewide runoff during May was nearly 150 percent of average. Summer precipitation was near average, with temperatures far above average in Central California in June, July, and August.

Figure 9-1 shows statewide precipitation in water year 1995-1996, by hydrologic region, as a percent of average.

Statewide runoff was 120 percent of average for water year 1995-1996, compared to 180 percent the previous year. After a slow start, runoff was about two-thirds of average for the first 3 months of the water year. Runoff continued slightly below-average in January, and then jumped to more than double the February average due to a warm storm early in the month. From March through June, runoff was above-average, with large flows in May.

Los Banos Reservoir experienced more than 1,800 acre-feet of inflow in 9 days as a result of November storms. A controlled release of 100 cfs at the detention dam was made from November 22 to November 27 to decrease storage.

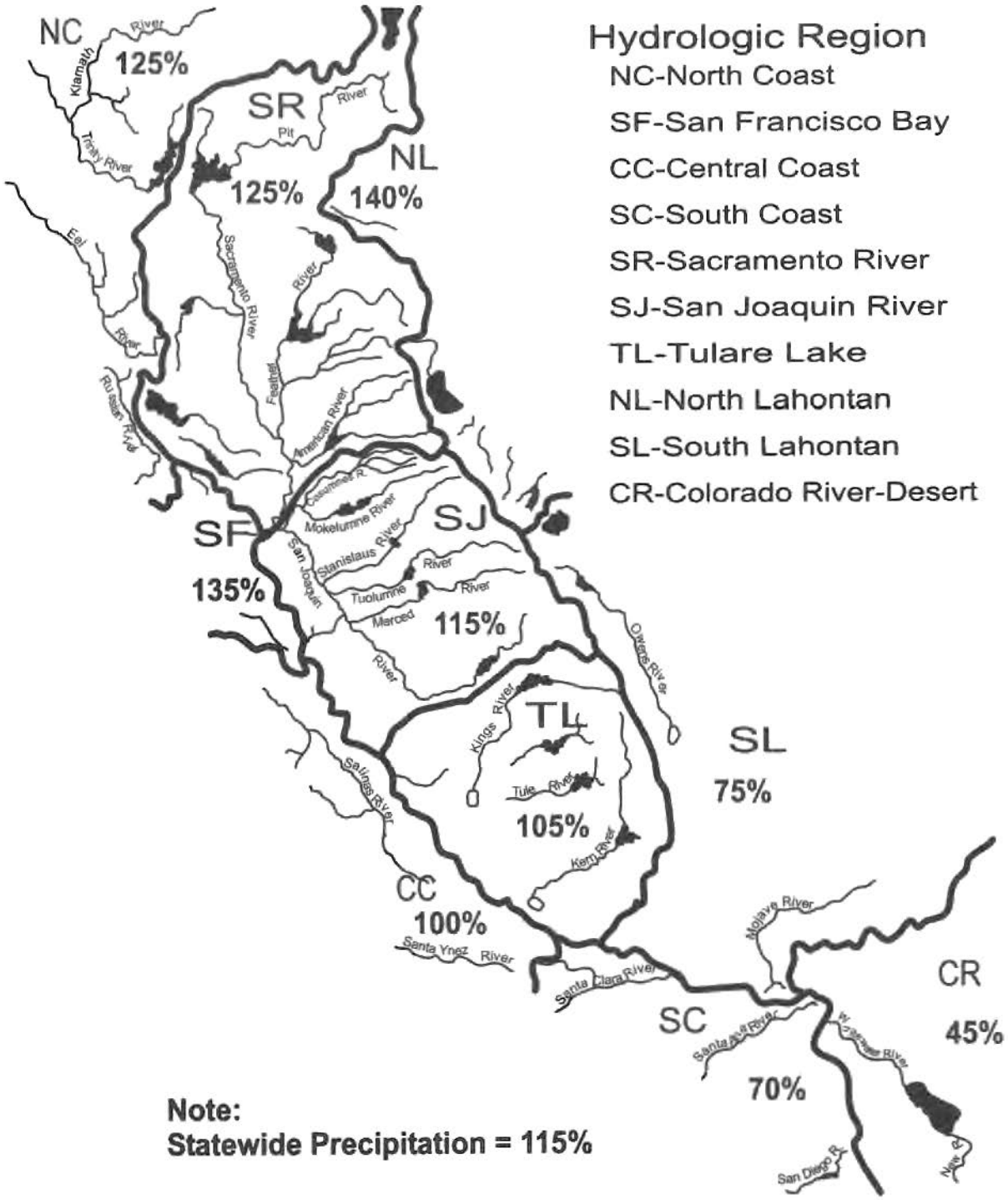
Summer runoff was average. Sacramento River Basin unimpaired runoff totaled 22.2 million acre-feet for the water year—121 percent of average. San Joaquin River system unimpaired runoff (including the Stanislaus, Tuolumne, Merced, and upper San Joaquin rivers) was 7.2 million acre-feet—125 percent of average. Runoff during the snowmelt period from April through July was 125 percent of average for the Sacramento River Basin and 120 percent of average for the San Joaquin River Basin. This was due in part to the unseasonably high May precipitation, as snowpack was below-average for most of the

Early 1997 Flood Flows

The remainder of calendar year 1996 had below-average precipitation in October and above-average in November. A series of storms throughout December, several with very high snow lines, provided three-and-a-half times the average precipitation for the month, and resulted in large flood releases throughout the Sacramento system. This led to the record flood flows in early January 1997.

Increased Lake Oroville inflows drove lake storage into flood reservation space for 6 days in mid-December, to nearly 2.9 million acre-feet compared to 2.7 million acre-feet at the same time in 1995. On December 31, daily reservoir average inflow peaked at just over 171,000 cfs at Oroville. Daily average releases peaked at 77,000 cfs on the same day. The January 1, 1997, inflows and releases at Lake Oroville exceeded all historical values. Feather River releases for the month of December totaled nearly 1.1 million acre-feet.

Figure 9-1
Statewide Precipitation by Hydrologic Region, 1995-1996 Water Year, in Percentage of Average



winter due to the warm storms. April 1 snowpack was 95 percent of average, compared with 175 percent in 1995 and 50 percent in 1994.

Lake Oroville released nearly 85,000 acre-feet from May 18 to 25. Another 20,000 acre-feet were released throughout May from Antelope and Frenchman lakes. These releases minimized encroachment and avoided potential flooding to downstream orchards and fields. They also allowed Lake Oroville to top out at elevation 899.5 feet on May 22.

Storage

The SWP operates a complex system of 28 dams and reservoirs to collect and store water for future deliveries. Lake Oroville, in Northern California, is the first of two primary SWP conservation facilities. Inflow to Lake Oroville is from the Feather River.

San Luis Reservoir, in the central part of the State, is the second primary SWP conservation facility and derives its inflow from pumping at Gianelli Pumping-Generating Plant. San Luis is off-stream storage with all water in the reservoir being pumped in. The remaining 26 dams and reservoirs regulate the conserved supply into water delivery patterns designed to fit local needs.

Reservoir storage at the end of September 1996 was about 120 percent of average compared to 130 percent in 1995. Total storage in major SWP reservoirs was about 4.1 million acre-feet on September 30, about 500,000 acre-feet less than the storage at the same time in 1995. September 30 storage at Lake Oroville was about 2.7 million acre-feet, about 200,000 acre-feet less than last year. The State's share of San Luis Reservoir storage was about 740,000 acre-feet compared to 1.07 million acre-feet last year. Storage in San Luis increased during September due to the decreasing summer delivery demands. The combined storage in southern reservoirs was 626,000 acre-feet on September 30 compared with 669,000 acre-feet last year.

Total storage in major SWP reservoirs was about 4.6 million acre-feet on December 31, compared with 4.2 million acre-feet in 1995. The State's share of San Luis Reservoir storage was about 1.1 million acre-feet, compared with 0.9 million acre-feet at the same time in 1995. The combined storage in southern reservoirs was 615,000 acre-feet on December 31 compared with 597,000 acre-feet in 1995.

The following information about these reservoirs, including amounts of unimpaired runoff to Lake Oroville and storage levels for SWP conservation and other storage facilities, is based on the 1995-1996 water year.

Lake Oroville. Lake Oroville, the keystone of the SWP, has a maximum capacity of 3,537,580 acre-feet. Runoff from the Feather River is collected and stored in the reservoir for release to the Sacramento-San Joaquin Delta through Oroville Dam, Thermalito Diversion Dam, and Thermalito Afterbay.

Inflow to Lake Oroville for the 1995-1996 water year totaled about 5.7 million acre-feet—127 percent of average. Minimum storage occurred December 29, 1995, at 2,687,877 acre-feet—76 percent capacity. Maximum storage occurred May 22, 1996, at 3,529,838 acre-feet—slightly less than 100 percent of capacity. See figures 9-2 and 9-3 for monthly and cumulative inflow into Lake Oroville. Figure 9-4 compares end-of-month storage at Lake Oroville for the 1995 and 1996 calendar years.

San Luis Reservoir. The Department and the U. S. Bureau of Reclamation operate San Luis Reservoir jointly according to operating procedures completed in June 1981. San Luis Reservoir has a normal operating capacity of 2,027,840 acre-feet. The SWP share of capacity is 1,062,183 acre-feet.

At the beginning of the 1995-1996 water year, San Luis Reservoir contained 1,526,420 acre-feet—75 percent of its capacity. The SWP share was 1,066,634 acre-feet. By March 4, San Luis Reservoir reached its maximum storage for 1996 at 2,034,956 acre-feet—slightly more than 100 percent of normal maximum operating capacity. The highest end-of-month SWP share of storage was in October 1995 at 1,118,444 acre-feet (Figure 9-5).

Lake Del Valle. Lake Del Valle, situated off the South Bay Aqueduct, primarily stores water for use in Santa Clara and Alameda counties. At the beginning of the 1995-1996 water year, Lake Del Valle

Figure 9-2
Monthly Inflow into Lake Oroville from Feather River, 1994-96 Water Years

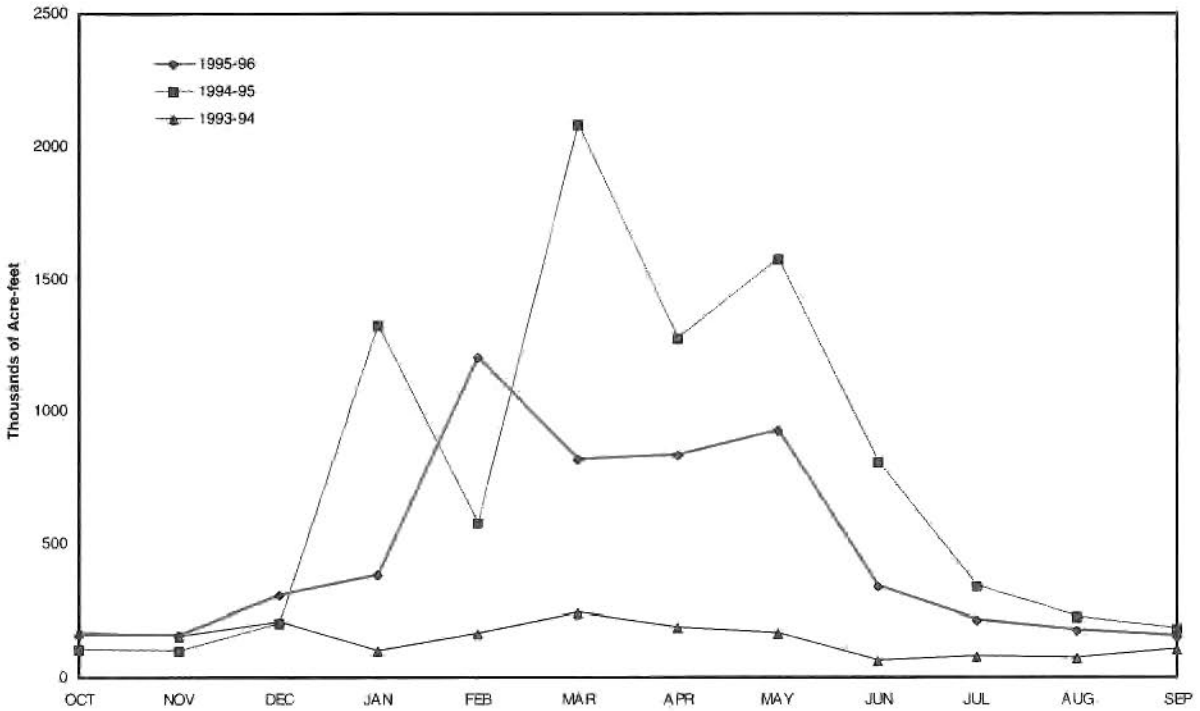


Figure 9-3
Cumulative Inflow into Lake Oroville from Feather River

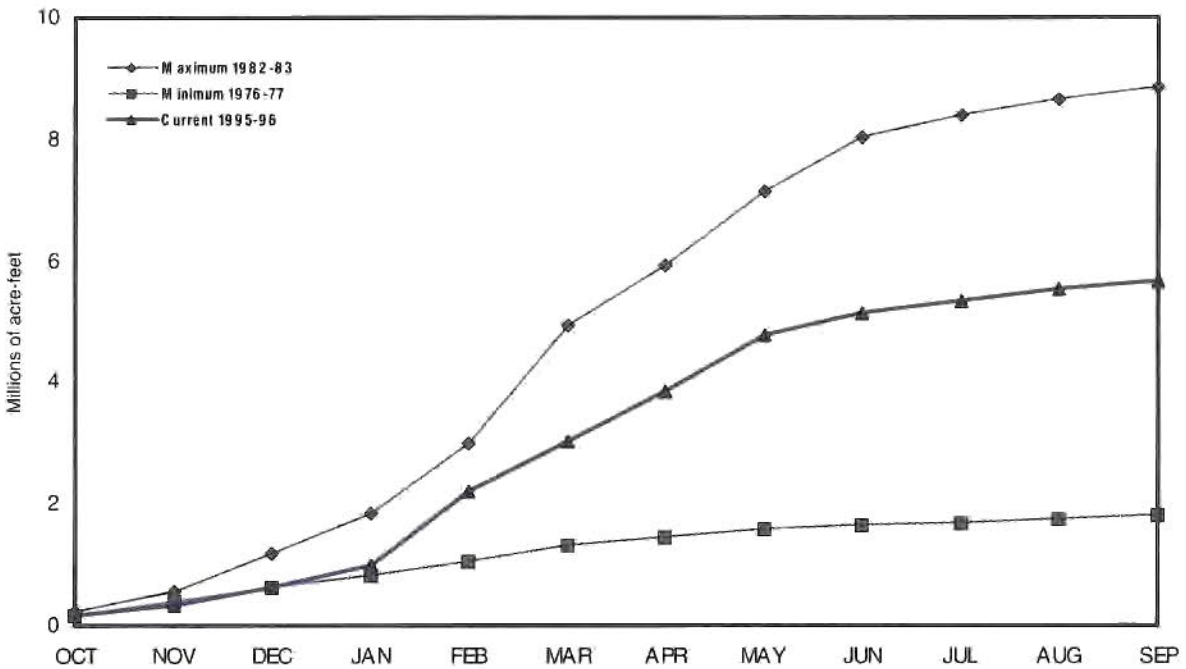


Figure 9-4
End-of-Month Storage in Lake Oroville, 1995 and 1996 Calendar Years

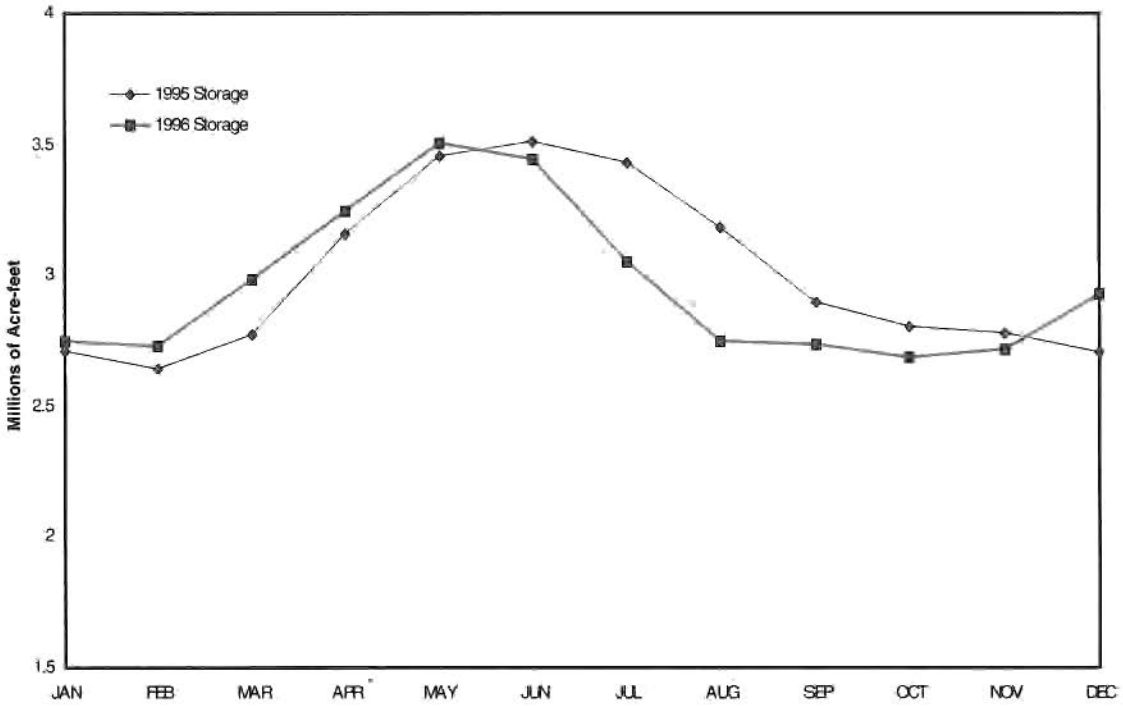
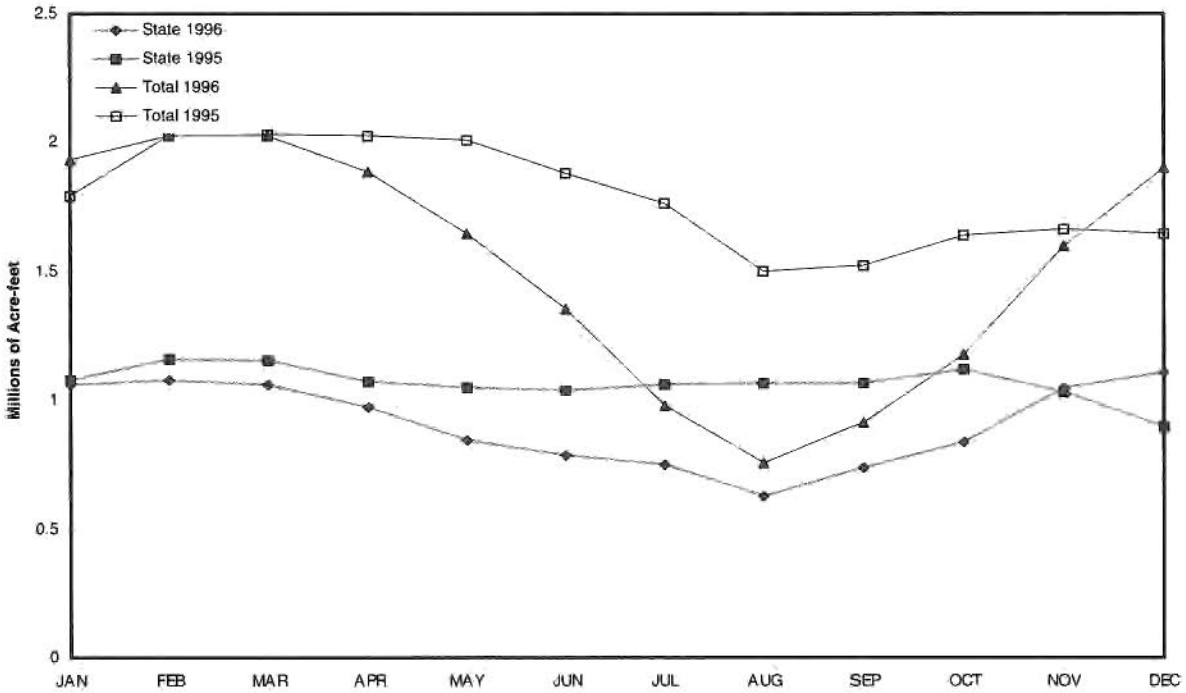


Figure 9-5
End-of-Month Storage in San Luis Reservoir, 1995 and 1996 Calendar Years



held 34,451 acre-feet—about 86 percent of normal maximum operating capacity (39,914 acre-feet). Its highest storage occurred February 21, 1996, at 48,296 acre-feet.

By the end of the 1995-1996 water year, storage in Lake Del Valle dropped to 33,061 acre-feet—82 percent of normal maximum operating capacity. Releases to Arroyo Valle and South Bay Aqueduct from Lake Del Valle totaled 49,237 acre-feet for the 1995-1996 water year.

Southern Reservoirs. During normal operating conditions, the Department maintains its four southern reservoirs—Pyramid, Castaic, and Silverwood lakes and Lake Perris—at or near full operating capacity to ensure uninterrupted deliveries of water to Southern California contractors.

At the beginning of the 1995-1996 water year, these reservoirs held 644,745 acre-feet—92 percent of their combined normal maximum operating capacity of 701,321 acre-feet. At the end of the 1995-1996 water year, they held 608,135 acre-feet—87 percent of combined normal maximum operating capacity.

Diversions from the Delta

The SWP diverts water from the Sacramento-San Joaquin Delta through Banks and Barker Slough pumping plants for delivery to SWP storage facilities and contractors. In 1996, the SWP diverted 3,243,209 acre-feet at Banks Pumping Plant, including 186,990 acre-feet of CVP water wheeled by the Department. Figure 9-6 shows the amounts of water pumped each month at Banks Pumping Plant; Figure 9-7 shows the monthly amounts of water diverted from the Delta by the SWP and CVP in 1996.

During the week of December 12 to 16, the SWRCB approved pumping of CVP water at Banks Pumping Plant to facilitate high exports during a juvenile-salmon migration study being conducted by USFWS. SWP storage in San Luis was already slightly above its allocated share and delivery requests were less than 2,000 cfs, making capability available at Banks Pumping Plant. SWP pumping into San Luis was suspended December 10 when storage reached the desired goal of 1.12 million acre-feet. During the 5 days, 46,324 acre-feet was pumped for the CVP, primarily for the federal share of San Luis Reservoir.

Combined SWP and Central Valley Project exports increased to 3,200 cfs May 16 following a 31-day period of exports limited to about 1,500 cfs to benefit juvenile salmon migrating down the San Joaquin River system. Both SWP and CVP increases were pumped at Banks Pumping Plant during the initial 5 days to comply with a ramping provision in the south Delta temporary barriers' permit from the U.S. Army Corps of Engineers. Combined exports were progressively increased at both Banks and Tracy beginning May 21 to 10,300 cfs (6,000 SWP and 4,300 CVP) on May 25. Exports were maintained at that level through the end of May.

The SWP also diverted 36,458 acre-feet at the Barker Slough Pumping Plant to deliver through the North Bay Aqueduct for use by North Bay Aqueduct water contractors.

From Banks Pumping Plant, water is either delivered to the South Bay area through the South Bay Aqueduct or to the San Joaquin Valley, Central Coastal, and Southern California areas through the California Aqueduct.

In the San Joaquin Valley near Kettleman City, the existing Coastal Branch of the Aqueduct serves agricultural areas west of the California Aqueduct. This branch is now being extended to serve municipal and industrial water users in San Luis Obispo and Santa Barbara counties. The extended Coastal Branch is scheduled to be completed in 1997. In 1996, SWP water delivered to the San Joaquin Valley totaled 2,352,651 acre-feet. Figure 9-8 shows the amount of water delivered each month.

In 1996, water pumped through Edmonston Pumping Plant for delivery to Southern California totaled 836,771 acre-feet. Figure 9-9 shows the amount of water pumped each month.

Information for this chapter was provided by the Division of Flood Management, the Division of Operations and Maintenance, and the State Water Project Analysis Office.

Figure 9-6
Water Pumped at Banks Pumping Plant in 1996, by Month

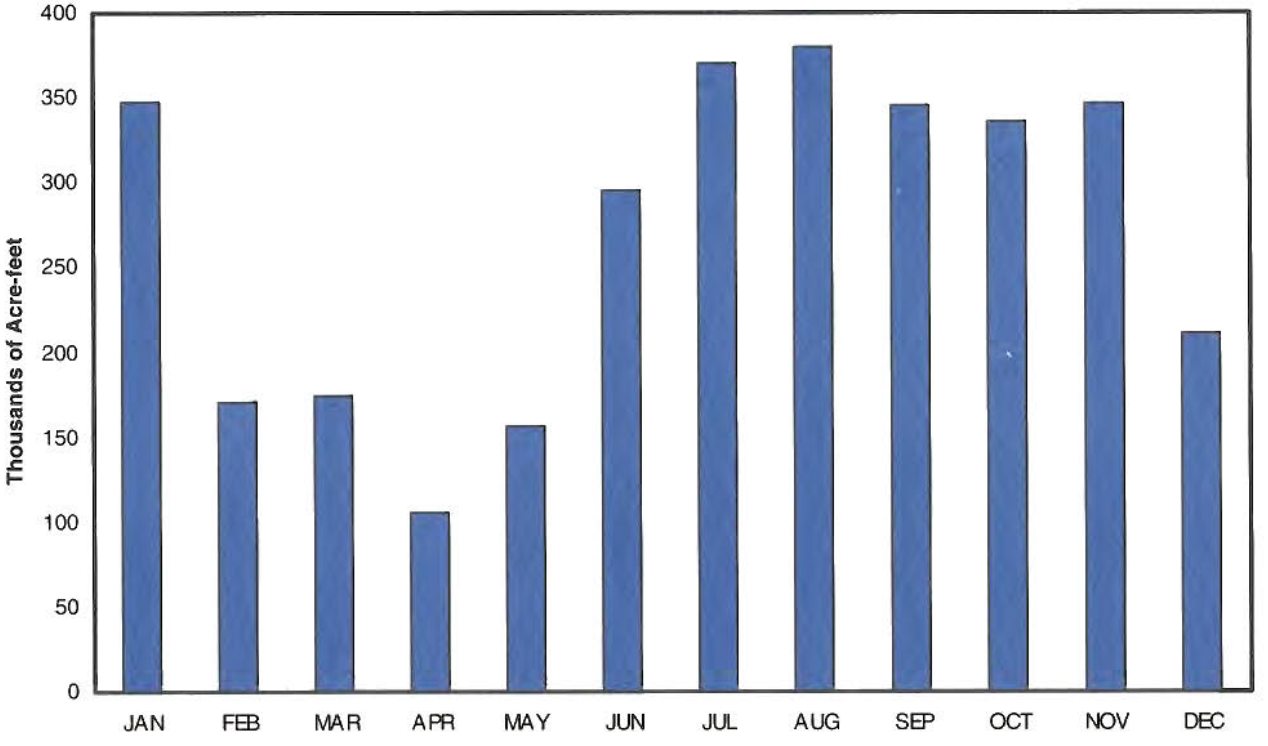


Figure 9-7
Water Diverted from the Sacramento-San Joaquin Delta by State Water Project and Central Valley Project in 1996 by Month

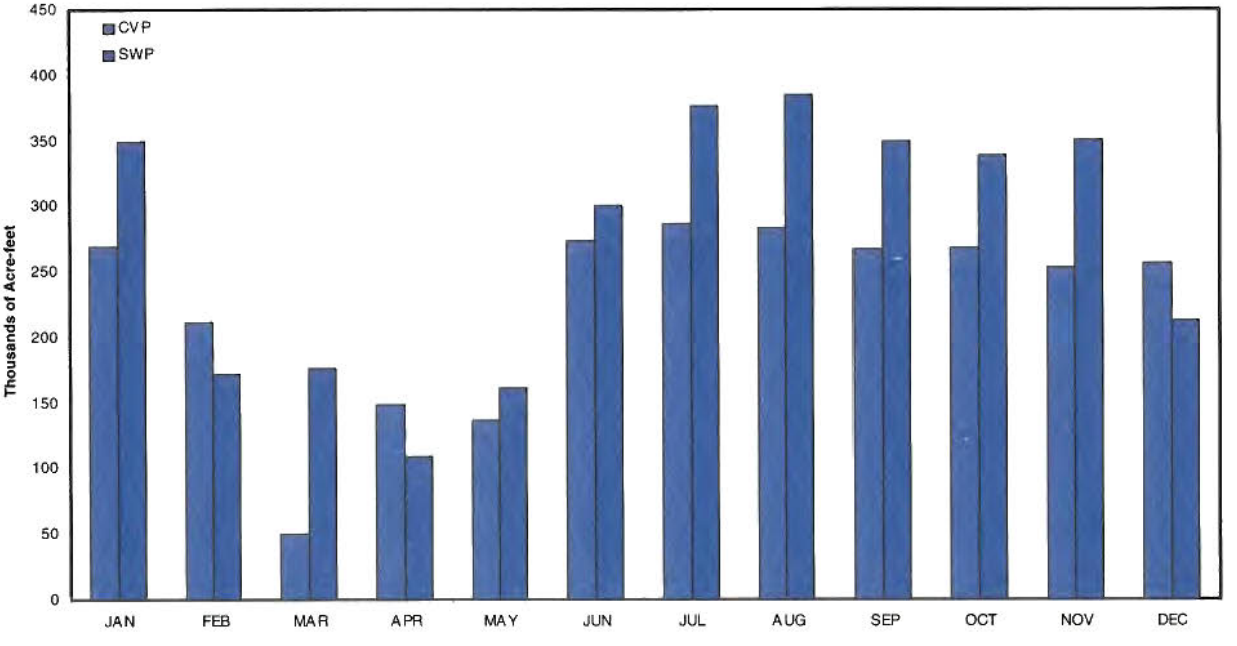


Figure 9-8
SWP Water Delivered to San Joaquin Valley in 1996, by Month

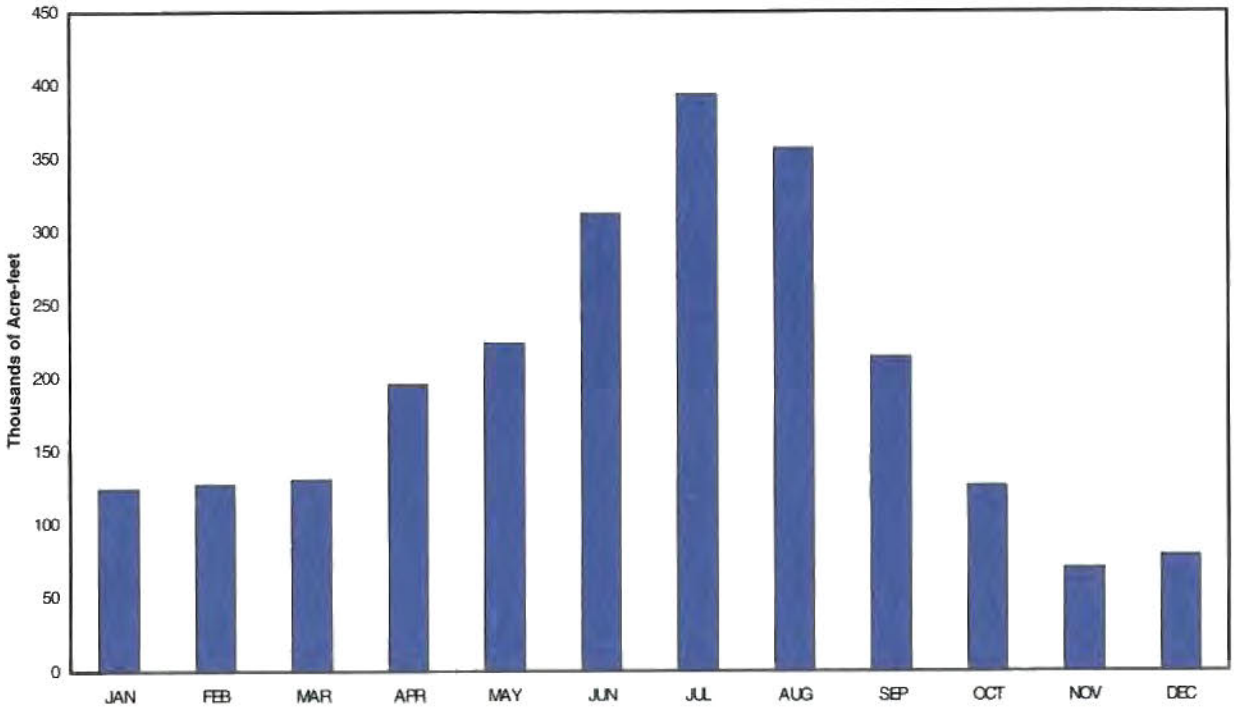
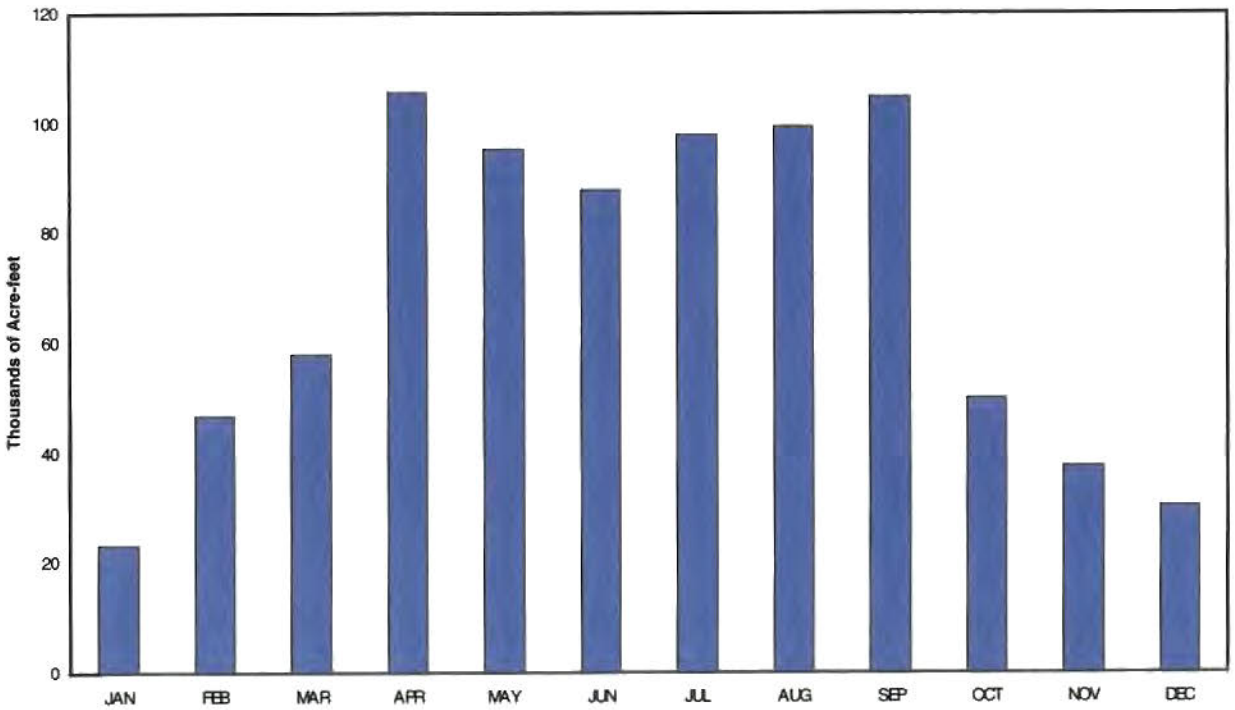


Figure 9-9
Water Pumped at Edmonston Pumping Plant in 1996, by Month



Chapter 10
Water Contracts and Deliveries

Del Valle Lake with Del Valle Dam in the foreground

Significant Events

- The Department helped to alleviate possible flood damage in the Tulare Lake lakebed and Kern River Basin by accepting 52,848 acre-feet of flood waters into the State Water Project system through the Kern River Intertie in January and February 1997. These flood flows were accepted into the Aqueduct under the terms of a 1975 agreement among the Department, Kern County Water Agency, and Buena Vista Water Storage District. The agreement allows flood water from the Kern River, and other water that enters the Kern River downstream of Lake Isabella, such as Friant-Kern Canal water, to be diverted into the California Aqueduct to alleviate flooding in Kern and Tulare counties.

  In an agreement among Coachella Valley Water District, Desert Water Agency, Delta Lands Reclamation District No. 770, Tulare Lake Basin Water Storage District, and the Department, 27,130 acre-feet of flood flows from the Kaweah and Tule rivers were accepted into the Aqueduct and delivered to the service area of the Metropolitan Water District of Southern California, for ultimate delivery to DWA and CVWD. An additional 20,366 acre-feet went to satisfy existing SWP demands downstream of the Intertie. The remaining 5,352 acre-feet went to KCWA member units under a separate letter agreement.

- The Department executed amendments to the long-term water-supply contracts of KCWA and Mojave Water Agency, providing for the sale of 25,000 acre-feet of KCWA's SWP entitlement to MWA. This was the first sale under the provisions of the Monterey Amendments that allow for the permanent sale of 130,000 acre-feet of agricultural entitlements to contractors for urban use.

- The Department executed an amendment to the long-term water-supply contract between Santa Barbara County Flood Control and Water Conservation District and the Department. The Amendment reduced SBCFCWCD's Table A entitlement by 6,500 acre-feet for a period of 2 years before returning to the previous maximum of 45,486 acre-feet.

The long-term water supply contracts for water service from the State Water Project between the Department and 29 local agencies are basic to the project's construction and operation. In return for the State financing, constructing, and operating facilities needed to provide water service, the agencies contractually agreed to repay all associated SWP capital and operating costs.

The Department delivers water to SWP contractors according to long-term water supply contracts, which may be amended as needed. The contracts, among other things, specify amounts of water that the Department may deliver to SWP contractors every year. During the 1996-1997 reporting period, the Department executed 11 amendments to these contracts, including 5 amendments resulting from the Monterey Agreement.

The Department also enters into miscellaneous agreements with SWP contractors and other agencies—which may be amended periodically—to convey SWP and non-SWP water through the California Aqueduct and approve turnout construction along SWP facilities and establish turnout operation and maintenance regulations.

During the 1996-1997 reporting period, the Department executed 14 water conveyance/storage agreements with SWP contractors. During the same reporting period, the Department executed six water conveyance agreements, modified one existing water conveyance agreement, and amended one turnout agreement with non-SWP contractors.

Detailed information about contracts and amendments follows.

Long-Term SWP Water Supply Contracts

The first water-supply contract was signed with the Metropolitan Water District of Southern California on November 4, 1960. The contract was negotiated by the Department and MWD according to terms of the contracting principles for water service contracts announced by Governor Edmund G. Brown on January 20, 1960.

The MWD contract became the prototype for all water contracts; by the end of 1967, 31 agencies had contracted for water. In addition, a water-supply contract was executed with the city of West Covina in December 1963, but was terminated in August 1965; the city's water entitlement was transferred to MWD through an amendment to the district's long-term contract with the Department. Long-term contracts with Hacienda Water District and Devil's Den Water District were also terminated when those districts transferred their water entitlements, through contract amendments, to Tulare Lake Basin Water Storage District (1981) and Castaic Lake Water Agency (1992), respectively. Today the SWP has long-term water-supply contracts with 29 agencies. Those contracts have been amended repeatedly to incorporate mutually desired modifications.

All water contracts signed in the 1960s included an estimate of the date water would first be delivered and a schedule of the amount of water the agency could expect to be delivered annually (annual entitlement). That amount was designed to increase gradually until the maximum amount of annual entitlement was reached. The total combined annual entitlement for all water contracting agencies was initially 4,230,000 acre-feet, assuming full development of the SWP.

The contracts were initially designed to be valid for 75 years or until all bonds sold as part of the California Water Resources Development Bond Act were repaid, whichever period was longer. As a result of amendments to contracts in the 1990s, the current combined maximum annual entitlement totals 4,172,786 acre-feet, and the contracts are in effect for the longest of the following periods: (1) the project repayment period, which extends to the year 2035; (2) 75 years from the date of the contract; or (3) the period ending with the latest maturity date of any bond used to finance the construction costs of project facilities.

Table 10-1
Amendments to Water Supply Contracts, by Category

Category (a	*Description*
1. Revision of annual entitlements	Amendments to Table A, "Annual Entitlements," of water supply contracts resulting in changes in amounts of entitlement water
2. Enlargement of East Branch and Extension of Coastal Branch of California Aqueduct	Amendments for allocating costs and benefits of the enlargement or extension of the East Branch and extension of the Coastal Branch of the California Aqueduct
3. Purchase of excess capacity	Amendments to allow contractors to purchase extra water service capacity from the California Aqueduct
4. Provisions to carry over entitlement water [Article12(e)]	Amendments to allow contractors to carry over entitlement water from one year for delivery in the next year, providing certain conditions are met
5. Surplus water provisions	Amendments to allow contractors to take delivery of surplus water; that is, water in excess of that required to meet all demands for entitlement water
6. Unscheduled water provisions	Amendments to allow contractors to take delivery of unscheduled water; that is, water available for a very short period of time when excess water and SWP pumping capacity are available in the Delta
7. Wet-weather provisions	Amendments to allow contractors to take, under certain conditions, delivery of entitlement water in subsequent years if favorable local weather conditions result in adequate local water supplies
8. Monterey Agreement principles	Amendments to implement the principles of the Monterey Agreement

a) See Table 10-2, "Amendments to Water Supply Contracts, June 30, 1997, by Category and Contracting Agency," for names of contractors to which categories apply. In addition, each volume of *The California State Water Project Water Supply Contracts* contains a list of amendments by category.

Amendments to Long-Term SWP Water Supply Contracts

All the original contracts signed by the Department and local agencies have been amended to incorporate mutually desired changes. Most amendments fall under the following eight general categories:

- revision of annual entitlements;
- enlargement of the East Branch and extension of the Coastal Branch of the California Aqueduct;
- purchase of excess capacity;
- provisions to carry over entitlement water;
- surplus water provisions;
- unscheduled water provisions;
- wet-weather provisions; and
- Monterey Agreement principles.

Table 10-1 describes the eight categories of amendments while Table 10-2 lists contractors to which those categories apply.

The following long-term contracts were amended between July 1, 1996, and June 30, 1997.

Kern County Water Agency. The Department executed Amendment Number 26, dated January 31, 1997, to the long-term water supply contract between KCWA and the Department. The Amendment provided for the sale of 25,000 acre-feet of agricultural entitlement by the Agency on behalf of Berrenda Mesa Water District to Mojave Water Agency and set forth conditions for the sale. The sale is consistent with implementation of the Monterey Amendment, which provides for the permanent transfer of up to 130,000 acre-feet of agricultural entitlement water to urban agencies.

Mojave Water Agency. The Department executed Amendment Number 18, dated January 31, 1997, to the long-term water supply contract between MWA and the Department. The Amendment provided for the purchase of 25,000 acre-feet of agricultural entitlement by the Agency from Kern County Water Agency acting on behalf of Berrenda Mesa Water District and set forth conditions for the purchase. The purchase is consistent with implementation of the Monterey Amendment, which provides for the permanent transfer of up to 130,000 acre-feet of agricultural entitlement water to urban agencies.

Table 10-2
Amendments to Water Supply Contracts, June 30, 1997, by Category and Contracting Agency

Contracting Agency	State Water Project Amendment Category (a 1	2	3	4	5	6	7	8
Upper Feather River Area								
City of Yuba City	•				○ (b			
County of Butte	•			•	○			•
Plumas County Flood Control and Water Conservation District				•				
North Bay Area								
Napa County Flood Control and Water Conservation District	•			•	○	○		•
Solano County Water Agency	•		•	•	○	○		•
South Bay Area								
Alameda County Flood Control and Water Conservation District-Zone 7	•			•	○		○	•
Alameda County Water District				•	○	○	○	•
Santa Clara Valley Water District	•			•	○	○	○	•
San Joaquin Valley Area								
County of Kings				•	○		○	•
Dudley Ridge Water District	•			•	○	○		•
Empire West Side Irrigation District	•			•	•	•	•	
Kern County Water Agency	•				○	○		•
Oak Flat Water District	•			•	○	○	○	•
Tulare Lake Basin Water Storage District	•			•	○	○	○	•
Central Coastal Area								
San Luis Obispo County Flood Control and Water Conservation District				•	○			•
Santa Barbara County Flood Control and Water Conservation District	•	•		•	○			•
Southern California Area								
Antelope Valley-East Kern Water Agency	•	•	•	•	○			•
Castaic Lake Water Agency	•			•	○			•
Coachella Valley Water District	•	•		•	○			•
Crestline-Lake Arrowhead Water Agency	•			•	○			•
Desert Water Agency	•	•		•	○	○		•
Littlerock Creek Irrigation District	•			•	○			•
Metropolitan Water District of Southern California	•	•	•	•	○	○		•
Mojave Water Agency	•	•		•	○			•
Palmdale Water District	•	•		•	○			•
San Bernardino Valley Municipal Water District	•	•		•	○			•
San Gabriel Valley Municipal Water District	•		•	•	○			•
San Gorgonio Pass Water Agency				•	○			•
Ventura County Flood Control District				•	•			

a) Categories correspond to those listed in Table 10-1, "Amendments to Water Supply Contracts, by Category."
b) ○ indicates amendment category nullified by Monterey Amendments.

Santa Barbara County Flood Control and Water Conservation District. The Department executed Amendment Number 17, dated April 15, 1997, to the long-term water supply contract between SBCFCWCD and the Department. The Amendment reduced their Table A entitlement by 6,500 acre-feet for a period of 2 years before returning to the previous maximum of 45,486 acre-feet.

Amendments Concerning Revisions of Annual Entitlement

In past years, the Department increased annual water entitlements for Oak Flat Water District, Dudley Ridge Water District, and Kern County Water Agency, pursuant to Article 21(g)(3) of their long-term water supply contracts related to deliveries of surplus water. During the 1996-97 reporting period, those contractors elected to reduce their entitlements for specific years, through long-term water supply contract provisions, to compensate for their prior entitlement increases. The entitlement reductions were made by amending their long-term contracts with the Department as follows.

Dudley Ridge Water District. Under Amendment 23, dated September 23, 1996, DRWD's annual entitlements were decreased for 1990 and 1991. The 1990 annual entitlement was lowered by half, from 57,700 acre-feet to 28,850 acre-feet. The 1991 annual entitlement was reduced by 4,289 acre-feet, from 57,700 acre-feet to 53,411 acre-feet. The sum of the reduced amounts is equal to the sum of DRWD's annual entitlement increases in 1974, 1975, 1976, and 1979.

Kern County Water Agency. Under Amendment 25, dated September 23, 1996, KCWA's 1986 annual entitlement was decreased by 34,554 acre-feet, from 968,200 acre-feet to 933,646 acre-feet. The reduced amount is equivalent to the sum of its annual entitlement increases in 1975 and 1976.

Oak Flat Water District. Under Amendment 20, dated September 23, 1996, OFWD's 1983 annual entitlement was decreased by 830 acre-feet, from 4,600 acre-feet to 3,770 acre-feet. The reduced amount is equivalent to the sum of its annual entitlement increases in 1974, 1975, and 1976.

Monterey Amendments

In December 1996, the Department executed Monterey Amendments with the County of Butte, Castaic Lake Water Agency, Coachella Valley Water District, and the County of Kings. In March 1997, the Department executed a Monterey Amendment with San Bernardino Valley Municipal Water District. The Department had previously executed Monterey Amendments with 20 other long-term water supply contractors including Solano County Water Agency, Alameda County Flood Control and Water Conservation District-Zone 7, Alameda County Water District, Santa Clara Valley Water District, DRWD, KCWA, TLBWSD, SBCFCWCD, Antelope Valley-East Kern Water Agency, Crestline-Lake Arrowhead Water Agency, DWA, MWA, MWD, Napa County Flood Control and Water Conservation District, OFWD, San Luis Obispo County Flood Control and Water Conservation District, Littlerock Creek Irrigation District, Palmdale Water District, San Gabriel Valley Municipal Water District, and San Gorgonio Pass Water Agency. Full execution of the provisions of the Monterey Amendments is pending resolution of litigation associated with the Amendments. For a full discussion of this issue see Chapter 8.

The Monterey Amendments increase the reliability of existing water supplies; provide stronger financial management for the SWP; and increase water management flexibility, providing more tools to local water agencies to maximize existing facilities. Changes to SWP operations incorporated in the Monterey Amendments include changes in determination of future allocations, transfer of entitlement and land, financial restructuring, and increased operational flexibility.

Miscellaneous Agreements with Long-Term SWP Contractors

During 1996 and through June 30, 1997, the Department entered into the following agreements.

Water Conveyance/Storage Agreements

Agreements were executed with long-term contractors as listed below.

Alameda County Water District. ACWD and ACFCWCD-Zone 7 have water rights to divert up to 60,000 acre-feet per year of local flow from Arroyo Del Valle, the stream that flows into Lake Del Valle. Since the previous agreement for the storage of local flows in Lake Del Valle expired, a new agreement was executed March 26, 1997, between the Department and the districts. The agreement, effective through December 31, 2012, defines the terms and conditions under which the Department will store the districts' local flow in Lake Del Valle.

Alameda County Water District. The agreement, dated October 28, 1996, among ACWD, KCWA, and the Department, provided for the delivery of a portion of ACWD's 1996 entitlement water and other water supplies, to be stored in, and later recovered from, groundwater basins within the agency, in accordance with the Alameda and Semitropic Water Storage District Banking Program Agreement. The banking program agreement authorized the delivery of up to 7,500 acre-feet of ACWD's 1996 entitlement to storage. This was in accordance with the provisions of the Monterey Agreement that encourage operational flexibility for the SWP, such as groundwater storage of SWP water outside a contractor's service area for later use within the service area.

Dudley Ridge Water District. A letter agreement signed November 19, 1996, among DRWD, KCWA, and the Department, approved the transfer of up to 5,000 acre-feet of DRWD 1996 SWP interruptible water and up to 1,000 acre-feet of DRWD 1996 SWP entitlement water to KCWA for delivery to the Kern Water Bank and the return of the same amount of water. The transfer was part of an exchange with KCWA that allowed three landowners in DRWD to receive a like amount of water from KCWA in future years when they could utilize the water more beneficially.

Dudley Ridge Water District. A letter agreement signed September 10, 1996, among DRWD, Tulare Lake Basin Water Storage District, and the Department, approved the delivery of up to 3,500 acre-feet of DRWD 1996 SWP entitlement water to TLBWSD in exchange for a like amount of water delivered for storage in the Kern Water Bank. Fresno Water District and Last Chance Water Ditch Company were also involved in a series of exchanges that facilitated delivery to each entity, thereby saving transportation costs.

Kern County Water Agency. A letter agreement signed July 5, 1996, between the Department and KCWA, approved the transfer of up to 24,000 acre-feet of the KCWA 1996 SWP entitlement water to Westlands Water District. The delivery facilitated an exchange between the agency and WWD in which a like amount of USBR Section 215 water, belonging to a member unit of the agency and banked in 1995, was sold to WWD. In lieu of the agency extracting the Section 215 water in 1996 to sell to WWD, and simultaneously recharging it with 1996 SWP water, the agreement allowed for delivery of SWP water directly to WWD from the California Aqueduct and allowed an equal amount of banked Section 215 water to be reclassified as agency SWP water, thereby saving extraction and transportation costs.

Kern County Water Agency. A letter agreement among KCWA, TLBWSD, and the Department, signed July 23, 1996, provided for the transfer of up to 1,500 acre-feet of KCWA 1996 SWP entitlement water to TLBWSD. Lost Hills Water District, a member unit of KCWA, transferred 1,500 acre-feet to Westlake Farms, located in the TLBWSD service area. The transferred water was used to create wetland habitat for shore birds as required under a mitigation agreement between the regional water quality control board and LHWD for operation of the LHWD evaporation basin.

Kern County Water Agency. A letter agreement signed June 24, 1997, between the Department and KCWA, approved the transfer of up to 47,520 acre-feet of KCWA 1997 SWP entitlement water to WWD. The agreement facilitated a water transfer from landholders within four member units of the Agency—LHWD, BMWD, Belridge Water Storage District, and Wheeler Ridge-Maricopa Water Storage District—to lands they farmed in WWD.

Kern County Water Agency. A letter agreement signed April 11, 1997, between the Department and KCWA, approved the exchange of up to 20,000 acre-feet of KCWA 1997 SWP entitlement water for a like amount of WWD's CVP water stored in San Luis Reservoir. This exchange involved reclassification of some entitlement water delivered to KCWA during January and February 1997 as WWD exchange water.

Kern County Water Agency. A letter agreement dated June 10, 1997, and signed July 30, 1997, between the Department and KCWA allowed the conveyance of up to 6,000 acre-feet of local water through the Kern River Intertie for delivery to KCWA turnouts. Operations of the Kern River Intertie in January and February of 1997 to alleviate flooding in Kern and Tulare counties disrupted some deliveries within KCWA's Kern River distribution system. This letter agreement restored some of these deliveries. A total of 5,352 acre-feet was actually delivered.

San Luis Obispo County Flood Control and Water Conservation District. The letter agreement, signed September 26, 1996, among SLOCFCWCD, TLBWSD, County of Kings, and the Department, approved the transfer of up to 100 acre-feet of the SLOCFCWCD 1996 SWP entitlement water to TLBWSD. The letter agreement facilitated a water transfer from Union Oil Company of California, a landowner within Avila Beach County Water District (a subcontractor of SLOCFCWCD) to lands they own in Kings County. The transfer facilitated an agreement between Avila Beach and Unocal.

San Luis Obispo County Flood Control and Water Conservation District. The letter agreement, signed May 22, 1997, among SLOCFCWCD, TLBWSD, County of Kings, and the Department, approved the transfer of up to 100 acre-feet of SLOCFCWCD 1997 SWP entitlement water to TLBWSD. The letter agreement, similar to the one mentioned above involving SLOCFCWCD 1996 SWP entitlement water, extended the same terms and conditions for another year.

Santa Clara Valley Water District. The agreement, dated September 19, 1996, among SCVWD, KCWA, and the Department, provided for the delivery of a portion of SCVWD's 1996 entitlement water and other water supplies, to be stored in and later recovered from groundwater basins within the Agency, in accordance with the Santa Clara and Semitropic Water Storage District Banking Program Agreement. The banking program agreement authorized the delivery of up to 45,000 acre-feet of SCVWD 1996 entitlement water to storage. This was in accordance with the provisions of the Monterey Agreement that

encourage operational flexibility for the SWP, such as groundwater storage of SWP water outside a contractor's service area for later use within the service area.

San Bernardino Valley Municipal Water District. The Cooperative Interchange Agreement, dated January 7, 1997, among SBVMWD, MWD, and the Department, set forth the terms for San Bernardino to deliver surface water of up to 5,000 acre-feet, when available, from the Santa Ana River and/or Mill Creek into the Foothill Pipeline for delivery to MWD through the Devil Canyon Afterbay during the scheduled outage of the San Bernardino tunnel in early 1997. The agreement also required MWD to return a like amount of its SWP entitlement water to SBVMWD in 1997.

Tulare Lake Basin Water Storage District. The agreement, dated April 18, 1997, among CVWD, DWA, Delta Lands Reclamation District No. 770, TLBWSD, MWD, and the Department, set forth terms for the transfer of flood flows from the Kaweah and Tule rivers to the service area of MWD, which in turn exchanged a like amount of its Colorado River aqueduct water to DWA and CVWA. A total of 27,130 acre-feet of flood waters were conveyed as non-SWP water deliveries to reduce the amount of flood-water damage within the Tulare Lake bed.

Tulare Lake Basin Water Storage District. A letter agreement, signed May 19, 1997, between the Department and TLBWSD, approved the transfer of up to 4,000 acre-feet of the TLBWSD SWP entitlement water to WWD. The agreement facilitated the water transfer from Hanson Ranches, a landowner in the TLBWSD, to lands it farms in WWD under the name of Vista Verde Farms, Incorporated.

Turnout Agreements

Mojave Water Agency. On October 6, 1995, MWA and the Department executed an agreement to allow construction, operation, and maintenance of the Mojave River Turnout, located at milepost 389.2 of the California Aqueduct. Phase I construction began in November 1995; Phase II construction began in October 1996 and is ongoing. Once completed, the siphon-intake turnout will deliver up to a maximum of 90 cfs. The 72-mile Mojave River pipeline will then convey the SWP water to several subbasins of the Mojave River Basin.

Agreements Related to the Monterey Agreement

Turnback Water Pool Program. Under Article 56(d) of the Monterey Agreement, the second year of the Turnback Water Pool Program was initiated through Notice to the State Water Project Contractors No. 97-3, dated February 5, 1997. All SWP contractors who signed Monterey Amendments were permitted to participate in the program. The exception was the City of Yuba City, which was expected to sign the Monterey Amendment in 1997. The program allowed SWP contractors to offer a portion of their approved 1997 entitlement for sale in a turnback pool for use outside their service area. Other contractors interested in purchasing this water could then request a portion or all of it. Based on supply and demand, the turnback water was allocated among the selling and purchasing contractors.

Transactions for pool A occurred in January and February 1997; transactions for pool B occurred in March 1997. Turnback water sold for 50 percent of the Delta Water Rate per acre-foot through pool A and for 25 percent of the Delta Water Rate per acre-foot through pool B. All money collected through the turnback pool program was paid to the selling contractors. The 1997 Turnback Water Pool Program closed April 1, 1997.

The following contractors participated in pool A of the turnback water pool program:

- SLOCFCWCD sold 17 acre-feet;
- NCFCWCD sold 8 acre-feet;
- ACFCWCD-Zone 7 sold 119 acre-feet;
- County of Kings sold 24 acre-feet;
- TLBWSD sold 532 acre-feet;
- SBCFCWCD sold 131 acre-feet;
- AV-EKWA sold 455 acre-feet;
- CLWA sold 119 acre-feet;
- SGVMWD sold 76 acre-feet;
- City of Yuba City sold 48 acre-feet; and
- DRWD purchased 1,529 acre-feet.

The following contractors participated in pool B of the turnback water pool program:

- SLOCFCWCD sold 784 acre-feet;
- City of Yuba City sold 1,954 acre-feet;
- NCFCWCD sold 314 acre-feet;
- ACFCWCD-Zone 7 sold 3,883 acre-feet;
- County of Kings sold 965 acre-feet;
- TLBWSD sold 21,494 acre-feet;
- SBCFCWCD sold 5,313 acre-feet;
- AV-EKWA sold 18,395 acre-feet;
- CLWA sold 4,825 acre-feet;
- SGVMWD sold 3,088 acre-feet;
- DRWD purchased 11,015 acre-feet;
- DWA purchased 15,000 acre-feet; and
- CVWD purchased 35,000 acre-feet.

The Department purchased the remaining 190,402 acre-feet of turnback water.

Other Administrative Actions

Kern River Intertie. In January and February 1997, the Department accepted 52,848 acre-feet of flood water flows into the California Aqueduct from the Kern River Intertie. Under a 1975 agreement among the Department, KCWA, and Buena Vista Water Storage District, flood water from the Kern River and other water that enters the Kern River downstream of Lake Isabella, such as Friant-Kern Canal water, can be diverted into the California Aqueduct to alleviate flooding in Kern and Tulare counties. A total of 20,366 acre-feet of the flood water went to satisfy existing SWP demands downstream of the Intertie in accordance with the 1975 agreement. Another 27,130 acre-feet was delivered to Desert and Coachella (see Tulare Lake Basin Water Storage District under Miscellaneous Agreements with Long-Term SWP Contractors, above). The remaining 5,352 acre-feet went to KCWA member units under a separate letter agreement.

The Metropolitan Water District of Southern California. By letter dated June 11, 1996, the Department approved a boundary change involving the annexation of Port Hueneme Water Agency, formerly in Ventura Country Flood Control District's service area, to MWD, and a change in point of delivery of VCFCD entitlement water to MWD's turnout. The approvals facilitated an arrangement whereby 1,850 acre-feet of VCFCD SWP entitlement water was leased to Port Hueneme and in turn subleased to MWD.

San Gabriel Valley Municipal Water District. By letter dated August 1, 1996, the Department approved a boundary change for the SGVMWD in accordance with Article 15 of their long-term water supply contract with the Department. Approximately 216 acres were annexed to the City of Azusa and SGVMWD's service area and were detached from the Three Valleys Municipal Water District, a member agency of MWD.

Dudley Ridge Water District. By letter dated May 12, 1997, the Department approved a boundary change for DRWD in accordance with Article 15 of their long-term water supply contract with the Department. Approximately 4,200 acres were annexed into the service area of DRWD from the County of Kings service area.

Miscellaneous Agreements with Other Agencies

In addition to negotiating agreements with SWP contractors to provide for specified water deliveries, the Department also entered into several agreements with other agencies for water conveyance, or exchange, during July 1, 1996, through June 30, 1997.

Water Conveyance Agreements–CVP Water

The Department regularly enters into agreements to convey CVP water, such as agreements with contractors receiving water from the U.S. Bureau of Reclamation through the Cross Valley Canal, a water conveyance facility that connects with the California Aqueduct near Tupman in Kern County. Other agencies or corporations receive CVP water through agreements between the Department and USBR, including the U.S. Department of Veterans Affairs, U.S. Fish and Wildlife Service, and Musco Olive Products, Inc. Occasionally, the Department also enters into agreements with USBR to convey CVP water through SWP facilities from the Delta to O'Neill Forebay. These agreements allow USBR to make up water exports from Tracy Pumping Plant associated with improving conditions for fish in the

Delta, or for replacing pumping capacity lost during maintenance of the Tracy Pumping Plant.

Cross Valley Canal. The Cross Valley Canal is used by eight water contractors to obtain water from the California Aqueduct either by exchange with other agencies or, in the case of two contractors, by direct delivery. The eight water contractors are County of Fresno, County of Tulare, Hill's Valley Irrigation District, Kern-Tulare Water District, Lower Tule River Irrigation District, Pixley Irrigation District, Rag Gulch Water District, and Tri-Valley Water District.

On June 21, 1996, LTRID and PID requested that the Department change the point of delivery for their CVP water from the CVC turnout to turnouts in reaches 4 through 7 of the California Aqueduct for delivery to WWD. As a result, the Department and the two districts executed agreements July 12, 1996, for Department conveyance of up to 12,500 acre-feet of CVP water for each district. Later, at the request of the districts to increase water conveyance, the Department amended both letter agreements twice. The first amendments, dated October 16, 1996, increased water conveyance to a maximum of 13,750 acre-feet for each District; the second amendments, dated December 31, 1996, increased conveyance to a maximum of 18,750 acre-feet.

Musco Olive Products, Inc. An annual agreement dated December 26, 1996, between the Department and USBR, provides for the conveyance of up to 300 acre-feet of CVP water to Reach 2A of the California Aqueduct for use by Musco Olive Products, Inc. This water is to be conveyed from January 1, 1997, through December 31, 1997.

U.S. Department of Veterans Affairs. An annual agreement, dated December 26, 1996, between the Department and USBR, approved the conveyance of up to 450 acre-feet of CVP water to Reach 2B of the California Aqueduct for use by the U.S. Department of Veterans Affairs at the San Joaquin Valley National Cemetery. The water is to be conveyed from January 1, 1997, through December 31, 1997.

U.S. Fish and Wildlife Service Cooperative Agreement. USBR initiated a cooperative agreement with the Department to deliver CVP water to the Kern National Wildlife Refuge for USFWS. Under the terms of this cooperative agreement, dated September 9, 1994, up to 26,530 acre-feet of CVP water would be delivered from Check 21 to the Buena Vista Water Storage District Turnout BV-1B, on Reach 10A of the California Aqueduct, from October 1, 1993, through April 10, 1995. Since the cooperative agreement was signed, five modifications to the agreement have been executed. Under Modification No. 001, dated October 31, 1994, additional funding was provided. Under Modification No. 002, dated April 14, 1995, the following changes were made:

- the term of the agreement was extended through April 10, 1998;
- Storage District Turnout BV-2B, on Reach 12E of the California Aqueduct, was added as a second point of delivery;
- additional funds were provided; and
- the quantity of water to be delivered was increased to 82,837 acre-feet.

Modification No. 003, dated May 10, 1995, defined the water delivery rates for calendar year 1995 and specified that those rates will be adjusted annually. Modification No. 004, dated February 15, 1996, incorporated water delivery rates for calendar year 1996. Modification No. 005, dated December 10, 1996, incorporated water delivery rates for calendar year 1997.

U.S. Bureau of Reclamation. An agreement, dated December 13, 1996, between the Department and USBR, confirmed the terms and conditions under which the Department conveyed 129,756 acre-feet of CVP water from the Delta to O'Neill Forebay through SWP facilities during October and November 1996. USBR requested the conveyance to make up for reduced water exports conducted April 15 through May 24, 1996, to improve fish protection in the Bay-Delta Estuary.

U.S. Bureau of Reclamation. A letter agreement, dated January 10, 1997, documented the terms and conditions under which the Department conveyed 46,324 acre-feet of CVP water to O'Neill Forebay from December 12 through 16, 1996. The water conveyance allowed the U.S. Fish and Wildlife Service to continue its salmon smolt studies on the effects of

project exports at Banks and Tracy pumping plants on fish migration and survival under various export/inflow ratios. The Department pumped this water at Banks Pumping Plant when the Department's share of storage in San Luis Reservoir was full, and the Department had available capacity at Banks and reaches 1 through 2B of the California Aqueduct.

Other Agreements-Turnouts

San Francisco. The city and county of San Francisco has two turnouts for unforeseen emergency water needs on the South Bay Aqueduct. The San Antonio turnout, constructed in 1990, has a 75-cfs capacity and the Sunol temporary turnout, constructed in 1991, has a 35 cfs capacity. The agreement for maintenance and operation of the San Antonio turnout was signed June 8, 1995, and terminates April 19, 1999. The Sunol temporary turnout agreement for construction, operation, and maintenance was signed August 22, 1991, and a fifth amendment was executed on December 16, 1996, which extends the agreement to August 1, 1997. A long-term Sunol agreement similar to the San Antonio agreement is being negotiated between the Department and San Francisco.

Amendments to Miscellaneous Agreements with Other Agencies

North Delta Water Agency. On January 1, 1997, the Department executed an amendment to the January 28, 1981, agreement between the Department and NDWA. In the amendment, NDWA approves the Department's land acquisition on Sherman Island and agrees that such acquisition is in lieu of building the overland water transportation facility as specified in the 1981 contract. The amendment also shifts the contract water quality monitoring station from Emmaton to Threemile Slough and reduces annual payments to the Department based on the percentage of land owned by the Department within NDWA's jurisdiction.

Water Deliveries

The SWP delivers water for a variety of beneficial uses. In addition to delivering entitlement water to long-term water supply contractors, the SWP:

- conveys water to and stores water for other public agencies through special contracts and agreements;
- provides water for wildlife and recreational uses; and
- stores, releases, and delivers local runoff water from SWP facilities to agencies that hold local water rights.

In 1996, 3,733,853 acre-feet of water were conveyed to 25 long-term contractors and 17 other agencies. That amount includes:

- 2,543,472 acre-feet of entitlement water[1], with 2,203,516 acre-feet delivered to long-term contractors, 165,047 acre-feet transferred to WWD, and 174,909 acre-feet of purchase pool water;
- entitlement-related water, which included 3,907 acre-feet of recreation/fish and wildlife water, 1,256 acre-feet of flexible storage withdrawal water delivered to CLWA from Castiac Lake as permitted in the Monterey Amendment; and
- 1,185,218 acre-feet of nonentitlement water delivered to satisfy agreements made with SWP contractors and other agencies, including USBR.

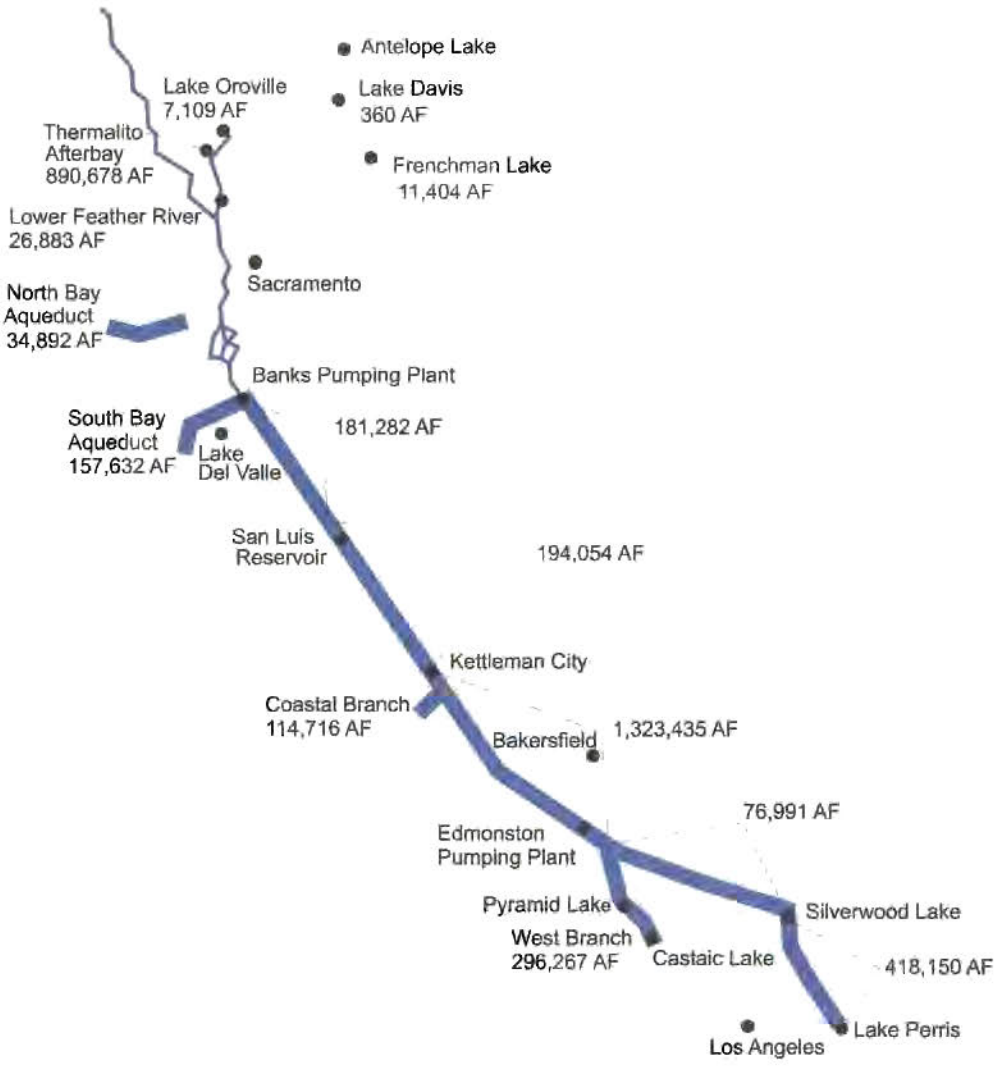
Figure 10-1 shows amounts of water delivered to various locations during 1996.

Specific information about water deliveries made to long-term contractors and other agencies during 1996 and historical deliveries from 1962 through 1996 is presented in the following three sections, each with a corresponding table:

- water delivered and future credits granted to long-term contractors in 1996 (Table 10-3);
- water delivered in 1996, by month (Table 10-4); and
- annual water entitlements and water conveyed, by water type, from 1962 through 1996 (Table 10-5).

[1] Entitlement water is defined as the amount of water long-term contractors may request each year as part of Article 12(a), "Procedure for Determining Water Delivery Schedule," of their water supply contract.

Figure 10-1
Water Delivered in Calendar Year 1996 to Long-Term Water Supply Contractors and to Districts in the Feather River Area with Water Right Agreements with the Department and Delivery Locations



Note: Total water delivered, 3,733,767 acre-feet

Table 10-3
Water Delivered to Long-Term Contractors through 1996, by Service Area
(Acre-feet)

Water Contractor or Agency	Water Deliveries in 1996												
	Entitlement Water Deliveries												
	1996 Entitlement without Transfers, Exchanges, and Storage (1)	1996 Entitlement Delivered Through Transfers and Exchanges (2)	1996 Entitlement Delivered to Storage (3)	Total 1996 Entitlement Delivered (4)	1996 Interruptible Water (5)	1995 Carryover Entitlement Delivered during 1996 (6)	Make-up Water per Article 12(d) (7)	Make-up Water per Article 14(b) (8)	Purchase Pool A (9)	Purchase Pool B (10)	Total Entitlement (11)	Other Water Deliveries (12) (a	Total Deliveries (13)
Upper Feather River Area													
County of Butte	257			257							257		257
Plumas County Flood Control and Water Conservation District	360			360							360		360
City of Yuba City	820			820							820		820
North Bay Area													
Napa County Flood Control and Water Conservation District	4,893			4,893							4,893		4,893
Solano County Water Agency	29,144			29,144		855					29,999		29,999
South Bay Area													
Alameda County Flood Control and Water Conservation District-Zone 7	18,903			18,903							18,903	19,346	38,249
Alameda County Water District	13,462		6,200	19,662							19,662	10,388	30,050
Santa Clara Valley Water District	43,829		45,000	88,829		1,021					89,850		89,850
San Joaquin Valley Area													
Castaic Lake Water Agency	14,052			14,052							14,052		14,052
County of Kings	4,000			4,000							4,000		4,000
Dudley Ridge Water District	48,896	1,455 (b		50,351	4,457						54,808		54,808
Empire West Side Irrigation District	1,371			1,371		497					1,868		1,868
Kern County Water Agency	954,513	161,047 (c		1,115,560	15,653	50,895 (d					1,182,108		1,182,108
Oak Flat Water District	4,904			4,904							4,904		4,904
Tulare Lake Basin Water Storage District	114,500	9,195 (e. (f		123,695	8,537	38,570			71,268		242,070		242,070
Central Coastal Area													
San Luis Obispo County Flood Control and Water Conservation District	0			0							0		0
Santa Barbara County Flood Control and Water Conservation District	0			0							0		0
Southern California													
Antelope Valley-East Kern Water Agency	56,356	1,316 (g		57,672							57,672		57,672
Castaic Lake Water Agency	18,448			18,448							18,448	1,256 (h	19,704
Coachella Valley Water District	23,100			23,100						39,119	62,219		62,219
Crestline-Lake Arrowhead Water Agency	485			485							485	724	1,209
Desert Water Agency	38,100			38,100						64,522	102,622		102,622
Littlerock Creek Irrigation District	494			494							494		494
The Metropolitan Water District of Southern California	468,427		84,832	553,259		40,121					593,380		593,380
Mojave Water Agency	6,111			6,111							6,111		6,111
Palmdale Water District	11,434			11,434							11,434		11,434
San Bernardino Valley Municipal Water District	6,064			6,064							6,064		6,064
San Gabriel Valley Municipal Water District	15,989			15,989							15,989		15,989
San Gorgonio Pass Water Agency	0			0							0		0
Ventura County Flood Control District	0			0							0		0
Total	**1,898,912**	**173,013**	**136,032**	**2,207,957**	**28,647**	**131,959**	**0**	**0**	**71,268**	**103,641**	**2,543,472**	**31,714**	**2,575,186**

a) Includes local, general wheeling, and operational flood release water.
b) Transferred from KCWA.
c) Includes 161,047 acre-feet transferred to Westlands Water District.
d) Does not include 1,455 acre-feet of 1995 carryover water transferred to DRWD from KCWA.
e) Includes 4,000 acre-feet transferred to Westlands Water District.
f) Includes 1,500, 3,595, and 100 acre-feet transferred from KCWA, DRWD, and SLOCFCWCD, respectively.
g) Transferred from Mojave Water Agency.
h) Flexible storage withdrawal water.

Table 10-4
Water Delivered in 1996, by Month
(Acre-feet)

Contracting Agency and Type of Service	Month												1996 Total Deliveries	1996 Contract Entitlement
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.		
Feather River Area														
City of Yuba City														
Entitlement water	0	0	0	0	0	0	368	452	0	0	0	0	820	9,600
County of Butte														
Entitlement water	11	22	0	3	26	0	0	36	4	11	34	110	257	1,200
Plumas County Flood Control and Water Conservation District														
Entitlement water	1	1	2	3	30	65	92	82	53	29	2	0	360	1,300
Last Chance Creek Water District														
Regulated delivery of local supply	0	0	0	0	0	2,499	3,457	4,048	952	448	0	0	11,404	
Thermalito Irrigation District														
Regulated delivery of local supply	100	93	94	131	231	349	441	420	316	219	111	108	2,613	
Oroville-Wyandotte Irrigation District														
Regulated delivery of local supply	152	102	301	285	745	1,030	1,100	1,120	1,130	797	188	159	7,109	
Western Canal Water District														
Regulated delivery of local supply	1,385	0	0	2,351	36,821	46,982	59,556	46,687	9,470	27,783	16,827	5,159	255,021	
Joint Water Districts Board														
Regulated delivery of local supply	18,490	0	0	4,400	95,810	108,525	123,086	111,483	48,473	41,640	43,130	37,750	632,787	
Oswald Water District														
Regulated delivery of local supply	0	0	0	0	199	343	268	128	105	0	0	0	1,063	
Tudor Mutual Water Company														
Regulated delivery of local supply	0	0	0	0	162	1,107	910	542	536	23	0	0	3,280	
Garden Highway Water Company														
Regulated delivery of local supply	0	0	0	257	2,996	2,564	3,597	3,212	1,079	0	0	0	13,705	
Plumas Mutual Water Company														
Regulated delivery of local supply	0	0	0	0	1,002	1,955	2,218	1,373	1,212	255	0	0	8,015	
SWP	12	23	2	6	56	65	460	570	57	40	36	110	1,437	
Non-SWP	20,127	195	395	7,424	137,966	165,354	194,653	169,013	63,273	71,165	62,256	43,176	934,997	
Area Total	**20,139**	**218**	**397**	**7,430**	**138,022**	**165,419**	**195,113**	**169,583**	**63,330**	**71,205**	**62,292**	**43,286**	**936,434**	**12,100**
North Bay Area														
Napa County Flood Control and Water Conservation District														
Entitlement water	100	99	117	169	163	220	333	365	1,159	483	865	820	4,893	10,425
Solano County Water Agency														
Entitlement water	0	39	652	1,013	2,272	2,519	2,580	1,972	923	467	185	142	12,764	37,800
Carryover entitlement water	704	151	0	0	0	0	0	0	0	0	0	0	855	
Entitlement water to Benicia	0	42	880	1,046	1,353	1,254	1,173	1,183	1,151	1,161	672	491	10,406	
Entitlement water to Vallejo	0	125	190	791	1017	978	972	879	673	317	32	0	5,974	
Agency Total	704	357	1,722	2,850	4,642	4,751	4,725	4,034	2,747	1,945	889	633	29,999	
SWP	804	456	1,839	3,019	4,805	4,971	5,058	4,399	3,906	2,428	1,754	1,453	34,892	
Area Total	**804**	**456**	**1,839**	**3,019**	**4,805**	**4,971**	**5,058**	**4,399**	**3,906**	**2,428**	**1,754**	**1,453**	**34,892**	**48,225**
South Bay Area														
Alameda County Flood Control and Water Conservation District, Zone 7														
Entitlement water	46	2	62	339	1,753	2,055	3,292	4,958	1,250	3,295	1,629	22	18,903	44,000
General wheeling	0	0	0	0	0	0	0	0	667	0	0	0	667	
Local water	989	1,016	1,733	2,309	2,159	2,636	1,565	0	2,460	600	711	1,834	18,012	
Agency Total	1,035	1,018	1,795	2,648	3,912	4,691	4,857	4,958	4,377	3,895	2,540	1,856	37,582	

Table 10-4
Water Delivered in 1996, by Month
(Acre-feet)

Contracting Agency and Type of Service	Month												1996 Total Deliveries	1996 Contract Entitlement
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.		
Alameda County Water District														
Entitlement water	0	0	0	2,012	2,418	1,786	1,680	2,222	2,170	1,174	0	0	13,462	42,000
Stored entitlement water	0	0	0	0	0	0	0	0	6,200	0	0	0	6,200	
Local water	1,922	1,284	1,501	0	0	600	600	600	600	600	756	1,925	10,388	
Agency Total	1,922	1,284	1,501	2,012	2,418	2,386	2,280	2,822	8,970	1,774	756	1,925	30,050	
Santa Clara Valley Water District														
Entitlement water	0	179	2,737	4,451	3,884	5,394	5,979	3,614	3,187	6,028	4,711	3,665	43,829	100,000
Carryover entitlement water	912	109	0	0	0	0	0	0	0	0	0	0	1,021	
Stored entitlement water	0	0	0	0	0	25,000	20,000	0	0	0	0	0	45,000	
Agency Total	912	288	2,737	4,451	3,884	30,394	25,979	3,614	3,187	6,028	4,711	3,665	89,850	
Recreation/Fish and Wildlife														
Recreation/fish and wildlife water	2	3	2	6	19	20	26	31	24	12	4	1	150	
SWP	3,871	2,593	6,035	9,117	10,233	37,491	33,142	11,425	16,558	11,709	8,011	7,447	157,632	
Non-SWP	2,911	2,300	3,234	2,309	2,159	3,236	2,165	600	3,727	1,200	1,467	3,759	29,067	
Area Total	**6,782**	**4,893**	**9,269**	**11,426**	**12,392**	**40,727**	**35,307**	**12,025**	**20,285**	**12,909**	**9,478**	**11,206**	**186,699**	**186,000**
San Joaquin Valley Area														
Castaic Lake Water Agency														
Entitlement water	1,712	1,846	1,528	1,600	853	1,977	2,073	2,338	125	0	0	0	14,052	
County of Kings														
Entitlement water	0	0	0	400	100	500	600	600	600	600	600	0	4,000	4,000
Dudley Ridge Water District														
Entitlement water	148	1,053	1,046	3,334	4,166	9,651	12,365	10,820	1,890	1,729	170	2,524	48,896	53,370
Interruptible entitlement water	293	2,298	1,866	0	0	0	0	0	0	0	0	0	4,457	
Transferred carryover entitlement water from KCWA	1,455	0	0	0	0	0	0	0	0	0	0	0	1,455	
Transferred entitlement water to TLBWD*	0	0	0	0	0	0	95	0	1,500	2,000	0	0	3,595	
Agency Total (* excluded Transferred Entitlement Water)	1,896	3,351	2,912	3,334	4,166	9,651	12,365	10,820	1,890	1,729	170	2,524	54,808	
Empire West Side Irrigation District														
Entitlement water	1,207	164	0	0	0	0	0	0	0	0	0	0	1,371	3,000
Carryover entitlement water	497	0	0	0	0	0	0	0	0	0	0	0	497	
Agency Total	1,704	164	0	0	0	0	0	0	0	0	0	0	1,868	
Kern County Water Agency														
Entitlement water	5,710	23,468	41,482	50,591	102,320	169,473	212,593	189,487	58,419	34,968	24,246	41,756	954,513	1,117,060
Interruptible entitlement water	1,824	13,042	787	0	0	0	0	0	0	0	0	0	15,653	
Carryover entitlement water	41,956	8,939	0	0	0	0	0	0	0	0	0	0	50,895	
Transferred entitlement water to WWD*	0	0	0	11,846	16,000	76,782	35,132	2,287	9,041	5,459	4,500	0	161,047	
Transferred entitlement water to TLBWSD *	0	0	0	0	0	0	0	0	0	1,500	0	0	1,500	
Transferred carryover entitlement water to DRWD*	1,455	0	0	0	0	0	0	0	0	0	0	0	1,455	
Agency Total (*excluded water)	49,490	45,449	42,269	50,591	102,320	169,473	212,593	189,487	58,419	34,968	24,246	41,756	1,021,061	
Oak Flat Water District														
Entitlement water	0	0	29	548	766	1,084	1,227	797	339	114	0	0	4,904	5,700
Tulare Lake Basin Water Storage District														
Entitlement water	0	0	0	0	0	2,755	24,889	15,871	39,262	21,832	4,704	5,187	114,500	118,500
Interruptible entitlement water	0	7,179	1,358	0	0	0	0	0	0	0	0	0	8,537	
Carryover entitlement water	34,077	4,493	0	0	0	0	0	0	0	0	0	0	38,570	
Transferred entitlement water from KCWA	0	0	0	0	0	0	0	0	0	1,500	0	0	1,500	
Transferred entitlement water from DRWD	0	0	0	0	0	0	95	0	1,500	2,000	0	0	3,595	
Transferred entitlement water from SLOCFCWCD	0	0	0	0	0	0	0	0	100	0	0	0	100	
Purchase Pool A entitlement water	0	0	0	10,019	2,358	14,500	17,500	26,891	0	0	0	0	71,268	
Transferred entitlement water to WWD*	0	0	0	0	0	0	3,000	0	500	500	0	0	4,000	
Agency Total (*excluded water)	34,077	11,672	1,358	10,019	2,358	17,255	42,484	42,762	40,862	25,332	4,704	5,187	238,070	

Table 10-4
Water Delivered in 1996, by Month
(Acre-feet)

Contracting Agency and Type of Service	Month												1996 Total Deliveries	1996 Contract Entitlement
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.		
Westlands Water District														
Transferred entitlement water from KCWA	0	0	0	11,846	16,000	76,782	35,132	2,287	9,041	5,459	4,500	0	161,047	
Transferred entitlement water from TLBWSD	0	0	0	0	0	0	3,000	0	500	500	0	0	4,000	
Transferred DCVWLNG water from Lower Tule River* (a	0	0	0	0	0	0	0	12,500	0	0	0	1,250	13,750	
Transferred DCVWLNG water from Pixley ID* (a	0	0	0	0	0	0	0	12,500	0	0	0	1,250	13,750	
Agency Total (*excluded water)	0	0	0	11,846	16,000	76,782	38,132	2,287	9,541	5,959	4,500	0	165,047	
Department of Fish and Game														
Recreation/fish and wildlife water	87	3	61	57	56	54	53	127	91	89	58	17	753	
Parks and Recreation														
Recreation/fish and wildlife water	1	1	0	2	11	12	31	2	5	7	2	2	76	
Agency Total	88	4	61	59	67	66	84	129	96	96	60	19	829	
SWP	88,967	62,486	48,157	78,397	126,630	276,788	309,558	249,220	111,872	68,798	34,280	49,486	1,504,639	
Non-SWP	0	0	0	0	0	0	0	25,000	0	0	0	2,500	27,500	
Area subtotal	88,967	62,486	48,157	78,397	126,630	276,788	309,558	274,220	111,872	68,798	34,280	51,986	1,532,139	1,301,630
San Joaquin Valley Area														
CVP Water Conveyed														
Annual Contracts														
Musco Olive Products, Inc.	21	21	25	23	22	21	4	3	25	43	35	25	268	
Veterans Administration Cemetery	1	1	0	3	4	4	5	3	4	3	1	1	30	
Subtotal	22	22	25	26	26	25	9	6	29	46	36	26	298	
Cross Valley Canal Contracts														
Transferred DCVWLNG entitlement water to WWD* (a	0	0	0	0	0	0	0	12,500	0	0	0	1,250	13,750	
Transferred DCVWLNG entitlement water to WWD* (a	0	0	0	0	0	0	0	12,500	0	0	0	1,250	13,750	
Subtotal (*excluded water)	0	0	0	0	0	0	0	0	0	0	0	0	0	
U.S.Bureau of Reclamation														
Federal wheeling (b	2,188	0	0	384	656	0	0	1,046	1,901	2,609	323	99	9,206	
Make-up water for exports deferred	0	0	0	0	0	0	0	0	0	76,361	53,395	0	129,756	
Salmon smolt studies	0	0	0	0	0	0	0	0	0	0	0	46,324	46,324	
Recreation/fish and wildlife water (San Luis)	71	3	52	46	55	55	68	106	77	81	48	16	678	
Subtotal	2,259	3	52	430	711	55	68	1,152	1,978	79,051	53,766	46,439	185,964	
Non-SWP Area subtotal (CVP water)	2,281	25	77	456	737	80	77	1,158	2,007	79,097	53,802	46,465	186,262	
Area Summary														
SWP	88,967	62,486	48,157	78,397	126,630	276,788	309,558	249,220	111,872	68,798	34,280	49,486	1,504,639	
Non-SWP	2,281	25	77	456	737	80	77	1,158	2,007	79,097	53,802	46,465	186,262	
Area Total	**91,248**	**62,511**	**48,234**	**78,853**	**127,367**	**276,868**	**309,635**	**250,378**	**113,879**	**147,895**	**88,082**	**95,951**	**1,690,901**	**1,301,630**
Central Coastal Area														
San Luis Obispo County Flood Control and Water Conservation District														
Transferred entitlement water to TLBWSD *	0	0	0	0	0	0	0	0	100	0	0	0	100	25,000
Agency Total (*excluded water)	0	0	0	0	0	0	0	0	0	0	0	0	0	
Santa Barbara County Flood Control and Water Conservation District														
Entitlement water	0	0	0	0	0	0	0	0	0	0	0	0	0	45,486
Central Coast Water Authority														
Coast Fill	0	0	0	0	0	0	0	0	0	81	5	0	86	
SWP	0	0	0	0	0	0	0	0	0	0	0	0	0	
Non-SWP	0	0	0	0	0	0	0	0	0	81	5	0	86	
Area Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**81**	**5**	**0**	**86**	**70,486**

Table 10-4
Water Delivered in 1996, by Month
(Acre-feet)

Contracting Agency and Type of Service	Month												1996 Total	1996 Contract
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Deliveries	Entitlement
Southern California Area														
Antelope Valley-East Kern Water Agency														
Entitlement water	1,843	1,792	3,718	5,566	6,706	6,915	8,275	7,354	5,691	3,886	2,501	2,109	56,356	138,400
Transferred entitlement water from Mojave Water Agency	75	64	107	96	114	201	157	163	174	83	39	43	1,316	
Agency Total	1,918	1,856	3,825	5,662	6,820	7,116	8,432	7,517	5,865	3,969	2,540	2,152	57,672	
Castaic Lake Water Agency														
Entitlement water	785	770	808	1,028	1,801	2,037	3,066	3,314	2,637	2,030	172	0	18,448	54,200
Flexible storage withdrawal water	0	0	0	0	0	0	0	0	0	0	645	611	1,256	
Agency Total	785	770	808	1,028	1,801	2,037	3,066	3,314	2,637	2,030	817	611	19,704	
Coachella Valley Water District														
Entitlement water	0	0	2,310	0	0	5,325	5,898	5,895	3,672	0	0	0	23,100	23,100
Purchase Pool B entitlement water	0	0	0	3,852	21,511	13,756	0	0	0	0	0	0	39,119	
Agency Total	0	0	2,310	3,852	21,511	19,081	5,898	5,895	3,672	0	0	0	62,219	
Crestline-Lake Arrowhead Water Agency														
Entitlement water	41	0	0	0	0	0	0	119	141	135	49	0	485	5,800
Local water	18	45	58	63	78	111	161	69	0	0	39	82	724	
Agency Total	59	45	58	63	78	111	161	188	141	135	88	82	1,209	
Desert Water Agency														
Entitlement water	0	0	3,810	0	0	8,814	9,763	9,649	6,064	0	0	0	38,100	38,100
Purchase Pool B entitlement water	0	0	0	6,353	35,479	22,690	0	0	0	0	0	0	64,522	
Agency Total	0	0	3,810	6,353	35,479	31,504	9,763	9,649	6,064	0	0	0	102,622	
Littlerock Creek Irrigation District														
Entitlement water	0	0	0	89	80	66	83	69	46	61	0	0	494	2,300
Metropolitan Water District of Southern California														
Entitlement water	0	11,192	13,739	66,007	19,857	19,593	64,880	81,437	72,908	52,470	38,051	28,293	468,427	2,011,500
Carryover entitlement water	31,012	9,109	0	0	0	0	0	0	0	0	0	0	40,121	
Stored entitlement water	0	14,278	19,295	22,700	13,559	0	0	0	2,094	11,000	1,906	0	84,832	
Agency Total	31,012	34,579	33,034	88,707	33,416	19,593	64,880	81,437	75,002	63,470	39,957	28,293	593,380	
Mojave Water Agency														
Entitlement water	1,045	543	565	508	11	441	535	535	450	507	284	687	6,111	50,800
Transferred entitlement water to Antelope Valley-East Kern Water Agency*	75	64	107	96	114	201	157	163	174	83	39	43	1,316	
Agency Total (*excluded water)	1,045	543	565	508	11	441	535	535	450	507	284	687	6,111	
Palmdale Water District														
Entitlement water	1,251	506	16	223	768	1,726	2,181	2,120	1,860	337	13	433	11,434	17,300
San Bernardino Valley Municipal Water District														
Entitlement water	40	26	153	102	208	288	357	1,041	1,566	1,661	541	81	6,064	102,600
San Gabriel Valley Municipal Water District														
Entitlement water	0	0	0	2,525	1,420	2,353	2,579	3,406	3,330	51	325	0	15,989	28,800
San Gorgonio Pass Water Agency														
Entitlement water	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ventura County Flood Control District														
Entitlement water	0	0	0	0	0	0	0	0	0	0	0	0	0	20,000
United Water Conservation District														
Regulated delivery of local supply	0	0	0	5,698	721	163	0	0	0	0	0	0	6,582	
Recreation/Fish and Wildlife														
Recreation/fish and wildlife water	121	58	85	184	187	231	349	789	531	202	101	90	2,928	
SWP	36,231	38,383	44,664	109,296	101,779	84,547	98,284	115,960	101,164	72,423	44,666	32,429	879,826	2,492,900
Non-SWP	18	45	58	5,761	799	274	161	69	0	0	39	82	7,306	
Area Total	**36,249**	**38,428**	**44,722**	**115,057**	**102,578**	**84,821**	**98,445**	**116,029**	**101,164**	**72,423**	**44,705**	**32,511**	**887,132**	**2,492,900**

Table 10-4
Water Delivered in 1996, by Month
(Acre-feet)

Contracting Agency and Type of Service	Month												1996 Total Deliveries	1996 Contract Entitlement
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.		
All Agencies														
Total 1996 agriculture and M&I entitlement water	13,940	41,702	72,774	140,511	149,602	245,037	365,688	348,553	207,746	131,868	79,282	85,829	1,882,532	
Total interruptible entitlement water	2,117	22,519	4,011	0	0	0	0	0	0	0	0	0	28,647	
Total carryover entitlement water (c	110,613	22,801	0	0	0	0	0	0	0	0	0	0	133,414	
Total transferred entitlement water (d	75	64	107	11,942	16,114	76,983	38,384	2,450	11,315	9,542	4,539	43	171,558	
Total stored entitlement water	0	14,278	19,295	22,700	13,559	25,000	20,000	0	8,294	11,000	1,906	0	136,032	
Benicia entitlement water	0	42	880	1,046	1,353	1,254	1,173	1,183	1,151	1,161	672	491	10,406	
Vallejo entitlement water	0	125	190	791	1,017	978	972	879	673	317	32	0	5,974	
Purchase Pool A entitlement water	0	0	0	10,019	2,358	14,500	17,500	26,891	0	0	0	0	71,268	
Purchase Pool B entitlement water	0	0	0	10,205	56,990	36,446	0	0	0	0	0	0	103,641	
Subtotal (entitlement water delivered)	**126,745**	**101,531**	**97,257**	**197,214**	**240,993**	**400,198**	**443,717**	**379,956**	**229,179**	**153,888**	**86,431**	**86,363**	**2,543,472**	
Flexible storage withdrawal water	0	0	0	0	0	0	0	0	0	0	645	611	1,256	
Recreation/fish and wildlife water	211	65	148	249	273	317	459	949	651	310	165	110	3,907	
Subtotal (entitlement-related water)	**211**	**65**	**148**	**249**	**273**	**317**	**459**	**949**	**651**	**310**	**810**	**721**	**5,163**	
Subtotal (SWP water)	**126,956**	**101,596**	**97,405**	**197,463**	**241,266**	**400,515**	**444,176**	**380,905**	**229,830**	**154,198**	**87,241**	**87,084**	**2,548,635**	
Wheeling local water	23,056	2,540	3,687	15,494	140,924	168,864	196,979	169,682	66,333	72,365	63,762	47,017	970,703	
General wheeling	0	0	0	0	0	0	0	0	667	0	0	0	667	
Coast fill	0	0	0	0	0	0	0	0	0	81	5	0	86	
Subtotal (other water)	**23,056**	**2,540**	**3,687**	**15,494**	**140,924**	**168,864**	**196,979**	**169,682**	**67,000**	**72,446**	**63,767**	**47,017**	**971,456**	
Make-up water for exports deferred	0	0	0	0	0	0	0	0	0	76,361	53,395	0	129,756	
Salmon smolt studies	0	0	0	0	0	0	0	0	0	0	0	46,324	46,324	
Transferred DCVWLNG water (a (e	0	0	0	0	0	0	0	25,000	0	0	0	2,500	27,500	
Conveying CVP water annual contract	22	22	25	26	26	25	9	6	29	46	36	26	298	
Conveying CVP water (Kern National Wildlife Refuge USBR)	2,188	0	0	384	656	0	0	1,046	1,901	2,609	323	99	9,206	
Conveying CVP water recreation/fish and wildlife water (San Luis)	71	3	52	46	55	55	68	106	77	81	48	16	678	
Subtotal (CVP water)	**2,281**	**25**	**77**	**456**	**737**	**80**	**77**	**26,158**	**2,007**	**79,097**	**53,802**	**48,965**	**213,762**	
Subtotal (non-entitlement water)	**25,337**	**2,565**	**3,764**	**15,950**	**141,661**	**168,944**	**197,056**	**195,840**	**69,007**	**151,543**	**117,569**	**95,982**	**1,185,218**	
Grand Total	**152,293**	**104,161**	**101,169**	**213,413**	**382,927**	**569,459**	**641,232**	**576,745**	**298,837**	**305,741**	**204,810**	**183,066**	**3,733,853**	**4,111,341**

a) DCVWLNG is water wheeled by the Department directly to Cross Valley contractors.
b) Kern National Wildlife Refuge USBR.
c) Includes 1,455 acre-feet of 1995 carryover water transferred to DRWD from KCWA.
d) Does not include 1,455 acre-feet of 1995 carryover water transferred to DRWD from KCWA.
e) Includes 27,500 acre-feet of DCVWLNG water transferred to Westlands Water District from Lower Tule River and Pixley Irrigation District.

Table 10-5
Total Amounts of Annual Water Entitlements and Water Conveyed, by Type, 1962 through 1996
(Acre-Feet)

	Annual Entitlements According to Long-Term Water Supply Contracts							Water Conveyed								
								Deliveries								
Year	Upper Feather River Area (1)	North Bay Area (2)	South Bay Area (3)	San Joaquin Valley Area (4)	Central Coastal Area (5)	Southern California Area (6)	Total (7)	Entitlement Water (8)	Surplus and Unscheduled Water (a (9)	Other Water (b (10)	Feather River Diversions (c (11)	Recreation Water (12)	Subtotal (13)	Initial Fill Water (14)	Operational Losses and Storage Charges (d (15)	Total (16)
1962	0	0	0	0	0	0	0	0	0	18,289		0	18,289	9	272	18,570
1963	0	0	0	0	0	0	0	0	0	22,456		0	22,456	71	185	22,712
1964	0	0	0	0	0	0	0	0	0	32,507		0	32,507	171	152	32,830
1965	0	0	0	0	0	0	0	0	0	44,105		0	44,105	93	729	44,927
1966	0	0	0	0	0	0	0	0	0	67,928		0	67,928	0	1,746	69,674
1967	0	0	11,538	0	0	0	11,538	11,538	0	53,605		0	65,143	8,328	4,212	77,683
1968	550	0	109,900	81,050	0	0	191,500	171,709	121,534	14,777	866,926	0	1,174,946	498,926	117,906	1,791,778
1969	620	0	98,700	168,075	0	0	267,395	193,020	72,397	18,829	794,374	0	1,078,620	510,614	72,196	1,661,430
1970	700	0	114,200	207,700	0	0	322,600	233,993	133,024	38,080	759,759	0	1,164,856	23,947	2,435	1,191,238
1971	890	0	116,200	258,500	0	0	375,590	357,340	296,019	44,119	778,362	8	1,475,848	7,853	5,812	1,489,513
1972	970	0	118,300	420,766	0	201,723	741,759	611,801	423,964	66,638	817,398	6,489	1,926,290	100,274	53,062	2,079,626
1973	1,100	0	120,400	392,352	0	472,400	986,252	694,388	296,416	42,511	800,743	1,155	1,835,213	204,638	53,798	2,093,649
1974	1,230	0	122,400	470,350	0	588,220	1,182,200	874,077	417,676	46,224	911,613	2,118	2,251,708	237,554	10,657	2,499,919
1975	1,610	0	124,500	556,509	0	704,250	1,386,869	1,223,990	622,902	63,793	862,218	3,377	2,776,280	103,352	(94,606)	2,785,026
1976	1,990	0	126,500	555,117	0	824,780	1,508,387	1,373,002	580,110	115,217	946,440	1,745	3,016,514	61,122	(681,025)	2,396,611
1977	2,420	0	128,600	594,100	0	942,201	1,667,321	574,155	0	389,065	581,994	1,111	1,546,325	0	(131,151)	1,415,174
1978	1,850	0	130,700	647,262	0	1,038,222	1,818,034	1,452,699	16,914	121,225	786,517	1,691	2,379,046	64,443	717,370	3,160,859
1979	2,130	0	132,700	715,385	0	1,177,873	2,028,088	1,659,896	648,389	187,630	882,549	1,766	3,380,230	12,302	(83,430)	3,309,102
1980	1,810	500	134,800	770,800	1,946	1,304,914	2,214,770	1,529,749	404,557	46,459	875,045	2,131	2,857,941	0	(26,606)	2,831,335
1981	1,940	650	137,000	830,700	2,813	1,419,365	2,392,468	1,909,562	908,428	279,161	838,557	4,688	3,940,396	0	(802,263)	3,138,133
1982	1,970	800	139,200	889,200	5,626	1,537,749	2,574,545	1,750,024	215,873	154,882	776,330	4,646	2,901,755	0	480,752	3,382,507
1983	2,000	950	141,400	880,648	8,439	1,668,557	2,701,994	1,184,869	13,019	181,453	602,905	7,849	1,990,095	0	(90,997)	1,899,098
1984	3,630	1,100	143,600	991,911	12,698	1,731,398	2,884,337	1,588,619	262,917	381,024	832,332	7,040	3,071,932	0	(140,182)	2,931,750
1985	3,760	1,250	145,800	1,031,749	21,138	1,852,149	3,055,846	1,995,453	307,672	404,842	870,008	4,033	3,582,008	0	92,885	3,674,893
1986	4,190	1,400	148,100	1,139,200	28,210	1,971,190	3,292,290	1,995,636	(e 36,620	(f 193,606	791,737	3,865	3,021,464	0	284,380	3,305,844
1987	4,620	1,550	150,300	1,201,200	35,204	2,091,241	3,484,115	2,130,086	(g 114,907	377,592	831,947	7,672	3,462,204	0	(390,413)	3,071,791
1988	5,060	15,471	152,500	1,258,800	43,722	2,212,782	3,688,335	2,385,122	(h 0	507,076	794,834	4,889	3,691,921	0	(92,850)	3,599,071
1989	5,500	24,615	156,700	1,303,100	56,342	2,411,933	3,958,190	2,853,747	(i 0	474,559	830,500	8,135	4,166,941	0	447,917	4,614,858
1990	6,040	28,190	160,900	1,355,000	70,486	2,487,900	4,108,516	2,582,151	(j 90	424,697	875,099	9,262	3,891,299	0	(528,869)	3,362,430
1991	11,880	29,590	166,400	1,355,000	70,486	2,497,500	4,130,856	549,113	(k 3,521	551,051	565,395	4,879	1,673,959	0	167,435	1,841,394
1992	11,920	32,010	171,900	1,342,300	70,486	2,510,200	4,138,816	1,471,454	(l 1,156	144,789	613,978	2,605	2,233,982	0	(63,541)	2,170,441
1993	11,960	34,620	177,400	1,342,300	70,486	2,510,200	4,146,966	2,315,235	0	254,854	822,589	2,609	3,395,287	0	726,123	4,121,410
1994	12,000	37,215	182,000	1,342,300	70,486	2,510,200	4,154,201	1,861,976	0	236,739	874,018	8,200	2,980,933	0	(295,405)	2,685,528
1995	12,050	44,030	184,000	1,342,300	70,486	2,510,200	4,163,066	2,031,423	0	62,836	860,077	2,575	2,956,911	0	69,536	3,026,447
1996	12,100	48,225	186,000	1,301,630	70,486	2,492,900	4,111,341	2,543,472	0	251,391	934,997	3,907	3,733,767	86	491,550	4,225,403
Total	**128,490**	**302,166**	**4,132,638**	**24,745,304**	**709,540**	**41,670,047**	**71,688,185**	**42,109,299**	**5,898,105**	**6,329,598**	**23,379,241**	**108,445**	**77,824,688**	**1,833,783**	**310,236**	**79,953,118**

a) Values include amounts of deliveries to short-term contractors (Mustang Water District, 1970-72; Tracy Golf and Country Club, 1974, 1979, and 1980; Green Valley Water District, 1974, 1975, 1978, 1979, 1980, and 1985; and Granite Construction Company, 1980).
b) Includes amounts of SWP and non-SWP water conveyed for SWP and non-SWP contractors.
c) Includes amounts of water diverted under various water rights agreements.
d) Amounts reflect net effect of (1) operational losses from SWP transportation facilities; (2) changes in reservoir storage south of the Delta; (3) storable local inflows to SWP reservoirs; (4) side inflow to San Luis Canal; and (5) inflow into California Aqueduct from Kern River Intertie.
e) Includes 37,170 acre-feet of entitlement water carried over from 1985.
f) Includes 12,270 acre-feet of surplus water carried over from 1985.
g) Includes 639 acre-feet of 1988 entitlement water delivered during 1987 and 16,171 acre-feet of entitlement water recaptured from groundwater storage.
h) Includes 67,581 acre-feet of 1987 entitlement water delivered in 1988 and 8,749 acre-feet recaptured from groundwater storage.
i) Includes 149,880 acre-feet of 1988 entitlement water delivered in 1989 and 89 acre-feet of 1990 entitlement water delivered during 1989.
j) Includes 128,546 acre-feet of 1989 water delivered in 1990.
k) Includes 27,075 acre-feet of 1990 entitlement water and 148 acre-feet of 1992 entitlement water delivered in 1991.
l) Includes 92,282 acre-feet of 1991 entitlement water delivered in 1992; 3,484 acre-feet of make-up water; and 72,000 acre-feet recaptured from groundwater storage (including 57,171 acre-feet of Groundwater Demonstration Program water).

Water Deliveries and Credits to Long-Term SWP Contractors

Table 10-3 shows amounts of water delivered in 1996 and future entitlement credits granted to long-term contractors through 1996. The following information about specific columns in Table 10-3 is arranged by column number.

1996 Entitlement Water Delivered. Columns 1 through 4 show a detailed breakdown of entitlement water delivered to long-term water supply contractors in 1996.

1996 Interruptible Water. Column 5 shows 28,647 acre-feet of 1996 Interruptible Water delivered to long-term water supply contractors in 1996.

1995 Carryover Entitlement Water Delivered During 1996. In some instances, with the Department's approval, contractors may delay delivery of entitlement water to the next year (also known as carryover entitlement water). Column 6 shows that the SWP delivered 131,959 acre-feet of entitlement water carried over from 1995 to six contractors.

Article 12(d) Water. No Article 12(d) water was delivered in 1996. (See column 7).

Article 14(b) Water. No Article 14(b) water was delivered in 1996. (See column 8).

Purchase Pool A Water. Column 9 shows 71,268 acre-feet of Purchase Pool A water delivered to TLBWSD in 1996.

Purchase Pool B Water. Column 10 shows 103,641 acre-feet of Purchase Pool B water delivered to two long-term water supply contractors in 1996.

Total Entitlement Water Delivered. Column 11 shows all entitlement water delivered in 1996, a total of 2,543,472 acre-feet. This amount includes 165,047 acre-feet of entitlement water transferred to or exchanged with WWD, and 174,909 acre-feet of purchase pool water.

Other Water Deliveries. Column 12 includes deliveries of water other than entitlement water, such as deliveries of nonproject water, to long-term water contractors. Nonproject water is generally defined as water purchased from non-SWP agencies. The water is conveyed by the Department and in some instances stored in SWP facilities under special agreements for future deliveries.

In 1996, other water deliveries totaled 31,714 acre-feet.

Total Deliveries. Column 13 shows total amounts of water delivered to long-term contractors. In 1996, the SWP delivered 2,575,186 acre-feet to 25 long-term contractors. This amount included 2,543,472 acre-feet of entitlement water and 31,714 acre-feet of other SWP and nonproject water.

Carryover Water Approved for Delivery. For several years, the Department has offered contractors the opportunity to carry over a portion of their entitlement water approved for delivery in the current year for delivery during the next year. The carryover program was designed to encourage the most effective and beneficial use of water and to avoid obligating the contractors to use or lose the water by December 31 of each year. The SWP contractors' long-term contracts and amendments state the criteria of carrying over entitlement water from one year to the next. The exception is EWSID, which has an ongoing carryover program whose terms and conditions are specified in an agreement between the Department and the district dated October 1, 1979.

In 1996, there was no carryover water approved for future delivery.

Water Delivered in 1996, by Month

During 1996, the SWP provided water service to 42 agencies, including 25 long-term water contractors. Those agencies and the amounts of water delivered to them by month are listed in Table 10-4.

This section and the accompanying table summarize water deliveries for 1996. Information about those deliveries is categorized as State Water Project Water and Nonproject Water.

State Water Project Water. State Water Project water is classified into the following categories:

Entitlement water
current year entitlement (1996)
interruptible entitlement (1996)
transfer entitlement (1996)
carryover entitlement (1995)
Benicia and Vallejo entitlement (1996)
stored entitlement (1996)
Pool A entitlement (1996)
Pool B entitlement (1996)

Recreation and fish and wildlife water
enhancement
mitigation

Operational flood release water
operational flood release.

In addition, the SWP may approve exchanges and transfers of entitlement water among various contractors if certain conditions are met. The SWP may temporarily loan water to contractors if satisfactory arrangements are made for repayment and water is available within the system.

In 1996, SWP water was delivered in the following classifications and amounts.

Entitlement Water

A total of 2,543,472 acre-feet of 1996 entitlement water was delivered to 25 long-term contractors.

Transfers of Entitlement Water. During 1996, a total of 171,558 acre-feet of entitlement water was transferred between six SWP long-term contractors and one non-SWP water agency as follows:

- DRWD to TLBWSD, 3,595 acre-feet;
- KCWA to WWD, 161,047 acre-feet;
- KCWA to TLBWSD, 1,500 acre-feet;
- TLBWSD to WWD, 4,000 acre-feet;
- SLOCFCWCD to TLBWSD, 100 acre-feet; and
- MWA to Antelope Valley-East Kern Water Agency, 1,316 acre-feet;

Carryover Entitlement Water. In 1996, SWP delivered 131,959 acre-feet of 1995 carryover entitlement water to Solano County Water Agency, Santa Clara Valley Water District, EWSID, KCWA, TLBWSD, and MWD. KCWA transferred 1,455 acre-feet of carryover water to DRWD.

Interruptible Entitlement Water. The interruptible entitlement water program allows a contractor to take delivery of entitlement water over the approved and scheduled allocations for the current year. Interruptible water is available for delivery on a short-term basis as determined by the Department when scheduled project demands are being delivered and operational requirements for project water deliveries, water quality, and other requirements are being met.

In 1996, three contractors participated in the program. A total of 28,647 acre-feet of interruptible water was delivered to DRWD, KCWA, and TLBWSD.

Water for Recreation and Fish and Wildlife. A total of 3,907 acre-feet of SWP water was conveyed for recreational use and enhancement of fish and wildlife.

Recreational Use. The SWP delivered 715 acre-feet of water for facilities at Lake Del Valle, O'Neill Forebay, Silverwood Lake, Lake Perris, and Castaic Lake. In addition, 2,362 acre-feet were delivered to Castaic Lake and Castaic Lagoon, an impoundment downstream from Castaic Lake devoted entirely to recreation.

Trout Fishery. The SWP released 1 acre-foot of water to maintain a trout fishery in Piru Creek as a condition of obtaining a license from the Federal Energy Regulatory Commission to develop a power plant at Pyramid Lake.

Wildlife Management. The SWP delivered 829 acre-feet of water to use in managing wildlife in the Pilibos Wildlife Area, located on about 770 acres of land near O'Neill Forebay, 40 miles south of Los Banos.

Operational Flood Release Water. There was no operational flood release water delivered in 1996.

Nonproject Water

In 1996, the Department used SWP facilities to convey non-SWP water for various agencies according to the terms of water rights and water transfer and exchange agreements. The Department used SWP facilities to convey CVP water; water transferred

from Byron-Bethany Irrigation District to ACFCWCD-Zone 7; water rights water; and water acquired by WWD from Kings River Water Association for delivery within WWD. Detailed information concerning those conveyances follow.

Alameda County Flood Control and Water Conservation District-Zone 7. Under a contract executed July 28, 1995, between the Department and ACFCWCD-Zone 7, the Department conveyed 667 acre-feet of non-SWP water for ACFCWCD-Zone 7 during 1996. The Department conveyed this water in September directly from the Delta to Reach 2 of the South Bay Aqueduct. ACFCWCD-Zone 7 purchased the rights to transfer this water from Byron-Bethany Irrigation District under a separate contract.

Central Valley Project Water. In 1996, the Department conveyed 213,762 acre-feet of CVP water through SWP facilities. Conveyance was made in accordance with agreements negotiated with USBR as follows:

Cross Valley Canal Contractors. Under two individual agreements between the Department and LTRID and PID, dated July 12, 1996, the Department conveyed 13,750 acre-feet of CVP water for each district to WWD from Reach 5 of the California Aqueduct.

Musco Olive Products, Incorporated. In accordance with terms of two conveyance agreements with the USBR dated May 9, 1995, and April 16, 1996, the Department conveyed 268 acre-feet of CVP water to Reach 2A of the California Aqueduct for Musco Olive Products, Inc.

Recreational and Wildlife Use. In 1996, the Department conveyed 678 acre-feet of CVP water to the Department of Fish and Game at O'Neill Forebay and at WWD's Lateral 4L within Reach 5 of the joint use facilities of the California Aqueduct.

U.S. Bureau of Reclamation. During October through December 1996, the Department conveyed a total of 176,080 acre-feet of CVP water for USBR through SWP facilities under two agreements dated December 13, 1996, and January 12, 1997. This amount includes 129,756 acre-feet of make-up water for exports deferred, and 46,324 acre-feet for salmon smolt studies.

U.S. Department of Veterans Affairs. Under an annual agreement with the USBR dated April 16, 1996, the Department conveyed 30 acre-feet through SWP facilities to maintain the San Joaquin Valley National Cemetery near Santa Nella, California. Deliveries were made through Reach 2B of the California Aqueduct.

U.S. Fish and Wildlife Service. The Department conveyed 9,206 acre-feet of CVP water for the USFWS according to provisions of a cooperative agreement initiated by the USBR dated September 9, 1994. The water was conveyed to the Kern National Wildlife Refuge through Reach 10A of the California Aqueduct.

Westlands Water District-Kings River. An agreement dated May 17, 1996, between the Department and WWD approved the acceptance into the California Aqueduct of up to 10,000 acre-feet of Kings River flood water from the Mendota Pool for conveyance to WWD within reaches 5, 6, and 7 of the California Aqueduct. The non-SWP water was delivered from the Mendota Pool to the Aqueduct through WWD's Lateral 7. The agreement was effective from May through June 1996. During this period 955 acre-feet of Kings River water was conveyed to WWD.

Water Rights Water. Water in this category is transported through SWP facilities to long-term SWP contractors and other agencies according to terms of various local water rights agreements. Some water simply passes through SWP transportation facilities; a portion is stored in SWP reservoirs for release at a later time. In 1996, 970,703 acre-feet of water in this category were delivered to the Feather River, North Bay, South Bay, and Southern California areas.

Feather River Area. Nine nonproject agencies in the Feather River area received 934,997 acre-feet. Those agencies are Last Chance Creek Water District (11,404 acre-feet), Thermalito Irrigation District (2,613 acre-feet), Oroville-Wyandotte Irrigation District (7,109 acre-feet), Western Canal Water District (255,021 acre-feet), Joint Water District Board (632,787 acre-feet), Tudor Mutual Water Company (3,280 acre-feet), Oswald Water District (1,063 acre-feet), Garden Highway Water Company (13,705 acre-feet), and Plumas Mutual Water Company (8,015 acre-feet).

North Bay Area. In the North Bay area, the Department delivers water as Vallejo permit water to SCWA. The city of Vallejo, as a member agency, has contractual rights to extra capacity in the North Bay Aqueduct to transport this water. In 1996, no water was delivered under this classification.

South Bay Area. In the South Bay area, 28,400 acre-feet of local water were delivered to ACFCWCD-Zone 7 and ACWD. These two South Bay Aqueduct contractors hold water rights to runoff from the Lake Del Valle watershed.

Southern California. In Southern California, 724 acre-feet of local runoff from the Houston Creek watershed were stored and delivered to Crestline-Lake Arrowhead Water Agency. These local water rights have been signed over to the Department as part of the contractual arrangements for storing and delivering this local runoff for the Crestline-Lake Arrowhead Water Agency. Also, under an agreement dated October 24, 1978, between the Department, the County of Los Angeles, Newhall Land and Farming Company, Newhall County Water District, and United Water Conservation District, the Department stored and released 6,582 acre-feet of flood water from Castaic Reservoir during 1996.

Annual Water Entitlements and Water Delivered Since 1962

Information about annual water entitlements and water conveyed for the past 34 years is contained in Table 10-5. The following discussion of entitlements and water conveyed is arranged according to column numbers.

Annual Entitlements. Columns 1 through 7 of Table 10-5 show the amount of the long-term contractor's entitlement water by area for years 1962 through 1996 as specified in the entitlement schedules (Table A, Annual Entitlements) of the long-term water supply contracts.

In some instances these entitlement schedules, projections of each contractor's need for water to 2035, have been amended to meet the needs of individual contractors. The amounts of entitlement water each contractor may request for years 1962 through 2035 may be found in Table B-4, Annual Entitlements to Project Water, in Appendix B.

Water Delivered. Columns 8 through 16 show water delivered or conveyed, including initial fill water and operational losses and storage changes.

Entitlement Water. Column 8 shows amounts of entitlement water delivered each year from 1962 through 1996. In 1996, entitlement water delivered to 25 contractors totaled 2,543,472 acre-feet. That amount includes 28,647 acre-feet of 1996 interruptible entitlement water.

Surplus and Unscheduled Water. Surplus and unscheduled water is water in excess of that required to meet all demands for entitlement water and water to be stored in SWP reservoirs.

Column 9 shows amounts of surplus and unscheduled water delivered from 1962 through 1996. During 1993 through 1996, surplus and unscheduled water were not delivered.

Column 10 includes amounts of water classified as other water delivered in 1996, including nonproject water conveyed through SWP facilities and regulated delivery of local supply.

In 1996, a total of 251,391 acre-feet of other water was delivered.

Feather River Diversions. Column 11 includes amounts of water from the Feather River delivered according to agreements for water rights water. In 1996, a total of 934,997 acre-feet in this category was delivered to agencies in the Feather River area.

Recreation Water. Column 12 shows water conveyed for recreational use or to provide water or improve water quality for fish and wildlife. In 1996, a total of 3,907 acre-feet of SWP water was conveyed for this purpose.

Initial Fill Water. The quantities listed in Column 14 represent the amounts used to initially fill the aqueducts and reservoirs south of the Delta to maximum operating capacities. Initial filling began in 1962 with the filling of the South Bay Aqueduct and

was completed in 1979 when Lake Perris reached its maximum operating capacity of 127,000 acre-feet.

In 1996, 86 acre-feet were delivered CCWA for the initial fill and testing for the Coastal Branch, Phase II.

Operational Losses. Column 15 includes the total amounts of water lost through evaporation and seepage, net storage changes in reservoirs south of the Delta, and amounts of inflow from local drainage areas, including inflows into San Luis Canal and from the Kern River Intertie. In 1996, that amount totaled 491,550 acre-feet.

Negative values are indicated for years when withdrawals and evaporation from reservoirs south of the Delta exceed the amounts of water added to the reservoirs.

Information for this chapter was provided by the State Water Project Analysis Office.

Chapter 11
Power Resources

Circuit breaker at Barker Slough Pumping Plant switchyard

Significant Events

- In 1996, State Water Project plants consumed 5.3 billion kWh and generated 5.2 billion kWh of energy.

- The Department purchased 1.56 billion kWh of energy in 1996 at a cost of $23.62 million. Associated costs for capacity, transmission, and dispatching services totaled $32.83 million.

- The Department sold 4.40 billion kWh of energy in 1996 to 32 utilities and 9 power marketers for total revenues of $62.97 million. The Department also received $6.01 million in revenues for capacity, exchanges, and transmission arrangements.

- Mojave Siphon Powerplant started commercial operation on August 10, 1996. The powerplant has a nameplate rating of 32.4 MW and is located upstream of Silverwood Lake on the East Branch of the California Aqueduct.

- The electric utility industry in California will undergo significant restructuring changes in 1998, due to federal and State regulatory orders concerning access to wholesale and retail transmission service and legislation (AB 1890), signed into law in California on September 23, 1996. The law calls for the creation of the California Independent System Operator Corporation (ISO), which will operate the transmission grid in California, and the California Power Exchange Corporation (PX), which will function as a power pool.

Starting in 1998, restructuring is expected to impact the way the Department conducts its power and transmission transactions. Although the Department can operate under its existing contracts at ISO and PX startup, the Department intends to participate in the ISO as soon as possible. The timing and extent of the Department's participation are dependent on technical, organizational, and cost issues that the Federal Energy Regulatory Commission, ISO, and PX are trying to resolve. Throughout 1996, the Department actively participated in the Western Power Exchange process in which California's Investor Owned Utilities and other participants identified issues and developed a consensus on the filing to FERC that would establish the ISO and PX.

The SWP requires dependable, economical sources of power to deliver affordable water to long-term contractors. Responding to that need, the Department developed and administers a comprehensive power resources program. Key elements of the program include timing generation and pumping schedules strategically, purchasing power resources and transmission services, making short-term sales of power surpluses, and conducting studies of power resources for future needs.

Power Resources Program

The goals of the SWP power resources program are to:

- obtain reliable, environmentally sensitive, and competitively-priced power sources and transmission services sufficient to operate the SWP;
- develop and manage power resources to minimize the cost of water deliveries to SWP contractors;
- minimize impacts on the SWP when major contractual power arrangements begin to expire in 2004;
- meet responsibilities and criteria of the Western Systems Coordinating Council; and
- conform with regulations of the California Energy Commission and the Federal Energy Regulatory Commission.

To achieve these goals, the Department constructed its own power facilities and contracted for long-term power resources with many electric utilities. In addition, the Department arranged for transmission service between SWP power resources and pumping loads and interconnected utilities. The power resources program takes advantage of SWP water storage and conveyance capacities that can allow the Department to operate SWP pumps somewhat independently of water delivery needs. This control of pumping loads and generation enables the Department to enter into advantageous agreements with other electric utilities. Those agreements complement the use of SWP generation to meet SWP power requirements.

Existing SWP Power Facilities

Figure 11-1 shows the names and locations of the Department's primary power facilities.

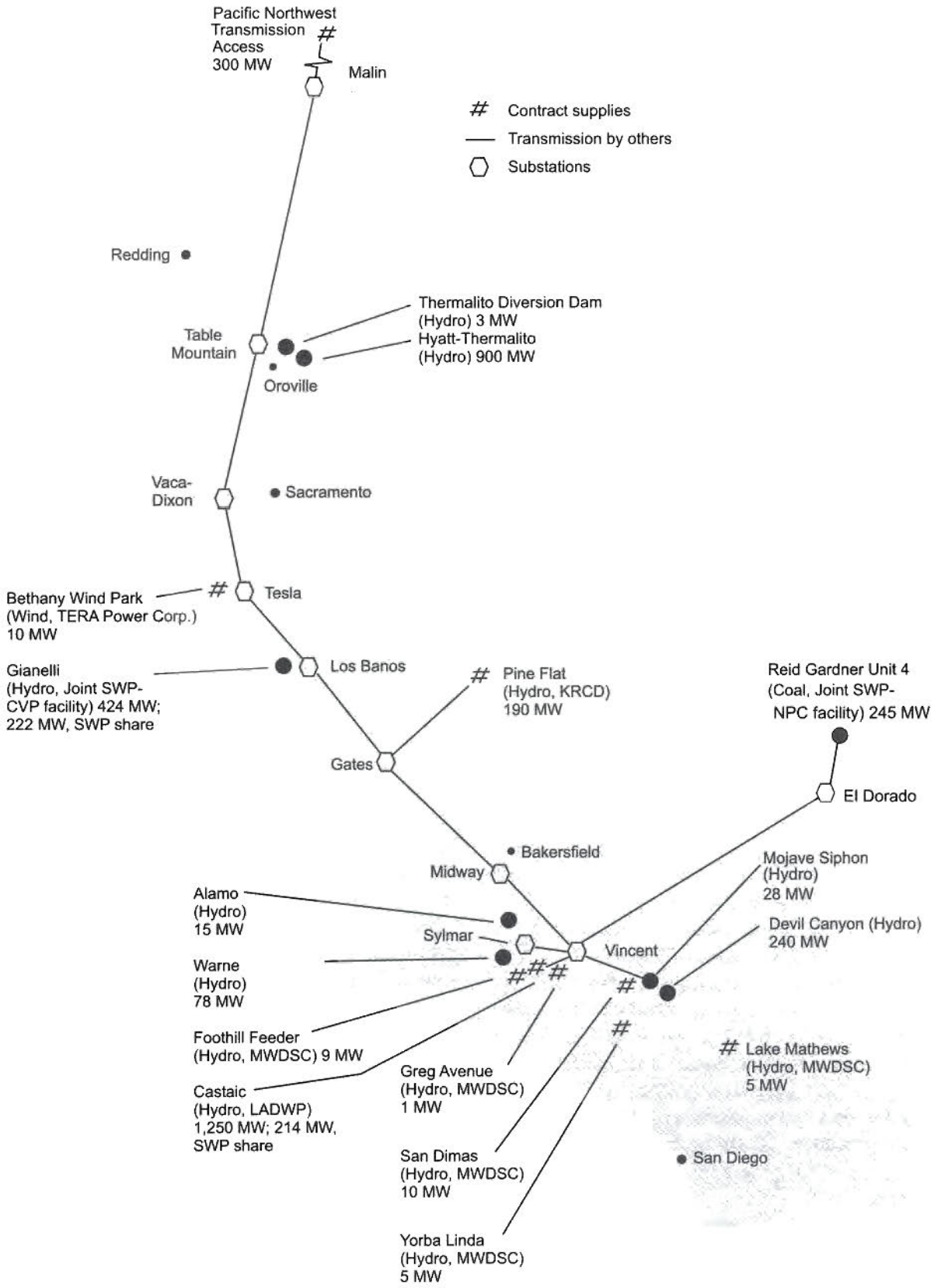
Hydroelectric. Economic hydroelectric generation provides the largest share of SWP power resources. The combined 900-megawatt Hyatt Pumping-Generating Plant and Thermalito Pumping-Generating Plant (Hyatt-Thermalito) generate about 2.2 billion kilowatt-hours in a median water year, while the 3 MW Thermalito Diversion Dam Powerplant adds another 24 million kWh a year.

Generation at SWP aqueduct recovery plants—Gianelli, Alamo, Devil Canyon, Warne, and Mojave Siphon—varies with the amount of water conveyed. These five plants generate about one-sixth of the total energy used by the SWP.

Coal. Since July 1983, the Department has received energy from Reid Gardner Powerplant, a coal-fired facility near Las Vegas, Nevada. Reid Gardner consists of four units. The Department owns 67.8 percent of Unit 4 (169.5 MW based on nameplate capacity of 250 MW), while Nevada Power Company owns the remainder of Unit 4 as well as all of units 1, 2, and 3.

The Department will receive up to 245 MW, beginning in September 1998, from Unit 4 (based on an upgraded generating capacity of 275 MW) subject to NPC's limited right to interrupt the Department's energy deliveries during specified periods. Whenever NPC interrupts the Department's scheduled energy, the Department receives payment based on NPC's combustion turbine cost.

Figure 11-1
Names, Locations, and Generation Capability of Primary Power Facilities



The market rates for nonfirm energy sales during most of 1996 continued to be below Reid Gardner Unit 4 energy production rates. To minimize economic losses, the Department entered into an agreement with NPC similar to the agreement for the summer of 1995. Under this agreement, from June 17, 1996, through September 13, 1996, NPC had the sole use of Unit 4 to meet high energy demands during the hot summer months. During this period, NPC used the Department's share of the coal stockpile to generate 165,600 MWh of electricity to minimize the Department's carrying charges for 1996 coal purchases required by long-term contracts. NPC would reimburse the Department for the production cost of the 165,600 MWh and would supply any coal required for Unit 4 operations beyond the 165,600 MWh. In addition, the Department received a small payment from the Department's entitlement energy made available to NPC during this period.

Future SWP Power Facilities

To meet future SWP power requirements, the Department also considers and evaluates new power resources. When considering or evaluating those resources, the Department reviews SWP power requirements and analyzes the type of resource and its cost. A potential power resource may be evaluated according to the following factors:

- ability to meet anticipated power requirements for pumping;
- transmission access availability;
- anticipated water deliveries to contractors;
- cost of the resource;
- availability and cost of financing;
- environmental impacts and costs of mitigation; and
- operating characteristics.

The Department continued to consider several potential power resources. These included a second unit at Alamo Powerplant, a third unit at Warne Powerplant, and additional capacity at Hyatt-Thermalito.

Contractual Resource Arrangements

Through joint development, exchanges, and purchases, the Department obtains a significant amount of capacity and energy for SWP operations from other utilities throughout California, the Northwest, and the Southwest. Under these agreements, the Department can sell, buy, or exchange energy.

Some agreements allow the Department to sell, buy, and/or exchange short-term firm capacity and/or firm energy on an hourly, daily, weekly, or monthly basis. Those agreements permit more efficient use of the Department's generating resources and more efficient scheduling of energy deliveries.

Negotiations continue with various utilities in the Pacific Northwest to develop arrangements for purchases, sales, and exchanges to take advantage of the Department's 300 MW transmission capacity on the Extra-High Voltage Pacific Northwest Intertie.

To reduce SWP power costs, the Department will continue to use the EHV Intertie and negotiate with utilities and marketers in California, the Northwest, and the Southwest for purchases and sales of power.

Joint Developments. In 1966, the Department entered into a contract with the Los Angeles Department of Water and Power for the joint development of the West Branch of the California Aqueduct. The LADWP constructed and operates Castaic Powerplant, which is electrically connected to the LADWP transmission system at the Sylmar Substation.

The Department receives capacity and energy at the Sylmar Substation based on weekly water schedules through the West Branch.

Gianelli Pumping-Generating Plant is a joint SWP (222 MW) and U.S. Bureau of Reclamation (202 MW) facility.

Power Exchanges. The largest portion of the energy used by the SWP is provided by the 1979 Power Contract and the 1981 Capacity Exchange Agreement with Southern California Edison Company. Service began in April 1983 under the Power Contract and in April 1987 under the CEA.

According to terms of the Power Contract, the Department provides SCE with up to:

- 350 MW of capacity and approximately 40 percent of the energy from Hyatt-Thermalito;

- 120 MW of capacity and all the energy generated by Devil Canyon Powerplant Units 1 and 2; and
- 15 MW of capacity and all the energy generated by Alamo Powerplant.

In return, the Department receives off-peak energy from SCE equal to the amount of energy provided to SCE from Hyatt-Thermalito, Devil Canyon Powerplant, and Alamo Powerplant, plus an additional amount of energy as payment for the capacity. The amount of additional energy is determined annually based on the Capacity-Energy Exchange Formula defined in the 1979 Power Contract. The formula determines the value of capacity in dollars and converts the dollar amounts into an equivalent amount of off-peak energy.

According to terms of the CEA, each year the Department must provide 412.5 million kWh of energy to SCE during on-peak periods at a maximum delivery rate of 225 MW. SCE returns approximately 110 percent of the energy the Department provides during mid-peak and off-peak periods. In addition, SCE waives 75 percent of its charges to the Department for specified firm transmission service provided to SWP pumping and generating facilities. SCE also makes an annual payment of $900,000 to the Department.

In addition, according to terms of the 1979 Power Contract, SCE receives energy from four of the Metropolitan Water District of Southern California powerplants—Lake Mathews, Foothill Feeder, San Dimas, and Yorba Linda. In return, the Department receives off-peak energy from SCE averaging 107 percent of the total energy provided to SCE from those plants. All the energy from the fifth plant, Greg Avenue, is provided to LADWP according to a 1983 agreement between LADWP and the Department. The utility returns 98.8 percent of this energy to the Department during off-peak periods.

Purchases. The Department obtains a significant amount of energy through long-term and short-term purchase agreements with utilities in California, the Northwest, and the Southwest.

Long-Term Purchases. The Department purchases hydroelectric energy generated by other utilities. The output of the 165 MW Pine Flat Powerplant, owned and operated by the Kings River Conservation District, supplies the SWP about 400 million kWh of energy in median water years.

The Department contracts for the energy output of five hydroelectric plants owned and operated by MWD. The total capacity of those plants is 30 MW. To use this resource efficiently, the Department included it in the exchange arrangements with SCE.

Beginning in late 1983, the Department purchased wind-generated energy from TERA Power Corporation. The energy is delivered from the Bethany Wind Park to the South Bay Pumping Plant near Tracy. Originally TERA installed 168 wind machines, with a total capacity of 9.45 MW. However, because of mechanical failures and subsequent litigation involving the developer, investors, and manufacturers, many machines have been out of service since 1987. In early 1996, the Department terminated the contract due to a contract breach by TERA Power Corporation. The Department proposes to dismantle and remove the wind park facilities.

The Department signed an agreement with PacifiCorp of Portland, Oregon, to purchase 100 MW of firm capacity and associated energy. That agreement became effective June 1, 1991, and will continue through 2004.

Short-Term Purchases. The Department contracted with Pacific Gas and Electric Company, SCE, and Bonneville Power Administration (a federal agency created to market energy) to purchase power when needed.

Additionally, according to terms of the 1988 Coordination Agreement between the Department and MWD, the Department may purchase surplus energy from MWD's Colorado River Aqueduct system. The Coordination Agreement provides for coordinated operation between the SWP and MWD's Colorado River Aqueduct system. It also provides for:

- monthly surplus firm energy sales to MWD;
- economy energy sales to MWD;
- surplus energy purchases from the Colorado River Aqueduct system; and

- energy exchanges between the Department and MWD.

As of December 1996, the Department also had 35 other agreements to purchase interruptible economy energy to satisfy unexpected, short-term energy shortages, and to sell surplus short-term energy.

Contractual Transmission Arrangements

Although able to acquire transmission independently, the Department depends on other sources for transmission services. PG&E and SCE are the Department's primary providers of transmission service between SWP power resources and pumping loads and interconnected utilities for purchases, sales, and exchanges of power.

Under the Comprehensive Agreement with PG&E, the Department receives 1,355 MW of firm transmission service over the PG&E transmission system between SWP pump loads and power resources in Northern and Central California. The agreement allows the Department to request and receive additional firm and interruptible transmission service if needed.

To interconnect the SWP loads and resources in Southern California, the Department receives transmission service from SCE over the SCE transmission system under the SCE-DWR Power Contract and Firm Transmission Service Agreement.

In August 1967, the Department contracted for 300 MW of transmission capacity on the EHV Pacific Northwest Intertie from the California-Oregon border to the Table Mountain, Tesla, Los Banos, and Midway substations. The Department retains its entire 300 MW share of EHV capacity for access to the Pacific Northwest until 2005; 100 MW of this capacity is committed to receiving the long-term purchase of 100 MW from PacifiCorp.

In December 1984, the Department signed a Memorandum of Understanding with many public and private California utilities. As implemented in the Interim Participation Agreement and the Long-Term Participation Agreement, the Department has an option (which can be exercised during a 5-year period beginning in January 2005) to purchase 97 MW of transmission capacity on the third 500 kV transmission line that connects California with the Pacific Northwest. The transmission line began operation March 17, 1993.

Other SWP transmission needs are currently met by contractual arrangements with California utilities.

Load Management

The SWP controls the timing of its pumping load through an extensive computerized network. That control system allows the Department to minimize the cost of power it purchases by maximizing pumping during off-peak periods when power costs are lower—usually at night—and to sell power to other utilities during on-peak periods when power values are high. By taking advantage of this flexibility in scheduling SWP pumping load and generation, the Department reduces the net cost of power needed for SWP water deliveries.

Sales of Excess Power. When generation from SWP power resources exceeds requirements, the Department sells the excess power on the market. Currently, the Department has contracts with about 35 utilities and marketers for short-term purchase, sale, or exchange of power. In addition to selling firm power, the Department may sell power on a day-to-day or hour-to-hour basis according to the terms of its interchange agreements and of the Western System Power Pool agreement. These agreements provide the basis for making economy energy transactions, short-term capacity and energy sales or exchanges, unit commitments, and transmission service purchases. Through these contracts, the Department sells excess capacity and energy at market rates.

SWP Power Operation in 1996

Tables 11-1 through 11-4 present statistical information about SWP power operation for calendar year 1996, including energy consumed and generated, energy exchanged and purchased, and power sold.

Table 11-1
Energy Used at Pumping Plants and Power Plants in 1996, by Month
(Millions of Kilowatt-Hours)

Pumping Plants and Power Plants	Month												
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Hyatt-Thermalito Pumping-Generating Plant (Pumpback and station service)	43.21	0.00	0.03	0.00	4.51	23.43	7.42	5.22	32.30	0.14	7.07	3.04	126.37
North Bay Interim Pumping Plant	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02
Cordelia Pumping Plant	0.16	0.12	0.41	0.62	0.84	0.83	0.82	0.81	1.17	0.78	0.70	0.62	7.88
Barker Slough Pumping Plant	0.15	0.10	0.35	0.56	0.92	0.97	0.98	0.84	0.73	0.44	0.32	0.27	6.63
South Bay Pumping Plant	3.08	0.62	2.07	6.45	8.18	10.76	12.15	10.27	4.60	4.07	1.97	4.42	68.64
Bottle Rock Powerplant (station service)	0.04	0.05	0.08	0.06	0.05	0.04	0.05	0.05	0.05	0.04	0.04	0.06	0.61
Del Valle Pumping Plant	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.13	0.21	0.04	0.47
Banks Pumping Plant	100.38	48.71	49.28	47.19	41.72	83.64	106.64	100.17	98.00	73.00	82.74	45.92	877.39
Gianelli Pumping-Generating Plant	67.88	5.65	2.60	3.26	8.55	12.47	19.40	13.64	43.20	33.65	69.02	27.27	306.59
Dos Amigos Pumping Plant (SWP share)	22.90	23.69	24.68	32.50	31.98	44.89	52.45	62.37	29.71	18.50	10.54	12.00	366.21
Buena Vista Pumping Plant	7.89	14.15	17.86	29.86	29.44	30.99	34.50	31.94	28.44	14.24	9.71	8.15	257.17
Teerink Pumping Plant	7.08	13.32	16.84	30.34	28.54	26.91	29.62	29.26	30.09	14.87	10.53	8.69	246.09
Chrisman Pumping Plant	15.54	30.02	37.13	67.56	61.94	57.29	63.87	63.95	67.04	32.78	23.79	19.57	540.48
Edmonston Pumping Plant	54.07	107.20	133.37	243.12	218.91	201.18	224.91	226.10	239.75	114.69	85.83	70.17	1,919.30
Alamo Powerplant (station service)	0.05	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.06	0.06	0.28
Pearblossom Pumping Plant	6.13	10.20	9.30	41.42	38.90	37.08	44.18	44.97	45.53	6.54	0.43	2.52	287.20
Mojave Powerplant (station service)	0.09	0.08	0.08	0.07	0.07	0.06	0.06	0.01	0.00	0.04	0.06	0.07	0.69
Devil Canyon Powerplant (station service)	0.16	0.18	0.20	0.05	0.01	0.06	0.02	0.00	0.00	0.21	0.19	0.18	1.26
Oso Pumping Plant	3.42	8.49	11.40	10.60	8.08	6.58	6.20	6.28	7.75	10.57	9.64	6.88	95.89
Warne Powerplant (station service)	0.11	0.08	0.07	0.07	0.09	0.09	0.12	0.13	0.08	0.04	0.03	0.11	1.02
Las Perillas Pumping Plant	0.38	0.20	0.30	0.85	1.21	1.72	1.78	1.44	0.72	0.57	0.08	0.08	9.33
Badger Hill Pumping Plant	0.96	0.49	0.78	2.34	3.28	4.70	4.90	4.02	1.97	1.51	0.17	0.15	25.27
Devil's Den Pumping Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.06	0.06	0.25
Bluestone Pumping Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.05	0.05	0.22
Polonio Pass Pumping Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.04	0.05	0.21
Subtotal	333.69	263.40	306.87	516.93	487.23	543.70	610.08	601.48	631.14	327.23	313.28	210.44	5,145.47
High Voltage Transmission Line Losses	8.16	9.69	9.08	12.16	13.53	13.58	17.90	14.68	16.81	18.12	13.68	15.38	162.77
Total Energy Required for SWP	**341.85**	**273.09**	**315.95**	**529.09**	**500.76**	**557.28**	**627.98**	**616.16**	**647.95**	**345.35**	**326.96**	**225.82**	**5,308.24**

Table 11-2
Energy Generated and Purchased in 1996, by Month
(Millions of Kilowatt-Hours)

Sources of Energy	Month												
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
SWP Energy Sources (a													
Hyatt-Thermalito Powerplant	233.35	506.61	347.13	361.98	384.56	275.61	382.60	301.53	113.11	122.28	131.50	432.23	3,592.49
Gianelli Pumping-Generating Plant (SWP share)	0.65	3.92	6.45	25.87	39.44	21.77	21.61	32.35	7.91	1.78	0.00	3.22	164.97
Alamo Powerplant	1.28	1.86	1.94	8.03	7.98	7.51	8.90	8.91	9.03	1.24	0.20	0.03	56.91
Mojave Siphon	0.00	0.00	0.00	0.00	0.00	0.45	1.30	6.07	7.06	0.82	0.00	0.00	15.70
Devil Canyon Powerplant	8.93	18.37	16.15	72.37	69.76	63.50	76.08	78.78	78.35	16.86	14.76	12.33	526.24
Reid Gardner Unit 4 (b	53.73	58.86	60.07	55.86	(2.04)	16.48	0.00	0.00	59.78	107.47	102.61	119.64	632.46
Warne Powerplant	7.32	18.00	23.37	22.41	16.68	13.71	13.08	12.51	16.68	22.72	21.65	12.92	201.05
Subtotal	305.27	607.62	455.11	546.52	516.38	399.03	503.57	440.14	291.92	273.17	270.72	580.37	5,189.82
Energy Sources from Long-Term Agreements (a													
Castaic Powerplant	11.10	30.54	40.05	35.71	26.98	23.77	20.61	22.06	34.51	35.47	35.77	16.88	333.45
Metropolitan Water District of Southern California	7.87	5.97	7.17	16.36	16.51	12.87	16.72	19.39	17.60	12.54	9.69	9.19	151.88
Pine Flat Powerplant	0.60	(0.25)	48.24	86.56	141.70	121.27	130.99	78.19	21.66	1.35	(0.03)	(0.22)	630.06
PacifiCorp (PP&L)	44.80	45.30	50.00	43.28	50.44	59.75	62.21	61.83	62.39	63.03	46.40	29.51	618.94
Power Exchange Delivered to SCE	(159.18)	(271.32)	(198.83)	(273.20)	(270.33)	(236.62)	(292.26)	(262.56)	(185.49)	(120.51)	(109.97)	(231.34)	(2,611.61)
Power Exchange Received from SCE	304.64	259.53	340.29	406.76	317.12	405.30	547.00	533.33	583.82	486.21	448.15	530.86	5,163.01
Generation Replacement Energy Delivered to SCE - Dept./San Bernardino VMWD Agreement	0.00	0.00	0.00	(0.45)	(0.18)	(0.16)	(0.16)	(0.20)	(0.21)	(0.25)	(0.23)	(0.25)	(2.09)
Subtotal	209.83	69.77	286.92	315.02	282.24	386.18	485.11	452.04	534.28	477.84	429.78	354.63	4,283.64
Power Exchange Delivered to APC, BPA, CVE, LPM	(1.25)	(21.75)	0.00	0.00	0.00	0.00	(20.75)	(19.86)	(6.40)	0.00	0.00	(64.40)	(134.41)
Power Exchange Received from APC, BPA, CVE, LPM	0.00	0.00	23.00	4.80	0.00	0.00	29.85	21.79	7.04	59.18	0.00	0.00	145.66
Power System Deviations Account Transactions	0.24	0.29	0.58	(0.55)	(0.14)	(0.46)	0.24	(0.55)	0.66	(2.74)	(0.20)	(0.25)	(2.88)
Purchases													
Bonneville Power Administration	25.20	0.04	0.55	16.27	5.25	14.16	15.62	22.47	20.87	18.98	0.00	0.00	139.41
Portland General Electric Company	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.08	1.86	0.00	0.00	0.00	2.34
Seattle City Light	1.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
Puget Sound Power and Light Company	3.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.20
Northern California Power Agency	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.46
City and County of San Francisco	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	0.77
Electric Clearing, Inc.	0.00	0.05	0.00	0.00	0.00	0.00	0.43	0.00	3.60	0.00	0.00	0.00	4.08
Pacific Gas and Electric Company	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	4.60	0.00	0.00	0.00	5.00
Los Angeles Department of Water and Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.00	0.00	0.00	0.00	0.78
Southern California Edison Company	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.04
Nevada Power Company	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.59	0.00	0.00	0.96
Salt River Project	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.72
Subtotal	29.57	(21.31)	24.13	20.52	5.11	13.70	25.43	25.48	33.10	76.01	(0.20)	(63.88)	167.66
Total Resources	544.67	656.08	766.16	882.06	803.73	798.91	1,014.11	917.66	859.30	827.02	700.30	871.12	9,641.12
Less Energy Sales (b	(202.82)	(383.00)	(450.21)	(352.97)	(302.97)	(241.65)	(386.13)	(301.50)	(211.34)	(481.65)	(373.35)	(645.29)	(4,332.88)
Total Energy Provided to the SWP	**341.85**	**273.08**	**315.95**	**529.09**	**500.76**	**557.26**	**627.98**	**616.16**	**647.96**	**345.37**	**326.95**	**225.83**	**5,308.24**

a) Amounts show actual energy available for SWP use.
b) The upgrade energy of 63,101 MWh from Reid Gardner Unit 4 is not included.

Table 11-3
Power, Transmission, and Other Services Purchased in 1996 and Costs of Purchases, by Area

Name of Supplier	Type of Service Purchased	Energy (kWh)	Energy Cost (Dollars)	Capacity and Transmission Cost (Dollars)	Total Cost (Dollars)
Power and Transmission Purchases					
Northwest Area					
Bonneville Power Administration	Firm and nonfirm energy	139,409,000	2,132,351		2,132,351
Portland General Electric	Firm and nonfirm energy	2,335,000	35,509		35,509
PacifiCorp	Firm and nonfirm energy; capacity and transmission	618,939,000	9,938,668	21,063,396	31,002,064
Puget Sound Power and Light Company	Nonfirm energy	3,200,000	45,050		45,050
Seattle City Light Company	Nonfirm energy	1,525,000	17,156		17,156
Northern California Area					
City and County of San Francisco	Nonfirm energy	765,000	12,755		12,755
Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas and Electric Company	EHV transmission			1,500,000	1,500,000
Kings River Conservation District	Hydroelectric energy	640,009,152	4,864,070		4,864,070
Pacific Gas and Electric Company	Firm, nonfirm, transmission, and capacity	4,600,000	87,300	6,035,995 (a	6,123,295
Northern California Power Agency	Firm and nonfirm energy	460,000	7,980		7,980
U.S. Bureau of Reclamation	Energy exchange	0	526,437		526,437
Southern California Area					
Los Angeles Department of Water and Power	Nonfirm energy	779,000	17,825	59,306	77,131
Metropolitan Water District of Southern California	Hydroelectric energy	143,889,319	5,841,906		5,841,906
Southern California Edison Company	Nonfirm energy, transmission	39,000	1,170	2,769,756 (b	2,770,926
City of Vernon	Transmission			3,363	3,363
Southwest Area					
Nevada Power Company	Nonfirm energy, transmission	955,000	23,675	1,396,100	1,419,775
Salt River Project	Nonfirm energy	720,000	9,125		9,125
Electric Clearinghouse, Inc.	Firm and nonfirm energy	4,077,000	64,101		64,101
Subtotal		1,561,701,471	23,625,078	32,827,916	56,452,994
Other Purchases					
Kings River Conservation District	Pine Flat operations and maintenance				3,432,190
	Pine Flat debt service				5,086,244
Los Angeles Department of Water and Power	Hydro powerplant scheduling				1,150
Nevada Power Company	Reid Gardner Unit 4 operations and maintenance, coal, diesel fuel, insurance, and taxes				31,343,181
Pacific Gas and Electric Company	Midway-Wheeler Ridge, Bottle Rock transmission, operations and maintenance, and ownership				160,708
	Pine Flat ownership				12,076
	Lakeville Line operations and maintenance				92,579
	TERA operations and maintenance				3,591
Southern California Edison Company	Additional facilities				1,259,927
	Scheduling and dispatching				159,053
PLM energy for TERA wind farm settlement					550,000
FERC charges for Oroville, Pine Flat, and southern facilities					512,901
Subtotal					42,613,600
Total					**99,066,594**

a) Incorporates credit from PG&E for Table Mountain - Tesla Line Upgrade.
b) Incorporates credit from SCE for Capacity Exchange Agreement.

Table 11-4
Energy Sold in 1996 and Revenue from Sales, by Area

Name of Purchaser	*Energy Sold (kWh)*	*Revenue from Energy Sales (Dollars)*	*Revenue from Capacity, Sales, Exchanges, and Transmission Arrangements (Dollars)*	*Total Power Sales (Dollars)*
Pacific Northwest Area				
Bonneville Power Administration	9,075,000	159,375	12,000	171,375
Portland General Electric Company	73,987,000	1,030,271		1,030,271
PacifiCorp	400,294,000	5,954,235	57,276	6,011,511
Puget Sound Power and Light Company	8,982,000	125,512		125,512
Northern California Area				
Calpine Power Service Company	34,550,000	273,650		273,650
City and County of San Francisco (a	83,570,000	1,419,943	1,683	1,421,626
Lassen Municipal Utility District	1,447,000	21,098		21,098
Modesto Irrigation District	124,567,000	3,010,513	1,812,000	4,822,513
Northern California Power Agency	156,562,000	2,035,066	185,817	2,220,883
Pacific Gas and Electric Company (b	455,724,000	7,208,684	141,193	7,349,877
City of Redding	4,020,000	38,855		38,855
Sacramento Municipal Utility District	968,480,000	12,323,843	999,000	13,322,843
City of Santa Clara	19,037,000	191,621	40,890	232,511
Turlock Irrigation District	9,737,000	121,705		121,705
Western Area Power Administration, Mid-Pacific	1,965,000	35,489		35,489
United States Bureau of Reclamation			126,800	126,800
Southern California Area				
City of Anaheim	23,829,000	272,792		272,792
City of Azusa	4,510,000	95,224	95,693	190,917
City of Colton (c	17,457,000	265,762	1,298	267,060
Los Angeles Department of Water and Power	75,626,000	644,400	633,600	1,278,000
Metropolitan Water District of Southern California	176,502,000	1,380,713	24,454	1,405,167
City of Riverside	173,543,000	2,167,917	828,750	2,996,667
Southern California Edison Company (d	318,736,000	4,139,645	32	4,139,677
City of Vernon	310,726,000	3,860,180	54,000	3,914,180
City of Pasadena	31,399,000	389,501		389,501
City of Burbank	4,870,000	89,218		89,218
City of Glendale	11,838,000	205,486		205,486
San Diego Gas and Electric Company	6,016,000	78,323		78,323
Southwest Area				
Arizona Power Company	210,000	2,835		2,835
Nevada Power Company	210,585,000	8,608,127	925,209	9,533,336
Salt River Project	609,290,000	5,979,468		5,979,468
Sierra Pacific Power Company	6,210,000	45,790		45,790
Power Brokers				
Electric Clearing House, Incorporated	12,168,000	205,614	3,814	209,428
Enron Power Marketing, Incorporated (e	38,192,000	396,042	805	396,847
KOCH Power Service, Incorporated	400,000	4,800		4,800
Aquila Power Company	1,600,000	19,200		19,200
Sonat Power Marketing	200,000	3,200		3,200
KN Marketing, Incorporated	800,000	9,600		9,600
Vital Gas and Electric	80,000	1,400	70,530	71,930
Destec	4,325,000	53,954		53,954
Citizens Lehman Power Sales	4,870,000	101,235		101,235
Grand Total	**4,395,979,000**	**62,970,286**	**6,014,844**	**68,985,130**

a) Includes $1,683 in late payment penalties.
b) Includes $222,321 in emergency services and $6,365 in dispatching services.
c) Includes $25 in late payment penalties.
d) Includes $303 in late payment penalties.
e) Includes $400 for scheduling and dispatching, and $405 in late payment penalties.

Energy Consumed

In 1996, energy used at the 25 SWP pumping and generating plants totaled 5.3 billion kWh. Table 11-1 shows the amount of energy used each month at SWP pumping and generating plants to operate the SWP.

According to terms and conditions of various water conveyance contracts and exchange agreements, some water belonging to the Central Valley Project is pumped through the SWP Banks Pumping Plant and through the CVP-SWP joint-use facilities at Dos Amigos Pumping Plant and Gianelli Pumping-Generating Plant. USBR furnishes the energy for pumping this water.

Energy Generated

Table 11-2 shows amounts of energy generated at SWP facilities in 1996, as well as energy purchased for SWP operations.

Hydroelectric and Coal. The Hyatt-Thermalito power complex in Oroville produces a large amount of SWP energy. In 1996, Hyatt-Thermalito generated 3.6 billion kWh of energy.

Energy generated at SWP recovery plants—Alamo, Devil Canyon, Gianelli, Mojave Siphon, and Warne—totaled 965 million kWh in 1996, about 50 percent more than the amount generated in 1995.

In 1996, the SWP share of energy generated at the coal-fired Reid Gardner Unit 4 totaled 632 million kWh.

Contractual Resource Arrangements and Cost

SWP power operations rely on contractual arrangements as well as SWP facilities. Those contractual arrangements include joint development projects, energy exchanges, purchases, and transmission.

Joint Development. Through the West Branch Cooperative Development Agreement with LADWP, the Department receives energy based on the amount of water scheduled through the West Branch. In 1996, LADWP provided 333 million kWh for the Department's share of energy generated at Castaic Powerplant.

In 1996, the Gianelli Pumping-Generating Plant used 307 million kWh and generated 165 million kWh.

Energy Exchanges. The Department has two agreements with SCE to purchase and/or exchange power. According to terms of the 1979 Power Contract (in effect since April 1983), part of the output of the Hyatt-Thermalito complex and all output of Alamo and Devil Canyon powerplants are delivered to SCE. According to the terms of the CEA, which has been in effect since April 1987, the Department delivers energy to SCE each year during on-peak periods and, in return, receives a greater amount of off-peak energy as well as transmission considerations. Those two exchange agreements resulted in a net of about 2.55 billion kWh to the SWP in 1996.

Purchases and Costs. In 1996, the Department purchased 1.56 billion kWh of energy at a cost of $23.62 million. Associated costs for capacity, transmission, and dispatching services totaled $32.83 million. Other SWP power costs, including those for debt service at Pine Flat Powerplant and costs at Reid Gardner Unit 4, totaled $42.61 million. Table 11-3 shows amounts of power, transmission, and other services purchased in 1996 and costs of purchases.

Long-Term Purchases. According to terms of the Kings River Conservation District contract, the Department receives the total output of the 165 MW Pine Flat Powerplant. The plant provided over 640 million kWh to the SWP in 1996 at a total cost of $4.9 million.

The Department also has a contract with PacifiCorp, from which the Department purchased 619 million kWh in 1996.

Under the MWD Small Hydro Contract, the Department received 144 million kWh of energy in 1996 from five small hydroelectric powerplants on the MWD system at a cost of $5.8 million.

Short-Term Purchases. Existing resources and long-term power and transmission contracts ensure that the SWP has enough power to meet long-term needs. Periodically, when SWP power requirements exceed resources during daily operations, short-term purchases meet the difference.

In 1996, the SWP purchased short-term energy from 12 utilities and marketers. The short-term energy purchases totaled 168 million kWh (Table 11-2).

Transmission Arrangements. SCE waives 75 percent of its charges to the Department for specified firm transmission service provided to SWP pumping and generating facilities. In 1996, the savings to the Department from SCE was $6.88 million.

Sales of Excess Power

In 1996, the Department sold 4.40 billion kWh of energy to 32 utilities and 9 power marketers for total revenues of $62.97 million. The Department also received $6.01 million in revenues for capacity, exchanges, and transmission arrangements. See Table 11-4 for information about energy and other services sold and revenue received.

Forecasting Power Operations

Each year, after reviewing the water contractors' water delivery requests and the construction schedule for future facilities, the Department forecasts SWP power requirements through 2035. Although the Department forecasts power requirements up to 2035, it pays particular attention to forecasts through 2004, the year major power contracts expire.

Actual SWP power requirements may vary significantly from the amounts forecast. Those variations are due to the amount of water available and delivered in a given year. For example, dry conditions in Northern California could result in a reduction of the amount of water available for delivery. If full deliveries cannot be made, less power will be used than was originally forecast. Power requirements could also decrease during a wet year because of the availability of water in the San Joaquin Valley or Southern California.

Conversely, power requirements could exceed the amount originally forecast if actual water deliveries are greater than the amounts estimated. For example, if additional pumping is needed to refill reservoirs south of the Delta after an unexpected dry year, more power will be used than was initially forecast.

Criteria

The Department bases its forecast of electric power primarily on SWP pumping power requirements to deliver water for SWP contractors'short-term and long-term water delivery requests. Requirements are based on the amount of energy necessary to deliver entitlement water requested by water contractors, including losses in reservoirs and aqueducts; recreation water; and water to replace storage in reservoirs south of the Delta.

Short-term power requirements, based on the actual water supply and reservoir storage levels, are determined for the current and two ensuing years of operation. Long-term operational studies for the remaining years are based on median-year water supply conditions and optimal reservoir storage levels.

Information for this chapter was provided by the State Water Project Analysis Office.

Chapter 12

Facilities Maintenance

Repairing the California Aqueduct

Significant Events

- The Santa Ana Pipeline inspection and repair was completed January 6, 1996. The pipeline was then flushed and put back in service. Water deliveries resumed to the Box Springs turnout and to Lake Perris.
- Clifton Court operations stopped for 36 hours September 10 and 11 to apply herbicide to control weed growth.
- On October 24, Pools 52 through 55 were taken out of service for scheduled repairs to the canal lining between mile markers 343 and 345. Lining repairs on Pools 52, 53, and 55 of the East Branch were completed December 16 and the pools returned to service during the week of December 17.
- Construction at the Vaquero Recreation Area, requiring the lowering of Pyramid Lake, was completed. Pyramid Lake was released from restriction on December 8 and refill began December 9. Refill was completed December 15.

The Department of Water Resources, through the Division of Operations and Maintenance, monitors all State Water Project facilities to ensure safety and reliability. Operations and Maintenance staff at Department headquarters biannually inspect and report on all facilities to document any deficiencies. Those inspections allow facilities to be maintained at the highest level possible with available staff and resources.

The Department conducts several types of inspections of SWP facilities. Operations and Maintenance staff collect and evaluate data about the performance of each facility. Engineers from the Division of Safety of Dams inspect jurisdictional SWP dams annually to ensure that each dam is satisfactory and safe. The engineers evaluate proposed modifications to existing dams as well as the design and construction of new jurisdictional dams.

The Federal Energy Regulatory Commission also inspects all licensed SWP facilities annually. These inspections include a review of significant events, instrumentation data, and the visual appearance of each dam, penstock, power plant, etc.

Finally, the Department is required to contract periodically with independent consultants to review the safety of SWP dams and power facilities except those in the San Luis Field Division and the Pearblossom Spill Basin. The four dams in the San Luis Field Division (San Luis, O'Neill Forebay, Los Banos Detention, and Little Panoche) are joint use with the U.S. Bureau of Reclamation. They are not under the jurisdiction of the Division of Safety of Dams. Pearblossom Spill Basin Dam is in place for use only during misoperation at the Pearblossom Pumping Plant. The spill basin has not been used.

Inspecting and Maintaining Project Dams

Between July 1, 1996, and June 30, 1997, Department personnel inspected and performed routine and scheduled maintenance on SWP dams. Division of Safety of Dams engineers also inspect SWP dams annually with O&M personnel. Some inspections were conducted under FERC and *California Water Code* requirements to evaluate SWP dam facilities every 5 years. Other activities were performed by the Division of Operations and Maintenance as routine inspections.

Oroville-Thermalito Area

The Department continued follow-up studies from the 5-year review of 1989. The FERC independent consulting team expressed concern about broken instrumentation tubing in Oroville Dam and made specific recommendations regarding its repair. A Division of Design and Construction investigation led to the 1992 memorandum report. The report recommended that hydraulic tubing be grouted at specific locations within the core block. Work was completed in 1996. Division of Engineering (formerly Division of Design and Construction) prepared a final report. Division of Safety of Dams reviewed the report and found the objectives of the grouting were satisfactorily completed.

Routine Inspections

Routine inspections were conducted at Frenchman, Antelope, and Grizzly Valley dams in the Upper Feather River Area; at Oroville, Bidwell Bar, Lime Saddle, Thermalito Diversion, Thermalito Forebay, Thermalito Afterbay, and Feather River Hatchery dams in the Oroville Area; at Clifton Court, Bethany, Patterson, and Del Valle dams in the Delta Field Division; at Sisk, O'Neill, Los Banos Detention, and Little Panoche detention dams in the San Luis Field Division (O&M and USBR); and at Cedar Springs, Pyramid, Castaic, and Perris dams in the Southern Field Division.

Independent Reviews

The Department periodically employs consultants to independently review and assess safety conditions of

SWP dams, powerplants, and other facilities. Consultants are selected based on their geotechnical, structural, and civil engineering knowledge and background as well as their expertise in evaluating the performance of dams.

In preparing their reports, consultants inspect facilities and review surveillance data and other information prepared by Department staff. The Department then prepares action plans based on the consultants' recommendations.

Consultants performed the following reviews for the Department.

FERC Reviews. To comply with the Federal Energy Regulatory Commission's regulations, consultants review FERC-licensed dams and power generation facilities owned by the Department. These reviews, which may be conducted by one or more consultants, are scheduled every 5 years.

***California Water Code* Reviews.** To comply with the *California Water Code* and the *California Code of Regulations*, the Department is required to retain a consulting board to review:

- the adequacy of the design of a dam or reservoir the Department proposes to construct; and
- the safety of the completed construction, including the terms and conditions for the Certificate of Approval.

These provisions also require the Department to retain a review board at least once every 5 years to review the operational performance of Department-owned dams.

In September 1996, a Director's 5-year Independent Consulting Board conducted a Performance Review of Antelope, Frenchman, and Grizzly Valley dams. The Board expressed concern regarding a fault that passes directly beneath Frenchman Dam outlet works. The Division of Engineering is conducting a study to determine the full extent of the fault and the effects a fault displacement would have on outlet works. This report will be presented to the next 5-year board in 2001.

Maintaining Other Project Facilities

The Department continually monitors all SWP facilities and performs repairs and modifications as necessary to ensure safe, reliable water delivery. Headquarters staff conduct biannual inspections of project facilities and complete inspection reports for each field division. The Oroville and San Joaquin field divisions are inspected in the spring and summer of even-numbered years and the Delta, San Luis, and Southern field divisions are inspected in odd-numbered years. Each report lists action items to ensure that follow-up inspections and reports are made.

In fiscal year 1996-97, O&M staff provided coordination with Division of Engineering on projects reported in Chapter 13 as well as short- and long-term actions at Arroyo Pasajero watershed.

Arroyo Pasajero Program

The Arroyo Pasajero and its tributaries drain approximately 530 square miles of the Coast Mountains west of the California Aqueduct near Coalinga in Fresno County. The Arroyo Pasajero's downstream juncture with the California Aqueduct, also known as the San Luis Canal between San Luis Reservoir and Kettleman City, poses a particularly difficult operational and maintenance problem for the SWP. During periods of heavy rainfall, high flows in the Arroyo Pasajero and its tributaries transport heavy sediment loads eroded from the mountains. Over many eons, sediment transported by Arroyo floods formed a 450-square-mile alluvial fan extending from its apex at the eastern margin of Pleasant Valley (Anticline Ridge) to the San Joaquin Valley trough. The California Aqueduct traverses the Arroyo's alluvial fan and forms a barrier to Arroyo flood flows. Flood control facilities at the Aqueduct include a retention basin designed to store storm runoff and sediment upstream of the Aqueduct and two facilities to release floodwater from the basin. The volumes of runoff and sediment deposition are much greater than estimated during the original design of the retention basin in the mid-1960s.

Interim Programs. The U.S. Bureau of Reclamation designed and constructed the San Luis Canal segment of the California Aqueduct. USBR and the

Department share costs of operating and maintaining the facility. Since the floods of 1969, USBR and the Department have worked to minimize the effects of heavy flooding. In 1980, asbestos was discovered in runoff from the Arroyo Pasajero. This discovery, in conjunction with the high cost of removing sediment from the Aqueduct, led the Department to adjust operating procedures to minimize runoff entering the Aqueduct.

Long-Term Programs. In 1990, the Department sought the assistance of the U.S. Army Corps of Engineers to identify viable long-term solutions to the Arroyo Pasajero flooding and sediment problems. In 1992, the Corps issued the *Arroyo Pasajero Reconnaissance Report,* which demonstrated a federal interest in flood control at Arroyo Pasajero. The flood control feasibility study, which was initiated in 1994 as a joint effort with the Department, provides a more rigorous analysis of the flooding and sedimentation problems and evaluates potential solutions in greater detail. Under the Corps process, if this report finds a federal interest, a National Economic Development plan that maximizes flood control net benefits will be identified and a Locally Preferred plan may be identified also.

The study will run through 1998 with a projected cost of $7.2 million. The Department, as local sponsor, is committed to 50 percent of the total study cost with one-half of this commitment met by providing in-kind services for the study. Under the Department's agreement with USBR for the Joint-Use Facilities of the San Luis Unit, USBR is paying 45 percent of the Department's study cost.

The Department's activities as local sponsor includes obtaining aerial photography and producing topographic mapping covering more than 250 square miles, coordinating with the Corps on public involvement, completing a hydrologic analysis of the watershed, developing a hydrologic model, developing a sediment transport model in coordination with the Corps and Northwest Hydraulic Consultants, evaluating alternative flood conveyance facilities east of the Aqueduct, defining the specific parameters governing the alternatives to be investigated, and participating in plan formulation.

In June 1997, a federal interest was established and the NED plan was identified as an enlarged westside ponding basin. A dam and reservoir at Pasajero Gap was identified also as a potential Locally Preferred plan. Both plans are being refined and carried forward in the study until such time as the Local Sponsor selects the plan it wishes the Corps to pursue.

Following the March 1995 floods at Arroyo Pasajero, the California Water Commission requested that the Department convene an Arroyo Pasajero Multi-Agency Forum. The Department proceeded to establish a forum, comprised of concerned public officials and agency representatives as well as members of the public, to provide interested parties early access to study findings and an opportunity to participate in the formulation of project alternatives. Through June 1997, the forum met four times and generated a great deal of interest that focused local concerns.

Cantua Creek Stream Group. The Department continued a reconnaissance-level study of flood control measures for Martinez, Domengine, Salt, and Cantua creeks; Arroyo Hondo; Arroyo Ciervo; and Tumey Gulch. The alternatives under evaluation include: upstream dams, expanded west-side ponding basins, east-side ponding basins, channel improvements, and conveyance of floodwaters east of the Aqueduct to Fresno Slough. A draft reconnaissance report is scheduled for completion in 1997.

Repairs and Modifications

Table 12-1 presents information, arranged chronologically, about significant maintenance activities at SWP pumping and power plants. The table includes information about incidents resulting in outages exceeding 14 days.

Table 12-1
Outages for Maintenance and Repair of Facilities in 1996, by Month

Month	*Facility*	*Description*
January	South Bay Pumping Plant	Unit 8 out of service from January 2 to June 14 for motor replacement.
	Pine Flat Powerplant	Unit 2 out of service from January 2 to January 31 for annual maintenance.
	Devil Canyon Powerplant	Unit 3 out of service from January 2 to February 1 for annual maintenance.
	Banks Delta Pumping Plant	Unit 7 out of service from January 9 to February 15 for discharge valve upstream seal O-ring replacement.
	Las Perillas Pumping Plant	Unit 3 out of service from January 10 to February 8 for annual maintenance.
	Warne Power Plant	Unit 2 out of service from January 10 to February 10 to inspect the unit stator. Transformer KY2 out of service from January 10 to February 10 to repair oil leak.
	Hyatt Powerplant	Unit 6 out of service from January 18 to March 12 for annual maintenance.
	Dos Amigos Pumping Plant	Unit 6 out of service from January 26 to May 22 for rotor repair and discharge resistor replacement.
	South Bay Pumping Plant	Unit 2 out of service from January 31 to April 2 to rewire motor exciter.
	South Bay Pumping Plant	Unit 3 out of service from January 31 to May 3 to rewire motor exciter.
February	Edmonston Pumping Plant	Unit 10 out of service from February 2 to February 23 to replace the motor operated disconnect switch 1013 broken linkage.
	Thermalito Pumping-Generating Plant	Unit 3 out of service from February 5 to June 7 for annual maintenance and stator rewedging.
	Pearblossom Pumping Plant	Unit 3 out of service from February 8 to July 28 to replace cracked amortisseur bar.
	Pearblossom Pumping Plant	Unit 1 out of service from February 8 for stator neutral repair.
	Las Perillas Pumping Plant	Unit 6 out of service from February 8 to April 5 for annual mechanical maintenance.
	Teerink Pumping Plant	Unit 6 out of service from February 8 for impeller replacement and discharge valve maintenance.
	Gianelli Pumping-Generating Plant	Unit 3 out of service from February 13 to April 14 for biennial maintenance.
	Gianelli Pumping-Generating Plant	Unit 4 out of service from February 13 to April 14 for unit overhaul and headgate #2 repair.
	Chrisman Pumping Plant	Units 6 and 7 and discharge valve #3 out of service from February 26 to April 3 for inspection of Unit 7 stay vanes and discharge valve upper seal O-ring and to replace Unit 6 hot water bypass valve.
March	Dos Amigos Pumping Plant	Unit 2 out of service from March 8 to April 25 for biennial maintenance.
	Hyatt Powerplant	Unit 5 out of service from March 18 to April 22 for annual maintenance.
	Dos Amigos Pumping Plant	Unit 4 out of service from March 27 to April 30 to install solid state voltage regulator and hub shaft measurement.
April	South Bay Pumping Plant	Unit 2 out of service from April 2 to May 3 for overcurrent investigation.
	South Bay Pumping Plant	Unit 4 out of service from April 2 to May 29 for overcurrent investigation.

Table 12-1
Outages for Maintenance and Repair of Facilities in 1996, by Month

Month	*Facility*	*Description*
	Las Perillas Pumping Plant	Unit 4 out of service from April 5 to May 3 for annual maintenance.
	Oso Pumping Plant	Unit 6 out of service from April 13 to investigate field ground.
	Hyatt Powerplant	Unit 2 out of service from April 25 to May 17 for annual maintenance.
May	Pearblossom Pumping Plant	Unit 9 out of service from May 8 for discharge valve wearing ring repair.
	Edmonston Pumping Plant	Unit 14 out of service from May 8 to September 13 for scavenging breaker parts and excessive silt.
	Dos Amigos Pumping Plant	Unit 3 out of service from May 28 for hub/shaft fit and rotor rim repair.
June	Pearblossom Pumping Plant	Unit 7 out of service from June 1 to December 31 for motor field ground removal.
	Banks Delta Pumping Plant	Unit 6 out of service from June 6 for impeller removal and discharge valve removal.
	South Bay Pumping Plant	Unit 7 out of service from June 13 to June 27 for motor replacement.
	Edmonston Pumping Plant	Unit 2 out of service from June 17 to October 22 for thrust bearing replacement.
	Oso Pumping Plant	Unit 4 out of service from June 26 to August 15 for motor rotor repair.
July	Oso Pumping Plant	Unit 3 out of service from July 1 for amortisseur repair.
	Banks Delta Pumping Plant	Unit 10 out of service from July 13 to August 30 for annual maintenance.
	Buena Vista Pumping Plant	Unit 9 out of service from July 16 for annual maintenance and impeller replacement.
	Del Valle Pumping Plant	Plant out of service from July 25 to August 26 for plant and pipeline inspection.
August	Buena Vista Pumping Plant	Units 7-10 and transformer KYB out of service from August 10 to September to replace transformer bushing.
	Oso Pumping Plant	Unit 3 out of service from August 16 for armortisseur winding repair.
	Mojave Siphon Powerplant	Unit 1 out of service from August 27 to October 21 for seal ring repair.
	Gianelli Pumping-Generating Plant	Unit 1 out of service from August 29 to September 15 for biennial maintenance.
September	South Bay Pumping Plant	Units 6-9 out of service from September 9 for Unit 7 pump replacement and replacement bus and switchgear.
	Hyatt Powerplant	Unit 1-3 out of service from September to December 14 for annual maintenance and turbine cutoff valve maintenance.
	Warne Powerplant	Unit 2 out of service from September 16 to November 16 for annual inspection and nozzle #5 water seal repair.
	Pine Flat Powerplant	Unit 1 out of service from September 17 to November 6 for annual maintenance.
	South Bay Pumping Plant	Unit 5 out of service from September 24 to December 31 for 4.16 KV bus and switchgear.
	South Bay Pumping Plant	Drain line #2 out of service from September 30 for installation of turbine shutoff valve.
October	Gianelli Pumping-Generating Plant	Unit 5 out of service from October 7 to November 21 for annual and penstock inspection and stay vane coating.

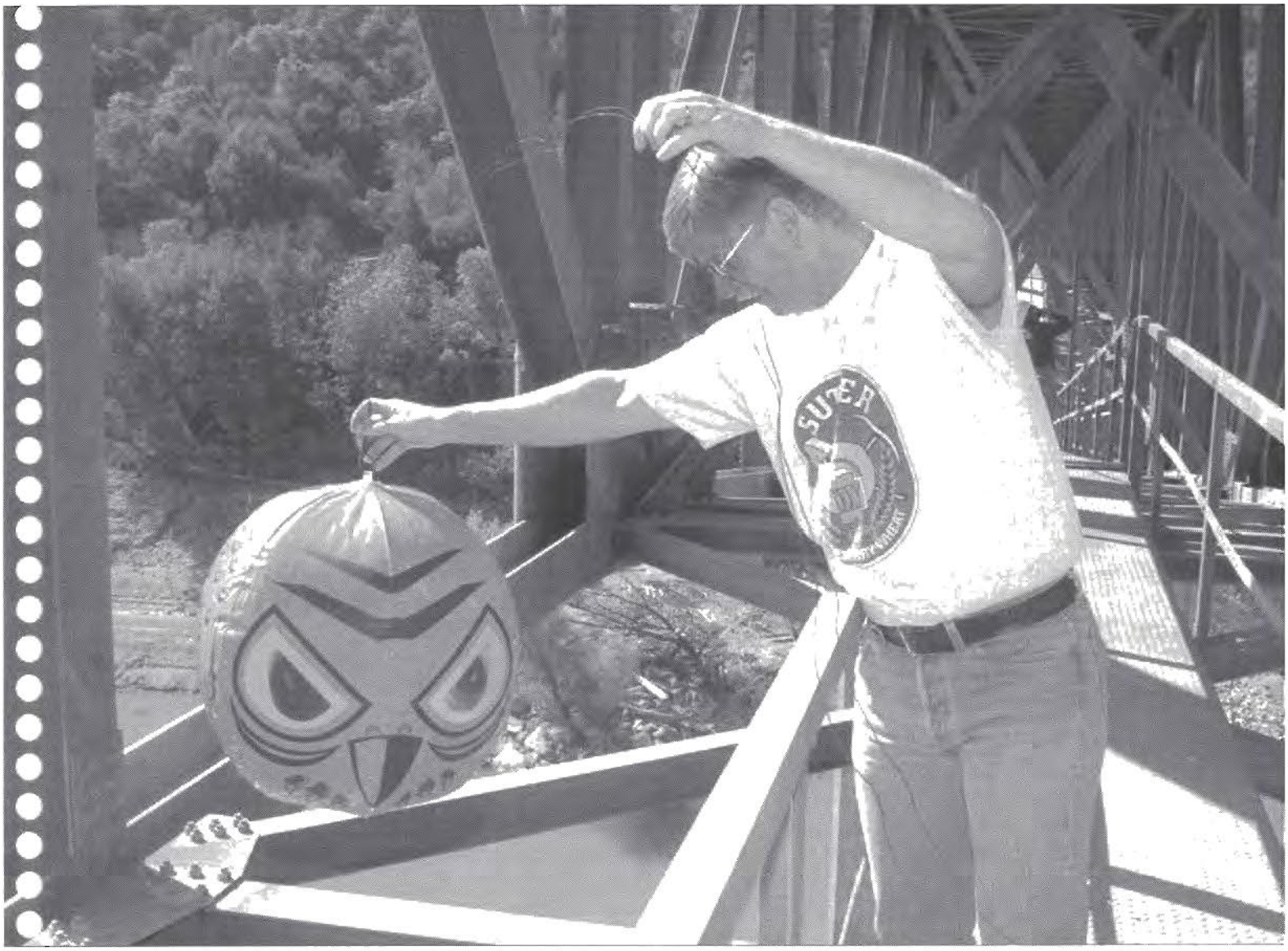
Table 12-1
Outages for Maintenance and Repair of Facilities in 1996, by Month

Month	*Facility*	*Description*
	Gianelli Pumping-Generating Plant	Unit 6 out of service from October 7 to November 7 for penstock inspection.
	Gianelli Pumping-Generating Plant	Unit 6 out of service from October 7 to November 7 for penstock inspection.
	California Aqueduct East Branch	Pools 52 through 55 taken out of service to repair canal lining.
	Badger Hill Pumping Plant	Unit 3 out of service from October 28 to December 31 for annual maintenance.
	Mojave Siphon Powerplant	Units 1 and 2 out of service from October 30 for runner inspection.
November	Pine Flat Powerplant	Pine Flat Switchyard out of service from November 4 to December 13 for Doble testing.
	Pine Flat Powerplant	Unit 2 out of service from November 9 for annual maintenance.
	Pearblossom Pumping Plant	Units 4-6 out of service from November 12 to December 23 for sealing hydraulic oil leak.
	Dos Amigos Pumping Plant	Unit 4 out of service from November 18 for solid state voltage regulator installation.
	Edmonston Pumping Plant	Units 2-14 (even numbered units) out of service from November 25 to December 23 for tunnel outage.
	Edmonston Pumping Plant	Pipeline #2 out of service from November 25 to December 23 for blow-off valve replacement and Unit 14 downstream seal inspection.
December	Hyatt Powerplant	Unit 6 out of service from December 2 for annual maintenance and stator rewedging.
	Alamo Powerplant	Unit 1 out of service from December 9 for annual maintenance and blade control head seal replacement.
	Badger Hill Pumping Plant	Unit 1 out of service from December 10 for annual maintenance.
	Devil Canyon Powerplant	Units 1 and 2 out of service from December 10 to December 27 for east bus annual maintenance.
	Buena Vista Pumping Plant	Unit 4 out of service from December 17 for backfill valve maintenance.
	Pearblossom Pumping Plant	Unit 3 out of service from December 23 for armortisseur bar replacement.
	Pearblossom Pumping Plant	Unit 6 out of service from December 23 for pumpcase anode repair.
	Chrisman Pumping Plant	Unit 6 out of service from December 29 for transformer KYC "C" phase lighting counter replacement.

Information for this chapter was provided by the Division of Operations and Maintenance and the Division of Safety of Dams.

Chapter 13

Engineering and Right of Way



Terror Eyes—to prevent swallows from nesting under the bridge during bridge maintenance

Significant Events

- Between July 1, 1996, and June 30, 1997, the Division of Engineering worked on 34 design projects that were in progress or completed. An additional 68 construction contracts were in progress or completed.
- On August 20, San Bernardino Valley Municipal Water District and San Gorgonio Pass Water Agency signed an agreement to participate in the East Branch Extension. The Department will proceed with the final design and construction of the Phase I facilities.
- Work began on recoating the Enterprise Bridge, the first complete recoating since the bridge opened in 1968. The work was funded in part by federal funds.
- Canal repairs at California Aqueduct mileposts 134.98 and 157.40 for damage caused by the heavy rains in the winter of 1994-95 were completed. The repair work, conducted for the most part underwater, tested a new technology for placing new concrete canal lining by placing preformed concrete liners in the canal and filling them with concrete slurry.
- The trashrack access bridge at Gianelli Pumping-Generating Plant was retrofitted to increase the stability of the bridge during an earthquake.
- All major facilities of the Coastal Branch, Phase II project will be completed by July 1997, to begin water delivery.
- Construction of a blast-paint facility at the Edmonston Pumping Plant was completed.
- Connection of the new intake structure to the San Bernardino Tunnel was completed during the outage and drawdown of Silverwood Lake, which began in November 1996. The new intake has been in operation since March 1997. Testing of gate seals and replacement of the intake gate operator is scheduled for December 1997.
- An additional 3,400+ acres were purchased on Sherman Island. This brings the Department's ownership to 9,183 acres of the 10,000-acre island.
- Two hundred eighty-one acquisitions of the 290 parcels are now completed for the Coastal Branch, Phase II Project. Of the remaining nine acquisitions, two are in eminent domain proceedings, three are awaiting restoration of construction impacts, and the remainder involve lengthy processing time by Caltrans, Union Pacific Railroad, and the Military and Air Force departments of the federal government.

Construction of the initial facilities of the State Water Project began in 1957 with the relocation of the Western Pacific Railroad yards and Highway 70 near Oroville. In 1963, work began on the California Aqueduct; by 1968, the SWP delivered water to long-term contractors in the San Joaquin Valley. The SWP delivered water to Lake Perris, its southernmost point, with the 1973 completion of the initial SWP facilities.

From the early 1970s to the late 1980s, design and construction activities centered on building power plants and adding pumping units and turbine-generators deferred from the initial construction of the SWP; enlarging or extending aqueduct reaches; and providing facilities to ensure water quality in the Delta. In the 1990s, design and construction activities have focused on repairing and replacing components of existing facilities, constructing Phase II of the Coastal Branch to deliver water to San Luis Obispo and Santa Barbara counties, and extending the SWP to the San Gorgonio Pass service area.

Division of Engineering Activities

From July 1996 through June 1997, the Division of Engineering worked on 34 design projects. Table 13-1 lists those projects along with expected or actual completion dates. In addition to designing those projects, staff conducted deficiency studies of dams, canal embankments, and other SWP facilities during fiscal year 1996-97, including Oroville, Feather River Fish Barrier, Thermalito Afterbay, Del Valle, Cedar Springs, Castaic, and Pyramid dams; Peace Valley Pipeline; and Lower Quail Canal. The investigations helped the Department develop contracts to construct remedial seepage control filters at Lower Quail Canal embankment and perform seepage repair to arrest and prevent subsurface erosion along Peace Valley Pipeline. The Department also conducted instrumentation conduit grouting at Oroville Dam.

Sixty-eight construction projects were in progress or completed from July 1996 through June 1997. Those projects are listed in Table 13-2. The table also shows project costs, dates contractors received the Notice to Begin Work, and the expected or actual contract acceptance dates. Resolution of contract claims may extend the actual contract close out beyond the acceptance date. Costs shown in Table 13-2 are actual costs of completed work or estimated costs of construction in progress.

Tables 13-1 and 13-2 are organized geographically according to construction divisions. Within each division, facilities where design or construction activities occurred are listed alphabetically. Activities at each facility are listed chronologically according to the date work began.

Oroville Division

Lime Saddle/Tent and RV Campsites. Division of Engineering staff started preliminary investigation of the site in July 1996. Final design began in December 1996. In April 1997, during a staff review of environmental issues and the sewer system, the suitability for the site came into question. Subsequently, the Division of Operations and Maintenance put the project on hold pending evaluation of new sites and discussions with FERC and the Oroville Recreation Area Committee.

Thermalito Afterbay Dam. Staff performed an evaluation to establish monitoring and operation criteria to ensure that maximum allowable foundation pore pressures are not exceeded. This evaluation was recommended by the 1989 and 1995 FERC Safety Inspection reports. A memorandum report summarized this evaluation in December 1996.

Feather River Fish Hatchery. Work to expand the fish hatchery and make Americans with Disabilities Act modifications began in April 1996. The hatchery expansion will include 620 feet of new rearing ponds, a hatchery building, a new ultraviolet system, bird netting, and paving. The ADA modifications at

the hatchery and the Oroville Area Control Center include restriping parking stalls, new concrete ramps and curbs at building entrances and viewing areas, installing handicap accessible hardware on building doors, restroom modifications, painting, new carpeting, and repairing a water-damaged ceiling at the Area Control Center.

Table 13-1
Design Activities, July 1996 through June 1997, by Division

Construction Division and Facility	*Construction Contract*	*Date Design Began*	*Design Completion Date*
Sacramento	Jibboom Street site grading	July 1996	March 1997
Oroville Division			
Feather River Fish Hatchery and Powerplant	ADA modifications and fish hatchery expansion	April 1996	December 1997
Hyatt Powerplant	Turbine refurbishment	May 1997	September 1998
Hyatt Powerplant	Governor replacement	May 1997	October 1998
O&M Center	Remove and replace storage tanks	April 1996	April 1997
Thermalito Afterbay Dam	Allowable pore pressure study	January 1995	December 1996
Thermalito Powerplant	Furnish automatic voltage regulators	June 1997	February 1998
Delta Division			
Banks Pumping Plant	Furnish bulkhead gates	January 1997	June 1997
O&M Center	Remove storage tanks	April 1996	April 1997
Sherman Island	Horseshoe Bend fish screen	November 1996	May 1997
South Bay Aqueduct	Report: cross drainage flood flows and cross drainage facilities	January 1997	April 1997
South San Joaquin Division			
Buena Vista Pumping Plant	Report: transformer oil spill containment	April 1996	November 1996
Chrisman Pumping Plant	Report: transformer oil spill containment	April 1996	November 1996
Teerink Pumping Plant	Report: transformer oil spill containment	April 1996	November 1996
Teerink Pumping Plant	Furnish stator coils	September 1996	August 1997
San Luis Division			
Arroyo Pasajero	Report: Arroyo Pasajero 100-year flood, San Luis canal breach	August 1996	September 1997
Dos Amigos Pumping Plant	Metal warehouse structure	November 1995	August 1996
Gianelli Pumping-Generating Plant	Seismic retrofit, access bridge	November 1994	June 1996
Gianelli Pumping-Generating Plant	Report: transformer oil spill containment	February 1997	June 1997
O&M Center	Metal warehouse structure	November 1995	August 1996
O&M Center	Remove storage tanks	April 1996	April 1997
Tehachapi Division			
Edmonston Pumping Plant	Field installation, remote terminal units	July 1994	December 1996
Edmonston Pumping Plant	Replace 4 pumps	February 1996	June 1998

Table 13-1
Design Activities, July 1996 through June 1997, by Division

Construction Division and Facility	*Construction Contract*	*Date Design Began*	*Design Completion Date*
Edmonston Pumping Plant	Replace 15 kV circuit breakers	March 1996	January 1997
Mojave Division			
Cedar Springs Dam	Sediment mitigation evaluation	January 1994	December 1996
Cedar Springs Dam	OP-29 high pore pressure evaluation	January 1995	December 1997
Mojave Siphon Powerplant	Valve vaults	December 1996	July 1997
Santa Ana Division			
Crafton Hills Reservoir	East Branch Extension	May 1997	October 1998
Greenspot, Crafton Hills, and Cherry Valley Pump Stations	East Branch Extension	May 1997	February 1998
Pipeline Reach 1	East Branch Extension	April 1997	January 1998
Pipeline Reach 2	East Branch Extension	June 1997	December 1997
Pipeline Reach 3	East Branch Extension	May 1997	March 1998
West Branch			
Oso Pumping Plant	Add 20-ton trolley	February 1996	June 1997
Pyramid Dam	Concrete deterioration investigation	July 1995	December 1996

Table 13-2
Construction Activities, July 1996 through June 1997, by Division

Construction Division and Facility	*Construction Contract (Specification Number)*	*(NTBW) Starting Date*	*Acceptance Date (Expected or Actual)*	*Contract Costs (Thousands of dollars)*
Oroville Division				
Enterprise Bridge	Recoat bridge (96-31)	February 1997	November 1997	868
Lake Oroville	Construct floating campsites (96-03)	April 1996	February 1997	1,018
North Thermalito Forebay	Construct comfort station and sewer pipeline (96-21)	October 1996	July 1997	475
Delta Facilities				
Miscellaneous	Construct temporary rock barriers—1996 and 1997: Middle River, Old River, and Grant Line Canal (96-02)	April 1996	December 1997	2,336
Suisun Marsh Facilities				
Salinity Control Gates	Repair settlement/seepage (96-12)	July 1996	October 1996	185
North San Joaquin Division				
Delta Operations and Maintenance Center	Construct building addition and modify electrical (95-31)	January 1996	July 1997	550

Table 13-2
Construction Activities, July 1996 through June 1997, by Division

Construction Division and Facility	*Construction Contract (Specification Number)*	*(NTBW) Starting Date*	*Acceptance Date (Expected or Actual)*	*Contract Costs (Thousands of dollars)*
Banks Pumping Plant	Furnish spare coils (94-24)	November 1994	December 1997	470
Miscellaneous Activities	Slurry Seal and Seal Coat Roads (96-07)	July 1996	November 1996	183
South Bay Aqueduct				
Del Valle Dam	Remediate waste area (96-10)	July 1996	August 1996	107
San Luis Division				
Aqueduct	Repair Canal, mileposts 134.98 and 157.40 (96-30)	January 1997	April 1997	415
Dos Amigos Pumping Plant	Furnish automatic voltage regulator units—Unit Nos. 1 through 6 (95-04)	June 1995	July 1997	406
	Construct oil spill containment for power transformers (96-11)	August 1996	December 1996	78
Gianelli Pumping-Generating Plant	Retrofit of trashrack structure access bridge (96-17)	October 1996	June 1997	675
Dos Amigos Pumping Plant and Gianelli Pumping-Generating Plant	Construct storage buildings (96-27)	January 1997	July 1997	446
Coastal Branch				
Cuesta Tunnel	Modify Cuesta Tunnel (94-10)	June 1994	November 1996	5,238
Las Perillas and Badger Hill Pumping Plants	Furnish replacement switchgear and excitation system—Las Perillas and Badger Hill Pumping Plants (94-28)	November 1994	November 1998	713
Pipeline	Construct pipeline Reach 1 (93-14)	December 1993	May 1997	32,650
	Construct pipeline Reach 2 (93-33)	March 1994	May 1997	42,000
	Construct pipeline Reach 3 (94-05)	June 1994	August 1997	28,714
	Construct pipeline Reach 4 (94-29)	January 1995	January 1997	28,335
	Construct pipeline reaches 5A1 and 5A2 (95-18)	August 1995	In arbitration	57,000
Pumping Plants—Devil's Den, Bluestone, and Polonio Pass	Furnish pump units (93-25)	December 1993	December 1997	3,953
	Construct pumping plants—initial (93-30)	January 1994	November 1996	22,000
	Furnish switchgear—Devil's Den, Bluestone, and Polonio Pass pumping plants (94-03)	July 1994	November 1997	2,166
	Furnish power transformers—Devil's Den, Bluestone, and Polonio Pass pumping plants (94-11)	July 1994	January 1998	1,009
	Furnish air chambers—Devil's Den, Bluestone, and Polonio Pass pumping plants (94-12)	July 1994	January 1997	3,359

Table 13-2
Construction Activities, July 1996 through June 1997, by Division

Construction Division and Facility	*Construction Contract (Specification Number)*	*(NTBW) Starting Date*	*Acceptance Date (Expected or Actual)*	*Contract Costs (Thousands of dollars)*
	Furnish and install bridge cranes—Devil's Den, Bluestone, and Polonio Pass pumping plants (94-21)	September 1994	November 1996	2,108
	Complete construction—three pumping plants (94-31)	March 1995	December 1997	20,000
Tank Sites	Construct Tank 1 facilities (93-27)	December 1993	July 1997	26,200
	Construct Tank 2 facilities (95-02)	June 1995	September 1997	9,200
Valves	Furnish ball valves (93-34)	April 1994	December 1997	4,700
	Furnish butterfly valves and turbine bypass valve—Devil's Den Pumping Plant to Vandenberg AFB (94-06)	July 1994	December 1997	4,430
Miscellaneous	Furnish power circuit breakers and switchyard equipment—Devil's Den to Casmalia (94-04)	July 1994	October 1996	697
	Furnish engine generator sets—Las Perillas Pumping Plant to Lopez Turnout (95-03)	June 1995	November 1997	793
	Furnish acoustic velocity flowmeters—Devil's Den to Valve Vault Facility (95-05)	June 1995	November 1997	400
	Fiber optic cable installation (95-11)	August 1995	March 1996	401
	Seed and control erosion (96-16)	September 1996	December 1998	423
South San Joaquin Division				
Aqueduct	Aqueduct modification, mileposts 206.10 to 207.94 (96-19)	October 1996	April 1997	848
Chrisman Windgap Pumping Plant	Furnish stator coils (92-11)	July 1992	December 1997	582
Operating Road	Seal coat primary operating road (96-05)	July 1996	August 1996	186
Miscellaneous	Construct warehouse—Lost Hills Operations and Maintenance Subcenter (94-34)	April 1995	September 1996	286
Tehachapi Division				
Edmonston Pumping Plant	Construct blast paint facility (95-14)	October 1995	May 1997	1,656
	Furnish pump spare parts, Units 1, 3, 5, 7, 9-14 (96-25)	January 1997	May 1998	1,888
	Furnish 15.8 kV circuit breakers (97-01)	April 1997	August 1998	7,135
West Branch				
Oso Pumping Plant	20-ton trolley for bridge crane (96-24)	June 1997	June 1998	241
Pyramid Dam	Remediate spillway (95-15)	April 1996	October 1997	1,850
Miscellaneous	Repair landslide and road, Pastoria Access Road and Quail Lake Operating Road (97-05)	May 1997	July 1997	604

Table 13-2
Construction Activities, July 1996 through June 1997, by Division

Construction Division and Facility	*Construction Contract (Specification Number)*	*(NTBW) Starting Date*	*Acceptance Date (Expected or Actual)*	*Contract Costs (Thousands of dollars)*
Mojave Division				
Aqueduct	Canal repair, mileposts 333.80, 343.81, and 344.14 (96-13)	October 1996	April 1997	2,270
	Modify Aqueduct mileposts 206.10 to 207.94 (96-19)	October 1996	April 1997	848
Mojave Siphon Pipeline	Construct Mojave Siphon Second Pipeline (91-33)	March 1992	September 1996	51,500
	Revegetate (95-23)	October 1995	March 1997	169
Mojave Siphon Powerplant	Furnish and install turbines, generators, and governors (89-13)	August 1989	March 1998	14,600
	Furnish and install butterfly valves—Mojave Siphon and Devil Canyon Powerplants (91-15)	August 1991	February 1999	6,179
	Complete powerplant (92-30)	February 1993	May 1996	7,592
	Furnish and install acoustic velocity flow meters (93-18)	October 1993	July 1998	437
Pearblossom Pumping Plant Enlargement, Phase II	Furnish and install vertical centrifugal pumps (87-04)	May 1987	June 1998	2,780
Silverwood Lake	Construct rock reefs (96-28)	November 1996	January 1997	116
	Install fiber optic cable (97-06)	March 1997	September 1997	93
Santa Ana Division East Branch Enlargement				
Devil Canyon Powerplant	Furnish and install turbines, governors, and valves (87-15)	July 1987	Units rejected	10,200
San Bernardino Tunnel	Reconstruct intake (95-07)	July 1995	December 1997	25,400
Santa Ana Valley Pipeline	Excavate, inspect, and repair (95-20)	September 1995	August 1996	845
Sugarloaf Mountain	Provide remedial drainage (96-14)	October 1996	March 1997	223
Miscellaneous Activities				
Cherokee Canal	Remove sediment - Phase 1 (96-09)	July 1996	December 1996	867
Jibboom Street Site	Protect building (96-06)	July 1996	November 1996	113
	Grading (97-04)	June 1997	July 1997	165
Magneson Site, Merced River	Restore river (96-08)	July 1996	October 1996	229
Merced and Tuolumne Rivers	Repair restoration (96-15)	September 1996	October 1996	65
Multiple Divisions	Furnish steel pipe sections, Delta and Southern field divisions (96-26)	January 1997	June 1998	650

Horseshoe Bend Fish Screen. Contract work to install fish screens on two siphons is expected to begin in August 1997 and be completed by December 1997. In addition to the two screens for the 15 cfs siphons, work includes replacing 200 feet of 24-inch-diameter steel pipe, a screen backwash system, an access platform, four 24-inch-butterfly valves, timber piles to support the pipe and platform, power hookup, and safety buoys and floats.

Other Activities. Staff investigated and reported on an ancient landslide on Bloomer Hill above Lake Oroville. DOE participated in the 5-year safety review board for Antelope, Frenchman, and Grizzly Valley dams. Staff assisted the Department of Fish and Game with their program to eradicate northern pike from Lake Davis.

Construction activities during this reporting period included the following:

Enterprise Bridge. A contract to recoat the Enterprise Bridge spanning the South Fork of the Feather River at Lake Oroville was let in February 1997 and is scheduled for completion in November 1997. The Contractor had to keep swallows from nesting in the work area. This operation was monitored by a Department environmental specialist.

Floating Campsites. The contract to construct 10 floating campsites for the Lake Oroville Recreation Area, let in April 1996, was accepted in February 1997.

Comfort Station. A contract to construct a comfort station and sewer pipeline at North Thermalito Forebay was let in October 1996 and should be completed in July 1997.

Delta Facilities

Rock Barriers. A new contract to construct 1996-97 seasonal temporary rock barriers in the Delta was let in April 1996, with completion scheduled for December 1997. This contract is similar to the previous barrier contract whereby the various rock barriers are built by construction orders under a single contract.

The Old River (at the San Joaquin River) barrier was constructed in October 1996 and removed in November 1996. The Middle River barrier was installed in May 1996 and removed in September 1996. Barrier installation in Old River (at the Delta-Mendota Canal) and Grant Line Canal was accomplished in June and July 1996, respectively; both were removed in October 1996.

Suisun Marsh Facilities

Montezuma Slough Control Gates. Bids for a construction contract to repair seepage and alleviate settlement of the Montezuma Slough Salinity Control Gates were opened in June 1996. The contract was completed in October 1996.

Suisun Marsh. Staff developed final plans and specifications for a contract to dredge the Morrow Island Distribution System and replace the existing outlet structure.

Other Activities. Division of Engineering staff provided assistance to the Delta Field Division to develop rating curves for the intake pipes at Roaring River. Staff also provided assistance to construct a flashboard riser in Roaring River to help control the water surface, reduce water velocity through the Roaring River fish screens, and allow landowners to fill and drain their properties more easily.

The Division developed preliminary design and cost estimates for a fish screen system at Lower Joice Island.

Staff drilled exploration holes at Sherman Island for laboratory testing of peat soil samples.

Delta Operations and Maintenance Center. Division staff assisted field division forces with the ADA modifications made at the O&M Center facilities. A contract to perform building modifications to the existing Delta Area Control Center, including electrical system modifications, the addition of a concrete-block battery room, and the addition of a concrete-block women's restroom facility to the general warehouse facility to comply with ADA requirements was awarded in January 1996 and is scheduled to be completed in July 1997.

South Bay Aqueduct. Division staff completed a hydrologic and hydraulic report for the cross drainage facilities at Dyer, Livermore, and Alameda canals.

Construction of the Del Valle Waste Area Remediation project was completed in July 1996.

Banks Pumping Plant. Work continues on the contract to furnish spare electrical coils for the pump motor at this facility. Completion is estimated for December 1997.

Seal Coating. A contract to apply asphalt slurry seal, seal coat, and fog seal at 10 separate locations in this division was let in July 1996 and completed in November 1996. Locations included: North Bay Aqueduct Facilities, Banks Pumping Plant, Delta O&M Center, Del Valle Dam, Del Valle Pumping Plant, and Patterson Reservoir.

San Luis Division

A study for transformer oil spill containment at Gianelli Pumping-Generating Plant was completed in June 1997.

Division staff assisted field division forces with ADA modifications at the O&M Center and Romero Visitor Center.

The following are brief descriptions of construction activities completed or currently in progress in the San Luis construction division.

Aqueduct. The contract to repair the canal, mileposts 134.98 and 157.40, let in January 1997, was completed in April 1997. Heavy rains in the winter of 1994-95 caused overtopping and damage to the aqueduct. Repair work consisted of removing and replacing buckled and displaced concrete panels, rebuilding eroded canal embankment, and placing preformed concrete liners in the canal and filling them with concrete slurry.

San Luis Operations and Maintenance Center. Construction of a metal warehouse facility is expected to be completed in July 1997.

Gianelli Pumping-Generating Plant. A contract to modify and retrofit the trashrack access bridge at Gianelli Pumping-Generating Plant was let in October 1996 and accepted in June 1997. This work was necessary to increase the stability of the bridge during an earthquake.

Dos Amigos Pumping Plant. Furnishing automatic voltage regulators for units 1 through 6 at Dos Amigos Pumping Plant continued, with completion expected in July 1997. This contract was extended to provide additional services of an erecting engineer to install the last 3 units.

A contract to construct a transformer oil spill containment structure at Dos Amigos Pumping Plant was let in August 1996 and completed in December 1996.

A contract to construct a storage building was let in January 1997, with completion expected in July 1997.

Coastal Branch

Phase I Construction. Manufacturing and replacing electrical switchgear for Las Perillas and Badger Hills Pumping Plants continues, with an estimated completion date in November 1998.

Phase II Construction. Construction of Coastal Branch, Phase II, added approximately 100 miles of pipeline to the existing Phase I facilities. Of the 100 miles, the Department constructed some 72 miles, with the remainder being constructed by Central Coast Water Authority. All major facilities on the project are scheduled to be completed by July 1997, so that water delivery could begin. Minor work and punch list items are scheduled to be completed by December 1997.

The following is a brief recap of the different facilities constructed for this project by the Department.

Pipeline Reaches. Pipeline reaches for the facilities include:

- Approximately 360,980 linear feet of pipeline from Devil's Den Pumping Plant to the end of Reach 5A2;

- Three pumping plants (Devil's Den, Bluestone, and Polonio Pass) with six 10,000-gallon-per-minute pump units in each plant;
- Two tank sites (Tank Site 1 and Tank Site 2) with several water-holding tanks at each site;
- Steel air chamber tanks at the three pumping plants; and
- Appurtenant mechanical and electrical equipment.

Tank 1—Polonio Pass. All major construction work for the Tank 1— Polonio Pass complex was completed by June 30, 1996, with only minor punch list items to be completed. The contract was accepted July 2, 1997.

Pumping Plants. Work on the three pumping plants' initial contract (Devil's Den, Bluestone, and Polonio Pass) was completed by June 30, 1996, with minor punch list item work to be completed. The contract was accepted November 14, 1996.

Work on the three pumping plants under the completion contract was about 70 percent complete as of June 30, 1996. It is estimated that the work will be completed in December 1997.

Cuesta Tunnel. Modification work for Cuesta Tunnel was completed in August 1996.

Tank Site 2. Work on construction of the tanks at Calf Canyon continued with 58 percent of the work completed. Completion is anticipated by September 1997.

Air Chambers. Erection of the air chambers at Devil's Den, Bluestone, and Polonio Pass pumping plants was essentially completed.

Equipment. The manufacture of bridge cranes, pumps, motors, transformers, fiber optic cable, switchgear, switchboards, valves, and other appurtenant equipment was essentially completed and delivered to the job sites. Installation of the equipment is in various stages of completion.

A contract to provide seeding and control erosion facilities was let in September 1996 and will be completed in December 1998.

South San Joaquin Division

Studies for transformer oil leak containment at Buena Vista and Teerink pumping plants were completed in July 1996; Chrisman Pumping Plant was completed in November 1996.

Division staff continued to assist the field division forces with the ADA modifications made at the O&M Center.

Construction work completed or currently in progress in this division is as follows.

Aqueduct. Contract work for aqueduct modification started in October 1996 and was completed in April 1997. The work consisted of canal excavation, embankment construction, canal concrete lining, and operating-road reconstruction.

Chrisman Pumping Plant. Stator coils manufacturing began under a contract awarded in July 1992. Work is about 95 percent complete. Completion is expected in December 1997.

Lost Hills Operations and Maintenance Subcenter. Warehouse construction at this facility began in April 1995 and was completed in September 1996.

Seal Coat Operating Roads. A contract to seal coat 37 miles of aqueduct operating roads from milepost 213.97 to milepost 250.99 (Kern County west of Bakersfield) was awarded in July 1996; work was completed in August 1996.

Tehachapi Division

Division staff assisted field division forces with the ADA modifications required at Edmonston Pumping Plant.

Construction work completed or in progress in this Division during this reporting period is as follows.

Edmonston Pumping Plant. Construction of a blast-paint facility began in October 1995 and was completed in May 1997.

A contract to furnish spare parts for pump units 1, 3, 5, 7, and 9 through 14 was let in January 1997, with completion expected in May 1998.

Contract work to furnish 15.8 kV electrical circuit breakers for this facility began in April 1997, with a completion date expected in August 1998.

Mojave Division

Design was completed to repair three areas of the California Aqueduct, at mileposts 333.8, 343.81, and 344.14, where severe cracking occurred.

Staff completed and transmitted to FERC the Summary Geology Report for Cedar Springs Dam.

The following paragraphs describe construction activities in the Mojave Division.

Aqueduct. Contract work to repair damaged canal sections at mileposts 333.80, 343.81, and 344.14 began in October 1996 and was completed in April 1997. These repairs were necessary because of the damage caused by landslide seepage. The work consisted of removing damaged concrete canal lining panels, application of a three-step waterproofing membrane, and the application of a 2-inch-thick shotcrete lining.

A contract to modify and repair damaged canals sections from milepost 206.10 to milepost 207.94 was let in October 1996 and completed in April 1997. The work was similar to that described above.

Mojave Siphon Second Pipeline. All work on the initial contract to construct this facility was completed in September 1996.

Mojave Siphon. A contract to perform revegetation work over the buried pipeline was awarded in September 1995 and completed in January 1996. A 1-year plant establishment period extended the contract completion date to January 1997.

Mojave Siphon Powerplant. Installation and operational testing of the three new turbines and generators along with associated equipment is essentially complete. The three units were ready for commercial operation in July 1996; however, final performance testing will not begin until the cooling water/seal problem has been resolved and the units demonstrate reliable operation. Final testing of the acoustic velocity flowmeters at this facility cannot be accomplished until Silverwood Lake returns to normal water levels. The lake water level was lowered to facilitate construction of the San Bernardino Tunnel Intake.

Silverwood Lake. A contract to construct rock reefs in the lake and provide artificial fish habitat was let in November 1996 and completed in January 1997. This work was required to mitigate fish habitat that may have been impacted by the lowering of Silverwood Lake to accommodate construction of the new San Bernardino Tunnel Intake.

Contract work to install Department-furnished fiber optic control cable between Cedar Springs Dam control building and Mojave Siphon slide gate control building began in March 1997 and was completed in March 1997.

Valves. A contract to furnish and install butterfly valves for the Mojave Siphon and Devil Canyon powerplants was awarded in July 1991. The original valves ordered under this contract were delivered and installed by February 1996. Two additional 120-inch valves for use as turbine-shutoff valves were ordered. Installation will be delayed until valve vault construction is complete. Contract completion is expected by February 1999.

Pearblossom Pumping Plant. Work continued on fabricating seals in an attempt to solve the leaking of the new pump units installed during enlargement of the plant. The pump contract cannot be accepted until this problem is resolved. Contract acceptance is not expected until June 1998.

Santa Ana Division

The remedial drainage provisions for Sugarloaf Mountain contract intercepted and redirected the sheet flows for the drainage area on the south side of Sugarloaf Mountain by placing a series of cross ditches to convey the water to a shotcrete-lined ditch. This work was completed in March 1997.

Staff drilled, sampled, and tested 24 exploration holes as part of a foundation study for Perris Dam.

Sitework at Devil Canyon Powerplant. Contract documents were prepared for improving Bailey Creek Channel, constructing a debris basin, widening

and extending Ohio Avenue, constructing a building for the water quality unit, paving around the powerplant, constructing a parking lot, and miscellaneous erosion control measures. Construction is expected to begin in fall 1997.

East Branch Extension. Final design began in early 1997 on facilities to extend the East Branch of the California Aqueduct to Cherry Valley. The facilities will deliver SWP water from the Devil Canyon Powerplant afterbay to the eastern portion of the San Bernardino Valley Municipal Water District service area and to the San Gorgonio Pass Water Agency. The first of nine construction contracts will be advertised in 1998. A supplemental environmental impact report is being prepared for distribution in fall 1997. The project (13.5 miles of large-diameter pipeline, three pumping stations, and a dam and reservoir) is scheduled for completion in June 2000.

San Bernardino Tunnel Intake. In July 1995, construction began on the new San Bernardino Tunnel intake to comply with current seismic code requirements. Testing the gate seals and replacing the intake gate operator is scheduled for December 1997.

All major excavation and tunneling work was completed by June 1996. Some 91,000 cubic yards of earth, 465 linear feet of a 31-foot diameter tunnel, and 16 linear feet of a 29-foot diameter access shaft were excavated for this project. Reinforced concrete construction required 10,600 cubic yards of concrete. With some exceptions, mechanical work, including an intake gate, a bulkhead gate, trashracks, lifting cranes, and associated electrical work, was completed by June 30, 1997.

The new intake structure began water deliveries in March 1997. This event allowed the SWP to begin filling Silverwood Lake and enabled the Department to make contract water deliveries through the San Bernardino Tunnel.

Devil Canyon Powerplant. As reported in Bulletin 132-96, all contract work for this facility, with the exception of the turbine, has been completed and accepted. The turbine contractor continues to work on a remedial solution for the turbine low-horsepower output at maximum flow. The contract will not be accepted until this problem has been solved.

Other Activities. Other construction work included a contract for Santa Ana Pipeline excavation, inspection, and repair. The work began in September 1995 and was completed in August 1996.

West Branch

An evaluation of the concrete deterioration in the outlet works was performed at Pyramid Dam, as recommended by the 1995 FERC and Director's Safety Review boards. Preliminary review indicated that the deterioration is primarily the result of salt crystallization and does not impact the safety of the structure. A memorandum report summarizing the results of the testing program was completed in December 1996.

Gorman Creek. Design of a bypass channel around Warne Powerplant will be completed in summer 1997. Construction is scheduled to begin in the spring/summer of 1998. Design work also continued on measures to protect State facilities from large flows in Gorman Creek.

Castaic Dam. Division staff assisted field division forces with the ADA modifications required at Vista Del Lago Visitor Center.

Construction activities on the West Branch included the following:

- study of alternative conveyances to bypass the Peace Valley Pipeline and/or Warne Powerplant;
- installation of a subsurface drain seal to eliminate ongoing subsurface erosion along the Peace Valley Pipeline; and
- cursory study of alternatives to remove silt deposited in the tail race channel below the Warne Powerplant was completed.

Pyramid Dam. Work continued on a contract to perform remedial work on the Pyramid Dam spillway. The work began in April 1996 and is estimated to be completed in October 1997. The work consists of removal of badly eroded material from two shale rock strata from the 1,200-foot-long unlined rock spillway channel; drilling, installing, and grouting steel anchors; and welding wire fabric.

Oso Pumping Plant. A contract was let in June 1997 to engineer, fabricate, furnish, install, and test a 20-ton pendant and infrared radio-remote-controlled electric-driven trolley to be retrofitted on an existing overhead traveling 60-ton bridge crane at this facility. Completion is planned for June 1998. The contract also includes furnishing special tools and spare parts.

Road Repairs. In May 1997, contract work began for landslide removal and road repair at Pastoria Access Road and repair of Quail Lake Operating Road. The work is expected to be completed in July 1997. The work consists of removing landslide material, grading slopes, placing geobrick, seeding slopes, reconstructing roads, and constructing drainage facilities.

Radial Gate Inspection and Structural Evaluation. The structural evaluation and inspection of SWP dam radial gates was initiated in response to a directive from the Division of Safety of Dams as a result of the failure of Spillgate No. 3 at Folsom Dam on July 17, 1995. Division staff inspected and reanalyzed 37 radial gates on the Department's facilities. All inspections have been completed. The inspections were completed by climbing teams trained by Caltrans personnel and a private consultant. A final report summarizing the inspection and structural evaluations of the gates was completed by June 1997.

Miscellaneous

Miscellaneous construction activities are listed below.

Cherokee Canal. A contract for sediment removal was let in July 1996 and completed in December 1996.

Jibboom Street Site. A contract to provide protection to the building was let in July 1996 and completed in November 1996.

Magneson Site, Merced River. River restoration work at this location began in July 1996 and was completed in October 1996.

Merced and Tuolumne Rivers. Repair and restoration work on the two rivers began in September 1996 and was completed in October 1996.

Steel Pipe Sections. A contract to fabricate steel pipe sections for Delta and Southern field divisions was let in January 1997, with completion expected in June 1998. These pipe sections will be used to make repairs in emergency situations.

Right of Way Activities

The Department spent a net total of $244.7 million to acquire rights of way and mitigation lands for the SWP from inception to June 30, 1997. In fiscal year 1996-97, the Department:

- acquired three parcels (approximately 3,431 acres) in fee for a total purchase price of $7,166,218;
- acquired easement rights over 64 parcels (185.33 acres) for a total price of $495,750;
- managed 86 leases for a total revenue of $880,977;
- sold two properties (78.73 acres) for $93,900; and
- issued 148 temporary entry permits for various purposes.

Coastal Branch, Phase II

To date, the Department has secured all rights required for construction. In fiscal year 1996-97, the Department:

- obtained 12 temporary entry permits for geological, archaeological, and environmental studies and surveys for project design and regulatory permits; and
- obtained easements (184.92 acres over 20 parcels) for pipeline, temporary construction, electrical transmission lines, and access roads at a cost of $495,050.

In addition to departmental actions, the California Water Commission approved Resolutions of Necessity for two parcels, enabling the Department to continue with eminent domain proceedings.

West Delta Program–Sherman Island

The Department purchased three parcels (3,431,154 acres) for a total cost of $7,166,218. The Department now owns more than 95 percent of the 10,000-acre island and continues to negotiate with any willing sellers to purchase remaining parcels.

Kern Fan Element

About 20,000 acres were transferred to Kern County Water Agency for reduction in SWP water entitlement of 45,000 acre-feet per year.

Information for this chapter was provided by the Division of Engineering and the Division of Land and Right of Way.

Chapter 14

Recreation

Water-skiing—a popular sport along much of the SWP

Significant Events

- Lake Del Valle made ornithological headlines as the site of the first bald eagle chick hatched in the Bay Area in almost 100 years. It is encouraging to see this species choose Del Valle as a nesting site. The successful rearing of this eaglet was indeed an accomplishment. The nesting received extensive media coverage including CNN and Network TV.

- Also at Lake Del Valle, the East Bay Regional Park District completed construction of the Del Valle Northeast Shore Trail, which includes a bridge across Arroyo Del Valle. Recreationists are now able to cross the arroyo and enjoy miles of scenic trails. Dedication of this facility will occur sometime in 1997.

- At the Lake Oroville Complex, construction was completed on the 41-mile mountain bicycle trail main loop. This trail was constructed as part of a response to a 1993 directive from the Federal Energy Regulatory Commission. About half of this trail was opened in 1994. Since opening, the trail has been favorably received and heavily used.

- Dedication of the Lime Saddle Marina renovation at Lake Oroville took place July 2, 1996. These improvements included the launch ramp roadways and parking areas along with picnic and overlook areas. The improvements were funded by the Department of Boating and Waterways.

- The Department of Water Resources State Water Project Recreation Coordinating Committee's meeting was hosted by East Bay Regional Parks District in June at EBRPD's Garms facility. General Manager Pat O'Brien was presented a certificate of appreciation for his support of the Committee and EBRPD's contribution.

The State Water Project is a multipurpose project that benefits millions of Californians. In addition to providing water supply, flood control, and habitat for fish and wildlife, the SWP offers extensive and varied recreational opportunities—tours, sight-seeing, fishing, hunting, camping, boating, water skiing, bicycling, and swimming.[1]

Recreation Areas

The State Water Project has 37 developed recreation areas or sites throughout California, including 17 fishing access sites. Figure 14-1 shows the names and locations of each area.

Recreation-Days

In 1996, SWP facilities received 4.73 million recreation-days of use, a slight decrease from the 4.94 million recreation-days recorded in 1995 (Table 14-1). Recreational use at the 17 developed fishing access sites and along the California Aqueduct Bikeway was down more than 10 percent from that of 1995.

Some of this decline in recreational facilities usage was caused by flooding at Lake Del Valle and—later in the season—a 750-acre fire requiring evacuation of stranded campers from a Phase III campground. These events contributed to the decrease in usage by more than 60,000 recreation-days from that recorded in 1995.

Most SWP recreation and visitor use was concentrated at the major reservoirs, where well-developed facilities accommodate the public. Fifty percent of the total SWP recreational use in 1996 occurred at the four major reservoirs in Southern California: Pyramid Lake, Castaic Lake, Silverwood Lake, and Lake Perris.

Table 14-1
Recreation-Days Recorded in 1996, by Division and Facility

Division	*Number of Days*
Oroville Field Division	
Frenchman Lake	222,900
Antelope Lake	73,100
Lake Davis	233,800
Lake Oroville and Thermalito Forebay	691,700
Thermalito Afterbay and Oroville Wildlife Area	220,000
Total	**1,441,500**
Delta Field Division	
Lake Del Valle	353,700
Bethany Reservoir	23,300
Fishing Access Sites:	
Neils Hansen	100
California Aqueduct:	
Walk-In Fishing	12,600
Bikeway	200
White Slough Wildlife Area	12,500
Total	**402,400**
San Luis Field Division	
San Luis Reservoir	172,000
O'Neill Forebay	272,500
Los Banos Reservoir	39,400
California Aqueduct:	
Walk-In Fishing	13,600
Wildlife Areas	8,500
Total	**506,000**
San Joaquin Field Division	
Fishing Access Sites:	
Kettleman City	1,000
Lost Hills	1,000
Buttonwillow	1,100
California Aqueduct:	
Walk-In Fishing	8,700
Total	**11,800**
Southern Field Division	
Silverwood Lake	237,000
Lake Perris	1,157,300
Pyramid Lake	300,000
Castaic Lake	666,000
Fishing Access Sites:	
Quail Lake	1,300
77th Street East	200
Longview Road	100
California Aqueduct:	
Walk-In Fishing	2,500
Bikeway	400
Total	**2,364,800**
Grand Total	**4,726,500**

[1] According to the Davis-Dolwig Act (Water Code Sections 11925, *et seq.*), the Department has overall responsibility to acquire property, plan recreation, and ensure that enhancement of fish and wildlife habitat is included as part of the State Water Project, although the costs of these recreation activities are not borne by the water supply contractors. In addition, Federal Energy Regulatory Commission License Numbers 2100 and 2426 require the Department to plan for recreational and associated activities at licensed SWP facilities.

Figure 14-1
Names and Locations of SWP Recreational Areas

1. Antelope Lake Recreation Area
2. Frenchman Lake Recreation Area
3. Lake Davis Recreation Area
4. Lake Oroville State Recreation Area
5. White Slough Wildlife Area
6. Bethany Reservoir
7. Lake Del Valle State Recreation Area
8. Bikeway from Bethany Reservoir to O'Neill Forebay (70 miles)
9. Grant Line Road Fishing Access Site
10. Niels Hansen Fishing Access Site
11. Orestimba Fishing Access Site
12. Walk-in Fishing (63 miles)
13. Cottonwood Road Fishing Access Site
14. San Luis Reservoir State Recreation Area
15. Los Banos Reservoir
16. Canyon Road Fishing Access Site
17. Mervel Avenue Fishing Access Site
18. Fairfax Fishing Access Site
19. Access to Walk-in Fishing (208 miles of accessibility along the aqueduct)
20. Three Rocks Fishing Access Site
21. Huron Fishing Access Site
22. Avenal Cutoff Fishing Access Site
23. Kettleman City Fishing Access Site
24. Lost Hills Fishing Access Site
25. Buttonwillow Fishing Access Site
26. Pyramid Lake State Recreation Area
27. Castaic Lake State Recreation Area
28. Munz Ranch Road Fishing Access Site
29. Bikeway from Quail Lake to Silverwood Lake (107 miles, not all accessible)
30. 70th Street West Fishing Access Site
31. Walk-in Fishing (83 miles)
32. Avenue S Fishing Access Site
33. 77th Street East Fishing Access Site
34. Longview Road Fishing Access Site
35. Silverwood Lake State Recreation Area
36. Lake Perris State Recreation Area
37. San Jacinto Wildlife Area

Since the SWP began delivering water in 1962, more than 140 million recreation-days have been recorded at SWP recreational facilities.

Facility Planning

During 1996, the following Lake Oroville Complex recreation facilities planning activities occurred:

- Oroville Field Division completed the final plans and specifications for an aquatic center, en route camping area, and restroom facilities at the North Thermalito Forebay. Construction of the camping area was completed in October; the other two facilities are scheduled to be operational by summer 1997.
- Plans and specifications were completed and construction began on 10 floating campsites that will be moored at various locations on Lake Oroville. Each will be a two-story structure measuring 20 by 24 feet and equipped with a flush toilet, non-potable water supply, storage locker, picnic table/bench, and gas BBQ. These floating campsites should be launched and on the lake for the 1997 recreation season.

New Facilities

Lake Oroville. The following new facilities were completed at Lake Oroville recreation areas:

- Restrooms were constructed at Monument Hill overlooking Thermalito Afterbay.
- A fish-cleaning station was added at the South Forebay area.
- An en route camping area for RVs was added at the North Forebay area for travelers along Highway 70.

At Lake Del Valle. The following new facilities were completed at Lake Del Valle recreation areas:

- New shower towers were installed for beach users.
- A bridge across Arroyo Del Valle for bikers and hikers was added downstream of the dam.
- A new Bald Eagle Trail was added along the east shore.
- Signs were installed designating bald eagle nesting area off-limits.

Improvements to Facilities

The following improvements were made at SWP recreation areas during 1996 to help meet recreational demands:

Lake Oroville. The following improvements were made at Lake Oroville recreation area:

- Improvements to the launch ramp, road, and parking area were made at Wilbur Road area.
- Renovation of the Lime Saddle Marina Area included improving the launch ramp, road, and parking areas, as well as improving the picnic and overlook areas. This renovation was funded by the Department of Boating and Waterways.

Lake Del Valle. The following improvements were made at Lake Del Valle recreation area:

- Eight restroom buildings received a face-lift, which included new roofs and paint jobs.
- Seventy-five trees were planted in the campground area.

Silverwood Lake. The Department of Boating and Waterways provided funding for the following improvements:

- The Sawpit Canyon launch ramp was expanded from six to seven lanes, overlain with concrete, and the shoreline was reconstructed.
- The launch ramp at Cleghorn Canyon was lengthened.

Oroville Recreation Plan

On October 1, 1992, the Federal Energy Regulatory Commission issued Order 2100-052, which required the Department to prepare a revised recreation plan for Lake Oroville. The new plan replaced the original *Oroville Reservoir, Thermalito Forebay, and Afterbay Recreation Report* (Bulletin 117-6), which was prepared in December 1966, but never fully implemented. The new plan, in FERC Order 2100-054, submitted June 1, 1993, and approved September 22, 1994, includes additional recreation facilities and addresses concerns raised by local residents regarding recreation and fishery-related issues.

Recreation plan implementation began in 1995 with establishment of the Lake Oroville Recreation Advisory Committee. This committee of local government, citizens groups, and State agencies was formed to advise the Department on recreation plan implementation. Elements being developed or already completed include:

- An en route RV camping area was added at the North Forebay Area.
- Construction began on a duck brood pond and restroom and picnic facilities at Thermalito Afterbay. Buoys were deployed around water-ski slalom course.
- Construction was completed on the 41-mile bike trail main loop.
- Construction of the Lime Saddle Boat Ramp improvements (Department of Boating and Waterways), equestrian campground at Loafer Creek Recreation area, and lighting on Oroville Dam was completed.
- At Lake Oroville, fishery and fishing improvements included developing a fish management and stocking plan, stocking chinook salmon, and deploying fish shelters.

Most recreation and fish facilities should be complete by 1998; certain elements of the plan may require time extensions to complete.

Fish Plantings

In 1996, the Department of Fish and Game continued its fish-planting activities at 10 SWP facilities and 1 facility, Lake Skinner, owned by the Metropolitan Water District of Southern California. Total plantings of trout and chinook salmon increased by nearly 10 percent in 1996 (Table 14-2).

At the Feather River Fish Hatchery and the Thermalito Afterbay rearing ponds, 15,090,700 fish were produced in 1996, down 9 percent from 1995. That figure includes 14,530,800 chinook salmon and 559,900 steelhead trout. Of the chinook salmon reared, 2,829,300 were fingerlings, 11,329,300 were advanced fingerlings, 24,000 were yearlings, 323,200 were subcatchables, and 25,000 were catchables. Of the steelhead reared, all 559,900 were yearlings.

Recreation Financing

Recreational facilities are financed in accordance with several legislative provisions, specifically, the Davis-Dolwig Act (Water Code Sections 11925 *et seq.*), Assembly Bill 12 (Water Code Sections 11912, 11915, and 11915.1), and the Environmental Water Act, Assembly bills 1441 and 1442 (Water Code Sections 12929 *et seq.*).

The Davis-Dolwig Act declared that providing for the enhancement of fish and wildlife and for recreation in connection with State water projects benefits all the people of California and that the costs attributable to such enhancement should be borne by them. The act also provided a procedure to reimburse the Department for those project costs allocated to recreation and fish and wildlife enhancement and for costs of acquiring property for recreation development.

The reimbursements were included in the Department's budget as appropriations from the General Fund and used by the Department to pay for operations, maintenance, power, and replacement costs associated with operating the SWP.

Assembly Bill 12 provided for a $5-million annual appropriation from tideland oil and gas revenues for joint costs of State water projects allocated to recreation, enhancement of fish and wildlife, and purchases of land for recreational uses. Through the 1985-86 fiscal year, the Department received $90 million from tideland oil and gas revenues for funding joint capital costs and recreational land purchases.

Assembly Bill 1442, known as the "Offset Legislation," offsets moneys owed the California Water Fund by the SWP with reimbursements owed the project by the General Fund under the Davis-Dolwig Act.

Appendix D to Bulletin 132, *Costs of Recreation and Fish and Wildlife Enhancement*, contains specific information about capital costs allocated to fish and wildlife enhancement and recreational enhancement and recreational development. This report to the Legislature is published annually by the Department.

Table 14-2
Fish Planted in 1996
(Thousands)

Location and Size	*Eagle Lake Trout*	*Rainbow Trout*	*Brown Trout*	*Chinook Salmon*	*Total*
Antelope Reservoir					
Catchable		170.0			170.0
Lake Davis					
Catchable	37.5				37.5
Frenchman Reservoir					
Subcatchable		102.6			102.6
Lake Oroville					
Catchable				150.4	150.4
Fingerling			46.9	105.8	152.7
Thermalito Forebay					
Catchable		34.5			34.5
Lake Del Valle					
Catchable		47.6			47.6
Los Banos Reservoir					
Catchable		11.4			11.4
Pyramid Lake		No Fish Planted			
Castaic Lake					
Catchable		20.4			20.4
Castaic Lake Lagoon					
Catchable		48.9			48.9
Silverwood Lake		No Fish Planted			
Lake Perris					
Catchable		66.7			66.7
Lake Skinner (a					
Catchable		63.5			63.5
California Aqueduct		No Fish Planted			
Total	**37.5**	**565.6**	**46.9**	**256.2**	**906.2**

a) Included in SWP fish planting program but not an SWP facility

Information for this chapter was provided by the Division of Planning and Local Assistance, Central District, the Office of Water Education, and the State Water Project Analysis Office.

Chapter 15

Financial Analysis

Complex financial issues—an essential part of the State Water Project operation

Significant Events

- On November 5, 1996, the Department sold $267 million of Water System Revenue Bonds, Series Q. The proceeds were used to provide long-term financing of construction expenditures, pay for bond financing costs, and refinance $102 million of previously issued bonds.
- On March 11, 1997, the Department sold $21 million of variable-rate Water System Revenue Bonds, Series R. The proceeds were used to refinance $18 million of previously issued bonds and to pay for bond financing costs.

This chapter presents both a summary and a detailed explanation of SWP current financial analysis, capital costs and requirements, revenues and expenses, and bond activities for years 1997 through 2010.

The Department performs a financial analysis annually to ensure that the SWP financing program will have sufficient funds to meet construction obligations; project operation, maintenance, power, and replacement costs; bond debt service payments; and repayment of California Water Fund moneys expended for construction. The results of the current financial analysis, dated June 30, 1997, are presented in Tables 15-1 and 15-2 (see pages 179 and 180).

Future conditions may change the financial analysis. Contingencies that could change the financial analysis include:

- alterations in schedules of currently planned construction for future facilities;
- changes in economic conditions, including changes in interest rates and in SWP contractor entitlements due to changes in amounts of water needed, conserved, or reclaimed;
- completion of Delta transfer facilities;
- development of additional sources of water not foreseen at this time;
- deviations from the assumptions regarding actual rates of price escalations for future construction from those currently assumed for cost estimates;
- enlargement of the San Luis Canal;
- increases in capital costs related to additional conservation facilities; and
- outcomes of lawsuits now pending before the courts.

Capital Requirements and Financing

In conducting the current analysis, the Department projected that future construction and Davis-Grunsky Act Program costs through the year 2010 will total $400 million. Special capital requirements for revenue bond financing of these construction costs are projected at $58 million for a total capital requirement of $458 million. This projection includes construction and financing costs for the following significant SWP facilities planned for completion by 2010:

- Suisun Marsh Facilities;
- North and south Delta facilities;
- Gorman Creek Channel modifications on the West Branch of the California Aqueduct; and
- Extension of the East Branch of the California Aqueduct.

Most of these capital requirements will be financed from the projected sale of $391 million of revenue bonds. The remaining $67 million will be financed from current bond proceeds, capital resources revenues, and the transfer of excess revenues not needed for operation costs, debt service, or repayment of the California Water Fund.

The analysis of capital requirements and financing presented in Table 15-1 does not include the costs and financing of all facilities needed to develop the remaining yield necessary to meet the total 4.2 million acre-feet contractual commitment to long-term SWP water contractors. Also, Table 15-1 does not include costs of associated works that are essential for realizing full benefits from the SWP but are financed and constructed by local interests or State agencies other than the Department of Water Resources. Those facilities include on-shore recreational developments at SWP facilities and local distribution facilities.

The allocation of capital expenditures among various SWP purposes is detailed in Table 15-3.

Capital Requirements

Lines 1 through 19 in Table 15-1 show actual and projected SWP capital requirements through 2010. Estimates of future capital expenditures include allowances for escalation of costs from 1997 through 2010 at 3 percent per year for construction costs and 4 percent per year for right-of-way costs. Capital

expenditures for the SWP also include requirements other than those for construction, such as disbursements made as part of the Davis-Grunsky Act Program (Line 15) and special capital requirements under revenue bond financing (Line 16). The Department will decide to construct facilities only after examining alternatives and completing environmental documentation and other review processes.

Line 1, Initial Project Facilities, includes only those facilities completed before 1974 (see Bulletin 132-74, Chapter 2). Additional costs after 1973 and estimated costs of remaining work on the initial SWP facilities are not included.

Line 2, North Bay Aqueduct, Phase II, consists of pipelines, pumping plants, and a small reservoir necessary to divert water from the western Delta to Napa and Solano counties for urban use. Phase II is connected with the Phase I facilities and was completed in 1968 (Phase I costs are included in the initial project facilities discussed in Line 1). Phase II became operational in May 1988.

Line 3, Delta and Suisun Marsh Facilities, shows historical costs in Column 1 that include planning costs for general Delta facilities and historical costs associated with the previously planned Peripheral Canal and overland water delivery facilities for the western Delta.

Also included are historical planning costs for Suisun Marsh as well as construction costs for the Suisun Marsh Salinity Control Gates and an access road. The projected amounts include projected planning costs plus projected costs for constructing four permanent barriers in the Delta and an additional intake at Clifton Court Forebay.

Line 4, Final Four Units at Banks Pumping Plant, includes costs of the final four 1,067-cfs units, which became operational in spring 1992, and final payments for plant equipment.

Line 5, Coastal Branch Aqueduct, Phase II, includes all costs for the planning, design, and construction of Phase II of the Coastal Branch of the California Aqueduct. The first major construction contract for Phase II facilities was awarded in October 1993. Phase II construction is scheduled to be completed in July 1997 at a projected cost of $481 million.

Line 6, West Branch Aqueduct, shows costs for all facilities on the West Branch except Warne Powerplant. Warne Powerplant costs are included in Line 10. Projected costs include approximately $8.6 million for Gorman Creek channel modifications.

Line 7, East Branch Enlargement, includes expenditures for first-stage construction of the East Branch Enlargement, including the enlargement share of power plant costs at Mojave Siphon and Devil Canyon. (The remaining power plant costs are included in Line 10.) Estimated East Branch Enlargement costs by facility are presented in Table 15-4. Costs for Alamo Powerplant consist of expenditures for Unit 1 facilities allocated to enlargement. Construction of Unit 2 has been deferred.

All costs in Line 7 are allocated to and repaid by the seven Southern California contractors participating in the East Branch Enlargement.

Line 8, East Branch Improvements, shows all aqueduct costs on the East Branch not allocated to the enlargement project. Those costs include improvements constructed concurrently with the enlargement work and the reconstruction of the San Bernardino Tunnel Intake. Costs for power plant construction at Mojave Siphon and Devil Canyon are not included in this line.

Line 9, East Branch Extension, shows projected expenditures for Phase I of the proposed extension of the East Branch of the California Aqueduct. The East Branch Extension would extend the California Aqueduct east from the Devil Canyon Powerplant to a terminus at Noble Creek near Beaumont, Riverside County. The extension will provide water service to the San Gorgonio Pass Water Agency and the San Bernardino Valley Municipal Water District. All costs in Line 9 will be allocated to and repaid by the two participating contractors.

Line 10, Power Generation and Transmission Facilities, does not include the East Branch Enlargement share of costs for Devil Canyon and Mojave Siphon power plants shown in Line 7 of Table 15-1. Esti-

mated capital costs for facilities included in Line 10 are shown in Table 15-5.

Line 11, Additional Conservation Facilities, shows projected costs for financial analysis and planning additional conservation facilities. Line 11 includes estimated CALFED program costs for 1998 through 2000 for preliminary planning and environmental impact report preparation. Specific planning activities and projected spending amounts for 1997 through 2010 are shown in Table 15-6. Expenditures for these items are being reviewed. Construction costs of additional conservation facilities are not included in the financial analysis.

Line 12, San Joaquin Drainage Facilities, includes projected costs of the San Joaquin Valley Drainage Monitoring Program. The activities in this program are monitoring, evaluating, reducing, and treating drainage; and investigating evaporation ponds.

The Department assumes that future costs of the drainage program will be financed by revenue transfers (Line 31).

Line 13, Other Costs, includes items such as general design and construction costs, costs of completing operation and maintenance facilities, and costs of other completion activities for the initial facilities of the California Aqueduct. Portions of those costs ultimately will be allocated to aqueduct units described in the preceding paragraphs.

Line 14, Total Project Construction Expenditures, is the total of Lines 1 through 13.

Line 15, Davis-Grunsky Act Program Costs, shows costs of the Davis-Grunsky Act Program, a financial assistance program to provide grants and loans to public agencies for constructing local water projects.

As of December 31, 1996, the Department had disbursed $129 million (including $8.5 million for administration) in grants and loans for local agencies throughout the State. Funds for Department projects currently authorized will be disbursed prior to 1998.

Line 16, Special Capital Requirements under Revenue Bond Financing, presents special capital requirements at the time revenue bonds are sold. The financial analysis assumes that proceeds from any future revenue bonds will be used to pay for bond discounts, bond issuance costs, and debt service reserve requirements.

Information about the application of proceeds to these special requirements for actual and assumed revenue bond sales is presented in Table 15-7.

Line 17, Total Capital Requirements, is the total of Lines 14, 15, and 16.

Line 18, Power Facilities Capital Requirements, shows the total capital requirements for power facilities included in Lines 1 through 13 and that part of Line 16 associated with revenue bonds sold for power facilities.

Line 19, Water Facilities Capital Requirements, shows the total capital requirements for water facilities included in Lines 1 through 13 and that part of Line 16 associated with revenue bonds sold for water facilities.

Capital Financing

The State Water Project was constructed with three general types of financing: Burns-Porter, revenue bonds, and capital resources. Lines 20 through 33 of Table 15-1 present specific information about those sources of financing.

Burns-Porter Act. Burns-Porter financing is derived from the sale of California Water Resources Development Bonds (general obligation bonds) and State Tideland Oil Revenues deposited in the California Water Fund as authorized by the Burns-Porter Act (Water Code sections 12930-12944), approved by voters in November 1960. The Burns-Porter Act authorized an issue of $1.75 billion of general obligation bonds of the State, which are repaid by revenues received according to the water supply contracts. Of that authorization, $130 million has been reserved specifically for the Davis-Grunsky Act Program.

Proceeds from the sale of general obligation bonds are deposited in the California Water Resources Development Bond Fund-Bond Proceeds Account, from which moneys may be expended only for the construction of SWP facilities and for the Davis-

Table 15-3
Allocation of Capital Expenditures
(Thousands of Dollars)

Facilities and Construction Divisions	Expenditures Incurred Through1996	Future Expenditures	Total	Preliminary Allocation Among Project Purposes: Water Supply and Power Generation	Flood Control (a	Recreation and Fish and Wildlife Enhancement	Other (b
Project Construction Expenditures							
Upper Feather Division	17,926	0	17,926	1,373	0	16,553	0
Oroville Division	563,763	337	564,100	474,759	70,661	18,680	0
Delta Facilities Division	289,408	111,286	400,694	355,106	0	45,588	0
North Bay Aqueduct	94,465	1,802	96,267	96,267	0	0	0
South Bay Aqueduct	80,178	163	80,341	58,650	7,538	14,153	0
California Aqueduct:							
North San Joaquin Division	258,158	13,111	271,269	261,950	0	9,319	0
San Luis Division	248,281	476	248,757	236,953	0	11,804	0
South San Joaquin Division	305,081	459	305,540	288,946	0	16,594	0
Tehachapi Division	325,275	215	325,490	307,295	0	18,195	0
Mojave Division	388,213	3,458	391,671	354,621	0	37,050	0
Santa Ana Division	239,793	8,853	248,646	217,170	0	31,476	0
West Branch	531,175	8,974	540,149	506,700	0	33,449	0
Coastal Branch	426,453	51,590	478,043	478,043	0	0	0
Subtotal, California Aqueduct	2,722,429	87,136	2,809,565	2,651,678	0	157,887	0
Other Project Facilities							
Small Hydroelectric Power Generating Facilities	85,698	871	86,569	86,569	0	0	0
Off-Aqueduct Power Generating Facilities	443,215	15,000	458,215	0 458,215	0	0	0
East Branch Enlargement	444,600	8,441	453,041	453,041	0	0	0
East Branch Extension	2,000	49,240	51,240	51,240	0	0	0
Coastal Branch Extension	27,111	1,289	28,400	28,400	0	0	0
San Joaquin Drainage Facilities	53,329	39,743	93,072	0	0	0	93,072
Planning and Preoperations	53,987	81,685	135,672	135,672	0	0	0
Unassigned	305	1,851	2,156	0	0	0	2,156
Subtotal, Project Construction Expenditures	4,878,414	398,844	5,277,258	4,850,970	78,199	252,861	95,228
Other Capital Requirements							
Davis-Grunsky Act Program	128,674	1,326	130,000	0	0	0	130,000
Total Capital Expenditures	**5,007,088**	**400,170**	**5,407,258**	**4,850,970**	**78,199**	**252,861**	**225,228**

a) Reflects the Department's allocation to this purpose, irrespective of federal payments.

b) Includes costs currently unassigned to purpose, planning costs of deleted features of project facilities, initial costs of inventoried items, joint costs assigned to the federal government, and costs assigned to the Davis-Grunsky Act Program.

Table 15-1
Capital Requirements and Financing, June 30, 1997
(Thousands of dollars)

Line Number	Line Item	Calendar year 1952-1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total 1996-2010	Total 1952-2010
	CAPITAL REQUIREMENTS																	
1.	Initial Project Facilities	2,202,316	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,202,316
2.	North Bay Aqueduct, Phase II	90,501	128	566	1,108	0	0	0	0	0	0	0	0	0	0	0	1,802	92,303
3.	Delta & Suisun Marsh Facilities	225,502	6,778	17,640	31,642	32,049	13,131	9,326	360	360	0	0	0	0	0	0	111,286	336,788
4.	Final 4 Units at Banks Delta Pumping Plant	43,673	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43,673
5.	Coastal Branch Aqueduct, Phase II	427,883	52,180	598	101	0	0	0	0	0	0	0	0	0	0	0	52,879	480,762
6.	West Branch Aqueduct	187,648	187	8,787	0	0	0	0	0	0	0	0	0	0	0	0	8,974	196,622
7.	East Branch Enlargement	444,600	7,081	1,360	0	0	0	0	0	0	0	0	0	0	0	0	8,441	453,041
8.	East Branch Improvements	130,184	1,724	29	0	0	0	0	0	0	0	0	0	0	0	0	1,753	131,937
9.	East Branch Extension	2,000	2,000	23,620	23,620	0	0	0	0	0	0	0	0	0	0	0	49,240	51,240
10.	Power Generation and Transmission Facilities	660,854	3,843	3,020	3,008	3,000	3,000	0	0	0	0	0	0	0	0	0	15,871	676,725
11.	Additional Conservation Facilities	140,895	7,463	5,665	15,399	18,159	9,446	6,446	6,392	3,113	3,113	3,113	3,113	3,113	3,113	3,113	90,761	231,656
12.	San Joaquin Drainage Facilities	46,814	2,638	2,677	2,758	2,840	2,883	2,883	2,883	2,883	2,883	2,883	2,883	2,883	2,883	2,883	39,743	86,557
13.	Other Costs	275,544	9,029	5,919	1,508	873	382	383	0	0	0	0	0	0	0	0	18,094	293,638
14.	**TOTAL PROJECT CONSTRUCTION EXPENDITURES**	**4,878,414**	**93,051**	**69,881**	**79,144**	**56,921**	**28,842**	**19,038**	**9,635**	**6,356**	**5,996**	**5,996**	**5,996**	**5,996**	**5,996**	**5,996**	**398,844**	**5,277,258**
15.	Davis-Grunsky Act Program Costs	128,674	1,326	0	0	0	0	0	0	0	0	0	0	0	0	0	1,326	130,000
16.	Special Capital Requirements Under Revenue Bond Financing	549,131	12,907	8,200	18,829	0	10,800	0	7,650	0	0	0	0	0	0	0	58,386	607,517
17.	**TOTAL CAPITAL REQUIREMENTS**	**5,556,219**	**107,284**	**78,081**	**97,973**	**56,921**	**39,642**	**19,038**	**17,285**	**6,356**	**5,996**	**5,996**	**5,996**	**5,996**	**5,996**	**5,996**	**458,556**	**6,014,775**
18.	Power Facilities Capital Requirements	1,234,094	8,687	4,367	3,008	3,000	3,000	0	0	0	0	0	0	0	0	0	22,062	1,256,156
19.	Water Facilities Capital Requirements	4,322,125	98,597	73,714	94,965	53,921	36,642	19,038	17,285	6,356	5,996	5,996	5,996	5,996	5,996	5,996	436,494	4,758,619
	FINANCING OF CAPITAL REQUIREMENTS																	
	Power Revenue Bond Proceeds																	
20.	Power Revenue Bonds through Series H	1,162,274	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,162,274
	Water Revenue Bond Proceeds																	
21.	East Branch Enlargement, Current Bonds	463,383	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	463,383
22.	East Branch Enlargement, Future Bonds	0	19,765	0	0	0	0	0	0	0	0	0	0	0	0	0	19,765	19,765
23.	Water System Facilities, Current Bonds	1,226,156	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,226,156
24.	Water System Facilities, Future Bonds	0	71,400	80,000	100,000	0	70,000	0	50,000	0	0	0	0	0	0	0	371,400	371,400
25.	**SUBTOTAL, WATER REVENUE BONDS**	**1,689,539**	**91,165**	**80,000**	**100,000**	**0**	**70,000**	**0**	**50,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**391,165**	**2,080,704**
	Other Capital Financing																	
26.	Initial Project Facilities Bond Proceeds	1,480,448	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,480,448
27.	Davis-Grunsky Act Program Bond Proceeds	100,678	1,326	0	0	0	0	0	0	0	0	0	0	0	0	0	1,326	102,004
28.	Application of California Water Fund Monies (Tideland Oil Revenues)	507,802	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	507,802
29.	Interim Financing	10,405	12,155	(7,919)	(8,027)	50,921	(34,858)	14,538	(37,215)	0	0	0	0	0	0	0	(10,405)	0
30.	Application of Capital Resources Revenues to Construction	554,631	0	0	0	0	0	0	0	1,856	1,496	1,496	1,496	1,496	1,496	1,496	10,832	565,463
31.	Revenue Transfers Applied	50,442	2,638	6,000	6,000	6,000	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	65,638	116,080
32.	**SUBTOTAL, OTHER CAPITAL FINANCING**	**2,704,406**	**16,119**	**(1,919)**	**(2,027)**	**56,921**	**(30,358)**	**19,038**	**(32,715)**	**6,356**	**5,996**	**5,996**	**5,996**	**5,996**	**5,996**	**5,996**	**67,391**	**2,771,797**
33.	**TOTAL FINANCING OF CAPITAL REQUIREMENTS**	**5,556,219**	**107,284**	**78,081**	**97,973**	**56,921**	**39,642**	**19,038**	**17,285**	**6,356**	**5,996**	**5,996**	**5,996**	**5,996**	**5,996**	**5,996**	**458,556**	**6,014,775**

Table 15-2
State Water Project Revenues and Expenditures, June 30, 1997
(Thousands of dollars)

Line Number	Line Item	Calendar year 1952-1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	1997-2010	1952-2010
	Project Revenues																	
1.	Capital resources revenues	801,836	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	801,836
	Water Contractor Payments																	
2.	Transportation capital	2,339,384	129,285	137,871	140,391	144,179	146,478	146,488	146,488	146,486	146,488	145,390	146,326	146,329	146,334	146,329	2,014,862	4,354,246
3.	Transportation minimum	2,751,335	212,714	226,330	221,590	224,582	221,802	222,419	211,595	208,543	219,221	220,090	217,114	237,496	238,648	237,389	3,119,533	5,870,868
4.	Transportation variable	1,068,386	55,346	89,523	91,730	87,958	84,017	116,575	114,524	123,596	103,631	106,630	103,959	107,435	107,684	107,477	1,400,085	2,468,471
5.	Delta Water Charge	1,160,495	90,706	93,570	97,799	101,463	103,074	104,237	107,776	108,813	109,276	109,530	109,985	110,243	110,474	110,709	1,467,655	2,628,150
6.	East Branch Enlargement payments	199,018	40,017	39,937	41,563	42,508	42,495	42,220	42,179	40,741	40,731	40,734	41,535	40,583	40,646	40,710	576,599	775,617
7.	Water Revenue Bond Surcharge	113,013	40,919	50,920	51,643	52,084	51,707	52,534	52,174	53,656	53,353	53,084	50,618	56,104	56,216	56,319	731,331	844,344
8.	*Subtotal water contractor payments*	7,631,631	568,987	638,151	644,716	652,774	649,573	684,473	674,736	681,835	672,700	675,458	669,537	698,190	700,002	698,933	9,310,065	16,941,696
9.	Revenue bond cover adjustments	(25,390)	(28,356)	(36,754)	(38,584)	(39,294)	(39,698)	(39,631)	(39,474)	(37,016)	(36,836)	(38,451)	(38,408)	(38,268)	(43,063)	(43,088)	(536,917)	(562,307)
10.	Rate management adjustments	0	(14,000)	(17,000)	(32,000)	(33,000)	(40,500)	(40,500)	(40,500)	(40,500)	(40,500)	(40,500)	(40,500)	(40,500)	(40,500)	(40,500)	(501,000)	(501,000)
	Other Revenues																	
11.	Federal payments for project operating costs	137,084	10,899	10,525	10,159	9,340	9,340	9,340	9,340	9,340	9,340	9,340	9,340	9,340	9,340	9,340	134,323	271,407
12.	Appropriations for operating costs allocated to recreation	16,657	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16,657
13.	Davis-Grunsky loan repayments	35,664	2,200	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	20,400	56,064
14.	Revenue Bond Proceeds	457,452	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	457,452
15.	Interest Earnings on Operating Revenue	425,172	7,310	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	85,310	510,482
16.	Oroville-Thermalito payments	249,280	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	249,280
17.	Miscellaneous revenues	92,610	61,369	2,280	0	0	0	0	0	0	0	0	0	0	0	0	63,649	156,259
18.	*Subtotal, other revenues*	1,413,919	81,778	20,205	17,559	16,740	16,740	16,740	16,740	16,740	16,740	16,740	16,740	16,740	16,740	16,740	303,682	1,717,601
19.	Total operating revenues	9,020,160	608,409	604,603	591,691	597,221	586,116	621,082	611,503	621,060	612,104	613,248	607,370	636,162	633,179	632,086	8,575,830	17,595,990
20.	Total operating revenues and Capital Resources Revenues	9,821,996	608,409	604,603	591,691	597,221	586,116	621,082	611,503	621,060	612,104	613,248	607,370	636,162	633,179	632,086	8,575,830	18,397,826
	Project Expenses																	
21.	Project operations, maintenance, and power costs	3,745,039	295,453	314,311	309,366	306,564	305,418	336,254	337,990	340,952	325,676	333,079	322,997	330,056	330,269	328,084	4,516,469	8,261,508
22.	Deposits to Replacement Reserves	93,650	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93,650
23.	Deposits to special reserves	492,993	16,298	18,574	7,729	9,945	2,364	2,879	1,370	2,845	3,348	(1,913)	2,288	9,256	5,945	7,651	88,578	581,571
24.	Capital resources expenditures	554,631	0	0	0	0	0	0	0	1,856	1,496	1,496	1,496	1,496	1,496	1,496	10,832	565,463
	Payments of Debt Service																	
25.	Principal repayments on bonds sold through June 30, 1997 (current bonds)	1,090,305	76,281	79,884	83,181	86,855	90,609	94,625	89,970	94,455	105,520	110,090	115,925	136,660	144,146	151,315	1,459,516	2,549,821
26.	Interest on bonds sold through June 30, 1997 (current bonds)	3,536,593	183,439	178,513	174,290	169,837	165,198	159,926	154,774	150,001	145,107	139,545	133,714	127,740	120,372	112,589	2,115,045	5,651,638
27.	Future East Branch enlargement bond principal repayments	0	0	0	270	285	300	310	320	335	355	370	385	400	420	440	4,190	4,190
28.	Future East Branch enlargement bond interest payments	0	0	0	960	948	936	924	910	894	878	862	844	827	808	789	10,580	10,580
29.	Future Water Bond principal repayments	0	0	40	1,650	2,625	2,770	3,590	3,795	4,565	4,830	5,095	5,390	5,700	6,020	6,360	52,430	52,430
30.	Future Water Bond interest payments	0	0	280	8,245	14,162	14,021	18,074	17,874	20,656	20,394	20,123	19,830	19,527	19,203	18,862	211,251	211,251
31.	**Total Principal**	1,090,305	76,281	79,924	85,101	89,765	93,679	98,525	94,085	99,355	110,705	115,555	121,700	142,760	150,586	158,115	1,516,136	2,606,441
32.	**Total Interest**	3,536,593	183,439	178,793	183,495	184,947	180,155	178,924	173,558	171,551	166,379	160,530	154,388	148,094	140,383	132,240	2,336,876	5,873,469
33.	*Subtotal Debt Service*	4,626,898	259,720	258,717	268,596	274,712	273,834	277,449	267,643	270,906	277,084	276,085	276,088	290,854	290,969	290,355	3,853,012	8,479,910
34.	**Total Operating Expenses and Debt Service**	9,513,211	571,471	591,602	585,691	591,221	581,616	616,582	607,003	616,559	607,604	608,748	602,869	631,662	628,679	627,586	8,468,891	17,982,102
35.	Net System Revenues	308,785	36,938	13,000	6,000	6,000	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	106,939	415,724
	Application of Net System Revenues																	
36.	California Water Fund Repayment	258,343	34,300	7,000	0	0	0	0	0	0	0	0	0	0	0	0	41,300	299,643
37.	Revenues used for capital expenditures	50,442	2,638	6,000	6,000	6,000	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	65,638	116,080

Table 15-4
Estimated Costs for East Branch Enlargement

Facility	*Dollar Amounts (in millions)*
Aqueduct and siphons	$127.8
Pearblossom Pumping Plant	70.0
Alamo Powerplant	5.0
Mojave Siphon Powerplant	47.3
Devil Canyon Powerplant and Second Afterbay	202.9
Total	**453.0**

Table 15-5
Estimated Capital Costs for Power Generation and Transmission Facilities

Facility	*Dollar Amounts (in millions)*
Power Plants	
Reid Gardner, Unit 4	$280.8
Bottle Rock	120.9
South Geysers	49.6
Devil Canyon	36.8
Warne	84.5
Alamo	44.8
Mojave Siphon	27.6
Thermalito Diversion Dam	14.1
Subtotal	$659.1
Transmission Lines	
Midway-Wheeler Ridge	$ 10.7
Geysers-Lakeville	6.9
Total	**$676.7**

Table 15-6
Estimated Costs for Planning Additional Conservation Facilities

Activity	*Project Expenditures (in millions)*
Future Water Supply	$72.2
CALFED Planning	9.0
Other Planning Costs	9.6
Total	**$90.8**

Grunsky Act Program. Approximately 32 percent of the expenditures through 1996 for construction and the Davis-Grunsky Act Program were financed with general obligation bonds.

Moneys deposited in the California Water Fund are appropriated for purposes outlined in the Burns-Porter Act. Such deposits are derived from a portion of the State Tideland Oil Revenues according to a continuing authorization. In 1989, legislation was enacted to provide for a schedule to repay the California Water Fund as required by the Burns-Porter Act.

Revenue Bonds. Revenue bond financing is derived from the sale of revenue bonds as authorized by the Central Valley Project Act (California Water Code sections 11100-11925). The Department's authority to issue revenue bonds was confirmed by a decision of the California Supreme Court in 1963 (*Warne v. Harkness*, 60 Cal. 2d 579).

Proceeds from the sale of revenue bonds are deposited in the Central Valley Water Project Construction Fund, from which money is expended only for purposes specified in the resolution authorizing each bond sale. Those purposes, in addition to paying construction, planning, and right-of-way costs, may include funding the Debt Service Reserve Account, paying interest on bonds, and paying water system operating expenses during a specified period.

As of June 30, 1997, the Department had sold $4.8 billion of revenue bonds. That amount includes $267 million of Water System Revenue Bonds, Series Q, sold November 5, 1996, and $20.7 million of Water System Revenue Bonds, Series R, sold March 11, 1997. Additional issues of revenue bonds are planned to fund future SWP construction.

Capital Resources. Capital resources financing is derived from payments and appropriations (including a portion of Tideland Oil Revenues) authorized by a variety of special contracts, cost-sharing agreements, and legislative actions concerning the SWP, plus accrued interest on these funds.

Capital resources revenues are deposited in the Central Valley Water Project Construction Fund and may be expended for paying interest on general obligation bonds and costs of constructing SWP facilities.

According to the Department's financial management policy, the capital resources revenues are used first to cover any general obligation bond debt service that exceeds available revenues.

Capital Financing Sources

Capital financing sources include power revenue bonds, East Branch Enlargement bonds, water system facilities bonds, initial project facilities bonds, proceeds from the Davis-Grunsky Act, California Water Fund moneys, and capital resources revenues.

Line 20, Power Revenue Bonds through Series H, includes the proceeds applied from power revenue bonds for the Oroville, Devil Canyon, Castaic, Warne, Reid Gardner, Bottle Rock, Alamo, South Geysers, and small hydro projects.

No future power revenue bond sales are projected for the financial analysis.

Line 21, East Branch Enlargement, Current Bonds, shows that $463 million of Water System Revenue Bond proceeds have been applied to the East Branch Enlargement project through June 30, 1997. Of this total amount, $404 million was used for construction expenditures and $59 million for bond discounts, interest costs, and debt service reserves.

Line 22, East Branch Enlargement, Future Bonds, shows the Department's estimate of additional bonds required to complete construction of the East Branch Enlargement, first stage, and to pay for bond discounts, capitalized interest, and debt service reserve requirements.

Line 23, Water System Facilities, Current Bonds, shows that through June 30, 1997, $1.2 billion of proceeds from Water System Revenue Bonds, Series A through Series R, were applied to SWP projects other than the East Branch Enlargement. Of this total amount, $1.0 billion was used to pay for construction expenditures and $166 million to pay for bond discounts, capitalized interest, and debt service reserve requirements.

Table 15-7
Application of Revenue Bond Proceeds
(Millions of Dollars)

	Application of Revenue Bond Proceeds						
		Other Capital Requirements					
Bond Series (a	Construction Expenditures	Reimbursement of General Fund	Capitalized Interest	Capitalized Operating Costs	Bond Discount and Financing Costs (b	Subtotal	Total Principal Amount of Bonds
Oroville	218.0	2.6	19.9	1.5	3.0	27.0	245.0
Devil Canyon-Castaic	126.4	0.0	10.0	0.7	2.1	12.8	139.2
Pyramid Series A	74.0	0.0	19.2	1.0	1.6	21.8	95.8
Reid Gardner Series B	146.1	0.0	41.9	0.0	12.0	53.9	200.0
Reid Gardner Series C	91.1	0.0	17.9	7.9	8.1	33.9	125.0
Small Hydro-South Geysers Series D	49.6	0.0	19.9	0.0	5.5	25.4	75.0
Bottle Rock Series E	96.9	0.0	22.0	3.7	2.4	28.1	125.0
Alamo-South Geysers Series F	59.1	0.0	14.2	0.0	1.7	15.9	75.0
Reid Gardner Series G	1.6	0.0	0.0	0.0	237.9 (c	237.9	239.5
Power Facilities Series H	22.2	0.0	0.0	0.0	184.5 (d	184.5	206.7
East Branch Enlargement Series A	108.3	0.0	12.6	0.0	11.1	23.7	132.0
Water System Facilities Series B	97.4	0.0	0.0	0.0	2.6	2.6	100.0
Water System Facilities Series C	0.6	0.0	0.0	0.0	8.4 (e	8.4	9.0
Water System Facilities Series D	95.9	0.0	2.9	0.0	1.2	4.1	100.0
Water System Facilities Series E	0.4	0.0	0.0	0.0	8.6 (f	8.6	9.0
Water System Facilities Series F	0.0	0.0	0.0	0.0	160.0 (g	160.0	160.0
Water System Facilities Series G	86.8	0.0	4.6	0.0	8.6	13.2	100.0
Water System Facilities Series H	85.5	0.0	5.7	0.0	8.8	14.5	100.0
Water System Facilities Series I	158.9	0.0	5.8	0.0	15.3	21.1	180.0
Water System Facilities Series J	0.0	0.0	0.0	0.0	649.8 (h	649.8	649.8
Water System Facilities Series K	88.6	0.0	3.1	0.0	8.3	11.4	100.0
Water System Facilities Series L	0.0	0.0	0.0	0.0	537.8 (i	537.8	537.8
Water System Facilities Series M	166.3	0.0	9.9	0.0	13.8	23.7	190.0
Water System Facilities Series N	137.4	0.0	6.0	0.0	8.6	14.6	152.0
Water System Facilities Series O	156.5	0.0	8.4	0	170.1 (j	178.5	335.0
Water System Facilities Series P	141.6	0.0	5.2	0	13.2	18.4	160.0
Water System Facilities Series Q	135.0	0.0	8.0	0	123.6 (k	131.6	266.6
Water System Facilities Series R	0.0	0.0	0.0	0	20.7 (l	20.7	20.7
Subtotal	2,344.2	2.6	237.2	14.8	2,229.3	2,483.9	4,828.1
Future Water System Facilities Bonds	315.8	0.0	22.5	0.0	33.0	55.6	371.4
Future East Branch Enlargement Bonds	17.0	0.0	1.3	0.0	1.5	2.8	19.8
Grand Total	**2,677.0**	**2.6**	**261.0**	**14.8**	**2,263.9**	**2,542.3**	**5,219.3**

a) Actual bond issue for all except Future Water System facilities and Future East Branch Enlargement bonds.
b) Bond discount and financing costs include debt service reserves for East Branch Enlargement and Water System Facilities bonds.
c) Total discount was $2.8 million; remaining amount was used to refund Reid Gardner Series B bonds.
d) Total discount was $2.7 million; remaining amount was used to refund portions of Reid Gardner Series C and Small Hydro-South Geysers Series D bonds.
e) Includes funds applied to Water System Facilities Series B and C debt service reserves.
f) Includes funds applied to Water System Facilities Series D and E debt service reserves.
g) Includes $11.0 million for debt service reserves and $9.0 million for discounts; remaining amount was used to refund a portion of Reid Gardner Series G bonds.
h) Includes $26.3 million for debt service reserves and $20.5 million for discounts; remaining amount was used to refund portions of prior issues of Power Facilities Revenue Bonds and Water System Revenue Bonds.
i) Includes $11.1 million for discounts; remaining amount was used to refund portions of prior issues of PFRB and WSRB bonds.
j) Includes $18.1 million for debt service reserves and $6.9 million for discounts; remaining amount was used to refund all WSRB Series N bonds.
k) Includes $13.5 million for debt service reserves and $3.0 million for discounts; remaining amount was used to refund portions of prior issues of WSRB bonds.
l) Includes $0.5 million for bond discount; remaining amount was used to refund all WSRB Series C and E bonds.

Line 24, Water System Facilities, Future Bonds, shows that future water revenue bonds are needed to provide $316 million for construction of SWP water system facilities and $56 million for bond discounts, interest costs, and debt service reserve requirements.

Line 25, Subtotal, Water Revenue Bonds, is the total of Lines 21 through 24.

Line 26, Initial Project Facilities Bond Proceeds, shows the amount of general obligation bonds sold to provide initial financing costs for SWP facilities and for costs of planning certain additional conservation facilities.

Financing initial facilities from general obligation bonds was completed in mid-1972 and totaled $1.444 billion—$1.750 billion Burns-Porter Act authorization less $130 million reserved for the Davis-Grunsky Act Program and $176 million "offset" for additional conservation facilities. (The Burns-Porter Act provides that to the extent California Water Fund moneys are expended, an equal amount of general obligation bonds are reserved [offset] for financing the construction of additional conservation facilities in certain watersheds.)

In mid-1972, the reservation of offset bonds was effectively limited to $176 million, the total amount of California Water Fund moneys expended up to that time. By mid-1972, all general obligation bonds authorized by the Burns-Porter Act had been offset, reserved for the Davis-Grunsky Act Program, or used for SWP construction.

Approximately $8.5 million of the offset bonds was used to finance planning studies of the Middle Fork Eel River Development. This financial analysis is not based on the use of any offset bond proceeds to meet capital requirements. If at some time the State constructs an additional conservation facility, as specified in Water Code Section 12938, the remaining offset bonds could be sold.

Line 27, Davis-Grunsky Act Program Bond Proceeds, shows, for simplification, the entire $130 million of capital expenditures authorized for the Davis-Grunsky Act Program according to the Burns-Porter Act as being funded by proceeds from the sale of general obligation bonds. In fact, $28 million from the California Water Fund were used for the program in lieu of bond proceeds prior to 1969.

In making the financial analysis, the Department assumes that all authorized Davis-Grunsky bonds will be sold prior to 1998.

Line 28, Application of California Water Fund Monies, shows the amount of SWP costs financed under the Burns-Porter Act, which provides that any available money in the California Water Fund must be used for construction in lieu of proceeds from the sale of general obligation bonds.

When the Burns-Porter Act became effective in late 1960, approximately $97 million had been accumulated in the fund. That balance plus subsequent appropriations, interest earnings, and other miscellaneous income to the fund through December 31, 1996, was used to finance a total of $508 million of SWP costs.

Line 29, Interim Financing, shows the net annual amounts of money borrowed from (positive number) or repaid into (negative number) the Water Revenue Commercial Paper Notes program. The note program was established in March 1993 to provide an ongoing source of interim financing for Water System Projects prior to permanent financing from the sale of long-term revenue bonds. The Department has authority to issue up to $150 million of Water Revenue Commercial Paper Notes. The financial analysis assumes that all outstanding notes will be repaid before the end of the analysis period.

Line 30, Application of Capital Resources Revenues to Construction, presents the Capital Resources Revenues applied for capital expenditures.

Line 31, Revenue Transfers Applied, shows moneys assumed to be transferred to the California Water Fund according to provisions of the Burns-Porter Act and subsequently reappropriated to construction (see Line 37 in Table 15-2). Projected amounts for 1997 through 2010 include funds to finance expenditures for San Joaquin drainage facilities, as indicated in Line 12 of Table 15-1, and expenditures for additional conservation facilities, as indicated in Line 11.

Line 32, Subtotal, Other Capital Financing, is the total of Lines 26 through 31.

Line 33, Total Financing of Capital Requirements, totals Lines 20, 25, and 32.

Annual Revenues and Expenditures

In conducting the financial analysis of SWP operations, the Department concluded that projected payments by contractors and other revenues will be adequate to pay annual operations, maintenance, power, and replacement costs and meet all repayment obligations on funds used to finance SWP construction and other authorized costs during the period 1997 through 2010. Data on annual revenues and expenditures are presented in Table 15-2. A detailed discussion of each line item is presented below.

Project Revenues

SWP revenues consist primarily of SWP contractor payments required under their individual long-term water supply contracts. Those revenues are deposited in two funds: the Central Valley Water Project Revenue Fund, where all revenues pledged to revenue bonds are placed, and the California Water Resources Development Bond Fund-Systems Revenue Account, where all other SWP operating revenues are placed. Use of those funds is limited to paying operating costs and debt service, except that revenues in excess of those costs may be transferred to the California Water Fund.

Line 1, Capital Resources Revenues, includes:

- federal payments for SWP capital expenditures;
- appropriations for capital costs allocated to recreation;
- appropriations for SWP capital expenditures prior to passage of the Burns-Porter Act and according to Senate Bill 261 (1968);
- payments from Los Angeles Department of Water and Power for Castaic power development;
- advances from water contractors for construction of requested works;
- investment earnings on the Capital Resources Account; and
- investment earnings on unexpended revenue bond proceeds.

Historically, appropriations for capital costs allocated to recreation and fish and wildlife enhancement have amounted to $5 million per year, which has been appropriated by the California Legislature from Tideland Oil Revenues. According to legislation enacted in 1989, the amount owed to the SWP by the State for costs allocated to recreation and fish and wildlife enhancement is offset against the amount the SWP owes to the California Water Fund.

Lines 2 through 7, Water Contractor Payments, show amounts of the separate elements of water contractor payments.

Amounts in Line 4 also include revenues sufficient to cover costs associated with sales of excess power. Appendix B of this bulletin presents a detailed explanation of payments identified in Lines 2 through 7.

Operations, maintenance, power, and replacement costs are repaid as they are incurred as part of the Transportation Charge; therefore, no interest charges are included. Construction costs included in the Transportation Charge and all construction and annual OMP&R costs included in the Delta Water Charge are to be repaid with interest at the Project Interest Rate.

The Project Interest Rate, as defined in Article 1(r) of the standard provisions for water supply contracts, is the weighted average of the rates paid on securities issued and loans obtained to finance SWP facilities, excluding Oroville Revenue Bonds.

According to the original contract provisions, the basis for determining the Project Interest Rate was the weighted average of rates paid on general obligation bond sales only. In 1969, after Oroville Revenue Bonds were issued, the contract was amended to expand the basis to include rates on all other securities sold and loans obtained thereafter for financing SWP facilities, including revenue bonds (see Bulletin 132-70, page 28).

However, not all proceeds from the sale of revenue bonds are melded into the calculation of the Project Interest Rate. Only those proceeds applied to construction costs (the only application of general obligation bonds permitted by law) and those consumed by the bond discount (a component of the total inter-

est cost of a revenue bond issue) are included in the calculation (see Table 15-8).

Calculations for determining the Project Interest Rate do not include proceeds from the sale of revenue bonds for Off-Aqueduct Power Facilities, the East Branch Enlargement facilities, or water system facilities defined in the Water Revenue Bond Amendment. Table 15-9 lists all bond sales by date and presents basic information used in the calculation of the Project Interest Rate.

Information about contractor water charges in Appendix B is based on known conditions and substantiates the Department's determination of 1998 water charges billed July 1, 1997. However, information about significant differences between the sum of future charges included in Lines 2 through 7 of Table 15-2 and the substantiation of 1998 charges included in Appendix B are as follows:

- Future capital costs in Appendix B are based on the prevailing prices as of December 31, 1996. Those costs presented in the financial analysis include allowances for price escalation.
- Pre-1997 charges in Appendix B represent charges as they should have been according to currently known conditions. Pre-1997 charges included in Table 15-2 are those actually paid as part of previously determined bills.
- Charges in Appendix B are unadjusted for past overpayments or underpayments. Charges included in Table 15-2 for 1997 and thereafter have been adjusted for any apparent overpayments or underpayments of pre-1997 charges.
- Charges in Appendix B for East Branch Enlargement costs include the amounts for debt service and 25 percent cover for the East Branch Enlargement share of the Series A through Series P bonds. Charges in Table 15-2 also include amounts of the debt service and cover for assumed future bonds.

Table 15-8
Effect of Revenue Bond Proceeds on Project Interest Rate
(Millions of Dollars)

	Revenue Bond Proceeds					
Project	*Applied to Construction Costs*	*Less Portion of Proceeds Derived from Interest Earnings Prior to Delivery of Bonds*	*Plus Bond Discount and Financing Costs*	*Subtotal, Proceeds Included in Calculating Project Interest Rate*	*Principal Amount of Bonds*	*Percentage of Total Amount Included in Calculating Project Interest Rate*
Devil Canyon-Castaic Project Revenue Bonds	125.3	1.5	1.4	125.2	139.2	90.0
Pyramid Project Revenue Bonds (Series A)	71.2	0.5	1.1	71.8	95.8	75.0
Alamo Project Bond Anticipation Note	16.8	0.1	0.3	17.0	24.4	70.0
Small Hydro Project I Revenue Bonds (Series D)	25.4	0.2	1.5	26.7	37.5	71.0
Alamo Project Revenue Bonds (Series F)	38.9	0.3	0.7	39.3	50.0	79.0
Power Facilities						
Revenue Bonds (Series H)						
Facility						
Pyramid Project	5.0	0.0	0.1	5.1	5.1	100.0
Alamo Project	1.7	0.0	0.0	1.7	1.7	100.0
Small Hydro Project I	25.2 (a	0.2	0.4	25.4	35.6	71.0
Water System Revenue Bonds (Series J)						
Facility						
Pyramid Project	–	–	75.9	75.9	94.5 (b	76.0
Alamo Project	–	–	45.6	45.6	57.1 (b	80.0
Small Hydro Project	–	–	27.5	27.5	38.8 (b	71.0
Water System Revenue Bonds (Series L)						
Facility						
Small Hydro Project	–	–	1.5	1.5	2.1 (b	71.0

a) Amount consists of 71 percent of proceeds deposited in escrow account to refund portion of Series C bonds ($35.1 million plus deposits to construction account ($0.3 million)).
b) Represents amount of principal used to refund portions of prior bond issues.

Table 15-9
Actual Bond Sales and Project Interest Rates, by Date of Sale

Bond Sales	Date of Sale	Dollar-Years (a (Thousands)	Interest Cost (Thousands)	Issue Interest Rate (b (Percent)	Project Interest Rate (c (Percent)
$ 50,000,000 Bond Anticipation Notes	11/21/63	26,944	531	1.971	1.971
$100,000,000 Series A Water Bonds	2/18/64	3,402,000	119,750	3.520	3.508
$ 50,000,000 Series B Water Bonds	5/05/64	1,726,000	60,986	3.533	3.516
$100,000,000 Series C Water Bonds	10/07/64	3,452,000	123,764	3.585	3.544
$100,000,000 Series D Water Bonds	2/16/65	3,497,900	122,403	3.499	3.531
$100,000,000 Series E Water Bonds	11/23/65	3,497,900	130,029	3.717	3.573
$100,000,000 Series F Water Bonds	6/08/66	3,497,900	137,359	3.927	3.638
$100,000,000 Series G Water Bonds	11/22/66	3,497,900	143,788	4.111	3.711
$100,000,000 Series H Water Bonds	3/21/67	3,497,900	129,261	3.695	3.709
$100,000,000 Series J Water Bonds	7/18/67	3,497,900	143,199	4.094	3.754
$100,000,000 Series K Water Bonds	11/14/67	3,497,900	163,887	4.685	3.853
$150,000,000 Revenue Bonds, Oroville Division, Series A	4/03/68	5,228,700	270,289	5.169	
$100,000,000 Series L Water Bonds	7/11/68	3,497,900	166,918	4.772	3.941
$100,000,000 Series M Water Bonds	10/22/68	3,497,900	169,989	4.860	4.021
$ 94,995,000 Revenue Bonds, Oroville Division, Series B	4/01/69	3,423,460	195,902	5.722	
$ 46,761,000 Cumulative 1970 General Fund Borrowing, repaid 7/10/70	-	4,938	346	7.007	
$200,000,000 Series N and P Bond Anticipation Notes	6/16/70	200,000	11,660	5.830	4.030
$100,000,000 Series N Water Bonds	2/02/71	3,447,900	190,292	5.519	4.148
$100,000,000 Series Q Bond Anticipation Notes	3/10/71	100,000	2,349	2.349	4.143
$100,000,000 Series P Water Bonds	4/21/71	3,397,900	193,377	5.691	4.255
$150,000,000 Series Q and R Water Bonds	11/09/71	5,171,850	265,734	5.138	4.342
$ 40,000,000 Series S Water Bonds	3/28/72	1,399,160	76,509	5.468	4.371
$139,165,000 Devil Canyon-Castaic Revenue Bonds (d	8/08/72	4,776,204	258,839	5.419	4.457
$ 10,000,000 Series T Water Bonds	3/20/73	185,265	9,491	5.123	4.459
$ 10,000,000 Series U Water Bonds	1/13/76	158,750	8,731	5.500	4.462
$ 10,000,000 Series V Water Bonds	11/15/77	158,750	7,573	4.770	4.462
$ 95,800,000 Pyramid Hydroelectric Revenue Bonds (d	10/23/79	2,260,072	172,495	7.632	4.584
$150,000,000 Reid Gardner Project, Series A Bond Anticipation Notes	7/1/81	347,906	29,572	8.500	
$ 75,600,000 Bottle Rock Project, Bond Anticipation Notes	12/1/81	264,600	25,137	9.500	
$ 24,400,000 Alamo Project, Bond Anticipation Notes (d	12/1/81	24,266	2,305	9.499	4.589
$200,000,000 Reid Gardner Project, Series B Revenue Bonds	7/07/82	4,623,137	553,793	11.979	
$125,000,000 Reid Gardner Project, Series C Revenue Bonds	11/16/82	2,720,045	255,744	9.402	
$ 37,500,000 Small Hydro Project I, Series D Revenue Bonds (d	11/16/82	837,769	84,587	10.097	4.666
$ 37,500,000 South Geysers Project, Series D Revenue Bonds	11/16/82	930,325	90,021	9.676	
$125,000,000 Bottle Rock Project, Series E Revenue Bonds	4/27/83	2,624,805	225,102	8.576	
$ 50,000,000 Alamo Project, Series F Revenue Bonds (d	4/27/83	1,190,763	100,836	8.468	4.727
$ 25,000,000 South Geysers Project, Series F Revenue Bonds	4/27/83	608,550	52,578	8.640	
$239,505,000 Reid Gardner Project, Series G Revenue Bonds	3/15/85	4,524,136	425,840	9.413	
$206,690,000 Power Facilities Series H Revenue Bonds (d	6/20/86	4,430,520	347,745	7.849	4.713
$132,000,000 East Branch Enlargement, Series A Water System Revenue Bonds	7/15/86	3,427,165	254,915	7.438	
$100,000,000 Series B Water System Revenue Bonds	5/05/87	2,564,012	194,817	7.598	
$ 9,000,000 Series C Water System Revenue Bonds	12/01/87	324,000	31,995	9.875	
$100,000,000 Series D Water System Revenue Bonds	6/14/88	2,640,510	201,253	7.622	
$ 9,000,000 Series E Water System Revenue Bonds	11/29/88	324,000	31,995	9.875	
$160,030,000 Series F Water System Revenue Bonds	3/15/89	2,779,838	189,261	6.808	
$100,000,000 Series G Water System Revenue Bonds	3/06/90	2,434,175	172,277	7.077	
$100,000,000 Series H Water System Revenue Bonds	1/10/91	2,459,172	168,857	6.866	
$180,000,000 Series I Water System Revenue Bonds	5/14/91	4,366,680	294,090	6.735	
$649,835,000 Series J Water System Revenue Bonds	1/16/92	12,422,222	745,198	5.999	
$100,000,000 Series K Water System Revenue Bonds	5/12/92	2,366,783	147,064	6.214	
$ 9,000,000 Series W Water Bonds	8/19/92	95,250	6,172	6.480	4.621
$537,830,000 Series L Water System Revenue Bonds	5/01/93	11,414,859	640,518	5.611	4.620
$ 2,000,000 Series X Water Bonds	9/01/93	26,000	1,247	4.796	
$ 1,400,000 Series Y Water Bonds	11/30/94	19,483	1,249	6.411	
$190,000,000 Series M Water System Revenue Bonds	12/01/93	3,911,846	194,981	4.984	
$152,000,000 Series N Water System Revenue Bonds	3/03/95	2,241,606	122,658	5.472	
$335,000,000 Series O Water System Revenue Bonds	12/05/95	7,528,890	375,667	4.990	
$160,000,000 Series P Water System Revenue Bonds	5/07/96	3,553,823	204,524	5.755	
$266,630,000 Series Q Water System Revenue Bonds	11/05/96	5,481,815	299,846	5.470	
$20,700,000 Series R Water System Revenue Bonds	3/10/97	564,125	36,627	6.493	
Total		**164,074,069**	**9,783,922**		
Portion allocated to Project Interest Rate		**63,864,233**	**2,950,606**	**4.620**	**4.620**

a) A unit equivalent to one dollar of principal amount outstanding for one year.
b) The total interest cost (without regard to premiums received) divided by the total dollar-years, expressed as a percent.
c) Determined by dividing cumulative interest costs by cumulative dollar-years, expressed as a percent. Excluding Oroville Field Division, Power Revenue Bonds for Off-Aqueduct Facilities, and Water System Revenue Bonds, which do not affect the Project Interest Rate.
d) These revenue bonds and revenue bond anticipation notes were sold at the following net interests costs. The amounts indicated (representing the sum of proceeds used for construction and the bond discount) were used in the calculations of the Project Interest Rate:

Devil Canyon-Castaic Revenue Bonds:	5.446 percent	$126,893,000
Pyramid Hydroelectric Revenue Bonds:	7.680 percent	$ 75,586,000
Alamo Bond Anticipation Notes:	10.036 percent	$ 18,034,000
Small Hydro Project I, Series D Revenue Bonds:	10.275 percent	$ 28,012,000
Alamo Project, Series F Revenue Bonds:	8.525 percent	$ 40,114,000
Power Facilities, Series H Revenue Bonds:	7.926 percent	$ 42,340,000

- The water bond revenue surcharge in Appendix B applies only to the Series B through Series R bonds. Surcharge values included in Table 15-2 apply to Series B through Series R bonds and to assumed future issues required to finance any SWP construction.

Line 8, Subtotal, Water Contractor Payments, is the total of Lines 2 through 7.

Line 9, Revenue Bond Cover Adjustments, represents the credit to contractors resulting from the cover of 25 percent of 1 year's debt service for Off-Aqueduct Power Facility Bonds and Water System Revenue Bonds. Cover is collected as required by the bond resolutions to provide security to the bondholders.

For off-aqueduct facilities, that amount is charged annually to contractors and collected through the minimum OMP&R component of the Transportation Charge. For the East Branch Enlargement facilities, the cover is collected through the capital component of the East Branch Enlargement Transportation Charge. For water system facilities, that amount is collected through the water bond surcharge. If not needed to meet annual bond service, the cover is credited to the contractors in the following year.

Line 10, Rate Management Adjustments, shows the projected amount of revenue reductions allocated to SWP contractors after repayment of the California Water Fund (see Line 36). Under provisions of the Monterey Agreement, the reduction amount allocated to agricultural contractors is deposited into a trust fund to stabilize payments in water-short years. The urban contractor allocation is applied as a direct reduction in charges.

Line 11, Federal Payments for Project Operating Costs, shows federal payments made according to the December 31, 1961, agreement between California and the United States providing for the Department to operate and maintain the San Luis Joint-Use Facilities. According to the January 12, 1972, supplement to the agreement, the U.S. Bureau of Reclamation initially paid 45 percent of OM&R costs for those activities. (The percentage does not apply to power costs; USBR and the Department provide their own power to pump water through the joint facilities.) The percentage paid by USBR is reviewed every 5 years by USBR and the Department. For calendar years 1981 through 1986, the federal share of operations and maintenance costs was 44.47 percent. The most recent review of the percentage paid by the USBR was completed in 1987 and resulted in a federal share of 44.09 percent for calendar years 1987 through 1996. The amounts in Line 10 are based on the assumption that the federal share will continue at 44.09 percent for calendar years 1997 through 2010.

Line 12, Appropriations for Operating Costs Allocated to Recreation, shows appropriations made under the Davis-Dolwig Act. In passing the Davis-Dolwig Act, the California Legislature declared its intent that except for funds provided according to Assembly Bill 12 (1966), the Department budget will include appropriations of moneys from the General Fund necessary for enhancement of fish and wildlife and recreation in connection with State water projects.

Annual OMP&R costs allocated to recreation and fish and wildlife enhancement are paid by annual appropriations from the General Fund. For fiscal years 1983-84 through 1995-96, no funds were appropriated for enhancement of fish and wildlife and recreational purposes. No appropriations are indicated for 1997 through 2010.

According to legislation enacted in 1989, the amount owed to the SWP by the State for costs allocated to recreation and to fish and wildlife enhancement is offset against the amount the SWP owes to the California Water Fund.

Line 13, Local Agency Payments under Davis-Grunsky Loan Repayment Contracts, shows the repayments for the $52.5 million of loans disbursed as of December 31, 1996. Repayment on any future loans was assumed to be beyond the period covered by the financial analysis.

Line 14, Revenue Bond Proceeds, includes bond proceeds classified as special reserves according to the description of revenue bond financing in Line 16 of Table 15-1. Those proceeds, used for capitalized OMP&R costs, revenue bond service, and debt service reserves, are not classified as revenues but are

included in this line to simplify the financial presentation.

Line 15, Interest Earnings on Operating Revenues, includes interest earnings on unexpended proceeds from the sale of general obligation bonds, interest on operating reserves, and other short-term investment earnings on SWP revenues.

Line 16, Payments under Oroville-Thermalito Power Sale Contract, shows payments from Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas and Electric Company. Those utilities purchased all power generation from Hyatt and Thermalito power plants before April 1, 1983, according to a power sale contract dated November 29, 1967. The 1952-1996 entry includes amounts of final settlement of payments made according to the contract.

Line 17, Miscellaneous Revenues, includes all other operating revenues not included in Lines 2 through 16.

Line 18, Subtotal, Other Revenues, is the total of Lines 11 through 17.

Line 19, Total Operating Revenues, is the total of Lines 8, 9, 10, and 18.

Line 20, Total Operating Revenues and Capital Resources Revenues, is the total of Lines 1 and 19.

Project Expenses

Project expenses include:

- operations, maintenance, and power costs;
- deposits to replacement reserves;
- deposits to special reserves;
- capital resources expenditures; and
- debt service.

Revenue bond proceeds earmarked for debt service during construction and the first year's operating expenses are deposited in the Central Valley Water Project Construction Fund and disbursed according to resolutions authorizing the issuance of such bonds.

Water contractor revenues associated with power facility operating costs and debt service are deposited in the Central Valley Water Project Revenue Fund for appropriate disbursement. All other operating revenues deposited in the California Water Revenue Fund-Systems Revenue Account are disbursed according to the following four priorities of use as specified in the Burns-Porter Act:

- SWP operations, maintenance, power, and replacement costs;
- general obligation bond debt service;
- repayment of expenditures from the California Water Fund; and
- deposits to a reserve for future SWP construction.

Project expenses are presented in Lines 21 through 33 of Table 15-2.

Line 21, Project Operations, Maintenance, and Power Costs, shows the OM&P portion of the historical and projected costs presented in Table 15-10 (see page 189).

Table 15-10 and Line 21 of Table 15-2 also include amounts of the operations and maintenance costs for the federal share of joint facilities and those OM&P costs allocated to recreation, which are intended to be offset by revenues indicated in Lines 11 and 12.

Allowances for cost escalations are included in OM&P costs through 1999. Allowances for additional long-term price escalations in the future are not included in these estimates because changes in OM&P costs do not substantially affect the overall results of the financial analysis. (For the most part, changes in OM&P costs cause direct offsetting changes in operating revenues.)

Power costs make up the major item of annual operating expense for the SWP. Assumptions about future power sources and costs are discussed in Chapter 11, "Power Resources." Line 21 also includes costs associated with power transactions that result in the sale of power not required for the delivery of water.

Line 22, Deposits to Replacement Reserves, shows funds set aside as required by contract for replacing existing SWP facilities. As of December 31, 1996, $40 million had been spent for replacement costs; the balance of the replacement reserve as of that date was $54 million. Replacement reserve amounts are also included in Table 15-10 (see page 193).

Line 23, Deposits to Special Reserves Under Revenue Bond Financing, includes two significant components: special reserve deposits related to revenue bonds and capital resources revenue carryover from prior years used for construction in the current year. Special reserve deposits are the net of several income and expenditure items. Income items related to revenue bonds are as follows:

- proceeds set aside to pay bond interest during construction (capitalized interest);
- proceeds set aside for first year operating costs (capitalized operations and maintenance);
- water contractor payments or bond proceeds set aside for debt service reserves;
- water contractor payments for revenue bond cover requirements; and
- deposits to and withdrawals from operating reserves to meet day-to-day cash flow requirements.

The 1952-1996 column also includes advances to the Department's revolving fund for working funds to purchase mobile equipment and to meet day-to-day operating expenses.

The expenditure items related to revenue bonds are as follows:

- debt service cover payments returned to water contractors;
- debt service reserve payments returned to water contractors;
- surplus account funds returned to water contractors or applied to meet expenses;
- total capitalized interest paid out; and
- total capitalized operations and maintenance paid out.

Special reserves, reduced over time as reserved amounts, are used for their respective purposes. The amount indicated each year in Line 23 indicates the change from the previous year. A negative number indicates a withdrawal of special reserves to meet expenses, while a positive number indicates a deposit.

Line 24, Capital Resources Expenditures, includes the amount of capital resources revenues applied to construction that is shown in Line 30 of Table 15-1. In Table 15-2, these expenditures are funded out of withdrawals from the reserves in Line 23 and do not affect net revenues shown in Line 35.

Lines 25 and 26, Payment of Debt Service on Bonds Sold through June 30, 1997, show the total principal and interest payments on bonds sold to date. Table 15-11 (see page 194) summarizes payments on general obligation bonds (Series A through Y water bonds), power revenue bonds by project, and water system revenue bonds.

The last bonds, sold on March 10, 1997, were the Series R Water System Revenue Bonds. Proceeds from the Series R bonds were used to refinance previously issued bonds and to pay for bond financing costs.

Line 26 also includes over $0.3 million in interest payments to the General Fund for the temporary loan of $46.8 million in 1970. That loan was repaid by proceeds from the sale of Series N Water Bond Anticipation Notes.

Lines 27 and 28, Payments on Projected East Branch Enlargement Bonds, include the projected annual service amounts for future water revenue bonds included on Line 22 of Table 15-1 for the East Branch Enlargement. Assumptions about the service on these future bonds are as follows:

- interest costs for the water revenue bonds average 6.0 percent; and
- bonds are to be repaid within 35 years of sale with maturities commencing in the year following the date of sale and with equal annual bond service for the principal repayment period.

Lines 29 and 30, Payments on Projected Future Water Bonds, include amounts of the projected annual service for future water revenue bonds included on Line 24 of Table 15-1 for water system

facilities. Assumptions about the service on these future bonds are the same as those indicated above for Lines 27 and 28.

Lines 31 and 32, Total Payments of Bond Debt Service, show the total of principal payments indicated on Lines 25, 27, and 29 and the total of interest repayments indicated on Lines 26, 28, and 30.

Line 33, Subtotal, Debt Service, is the total of Lines 31 and 32.

Line 34, Total Operating Expenses and Debt Service, is the total of Lines 21, 22, 23, 24, and 33.

Line 35, Net System Revenues, shows the annual amounts of revenues remaining after the payment of operating costs and bond debt service costs.

Line 36, California Water Fund Repayment, shows repayments according to the Burns-Porter Act, which requires that after operation, maintenance, replacement, and bond service requirements have been satisfied, SWP revenues be transferred to the California Water Fund to reimburse the fund for moneys expended for construction of the State Water Resources Development System.

In 1982 and 1983, the Department transferred a total of $70 million toward the repayment of the California Water Fund. The legislature subsequently appropriated all these funds to the State's General Fund. Legislation enacted in 1989 provided for the orderly, scheduled reimbursement of the remaining balance owed to the California Water Fund over a period of 10 years. A portion of this reimbursement is to be offset by the amounts owed to SWP by the State for costs allocated to recreation and fish and wildlife enhancement.

As of December 31, 1996, reimbursements to the California Water Fund totaled $488 million. Of this total approximately $258 million was direct repayments and $230 million was offsets for recreation and fish and wildlife enhancement expenditures to date.

It is projected that repayment of the California Water Fund will be completed in 1998.

Line 37, Revenues Used for Capital Expenditures, includes the amounts required annually for financing scheduled capital expenditures. Also included in this line are projected expenditures to support the Bay-Delta Advisory Council and other programs required to comply with the Bay-Delta Agreement signed in December 1994. Revenues not needed for operating costs, debt service, or repayment of the California Water Fund are available for financing SWP capital expenditures.

Future Costs of Water Service

Estimates of future water costs are useful to SWP contractors in short-range and long-range planning of water needs, operations, and budgets.

Unit water charges shown in Table 15-12 represent both unescalated and escalated costs of water according to service areas for years 1998 and 2001. The unit rates in Table 15-12 include costs of existing and future SWP facilities accounted for in Tables 15-1 and Table 15-7. The unit charges are based on the assumption that in 1998 and 2001, the SWP will be able to deliver entire amounts of water requested by contractors. The unit water charges included in Table 15-12 are listed both as unescalated 1996 dollars and as escalated rates reflecting assumed future inflation.

The Department's estimates of future capital expenditures include allowances for escalation of construction costs at 3 percent per year for 1997 through 2010. The escalation rates for future power sources vary, depending on the source of energy.

Information for this chapter was provided by the State Water Project Analysis Office in conjunction with the Division of Fiscal Services.

Table 15-12
Estimated Unit Water Charges for 1998 and 2001, by Service Area
(Dollars per Acre-Foot)

	1998		2001	
Service Area and Charge	*Unescalated*	*Escalated*	*Unescalated*	*Escalated*
Feather River Area				
Capital; Operations, Maintenance, and Replacement (OM&R)	12	12	31	31
North Bay Area				
Capital; OM&R	172	172	165	165
Power	13	13	12	12
Total	**185**	**185**	**177**	**177**
South Bay Area				
Capital; OM&R	92	92	83	83
Power	32	32	30	31
Total	**124**	**124**	**113**	**114**
Coastal Area				
Capital; OM&R	746	746	650	650
Power	77	77	75	77
Total	**823**	**823**	**725**	**727**
San Joaquin Area				
Capital; OM&R	50	50	49	49
Power	15	15	14	14
Total	**65**	**65**	**63**	**63**
Southern California Area				
Capital; OM&R	189	189	153	153
Power	83	83	75	77
Total	**272**	**272**	**228**	**230**

Table 15-10
Operations, Maintenance, Power, and Replacement Costs, by Facility, Composition, and Purpose
(Thousands of dollars)

Feature	Calendar year 1952-1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011-2035	TOTAL
Project Facility																	
Feather River facilities	115,377	6,018	3,956	4,278	3,295	3,279	3,207	3,205	3,213	3,195	3,197	3,193	3,196	3,196	3,196	76,139	241,140
North Bay Aqueduct	17,107	2,338	2,360	2,334	2,277	2,268	2,339	2,348	2,382	2,343	2,356	2,356	2,373	2,380	2,387	63,135	113,083
Delta facilities	257	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	257
Suisun Marsh	11,205	2,489	2,011	1,915	1,882	2,222	2,222	2,222	2,222	2,222	2,222	2,222	2,222	2,222	2,222	50,986	92,708
South Bay Aqueduct	119,586	8,675	9,160	9,498	9,152	9,067	9,422	9,392	9,518	9,240	9,279	9,237	9,285	9,289	9,287	240,069	489,156
California Aqueduct																	
Delta to Edmonston	1,512,493	125,970	134,434	135,973	129,743	134,033	154,794	156,465	156,604	148,579	153,283	147,958	151,971	150,793	150,040	4,014,573	7,557,706
Edmonston to Perris	1,224,177	87,674	90,133	92,004	88,995	81,672	117,976	117,504	119,850	110,701	113,303	109,451	111,320	112,943	111,740	3,123,187	5,812,630
West Branch	(3,275)	6,515	4,213	(6,486)	585	1,746	(26,002)	(25,588)	(25,932)	(25,841)	(25,845)	(26,653)	(25,603)	(25,851)	(26,082)	(630,719)	(860,818)
Coastal Branch	60,903	8,290	7,578	7,735	7,472	7,394	8,414	8,377	8,528	8,193	8,240	8,189	8,248	8,253	8,250	215,774	389,838
Off-Aqueduct power generating facilities	649,134	35,908	48,379	49,562	50,562	51,562	51,562	51,562	51,562	51,562	51,562	51,562	51,562	51,562	51,562	135,978	1,485,143
Recreation, planning, and CVP negotiations	0	0	0	0	0	488	488	488	488	488	488	488	488	488	488	12,204	17,084
Water quality monitoring	165,670	14,460	14,840	15,184	15,076	14,011	14,004	14,036	14,387	14,737	14,737	14,737	14,737	14,737	14,737	234,976	605,066
Davis-Grunsky Act Program	4,653	302	281	253	257	257	257	257	257	257	257	257	257	257	257	6,418	14,734
Subtotal	3,877,287	298,639	317,345	312,250	309,296	307,999	338,683	340,268	343,079	325,676	333,079	322,997	330,056	330,269	328,084	7,542,721	15,957,728
Payments to\credits from PG&E under Comprehensive Agreement	(38,598)	(3,186)	(3,035)	(2,883)	(2,732)	(2,581)	(2,429)	(2,278)	(2,127)	0	0	0	0	0	0	0	(59,849)
Total OMP&R Costs	**3,838,689**	**295,453**	**314,310**	**309,367**	**306,564**	**305,418**	**336,254**	**337,990**	**340,952**	**325,676**	**333,079**	**322,997**	**330,056**	**330,269**	**328,084**	**754,720**	**15,897,879**
Composition																	
Salaries and expenses of headquarters personnel	713,684	69,390	72,177	74,538	73,987	74,412	74,249	74,249	74,249	74,249	74,250	74,251	74,251	74,252	74,252	1,728,430	3,474,871
Salaries and expenses of field personnel	1,308,707	109,921	102,001	100,416	90,962	90,295	90,321	90,355	90,703	91,057	91,055	91,050	91,050	91,049	91,048	2,261,035	4,881,027
Pumping power																	
Used by pumping plants	1,958,411	153,363	168,239	169,620	189,235	180,594	236,174	239,725	240,905	222,983	231,867	220,532	229,163	229,071	226,398	6,296,282	11,192,562
Produced by generation plants	(734,686)	(70,193)	(73,714)	(82,162)	(95,727)	(89,140)	(113,899)	(115,899)	(114,616)	(114,451)	(115,931)	(114,674)	(116,246)	(115,941)	(115,452)	(2,885,905)	(5,068,638)
Payments to\credits from PG&E under Comprehensive Agreement	(38,598)	(3,186)	(3,035)	(2,883)	(2,732)	(2,581)	(2,429)	(2,278)	(2,127)	0	0	0	0	0	0	0	(59,849)
Off-Aqueduct power generating facilities requirement	649,134	35,908	48,379	49,562	50,562	51,562	51,562	51,562	51,562	51,562	51,562	51,562	51,562	51,562	51,562	135,978	1,485,143
Oroville-Thermalito insurance premiums	9,740	250	263	276	276	276	276	276	276	276	276	276	276	276	276	6,900	20,465
Less: Portion of costs incurred during construction	(121,353)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(121,353)
Subtotal	3,745,039	295,453	314,310	309,367	306,564	305,418	336,254	337,990	340,952	325,676	333,079	322,997	330,056	330,269	328,084	7,542,720	15,804,229
Deposits to replacement reserves	93,650	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93,650
Total OMP&R Costs	**3,838,689**	**295,453**	**314,310**	**309,367**	**306,564**	**305,418**	**336,254**	**337,990**	**340,952**	**325,676**	**333,079**	**322,997**	**330,056**	**330,269**	**328,084**	**7,542,720**	**15,897,879**
Project Purpose																	
Water supply and power generation	3,689,487	278,949	298,336	293,691	291,513	290,230	320,870	322,339	325,289	307,822	315,074	305,238	312,171	312,388	310,267	7,113,034	15,086,699
Payments to\credits from PG&E under Comprehensive Agreement	(38,598)	(3,186)	(3,035)	(2,883)	(2,732)	(2,581)	(2,429)	(2,278)	(2,127)	0	0	0	0	0	0	0	(59,849)
Recreation and fish and wildlife enhancement	67,543	8,030	7,821	7,706	7,762	7,749	7,790	7,906	7,766	7,832	7,983	7,737	7,863	7,859	7,795	179,079	356,221
Flood control	2,763	267	209	256	247	246	249	249	250	248	248	248	248	248	248	6,270	12,494
Miscellaneous purposes																	
Federal share, San Luis, and Delta facilities	109,614	10,899	10,525	10,159	9,340	9,340	9,340	9,340	9,340	9,340	9,340	9,340	9,340	9,340	9,340	233,505	477,442
Other (Davis-Grunsky, drainage,City of Los Angeles)	7,880	494	454	438	434	434	434	434	434	434	434	434	434	434	434	10,832	24,872
Total OMP&R Costs	**3,838,689**	**295,453**	**314,310**	**309,367**	**306,564**	**305,418**	**336,254**	**337,990**	**340,952**	**325,676**	**333,079**	**322,997**	**330,056**	**330,269**	**328,084**	**7,542,720**	**15,897,879**

Table 15-11
Annual Debt Service on Bonds Sold through June 30, 1997
(Thousands of dollars)

Calendar	Series A through Y Water Bonds		Oroville Revenue Bonds (a		Devil Canyon-Castaic Project Revenue Bonds		Pyramid Project Power Facilities Revenue Bonds, Series A and H; Water System Revenue Bonds, Series J and Q		Reid Gardner Project Power Facilities Revenue Bonds, Series B, C, G and H; Water System Revenue Bonds, Series F, J, and Q		South Geysers Project Power Facilities Revenue Bonds, Series D, F, and H; Water System Revenue Bonds, Series D, E, J, L, Q, and R		Bottle Rock Project Power Facilities Revenue Bonds, Series E; Water System Revenue Bonds, Series D, E, J, Q, and R		Small Hydro Project Power Facilities Revenue Bonds, Series D and H; Water System Revenue Bonds, Series J and L		Alamo Project Power Facilities Revenue Bonds, Series F and H; Water System Revenue Bonds, Series J and Q		East Branch Enlargement Project Water System Revenue Bonds, Series A, D, E, H, I, J, K, L, M, N, O, P, Q, and R		Water System Facilities Water System Revenue Bonds, Series B, C, D, E, G, H, I, J, K, L, M, N, O, P, Q, and R		Coastal Extension Facilities Water System Revenue Bonds, Series Q		Grand Total	
Year	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest
1964	0	3,333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,333
1965	0	11,114	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11,114
1966	0	16,742	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16,742
1967	0	26,912	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26,912
1968	0	37,760	0	3,876	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41,636
1969	0	47,461	0	10,448	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	57,909
1970	0	53,291	0	13,145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66,436
1971	0	63,035	0	13,145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76,180
1972	0	69,148	1,260	13,112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,260	82,260
1973	1,200	69,348	1,330	13,042	0	7,708	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,530	90,098
1974	3,000	69,533	1,400	12,969	0	7,708	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,400	90,210
1975	5,000	69,366	1,475	12,893	0	7,708	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,475	89,967
1976	7,000	69,408	1,555	12,811	0	7,708	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8,555	89,927
1977	10,200	69,323	1,635	12,727	0	7,708	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11,835	89,758
1978	12,700	69,312	5,775	12,537	0	7,708	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18,475	89,557
1979	13,650	68,690	11,585	12,275	0	7,708	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25,235	88,673
1980	16,050	67,968	3,265	11,739	0	7,708	0	7,900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19,315	95,315
1981	18,050	67,109	4,885	11,444	0	7,708	0	7,292	0	5,312	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22,935	98,865
1982	19,250	66,162	17,920	10,968	0	7,708	0	7,292	0	14,347	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37,170	106,477
1983	20,520	65,148	21,110	10,147	900	7,708	0	7,292	0	35,719	0	4,777	0	6,017	0	3,727	0	2,449	0	0	0	0	0	0	42,530	142,984
1984	21,785	64,068	10,005	9,013	955	7,647	640	7,292	0	35,719	0	5,647	0	10,315	0	3,727	0	4,198	0	0	0	0	0	0	33,385	147,626
1985	22,555	63,932	12,700	8,628	1,010	7,583	675	7,238	9,425	27,209	0	5,647	0	10,315	0	3,727	0	4,198	0	0	0	0	0	0	46,365	138,477
1986	23,830	61,742	11,435	7,859	1,070	7,515	715	7,377	3,805	32,882	0	5,516	1,240	10,315	0	3,537	0	4,263	0	4,021	0	0	0	0	42,095	145,027
1987	25,495	60,492	11,715	7,188	1,135	7,442	790	7,513	4,860	32,605	0	5,386	1,305	10,253	0	3,348	265	4,329	0	9,651	0	4,952	0	0	45,565	153,159
1988	26,770	59,165	6,685	6,664	1,205	7,366	830	7,447	5,065	32,295	580	5,521	1,390	10,849	345	3,348	280	4,314	995	9,875	710	11,037	0	0	44,855	157,881
1989	28,145	57,825	33,705	5,513	1,275	7,284	875	7,378	7,820	27,557	709	5,646	1,565	11,592	365	3,328	295	4,298	1,078	10,100	1,148	14,373	0	0	76,980	154,894
1990	29,385	56,473	10,385	4,301	1,355	7,198	930	7,305	6,675	29,781	761	5,596	1,678	11,491	405	3,304	320	4,279	1,134	10,048	1,227	19,555	0	0	54,255	159,331
1991	30,365	55,070	12,055	3,922	1,435	7,107	980	7,227	7,170	29,302	818	5,535	1,791	11,376	430	3,276	335	4,257	1,197	16,856	2,129	27,569	0	0	58,705	171,497
1992	31,745	54,233	14,135	2,985	1,520	7,010	2,395	5,307	8,950	27,188	1,934	4,136	4,575	7,942	960	2,553	1,260	3,086	2,583	22,241	5,108	28,412	0	0	75,165	165,093
1993	33,390	52,707	13,755	2,237	1,610	6,907	1,525	5,687	8,820	26,953	901	4,256	3,264	8,385	445	2,640	755	3,300	3,039	21,428	4,577	29,966	0	0	72,081	164,466
1994	35,075	51,274	35,225	934	1,705	6,799	1,575	5,633	78,457	26,273	1,588	4,072	3,374	8,270	695	2,569	780	3,274	4,567	20,752	5,915	38,225	0	0	168,956	168,075
1995	36,210	49,701	0	0	1,810	6,684	1,630	5,569	5,420	19,230	1,695	4,005	3,521	8,133	745	2,536	805	3,242	4,979	20,499	8,069	37,880	0	0	64,884	157,479
1996	37,520	48,072	0	0	1,920	6,561	2,315	5,485	49,465	18,130	3,043	3,909	3,682	7,974	3,135	2,464	1,055	3,203	4,771	23,240	10,464	58,170	0	0	117,370	177,208
1997	37,215	46,412	0	0	2,035	6,432	1,700	5,044	7,515	15,230	1,825	3,764	3,861	7,862	585	2,283	875	2,969	6,300	23,539	14,370	67,304	0	1,981	76,281	182,820
1998	37,295	44,785	0	0	2,155	6,295	1,770	4,963	8,035	14,710	1,935	3,676	4,030	7,634	625	2,258	910	2,927	6,625	23,069	16,504	65,796	0	1,829	79,884	177,942
1999	38,220	43,160	0	0	2,285	6,160	1,845	4,874	8,595	14,156	2,081	3,585	4,240	7,433	680	2,229	960	2,881	6,942	22,706	17,333	64,686	0	1,829	83,181	173,719
2000	39,510	41,524	0	0	2,420	6,040	1,925	4,778	9,185	13,557	1,950	3,485	4,470	7,212	610	2,197	1,010	2,831	8,054	22,311	17,721	63,502	0	1,829	86,855	169,266
2001	40,600	39,806	0	0	2,565	5,912	2,020	4,674	9,830	12,911	2,045	3,379	4,720	6,971	640	2,164	1,065	2,777	8,465	21,887	18,659	62,317	0	1,829	90,609	164,627
2002	41,740	38,041	0	0	2,720	5,773	2,115	4,563	10,530	12,215	2,160	3,267	4,990	6,711	680	2,129	1,125	2,718	8,911	21,223	19,654	60,886	0	1,829	94,625	159,355
2003	43,590	36,219	0	0	2,885	5,626	2,215	4,445	1,740	11,463	2,290	3,146	5,285	6,432	705	2,091	1,190	2,655	9,370	20,735	20,700	59,562	0	1,829	89,970	154,203
2004	45,730	34,305	0	0	3,055	5,470	2,330	4,319	1,855	11,347	2,425	3,015	5,610	6,131	795	2,051	1,260	2,587	8,743	20,213	22,652	58,163	0	1,829	94,455	149,430
2005	47,020	32,306	0	0	3,240	5,305	2,540	4,183	8,485	11,223	2,750	2,875	5,950	5,805	1,135	2,005	1,375	2,514	9,211	19,733	23,814	56,758	0	1,829	105,520	144,536
2006	48,275	30,248	0	0	3,435	5,130	2,675	4,033	9,015	10,705	2,920	2,712	6,325	5,454	1,180	1,938	1,450	2,433	9,721	19,226	25,094	55,266	0	1,829	110,090	138,974
2007	49,765	28,126	0	0	3,640	4,945	2,825	3,873	9,530	10,147	3,100	2,537	6,730	5,075	1,250	1,867	1,540	2,346	10,901	18,690	25,879	53,708	765	1,829	115,925	133,143
2008	51,755	25,938	0	0	3,860	4,749	1,696	3,703	25,069	9,558	3,381	2,351	7,636	4,671	1,265	1,792	934	2,254	10,728	18,103	27,156	52,267	810	1,783	134,290	127,169
2009	54,095	23,656	0	0	4,090	4,540	1,800	3,600	26,757	7,813	3,574	2,145	8,121	4,208	1,280	1,714	996	2,197	11,361	17,520	28,712	50,816	860	1,734	141,646	119,943
2010	55,785	21,280	0	0	4,335	4,319	1,906	3,489	28,547	5,976	3,807	1,927	8,637	3,715	1,270	1,636	1,069	2,136	12,031	16,900	30,378	49,249	910	1,683	148,675	112,310
2011	57,275	18,828	0	0	4,595	4,085	3,505	3,373	30,495	4,016	3,960	1,695	8,675	3,192	1,270	1,558	1,980	2,070	12,887	16,231	33,018	47,580	965	1,628	158,625	104,256
2012	58,615	16,277	0	0	4,875	3,837	3,720	3,127	32,615	2,084	4,235	1,417	9,335	2,584	1,285	1,469	2,135	1,931	13,651	15,519	34,944	45,735	1,015	1,578	166,425	95,558
2013	60,455	13,733	0	0	5,165	3,574	2,684	2,867	305	16	4,603	1,121	10,347	1,931	1,850	1,379	1,560	1,782	14,300	14,765	36,121	43,776	1,065	1,526	138,455	86,470
2014	57,985	11,296	0	0	5,475	3,303	4,160	2,703	0	0	4,830	846	10,720	1,332	1,920	1,266	2,450	1,687	15,201	13,955	39,159	41,792	1,120	1,472	143,020	79,652
2015	53,775	8,886	0	0	5,805	3,015	4,375	2,453	0	0	5,075	556	740	689	1,990	1,151	2,605	1,540	16,114	13,093	41,416	39,625	1,180	1,413	133,075	72,421
2016	46,215	6,669	0	0	6,150	2,710	4,600	2,190	0	0	2,180	251	790	644	2,165	1,032	2,775	1,383	17,074	12,186	43,801	37,348	1,240	1,351	126,990	65,764
2017	38,145	4,651	0	0	6,520	2,388	4,835	1,914	0	0	170	120	840	597	2,275	902	2,955	1,217	18,104	11,227	46,336	34,961	1,305	1,286	121,485	59,263
2018	25,435	3,009	0	0	6,910	2,045	5,080	1,624	0	0	180	110	890	547	2,395	765	3,155	1,039	19,200	10,208	48,925	32,454	1,375	1,217	113,545	53,018
2019	16,975	1,804	0	0	7,325	1,682	5,335	1,320	0	0	190	99	950	493	2,505	621	3,360	850	20,436	9,124	51,629	29,798	1,450	1,144	110,155	46,935
2020	17,405	956	0	0	7,765	1,298	5,610	999	0	0	205	88	1,010	435	2,630	471	3,585	649	21,677	7,970	54,608	26,958	1,525	1,066	116,020	40,890
2021	8,595	320	0	0	8,230	890	5,890	663	0	0	215	76	1,070	374	2,750	313	3,825	433	22,968	6,781	57,752	23,979	1,610	984	112,905	34,813
2022	1,885	61	0	0	8,725	458	6,160	339	0	0	230	64	1,130	316	2,945	162	4,055	223	24,349	5,527	61,031	20,909	1,695	897	112,205	28,956
2023	85	8	0	0	0	0	0	0	0	0	424	51	2,110	253	0	0	0	0	20,081	4,209	68,586	17,704	1,785	806	93,071	23,031
2024	35	4	0	0	0	0	0	0	0	0	440	26	2,184	129	0	0	0	0	21,259	3,130	65,443	14,034	1,880	710	91,241	18,033
2025	35	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17,251	1,933	50,688	10,505	1,985	609	69,959	13,048
2026	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,997	975	44,657	7,888	2,090	502	53,744	9,365
2027	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,807	622	42,323	5,645	2,200	390	49,330	6,657
2028	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,821	389	33,009	3,536	2,320	272	39,150	4,197
2029	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,041	201	34,884	1,857	2,450	140	41,375	2,198
Total	**1,582,400**	**2,387,246**	**244,995**	**246,522**	**139,165**	**283,872**	**105,076**	**203,486**	**424,035**	**587,629**	**75,209**	**118,033**	**158,781**	**232,057**	**46,205**	**83,527**	**62,319**	**108,548**	**445,924**	**602,611**	**1,236,303**	**1,576,503**	**33,600**	**44,462**	**4,554,012**	**6,474,496**

a) Principal and interest schedule adjusted to reflect early redemption of bonds.

Chapter 16

SWP Education and Information

Carolyn Tucker of the Office of Water Education with the Water Burger, a soft sculpture that illustrates how much water it takes to make a burger

Significant Events

- Throughout the emergency phase of the January 1997 floods, Office of Water Education staff provided around-the-clock news media outreach. Graphics staff provided film, photo, and video coverage to facilitate Department communication with the public and the news media.
- OWE's Graphic Services Branch provided design and photography services for the Governor's Flood Emergency Action Team's preliminary and final reports.
- The Department produced a new State Water Project video to educate the public and news media about the importance of the SWP.
- On Labor Day 1996, the Department sponsored a "coffee break for safety" at Vista Del Lago Visitors Center, treating thousands of holiday motorists to free refreshments.
- A new book, *Environmental Education Compendium for Water Resources,* was published, which covers current water curricula that have been reviewed and rated by teams of teachers.
- Two new videos were produced for use in grades K-3 and 4-6. These lively, entertaining videos educate school children about the water cycle and how water is cleaned and purified.
- The Department marked the 10th anniversary of Water Awareness Month with special events at SWP facilities.
- The Department's central Internet site, the California Water Page, attracted an increasing population of users. Peak usage occurred during the January 1997 floods.

The Department of Water Resources' Office of Water Education conducts public information and education programs to inform the news media and educate the public about the value and operations of the State Water Project. These programs use an array of public outreach methods, including news media relations, publications, videos, Internet web sites, SWP visitor centers and tours, brochures, exhibits, and special events.

State Water Project Information and Education Programs

Media Outreach

During fiscal year 1996-1997, the Department issued 33 news releases; provided numerous media advisories, interviews and faxes; cooperatively developed news releases with other water agencies; and assisted the CALFED Bay-Delta Program with its public outreach effort. During January's historic storms and flooding, the Office of Water Education conducted daily news briefings on flood management activities and helped staff the State-federal Flood Operations Center 24 hours a day for more than a month.

The Graphic Services Branch organized and filmed extensive ground and aerial videos and provided photographic documentation of the flooding. This helped flood management officials meet planning and floodfight needs and provided visual documentation for legal and archival purposes. The Department's film staff flew about 20 helicopter missions from January 2 to 17, documenting peak river flows, flooding, and levee breaks. In addition, the branch provided extensive design and photo services for both the preliminary and final reports of the Governor's Flood Emergency Action Team.

For weeks, California's January 1997 flood ranked high in national and State news, attracting network news reports and live regional TV coverage. The Department handled hundreds of inquiries from the State and national news media, including wire services, network television, regional and local news media, and water industry and specialty publications. Flood news dominated the winter season, culminating in a 10-page article in the August 1997 issue of *Smithsonian* magazine.

On more routine news developments, the Department issued news releases on water supply and deliveries via the SWP, changing water conditions and snowpack, as well as a new publication describing the urban benefits of using the Department's California Irrigation Management Information System—a system originally created for farm use.

To help Department officials deal effectively with the news media, OWE continued its ongoing one-day training sessions on "Working With the News Media." Taught by a professional trainer and former TV news director, the workshop has been valuable in helping the Department furnish the news media with prompt, accurate information in both emergency and routine news situations.

Internet Web Site

The Department's Internet web site, online since January 1995, completed its second full year of operation. Usage tripled during fiscal year 1996-1997. Revisions to the Department's main web site will enhance usability and increase the amount and variety of information available. The Department currently has 20 major home pages online for public access; OWE reviews all home pages before they go online. Five sites became active in 1996-1997:

- California Irrigation Management Information System home page;
- Northern District's home page;
- Central District's home page;

- Municipal Water Quality Investigations home page; and
- State Water Project Analysis Office home page.

Publications

DWR People. The Department's employee newsletter became a quarterly publication during fiscal year 1996-1997. Stories feature employees, their accomplishments, skills, news, awards, and retirements. This year's issues reported on a variety of timely topics, including a 40th anniversary issue recapping the Department's achievements in its first four decades and a special winter issue on California's flood fights.

DWR Update. An employees-only online newsletter, *DWR Update* provides timely news of interest on departmental changes and events, employee assignments and accomplishments, training, statewide water issues, and other announcements. Information is added and revised weekly or as news develops.

DWR News. This news magazine is published twice yearly, in the spring and fall. It features in-depth reporting of the Department's programs and projects, as well as significant statewide water issues. Many subjects were featured during 1996-1997, including:

- the Department's 40 years of service to California;
- historic flooding of January 1997;
- an interview with Lester Snow, CALFED's executive director;
- water transfers;
- recreational development at Oroville-Thermalito Complex;
- construction of a new intake tower at Silverwood Lake; and
- Sacramento area flood control projects.

Coastal Newsletter. During 1996-1997, the Department published the *Coastal Progress*, a periodic newsletter to keep interested persons and agencies updated on construction progress along the Coastal Branch.

Silverwood Newsletter. The Department published a second newsletter to keep Silverwood Lake visitors informed of the completion of the new intake structure and to publicize the lake's reopening to recreation in midsummer 1997.

Brochures. The Department routinely publishes an array of brochures describing SWP facilities. During fiscal year 1996-1997, OWE revised and reprinted four brochures: *Warne Powerplant*, *Banks Pumping Plant*, *North Bay Aqueduct*, and *Silverwood Lake*.

In addition, the Department prepared a comprehensive new brochure describing the Coastal Branch Aqueduct—its history, construction, and importance as a supplemental water supply to the drought-vulnerable Central Coast—timed to coincide with completion of construction of the Coastal Branch.

Maps. The State Water Project Location and Profile Map was revised and reprinted in Chinese and English. The map's major updates included adding the Coastal Branch Aqueduct and the Mojave Siphon Powerplant. The map is also available in Spanish, Japanese, and German.

OWE completed a map showing recreation sites and opportunities at the Oroville-Thermalito Complex. The maps are available at display units at the Oroville Field Division's administration building and at the dam.

SWP Calendar. The 1997 calendar featured the three visitor centers at Oroville, Romero Overlook, and Vista Del Lago, and the visitor areas at Edmonston Pumping Plant and the Delta Field Division administration building.

Video Projects

OWE completed an important new SWP video, "Meeting the Challenge," a 14-minute, full-color video presenting a concise overview of the State Water Project, its history, location, and operation. Available in English and Spanish, the video was distributed to the State water contractors, California cable stations, and within the Department.

"Pipeline," a 6-minute video, was produced to describe the Coastal Branch Aqueduct, its construction, and the water supply needs it will meet.

In November 1996, Department videos began airing regularly on The California Channel, an independent cable television network serving 100 cable television systems with about 4 million outlets.

The Department completed and distributed two public service announcements to California TV stations to encourage recreation at Lake Oroville and Pyramid Lake.

The Graphic Services Branch contributed highlight footage to a February documentary on PBS featuring the new year's floods.

The Department provided video footage for the PBS series "Cadillac Desert," which aired in June 1997.

Photographic Technology

The Graphic Services Branch upgraded its photographic technology and remodeled its dark room space to consolidate equipment in a new digital imaging area.

Visitor Center Program

During fiscal year 1996-1997, visitors participated in a self-administered survey, which was conducted monthly at Vista Del Lago and Romero visitor centers. The new survey is a condensed version of an original developed in the previous fiscal year for Vista Del Lago. Key findings from the 699 interviews included:

- over 95 percent of the visitors viewed at least one exhibit;
- over 92 percent said they learned something new about water;
- more than 77 percent of the visitors learned about the center from highway signs;
- the largest age groups visiting (45 percent) were between 26 and 45 years of age; and
- most visitors (77 percent) had some college education.

These surveys revealed how people learned about the centers, what they did while visiting them, and how satisfied they were with the facilities, exhibits, and services. They also provided demographic information about the visitors, such as their residence, level of education, and ethnicity.

On Labor Day 1996, one of the largest public events of the year took place at Vista Del Lago Visitor Center. A "coffee break for safety" was held for holiday motorists from nearby Interstate 5. Thousands of motorists stopped by for free coffee and looked at the center's exhibits.

Table 16-1 shows the number of visitor-days in the different field divisions.

Table 16-1
Visitor-Days Recorded in 1996, by Location

Location	*Visitor-Days*
Oroville Field	152,301
Delta Field Division	1,492
San Luis Field Division	155,860
San Joaquin Field Division	5,466
Southern Field Division	131,264
Total	**446,383**

Water Safety Education

An animated public service announcement was completed and distributed to television stations for use during the summer months entitled "Stay Alive! Read The Signs!" The 30-second announcement featured the Department's water safety mascots, Albert and Einstein, traveling along the California Aqueduct and admonishing viewers to read warning signs and practice water safety. Additionally, two water safety displays were completed and used throughout the State. One message for lake-users reads: "When you're near the water...wear a life jacket!" The other, for use along the Aqueduct, reads: "Be careful. These aqueduct sides are slippery."

SWP Visits and Tours

This year, the Department welcomed 69 delegations with 929 individuals from 19 nations.

SWP visitors came from a number of countries, including: Australia, Malaysia, Bangladesh, Pakistan, Canada, People's Republic of China, Egypt, Punjab, France, Saudi Arabia, Germany, South Korea, Hungary, and Taiwan.

Displays and Exhibits

Expanding its exhibit outreach, OWE participated as an exhibitor at two Association of California Water Agencies conferences to promote new publications, videos, and SWP awareness. OWE staffed exhibits at major recreation expositions in Northern and Southern California to educate the public about the SWP and its facilities.

Exhibits at Romero Visitor Center were updated. New displays show a timeline of California water development and San Luis Reservoir construction, a fiber optic map showing SWP and CVP facilities and service areas, and a photo mural describing the Department's environmental efforts.

At Kelly Ridge Visitor Center, exhibits were revised and a new fiber optic interactive exhibit was added that depicts "pump back" capability at Oroville. Additionally, the Delta exhibit at Vista Del Lago was updated.

During fiscal year 1996-1997, three exhibits were created for the glass case display in the Resources Building lobby. They included a tribute to those who worked on the floods, an informative display on Lake Silverwood fish spheres, and an Albert and Einstein display on water safety in the California Aqueduct.

School Education Program

In 1991-1992, the SWP began support of the Department's School Education Program. The program's goal is to provide students and educators with a statewide perspective of water issues, such as conservation, conveyance systems, and the water cycle. The program develops and promotes high quality materials that the Department provides at no charge to schools, educators, and water districts.

Product highlights for 1996-1997 include:

- The new *Environmental Education Compendium for Water Resources*.
- The first two (for grades K-3 and 4-6) of four videos for children. Both show the four phases of the water cycle.
- The *Feather River Fish Hatchery Teacher's Guide*. The guide contains lessons for teachers of grades 4-6 to use with their students before and after visits to the hatchery. Lessons cover salmon and steelhead life cycles, migration patterns, and the role hatcheries play in sustaining fish populations.

The Department's Children's Exhibit was shown at the Children's Water Festival in Anaheim and again at the Conservation Fair at the Capitol. Several components, including the "Water Burger" and "Fishin' for Facts," were reproduced for use in the Department's field divisions and district offices.

OWE staff participated in three Water Education Committee meetings in October, February, and June. OWE also cosponsored workshops on "A Child's Place in the Environment" and "Caring for Aquatic Systems."

OWE contributed to the following events:

- Environmentality Campaign for 5th grade students (also sponsored by the State of California and the Walt Disney Corporation);
- California 2000 project, an educational module being developed by Cal Poly to educate California school children, teachers, and parents about California water history, including the SWP; and
- Aquatic Outreach Institute's Educator Conference on Creeks, Wetlands, and Watersheds.

Water Awareness Month Activities

Calendar year 1997 marked the tenth annual observance of Water Awareness Month in California. The Department celebrated with activities and special events conducted with field division staff. They included:

- April 30 to May 4, Merced County Spring Fair in Los Banos;
- May 8, "Hooked On Fishing" event at Edmonston Pumping Plant;
- May 17, Fishing Derby at O'Neill Forebay, sponsored by the Department, California Department of Parks and Recreation, and the Four Rivers Natural History Association;

- May 31 to June 1, Apricot Festival at Patterson; and
- June 7, Bethany Reservoir Fishing Clinic and Free Fishing Day.

Summary

The Office of Water Education aids the Department in publicizing significant events to keep the news media apprised of SWP operations, water deliveries, and other developments.

Improved media relations and effective public outreach are high priorities for the Department's information and education programs. During fiscal year 1996-1997, OWE enhanced its Public Information Officer capability during flood season by training and using auxiliary PIOs.

Press relations, publications, videos, exhibits, and school and community outreach projects help inform California's residents and visitors of the SWPAO importance in water delivery, management, planning, and safety. These efforts help the Department fulfill its mission to educate the public about water's vital role in their lives and the continuing need to protect, manage, and conserve the State's water resources.

Information in this chapter was contributed by the Office of Water Education.

Appendix B

Data and Computations Used to Determine 1998 Water Charges

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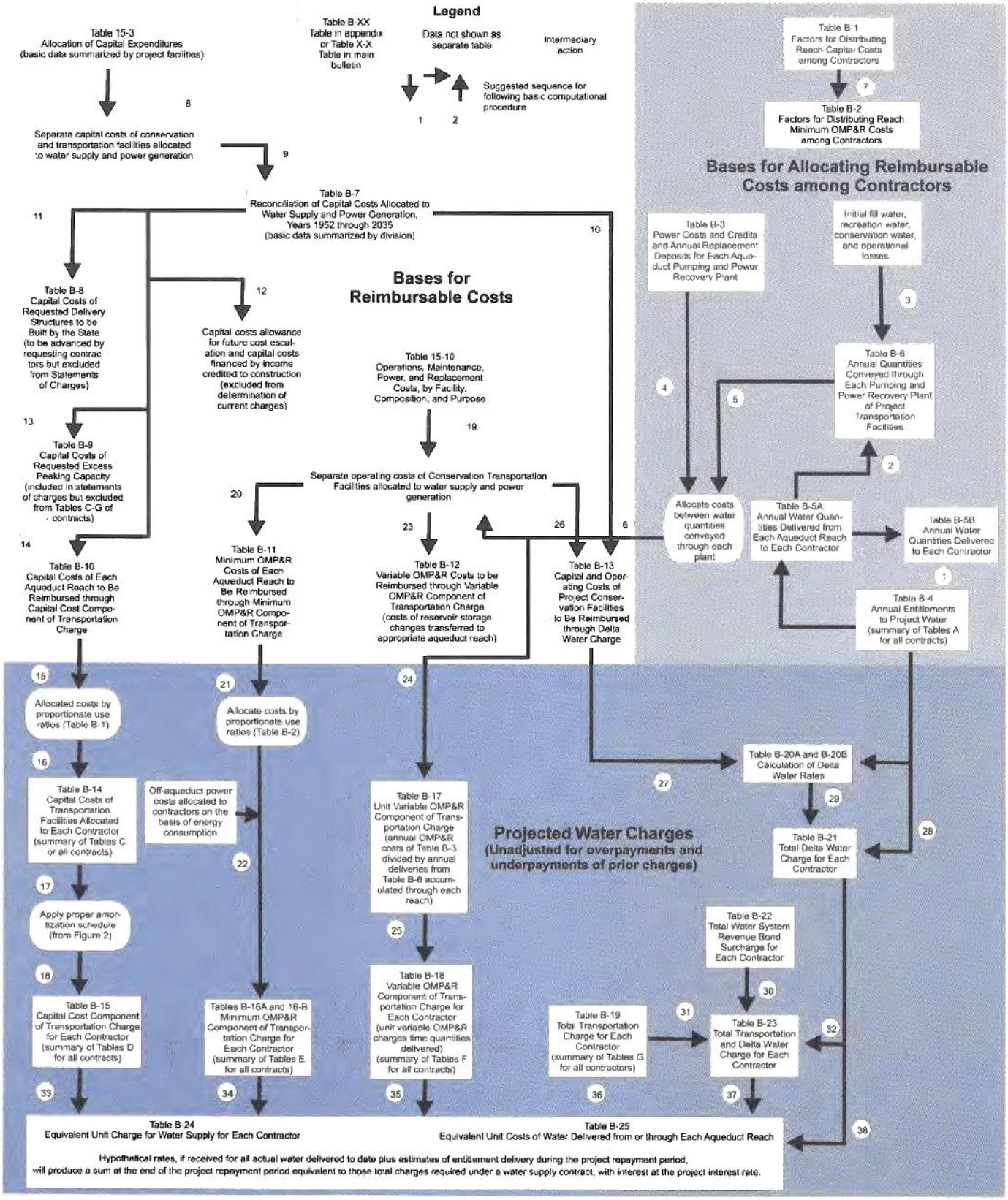
Figure B-1
Relationships of Data Used to Substantiate Statements of Charges



Appendix B

Data and Computations

Used to

Determine 1998 Water Charges

The Department of Water Resources annually furnishes Statements of Charges to the 29 long-term State Water Project water supply contractors. Article 29(e) of the Standard Provisions for Water Supply Contracts, approved August 3, 1962, describes those statements:

> *All such statements shall be accompanied by the latest revised copies of the document amendatory to Article 22 and of Tables B, C, D, E, F, and G of this contract, together with such other data and computations used by the State in determining the amounts of the above charges as the State deems appropriate.*

To comply with Article 29(e), the Department performs an annual comprehensive review and redetermination of all water supply and financial aspects of the SWP for the entire project repayment period. This annual redetermination is performed in accordance with Article 22(f) and Article 28 of the water contracts, which concern the Delta Water Rate and annual transportation charges, respectively.

Appendix B includes data used to document the redetermination of water charges to be paid by contractors during calendar year 1998. The information is based on established data about the SWP, both known and projected, as of June 30, 1997.

The computational procedures and interrelationships between tabulations in this appendix are outlined in Figure B-1 and Figure B-2. All tables referenced in Figures B-1 and B-2 follow this text.

Types of Water Charges

Charges to SWP water supply contractors include the costs of facilities for the conservation and development of a water supply and the conveyance of such supply to SWP service areas. These facilities are classified as "Project Conservation Facilities" and "Project Transportation Facilities" in the Standard Provisions for Water Supply Contract. The names of the main facilities in each classification follow.

Project Conservation Facilities

- Antelope Dam and Lake
- Oroville Dam and Lake Oroville
- Oroville power facilities
- Delta facilities
- A portion of the California Aqueduct from the Delta to Dos Amigos Pumping Plant
- Sisk Dam, San Luis Reservoir, and Gianelli Pumping-Generating Plant

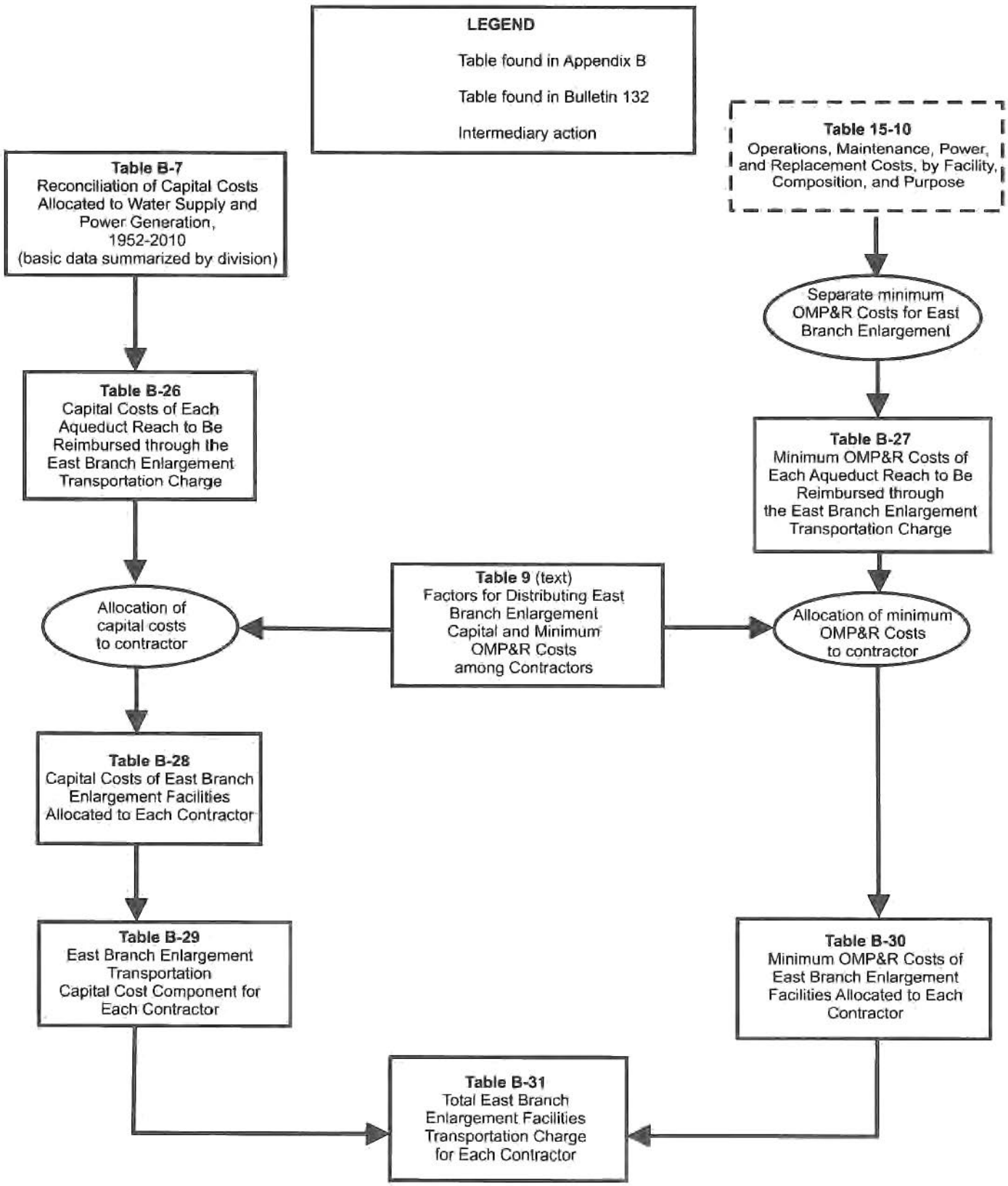
Project Transportation Facilities

- Grizzly Valley Pipeline
- North Bay Aqueduct
- South Bay Aqueduct, including Del Valle Dam and Lake Del Valle
- Remainder of the California Aqueduct from the Delta to Dos Amigos Pumping Plant and all facilities south, including dams and lakes in Southern California
- Off-Aqueduct Power Facilities (Reid Gardner Unit No. 4, Bottle Rock Powerplant, and South Geysers Powerplant)

The standard provisions provide for a Delta Water Charge and a Transportation Charge for Project water.

The Delta Water Charge is a unit charge applied to each acre-foot of SWP water the contractors are entitled to receive according to their contracts. The unit charge, if applied to each acre-foot of all such entitlements for the remainder of the Project repayment period, is calculated to result in repayment of all outstanding reimbursable costs of the Project Conserva-

Figure B-2
Relationships of Data Used to Substantiate East Branch Enlargement Charges



tion Facilities, with appropriate interest, by the end of the repayment period (2035).

The Transportation Charge is for use of facilities to transport water to the vicinity of each contractor's turnout. Generally, the annual charge represents each contractor's proportionate share of the reimbursable capital costs and operating costs of the Project Transportation Facilities.

Each contractor's allocated share of those reimbursable capital costs is amortized for repayment to the State; and certain variations are allowed in the amortization methods. Essentially, the contractors' shares of reimbursable operating costs are repaid in the year such costs are incurred by the State.

The East Branch Enlargement Transportation Charge is paid by the seven Southern California contractors participating in the enlargement. San Bernardino Valley Municipal Water District advanced funds to pay the district's allocated capital costs for the East Branch Enlargement. The remaining six contractors pay an allocated share of the debt service on revenue bonds sold to finance the enlargement. Each contractor also will pay an allocated share of the minimum operation, maintenance, power, and replacement (OMP&R) costs of the East Branch Enlargement.

Composition and Timing of Water Charges

As shown in Figure B-3, the Delta Water Charge and the Transportation Charge consist of the following three components:

- Conservation and Transportation capital cost components, which will return to the State all reimbursable capital costs;
- Conservation and Transportation minimum OMP&R components, which will return to the State all reimbursable operating costs that do not depend on or vary with quantities of water actually delivered to the contractors; and
- A Transportation variable OMP&R component, which will return to the State all reimbursable operating costs that depend on, and vary with, quantities of water actually delivered to the contractors.

The formula for computing the Delta Water Rate, Article 22(f) of the Standard Provisions for Water Supply Contract, was designed to ensure that all adjustments for prior overpayments or underpayments of the Delta Water Charge are accounted for in a redetermination of the rate. Since the redetermined rate applies to all future entitlements, such adjustments are amortized during the remainder of the Project repayment period. This appendix includes a redetermination of the Delta Water Rate for 1998.

Article 28 of the standard provisions stipulates that Transportation Charges be redetermined each year. The tables in Appendix B include the numerical data used in this redetermination. Transportation Charges for prior years through 1997 included in those tables are the redetermined amounts and do not equal the amounts actually paid by contractors.

As provided under the Water System Revenue Bond Amendment to the water supply contracts, differences between actual payments under the Transportation capital cost component and amounts computed in this redetermination are accumulated with interest and amortized during the remaining years of the contract repayment period. All computations for adjustments are included in the attachments accompanying each contractor's Statement of Charges and are reflected in revised copies of Table C through Table G of the contract, which are also furnished to each long-term water supply contractor in the annual Statements of Charges.

These redeterminations exclude four charges associated with water service other than the Delta Water Charge and the Transportation Charge. The excluded charges (and the manner in which such excluded charges are treated in this appendix) are:

- Advances of funds pursuant to Article 24(d) of the standard provisions for excess capacity constructed by the State at the request of contractors;
- Advances of funds pursuant to Article 10(d) of the standard provisions for delivery structures (turnouts) constructed by the State at the request of contractors. Partial information concerning actual and projected capital costs of such delivery structures is included in this appendix. Statements concerning these costs and data are furnished to the appropriate contractors at vari-

Figure B-3
Composition of Delta Water Charge and Transportation Charge

Delta Water Charge

Capital Cost Component

1. Planning, design, right-of-way, and construction costs of Conservation Facilities
2. Operations and maintenance costs for newly constructed Conservation Facilities prior to initial operations
3. Activation costs for newly constructed Conservation Facilities
4. Power costs allocated to initial filling of San Luis Reservoir
5. Capitalized O&M costs (major repair work and so forth) for Conservation Facilities
6. Program costs (portion) to mitigate impacts on current Delta fishery population due to SWP pumping prior to 1986 (Department of Water Resources-Department of Fish and Game agreement)

Minimum OMP&R Component

1. Direct O&M costs of Conservation Facilities
   a. Headquarters and field divisions (portion)
   b. Insurance and FERC costs (portion)
2. General O&M costs allocated to Conservation Facilities
   a. Contractor Accounting Office (portion)
   b. Financial and contract administration (portion)
   c. Water rights
   d. Power planning for SWP facilities (portion)
3. Replacement deposits for SWP control centers (portion)
4. Credits for a portion of Hyatt-Thermalito power generation
5. Power costs and credits related to pumping water to San Luis Reservoir for project operations (storage changes)
6. Value of power used and generated by Gianelli Pumping-Generating Plant
7. Program costs (portion) to offset annual fish losses resulting from pumping at Banks Pumping Plant (Department of Water Resources-Department of Fish and Game agreement)

Transportation Charge

Capital Cost Component

1. Planning, design, right-of-way, and construction costs of Transportation Facilities
2. O&M costs for newly constructed Transportation Facilities prior to initial operations
3. Activation costs for newly constructed Transportation Facilities
4. Power costs allocated to initial filling of Southern California reservoirs
5. Capitalized O&M costs (major repair work and so forth) for Transportation Facilities
6. Program costs (portion) to mitigate impacts on current Delta fishery population due to SWP pumping prior to 1986 (Department of Water Resources-Department of Fish and Game agreement)

Minimum OMP&R Component

1. Direct O&M costs of Transportation Facilities
   a. Headquarters and field divisions (portion)
   b. Insurance and FERC costs (portion)
2. General O&M costs related to Transportation Facilities
   a. Contractor Accounting Office (portion)
   b. Financial and contract administration (portion)
   c. Power planning for SWP facilities (portion)
3. Power costs and credits related to pumping water to Southern California reservoirs for project operations (storage changes)
4. Power costs for pumping water to replenish losses from Transportation Facilities
5. Other power costs
   a. Station service at Transportation Facility power and pumping plants
   b. Transmission service costs related to "backbone" Transportation Facilities
6. Replacement deposits for SWP control centers (portion)
7. Off-Aqueduct Power Facility costs–bond service, bond cover costs (25 percent of bond service), bond reserves, transmission costs to provide service to "backbone," fuel costs taxes, and O&M-less power sales allocated to Off-Aqueduct Power Facilities
8. Program costs (portion) to offset annual fish losses resulting from pumping at Banks Pumping Plant (Department of Water Resources-Department of Fish and Game agreement)

Variable OMP&R Component

1. Power purchase costs
   a. Capacity
   b. Energy
   c. Pine Flat bond service, O&M, and transmission costs allocated to aqueduct pumping plants
2. Alamo, Devil Canyon, Warne, and Castaic power generation credited at the power plant reach and charged to aqueduct pumping plants
3. Hyatt-Thermalito Diversion Dam power plant generation charged to aqueduct pumping plants (credits for this generation are reflected in the Delta Water Rate)
4. Replacement deposits for equipment at pumping plants and power plants
5. Credits from sale of excess SWP system power
6. Program costs (portion) to offset annual fish losses resulting from pumping at Banks Pumping Plant (Department of Water Resources-Department of Fish and Game agreement)

Note: Excludes costs recovered under the East Branch Enlargement Transportation Charge.

ous times and are not part of the annual statements;

- Payments for sale and service of surplus water to entities other than contractors, pursuant to Article 21 of the standard provisions, are also excluded. Those payments are generally based on the unit rates shown in Table B-25. Net revenues resulting from noncontractor service are applied as indicated on page 24 of Bulletin 132-71; and
- Payments under the Devil Canyon-Castaic contract for costs of the Devil Canyon-Castaic facilities allocable to power generation. Charges billed as a result of the contract are billed separately from those billed as a result of the water supply contract. Information about the treatment of such charges in relation to redetermined Transportation Charges is included in special attachments to the bills of the six participating contractors.

The time and method of payment for corresponding components of the Delta Water Charge and the Transportation Charge are as follows:

- The capital cost components of the Delta Water Charge and the Transportation Charge are paid in two semiannual installments, due January 1 and July 1 of each year, based on statements furnished by the State on or before July 1 of the preceding year;
- The minimum OMP&R components of the Delta Water Charge and the Transportation Charge are paid in 12 equal installments, due the first of each month and based on statements furnished by the State on or before July 1 of the preceding year; and
- The variable OMP&R component of the Transportation Charge is paid in varying monthly amounts and is due the fifteenth day of the second month following actual water delivery. charges are projected based on a unit charge per acre-foot established on or before July 1 of preceding year. Those unit charges may be revised during year to reflect current power costs and revenues. Unit charges are applied to actual monthly delivery quantities as determined by State on or before fifteenth day of the month following actual delivery.

Bases for Allocating Reimbursable Costs Among Contractors

This section describes the procedures for allocating reimbursable costs of Project Transportation Facilities among contractors (see upper right portion of Figure B-1). Those costs do not include annual costs of Off-Aqueduct Power Facilities, which are explained in the section "Project Water Charges."

Capital and Minimum OMP&R Costs

Figure B-4 includes information about the repayment reaches that form the basis for allocating reimbursable costs of the Project Transportation Facilities among contractors.

Allocations of reimbursable capital costs and minimum OMP&R costs of each reach are based on the proportionate maximum use of that reach by respective contractors under planned conditions of full development.

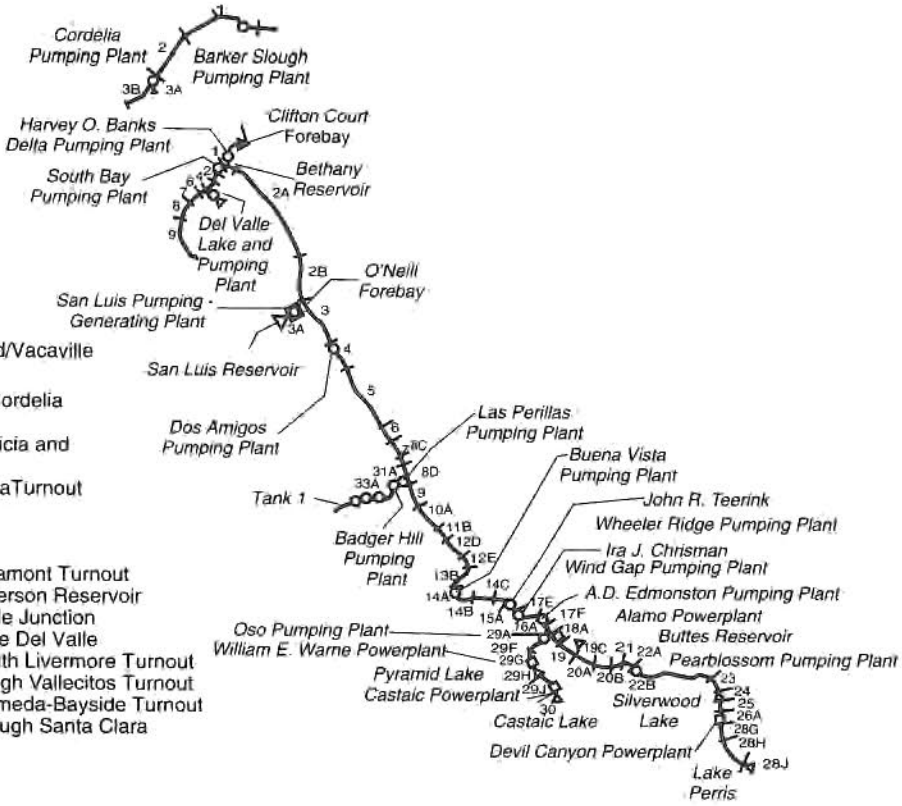
The derivation of ratios that represent the proportionate maximum use of each aqueduct reach by the respective contractors was first reported in Bulletin 132-70. The ratios in Bulletin 132-70 were subsequently revised for the North Bay Aqueduct, the South Bay Aqueduct, the California Aqueduct from the Delta to Castaic Lake, and the Coastal Branch.

All the revisions reported in previous bulletins regarding the derivation of ratios that represent the proportionate maximum use of each aqueduct reach by the respective contractors were last reported in Tables B-1 and B-2 of Bulletin 132-91. For 1998, the ratios for the California Aqueduct from the Delta to Silverwood Lake, plus Reach 31A, were revised to reflect the permanent transfer of 25,000 acre-feet from the Kern County Water Agency to the Mojave Water Agency.

Table B-1 presents the reach ratios currently applicable to reimbursable capital costs.

Table B-2 presents corresponding ratios for allocating 1998 reimbursable minimum OMP&R costs among contractors. Requested excess capacity is omitted when deriving ratios applicable to capital costs because the capital costs for the excess capacity

Figure B-4
Repayment Reaches and Descriptions



North Bay Aqueduct

1 Barker Slough through Fairfield/Vacaville Turnout
2 Fairfield/Vacaville Turnout to Cordelia Forebay
3A Cordelia Forebay through Benicia and Vallejo Turnouts
3B Cordelia Forebay through NapaTurnout Reservoir

South Bay Aqueduct

1 Bethany Reservoir through Altamont Turnout
2 Altamont Turnout through Patterson Reservoir
4 Patterson Reservoir to Del Valle Junction
5 Del Valle Junction through Lake Del Valle
6 Del Valle Junction through South Livermore Turnout
7 South Livermore Turnout through Vallecitos Turnout
8 Vallecitos Turnout through Alameda-Bayside Turnout
9 Alameda-Bayside Turnout through Santa Clara Terminal Facilities

California Aqueduct

North San Joaquin Division

1 Delta through Bethany Reservoir
2A Bethany Reservoir to Orestimba Creek
2B Orestimba Creek to O'Neill Forebay

San Luis Division

3A San Luis Dam, Reservoir and Pumping-Generating Plant
3 O'Neill Forebay to Dos Amigos Pumping Plant
4 Dos Amigos Pumping Plant to Panoche Creek
5 Panoche Creek to Five Points
6 Five Points to Arroyo Pasajero
7 Arroyo Pasajero to Kettleman City

South San Joaquin Division

8C Kettleman City through Milham Avenue
8D Milham Avenue through Avenal Gap
9 Avenal Gap through Twisselman Road
10A Twisselman Road through Lost Hills
11B Lost Hills to 7th Standard Road
12D 7th Standard Road through Elk Hills Road
12E Elk Hills Road through Tupman Road
13B Tupman Road to Buena Vista Pumping Plant
14A Buena Vista Pumping Plant through Santiago Creek
14B Santiago Creek through Old River Road
14C Old River Road to John R. Teerink Wheeler Ridge Pumping Plant
15A John R. Teerink Wheeler Ridge Pumping Plant to Ira J. Chrisman Wind Gap Pumping Plant
16A Ira J. Chrisman Wind Gap Pumping Plant to A. D. Edmonston Pumping Plant

Tehachapi Division

17E A. D. Edmonston Pumping Plant to Carley V. Porter Tunnel
17F Carley V. Porter Tunnel to Junction, West Branch, California Aqueduct

California Aqueduct (continued)

Mojave Division

18A Junction, West Branch, California Aqueduct through Alamo Powerplant
19 Alamo Powerplant to Fairmont
19C Buttes Junction through Buttes Reservoir
20A Fairmont through 70th Street West
20B 70th Street West to Palmdale
21 Palmdale to Littlerock Creek
22A Littlerock Creek to Pearblossom Pumping Plant
22B Pearblossom Pumping Plant to West Fork Mojave River
23 West Fork Mojave River to Silverwood Lake
24 Cedar Springs Dam and Silverwood Lake

Santa Ana Division

25 Silverwood Lake to South Portal, San Bernardino Tunnel
26A South Portal, San Bernardino Tunnel through Devil Canyon Powerplant
28G Devil Canyon Powerplant to Barton Road
28H Barton Road to Lake Perris
28J Perris Dam and Lake Perris

West Branch, California Aqueduct

29A Junction, West Branch, California Aqueduct through Oso Pumping Plant
29F Oso Pumping Plant through Quail Embankment
29G Quail Embankment through William E. Warne Powerplant
29H Pyramid Dam and Lake
29J Pyramid Lake through Castaic Powerplant
30 Castaic Dam and Lake

Coastal Branch, California Aqueduct

31A Avenal Gap to Devil's Den Pumping Plant
33A Devil's Den Pumping Plant through Tank 1

are paid on an incremental-cost basis and not a proportionate-use basis. However, requested excess capacity is accounted for in the ratios applicable to minimum OMP&R costs.

Variable OMP&R Costs

Article 26(a) includes provisions to ensure that the variable OMP&R component of the Transportation Charge will result in a return to the State of those costs that depend on and vary with the amount of SWP water deliveries. (The minimum OMP&R component results in a return of those operating costs that do not vary with deliveries.) Under Article 26(a) all such costs for a reach for a given year will be allocated among contractors in proportion to the actual annual use of that reach by the respective contractors.

Table B-3 summarizes the total power costs and credits for each aqueduct pumping and power recovery plant. Those variable costs consist of:

- Costs of capacity and energy used exclusive of associated power transmission and station service charges (transmission and station service costs are classified as minimum OMP&R costs);
- Credits for capacity and energy produced at aqueduct power recovery plants (treated as negative costs); and
- Annual payments to sinking fund reserves to finance periodic replacement of major plant machinery components having economic lives shorter than the Project repayment period. Sinking fund payments for 1962 through 1979 were based on a schedule determined in 1970. Sinking fund payments for 1980 through 1996 are based on revised replacement schedules. Those schedules were updated in 1986 and 1991. The Department discontinued the sinking fund payments for replacements in 1997 and is reviewing the issue of replacement costs and charges.

Table B-3 excludes plant capacity and energy costs associated with surplus and unscheduled water service after May 1, 1973. Prior to that date, surplus water service was charged the same unit variable OMP&R component as entitlement water service. An amendment to the long-term water supply contracts in 1973 significantly changed the rate structure for surplus water service. Capacity and energy costs for pumping surplus and unscheduled water were allocated directly to those water contractors receiving surplus and unscheduled water service. A contract amendment in 1991 again revised the rate structure to provide for payment of costs through a melded power rate. These revisions to charges for surplus and unscheduled water are effective from the date of the amendments and are not applied to past charges.

In 1994, an interruptible water program was established. This program is based on individual annual contracts; costs for interruptible water actually delivered are included in Table B-3.

Water Conveyance

The water conveyance quantities that form the basis for allocating costs are presented in Tables B-4, B-5A, B-5B, and B-6.

Table B-4 presents the schedules of annual entitlements as set forth in Table A and Article 6(a) of each water supply contract.

Table B-5A shows amounts of actual and projected entitlement water quantities delivered from each aqueduct reach to each contractor. Projected deliveries for years 1997 through 2035 are based on contractors' requests for future water deliveries. The quantities included in Table B-5A also include non-Project water delivered to contractors and surplus water deliveries prior to May 1, 1973, and actual interruptible water deliveries in 1994 and after.

Table B-5B presents a summary of actual and projected annual entitlement water quantities delivered or to be delivered to each contractor. The quantities also include amounts of non-Project water and surplus water delivered prior to May 1, 1973, and actual deliveries of interruptible water in 1994 and after.

Table B-6 summarizes the annual entitlement water quantities conveyed or to be conveyed through each aqueduct pumping plant or power plant for each of the following functions:

- *Deliveries-Water Supply.* Water made available to contractors at down-aqueduct delivery structures, including certain hypothetical quantities to facilitate cost allocations, for those years when

deliveries are made from net annual storage withdrawals. The net annual amounts of storage withdrawals are hypothetically added to the actual amounts conveyed from the Delta to the reservoirs, since deliveries made from storage withdrawals bear the same variable OMP&R costs per acre-foot as they would if the deliveries were actually conveyed from the Delta in that year. The hypothetical increases in the deliveries made from reservoir storage withdrawals are offset by equal credits to the minimum OMP&R costs of the respective reservoirs. Thus, the variable OMP&R components per acre-foot (Table B-17) may be applied to the total annual quantities delivered either from aqueduct reservoir storage or from the Delta.

- *Initial Fill Water.* Water required for initial filling of down-aqueduct reaches and reservoirs or for repayment of pre-consolidation water used during construction.
- *Deliveries-Recreation.* Water delivered to down-aqueduct recreation developments or used for fish and wildlife mitigation or enhancement.
- *Operational Losses.* Water lost through evaporation and seepage from all down-aqueduct reaches.
- *Reservoir Storage Changes.* Water placed in down-aqueduct reservoir storage after initial filling of the reservoirs, including projected net annual storage accretions (positive values) and withdrawals (negative values) for all down-aqueduct reservoirs of the Project Transportation Facilities.

Those variable OMP&R costs (Table B-12) that are allocable to storage accretions are assigned to the minimum OMP&R costs of the respective reservoirs. With one exception, "Reservoir Storage Changes" also includes SWP water placed into Southern California groundwater storage from 1978 through 1982 (as positive amounts); and water withdrawn from storage and delivered to contractors in 1979, 1982, 1987, 1988, and 1989 (as negative amounts). The exception is Banks Pumping Plant, where groundwater additions and withdrawals are included in "Conservation Water."

Table B-6 also summarizes the following two amounts under the heading "Conservation Water" (Column 25):

- Net annual water amounts stored and projected to be stored in San Luis Reservoir; and
- Water lost and projected to be lost through evaporation and seepage from San Luis Reservoir and from the water conservation portion of the California Aqueduct.

"Conservation Water" includes initial fill water, operational losses, and net annual storage changes associated with San Luis Reservoir and the portion of the California Aqueduct that is allocated to conservation. The same allocation procedure outlined above for Transportation Facilities also applies to water delivered from storage in Conservation Facilities, except that the hypothetical cost increases are added to the variable OMP&R cost to be reimbursed through the Transportation Charge and deducted from the minimum OMP&R costs to be reimbursed through the Delta Water Charge.

San Luis Reservoir is operated to conserve water for future delivery to downstream contractors. To account for costs associated with reservoir storage, those power and replacement costs of Banks Pumping Plant (a joint Transportation-Conservation Facility) that are allocated to the conveyance of annual conservation water quantities are transferred to the capital costs of San Luis Reservoir (during initial fill) or to the minimum OMP&R costs of San Luis Reservoir (subsequent to initial fill).

In years of net storage withdrawal from San Luis Reservoir, a portion of the minimum OMP&R cost of the reservoir is transferred to the variable OMP&R cost of Banks Pumping Plant. That transfer is equal to the variable OMP&R cost per acre-foot of delivery through Banks Pumping Plant for that year, multiplied by the acre-feet of deliveries derived from San Luis Reservoir storage for that year. Table B-6 also includes amounts of nonproject water and surplus water delivered prior to May 1, 1973, and actual deliveries of interruptible water in 1994 and after.

Bases for Reimbursable Costs

This section describes the methods used to derive the costs allocated by the procedures outlined in the preceding section. A diagram of the cost derivation process is shown in the upper-left quadrant of Figure B-1.

First, the capital and minimum OMP&R costs of all SWP facilities are allocated among the various Project purposes according to the allocation percentages in Table 1. Those percentages may be subject to revision in the future.

The redeterminations in this appendix involve only the SWP costs that are allocated to water supply and power generation.

Capital Costs

Capital costs used in the redeterminations in this appendix reflect prices prevailing on December 31, 1996; future cost escalation will be reflected in subsequent bulletins.

Table B-7 presents a reconciliation of estimated total capital costs of each Project Conservation Facility and each Project Transportation Facility. This table shows the relationship of Project Conservation and Transportation costs allocated to contractors (Tables B-8, B-9, B-10, and B-13) to the total SWP capital costs projected by the Department.

Table B-8 shows costs incurred and projected to be incurred by the State in connection with each contractor's turnouts. Costs incurred by the State for both State-constructed and contractor-constructed delivery structures are paid directly by the contractors for whom the structures are built. (The State incurs design review and construction inspection costs in connection with contractor-constructed turnouts.)

Table B-9 lists costs and payments for excess capacity built into SWP Transportation Facilities according to amendments to contracts with the Metropolitan Water District of Southern California, San Gabriel Valley Municipal Water District, and Antelope Valley-East Kern Water Agency as follows:

- Additional costs incurred by the State for requested excess capacity;
- Advances by water contractors of funds for such costs; and
- Credits for advances in excess of costs, which were applied to respective contractors' installments of the capital cost component of the Transportation Charge in 1981.

Under Amendment 2 of MWD's contract, 809 cfs of excess capacity was originally constructed in reaches of the West Branch at MWD's request. That capacity was reclassified as basic capacity of SWP Transportation Facilities under Amendment 7. MWD paid $16.3 million as a prepayment of the capital cost component of the Transportation Charge in lieu of advancing funds for the original requested capacity.

Amendment 5 to MWD's contract requires that additional costs for modifications to the Santa Ana Valley Pipeline (required for enlargement of Lake Perris) will be allocated to MWD and returned to the State through payments of the Transportation Charge. The additional costs to be repaid through MWD's capital cost component for the aqueduct reach from Devil Canyon Powerplant to Barton Road total about $6.7 million (see Bulletin 132-72, page 98).

Table B-10 presents the actual and projected annual capital costs of each aqueduct reach that will eventually be returned to the State, with interest, through contractors' payments of the capital cost component of the Transportation Charge and payment of debt service under the Devil Canyon-Castaic contracts.

Annual Operating Costs

Annual operating costs allocable to water supply and power generation are returned to the State through the minimum and variable OMP&R components of Delta Water and Transportation Charges and through a portion of the revenues from energy sales. All reimbursable operating costs of Conservation Facilities are included in the minimum OMP&R component of the Delta Water Charge.

Transportation and Devil Canyon-Castaic Contract Costs

Table B-11 shows the amounts of the actual and projected costs to be reimbursed through payments of the minimum OMP&R component of the Transportation Charge and allocated operating costs under the Devil Canyon-Castaic contract. The table includes the following seven types of operating costs incurred annually that do not vary with water quantities delivered to the contractors:

- All direct labor charges for field operation and maintenance personnel, including associated indirect costs;
- A distributed share of general operating costs that cannot be identified solely with one facility or aqueduct reach;
- Electric power transmission and station service costs allocable to aqueduct pumping and power recovery plants;
- All costs for equipment, materials, and supplies;
- Portions of the power and replacement costs of all up-aqueduct pumping and power plants that are allocable to the annual conveyance of water lost to evaporation and seepage from respective aqueduct reaches or placed into storage in respective reservoirs of the Project Transportation Facilities (after initial fill);
- Credits, which offset those costs in (5) above, for deliveries drawn from reservoir storage; and
- Escalation of projected operating costs at 3 percent per year for 1998 and 1999.

Table B-12 shows the portions of variable OMP&R costs in Table B-3 that are allocable to the water supply delivery quantities included in Table B-6 and

Table 1
Cost Allocation Factors (Percentages)

Project Facilities	*Water Supply and Power Generation*		*All Other Purposes (Nonreimbursable)*	
	Capital Costs	*Minimum OMP&R Costs*	*Capital Costs*	*Minimum OMP&R Costs*
Project Conservation Facilities				
Frenchman Dam and Lake	21.5	0.0	78.5	100.0
Antelope Dam and Lake	0.0	0.0	100.0	100.0
Grizzly Valley Dam and Lake Davis	1.0	1.8	99.0	98.2
Oroville Division (a	97.1	99.5	2.9	0.5
California Aqueduct, Delta to Dos Amigos Pumping Plant	96.6	96.7	3.4	3.3
Delta Facilities	86.0	86.0	14.0	14.0
Transportation Facilities				
Grizzly Valley Pipeline	100.0	100.0	0.0	0.0
North Bay Aqueduct	100.0	100.0	0.0	0.0
South Bay Aqueduct				
Del Valle Dam and Lake Del Valle	25.2	22.0	74.8 (b	78.0 (c
Remainder of South Bay Aqueduct	100.0	100.0	0.0	0.0
California Aqueduct				
Delta to Dos Amigos Pumping Plant	96.6	96.7	3.4	3.3
Delta Pumping Plant to termini (excluding Coastal Branch)	94.3	96.9	5.7	3.1
Coastal Branch	100.0	100.0	0.0	0.0

a) Percentages indicated are applicable to the remaining costs of division after excluding costs allocated to flood control that are reimbursed by the federal government (22 percent of capital costs) and excluding specific power costs of Edward Hyatt and Thermalito powerplants and switchyards.
b) Percentage indicated consists of 48.8 percent of costs allocated to recreation and 26.8 percent to flood control.
c) Percentage indicated consists of 44.9 percent of costs allocated to recreation and 33.1 percent to flood control.

reimbursed through payments of the variable OMP&R component of the Transportation Charge.

The following five adjustments are made to the Table B-3 costs to derive the Table B-12 costs:

- Part of the variable OMP&R costs of each plant is allocated to recreation. The allocation to recreation is in proportion to the quantity of water conveyed through each plant each year for delivery to on-shore recreational developments.
- That portion of variable plant costs attributable to the initial fill of aqueduct reaches is allocated to the joint capital costs of respective down-aqueduct reaches and reservoirs.
- That portion of costs attributable to evaporation and seepage is allocated to the joint minimum OMP&R costs of respective down-aqueduct reaches and reservoirs.
- Adjustments are made for additions or withdrawals from storage in aqueduct reservoirs. In years when water is added to storage in aqueduct reservoirs, the cost of conveying this water into storage is charged to the minimum OMP&R costs of the corresponding reservoir. The unit cost is equal to the variable OMP&R unit rate for the year the water is conveyed into storage. In years when storage in aqueduct reservoirs is decreased for the purpose of making deliveries, a credit is applied to the minimum OMP&R costs of the reservoir from which the storage is released. This credit is equal to the number of acre-feet of storage reduction times the variable OMP&R unit rate for the year storage is released.
- That portion of costs attributable to pumping water to replace evaporation and seepage losses and for additions or withdrawals from storage in San Luis Reservoir is charged to the minimum OMP&R component of the Delta Water Rate.

The remaining costs are allocated to Transportation water supply and repaid by the contractors.

Conservation Capital and Operating Costs

Table B-13 is a summary of actual and projected capital and operating costs of the initial Project Conservation Facilities. These costs are reimbursed through payments by contractors under the Delta Water Charge, Oroville power sales, and Gianelli Pumping-Generating Plant credits. Table B-13 also shows credits applied to the reimbursable capital costs of the Project Conservation Facilities according to negotiated settlements concerning incurred planning costs for the period from 1952 through 1978.

Project Water Charges

This section describes the redetermination of past and projected components of the Transportation Charge for annual revision of Tables C through G of each water supply contract. This section also describes the derivation of the unit Delta Water Rates and the Water System Revenue Bond Surcharge.

A summary of equivalent unit charges for each acre-foot of entitlement water service is also included for each contractor and each aqueduct reach. A diagram of all calculations may be found in the lower half of Figure 1.

Transportation Charges

The accumulation of allocated costs of each aqueduct reach to each contractor is the basis for the Transportation Charge components.

Table B-14 summarizes each contractor's share of the capital costs of aqueduct reaches presented in Table B-10. Those amounts are determined by applying proportionate-use ratios set forth in Table B-1 to the costs in Table B-10. The resulting allocated costs are set forth in Table C of the respective water supply contracts.

Prepayments of the capital cost component, required under MWD's Amendment 7, are included as negative capital costs in Table B-14 and Table C of MWD's Statement of Charges for 1998. Solano County Water Agency, Empire West Side Irrigation District, and Castaic Lake Water Agency also prepaid capital costs (see Table B-14 footnotes). Table B-14 includes the costs of the planned East Branch Extension to provide water service to San Bernardino Valley Municipal Water District and San Gorgonio Pass Water Agency.

Both Table B-14 and Table C of the six contracts for Project water service below Devil Canyon Powerplant and Castaic Powerplant include the capital

costs reimbursable under the Devil Canyon-Castaic contract.

Table B-15 summarizes capital cost components of the Transportation Charge for each contractor for each year of the Project repayment period. The capital cost components shown in Table B-15 will recover the costs shown in Table B-14 by 2035, with interest at the Project Interest Rate of 4.620 percent per annum and based on the amortization schedules included in Table 2.

Those estimated components, subsequently adjusted for prior overpayments or underpayments, are included in Table D of the water supply contracts. Costs of excess capacity are billed separately and are not included in Table B-15.

Table B-15 includes the debt service payments due from the six contractors down-aqueduct from Devil Canyon Powerplant and Castaic Powerplant according to terms of the Devil Canyon-Castaic contract.

Table B-16A summarizes the minimum OMP&R components of the Transportation Charge for each year of the Project repayment period. Those estimated components, subsequently adjusted for prior overpayments or underpayments, are included in Table E of the respective contracts.

The total amounts included in Table B-16A are determined by applying the proportionate-use ratios in Table B-2 to the reach costs in Table B-11. Table B-16A excludes charges for Off-Aqueduct Power Facilities, which are included separately in Table B-16B. Both Table B-16A and Table E for the six contractors down-aqueduct from Devil Canyon Powerplant and Castaic Powerplant include the portion of operating costs payable under the Devil Canyon-Castaic contract.

Prior to 1997, as part of operating agreements with the Department, Kern County Water Agency was billed for any additional operating costs caused by early installation of units in Las Perillas and Badger Hill Pumping Plants by Berrenda Mesa Water Storage District (see Bulletin 132-71, page 7). Under those agreements, a portion of minimum OMP&R costs of Reach 31A were assigned directly to KCWA, with the remaining reach costs allocated by application of the proportionate-use ratios shown in Table 3. The Department purchased Units No. 6 at Las Parillas and Badger Hill pumping plants in early 1997 to provide pumping capacity for deliveries to Coastal Area contractors which began in 1997.

Table 2
Criteria for Amortizing Capital Costs of Transportation Facilities

Contractor	*Year of Initial Payment (a*
Alameda County Flood Control and Water Conservation District, Zone 7	1963 (b
Alameda County Water District	1963
Antelope Valley-East Kern Water Agency	1963
Castaic Lake Water Agency	1964
City of Yuba City	(c
Coachella Valley Water District	1964
County of Butte	(c
County of Kings	1968
Crestline-Lake Arrowhead Water Agency	1964
Desert Water Agency	1963 (d
Dudley Ridge Water District	1968 (e
Empire West Side Irrigation District	1968 (e
Kern County Water Agency	
Agricultural Use	1968 (e
Municipal and Industrial Use	1965
Littlerock Creek Irrigation District	1964
Mojave Water Agency	1964
Napa County Flood Control and Water Conservation District	1966
Oak Flat Water District	1968 (e
Palmdale Water District	1964
Plumas County Flood Control and Water Conservation District	1970
San Bernardino Valley Municipal Water District	1963
San Gabriel Valley Municipal Water District	1963 (d
San Gorgonio Pass Water Agency	1963 (d
San Luis Obispo County Flood Control and Water Conservation District	1964 (f
Santa Barbara County Flood Control and Water Conservation District	1964
Santa Clara Valley Water District	1963
Solano County Water Agency	1973
Metropolitan Water District of Southern California	1963
Tulare Lake Basin Water Conservation District	1968 (e
Ventura County Flood Control District	1964

a) Allocated capital costs of transportation facilities amortized in equal annual installments unless otherwise noted.
b) Principal payments on each annual capital cost prior to 1971 delayed until calendar year 1972, except payments for 1963.
c) For Yuba City and Butte County payments for Delta Water Charge only.
d) Payment deferred for 1963 and added to 1964 payment with accrued interest.
e) For Dudley Ridge Water District, Empire West Side Irrigation District, Kern County Water Agency (agricultural use), Oak Flat Water District, and Tulare Lake Basin Water Conservation District, according to Article 45 of the contracts for supply of agricultural water, capital costs of transportation facilities allocated to agricultural water supply are amortized by using an equivalent unit rate per acre-foot applied to the annual entitlements (Table B-4) through the project repayment period.
f) For San Luis Obispo Flood Control and Water Conservation District and Santa Barbara County Flood Control and Water Conservation District, all principal and interest payments for costs of the Coastal Stub were deferred until 1976.

Table 3
Minimum OMP&R Costs of Reach 31A Assigned Directly to Kern County Water Agency

Year	*Direct Charges*
1969	46,510
1970	46,302
1971	140,072
1972	95,016
1973	72,452
1974	100,688
1975	127,456
1976	138,500
1977	120,749
1978	157,638
1979	121,207
1980	150,715
1981	74,749
1982	82,819
1983	89,947
1984	106,720
1985	158,847
1986	136,604
1987	125,671
1988	130,919
1989	127,867
1990	136,678
1991	137,604
1992	184,362
1993	214,905
1994	351,132
1995	277,183
1996	393,887
Total	**4,047,199**

Table B16-B summarizes the annual charges for Off-Aqueduct Power Facilities allocated to each water contractor, adjusted for prior overpayments or underpayments of charges. Those charges are to repay all Off-Aqueduct Power costs, including bond service, deposits for reserves, operation and maintenance costs, fuel costs, taxes, and insurance.

Adopted October 1, 1979, the General Bond Resolution requires that sufficient revenues be collected each year to repay all of those costs. In addition, an amount totaling 25 percent of the annual bond service is collected each year to ensure that sufficient funds are available to cover all annual costs. Any revenues collected and not needed during the year are refunded to the contractors in the next year.

Table 4 summarizes Off-Aqueduct Power Facility charges and credits related to deliveries for 1996.

Table 4
Summary of Off-Aqueduct Power Facility Charges and Credits

Item	*1996 Charges*
Reid Gardner Powerplant	61,786,141
Bottle Rock Powerplant	12,550,019
South Geysers Powerplant	5,716,960
Subtotal	*80,053,120*
Item	*1996 Credits*
Power sales	9,135,029
Miscellaneous water	
Alameda County, Zone 7	12,734
Subtotal	*9,147,763*
Grand Total	**70,905,357**

Table 5 shows projected charges for Off-Aqueduct Power Facilities and an amount equal to 25 percent of annual bond service for 1997 and each year thereafter.

The annual charges for Off-Aqueduct Power Facilities are allocated among contractors in proportion to the electrical energy required to pump entitlement water for the year. The initial allocation for the Statements of Charges is based on estimates of energy to pump requested entitlement water deliveries.

An interim adjustment in the allocation of Off-Aqueduct Power costs may be made in May of each year based on updated cost estimates and April revisions in water delivery schedules for annual entitlement. An additional adjustment is made the following year based on actual entitlement water deliveries and actual costs for the year.

The energy required to pump each contractor's entitlement water is calculated using the kilowatt-hour per acre-foot factors (shown in Table 6) for the pumping plants upstream from the delivery turnouts. The amounts include transmission losses.

Table B-17 presents a summary of actual and projected total variable OMP&R costs for each acre-foot of water conveyed through each aqueduct pumping plant and power plant for each year of the Project repayment period. Those data are derived according to the following procedure specified in Article 26(a) of the Standard Provisions for calculating the variable OMP&R component of the Transportation Charge:

- An annual charge per acre-foot of projected water deliveries to all contractors served from or through each reach is determined so the projected variable OMP&R costs to be incurred for each reach will be returned to the State.
- The total annual variable OMP&R component for any contractor for a given reach is obtained by multiplying the unit charge associated with that reach by the quantity of water actually delivered from or through the reach to the contractor.

The data summarized in Table B-17 are derived by dividing the costs shown in Table B-3 by the quantities of water shown in Table B-6. However, certain costs included in Table B-3 for extra peaking service, which would otherwise constitute variable OMP&R costs, are assigned directly to contractors requesting this type of service (see Bulletin 132-71, page 21, and Water Service Contractors Council Memo No. 593, July 10, 1970). Those costs are excluded from the unit charges shown in Table B-17. Peaking charges based on additional capacity ceased in 1983. Since 1984, costs are based on market energy rates. The amounts of extra peaking charges for additional power costs are shown in Table 7 and Table 8.

The unit rates shown in Table B-17 constitute the rates for the pumping plants and power plants listed. The cumulative rates constitute the total rates, cumulative from the Sacramento-San Joaquin Delta, and are applicable to deliveries from or downstream of the pumping plants and power plants. Extra peaking service costs are excluded.

Table B-18 shows the variable OMP&R components of the Transportation Charge for each contractor for each year of the Project repayment period. Table B-18 is developed from the costs per acre-foot included in Table B-17 and the delivery quantities for each contractor from each reach as indicated in Table B-5A, plus any costs for extra peaking service. Those estimated components, subsequently adjusted for prior overpayments or underpayments, are included in Table F of the respective water supply contracts.

Table B-19 summarizes the annual Transportation Charges for each contractor (the sums of the corresponding amounts included in Tables B-15, B-16A, B-16B, and B-18). Those estimated payments, subsequently adjusted for prior overpayments or underpayments, are set forth in Table G of the respective water supply contracts.

Table 5
Projected Charges for Off-Aqueduct Power Facilities

Year	*Total Annual Cost*	*25% Bond Service*
1997	98,293,545	10,041,638
1998	106,742,112	10,012,376
1999	108,072,028	10,029,897
2000	107,758,647	9,972,380
2001	107,730,798	9,971,540
2002	100,031,806	9,975,836
2003	88,210,415	7,596,414
2004	90,067,941	7,603,520
2005	96,590,742	8,278,577
2006	96,646,003	9,288,274
2007	96,630,241	9,285,477
2008	115,405,491	13,038,777
2009	115,358,654	13,026,251
2010	115,358,037	13,021,781
2011	115,371,622	13,018,066
2012	115,670,123	13,077,318
2013	52,026,885	4,424,157
2014	23,181,490	4,443,298
2015	9,846,490	1,776,298
2016	4,889,115	977,823
2017	2,216,365	443,273
2018	2,215,615	443,123
2019	2,222,865	444,573
2020	2,231,115	446,223
2021	2,227,490	445,498
2022	2,232,896	446,579
2023	2,239,397	447,880
2024	4,629,222	925,845

Both Table B-19 and Table G for the six contractors down-aqueduct from Devil Canyon Powerplant and Castaic Powerplant include amounts of debt service and operating cost payments due according to provisions of the Devil Canyon-Castaic contract.

Table 6
Kilowatt-Hour Per Acre-Foot Factors for Allocating Off-Aqueduct Power Facility Costs

Pumping Plant	kWh per acre-foot (a At Plant	Cumulative from Delta
Barker Slough	223	223
Cordelia-Benicia	434	657
Cordelia-Vallejo	178	401
Cordelia-Napa	563	786
Harvey O. Banks Delta	296	296
South Bay (including Del Valle)	869	1,165
Dos Amigos	138	434
Buena Vista	242	676
Teerink	295	971
Chrisman	639	1,610
A.D. Edmonston	2,236	3,846
Pearblossom	703	4,549
Oso	280	4,126
Las Perillas	77	511
Badger Hill	200	711
Devil's Den	705	1,416
Bluestone	705	2,121
Polonio Pass	705	2,826

a) Includes transmission losses

Delta Water Charges

Table B-20A presents the calculation of the Delta Water Rate for the initial Conservation Facilities applicable in 1998 according to the amended Articles 22(e) and 22(g) of all 29 contracts. The Delta Water Rate was calculated at a Project Interest Rate of 4.620 percent based on Conservation Facility costs shown in Table B-13. That Delta Water Rate is used to compute projected Delta Water Charges under Article 53(i) for the contractors who have executed the Monterey Amendment. Included in Table B-20A is the Delta Water Rate for the four contractors who have not executed the Monterey Amendment (Yuba City, Plumas County, Empire, and Ventura). Delta Water Charges for each contractor are shown in Table B-21.

Table B-20B shows each component of the 1998 Delta Water Rate from Table B-20A.

Table B-21 summarizes the annual Delta Water Charge for each contractor. The projected charges in Table B-21 are developed by multiplying the total rate per acre-foot, as shown in Table B-20A, by the amount of entitlement water for each contractor as shown in Table B-4.

Water System Revenue Bond Surcharge

Table B-22 summarizes the Water System Revenue Bond Surcharge to the Delta Water Charge and the Transportation capital cost component of each contractor. The surcharge shown in Table B-22 includes the financing costs of WSRB Series B through R. This surcharge is levied according to an amendment to the water supply contracts for repaying Water System Revenue Bond financing costs. All long-term water supply contractors signed that amendment.

Total Water Charges

Table B-23 summarizes the total annual charges to each contractor (the sum of the Transportation Charge in Table B-19, the Delta Water Charge in Table B-21, and the Water System Revenue Bond Surcharge in Table B-22). The charges do not reflect past payments by contractors and are unadjusted for prior overpayments or underpayments.

Equivalent Total Water Charges

Table B-24 presents the Transportation Charge and Delta Water Charge in terms of the equivalent unit charge for each acre-foot of entitlement water now projected for delivery to the respective contractors.

These equivalent charges would provide the same principal sum at the end of the Project repayment period as annual payments to be made as part of the Delta Water Charge and Transportation Charge, plus interest at the Project Interest Rate, if applied to each acre-foot of entitlement water delivered to date; all surplus water delivered prior to May 1, 1973; and all entitlement water now projected to be delivered during the remainder of the Project repayment period (Table B-5B).

The equivalent unit Delta Water Charges included in Table B-24 are greater than those in Table B-20A because current projections of entitlement water service are less for most contractors than the amounts shown in Table A.

Equivalent Water Costs by Reach

Table B-25 presents a summary of the equivalent unit Transportation cost of conveying entitlement water

Table 7
Extra Peaking Charges for Additional Power, by Pumping Plant (in Dollars)

Year	Cordelia Napa	Cordelia Solano	Barker Slough	South Bay	Banks	Dos Amigos	Las Perillas and Badger Hill	Buena Vista	Teerink-Wheeler Ridge	Chrisman	Edmonston	Pearblossom	Oso	Total
1972	0	0	0	0	0	10,579	24,700	0	0	0	0	0	0	35,279
1973	0	0	0	0	0	0	6,016	0	0	0	0	0	0	6,016
1974	0	0	0	0	0	0	7,140	0	0	0	0	0	0	7,140
1975	0	0	0	0	0	494	6,397	0	0	0	0	0	0	6,891
1976	0	0	0	0	0	0	1,981	0	0	0	0	0	0	1,981
1977	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	45,145	3,680	0	0	0	0	0	0	48,825
1979	0	0	0	0	0	0	3,306	0	0	0	0	0	0	3,306
1980	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	12,126	0	0	0	0	0	0	0	12,126
1982	0	0	0	0	0	89,339	0	0	0	0	0	0	0	89,339
1983	0	0	0	35	7,535	3,506	144	0	0	0	0	0	0	11,220
1984	0	0	0	2,096	84,396	38,607	7,203	11,173	3,823	3,593	0	0	0	150,891
1985	0	0	0	1,480	19,612	8,841	763	4,488	4,412	8,929	28,353	0	0	76,878
1986	0	0	0	0	1,881	871	0	291	353	767	2,682	0	0	6,845
1987	0	0	0	606	17,475	7,998	1,161	2,295	1,806	3,460	11,058	0	0	45,859
1988	639	65	287	891	43,469	20,079	1,863	5,790	4,362	8,268	25,885	0	0	111,598
1989	2,491	966	1,483	71	40,249	18,641	1,935	3,398	1,530	2,056	3,794	0	0	76,614
1990	46	0	18	325	18,506	8,571	0	143	136	295	610	0	0	28,650
1991	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1992	77	0	23	0	5,568	2,076	1,069	132	140	321	0	0	0	9,406
1993	0	0	0	4,203	86,753	38,412	3,171	5,289	4,518	9,861	33,110	10,566	0	195,883
1994	0	537	644	287	18,655	8,647	2,934	1,760	578	1,251	4,138	679	241	40,351
1995	0	0	0	568	22,452	10,371	2,269	5,338	6,166	13,250	45,663	14,337	0	120,414
1996	5	0	2	731	15,357	6,304	227	2,110	2,572	5,571	19,272	6,050	0	58,201
Total	**3,258**	**1,568**	**2,457**	**11,293**	**381,908**	**330,607**	**75,959**	**42,207**	**30,396**	**57,622**	**174,565**	**31,632**	**241**	**1,143,713**

Table 8
Extra Peaking Charges for Additional Power, by Contractor (in Dollars)

Year	Napa	Solano	Alameda Zone 7	ACWD(a	SCV WD(b	Dudley Ridge	Empire West Side	Kern County	County of Kings	Oak Flat	Tulare	AVEK(c	Castaic Lake	Coachella Valley	Desert Water Agency	LCID(d	Palmdale	SGVM WD(e	Total
1972	0	0	0	0	0	0	0	35,269	0	0	10	0	0	0	0	0	0	0	35,279
1973	0	0	0	0	0	0	0	6,016	0	0	0	0	0	0	0	0	0	0	6,016
1974	0	0	0	0	0	0	0	7,140	0	0	0	0	0	0	0	0	0	0	7,140
1975	0	0	0	0	0	0	0	6,891	0	0	0	0	0	0	0	0	0	0	6,891
1976	0	0	0	0	0	0	0	1,981	0	0	0	0	0	0	0	0	0	0	1,981
1977	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	2,035	0	44,484	42	0	0	2,264	0	0	0	0	0	0	
1979	0	0	0	0	0	0	0	2,821	0	0	0	0	485	0	0	0	0	0	3,306
1980	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	11,951	0	0	0	0	0	0	0	175	0	0	12,126
1982	0	0	0	0	0	2,173	0	80,945	0	0	0	4,671	1,128	0	0	0	0	422	89,339
1983	0	0	0	0	48	9,448	0	0	1,355	0	0	0	369	0	0	0	0	0	11,220
1984	0	0	0	0	2,874	0	0	144,021	281	809	0	0	2,906	0	0	0	0	0	150,891
1985	0	0	0	2,029	0	0	64	25,664	0	98	0	48,767	256	0	0	0	0	0	76,878
1986	0	0	0	0	0	0	0	0	0	13	2,219	4,613	0	0	0	0	0	0	6,845
1987	0	0	230	0	601	313	84	24,134	0	95	0	18,206	1,383	0	0	813	0	0	45,859
1988	891	99	662	561	0	1,853	1,404	58,539	0	72	2,368	44,523	626	0	0	0	0	0	111,598
1989	3,477	1,463	96	0	0	14	403	55,074	0	239	8,280	0	1,043	0	0	1,035	5,490	0	76,614
1990	64	0	445	0	0	0	0	27,092	0	0	0	0	0	0	0	77	972	0	28,650
1991	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1992	100	0	0	0	0	0	32	7,552	653	0	0	0	1,069	0	0	0	0	0	9,406
1993	0	0	5,740	0	0	0	3,621	47,078	3,344	0	66,546	0	2,491	23,675	39,003	0	4,385	0	195,883
1994	0	1,181	394	0	0	0	396	25,071	851	0	0	0	7,977	1,667	2,733	81	0	0	40,351
1995	0	0	779	0	0	11,579	0	10,691	2,351	0	0	0	2,178	0	90,142	2,694	0	0	120,414
1996	7	0	77	2,493	0	113	312	3,550	3,442	0	8,801	0	227	12,618	20,619	0	3,132	2,810	58,201
Total	**4,539**	**2,743**	**8,423**	**5,083**	**3,523**	**27,528**	**6,316**	**625,964**	**12,319**	**1,326**	**88,224**	**123,044**	**22,138**	**37,960**	**152,497**	**4,875**	**13,979**	**3,232**	**1,094,888**

a) Alameda County Water Agency
b) Santa Clara Valley Water District
c) Antelope Valley-East Kern Water Agency
d) Littlerock Creek Irrigation District
e) San Gabriel Valley Municipal Water District

through respective aqueduct reaches of the Project Transportation Facilities.

Those unit costs provide the basis of charges assessed for extra service (such as for delivery of entitlements down-aqueduct from a contractor's turnout) and for wheeling service to entities other than the long-term water supply contractors.

The cumulative unit conveyance costs indicated for reaches in Table B-25 do not necessarily equal the equivalent unit Transportation Charges to contractors served from such reaches. The unit charges in Table B-24 account for the rate of water demand buildup and cost allocation factors of the individual contractors; however, the unit costs included in Table B-25 reflect the effect of melding the respective buildups and allocation criteria of all contractors whose entitlements are conveyed through a given reach. Table B-25 also includes surplus water prior to May 1, 1973.

East Branch Enlargement Facility Charges

Table B-26 reflects the Department's projection of annual capital costs of the East Branch Enlargement Facilities for each aqueduct reach. Those projections will be redetermined in future bulletins to include:

- A reallocation of costs of constructing the present East Branch facilities between Alamo Powerplant and Silverwood Lake;
- A reallocation of costs of Silverwood Lake to reflect additional use as a result of East Branch Enlargement operation;
- Reallocation of costs of San Bernardino Tunnel to reflect redistribution of flow capacities necessary for the East Branch Enlargement Facilities; and
- Actual construction costs of the enlargement.

These costs will be recovered with interest from the seven Southern California water contractors participating in the enlargement, according to their amended water supply contracts (see Table 9).

Table B-27 lists the projected minimum OMP&R costs for each reach of the enlargement to be repaid by the seven contractors participating in the East Branch Enlargement. Currently, this table includes only the amounts of estimated incremental minimum OMP&R costs attributable to the East Branch Enlargement. According to Article 49 (e)(1), the contractors participating in the East Branch Enlargement will also share in the remaining minimum OMP&R costs of the affected reaches according to a formula to be developed by the Department in consultation with the affected contractors. Once the formula is developed, subsequent versions of this table will reflect the transfer of a share of the minimum OMP&R costs now included in Table B-11.

Table B-28 shows each participating contractor's share of the estimated capital costs of the East Branch Enlargement shown in Table B-26.

Table B-29 shows the amounts of the annual capital cost components of the East Branch Enlargement Transportation Charge for each participating contractor. This component consists of each contractor's allocated share of debt service on bonds sold to finance the enlargement.

Table B-30 shows the minimum OMP&R components of the East Branch Enlargement Transportation Charge for each participating contractor for each year of the Project repayment period. The amounts shown in Table B-30 will recover the minimum OMP&R costs shown in Table B-27.

Table B-31 shows the annual East Branch Enlargement Transportation charges for each participating contractor (the sums of the corresponding amounts included in Table B-29 and B-30).

Short-Term Agreements

The long-term water supply contractors and the Department have executed a short-term agreement that affects the contractors' charges. A 5-year variable OMP&R agreement provides that for the period from 1994 through 1998 the Department will revise the assumptions used in determining the projected variable OMP&R unit rates to reflect reduced water deliveries.

Table 9
Determination of Factors for Distributing Capital and Minimum OMP&R Costs of East Branch Enlargement Facilities Among Participating Contractors

Reach Number	Description
18A	Junction, West Branch, California Aqueduct, through Alamo Powerplant
19	Alamo Powerplant to Fairmont
20A	Fairmont through 70th Street West
20B	70th Street West to Palmdale
21	Palmdale to Littlerock Creek
22A	Littlerock Creek to Pearblossom Pumping Plant
22B	Pearblossom Pumping Plant to West Fork Mojave River
23B	West Fork Mojave River to Silverwood Lake (excluding Mojave Siphon Powerplant facilities)
23C	Mojave Siphon Powerplant facilities
24	Cedar Springs Dam and Silverwood Lake
25	Silverwood Lake to South Portal, San Bernardino Tunnel
26A	South Portal, San Bernardino Tunnel through Devil Canyon Powerplant
26B	Devil Canyon Powerplant Bypass

Share of Englargement Capacity (cfs)

Reach Number	Antelope Valley-East Kern Water Agency	Coachella Valley Water District	Desert Water Agency	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	Metropolitan Water District of Southern California	Total
18A		151	13	136	6		1200	1506
19		151	13	136	6		1200	1506
20A	35	151	13	136	6		1200	1541
20B	35	151	13	136	6		1200	1541
21	35	151	13	136			1200	1535
22A	35	151	13	136			1200	1535
22B		151	13	136			1200	1500
23B		184	67	212			1200	1663
23C		184	67				1200	1451
24		190	78				1200	1468
25		193	83			63	1200	1539
26A		193	83			63	1200	1539
26B							300	300

Factors for Distributing Capital and Minimum OMP&R Costs of East Branch Enlargement Facilities (flow ratios)

Reach Number	Antelope Valley-East Kern Water Agency	Coachella Valley Water District	Desert Water Agency	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	Metropolitan Water District of Southern California	Total
18A	0.00000000	0.10026560	0.00863214	0.09030544	0.00398406	0.00000000	0.79681276	1.00000000
19	0.00000000	0.10026560	0.00863214	0.09030544	0.00398406	0.00000000	0.79681276	1.00000000
20A	0.02271252	0.09798832	0.00843608	0.08825438	0.00389358	0.00000000	0.77871512	1.00000000
20B	0.02271252	0.09798832	0.00843608	0.08825438	0.00389358	0.00000000	0.77871512	1.00000000
21	0.02280130	0.09837134	0.00846906	0.08859935	0.00000000	0.00000000	0.78175895	1.00000000
22A	0.02280130	0.09837134	0.00846906	0.08859935	0.00000000	0.00000000	0.78175895	1.00000000
22B	0.00000000	0.10066667	0.00866667	0.09066667	0.00000000	0.00000000	0.79999999	1.00000000
23B	0.00000000	0.11064342	0.04028863	0.12748046	0.00000000	0.00000000	0.72158749	1.00000000
23C	0.00000000	0.12680910	0.04617505	0.00000000	0.00000000	0.00000000	0.82701585	1.00000000
24	0.00000000	0.12942779	0.05313351	0.00000000	0.00000000	0.00000000	0.81743870	1.00000000
25	0.00000000	0.12540611	0.05393112	0.00000000	0.00000000	0.04093567	0.77972710	1.00000000
26A	0.00000000	0.12540611	0.05393112	0.00000000	0.00000000	0.04093567	0.77972710	1.00000000
26B	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	1.00000000	1.00000000

Tables B-1 through B-31

TABLE B-1

Factors for Distributing Reach Capital Costs Among Contractors

Reach No.	Reach Description	North Bay Area		South Bay Area				Total
		Napa County FC&WCD	Solano County Water Agency	Alameda County FC&WCD, Zone 7	Alameda County Water District	Santa Clara Valley Water District	Future Contractor	
	North Bay Aqueduct							
1	Barker Slough thru Fairfield/Vacaville Turnout	0.29667896	0.70332104					1.00000000
2	Fairfield/Vacaville Turnout to Cordelia Forebay	0.38414552	0.61585448					1.00000000
3A	Cordelia Forebay thru Benicia and Vallejo Turnouts		1.00000000					1.00000000
3B	Cordelia Forebay thru Napa Turnout Reservoir	1.00000000						1.00000000
	South Bay Aqueduct							
1	Bethany Reservoir thru Altamont Turnout			0.22599612	0.20663021	0.49237700	0.07499667	1.00000000
2	Altamont Turnout thru Patterson Reservoir			0.22599658	0.20663059	0.49237783	0.07499500	1.00000000
4	Patterson Reservoir to Del Valle Junction			0.19504795	0.21450017	0.51113249	0.07931939	1.00000000
5	Del Valle Junction thru Lake Del Valle			0.14436367	0.12972254	0.33715573	0.38875806	1.00000000
6	Del Valle Junction thru South Livermore Turnout			0.14599918	0.21144710	0.50574745	0.13680627	1.00000000
7	South Livermore Turnout thru Vallecitos Turnout				0.25176680	0.60218448	0.14604872	1.00000000
8	Vallecitos Turnout thru Alameda-Bayside Turnout				0.27934645	0.72065355		1.00000000
9	Alameda-Bayside Turnout thru Santa Clara Terminal Facilities					1.00000000		1.00000000
	California Aqueduct							
1	Delta thru Bethany Reservoir			0.00954762	0.00872940	0.02080173	0.00342512	N/A

Reach No.	Reach Description	Central Coastal Area		Southern California Area				
		San Luis Obispo County FC&WCD	Santa Barbara County FC&WCD	Antelope Valley-East Kern Water Agency	Castaic Lake Water Agency	Coachella Valley Water District	Crestline-Lake Arrowhead Water Agency	Desert Water Agency
	California Aqueduct							
1	Delta thru Bethany Reservoir	0.00533025	0.00983363	0.02938207	0.01285705	0.00527887	0.00133499	0.00870591
2A	Bethany Reservoir to Orestimba Creek	0.00557228	0.01028016	0.03071619	0.01343075	0.00551621	0.00139502	0.00909734
2B	Orestimba Creek to O'Neill Forebay	0.00557840	0.01029147	0.03075002	0.01345224	0.00552384	0.00139695	0.00910992
3	O'Neill Forebay to Dos Amigos Pumping Plant	0.00557734	0.01028951	0.03074419	0.01345166	0.00552326	0.00139679	0.00910895
4	Dos Amigos Pumping Plant to Panoche Creek	0.00557622	0.01028745	0.03073807	0.01345106	0.00552264	0.00139664	0.00910793
5	Panoche Creek to Five Points	0.00557482	0.01028490	0.03073043	0.01345032	0.00552186	0.00139646	0.00910664
6	Five Points to Arroyo Pasajero	0.00557272	0.01028102	0.03071887	0.01344919	0.00552069	0.00139617	0.00910472
7	Arroyo Pasajero to Kettleman City	0.00557204	0.01027978	0.03071517	0.01344883	0.00552031	0.00139607	0.00910409
8C	Kettleman City thru Milham Avenue	0.00557118	0.01027820	0.03071049	0.01344837	0.00551985	0.00139596	0.00910330
8D	Milham Avenue thru Avenal Gap	0.00568627	0.01049050	0.03134490	0.01373228	0.00563530	0.00142517	0.00929369
9	Avenal Gap thru Twisselman Road			0.03414472	0.01351541	0.00614439	0.00155392	0.01013327
10A	Twisselman Road thru Lost Hills			0.03468912	0.01373087	0.00624436	0.00157919	0.01029813
11B	Lost Hills to 7th Standard Road			0.03808541	0.01507512	0.00686598	0.00173639	0.01132329
12D	7th Standard Road thru Elk Hills Road			0.04002533	0.01584295	0.00722191	0.00182641	0.01191027
12E	Elk Hills Road thru Tupman Road			0.04007875	0.01586409	0.00723264	0.00182914	0.01192797
13B	Tupman Road to Buena Vista Pumping Plant			0.04345750	0.01720142	0.00785053	0.00198539	0.01294697
14A	Buena Vista Pumping Plant thru Santiago Creek			0.04561791	0.01805651	0.00824777	0.00208584	0.01360211
14B	Santiago Creek thru Old River Road			0.04643753	0.01838089	0.00839964	0.00212425	0.01385258
14C	Old River Road to Wheeler Ridge Pumping Plant			0.04784143	0.01893656	0.00865908	0.00218985	0.01428048
15A	Wheeler Ridge Pumping Plant to Chrisman Pumping Plant			0.04863212	0.01924948	0.00880567	0.00222693	0.01452219
16A	Chrisman Pumping Plant to Edmonston Pumping Plant			0.05044278	0.01996611	0.00914016	0.00231154	0.01507385
17E	Edmonston Pumping Plant to Porter Tunnel			0.05279632	0.02089760	0.00957592	0.00242174	0.01579248
17F	Porter Tunnel to Junction, West Branch, Calif. Aqueduct			0.05290761	0.02094165	0.00959622	0.00242687	0.01582596
18A	Junction, West Branch, Calif. Aqueduct thru Alamo Pwp.			0.13072175		0.02369848	0.00599335	0.03908323
19	Alamo Powerplant to Fairmont			0.13071959		0.02369936	0.00599355	0.03908462
19C	Buttes Junction thru Buttes Reservoir			1.00000000				
20A	Fairmont thru 70th Street West			0.06752671		0.02542708	0.00643049	0.04193391
20B	70th Street West to Palmdale			0.02242496		0.02665832	0.00674179	0.04396435
21	Palmdale to Littlerock Creek			0.02284232		0.02716328	0.00686948	0.04479713
22A	Littlerock Creek to Pearblossom Pumping Plant			0.01163919		0.02754684	0.00696644	0.04542974
22B	Pearblossom Pumping Plant to West Fork Mojave River					0.02787140	0.00704849	0.04596502
23	West Fork Mojave River to Silverwood Lake					0.00324449	0.00818122	0.00535117
24	Cedar Springs Dam and Silverwood Lake					0.01024605	0.01251569	0.01690478
25	Silverwood Lake to South Portal San Bernardino Tunnel							
26A	South Portal, San Bernardino Tunnel thru Devil Canyon Pwp.							
28G	Devil Canyon Powerplant to Barton Road							
28H	Barton Road to Lake Perris							
28J	Perris Dam and Lake Perris							
29A	Junction, West Branch, Calif. Aqueduct thru Oso P. P.				0.03544337			
29F	Oso Pumping Plant thru Quail Embankment				0.03544339			
29G	Quail Embankment thru Warne Powerplant				0.03544339			
29H	Pyramid Dam and Lake				0.02817144			
29J	Pyramid Lake thru Castaic Powerplant				0.03544338			
30	Castaic Dam and Lake				0.02927284			
31A	Avenal Gap to Devil's Den Pumping Plant	0.10560301	0.19482503		0.07364766			
33A	Devil's Den Pumping Plant thru San Luis Obispo Powerplant	0.35150791	0.64849209					
34	San Luis Obispo Powerplant to Arroyo Grande	0.24688802	0.75311198					
35	Arroyo Grande thru Santa Maria Terminus	0.18022521	0.81977479					

TABLE B-1

Factors for Distributing Reach Capital Costs Among Contractors

Reach No.	San Joaquin Valley Area							
				Kern County Water Agency				
	Dudley Ridge Water District	Empire West Side Irrigation District	Future Contractor San Joaquin Valley	Municipal and Industrial	Agricultural	County of Kings	Oak Flat Water District	Tulare Lake Basin Water Storage District
	California Aqueduct							
1	0.01707833	0.00088681	0.00254702	0.02741672	0.29913759	0.00090698	0.00167129	0.03505104
2A	0.01781099	0.00092486	0.00266267	0.02864165	0.31198180	0.00094750	0.00174295	0.03655469
2B	0.01785906	0.00092735	0.00266560	0.02868647	0.31281652	0.00094899		0.03665341
3	0.01786406	0.00092760	0.00266508	0.02868495	0.31290175	0.00094895		0.03666366
4	0.01786931	0.00092788	0.00266454	0.02868334	0.31299134	0.00094889		0.03667444
5	0.01787586	0.00092822	0.00266387	0.02868133	0.31310323	0.00094882		0.03668790
6	0.01788577	0.00092874	0.00266287	0.02867830	0.31327253	0.00094871		0.03670826
7	0.01788895	0.00092891	0.00266253	0.02867733	0.31332681	0.00094867		0.03671479
8C	0.01789297	0.00092913	0.00266212	0.02867609	0.31339533	0.00094862		0.03672304
8D	0.01828852		0.00271710	0.02928055	0.32031663			0.01820929
9				0.03194488	0.32369508			
10A				0.03247122	0.31285407			
11B				0.03573781	0.24527887			
12D				0.03761099	0.20665553			
12E				0.03767051	0.20556447			
13B				0.01447877	0.16479038			
14A				0.00615445	0.13216944			
14B				0.00626952	0.11649662			
14C				0.00646578	0.08966572			
15A				0.00657685	0.07454474			
16A				0.00682980	0.03994337			
17E				0.00210582				
31A			0.05046240		0.48227699			

Reach No.	Southern California Area (continued)								Total
	Littlerock Creek Irrigation District	Mojave Water Agency	Palmdale Water District	San Bernardino Municipal Water District	San Gabriel Valley Municipal Water District	San Gorgonio Pass Water Agency	Metropolitan Water District of Southern California	Ventura County Flood Control District	
1	0.00049153	0.01836512	0.00368971	0.02360899	0.00649809	0.00398058	0.43915188	0.00429168	1.00000000
2A	0.00051386	0.01918279	0.00385724	0.02467056	0.00679129	0.00415957	0.45906308	0.00448655	1.00000000
2B	0.00051442	0.01921470	0.00386150	0.02470464	0.00679999	0.00416532	0.45958771	0.00449148	1.00000000
3	0.00051433	0.01921422	0.00386078	0.02470201	0.00679906	0.00416487	0.45950634	0.00449062	1.00000000
4	0.00051423	0.01921374	0.00386000	0.02469924	0.00679810	0.00416441	0.45942080	0.00448973	1.00000000
5	0.00051412	0.01921312	0.00385905	0.02469577	0.00679687	0.00416382	0.45931398	0.00448861	1.00000000
6	0.00051391	0.01921219	0.00385760	0.02469052	0.00679502	0.00416294	0.45915234	0.00448692	1.00000000
7	0.00051385	0.01921190	0.00385714	0.02468884	0.00679444	0.00416265	0.45910051	0.00448639	1.00000000
8C	0.00051377	0.01921153	0.00385656	0.02468673	0.00679369	0.00416228	0.45903510	0.00448569	1.00000000
8D	0.00052438	0.01961820	0.00393624	0.02520299	0.00693516	0.00424934	0.46853513	0.00457836	1.00000000
9	0.00057121	0.01889351	0.00428784	0.02747971	0.00755914	0.00463319	0.51045644	0.00498729	1.00000000
10A	0.00058033	0.01919374	0.00435622	0.02792671	0.00768123	0.00470856	0.51861945	0.00506680	1.00000000
11B	0.00063716	0.02106780	0.00478274	0.03070653	0.00844135	0.00517725	0.56952146	0.00556284	1.00000000
12D	0.00066963	0.02213780	0.00502638	0.03229817	0.00887619	0.00544560	0.59860668	0.00584616	1.00000000
12E	0.00067054	0.02216683	0.00503311	0.03234616	0.00888890	0.00545369	0.59941925	0.00585395	1.00000000
13B	0.00072707	0.02403148	0.00545744	0.03510928	0.00964467	0.00591955	0.65005211	0.00634744	1.00000000
14A	0.00076323	0.02522268	0.00572877	0.03688570	0.01012962	0.00621906	0.68245395	0.00666296	1.00000000
14B	0.00077696	0.02567401	0.00583170	0.03756483	0.01031452	0.00633356	0.69476073	0.00678266	1.00000000
14C	0.00080045	0.02644746	0.00600801	0.03872500	0.01063070	0.00652916	0.71583262	0.00698770	1.00000000
15A	0.00081368	0.02688283	0.00610733	0.03938043	0.01080910	0.00663965	0.72770582	0.00710318	1.00000000
16A	0.00084397	0.02788041	0.00633472	0.04087618	0.01121678	0.00689182	0.75488089	0.00736762	1.00000000
17E	0.00088335	0.02917660	0.00663032	0.04282474	0.01174746	0.00722034	0.79021597	0.00771134	1.00000000
17F	0.00088521	0.02923805	0.00664430	0.04291551	0.01177231	0.00723565	0.79188307	0.00772759	1.00000000
18A	0.00218712	0.06156972	0.01641638	0.10598288	0.02907755	0.01786894	0.56740060		1.00000000
19	0.00218707	0.06155918	0.01641611	0.10598653	0.02907802	0.01786955	0.56740642		1.00000000
19C									1.00000000
20A	0.00234578	0.06596653	0.01760756	0.11371285	0.03119440	0.01917225	0.60868244		1.00000000
20B	0.00245917	0.06913837	0.01845865	0.11921890	0.03270395	0.02010062	0.63813092		1.00000000
21	0.00250528	0.07038911		0.12147708	0.03332098	0.02048134	0.65015400		1.00000000
22A		0.07135772		0.12319236	0.03379041	0.02077051	0.65930679		1.00000000
22B		0.07219586		0.12464379	0.03418846	0.02101518	0.66707180		1.00000000
23				0.14467451	0.03969010	0.02439237	0.77446614		1.00000000
24				0.22243002	0.04339444	0.02843498	0.66607404		1.00000000
25				0.14947726	0.03997502	0.02520426	0.78534346		1.00000000
26A				0.14947726	0.03997502	0.02520426	0.78534346		1.00000000
28G				0.05126137			0.94873863		1.00000000
28H							1.00000000		1.00000000
28J							1.00000000		1.00000000
29A							0.95147783	0.01307880	1.00000000
29F							0.95147785	0.01307876	1.00000000
29G							0.95147785	0.01307876	1.00000000
29H							0.96278381	0.00904475	1.00000000
29J							0.95147787	0.01307875	1.00000000
30							0.96212388	0.00860328	1.00000000
31A		0.09318491							1.00000000
33A									1.00000000
34									1.00000000
35									1.00000000

TABLE B-2

Factors for Distributing Reach Minimum OMP&R Costs Among Contractors

Reach No.	Reach Description	North Bay Area		South Bay Area				Total
		Napa County FC&WCD	Solano County Water Agency	Alameda County FC&WCD, Zone 7	Alameda County Water District	Santa Clara Valley Water District	Future Contractor	
	North Bay Aqueduct							
1	Barker Slough thru Fairfield/Vacaville Turnout	0.27960541	0.72039459					1.00000000
2	Fairfield/Vacaville Turnout to Cordelia Forebay	0.38414552	0.61585448					1.00000000
3A	Cordelia Forebay thru Benicia and Vallejo Turnouts		1.00000000					1.00000000
3B	Cordelia Forebay thru Napa Turnout Reservoir	1.00000000						1.00000000
	South Bay Aqueduct							
1	Bethany Reservoir thru Altamont Turnout			0.22599612	0.20663021	0.49237700	0.07499667	1.00000000
2	Altamont Turnout thru Patterson Reservoir			0.22599658	0.20663059	0.49237783	0.07499500	1.00000000
4	Patterson Reservoir to Del Valle Junction			0.19504795	0.21450017	0.51113249	0.07931939	1.00000000
5	Del Valle Junction thru Lake Del Valle			0.14436367	0.12972254	0.33715573	0.38875806	1.00000000
6	Del Valle Junction thru South Livermore Turnout			0.14599918	0.21144710	0.50574745	0.13680627	1.00000000
7	South Livermore Turnout thru Vallecitos Turnout				0.25176680	0.60218448	0.14604872	1.00000000
8	Vallecitos Turnout thru Alameda-Bayside Turnout				0.27934645	0.72065355		1.00000000
9	Alameda-Bayside Turnout thru Santa Clara Terminal Facilities					1.00000000		1.00000000
	California Aqueduct							
1	Delta thru Bethany Reservoir			0.00954762	0.00872940	0.02080173	0.00342512	N/A

Reach No.	Reach Description	Central Coastal Area		Southern California Area				
		San Luis Obispo County FC&WCD	Santa Barbara County FC&WCD	Antelope Valley-East Kern Water Agency	Castaic Lake Water Agency	Coachella Valley Water District	Crestline-Lake Arrowhead Water Agency	Desert Water Agency
	California Aqueduct							
1	Delta thru Bethany Reservoir	0.00533025	0.00983363	0.02938207	0.01285705	0.00527887	0.00133499	0.00870591
2A	Bethany Reservoir to Orestimba Creek	0.00557228	0.01028016	0.03071619	0.01343075	0.00551621	0.00139502	0.00909734
2B	Orestimba Creek to O'Neill Forebay	0.00557840	0.01029147	0.03075002	0.01345224	0.00552384	0.00139695	0.00910992
3	O'Neill Forebay to Dos Amigos Pumping Plant	0.00557734	0.01028951	0.03074419	0.01345168	0.00552326	0.00139679	0.00910895
4	Dos Amigos Pumping Plant to Panoche Creek	0.00557622	0.01028745	0.03073807	0.01345106	0.00552264	0.00139664	0.00910793
5	Panoche Creek to Five Points	0.00557482	0.01028490	0.03073043	0.01345032	0.00552186	0.00139646	0.00910664
6	Five Points to Arroyo Pasajero	0.00557272	0.01028102	0.03071887	0.01344919	0.00552069	0.00139617	0.00910472
7	Arroyo Pasajero to Kettleman City	0.00557204	0.01027978	0.03071517	0.01344883	0.00552031	0.00139607	0.00910409
8C	Kettleman City thru Milham Avenue	0.00551611	0.01017659	0.03040675	0.01329874	0.00546140	0.00138118	0.00900691
8D	Milham Avenue thru Avenal Gap	0.00562839	0.01038372	0.03102570	0.01357503	0.00557386	0.00140963	0.00919238
9	Avenal Gap thru Twisselman Road			0.03375440	0.01336095	0.00606925	0.00153492	0.01000937
10A	Twisselman Road thru Lost Hills			0.03428254	0.01356998	0.00616607	0.00155940	0.01016904
11B	Lost Hills to 7th Standard Road			0.03757107	0.01487158	0.00676693	0.00171135	0.01115995
12D	7th Standard Road thru Elk Hills Road			0.03944168	0.01561199	0.00710950	0.00179798	0.01172489
12E	Elk Hills Road thru Tupman Road			0.03949193	0.01563187	0.00711958	0.00180055	0.01174153
13B	Tupman Road to Buena Vista Pumping Plant			0.04274545	0.01691964	0.00771332	0.00195069	0.01272071
14A	Buena Vista Pumping Plant thru Santiago Creek			0.04481395	0.01773837	0.00809281	0.00204666	0.01334657
14B	Santiago Creek thru Old River Road			0.04559449	0.01804729	0.00823710	0.00208315	0.01358456
14C	Old River Road to Wheeler Ridge Pumping Plant			0.04693014	0.01857594	0.00848336	0.00214542	0.01399071
15A	Wheeler Ridge Pumping Plant to Chrisman Pumping Plant			0.04768029	0.01887282	0.00862210	0.00218051	0.01421948
16A	Chrisman Pumping Plant to Edmonston Pumping Plant			0.04939637	0.01955202	0.00893834	0.00226050	0.01474104
17E	Edmonston Pumping Plant to Porter Tunnel			0.05161891	0.02043167	0.00934878	0.00236430	0.01541792
17F	Porter Tunnel to Junction, West Branch, Calif. Aqueduct			0.05172490	0.02047362	0.00936806	0.00236918	0.01544971
18A	Junction, West Branch, Calif. Aqueduct thru Alamo Pwp.			0.13072175		0.02369848	0.00599335	0.03908323
19	Alamo Powerplant to Fairmont			0.13071959		0.02369936	0.00599355	0.03908462
19C	Buttes Junction thru Buttes Reservoir			1.00000000				
20A	Fairmont thru 70th Street West			0.06752671		0.02542708	0.00643049	0.04193391
20B	70th Street West to Palmdale			0.02242496		0.02665832	0.00674179	0.04396435
21	Palmdale to Littlerock Creek			0.02284232		0.02716328	0.00686948	0.04479713
22A	Littlerock Creek to Pearblossom Pumping Plant			0.01163919		0.02754684	0.00696644	0.04542974
22B	Pearblossom Pumping Plant to West Fork Mojave River					0.02787140	0.00704849	0.04596502
23	West Fork Mojave River to Silverwood Lake					0.00324449	0.00818122	0.00535117
24	Cedar Springs Dam and Silverwood Lake					0.01024605	0.01251569	0.01690478
25	Silverwood Lake to South Portal San Bernardino Tunnel							
26A	South Portal, San Bernardino Tunnel thru Devil Canyon Pwp.							
28G	Devil Canyon Powerplant to Barton Road							
28H	Barton Road to Lake Perris							
28J	Perris Dam and Lake Perris							
29A	Junction, West Branch, Calif. Aqueduct thru Oso P. P.			0.00302472	0.03533617			
29F	Oso Pumping Plant thru Quail Embankment			0.00302551	0.03533615			
29G	Quail Embankment thru Warne Powerplant				0.03544339			
29H	Pyramid Dam and Lake				0.02817144			
29J	Pyramid Lake thru Castaic Powerplant				0.03544338			
30	Castaic Dam and Lake				0.02927284			
31A	Avenal Gap to Devil's Den Pumping Plant	0.10560301	0.19482503		0.07364766			
33A	Devil's Den Pumping Plant thru San Luis Obispo Powerplant	0.35150791	0.64849209					
34	San Luis Obispo Powerplant to Arroyo Grande	0.24688802	0.75311198					
35	Arroyo Grande thru Santa Maria Terminus	0.18022521	0.81977479					

TABLE B-2

Factors for Distributing Reach Minimum OMP&R Costs Among Contractors

Reach No.	San Joaquin Valley Area							
	Dudley Ridge Water District	Empire West Side Irrigation District	Future Contractor San Joaquin Valley	Kern County Water Agency		County of Kings	Oak Flat Water District	Tulare Lake Basin Water Storage District
				Municipal and Industrial	Agricultural			
	California Aqueduct							
1	0.01707833	0.00088681	0.00254702	0.02741672	0.29913759	0.00090698	0.00167129	0.03505104
2A	0.01781099	0.00092486	0.00266267	0.02864165	0.31198180	0.00094750	0.00174295	0.03655469
2B	0.01785906	0.00092735	0.00266560	0.02868647	0.31281652	0.00094899		0.03665341
3	0.01786406	0.00092760	0.00266508	0.02868495	0.31290175	0.00094895		0.03666366
4	0.01786931	0.00092788	0.00266454	0.02868334	0.31299134	0.00094889		0.03667444
5	0.01787586	0.00092822	0.00266387	0.02868133	0.31310323	0.00094882		0.03668790
6	0.01788577	0.00092874	0.00266287	0.02867830	0.31327253	0.00094871		0.03670826
7	0.01788895	0.00092891	0.00266253	0.02867733	0.31332681	0.00094867		0.03671479
8C	0.01764545	0.00091627	0.00263582	0.02835960	0.30907838	0.00093815		0.03621497
8D	0.01802840		0.00268946	0.02894794	0.31577976			0.01795029
9				0.03153801	0.31855629			
10A				0.03204726	0.30776618			
11B				0.03520126	0.24071732			
12D				0.03700201	0.20252379			
12E				0.03705795	0.20143621			
13B				0.01421572	0.16110676			
14A				0.00603433	0.12900326			
14B				0.00614351	0.11362601			
14C				0.00632952	0.08735395			
15A				0.00643449	0.07257285			
16A				0.00667329	0.03882784			
17E				0.00205401				
31A			0.05046240		0.48227699			

Reach No	Southern California Area (continued)								Total
	Littlerock Creek Irrigation District	Mojave Water Agency	Palmdale Water District	San Bernardino Municipal Water District	San Gabriel Valley Municipal Water Distraict	San Gorgonio Pass Water Agency	Metropolitan Water District of Southern California	Ventura County Flood Control District	
1	0.00049153	0.01836512	0.00368971	0.02360899	0.00649809	0.00398058	0.43915188	0.00429168	1.00000000
2A	0.00051386	0.01918279	0.00385724	0.02467056	0.00679129	0.00415957	0.45906308	0.00448655	1.00000000
2B	0.00051442	0.01921470	0.00386150	0.02470464	0.00679999	0.00416532	0.45958771	0.00449148	1.00000000
3	0.00051433	0.01921422	0.00386078	0.02470201	0.00679906	0.00416487	0.45950634	0.00449062	1.00000000
4	0.00051423	0.01921374	0.00386000	0.02469924	0.00679810	0.00416441	0.45942080	0.00448973	1.00000000
5	0.00051412	0.01921312	0.00385905	0.02469577	0.00679687	0.00416382	0.45931398	0.00448861	1.00000000
6	0.00051391	0.01921219	0.00385760	0.02469052	0.00679502	0.00416294	0.45915234	0.00448692	1.00000000
7	0.00051385	0.01921190	0.00385714	0.02468884	0.00679444	0.00416265	0.45910051	0.00448639	1.00000000
8C	0.00050869	0.01899480	0.00381840	0.02442542	0.00672346	0.00411823	0.46593334	0.00444134	1.00000000
8D	0.00051904	0.01939044	0.00389614	0.02492838	0.00686135	0.00420304	0.47548530	0.00453175	1.00000000
9	0.00056468	0.01867997	0.00423881	0.02714383	0.00746888	0.00457656	0.51757379	0.00493029	1.00000000
10A	0.00057352	0.01897132	0.00430515	0.02757677	0.00758720	0.00464957	0.52576857	0.00500743	1.00000000
11B	0.00062855	0.02078643	0.00471813	0.03026373	0.00832237	0.00510260	0.57669100	0.00548773	1.00000000
12D	0.00065986	0.02181854	0.00495307	0.03179562	0.00874117	0.00536088	0.60569809	0.00576093	1.00000000
12E	0.00066071	0.02184585	0.00495940	0.03184074	0.00875312	0.00536849	0.60652380	0.00576827	1.00000000
13B	0.00071515	0.02364201	0.00536799	0.03449593	0.00947990	0.00581615	0.65686711	0.00624347	1.00000000
14A	0.00074977	0.02478295	0.00562778	0.03619298	0.00994355	0.00610228	0.68897918	0.00654556	1.00000000
14B	0.00076285	0.02521293	0.00572580	0.03683828	0.01011937	0.00621107	0.70115403	0.00665956	1.00000000
14C	0.00078520	0.02594906	0.00589354	0.03793948	0.01041973	0.00639673	0.72195260	0.00685462	1.00000000
15A	0.00079775	0.02636228	0.00598777	0.03855984	0.01058872	0.00650130	0.73365561	0.00696419	1.00000000
16A	0.00082646	0.02730813	0.00620328	0.03997401	0.01097450	0.00673972	0.76036968	0.00721482	1.00000000
17E	0.00086364	0.02853271	0.00648242	0.04180936	0.01147480	0.00704916	0.79501291	0.00753941	1.00000000
17F	0.00086541	0.02859126	0.00649573	0.04189557	0.01149842	0.00706370	0.79664955	0.00755489	1.00000000
18A	0.00218712	0.06156972	0.01641638	0.10598288	0.02907755	0.01786894	0.56740060		1.00000000
19	0.00218707	0.06155918	0.01641611	0.10598653	0.02907802	0.01786955	0.56740642		1.00000000
19C									1.00000000
20A	0.00234578	0.06596653	0.01760756	0.11371285	0.03119440	0.01917225	0.60868244		1.00000000
20B	0.00245917	0.06913837	0.01845865	0.11921890	0.03270395	0.02010062	0.63813092		1.00000000
21	0.00250528	0.07038911		0.12147708	0.03332098	0.02048134	0.65015400		1.00000000
22A		0.07135772		0.12319236	0.03379041	0.02077051	0.65930679		1.00000000
22B		0.07219586		0.12464379	0.03418846	0.02101518	0.66707180		1.00000000
23				0.14467451	0.03969010	0.02439237	0.77446614		1.00000000
24				0.22243002	0.04339444	0.02843498	0.66607404		1.00000000
25				0.11825184	0.03722720	0.01993915	0.82458181		1.00000000
26A				0.14947726	0.03997502	0.02520426	0.78534346		1.00000000
28G				0.05126137			0.94873863		1.00000000
28H							1.00000000		1.00000000
28J							1.00000000		1.00000000
29A							0.94859988	0.01303923	1.00000000
29F							0.94859915	0.01303919	1.00000000
29G							0.95147785	0.01307876	1.00000000
29H							0.96278381	0.00904475	1.00000000
29J							0.95147787	0.01307875	1.00000000
30							0.96212388	0.00860328	1.00000000
31A		0.09318491							1.00000000
33A									1.00000000
34									1.00000000
35									1.00000000

TABLE B-3

Power Costs and Credits and Annual Replacement Deposits for Each Aqueduct Pumping and Power Recovery Plant

(Dollars)

Calendar Year	North Bay Aqueduct			South Bay Aqueduct	California Aqueduct					
	Reach 1	Reach 3A	Reach 3B	Reach 1 (b	Reach 1	Reach 4	Reach 14A	Reach 15A	Reach 16A	Reach 17E
	Barker Slough Pumping Plant (1)	Cordelia Pumping Plant Solano (2)	Cordelia Pumping Plant Napa (a (3)	South Bay & Del Valle Pumping Plants (4)	Banks Pumping Plant (5)	Dos Amigos Pumping Plant (6)	Buena Vista Pumping Plant (7)	Teerink Pumping Plant (8)	Chrisman Pumping Plant (9)	Edmonston Pumping Plant (10)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	38,130	0	0	0	0	0	0
1963	0	0	0	58,871	0	0	0	0	0	0
1964	0	0	0	75,239	0	0	0	0	0	0
1965	0	0	0	146,297	0	0	0	0	0	0
1966	0	0	0	198,643	0	0	0	0	0	0
1967	0	0	0	229,629	26,982	0	0	0	0	0
1968	0	0	7,128	342,761	1,324,777	239,505	0	0	0	0
1969	0	0	8,557	279,751	855,304	143,403	0	0	0	0
1970	0	0	13,666	448,383	368,508	217,820	2,940	0	0	0
1971	0	0	10,626	422,057	597,946	229,306	156,540	23,021	18,577	29,067
1972	0	0	14,430	623,564	1,110,833	575,291	348,668	187,825	385,935	1,263,087
1973	0	0	14,453	485,534	918,234	493,776	511,904	514,487	883,725	3,139,297
1974	0	0	17,506	510,873	997,269	560,461	556,968	595,585	1,048,196	3,700,573
1975	0	0	14,801	382,106	1,353,916	561,089	650,781	707,038	1,394,918	4,853,538
1976	0	0	20,867	589,007	916,728	596,426	701,061	687,677	1,414,902	4,917,776
1977	0	0	22,640	541,803	653,304	191,906	170,689	173,496	337,890	1,130,422
1978	0	0	21,670	568,381	3,871,011	723,989	1,009,556	968,744	1,782,668	6,281,786
1979	0	0	16,240	622,517	3,431,278	1,019,021	848,639	830,839	1,666,505	5,741,609
1980	0	0	19,936	523,445	2,267,876	1,097,085	1,007,198	997,877	2,018,282	6,671,880
1981	0	0	23,859	630,690	2,565,618	1,987,540	1,395,708	1,393,914	3,010,466	9,893,978
1982	0	0	12,080	485,211	3,730,736	1,472,536	1,348,397	1,400,673	2,816,714	9,849,410
1983	0	0	2,333	118,004	1,370,883	412,326	431,761	421,646	764,617	2,309,606
1984	0	0	4,855	282,391	1,837,298	950,410	802,982	748,522	1,415,575	4,389,477
1985	0	0	10,211	454,902	3,270,250	1,701,149	1,563,085	1,597,217	3,242,424	10,831,045
1986	0	0	15,455	845,695	7,536,972	2,718,092	2,572,453	2,630,650	5,461,033	18,512,562
1987	0	0	27,222	912,825	5,038,287	2,599,171	2,301,538	2,334,814	4,617,704	15,159,364
1988	18,182	37,933	23,971	933,930	5,953,824	2,693,239	2,652,420	2,686,625	5,345,908	17,592,345
1989	25,914	94,281	6,842	1,113,019	11,294,741	4,125,867	4,089,765	4,163,097	8,738,419	29,114,455
1990	59,003	138,531	43,041	1,891,636	9,727,977	4,749,282	5,988,764	6,327,769	14,252,908	50,137,561
1991	11,124	15,229	2,356	415,163	3,467,838	540,093	1,169,681	1,374,112	3,214,848	11,478,664
1992	15,502	26,946	9,466	308,584	2,895,272	1,223,844	1,314,839	1,387,435	2,789,880	9,282,870
1993	(6,434)	54,691	(5,359)	(161,652)	4,117,320	448,456	(74,918)	(78,442)	(551,522)	(2,210,147)
1994	64,570	129,531	28,924	835,094	4,366,751	2,568,619	2,564,316	2,645,452	5,588,542	18,677,603
1995	21,071	57,615	11,570	239,680	4,588,771	1,571,625	727,370	532,526	940,234	2,886,027
1996	58,054	78,650	22,992	587,396	9,068,946	3,983,708	2,502,047	2,275,868	4,850,235	17,009,469
1997	116,967	76,381	75,495	1,574,749	11,700,558	5,158,381	5,202,750	5,742,804	12,077,610	42,355,650
1998	143,551	87,533	84,375	1,919,788	12,640,254	5,605,244	5,775,664	6,404,620	13,498,374	47,382,701
1999	124,036	81,659	79,806	2,090,341	11,255,741	5,442,377	5,980,177	6,692,336	14,151,022	49,804,544
2000	142,334	91,349	94,049	2,355,000	14,463,163	6,972,353	8,257,999	9,398,983	19,973,960	70,509,952
2001	134,590	84,393	90,341	2,187,883	16,288,195	6,224,167	7,216,729	8,176,372	17,352,517	61,206,754
2002	173,628	117,237	124,551	2,811,043	20,854,277	9,103,421	11,186,154	13,074,395	27,910,903	98,747,745
2003	175,812	120,190	128,614	2,781,100	22,422,497	9,062,938	11,167,160	13,057,285	27,878,200	98,640,836
2004	187,911	129,665	139,915	2,905,272	20,947,444	9,328,570	11,419,119	13,339,496	28,471,298	100,718,114
2005	172,491	115,945	131,668	2,630,192	19,216,570	8,553,664	10,530,580	12,311,332	26,284,490	92,999,039
2006	176,852	119,138	137,438	2,669,405	21,689,753	8,712,648	10,742,868	12,562,336	26,822,546	94,907,481
2007	176,241	117,238	139,856	2,626,842	18,756,048	8,458,008	10,366,664	12,112,108	25,853,334	91,460,630
2008	182,216	119,412	148,156	2,675,555	20,867,108	8,690,184	10,692,163	12,499,291	26,685,058	94,414,564
2009	184,660	119,581	153,263	2,679,324	20,313,339	8,729,167	10,755,273	12,575,510	26,849,439	95,000,489
2010	186,836	119,489	158,269	2,677,274	19,801,633	8,672,532	10,658,340	12,457,655	26,594,614	94,091,078
2011	189,670	119,610	164,406	2,679,972	20,222,258	8,712,547	10,724,673	12,538,017	26,768,235	94,710,154
2012	192,464	119,946	170,077	2,687,524	20,337,240	8,740,163	10,760,400	12,580,083	26,858,248	95,029,259
2013	207,952	127,750	187,666	2,862,379	22,446,206	9,345,616	11,525,411	13,477,736	28,777,255	101,824,394
2014	225,501	136,561	207,881	3,059,790	21,671,036	9,765,984	11,921,703	13,921,227	29,708,828	105,086,745
2015	231,756	138,494	218,122	3,103,102	23,630,752	10,140,516	12,510,606	14,630,693	31,239,614	110,538,509
2016	233,625	138,916	224,260	3,092,299	23,948,594	10,021,772	12,318,299	14,398,255	30,737,606	108,749,669
2017	237,008	139,310	231,887	3,101,063	23,476,988	10,083,131	12,412,471	14,511,379	30,981,373	109,617,127
2018	239,371	139,058	238,862	3,095,452	23,238,657	10,019,597	12,308,695	14,385,904	30,710,413	108,651,471
2019	242,024	139,022	246,418	3,094,644	23,151,769	10,078,065	12,415,049	14,515,704	30,991,854	109,656,509
2020	239,455	135,978	248,622	3,026,887	23,264,684	9,840,506	12,112,451	14,160,397	30,232,008	106,965,494
2021	239,359	135,734	249,393	3,021,479	23,105,659	9,794,998	12,041,158	14,074,583	30,046,802	106,306,322
2022	239,064	135,567	249,086	3,017,754	21,237,372	9,790,220	12,040,065	14,073,963	30,046,126	106,304,698
2023	240,838	136,574	250,935	3,040,158	23,854,559	9,904,256	12,202,317	14,267,302	30,461,663	107,781,228
2024	238,939	135,497	248,956	3,016,187	21,934,726	9,774,495	12,014,331	14,042,889	29,978,913	106,065,404
2025	240,378	136,313	250,456	3,034,351	23,722,395	9,869,599	12,150,992	14,205,949	30,329,543	107,311,366
2026	239,429	135,775	249,467	3,022,371	23,471,065	9,827,889	12,097,679	14,143,381	30,195,602	106,837,145
2027	236,972	134,381	246,906	2,991,349	21,224,535	9,703,627	11,932,874	13,948,647	29,778,393	105,357,421
2028	236,814	134,292	246,742	2,989,362	22,689,742	9,715,725	11,957,318	13,978,893	29,844,175	105,592,960
2029	238,300	135,134	248,290	3,008,116	24,355,537	9,818,764	12,106,902	14,157,418	30,228,274	106,958,343
2030	233,674	132,511	243,470	2,949,715	20,968,837	9,519,823	11,680,009	13,648,619	29,134,487	103,071,684
2031	234,858	133,183	244,704	2,964,668	22,017,710	9,654,455	11,892,490	13,904,754	29,687,253	105,040,509
2032	235,998	133,829	245,892	2,979,058	23,818,669	9,705,947	11,958,023	13,981,797	29,852,086	105,624,479
2033	234,587	133,029	244,422	2,961,248	22,318,967	9,598,838	11,799,627	13,792,228	29,443,957	104,172,929
2034	235,786	133,709	245,671	2,976,384	22,997,646	9,709,931	11,970,631	13,997,668	29,886,830	105,749,492
2035	234,910	133,212	244,758	2,965,324	21,714,782	9,610,136	11,812,978	13,807,708	29,476,880	104,289,184
Total	8,343,843	5,486,002	7,975,285	126,303,963	915,562,415	391,855,289	465,933,944	537,078,184	1,143,249,366	4,032,375,396

a) Power costs for the period 1968 through 1987 are for an interim facility.
b) The costs of Del Valle Pumping Plant are combined with those of South Bay Pumping Plant to simplify the cost allocations.

TABLE B-3

Power Costs and Credits and Annual Replacement Deposits for Each Aqueduct Pumping and Power Recovery Plant

(Dollars)

Calendar Year	California Aqueduct (continued)									Grand Total (20)
	Reach 18A	Reach 22B	Reach 23	Reach 26A	Reach 29A	Reach 29G	Reach 29J	Reach 31A	Reach 33A	
	Alamo Powerplant (11)	Pearblossom Pumping Plant (12)	Mojave Siphon Powerplant (13)	Devil Canyon Powerplant (14)	Oso Pumping Plant (15)	Warne Powerplant (16)	Castaic Powerplant (17)	Las Perillas and Badger Hill Pumping Plants (18)	Devil's Den, Bluestone, and Polonio PPs and San Luis Obispo Pwp. (19)	
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	38,130
1963	0	0	0	0	0	0	0	0	0	58,871
1964	0	0	0	0	0	0	0	0	0	75,239
1965	0	0	0	0	0	0	0	0	0	146,297
1966	0	0	0	0	0	0	0	0	0	198,643
1967	0	0	0	0	0	0	0	6,517	0	263,128
1968	0	0	0	0	0	0	0	120,278	0	2,034,449
1969	0	0	0	0	0	0	0	79,620	0	1,366,635
1970	0	0	0	0	0	0	0	137,449	0	1,188,766
1971	0	64,807	0	0	1,696	0	0	171,389	0	1,725,032
1972	0	103,584	0	(3,112)	180,005	0	(385,696)	240,651	0	4,645,065
1973	0	615,309	0	(931,697)	274,450	0	(1,193,216)	128,730	0	5,854,986
1974	0	595,646	0	(939,072)	322,440	0	(1,823,397)	129,345	0	6,272,395
1975	0	616,327	0	(1,101,445)	457,487	0	(2,835,302)	101,109	0	7,156,363
1976	0	914,440	0	(1,520,412)	314,669	0	(2,512,021)	151,211	0	7,192,331
1977	0	318,880	0	(1,216,060)	53,119	0	(1,701,284)	85,538	0	762,343
1978	0	1,801,373	0	(3,298,247)	251,373	0	(2,361,377)	197,217	0	11,818,144
1979	0	1,813,744	0	(3,335,069)	157,934	0	(2,749,296)	209,088	0	10,273,049
1980	0	1,866,161	0	(3,508,195)	170,688	0	(2,721,871)	182,996	0	10,593,358
1981	0	2,201,541	0	(3,772,498)	514,832	0	(3,248,819)	186,954	0	16,783,783
1982	0	1,708,843	0	(3,149,543)	625,495	(973,898)	(3,476,126)	182,305	0	16,032,833
1983	0	384,150	0	(5,764,122)	235,207	(1,373,756)	(4,125,351)	18,756	0	(4,793,940)
1984	0	673,007	0	(7,751,311)	437,458	(2,269,583)	1,643,951	115,959	0	3,280,991
1985	0	1,249,530	0	(10,518,533)	1,045,710	(8,489,604)	(19,880,260)	154,637	0	(13,768,237)
1986	(1,064,432)	2,618,876	0	(12,055,463)	1,387,166	(6,276,296)	(11,466,466)	317,914	0	13,754,211
1987	(1,032,312)	1,928,366	0	(10,781,802)	1,390,349	(6,703,320)	(11,630,565)	270,779	0	6,432,420
1988	(773,793)	2,432,617	0	(14,655,710)	1,508,267	(7,384,227)	(12,676,489)	235,312	0	6,624,354
1989	(772,111)	4,337,002	0	(18,944,080)	2,146,718	(8,713,183)	(14,657,167)	311,568	0	26,474,947
1990	(845,641)	6,818,741	0	(21,336,948)	3,032,598	(11,692,826)	(19,863,014)	463,746	0	49,893,128
1991	(323,332)	824,464	0	(5,404,572)	783,801	(4,735,955)	(8,097,080)	(151,987)	0	4,584,447
1992	(974,167)	1,228,179	0	(9,773,109)	770,338	(5,540,626)	(9,312,434)	79,753	0	(4,267,428)
1993	(60,506)	(372,735)	0	(7,861,479)	143,818	(4,988,529)	(10,262,109)	(39,163)	0	(21,908,710)
1994	(64,321)	2,625,007	0	(12,005,935)	1,233,644	(6,185,852)	(10,727,203)	240,888	0	12,785,630
1995	(1,275,628)	1,075,751	0	(10,169,650)	(312,554)	(2,790,060)	(6,843,875)	125,091	0	(8,614,436)
1996	(2,965,290)	2,252,269	0	(12,174,720)	807,260	(4,250,292)	(8,457,419)	306,609	0	15,955,782
1997	(4,635,900)	8,444,715	(5,280,000)	(22,962,500)	1,254,712	(4,592,500)	(8,484,000)	562,847	1,244,856	49,633,575
1998	(3,748,500)	9,346,691	(4,907,800)	(25,860,000)	1,459,555	(5,112,500)	(9,336,500)	591,727	1,308,729	57,283,506
1999	(4,949,415)	9,866,518	(4,725,374)	(29,744,125)	1,545,541	(6,658,300)	(10,340,100)	579,536	1,454,187	52,730,507
2000	(5,509,665)	13,607,279	(5,746,101)	(34,472,175)	2,508,745	(9,528,525)	(14,997,250)	648,543	1,628,712	80,398,705
2001	(5,543,325)	12,451,744	(5,448,983)	(35,015,250)	1,864,901	(7,501,625)	(12,043,950)	603,117	1,515,573	69,844,143
2002	(5,499,360)	14,260,466	(5,743,716)	(31,907,025)	5,656,740	(18,029,650)	(28,975,200)	838,849	2,561,256	117,265,714
2003	(5,539,050)	14,234,891	(5,809,966)	(31,867,725)	5,662,190	(18,198,050)	(29,301,000)	829,914	2,533,974	117,979,810
2004	(5,432,670)	14,380,618	(5,325,440)	(31,936,875)	5,824,423	(17,955,150)	(28,868,250)	866,968	2,647,110	121,787,538
2005	(5,494,815)	13,323,071	(5,762,690)	(31,677,525)	5,374,952	(18,246,925)	(29,405,200)	784,881	2,396,475	104,238,195
2006	(5,570,415)	13,720,366	(5,578,992)	(32,055,050)	5,439,990	(18,211,725)	(29,327,900)	796,583	2,432,205	110,185,527
2007	(5,460,120)	13,170,323	(5,210,377)	(32,211,075)	5,247,890	(17,896,075)	(28,766,100)	783,881	2,393,424	102,118,740
2008	(5,480,010)	13,453,985	(5,574,646)	(32,173,100)	5,483,844	(18,290,350)	(29,484,250)	798,418	2,437,809	108,145,407
2009	(5,534,415)	13,702,951	(5,724,477)	(32,001,775)	5,455,599	(18,200,375)	(29,299,800)	799,543	2,441,241	108,998,537
2010	(5,505,975)	13,516,756	(5,647,256)	(32,073,675)	5,418,713	(18,107,750)	(29,130,350)	798,931	2,439,372	107,126,486
2011	(5,535,810)	13,606,596	(5,786,328)	(32,085,975)	5,458,143	(18,191,325)	(29,304,450)	799,736	2,441,832	108,231,961
2012	(5,507,010)	13,694,876	(5,865,563)	(32,092,175)	5,460,096	(18,156,700)	(29,235,500)	801,989	2,448,714	109,024,131
2013	(5,596,200)	14,826,265	(5,984,548)	(32,066,775)	5,794,774	(18,117,450)	(29,138,000)	854,169	2,608,029	123,962,629
2014	(5,248,395)	14,706,862	(5,058,161)	(32,311,950)	6,187,564	(18,087,350)	(29,105,400)	913,078	2,787,900	130,489,404
2015	(5,597,460)	16,045,887	(5,907,115)	(31,796,400)	6,311,436	(18,177,650)	(29,267,500)	926,002	2,827,362	141,746,726
2016	(5,482,935)	15,565,777	(5,420,045)	(32,338,850)	6,286,091	(18,164,675)	(29,251,650)	922,779	2,817,519	138,797,306
2017	(5,500,305)	15,796,613	(5,665,170)	(32,032,725)	6,298,161	(18,157,725)	(29,227,200)	925,394	2,825,505	140,054,285
2018	(5,483,385)	15,584,986	(5,695,433)	(32,154,550)	6,265,526	(18,111,075)	(29,132,550)	923,719	2,820,393	138,045,111
2019	(5,541,705)	15,851,156	(5,837,420)	(32,060,975)	6,283,089	(18,151,550)	(29,217,700)	923,479	2,819,655	139,599,087
2020	(5,599,845)	15,437,411	(5,808,906)	(31,932,025)	6,136,480	(18,130,375)	(29,176,550)	903,259	2,757,918	134,813,849
2021	(5,495,085)	15,247,294	(5,762,531)	(32,186,175)	6,132,719	(18,144,500)	(29,209,150)	901,646	2,752,992	133,252,697
2022	(5,468,130)	15,276,948	(5,903,246)	(31,818,075)	6,121,828	(18,139,850)	(29,194,200)	900,534	2,749,599	131,659,323
2023	(5,558,850)	15,625,204	(5,854,486)	(32,160,250)	6,158,144	(18,117,800)	(29,152,750)	907,219	2,770,011	136,756,272
2024	(5,460,165)	15,201,359	(5,617,947)	(32,006,700)	6,122,950	(18,147,075)	(29,213,650)	900,066	2,748,171	131,977,346
2025	(5,509,665)	15,440,827	(5,783,837)	(32,161,125)	6,175,410	(18,182,775)	(29,284,400)	905,487	2,764,719	135,615,983
2026	(5,509,125)	15,393,735	(5,829,152)	(31,985,975)	6,139,390	(18,159,375)	(29,231,700)	901,912	2,753,805	134,693,318
2027	(5,532,075)	15,177,473	(5,746,366)	(32,051,300)	6,052,476	(18,105,600)	(29,122,050)	892,654	2,725,539	129,845,856
2028	(5,555,385)	15,228,999	(5,600,510)	(31,986,925)	6,061,462	(18,134,075)	(29,181,700)	892,061	2,723,730	131,833,680
2029	(5,578,425)	15,514,041	(5,785,427)	(32,311,150)	6,110,304	(18,156,025)	(29,230,900)	897,657	2,740,815	135,455,968
2030	(5,495,940)	14,888,598	(5,389,305)	(32,338,200)	5,898,639	(17,915,875)	(28,793,700)	880,230	2,687,604	126,004,880
2031	(5,547,645)	15,056,516	(5,421,635)	(31,949,075)	6,069,239	(18,272,425)	(29,450,750)	884,692	2,701,230	129,844,731
2032	(5,525,730)	15,208,878	(5,469,918)	(32,265,750)	6,076,206	(18,206,625)	(29,345,050)	888,987	2,714,340	132,611,116
2033	(5,446,035)	14,941,363	(5,710,220)	(32,087,050)	6,009,582	(18,150,675)	(29,205,950)	883,672	2,698,113	128,632,632
2034	(5,568,120)	15,328,536	(5,834,399)	(32,133,700)	6,044,707	(18,159,050)	(29,226,150)	888,189	2,711,904	131,955,665
2035	(5,569,740)	15,272,535	(5,415,752)	(32,439,950)	5,890,895	(17,841,800)	(28,615,050)	884,889	2,701,827	129,157,726
Total	(221,968,333)	598,094,988	(218,639,238)	(1,420,684,459)	227,677,074	(732,176,907)	(1,218,637,386)	37,347,496	97,534,149	4,782,711,071

TABLE B-4

Annual Entitlements to Project Water

(Acre-Feet)

Calendar Year	North Bay Area			South Bay Area (a				Central Coastal Area		
	Napa County FC&WCD (b (1)	Solano County Water Agency (2)	Total (3)	Alameda County FC&WCD, Zone 7 (4)	Alameda County Water District (5)	Santa Clara Valley Water District (6)	Total (7)	San Luis Obispo County FC&WCD (8)	Santa Barbara County FC&WCD (9)	Total (10)
1962	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	507	5,248	5,783	11,538	0	0	0
1968	0	0	0	6,900	15,000	88,000	109,900	0	0	0
1969	0	0	0	8,200	15,500	75,000	98,700	0	0	0
1970	0	0	0	10,000	16,200	88,000	114,200	0	0	0
1971	0	0	0	11,200	17,000	88,000	116,200	0	0	0
1972	0	0	0	12,400	17,900	88,000	118,300	0	0	0
1973	0	0	0	13,600	18,800	88,000	120,400	0	0	0
1974	0	0	0	14,800	19,600	88,000	122,400	0	0	0
1975	0	0	0	16,000	20,500	88,000	124,500	0	0	0
1976	0	0	0	17,200	21,300	88,000	126,500	0	0	0
1977	0	0	0	18,400	22,200	88,000	128,600	0	0	0
1978	0	0	0	19,600	23,100	88,000	130,700	0	0	0
1979	0	0	0	20,800	23,900	88,000	132,700	0	0	0
1980	0	500	500	22,000	24,800	88,000	134,800	1,000	946	1,946
1981	0	650	650	23,000	26,000	88,000	137,000	1,000	1,813	2,813
1982	0	800	800	24,000	27,200	88,000	139,200	2,000	3,626	5,626
1983	0	950	950	25,000	28,400	88,000	141,400	3,000	5,439	8,439
1984	0	1,100	1,100	26,000	29,600	88,000	143,600	4,500	8,198	12,698
1985	0	1,250	1,250	27,000	30,800	88,000	145,800	7,500	13,638	21,138
1986	0	1,400	1,400	28,000	32,100	88,000	148,100	10,000	18,210	28,210
1987	0	1,550	1,550	29,000	33,300	88,000	150,300	12,500	22,704	35,204
1988	5,745	9,726	15,471	30,000	34,500	88,000	152,500	15,500	28,222	43,722
1989	6,195	18,420	24,615	31,000	35,700	90,000	156,700	20,000	36,342	56,342
1990	6,940	21,250	28,190	32,000	36,900	92,000	160,900	25,000	45,486	70,486
1991	7,290	22,300	29,590	34,000	38,400	94,000	166,400	25,000	45,486	70,486
1992	7,840	24,170	32,010	36,000	39,900	96,000	171,900	25,000	45,486	70,486
1993	8,490	26,130	34,620	38,000	41,400	98,000	177,400	25,000	45,486	70,486
1994	9,135	28,080	37,215	40,000	42,000	100,000	182,000	25,000	45,486	70,486
1995	9,780	34,250	44,030	42,000	42,000	100,000	184,000	25,000	45,486	70,486
1996	10,425	37,800	48,225	44,000	42,000	100,000	186,000	25,000	45,486	70,486
1997	11,065	38,250	49,315	46,000	42,000	100,000	188,000	25,000	38,986	63,986
1998	11,710	38,710	50,420	46,000	42,000	100,000	188,000	25,000	38,986	63,986
1999	12,330	39,170	51,500	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2000	13,050	39,620	52,670	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2001	13,665	40,080	53,745	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2002	14,185	40,540	54,725	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2003	14,800	41,000	55,800	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2004	15,400	41,450	56,850	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2005	16,000	41,500	57,500	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2006	16,450	41,550	58,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2007	17,000	41,600	58,600	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2008	17,650	41,650	59,300	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2009	18,200	41,700	59,900	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2010	18,750	41,750	60,500	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2011	19,400	41,800	61,200	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2012	19,950	41,850	61,800	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2013	20,600	41,900	62,500	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2014	21,250	41,950	63,200	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2015	21,900	42,000	63,900	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2016	22,500	42,000	64,500	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2017	23,100	42,000	65,100	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2018	23,700	42,000	65,700	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2019	24,300	42,000	66,300	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2020	24,900	42,000	66,900	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2021	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2022	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2023	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2024	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2025	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2026	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2027	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2028	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2029	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2030	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2031	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2032	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2033	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2034	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2035	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
Total	878,695	1,848,396	2,727,091	2,494,607	2,459,248	6,510,783	11,464,638	1,227,000	2,218,494	3,445,494

a) Entitlements for the South Bay area were supplied by non-Project water for the period June 1962 through November 1967. Actual delivery quantities of Project water are shown for 1967.
b) District's Table A quantities exclude amounts during the period 1968 through 1987 that are assumed to be supplied by non-Project water.

TABLE B-4

Annual Entitlements to Project Water

(Acre-Feet)

Calendar Year	San Joaquin Valley Area								
			Kern County Water Agency						
	Dudley Ridge Water District (11)	Empire West Side Irrigation District (12)	Municipal and Industrial (13)	Agricultural (14)	Total (15)	County of Kings (16)	Oak Flat Water District (17)	Tulare Lake Basin Water Storage District (18)	Total (19)
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0
1968	14,300	1,000	0	46,600	46,600	900	2,300	12,250	77,350
1969	14,325	3,000	0	95,700	95,700	1,200	2,500	46,350	163,075
1970	15,700	3,000	28,700	116,400	145,100	1,300	2,600	34,300	202,000
1971	17,900	3,000	35,700	154,600	190,300	1,300	2,800	36,500	251,800
1972	20,000	3,000	39,200	231,500	270,700	1,400	5,366	112,600	413,066
1973	22,000	3,000	43,500	267,000	310,500	1,500	3,100	43,552	383,652
1974	33,390	3,000	48,000	299,000	347,000	1,500	3,471	72,289	460,650
1975	40,555	3,000	52,700	358,120	410,820	1,600	3,576	86,258	545,809
1976	30,921	3,000	56,100	386,050	442,150	1,600	4,039	61,707	543,417
1977	30,400	3,000	60,600	423,000	483,600	1,700	3,700	59,000	581,400
1978	32,500	0	64,100	470,200	534,300	1,900	3,900	63,300	635,900
1979	38,544	3,000	67,600	516,300	583,900	2,000	4,000	71,241	702,685
1980	41,000	3,000	71,100	563,400	634,500	2,200	5,700	71,700	758,100
1981	41,000	3,000	74,800	616,600	691,400	2,300	4,300	76,000	818,000
1982	41,000	3,000	79,600	665,700	745,300	2,500	4,500	80,200	876,500
1983	42,900	3,000	83,500	721,600	805,100	2,800	3,770	9,548	867,118
1984	45,100	3,000	103,600	757,000	860,600	3,100	4,800	62,611	979,211
1985	47,200	3,000	108,900	806,100	915,000	3,400	4,900	45,549	1,019,049
1986	49,300	3,000	113,400	820,246	933,646	3,700	5,100	97,200	1,091,946
1987	51,400	3,000	119,100	904,400	1,023,500	4,000	5,200	101,400	1,188,500
1988	53,500	3,000	123,900	950,700	1,074,600	4,000	5,400	105,600	1,246,100
1989	55,600	3,000	128,200	984,100	1,112,300	4,000	5,600	109,900	1,290,400
1990	28,850	3,000	134,600	1,018,800	1,153,400	4,000	5,700	118,500	1,313,450
1991	53,411	3,000	134,600	1,018,800	1,153,400	4,000	5,700	118,500	1,338,011
1992	57,700	3,000	134,600	1,018,800	1,153,400	4,000	5,700	118,500	1,342,300
1993	57,700	3,000	134,600	1,018,800	1,153,400	4,000	5,700	118,500	1,342,300
1994	57,700	3,000	134,600	1,018,800	1,153,400	4,000	5,700	118,500	1,342,300
1995	57,700	3,000	134,600	1,018,800	1,153,400	4,000	5,700	118,500	1,342,300
1996	53,370	3,000	134,600	982,460	1,117,060	4,000	5,700	118,500	1,301,630
1997	53,370	3,000	134,600	978,130	1,112,730	4,000	5,700	118,500	1,297,300
1998	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
1999	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2000	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2001	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2002	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2003	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2004	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2005	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2006	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2007	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2008	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2009	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2010	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2011	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2012	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2013	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2014	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2015	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2016	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2017	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2018	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2019	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2020	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2021	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2022	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2023	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2024	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2025	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2026	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2027	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2028	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2029	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2030	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2031	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2032	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2033	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2034	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2035	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
Total	3,226,396	199,000	7,693,900	55,446,646	63,140,546	233,900	352,822	6,910,055	74,062,719

TABLE B-4

Annual Entitlements to Project Water

(Acre-Feet)

Calendar Year	Southern California Area									
	Antelope Valley-East Kern Water Agency (20)	Castaic Lake Water Agency (21)	Coachella Valley Water District (22)	Crestline-Lake Arrowhead Water Agency (23)	Desert Water Agency (24)	Littlerock Creek Irrigation District (25)	Mojave Water Agency (26)	Palmdale Water District (27)	San Bernardino Valley Municipal Water District (28)	San Gabriel Valley Municipal Water District (29)
1962	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0
1968	0	3,700	0	0	0	0	0	0	0	0
1969	0	5,000	0	0	0	0	0	0	0	0
1970	0	5,700	0	0	0	0	0	0	0	0
1971	0	6,700	0	0	0	0	0	0	0	0
1972	20,000	8,936	5,200	526	8,000	170	8,400	1,620	1,677	122
1973	25,000	12,400	5,800	870	9,000	290	10,700	2,940	48,000	11,500
1974	30,000	15,400	6,400	1,160	10,000	400	13,100	4,260	50,000	12,300
1975	35,000	18,200	7,000	1,450	11,000	520	15,400	5,580	52,500	13,100
1976	44,000	21,200	7,600	1,740	12,000	640	17,800	6,900	55,000	14,000
1977	50,000	24,100	8,421	2,030	13,000	730	20,200	8,220	57,500	14,800
1978	57,000	24,762	9,242	2,320	14,000	920	0	9,340	60,000	15,700
1979	63,000	28,000	10,063	2,610	15,000	1,040	24,900	10,260	62,500	16,600
1980	69,200	30,400	10,884	2,900	17,000	1,150	27,200	11,180	65,500	17,400
1981	75,000	32,800	12,105	3,190	19,000	1,270	23,100	11,700	68,500	18,300
1982	81,300	34,800	13,326	3,480	21,000	1,380	22,843	12,320	71,500	19,100
1983	87,700	37,300	14,547	3,770	23,000	1,500	34,300	12,940	74,500	19,900
1984	35,000	39,600	15,768	4,060	25,000	1,610	36,700	13,560	78,000	20,700
1985	40,000	41,800	16,989	4,350	27,000	1,730	39,000	14,180	81,500	21,800
1986	42,000	43,600	18,210	4,640	29,000	1,840	41,400	14,800	85,000	23,200
1987	44,000	45,600	19,431	4,930	31,500	1,960	43,700	15,420	89,000	24,600
1988	46,000	48,000	20,652	5,220	34,000	2,070	46,000	16,040	93,000	26,000
1989	125,700	50,100	21,873	5,510	36,500	2,190	48,500	16,660	97,000	27,400
1990	132,100	52,000	23,100	5,800	38,100	2,300	50,800	17,300	101,500	28,800
1991	138,400	54,200	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1992	138,400	54,200	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1993	138,400	54,200	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1994	138,400	54,200	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1995	138,400	54,200	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1996	138,400	54,200	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1997	138,400	54,200	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1998	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
1999	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2000	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2001	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2002	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2003	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2004	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2005	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2006	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2007	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2008	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2009	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2010	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2011	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2012	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2013	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2014	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2015	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2016	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2017	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2018	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2019	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2020	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2021	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2022	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2023	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2024	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2025	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2026	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2027	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2028	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2029	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2030	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2031	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2032	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2033	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2034	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2035	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
Total	7,330,000	3,069,098	1,286,111	321,556	2,107,600	127,210	3,760,043	983,720	5,909,177	1,641,322

TABLE B-4

Annual Entitlements to Project Water

(Acre-Feet)

Calendar Year	Southern California Area				Feather River Area				South Bay Area Future Contractor (38)	Grand Total (39)
	San Gorgonio Pass Water Agency (30)	Metropolitan Water District of Southern California (31)	Ventura County Flood Control District (32)	Total (33)	City of Yuba City (34)	County of Butte (35)	Plumas County FC&WCD (36)	Total (37)		
1962	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	11,538
1968	0	0	0	3,700	0	300	250	550	0	191,500
1969	0	0	0	5,000	0	350	270	620	0	267,395
1970	0	0	0	5,700	0	400	300	700	0	322,600
1971	0	0	0	6,700	0	450	440	890	0	375,590
1972	0	154,772	0	209,423	0	500	470	970	0	741,759
1973	0	354,600	0	481,100	0	600	500	1,100	0	986,252
1974	0	454,900	0	597,920	0	700	530	1,230	0	1,182,200
1975	0	555,200	0	714,950	0	1,050	560	1,610	0	1,386,869
1976	0	655,600	0	836,480	0	1,400	590	1,990	0	1,508,387
1977	0	755,900	0	954,901	0	1,800	620	2,420	0	1,667,321
1978	0	856,300	0	1,049,584	0	1,200	650	1,850	0	1,818,034
1979	0	956,600	0	1,190,573	0	1,450	680	2,130	0	2,028,088
1980	6,800	1,057,000	1,000	1,317,614	0	1,100	710	1,810	0	2,214,770
1981	7,800	1,157,300	2,000	1,432,065	0	1,200	740	1,940	0	2,392,468
1982	8,800	1,257,600	3,000	1,550,449	0	1,200	770	1,970	0	2,574,545
1983	9,800	1,358,000	4,000	1,681,257	0	1,200	800	2,000	0	2,701,164
1984	10,800	1,458,300	5,000	1,744,098	1,600	1,200	830	3,630	0	2,884,337
1985	11,800	1,558,700	6,000	1,864,849	1,700	1,200	860	3,760	0	3,055,846
1986	12,900	1,659,300	8,000	1,983,890	2,100	1,200	890	4,190	0	3,257,736
1987	14,000	1,759,800	10,000	2,103,941	2,500	1,200	920	4,620	0	3,484,115
1988	15,100	1,860,400	13,000	2,225,482	2,900	1,200	960	5,060	0	3,688,335
1989	16,200	1,961,000	16,000	2,424,633	3,300	1,200	1,000	5,500	0	3,958,190
1990	17,300	2,011,500	20,000	2,500,600	3,800	1,200	1,040	6,040	0	4,079,666
1991	17,300	2,011,500	20,000	2,510,200	9,600	1,200	1,080	11,880	0	4,126,567
1992	17,300	2,011,500	20,000	2,510,200	9,600	1,200	1,120	11,920	0	4,138,816
1993	17,300	2,011,500	20,000	2,510,200	9,600	1,200	1,160	11,960	0	4,146,966
1994	17,300	2,011,500	20,000	2,510,200	9,600	1,200	1,200	12,000	0	4,154,201
1995	17,300	2,011,500	20,000	2,510,200	9,600	1,200	1,250	12,050	0	4,163,066
1996	0	2,011,500	20,000	2,492,900	9,600	1,200	1,300	12,100	0	4,111,341
1997	0	2,011,500	20,000	2,492,900	9,600	1,200	1,350	12,150	0	4,103,651
1998	2,000	2,011,500	20,000	2,519,900	9,600	1,200	1,400	12,200	0	4,106,806
1999	3,000	2,011,500	20,000	2,520,900	9,600	1,200	1,450	12,250	0	4,115,436
2000	4,000	2,011,500	20,000	2,521,900	9,600	1,200	1,510	12,310	0	4,117,666
2001	4,000	2,011,500	20,000	2,521,900	9,600	27,500	1,570	38,670	0	4,145,101
2002	5,000	2,011,500	20,000	2,522,900	9,600	27,500	1,630	38,730	0	4,147,141
2003	6,000	2,011,500	20,000	2,523,900	9,600	27,500	1,690	38,790	0	4,149,276
2004	6,500	2,011,500	20,000	2,524,400	9,600	27,500	1,750	38,850	0	4,150,886
2005	7,000	2,011,500	20,000	2,524,900	9,600	27,500	1,810	38,910	0	4,152,096
2006	7,500	2,011,500	20,000	2,525,400	9,600	27,500	1,880	38,980	0	4,153,166
2007	17,300	2,011,500	20,000	2,535,200	9,600	27,500	1,950	39,050	0	4,163,636
2008	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,020	39,120	0	4,164,406
2009	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,090	39,190	0	4,165,076
2010	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,160	39,260	0	4,165,746
2011	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,240	39,340	0	4,166,526
2012	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,320	39,420	0	4,167,206
2013	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,410	39,510	0	4,167,996
2014	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,500	39,600	0	4,168,786
2015	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,600	39,700	0	4,169,586
2016	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,170,286
2017	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,170,886
2018	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,171,486
2019	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,086
2020	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,686
2021	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2022	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2023	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2024	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2025	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2026	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2027	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2028	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2029	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2030	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2031	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2032	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2033	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2034	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2035	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
Total	764,500	112,360,272	988,000	140,648,609	449,900	997,800	112,820	1,560,520	0	233,909,071

TABLE B-5A

Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(Acre-Feet)

Calendar Year	Grizzly Valley Pipeline PC FC&WCD (1)	North Bay Aqueduct				South Bay Aqueduct				
		Reach 1	Reach 3A	Reach 3B		Reach 1		Reach 2	Reach 4	Reach 5
		SCWA (2)	SCWA (3)	NC FC&WCD (a (4)	Total (5)	ACWD (6)	AC FC&WCD (7)	AC FC&WCD (8)	AC FC&WCD (9)	ACWD (10)
1962	0	0	0	0	0	8,412	141	353	0	0
1963	0	0	0	0	0	10,914	814	917	0	0
1964	0	0	0	0	0	19,238	248	1,425	0	0
1965	0	0	0	0	0	15,280	637	1,830	138	0
1966	0	0	0	0	0	0	2,475	2,537	499	0
1967	0	0	0	0	0	0	1,527	2,391	862	0
1968	0	0	0	1,214	1,214	0	1,608	3,799	721	0
1969	0	0	0	2,687	2,687	0	1,165	3,459	1,851	0
1970	70	0	0	3,618	3,618	0	1,345	4,558	3,182	0
1971	64	0	0	2,521	2,521	0	546	1,908	2,403	0
1972	505	0	0	3,647	3,647	0	1,066	4,605	2,041	1,489
1973	679	0	0	3,792	3,792	0	430	1,123	1,193	0
1974	648	0	0	4,870	4,870	0	177	0	975	0
1975	405	0	0	6,840	6,840	0	137	1,783	1,864	0
1976	382	0	0	7,122	7,122	0	265	7,204	3,384	0
1977	303	0	0	8,226	8,226	0	210	4,491	2,213	0
1978	278	0	0	6,034	6,034	0	422	2,426	3,754	0
1979	329	0	0	6,561	6,561	0	197	4,283	5,567	0
1980	295	0	0	6,707	6,707	0	77	3,883	6,686	1,508
1981	355	0	0	9,001	9,001	0	1,250	4,648	5,273	5,752
1982	305	0	0	1,213	1,213	0	473	3,043	4,406	0
1983	262	0	0	2,287	2,287	0	179	2,712	1,714	0
1984	272	0	0	2,923	2,923	0	165	4,219	2,219	0
1985	254	0	0	4,039	4,039	0	213	5,199	2,060	0
1986	317	1,400	0	3,519	4,919	0	200	6,052	2,062	0
1987	452	1,550	0	7,693	9,243	0	218	7,538	2,372	0
1988	523	0	9,725	5,392	15,117	0	222	8,302	4,681	0
1989	486	10	17,246	6,195	23,451	0	222	8,051	6,562	0
1990	548	3,275	15,856	6,940	26,071	0	256	8,160	8,347	0
1991	420	3,117	3,855	1,380	8,352	0	162	3,676	3,269	0
1992	485	5,553	9,220	4,001	18,774	0	217	5,177	2,188	0
1993	444	14,709	14,471	5,286	34,466	0	190	5,843	8,430	1,650
1994	492	7,171	23,819	6,792	37,782	0	132	4,482	5,427	0
1995	308	5,452	15,893	5,182	26,527	0	278	6,236	7,195	0
1996	360	12,842	17,069	4,893	34,804	0	277	6,151	5,119	0
1997	1,350	16,320	15,990	10,425	42,735	0	498	10,103	14,874	0
1998	1,400	21,460	17,250	11,065	49,775	0	383	9,065	10,858	0
1999	1,450	21,100	18,070	11,710	50,880	0	353	11,101	9,358	0
2000	1,510	21,550	18,070	12,330	51,950	0	328	11,259	7,973	0
2001	1,570	22,010	17,980	12,730	52,720	0	328	11,422	6,509	0
2002	1,630	21,250	19,290	14,185	54,725	0	221	10,241	16,346	0
2003	1,690	21,300	19,700	14,800	55,800	0	221	10,241	16,346	0
2004	1,750	21,350	20,100	15,400	56,850	0	221	10,241	16,346	0
2005	1,810	21,545	19,978	16,000	57,523	0	221	10,241	16,346	0
2006	1,880	21,450	20,100	16,450	58,000	0	221	10,241	16,346	0
2007	1,950	21,500	20,100	17,000	58,600	0	221	10,241	16,346	0
2008	2,020	21,550	20,100	17,650	59,300	0	221	10,241	16,346	0
2009	2,090	21,600	20,100	18,200	59,900	0	221	10,241	16,346	0
2010	2,160	21,650	20,100	18,750	60,500	0	221	10,241	16,346	0
2011	2,240	21,700	20,100	19,400	61,200	0	221	10,241	16,346	0
2012	2,320	21,750	20,100	19,950	61,800	0	221	10,241	16,346	0
2013	2,410	21,800	20,100	20,600	62,500	0	221	10,241	16,346	0
2014	2,500	21,850	20,100	21,250	63,200	0	221	10,241	16,346	0
2015	2,600	21,900	20,100	21,900	63,900	0	221	10,241	16,346	0
2016	2,700	21,816	20,184	22,500	64,500	0	221	10,241	16,346	0
2017	2,700	21,816	20,184	23,100	65,100	0	221	10,241	16,346	0
2018	2,700	21,816	20,184	23,700	65,700	0	221	10,241	16,346	0
2019	2,700	21,816	20,184	24,300	66,300	0	221	10,241	16,346	0
2020	2,700	21,816	20,184	24,900	66,900	0	221	10,241	16,346	0
2021	2,700	21,816	20,184	25,000	67,000	0	221	10,241	16,346	0
2022	2,700	21,816	20,184	25,000	67,000	0	221	10,241	16,346	0
2023	2,700	21,816	20,184	25,000	67,000	0	221	10,241	16,346	0
2024	2,700	21,816	20,184	25,000	67,000	0	221	10,241	16,346	0
2025	2,700	21,816	20,184	25,000	67,000	0	221	10,241	16,346	0
2026	2,700	21,816	20,184	25,000	67,000	0	221	10,241	16,346	0
2027	2,700	21,816	20,184	25,000	67,000	0	221	10,241	16,346	0
2028	2,700	21,816	20,184	25,000	67,000	0	221	10,241	16,346	0
2029	2,700	21,816	20,184	25,000	67,000	0	221	10,241	16,346	0
2030	2,700	21,816	20,184	25,000	67,000	0	221	10,241	16,346	0
2031	2,700	21,816	20,184	25,000	67,000	0	221	10,241	16,346	0
2032	2,700	21,816	20,184	25,000	67,000	0	221	10,241	16,346	0
2033	2,700	21,816	20,184	25,000	67,000	0	221	10,241	16,346	0
2034	2,700	21,816	20,184	25,000	67,000	0	221	10,241	16,346	0
2035	2,700	21,816	20,184	25,000	67,000	0	221	10,241	16,346	0
Total	100,571	896,034	898,262	943,870	2,738,166	53,844	27,545	543,608	713,993	10,399

a) For the period 1968 through 1987, deliveries are non-Project water pumped through an interim facility.

TABLE B-5A

Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(Acre-Feet)

	South Bay Aqueduct (b (continued)						California Aqueduct						
							North San Joaquin			San Luis Division			
	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9		Reach 2A			Reach 3	Reach 4		
Calendar Year	AC FC&WCD (11)	AC FC&WCD (12)	ACWD (13)	ACWD (14)	SCVWD (15)	Total (16)	OFWD (c (17)	TLBWSD (18)	SCVWD (19)	DRWD (20)	KCWA (M&I) (21)	KCWA (Ag) (22)	DRWD (23)
1962	0	0	0	0	0	8,906	0	0	0	0	0	0	0
1963	0	0	0	0	0	12,645	0	0	0	0	0	0	0
1964	0	0	0	0	0	20,911	0	0	0	0	0	0	0
1965	0	0	1,127	0	15,014	34,026	0	0	0	0	0	0	0
1966	0	0	14,864	0	34,538	54,913	0	0	0	0	0	0	0
1967	0	0	12,882	0	39,101	56,763	0	0	0	0	0	0	0
1968	5	0	24,817	0	70,105	101,055	3,084	0	0	0	0	0	0
1969	160	0	813	0	62,264	69,712	3,016	0	0	0	0	0	0
1970	164	0	0	0	80,311	89,560	5,911	0	0	0	0	0	0
1971	160	0	5,961	0	87,606	98,584	7,212	0	0	0	0	0	0
1972	2,777	0	26,182	0	100,266	138,426	8,166	0	0	0	0	0	0
1973	229	0	2,521	0	88,582	94,078	3,214	0	0	0	0	0	0
1974	162	0	0	4	88,000	89,318	3,471	0	0	0	0	0	0
1975	120	714	393	593	88,000	93,604	3,576	0	0	0	0	0	0
1976	817	5,461	13,774	7,526	88,000	126,431	4,112	0	0	0	0	0	0
1977	524	5,206	11,284	7,556	76,220	107,704	1,472	0	0	0	0	0	0
1978	2,034	2,348	854	5,009	95,727	112,574	3,906	0	0	0	0	0	0
1979	3,937	5,341	3,430	7,444	91,991	122,190	6,149	0	0	0	0	0	0
1980	0	6,144	2,824	6,702	88,000	115,824	5,700	0	0	0	0	0	0
1981	1,157	7,262	7,595	8,570	88,000	129,507	4,300	0	0	0	0	0	0
1982	630	4,571	1,776	4,540	87,261	106,700	3,838	0	0	0	0	0	0
1983	50	111	0	3,157	86,733	94,656	3,822	0	0	0	0	0	0
1984	55	126	0	3,338	88,000	98,122	5,700	0	0	0	0	0	0
1985	63	7,537	11,203	7,813	88,000	122,088	5,433	0	0	0	0	0	0
1986	212	2,083	5,311	7,068	88,000	110,988	5,107	0	0	0	0	0	0
1987	285	12,993	15,488	9,902	88,000	136,796	5,625	0	0	0	0	0	0
1988	189	12,436	24,259	9,205	87,961	147,255	4,412	0	0	0	0	0	0
1989	418	10,974	17,340	8,702	90,000	142,269	6,091	300	0	602	0	12,647	1,898
1990	593	15,678	22,149	9,554	91,800	156,537	2,922	0	200	0	0	0	0
1991	359	1,945	9,155	3,493	28,200	50,259	141	0	0	0	0	0	0
1992	154	6,933	12,621	6,532	42,839	76,661	2,239	0	0	0	0	0	0
1993	5,964	13,208	1,792	6,829	62,065	105,971	2,858	0	0	0	0	0	0
1994	822	9,679	3,379	19,532	57,115	100,568	3,071	0	0	0	0	0	0
1995	955	15,427	21	17,772	28,756	76,640	5,169	0	0	0	0	3,500	14,446
1996	531	6,888	1,871	11,591	44,850	77,278	4,904	0	0	0	1,125	4,162	0
1997	2,660	17,212	7,413	27,387	60,000	140,147	5,700	0	0	0	0	0	0
1998	2,860	7,834	5,135	28,165	100,000	164,300	5,700	0	0	0	0	0	0
1999	2,960	22,228	5,500	28,165	100,000	179,665	5,700	0	0	0	0	0	0
2000	2,960	23,480	10,996	23,804	100,000	180,800	5,700	0	0	0	0	0	0
2001	2,960	24,781	3,882	30,918	100,000	180,800	5,700	0	0	0	0	0	0
2002	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2003	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2004	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2005	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2006	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2007	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2008	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2009	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2010	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2011	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2012	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2013	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2014	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2015	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2016	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2017	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2018	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2019	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2020	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2021	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2022	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2023	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2024	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2025	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2026	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2027	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2028	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2029	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2030	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2031	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2032	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2033	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2034	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
2035	1,780	17,412	9,739	32,261	100,000	188,000	5,700	0	0	0	0	0	0
Total	98,446	840,608	619,738	1,407,745	6,201,305	10,517,231	346,921	300	200	602	1,125	20,309	16,344

b) For the period June 1962 through November 1967, deliveries were supplied by non-Project water.
c) Includes 425 AF of 1998 advance entitlement and 141 AF of 1992 advance entitlement.

TABLE B-5A

Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(Acre-Feet)

	California Aqueduct (continued)											
	San Luis Division (continued)											
	Reach 4	Reach 5						Reach 6	Reach 7			Reach 8C
Calendar Year	TLBWSD (24)	CLWA (25)	TLBWSD (26)	KCWA (M&I) (27)	KCA (Ag) (28)	DRWD (29)	OFWD (30)	KCWA (Ag) (31)	KCWA (Ag) (32)	KCWA (M&I) (33)	CLWA (34)	KCWA (M&I) (35)
1962	0	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0	0
1989	0	0	0	0	18,831	0	0	8,260	5,262	0	0	0
1990	1,500	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	10,823	0	0	0	0	0	0
1993	0	5,095	1,624	0	28,200	27,200	2,000	31,200	0	18,157	0	0
1994	0	0	0	0	0	0	0	0	0	0	2,100	0
1995	0	0	0	0	21,776	0	0	3,932	20,595	10,875	0	989
1996	0	0	4,000	1,125	81,507	0	0	0	69,704	3,424	0	0
1997	0	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0	0	0	0	0
2021	0	0	0	0	0	0	0	0	0	0	0	0
2022	0	0	0	0	0	0	0	0	0	0	0	0
2023	0	0	0	0	0	0	0	0	0	0	0	0
2024	0	0	0	0	0	0	0	0	0	0	0	0
2025	0	0	0	0	0	0	0	0	0	0	0	0
2026	0	0	0	0	0	0	0	0	0	0	0	0
2027	0	0	0	0	0	0	0	0	0	0	0	0
2028	0	0	0	0	0	0	0	0	0	0	0	0
2029	0	0	0	0	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0	0	0	0	0
2035	0	0	0	0	0	0	0	0	0	0	0	0
Total	1,500	5,095	5,624	1,125	150,314	38,023	2,000	43,392	95,561	32,456	2,100	989

TABLE B-5A

Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(Acre-Feet)

	California Aqueduct (continued)										
	South San Joaquin Division										
	Reach 8C					Reach 8D					
Calendar Year	KCWA (Ag) (36)	DRWD (37)	TLBWSD (38)	EWSID (39)	CK (40)	KCWA (M&I) (41)	KCWA (Ag) (42)	DRWD (43)	CK (44)	SLOCFC &WCD (45)	TLBWSD (46)
1962	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0
1968	0	0	25,100	1,978	900	0	0	26,360	0	0	0
1969	0	0	7,081	56	100	0	0	31,375	0	0	0
1970	0	0	0	3,942	0	0	0	40,407	0	0	3,408
1971	0	0	80,906	5,990	3,700	0	0	41,053	0	0	41,579
1972	0	0	144,843	5,795	1,400	0	0	42,443	0	0	113,550
1973	0	0	26,317	3,000	1,500	0	1,500	22,057	0	0	24,147
1974	0	0	32,603	3,000	1,500	0	0	33,390	0	0	39,686
1975	0	0	41,536	3,000	1,600	0	0	40,555	0	0	44,722
1976	0	0	26,595	3,000	1,600	0	0	41,421	0	0	32,216
1977	0	0	12,984	738	1,530	0	0	11,153	0	0	5,097
1978	0	0	3,934	454	2,070	0	0	51,747	0	0	8,119
1979	0	0	74,758	1,739	2,000	0	0	38,544	0	0	80,363
1980	0	0	35,140	894	2,200	0	0	41,000	0	0	34,104
1981	0	0	50,888	5,859	2,300	0	0	41,000	0	0	32,550
1982	0	0	4,405	361	1,536	0	0	41,000	214	0	14,146
1983	0	0	1,001	0	3,550	0	0	42,900	0	0	5
1984	0	0	3,677	0	3,100	0	0	45,100	0	0	2,066
1985	0	0	68,638	5,197	3,400	0	0	46,251	0	0	41,153
1986	0	0	40,017	1,170	3,700	0	0	50,249	0	0	39,338
1987	0	0	30,359	2,525	4,000	0	0	46,288	0	0	62,725
1988	0	0	47,831	3,775	4,000	0	0	47,994	0	0	48,035
1989	0	2,391	63,703	3,000	4,000	0	0	52,158	0	0	63,947
1990	0	0	23,504	1,279	2,000	0	161	36,296	0	0	32,066
1991	0	0	1,697	221	0	0	0	927	0	0	483
1992	0	280	15,982	1,354	1,806	0	0	12,667	0	0	30,746
1993	0	0	57,112	2,741	4,000	0	0	23,221	0	0	65,732
1994	0	0	21,510	1,666	2,116	0	1,726	28,793	0	0	40,852
1995	10,527	0	40,934	1,631	4,000	2,959	27,270	45,240	0	0	57,435
1996	1,500	95	84,130	1,868	4,000	0	1,455	52,722	0	100	148,745
1997	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
1998	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
1999	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2000	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2001	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2002	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2003	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2004	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2005	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2006	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2007	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2008	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2009	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2010	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2011	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2012	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2013	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2014	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2015	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2016	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2017	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2018	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2019	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2020	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2021	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2022	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2023	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2024	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2025	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2026	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2027	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2028	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2029	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2030	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2031	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2032	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2033	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2034	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
2035	0	0	47,400	3,000	4,000	0	0	53,370	0	0	71,100
Total	12,027	2,766	2,915,785	183,233	223,608	2,959	32,112	3,155,741	214	100	3,879,915

TABLE B-5A

Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(Acre-Feet)

	California Aqueduct (continued)											
	South San Joaquin Division (continued)											
	Reach 9				Reach 10A						Reach 11B	
Calendar Year	DRWD (47)	KCWA (M&I) (48)	KCWA (Ag) (49)	TLBWSD (50)	MWDSC (51)	KCWA (M&I) (52)	KCWA (Ag) (53)	SCVWD (54)	ACWD (55)	TLBWSD (56)	KCWA (M&I) (57)	KCWA (Ag) (58)
1962	0	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0	0
1968	0	0	30,951	0	0	0	0	0	0	0	0	24,776
1969	0	0	24,489	0	0	0	0	0	0	2,842	0	64,682
1970	0	0	46,114	1,855	0	0	158	0	0	4,315	0	72,279
1971	0	0	58,356	0	0	0	9,973	0	0	0	0	63,773
1972	0	0	75,464	0	0	0	5,876	0	0	0	0	72,358
1973	0	0	54,583	0	0	0	22,948	0	0	0	0	67,544
1974	0	0	63,814	0	0	10,019	22,719	0	0	0	0	87,476
1975	0	0	50,021	0	0	2,791	72,121	0	0	0	0	85,675
1976	0	0	53,465	0	0	74	50,444	0	0	0	0	85,067
1977	0	0	24,668	0	0	201	34,451	0	0	0	3,981	29,603
1978	0	0	72,231	0	0	0	161,889	0	0	0	0	88,753
1979	0	0	74,524	0	0	285	153,245	0	0	0	484	108,379
1980	0	0	79,946	0	0	3,780	131,836	0	0	0	3,112	103,207
1981	0	0	76,508	0	0	341	133,500	0	0	0	494	104,395
1982	0	0	76,877	0	0	4,700	164,832	0	0	0	798	99,081
1983	0	2,217	84,573	0	0	0	146,493	0	0	0	2,089	94,117
1984	0	4,100	85,732	0	0	6,910	150,302	0	0	0	2,349	124,819
1985	0	0	67,696	0	0	6,495	153,473	0	0	0	10,666	118,646
1986	0	0	79,943	0	0	5,065	198,099	0	0	0	8,673	124,836
1987	0	0	97,732	0	0	900	226,521	0	0	0	13,074	111,877
1988	0	1,100	83,858	0	0	8,229	213,795	0	0	0	13,509	114,031
1989	0	0	91,134	0	0	21,038	251,979	0	0	0	9,986	127,058
1990	0	0	83,108	0	0	25,189	47,472	0	0	0	9,319	104,107
1991	0	13,683	601	0	0	1,142	6,820	0	0	0	6,099	118
1992	0	28	40,183	0	0	3,685	89,390	0	0	0	7,419	35,093
1993	197	0	59,542	0	44,496	775	233,862	0	0	0	2,250	73,091
1994	0	0	44,994	0	0	5,227	126,792	0	0	0	3,506	71,202
1995	0	0	64,076	0	50,000	366	229,448	0	0	0	1,154	97,072
1996	0	0	91,527	0	95,000	6,666	199,854	45,000	6,200	0	1,185	96,250
1997	0	0	146,110	0	75,000	500	240,900	40,000	0	0	2,000	130,665
1998	0	0	146,110	0	75,000	500	240,900	0	0	0	2,000	130,665
1999	0	0	146,110	0	0	500	240,900	0	0	0	2,000	130,665
2000	0	0	146,110	0	43,500	500	240,900	0	0	0	2,000	130,665
2001	0	0	146,110	0	0	500	240,900	0	0	0	2,000	130,665
2002	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2003	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2004	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2005	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2006	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2007	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2008	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2009	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2010	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2011	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2012	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2013	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2014	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2015	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2016	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2017	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2018	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2019	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2020	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2021	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2022	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2023	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2024	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2025	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2026	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2027	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2028	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2029	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2030	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2031	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2032	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2033	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2034	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
2035	0	0	69,068	0	0	1,410	269,047	0	0	0	14,159	127,784
Total	197	21,128	4,915,572	1,855	382,996	164,318	13,590,390	85,000	6,200	7,157	591,533	7,447,346

TABLE B-5A

Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(Acre-Feet)

Calendar Year	California Aqueduct (continued)										
	South San Joaquin Division (continued)										
	Reach 12E				Reach 13B			Reach 14A		Reach 14B	
	KCWA (M&I) (59)	KCWA (Ag) (60)	DRWD (61)	MWDSC (62)	KCWA (M&I) (63)	TLBWSD (64)	KCWA (Ag) (65)	KCWA (M&I) (66)	KCWA (Ag) (67)	KCWA (M&I) (68)	KCWA (Ag) (69)
1962	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0	0	0
1970	0	9,279	0	0	0	0	4,891	0	0	0	3
1971	0	28,056	0	0	0	0	0	0	23,844	0	49,929
1972	0	62,342	0	0	0	0	17,388	0	26,621	0	77,034
1973	0	13,082	0	0	0	0	9,297	0	15,328	0	47,040
1974	2,651	4,248	0	0	8,038	0	4,246	0	7,794	0	32,356
1975	0	10,787	0	0	8,538	0	7,059	0	10,306	0	27,736
1976	37,519	20,555	0	0	5,626	0	8,855	0	268	0	35,296
1977	20,280	1,737	0	0	0	0	5,024	0	8,299	0	13,539
1978	47,133	15,011	0	0	21,773	0	7,601	0	34,029	0	72,351
1979	50,740	61,567	0	0	5,663	0	17,766	3,012	27,356	0	59,413
1980	32,039	22,252	0	0	0	0	22,515	4,312	16,876	0	40,513
1981	59,917	58,470	0	0	7,844	0	14,037	4,511	13,007	8	42,753
1982	36,139	75,587	0	0	0	0	25,553	5,373	22,602	184	57,739
1983	0	10,950	0	0	0	0	3,491	1,168	20,302	0	57,922
1984	63,941	39,929	0	0	12,117	0	26,178	137	35,369	10	79,179
1985	69,839	84,117	0	0	0	0	67,711	206	33,103	0	72,855
1986	62,109	51,540	0	0	0	0	66,551	180	26,384	0	70,864
1987	95,297	86,223	0	0	5,609	0	40,374	610	30,098	9	67,710
1988	86,390	123,249	0	0	9,298	0	47,167	604	32,796	4	75,983
1989	83,965	146,544	0	0	5,504	0	57,114	721	29,292	7	82,201
1990	82,164	38,973	0	0	7,645	0	20,423	673	26,800	13	81,076
1991	8,842	303	0	0	0	0	0	768	0	0	0
1992	47,181	57,048	0	0	789	0	17,449	673	16,238	464	41,143
1993	84,822	285,554	0	5,504	12,798	0	88,157	629	17,832	0	62,493
1994	66,188	77,839	0	0	2,494	0	33,148	2,513	16,760	3,000	54,011
1995	107,130	181,097	1,000	0	8,751	3,500	110,685	3	21,234	0	67,391
1996	91,858	131,537	4,131	0	28,063	0	64,849	0	26,978	0	85,936
1997	103,100	109,655	0	0	12,000	0	41,800	0	28,400	0	82,700
1998	103,100	109,655	0	0	12,000	0	41,800	0	28,400	0	82,700
1999	103,100	109,655	0	0	12,000	0	41,800	0	28,400	0	82,700
2000	103,100	109,655	0	0	12,000	0	41,800	0	28,400	0	82,700
2001	103,100	109,655	0	0	12,000	0	41,800	0	28,400	0	82,700
2002	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2003	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2004	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2005	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2006	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2007	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2008	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2009	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2010	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2011	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2012	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2013	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2014	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2015	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2016	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2017	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2018	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2019	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2020	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2021	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2022	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2023	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2024	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2025	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2026	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2027	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2028	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2029	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2030	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2031	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2032	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2033	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2034	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
2035	84,135	187,839	0	0	22,826	0	50,164	752	20,064	0	58,180
Total	4,612,234	8,632,677	5,131	5,504	986,634	3,500	2,702,105	51,661	1,363,692	3,699	3,846,086

TABLE B-5A

Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(Acre-Feet)

Calendar Year	California Aqueduct (continued)								
	South San Joaquin Division (continued)							Mojave Division	
	Reach 14C		Reach 15A		Reach 16A			Reach 18A	Reach 19
	KCWA (M&I) (70)	KCWA (Ag) (71)	KCWA (M&I) (72)	KCWA (Ag) (73)	KCWA (M&I) (74)	KCWA (Ag) (75)	AVEKWA (76)	AVEKWA (77)	AVEKWA (78)
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0
1971	0	24,187	0	3,552	0	0	0	0	0
1972	0	35,016	0	6,064	0	4,768	0	0	0
1973	0	19,043	0	19,916	0	1,961	0	0	0
1974	0	12,601	0	18,000	3,000	1,564	0	0	1,223
1975	0	12,783	0	35,420	3,200	9,867	0	0	7,622
1976	0	9,005	0	39,551	3,500	11,667	0	3,808	23,063
1977	0	3,757	0	6,158	3,420	685	0	1,231	8,927
1978	0	24,542	0	31,148	7,989	1,655	0	1,321	36,333
1979	0	22,372	0	38,602	2,813	15,808	0	2,098	49,910
1980	0	19,953	0	37,817	2,700	16,145	0	2,610	61,534
1981	7	18,729	0	39,033	2,636	18,156	0	2,340	65,690
1982	0	26,479	0	47,782	1,289	17,209	0	1,669	41,127
1983	0	26,613	0	37,426	1,400	17,907	0	43	26,377
1984	2	34,996	0	49,848	1,338	24,202	0	90	22,462
1985	0	31,758	0	44,078	1,309	16,820	0	8	23,440
1986	0	34,566	0	42,461	1,213	15,559	0	8	16,898
1987	9	31,019	0	34,748	1,665	10,170	0	0	15,958
1988	0	37,166	2	41,992	1,913	8,999	0	0	13,471
1989	5	37,800	2	43,239	2,668	8,649	0	0	18,007
1990	9	34,174	6	36,347	2,819	8,608	0	0	17,281
1991	0	0	0	0	2,588	343	2,000	0	728
1992	0	18,084	0	24,243	2,087	8,275	0	0	7,238
1993	0	28,103	0	27,997	2,494	9,167	0	0	13,340
1994	1,000	22,624	0	29,511	3,011	13,877	0	0	19,122
1995	0	31,285	0	26,134	3,188	15,042	0	0	20,222
1996	0	38,879	0	36,186	2,573	18,142	0	0	23,919
1997	0	38,000	0	40,700	4,000	18,200	0	0	23,252
1998	0	38,000	0	40,700	4,000	18,200	0	0	25,753
1999	0	38,000	0	40,700	4,000	18,200	0	0	26,285
2000	0	38,000	0	40,700	4,000	18,200	0	0	26,852
2001	0	38,000	0	40,700	4,000	18,200	0	0	27,456
2002	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2003	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2004	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2005	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2006	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2007	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2008	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2009	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2010	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2011	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2012	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2013	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2014	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2015	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2016	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2017	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2018	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2019	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2020	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2021	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2022	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2023	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2024	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2025	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2026	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2027	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2028	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2029	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2030	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2031	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2032	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2033	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2034	0	29,664	0	37,826	3,678	18,049	0	144	91,877
2035	0	29,664	0	37,826	3,678	18,049	0	144	91,877
Total	1,032	1,834,110	10	2,286,837	205,865	979,911	2,000	20,122	3,787,308

TABLE B-5A

Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(Acre-Feet)

Calendar Year	California Aqueduct (continued)								
	Mojave Division (continued)								
	Reach 20A			Reach 20B		Reach 21		Reach 22A	Reach 22B
	PWD (79)	MWA (80)	AVEKWA (81)	PWD (82)	AVEKWA (83)	LCID (84)	PWD (85)	AVEKWA (86)	MWDSC (d (87)
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	338	0	0	0
1973	0	0	0	0	0	290	0	0	(14,800)
1974	0	0	0	0	0	400	0	0	(16,400)
1975	0	0	420	0	0	520	0	0	(18,000)
1976	0	0	471	0	416	589	0	0	(19,600)
1977	0	0	773	0	271	111	0	0	0
1978	0	0	5,549	0	934	208	0	0	(25,384)
1979	0	0	7,555	0	930	133	0	0	(25,063)
1980	0	0	7,605	0	655	191	0	3	(27,884)
1981	0	0	10,333	0	966	1,270	0	46	(31,105)
1982	0	0	7,313	0	8	0	0	174	(34,326)
1983	0	0	6,253	0	20	38	0	268	(37,547)
1984	0	0	9,558	0	2	1	0	550	(40,768)
1985	1,510	0	11,613	32	217	0	16	1,786	(43,989)
1986	3,041	0	13,808	45	0	163	10	1,735	(47,210)
1987	2,389	0	15,493	1,624	151	1,080	1,366	2,278	(50,931)
1988	366	0	17,117	1,261	281	419	143	3,210	(54,652)
1989	381	0	23,481	7,848	112	971	780	3,591	(58,373)
1990	282	0	25,843	8,292	84	1,747	34	3,988	(61,200)
1991	84	1,391	4,282	3,830	131	522	0	2,427	(18,360)
1992	185	1,310	18,518	3,850	650	251	0	3,859	(27,624)
1993	164	1,514	23,662	7,597	996	734	0	5,098	0
1994	299	1,399	25,250	8,119	124	1,098	0	4,657	0
1995	328	1,227	22,385	6,633	0	480	0	4,679	0
1996	330	1,316	26,899	11,080	0	494	0	5,458	0
1997	0	1,500	31,562	17,300	1,252	2,300	0	4,891	0
1998	0	1,500	33,605	17,300	1,252	2,290	0	77,790	0
1999	0	1,500	35,782	17,300	1,333	2,300	0	75,000	0
2000	0	1,500	38,102	17,300	1,418	2,300	0	72,028	0
2001	0	1,500	40,571	17,300	1,511	2,300	0	68,862	0
2002	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2003	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2004	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2005	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2006	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2007	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2008	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2009	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2010	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2011	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2012	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2013	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2014	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2015	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2016	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2017	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2018	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2019	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2020	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2021	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2022	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2023	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2024	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2025	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2026	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2027	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2028	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2029	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2030	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2031	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2032	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2033	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2034	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2035	0	0	38,379	17,300	2,355	2,300	0	5,645	0
Total	9,359	15,657	1,768,689	734,911	93,784	101,738	2,349	534,308	(653,216)

d) In accordance with the Exchange Agreement between the noted agencies, MWDSC assumed responsibility for payment of variable OMP&R costs on the exchange water in reaches beyond Reach 22B, and Desert Water Agency and Coachella Valley Water District for such costs from the Delta through Reach 22B. The adjustment in deliveries in Reach 22B provides for compliance with provisions for the repayment of costs under the agreement. In 1993 and after the exchange takes place in Reach 26A.

TABLE B-5A

Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(Acre-Feet)

Calendar Year	California Aqueduct (continued)							
	Mojave Division (continued)							Santa Ana Division
	Reach 22B				Reach 23	Reach 24		Reach 26A
	CVWD (d (88)	AVEKWA (e (89)	DWA (d (90)	MWA (91)	MWA (92)	CLAWA (93)	MWA (94)	MWDSC (f (95)
1962	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0
1972	0	0	0	55	0	464	0	0
1973	5,800	0	9,000	0	0	389	0	444
1974	6,400	0	10,000	0	14	627	0	84,981
1975	7,000	0	11,000	0	0	825	0	169,960
1976	7,600	0	12,000	0	0	1,002	0	215,312
1977	0	0	0	22	58	1,109	0	64,823
1978	10,084	0	15,300	0	0	1,209	0	297,708
1979	10,063	0	15,000	4,000	0	1,260	0	260,903
1980	10,884	0	17,000	4,000	0	1,239	0	300,345
1981	12,105	0	19,000	4,000	0	1,485	0	395,678
1982	13,328	0	21,000	10,500	0	1,238	0	214,566
1983	14,547	0	23,000	0	0	911	0	175,288
1984	15,768	0	25,000	0	0	1,128	0	122,311
1985	16,989	0	27,000	0	0	1,422	0	147,599
1986	18,210	0	29,000	0	0	1,506	0	215,265
1987	19,431	214	31,500	17	0	1,849	0	175,012
1988	20,652	0	34,000	9	0	2,006	0	247,101
1989	21,873	89	36,500	0	200	2,170	0	326,217
1990	23,100	10	38,100	0	0	1,827	0	399,387
1991	6,930	0	11,430	0	0	849	2,032	107,182
1992	10,427	0	17,197	42	0	519	9,334	219,524
1993	0	0	0	0	0	439	10,000	96,121
1994	0	0	0	14,634	0	785	819	192,979
1995	0	0	0	7,495	0	409	0	108,758
1996	0	0	0	6,111	0	485	0	113,840
1997	0	0	0	13,100	0	1,950	0	291,291
1998	0	0	0	18,499	0	1,950	0	331,791
1999	0	0	0	28,500	0	1,950	0	481,236
2000	0	0	0	63,483	0	1,950	0	457,105
2001	0	0	0	68,500	0	1,950	0	474,568
2002	0	0	0	25,000	0	5,800	50,800	471,890
2003	0	0	0	25,000	0	5,800	50,800	471,890
2004	0	0	0	25,000	0	5,800	50,800	471,890
2005	0	0	0	25,000	0	5,800	50,800	471,890
2006	0	0	0	25,000	0	5,800	50,800	471,890
2007	0	0	0	25,000	0	5,800	50,800	471,890
2008	0	0	0	25,000	0	5,800	50,800	471,890
2009	0	0	0	25,000	0	5,800	50,800	471,890
2010	0	0	0	25,000	0	5,800	50,800	471,890
2011	0	0	0	25,000	0	5,800	50,800	471,890
2012	0	0	0	25,000	0	5,800	50,800	471,890
2013	0	0	0	25,000	0	5,800	50,800	471,890
2014	0	0	0	25,000	0	5,800	50,800	471,890
2015	0	0	0	25,000	0	5,800	50,800	471,890
2016	0	0	0	25,000	0	5,800	50,800	471,890
2017	0	0	0	25,000	0	5,800	50,800	471,890
2018	0	0	0	25,000	0	5,800	50,800	471,890
2019	0	0	0	25,000	0	5,800	50,800	471,890
2020	0	0	0	25,000	0	5,800	50,800	471,890
2021	0	0	0	25,000	0	5,800	50,800	471,890
2022	0	0	0	25,000	0	5,800	50,800	471,890
2023	0	0	0	25,000	0	5,800	50,800	471,890
2024	0	0	0	25,000	0	5,800	50,800	471,890
2025	0	0	0	25,000	0	5,800	50,800	471,890
2026	0	0	0	25,000	0	5,800	50,800	471,890
2027	0	0	0	25,000	0	5,800	50,800	471,890
2028	0	0	0	25,000	0	5,800	50,800	471,890
2029	0	0	0	25,000	0	5,800	50,800	471,890
2030	0	0	0	25,000	0	5,800	50,800	471,890
2031	0	0	0	25,000	0	5,800	50,800	471,890
2032	0	0	0	25,000	0	5,800	50,800	471,890
2033	0	0	0	25,000	0	5,800	50,800	471,890
2034	0	0	0	25,000	0	5,800	50,800	471,890
2035	0	0	0	25,000	0	5,800	50,800	471,890
Total	251,189	313	402,027	1,092,967	272	234,102	1,749,385	22,731,555

e) 1988 advance entitlement.

f) In accordance with the Exchange Agreement between the noted agencies, MWDSC assumed responsibility for payment of variable OMP&R costs on the exchange water in reaches beyond Reach 22B, and Desert Water Agency and Coachella Valley Water District for such costs from the Delta through Reach 22B. The adjustment in deliveries in Reach 22B provides for compliance with provisions for the repayment of costs under the agreement. In 1993 and after the exchange takes place in Reach 26A.

TABLE B-5A

Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(Acre-Feet)

	California Aqueduct (continued)											
	Santa Ana Division											
	Reach 26A					Reach 28G	Reach 28H			Reach 28J		
Calendar Year	SBVMWD (g (96)	SGVMWD (97)	SGPWA (98)	CVWD (f (99)	DWA (f (100)	MWDSC (101)	CVWD (102)	DWA (103)	MWDSC (104)	CVWD (105)	DWA (106)	MWDSC (107)
1962	0	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	0	0	0
1972	1,275	0	0	0	0	0	0	0	0	0	0	0
1973	32,426	0	0	0	0	18,942	0	0	0	0	0	0
1974	16,605	612	0	0	0	0	0	0	0	0	0	0
1975	13,865	5,450	0	0	0	0	0	0	0	0	0	251
1976	12,273	6,071	0	0	0	0	0	0	55	0	0	2,000
1977	24,833	8,996	0	0	0	0	0	0	43	0	0	2,442
1978	4,055	7,771	0	0	0	0	0	0	48	0	0	64,054
1979	18	290	0	0	0	0	0	0	1,290	0	0	94,353
1980	0	1,085	0	0	0	0	0	0	3,013	0	0	91,532
1981	16,021	3,619	0	0	0	0	0	0	4,365	0	0	149,405
1982	8,409	12,599	0	0	0	0	0	0	3,961	0	0	155,629
1983	5,994	734	0	0	0	0	0	0	6,645	0	0	41,616
1984	5,556	7,656	0	0	0	0	0	0	109,743	0	0	5,672
1985	7,390	5,028	0	0	0	0	0	0	182,781	0	0	6,538
1986	6,421	9,454	0	0	0	0	0	0	131,439	0	0	30,071
1987	8,751	10,630	0	0	0	0	0	0	144,743	0	0	26,315
1988	12,637	8,948	0	0	0	0	0	0	199,641	0	0	22,209
1989	20,782	12,839	0	0	0	0	0	0	247,430	0	0	51,462
1990	18,831	16,649	0	0	0	0	0	0	257,796	0	0	36,060
1991	3,661	5,399	0	0	0	0	0	0	38,832	0	0	5,958
1992	3,358	7,908	0	0	0	0	0	0	85,341	0	0	12,223
1993	4,361	14,397	0	23,100	38,100	0	0	0	63,887	0	0	4,712
1994	9,135	15,230	0	14,102	23,257	0	0	0	134,262	0	0	4,725
1995	696	12,922	0	23,100	38,100	0	0	0	116,672	0	0	20,730
1996	6,064	15,989	0	48,241	79,566	0	13,328	21,984	107,896	650	1,072	9,026
1997	25,000	28,800	0	23,100	38,100	0	0	0	202,246	0	0	204,149
1998	41,000	28,800	0	23,100	38,100	0	0	0	248,160	0	0	204,149
1999	50,000	28,800	4,200	23,100	38,100	0	0	0	328,326	0	0	131,368
2000	56,000	28,800	5,000	23,100	38,100	0	0	0	369,759	0	0	235,936
2001	60,000	28,800	5,000	23,100	38,100	0	0	0	400,518	0	0	204,149
2002	102,600	28,800	5,000	23,100	38,100	0	0	0	396,905	0	0	34,800
2003	102,600	28,800	6,000	23,100	38,100	0	0	0	396,905	0	0	34,800
2004	102,600	28,800	6,500	23,100	38,100	0	0	0	396,905	0	0	34,800
2005	102,600	28,800	7,000	23,100	38,100	0	0	0	396,905	0	0	34,800
2006	102,600	28,800	7,500	23,100	38,100	0	0	0	396,905	0	0	34,800
2007	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2008	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2009	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2010	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2011	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2012	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2013	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2014	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2015	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2016	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2017	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2018	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2019	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2020	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2021	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2022	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2023	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2024	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2025	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2026	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2027	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2028	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2029	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2030	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2031	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2032	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2033	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2034	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
2035	102,600	28,800	17,300	23,100	38,100	0	0	0	396,905	0	0	34,800
Total	3,963,817	1,313,476	547,900	1,009,443	1,664,923	18,942	13,328	21,984	16,883,662	650	1,072	2,999,934

g) Includes 1,650 AF recaptured from groundwater storage in 1982, 10,000 AF in 1987, and 8,749 AF in 1988. This water was stored under DWR's Groundwater Demonstration Program.

TABLE B-5A

Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(Acre-Feet)

	California Aqueduct (continued)							
	West Branch						Coastal Branch	
	Reach 29F	Reach 29H	Reach 30				Reach 31A	
Calendar Year	AVEKWA (108)	VCFCD (109)	MWDSC (h (110)	VCFCD (111)	CLWA (112)	SBCFC&WCD (113)	KCWA (M&I) (114)	KCWA (Ag) (115)
1962	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	71,657
1969	0	0	0	0	0	0	0	52,094
1970	0	0	0	0	0	0	0	71,910
1971	0	0	0	0	0	0	0	98,481
1972	53	0	71,938	0	0	0	0	107,850
1973	20	0	155,297	0	0	0	0	69,227
1974	36	0	209,136	0	0	0	0	68,474
1975	26	0	374,280	0	0	0	0	74,516
1976	24	0	420,684	0	0	0	0	78,358
1977	0	0	122,447	0	0	0	0	35,504
1978	0	0	171,139	0	0	0	0	81,242
1979	0	0	145,591	0	7	0	0	104,017
1980	0	0	164,721	0	1,210	0	0	97,497
1981	0	0	277,503	0	5,761	0	0	97,054
1982	0	0	351,362	0	9,516	0	0	83,076
1983	0	0	157,519	0	9,476	0	0	87,859
1984	0	0	260,624	0	11,477	0	0	119,098
1985	0	0	390,696	0	12,401	0	0	110,124
1986	0	0	379,275	0	13,928	0	0	118,298
1987	0	0	417,285	0	16,167	0	0	116,259
1988	0	0	488,265	0	18,904	0	0	109,435
1989	0	0	589,962	0	21,719	0	0	102,156
1990	0	4,836	764,380	0	22,139	0	0	103,362
1991	0	988	257,835	0	3,846	1,240	0	780
1992	0	0	420,849	0	14,812	0	0	73,748
1993	6	0	437,470	0	13,787	0	0	90,764
1994	0	0	475,900	0	14,919	0	200	77,536
1995	0	0	139,882	0	17,747	0	0	85,050
1996	0	0	267,618	0	19,704	0	3,200	97,378
1997	0	5,000	271,414	5,000	34,635	0	0	89,000
1998	0	5,000	310,900	5,000	23,100	0	0	89,000
1999	0	5,000	518,270	5,000	25,410	0	0	89,000
2000	0	5,000	428,500	5,000	27,949	0	0	89,000
2001	0	5,000	354,865	5,000	30,747	0	0	89,000
2002	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2003	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2004	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2005	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2006	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2007	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2008	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2009	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2010	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2011	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2012	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2013	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2014	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2015	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2016	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2017	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2018	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2019	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2020	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2021	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2022	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2023	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2024	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2025	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2026	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2027	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2028	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2029	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2030	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2031	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2032	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2033	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2034	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
2035	0	5,000	1,107,905	15,000	41,500	0	7,640	85,445
Total	165	200,824	47,464,377	535,000	1,780,361	1,240	263,160	5,832,934

h) Deliveries exclude 6,171 AF of 1982 exchange water.

TABLE B-5A

Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(Acre-Feet)

	California Aqueduct (continued)						
	Coastal Branch (continued)						
	Reach 31A	Reach 33A	Reach 34	Reach 35			
Calendar Year	CLWA (116)	SLOCFC&WCD (117)	SLOCFC&WCD (118)	SLOCFC&WCD (119)	SBCFC&WCD (120)	Total (121)	Grand Total (122)
1962	0	0	0	0	0	0	8,906
1963	0	0	0	0	0	0	12,645
1964	0	0	0	0	0	0	20,911
1965	0	0	0	0	0	0	34,026
1966	0	0	0	0	0	0	54,913
1967	0	0	0	0	0	0	56,763
1968	7,382	0	0	0	0	192,188	294,457
1969	9,970	0	0	0	0	195,705	268,104
1970	11,739	0	0	0	0	276,211	369,459
1971	12,490	0	0	0	0	553,081	654,250
1972	13,905	0	0	0	0	895,006	1,037,584
1973	9,418	0	0	0	0	638,930	737,479
1974	9,700	0	0	0	0	783,984	878,820
1975	10,700	0	0	0	0	1,129,728	1,230,577
1976	11,700	0	0	0	0	1,245,662	1,379,597
1977	5,075	0	0	0	0	465,442	581,675
1978	11,362	0	0	0	0	1,339,268	1,458,154
1979	19,138	0	0	0	0	1,537,075	1,666,155
1980	13,882	0	0	0	0	1,407,163	1,529,989
1981	12,700	0	0	0	0	1,779,479	1,918,342
1982	12,700	0	0	0	0	1,641,571	1,749,789
1983	12,659	0	0	0	0	1,089,626	1,186,831
1984	12,741	0	0	0	0	1,489,770	1,591,087
1985	12,099	0	0	0	0	1,863,544	1,989,925
1986	13,301	0	0	0	0	1,882,290	1,998,514
1987	11,821	0	0	0	0	1,974,569	2,121,060
1988	11,534	0	0	0	0	2,213,089	2,375,984
1989	14,645	0	0	0	0	2,686,838	2,853,044
1990	6,440	0	0	0	0	2,398,121	2,581,277
1991	716	0	0	0	0	489,489	548,520
1992	5,887	0	0	0	0	1,374,775	1,470,695
1993	4,157	0	0	0	0	2,163,309	2,304,190
1994	9,422	0	0	0	0	1,727,504	1,866,346
1995	9,486	0	0	0	0	1,926,835	2,030,310
1996	14,052	0	0	0	0	2,431,080	2,543,522
1997	16,000	2,209	2,305	1,371	38,986	2,674,013	2,858,245
1998	16,000	2,209	2,154	1,450	38,986	2,847,138	3,062,613
1999	16,000	2,209	2,159	1,503	45,486	3,168,417	3,400,412
2000	16,000	2,209	2,163	1,560	45,486	3,288,400	3,522,660
2001	16,000	2,209	2,163	1,617	45,486	3,199,572	3,434,662
2002	12,700	12,628	12,372	0	45,486	3,865,686	4,110,041
2003	12,700	12,628	12,372	0	45,486	3,866,686	4,112,176
2004	12,700	12,628	12,372	0	45,486	3,867,186	4,113,786
2005	12,700	12,628	12,372	0	45,486	3,867,686	4,115,019
2006	12,700	12,628	12,372	0	45,486	3,868,186	4,116,066
2007	12,700	12,628	12,372	0	45,486	3,877,986	4,126,536
2008	12,700	12,628	12,372	0	45,486	3,877,986	4,127,306
2009	12,700	12,628	12,372	0	45,486	3,877,986	4,127,976
2010	12,700	12,628	12,372	0	45,486	3,877,986	4,128,646
2011	12,700	12,628	12,372	0	45,486	3,877,986	4,129,426
2012	12,700	12,628	12,372	0	45,486	3,877,986	4,130,106
2013	12,700	12,628	12,372	0	45,486	3,877,986	4,130,896
2014	12,700	12,628	12,372	0	45,486	3,877,986	4,131,686
2015	12,700	12,628	12,372	0	45,486	3,877,986	4,132,486
2016	12,700	12,628	12,372	0	45,486	3,877,986	4,133,186
2017	12,700	12,628	12,372	0	45,486	3,877,986	4,133,786
2018	12,700	12,628	12,372	0	45,486	3,877,986	4,134,386
2019	12,700	12,628	12,372	0	45,486	3,877,986	4,134,986
2020	12,700	12,628	12,372	0	45,486	3,877,986	4,135,586
2021	12,700	12,628	12,372	0	45,486	3,877,986	4,135,686
2022	12,700	12,628	12,372	0	45,486	3,877,986	4,135,686
2023	12,700	12,628	12,372	0	45,486	3,877,986	4,135,686
2024	12,700	12,628	12,372	0	45,486	3,877,986	4,135,686
2025	12,700	12,628	12,372	0	45,486	3,877,986	4,135,686
2026	12,700	12,628	12,372	0	45,486	3,877,986	4,135,686
2027	12,700	12,628	12,372	0	45,486	3,877,986	4,135,686
2028	12,700	12,628	12,372	0	45,486	3,877,986	4,135,686
2029	12,700	12,628	12,372	0	45,486	3,877,986	4,135,686
2030	12,700	12,628	12,372	0	45,486	3,877,986	4,135,686
2031	12,700	12,628	12,372	0	45,486	3,877,986	4,135,686
2032	12,700	12,628	12,372	0	45,486	3,877,986	4,135,686
2033	12,700	12,628	12,372	0	45,486	3,877,986	4,135,686
2034	12,700	12,628	12,372	0	45,486	3,877,986	4,135,686
2035	12,700	12,628	12,372	0	45,486	3,877,986	4,135,686
Total	822,621	440,397	431,592	7,501	1,760,954	186,765,896	200,121,864

TABLE B-5B

Annual Water Quantities Delivered to Each Contractor

(Acre-Feet)

Calendar Year	North Bay Area			South Bay Area (b				Central Coastal Area		
	Napa County FC&WCD (a (1)	Solano County Water Agency (2)	Total (3)	Alameda County FC&WCD, Zone 7 (4)	Alameda County Water District (5)	Santa Clara Valley Water District (6)	Total (7)	San Luis Obispo County FC&WCD (8)	Santa Barbara County FC&WCD (9)	Total (10)
1962	0	0	0	494	8,412	0	8,906	0	0	0
1963	0	0	0	1,731	10,914	0	12,645	0	0	0
1964	0	0	0	1,673	19,238	0	20,911	0	0	0
1965	0	0	0	2,605	16,407	15,014	34,026	0	0	0
1966	0	0	0	5,511	14,864	34,538	54,913	0	0	0
1967	0	0	0	4,780	12,882	39,101	56,763	0	0	0
1968	1,214	0	1,214	6,133	24,817	70,105	101,055	0	0	0
1969	2,687	0	2,687	6,635	813	62,264	69,712	0	0	0
1970	3,618	0	3,618	9,249	0	80,311	89,560	0	0	0
1971	2,521	0	2,521	5,017	5,961	87,606	98,584	0	0	0
1972	3,647	0	3,647	10,489	27,671	100,266	138,426	0	0	0
1973	3,792	0	3,792	2,975	2,521	88,582	94,078	0	0	0
1974	4,870	0	4,870	1,314	4	88,000	89,318	0	0	0
1975	6,840	0	6,840	4,618	986	88,000	93,604	0	0	0
1976	7,122	0	7,122	17,131	21,300	88,000	126,431	0	0	0
1977	8,226	0	8,226	12,644	18,840	76,220	107,704	0	0	0
1978	6,034	0	6,034	10,984	5,863	95,727	112,574	0	0	0
1979	6,561	0	6,561	19,325	10,874	91,991	122,190	0	0	0
1980	6,707	0	6,707	16,790	11,034	88,000	115,824	0	0	0
1981	9,001	0	9,001	19,590	21,917	88,000	129,507	0	0	0
1982	1,213	0	1,213	13,123	6,316	87,261	106,700	0	0	0
1983	2,287	0	2,287	4,766	3,157	86,733	94,656	0	0	0
1984	2,923	0	2,923	6,784	3,338	88,000	98,122	0	0	0
1985	4,039	0	4,039	15,072	19,016	88,000	122,088	0	0	0
1986	3,519	1,400	4,919	10,609	12,379	88,000	110,988	0	0	0
1987	7,693	1,550	9,243	23,406	25,390	88,000	136,796	0	0	0
1988	5,392	9,725	15,117	25,830	33,464	87,961	147,255	0	0	0
1989	6,195	17,256	23,451	26,227	26,042	90,000	142,269	0	0	0
1990	6,940	19,131	26,071	33,034	31,703	92,000	156,737	0	0	0
1991	1,380	6,972	8,352	9,411	12,648	28,200	50,259	0	1,240	1,240
1992	4,001	14,773	18,774	14,669	19,153	42,839	76,661	0	0	0
1993	5,286	29,180	34,466	33,635	10,271	62,065	105,971	0	0	0
1994	6,792	30,990	37,782	20,542	22,911	57,115	100,568	0	0	0
1995	5,182	21,345	26,527	30,091	17,793	28,756	76,640	0	0	0
1996	4,893	29,911	34,804	18,966	19,662	89,850	128,478	100	0	100
1997	10,425	32,310	42,735	45,347	34,800	100,000	180,147	5,885	38,986	44,871
1998	11,065	38,710	49,775	31,000	33,300	100,000	164,300	5,813	38,986	44,799
1999	11,710	39,170	50,880	46,000	33,665	100,000	179,665	5,871	45,486	51,357
2000	12,330	39,620	51,950	46,000	34,800	100,000	180,800	5,932	45,486	51,418
2001	12,730	39,990	52,720	46,000	34,800	100,000	180,800	5,989	45,486	51,475
2002	14,185	40,540	54,725	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2003	14,800	41,000	55,800	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2004	15,400	41,450	56,850	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2005	16,000	41,500	57,500	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2006	16,450	41,550	58,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2007	17,000	41,600	58,600	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2008	17,650	41,650	59,300	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2009	18,200	41,700	59,900	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2010	18,750	41,750	60,500	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2011	19,400	41,800	61,200	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2012	19,950	41,850	61,800	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2013	20,600	41,900	62,500	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2014	21,250	41,950	63,200	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2015	21,900	42,000	63,900	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2016	22,500	42,000	64,500	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2017	23,100	42,000	65,100	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2018	23,700	42,000	65,700	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2019	24,300	42,000	66,300	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2020	24,900	42,000	66,900	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2021	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2022	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2023	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2024	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2025	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2026	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2027	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2028	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2029	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2030	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2031	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2032	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2033	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2034	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2035	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	45,486	70,486
Total	943,670	1,794,273	2,738,143	2,224,200	2,097,926	6,286,505	10,608,631	879,590	1,762,194	2,641,784

a) For the period 1968 through 1987, deliveries are non-Project water pumped through an interim facility.
b) For the period June 1962 through November 1967, deliveries were supplied by non-Project water.

TABLE B-5B

Annual Water Quantities Delivered to Each Contractor

(Acre-Feet)

Calendar Year	San Joaquin Valley Area								
			Kern County Water Agency						
	Dudley Ridge Water District (11)	Empire West Side Irrigation District (12)	Municipal and Industrial (13)	Agricultural (14)	Total (15)	County of Kings (16)	Oak Flat Water District (17)	Tulare Lake Basin Water Storage District (18)	Total (19)
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0
1968	26,360	1,978	0	127,384	127,384	900	3,084	25,100	184,806
1969	31,375	56	0	141,265	141,265	100	3,016	9,923	185,735
1970	40,407	3,942	0	204,634	204,634	0	5,911	9,578	264,472
1971	41,053	5,990	0	360,151	360,151	3,700	7,212	122,485	540,591
1972	42,443	5,795	0	490,781	490,781	1,400	8,166	258,393	806,978
1973	22,057	3,000	0	341,469	341,469	1,500	3,214	50,464	421,704
1974	33,390	3,000	23,708	323,292	347,000	1,500	3,471	72,289	460,650
1975	40,555	3,000	14,529	396,291	410,820	1,600	3,576	86,258	545,809
1976	41,421	3,000	46,719	392,531	439,250	1,600	4,112	58,811	548,194
1977	11,153	738	27,882	163,425	191,307	1,530	1,472	18,081	224,281
1978	51,747	454	76,895	590,452	667,347	2,070	3,906	12,053	737,577
1979	38,544	1,739	62,997	683,049	746,046	2,000	6,149	155,121	949,599
1980	41,000	894	45,943	588,557	634,500	2,200	5,700	69,244	753,538
1981	41,000	5,859	75,758	615,642	691,400	2,300	4,300	83,438	828,297
1982	41,000	361	48,483	696,817	745,300	1,750	3,838	18,551	810,800
1983	42,900	0	6,854	587,653	594,507	3,550	3,822	1,006	645,785
1984	45,100	0	90,904	769,652	860,556	3,100	5,700	5,743	920,199
1985	46,251	5,197	88,515	800,381	888,896	3,400	5,433	109,791	1,058,968
1986	50,249	1,170	77,240	829,101	906,341	3,700	5,107	79,355	1,045,922
1987	46,288	2,525	117,173	852,731	969,904	4,000	5,625	93,084	1,121,426
1988	47,994	3,775	121,049	888,471	1,009,520	4,000	4,412	95,866	1,165,567
1989	57,049	3,000	123,896	1,022,166	1,146,062	4,000	6,091	127,950	1,344,152
1990	36,296	1,279	127,837	584,611	712,448	2,000	2,922	57,070	812,015
1991	927	221	33,122	8,965	42,087	0	141	2,180	45,556
1992	23,770	1,354	62,326	420,894	483,220	1,806	2,239	46,728	559,117
1993	50,618	2,741	121,925	1,035,962	1,157,887	4,000	4,858	124,468	1,344,572
1994	28,793	1,666	87,139	570,020	657,159	2,116	3,071	62,362	755,167
1995	60,686	1,631	135,415	1,016,114	1,151,529	4,000	5,169	101,869	1,324,884
1996	56,948	1,868	139,219	1,045,844	1,185,063	4,000	4,904	236,875	1,489,658
1997	53,370	3,000	121,600	966,130	1,087,730	4,000	5,700	118,500	1,272,300
1998	53,370	3,000	121,600	966,130	1,087,730	4,000	5,700	118,500	1,272,300
1999	53,370	3,000	121,600	966,130	1,087,730	4,000	5,700	118,500	1,272,300
2000	53,370	3,000	121,600	966,130	1,087,730	4,000	5,700	118,500	1,272,300
2001	53,370	3,000	121,600	966,130	1,087,730	4,000	5,700	118,500	1,272,300
2002	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2003	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2004	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2005	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2006	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2007	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2008	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2009	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2010	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2011	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2012	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2013	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2014	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2015	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2016	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2017	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2018	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2019	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2020	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2021	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2022	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2023	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2024	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2025	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2026	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2027	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2028	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2029	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2030	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2031	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2032	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2033	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2034	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2035	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
Total	3,218,804	183,233	6,939,928	53,785,375	60,725,303	223,822	348,921	6,815,636	71,515,719

TABLE B-5B

Annual Water Quantities Delivered to Each Contractor

(Acre-Feet)

Calendar Year	Southern California Area									
	Antelope Valley-East Kern Water Agency (20)	Castaic Lake Water Agency (c (21)	Coachella Valley Water District (22)	Crestline-Lake Arrowhead Water Agency (23)	Desert Water Agency (24)	Littlerock Creek Irrigation District (25)	Mojave Water Agency (26)	Palmdale Water District (27)	San Bernardino Valley Municipal Water District (28)	San Gabriel Valley Municipal Water District (29)
1962	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0
1968	0	7,382	0	0	0	0	0	0	0	0
1969	0	9,970	0	0	0	0	0	0	0	0
1970	0	11,739	0	0	0	0	0	0	0	0
1971	0	12,490	0	0	0	0	0	0	0	0
1972	53	13,905	0	464	0	338	55	0	1,275	0
1973	20	9,418	5,800	389	9,000	290	0	0	32,426	0
1974	1,259	9,700	6,400	627	10,000	400	14	0	16,605	612
1975	8,068	10,700	7,000	825	11,000	520	0	0	13,865	5,450
1976	27,782	11,700	7,600	1,002	12,000	589	0	0	12,273	6,071
1977	11,202	5,075	0	1,109	0	111	80	0	24,833	8,996
1978	44,137	11,362	10,084	1,209	15,300	208	0	0	4,055	7,771
1979	60,493	19,145	10,063	1,260	15,000	133	4,000	0	18	290
1980	72,407	15,092	10,884	1,239	17,000	191	4,000	0	0	1,085
1981	79,375	18,461	12,105	1,485	19,000	1,270	4,000	0	16,021	3,619
1982	50,291	22,216	13,326	1,238	21,000	0	10,500	0	8,409	12,599
1983	32,961	22,135	14,547	911	23,000	38	0	0	5,994	734
1984	32,662	24,218	15,768	1,128	25,000	1	0	0	5,556	7,656
1985	37,064	24,500	16,989	1,422	27,000	0	0	1,558	7,390	5,028
1986	32,449	27,229	18,210	1,506	29,000	163	0	3,096	6,421	9,454
1987	34,094	27,988	19,431	1,849	31,500	1,080	17	5,379	8,751	10,630
1988	34,079	30,438	20,652	2,006	34,000	419	9	1,770	12,637	8,948
1989	45,280	36,364	21,873	2,170	36,500	971	200	9,009	20,782	12,839
1990	47,206	28,579	23,100	1,827	38,100	1,747	0	8,608	18,831	16,649
1991	9,568	4,562	6,930	849	11,430	522	3,423	3,914	3,661	5,399
1992	30,265	20,699	10,427	519	17,197	251	10,686	4,035	3,358	7,908
1993	43,102	23,039	23,100	439	38,100	734	11,514	7,761	4,361	14,397
1994	49,153	26,441	14,102	785	23,257	1,098	16,852	8,418	9,135	15,230
1995	47,286	27,233	23,100	409	38,100	480	8,722	6,961	696	12,922
1996	56,276	33,756	62,219	485	102,622	494	7,427	11,410	6,064	15,989
1997	60,957	50,635	23,100	1,950	38,100	2,300	14,600	17,300	25,000	28,800
1998	138,400	39,100	23,100	1,950	38,100	2,290	19,999	17,300	41,000	28,800
1999	138,400	41,410	23,100	1,950	38,100	2,300	30,000	17,300	50,000	28,800
2000	138,400	43,949	23,100	1,950	38,100	2,300	64,983	17,300	56,000	28,800
2001	138,400	46,747	23,100	1,950	38,100	2,300	70,000	17,300	60,000	28,800
2002	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2003	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2004	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2005	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2006	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2007	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2008	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2009	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2010	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2011	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2012	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2013	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2014	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2015	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2016	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2017	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2018	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2019	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2020	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2021	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2022	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2023	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2024	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2025	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2026	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2027	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2028	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2029	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2030	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2031	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2032	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2033	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2034	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2035	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
Total	6,206,689	2,610,177	1,274,610	234,102	2,090,006	101,738	2,858,281	746,619	3,963,817	1,313,476

c) Devil's Den Water District merged with Castaic Lake Water Agency effective January 1, 1992.

TABLE B-5B

Annual Water Quantities Delivered to Each Contractor

(Acre-Feet)

Calendar Year	Southern California Area (continued)				Feather River Area					
	San Gorgonio Pass Water Agency (30)	Metropolitan Water District of Southern California (31)	Ventura County Flood Control District (32)	Total (33)	City of Yuba City (34)	County of Butte (35)	Plumas County FC&WCD (36)	Total (37)	South Bay Area Future Contractor (38)	Grand Total (39)
1962	0	0	0	0	0	0	0	0	0	8,906
1963	0	0	0	0	0	0	0	0	0	12,645
1964	0	0	0	0	0	0	0	0	0	20,911
1965	0	0	0	0	0	0	0	0	0	34,026
1966	0	0	0	0	0	0	0	0	0	54,913
1967	0	0	0	0	0	0	0	0	0	56,763
1968	0	0	0	7,382	0	0	0	0	0	294,457
1969	0	0	0	9,970	0	0	0	0	0	268,104
1970	0	0	0	11,739	0	0	70	70	0	369,459
1971	0	0	0	12,490	0	192	64	256	0	654,442
1972	0	71,938	0	88,028	0	186	505	691	0	1,037,770
1973	0	159,883	0	217,226	0	53	679	732	0	737,532
1974	0	277,717	0	323,334	0	127	648	775	0	878,947
1975	0	526,491	0	583,919	0	253	405	658	0	1,230,830
1976	0	618,451	0	697,468	0	527	382	909	0	1,380,124
1977	0	189,755	0	241,161	0	706	303	1,009	0	582,381
1978	0	507,565	0	601,691	0	579	278	857	0	1,458,733
1979	0	477,074	0	587,476	0	302	329	631	0	1,666,457
1980	0	531,727	0	653,625	0	267	295	562	0	1,530,256
1981	0	795,846	0	951,182	0	221	355	576	0	1,918,563
1982	0	691,192	0	830,771	0	334	305	639	0	1,750,123
1983	0	343,521	0	443,841	0	325	262	587	0	1,187,156
1984	0	457,582	0	569,571	108	177	272	557	0	1,591,372
1985	0	683,625	0	804,576	62	308	254	624	0	1,990,295
1986	0	708,840	0	836,368	328	313	317	958	0	1,999,155
1987	0	712,424	0	853,143	88	459	452	999	0	2,121,607
1988	0	902,564	0	1,047,522	303	385	523	1,211	0	2,376,672
1989	0	1,156,698	0	1,342,686	403	300	486	1,189	0	2,853,747
1990	0	1,396,423	4,836	1,585,906	494	380	548	1,422	0	2,582,151
1991	0	391,447	988	442,693	265	328	420	1,013	0	549,113
1992	0	710,313	0	815,658	642	117	485	1,244	0	1,471,454
1993	0	652,190	0	818,737	903	256	444	1,603	0	2,305,349
1994	0	807,866	0	972,337	1,035	329	492	1,856	0	1,867,710
1995	0	436,042	0	601,951	910	203	308	1,421	0	2,031,423
1996	0	593,380	0	890,122	820	365	360	1,545	0	2,544,707
1997	0	1,044,100	10,000	1,316,842	3,700	800	1,350	5,850	0	2,862,745
1998	0	1,170,000	10,000	1,530,039	3,150	27,500	1,400	32,050	0	3,093,263
1999	4,200	1,459,200	10,000	1,844,760	3,150	27,500	1,450	32,100	0	3,431,062
2000	5,000	1,534,800	10,000	1,964,682	3,450	27,500	1,510	32,460	0	3,553,610
2001	5,000	1,434,100	10,000	1,875,797	3,450	27,500	1,570	32,520	0	3,465,612
2002	5,000	2,011,500	20,000	2,522,900	9,600	27,500	1,630	38,730	0	4,147,141
2003	6,000	2,011,500	20,000	2,523,900	9,600	27,500	1,690	38,790	0	4,149,276
2004	6,500	2,011,500	20,000	2,524,400	9,600	27,500	1,750	38,850	0	4,150,886
2005	7,000	2,011,500	20,000	2,524,900	9,600	27,500	1,810	38,910	0	4,152,096
2006	7,500	2,011,500	20,000	2,525,400	9,600	27,500	1,880	38,980	0	4,153,166
2007	17,300	2,011,500	20,000	2,535,200	9,600	27,500	1,950	39,050	0	4,163,636
2008	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,020	39,120	0	4,164,406
2009	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,090	39,190	0	4,165,076
2010	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,160	39,260	0	4,165,746
2011	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,240	39,340	0	4,166,526
2012	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,320	39,420	0	4,167,206
2013	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,410	39,510	0	4,167,996
2014	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,500	39,600	0	4,168,786
2015	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,600	39,700	0	4,169,586
2016	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,170,286
2017	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,170,886
2018	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,171,486
2019	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,086
2020	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,686
2021	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2022	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2023	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2024	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2025	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2026	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2027	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2028	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2029	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2030	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2031	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2032	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2033	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2034	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
2035	17,300	2,011,500	20,000	2,535,200	9,600	27,500	2,700	39,800	0	4,172,786
Total	547,900	89,833,754	735,824	112,516,993	349,661	1,053,792	100,571	1,504,024	0	201,525,294

TABLE B-6

Annual Water Quantities Conveyed through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(Acre-Feet)

Calendar Year	North Bay Aqueduct											
	Barker Slough Pumping Plant				Cordelia Pumping Plant Solano County Water Agency				Cordelia Pumping Plant Napa County FC&WCD			
	Initial Fill Water (1)	Operational Losses (2)	Water Supply Delivery (3)	Total (4)	Initial Fill Water (5)	Operational Losses (6)	Water Supply Delivery (7)	Total (8)	Initial Fill Water (9)	Operational Losses (10)	Water Supply Delivery (a (11)	Total (12)
1961	0	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	24	(10)	1,214	1,228
1969	0	0	0	0	0	0	0	0	0	2	2,687	2,689
1970	0	0	0	0	0	0	0	0	0	18	3,618	3,636
1971	0	0	0	0	0	0	0	0	0	4	2,521	2,525
1972	0	0	0	0	0	0	0	0	0	(10)	3,647	3,637
1973	0	0	0	0	0	0	0	0	0	1	3,792	3,793
1974	0	0	0	0	0	0	0	0	0	10	4,870	4,880
1975	0	0	0	0	0	0	0	0	0	10	6,840	6,850
1976	0	0	0	0	0	0	0	0	0	4	7,122	7,126
1977	0	0	0	0	0	0	0	0	0	2	8,226	8,228
1978	0	0	0	0	0	0	0	0	0	(6)	6,034	6,028
1979	0	0	0	0	0	0	0	0	0	1	6,561	6,562
1980	0	0	0	0	0	0	0	0	0	(3)	6,707	6,704
1981	0	0	0	0	0	0	0	0	0	8	9,001	9,009
1982	0	0	0	0	0	0	0	0	0	(8)	1,213	1,205
1983	0	0	0	0	0	0	0	0	0	(12)	2,287	2,275
1984	0	0	0	0	0	0	0	0	0	(15)	2,923	2,908
1985	0	0	0	0	0	0	0	0	0	13	4,039	4,052
1986	0	0	0	0	0	0	0	0	0	(4)	3,519	3,515
1987	0	0	0	0	0	0	0	0	0	0	7,693	7,693
1988	0	283	15,118	15,401	0	6	9,725	9,731	0	(1)	5,392	5,391
1989	0	758	23,451	24,209	0	0	17,246	17,246	0	(4)	6,195	6,191
1990	0	637	26,071	26,708	0	0	15,856	15,856	0	3	6,940	6,943
1991	0	661	8,352	9,013	0	0	3,855	3,855	0	192	1,380	1,572
1992	0	1,640	18,774	20,414	0	0	9,220	9,220	0	(3)	4,001	3,998
1993	0	1,154	34,466	35,620	0	0	14,471	14,471	0	1	5,286	5,287
1994	0	780	32,048	32,828	0	0	14,913	14,913	0	0	6,792	6,792
1995	0	908	26,527	27,435	0	0	15,893	15,893	0	0	5,182	5,182
1996	0	1,354	34,804	36,158	0	658	17,069	17,727	0	204	4,893	5,097
1997	0	51	42,735	42,786	0	5	15,990	15,995	0	5	10,425	10,430
1998	0	51	49,775	49,826	0	5	17,250	17,255	0	5	11,065	11,070
1999	0	51	50,880	50,931	0	5	18,070	18,075	0	5	11,710	11,715
2000	0	51	51,950	52,001	0	5	18,070	18,075	0	5	12,330	12,335
2001	0	51	52,720	52,771	0	5	17,980	17,985	0	5	12,730	12,735
2002	0	51	54,725	54,776	0	5	19,290	19,295	0	5	14,185	14,190
2003	0	51	55,800	55,851	0	5	19,700	19,705	0	5	14,800	14,805
2004	0	51	56,850	56,901	0	5	20,100	20,105	0	5	15,400	15,405
2005	0	51	57,523	57,574	0	5	19,978	19,983	0	5	16,000	16,005
2006	0	51	58,000	58,051	0	5	20,100	20,105	0	5	16,450	16,455
2007	0	51	58,600	58,651	0	5	20,100	20,105	0	5	17,000	17,005
2008	0	51	59,300	59,351	0	5	20,100	20,105	0	5	17,650	17,655
2009	0	51	59,900	59,951	0	5	20,100	20,105	0	5	18,200	18,205
2010	0	51	60,500	60,551	0	5	20,100	20,105	0	5	18,750	18,755
2011	0	51	61,200	61,251	0	5	20,100	20,105	0	5	19,400	19,405
2012	0	51	61,800	61,851	0	5	20,100	20,105	0	5	19,950	19,955
2013	0	51	62,500	62,551	0	5	20,100	20,105	0	5	20,600	20,605
2014	0	51	63,200	63,251	0	5	20,100	20,105	0	5	21,250	21,255
2015	0	51	63,900	63,951	0	5	20,100	20,105	0	5	21,900	21,905
2016	0	51	64,500	64,551	0	5	20,184	20,189	0	5	22,500	22,505
2017	0	51	65,100	65,151	0	5	20,184	20,189	0	5	23,100	23,105
2018	0	51	65,700	65,751	0	5	20,184	20,189	0	5	23,700	23,705
2019	0	51	66,300	66,351	0	5	20,184	20,189	0	5	24,300	24,305
2020	0	51	66,900	66,951	0	5	20,184	20,189	0	5	24,900	24,905
2021	0	51	67,000	67,051	0	5	20,184	20,189	0	5	25,000	25,005
2022	0	51	67,000	67,051	0	5	20,184	20,189	0	5	25,000	25,005
2023	0	51	67,000	67,051	0	5	20,184	20,189	0	5	25,000	25,005
2024	0	51	67,000	67,051	0	5	20,184	20,189	0	5	25,000	25,005
2025	0	51	67,000	67,051	0	5	20,184	20,189	0	5	25,000	25,005
2026	0	51	67,000	67,051	0	5	20,184	20,189	0	5	25,000	25,005
2027	0	51	67,000	67,051	0	5	20,184	20,189	0	5	25,000	25,005
2028	0	51	67,000	67,051	0	5	20,184	20,189	0	5	25,000	25,005
2029	0	51	67,000	67,051	0	5	20,184	20,189	0	5	25,000	25,005
2030	0	51	67,000	67,051	0	5	20,184	20,189	0	5	25,000	25,005
2031	0	51	67,000	67,051	0	5	20,184	20,189	0	5	25,000	25,005
2032	0	51	67,000	67,051	0	5	20,184	20,189	0	5	25,000	25,005
2033	0	51	67,000	67,051	0	5	20,184	20,189	0	5	25,000	25,005
2034	0	51	67,000	67,051	0	5	20,184	20,189	0	5	25,000	25,005
2035	0	51	67,000	67,051	0	5	20,184	20,189	0	5	25,000	25,005

a) For the period 1968 through 1987, deliveries are non-SWP water pumped through an interim facility.

TABLE B-6

Annual Water Quantities Conveyed through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(Acre-Feet)

	South Bay Aqueduct						California Aqueduct							
							North San Joaquin Division							
	South Bay Pumping Plant						Banks Pumping Plant							
							Transportation Water							
				Deliveries						Deliveries				
Calendar Year	Initial Fill Water (13)	Operational Losses (14)	Reservoir Storage Changes (15)	Water Supply (b (16)	Recreation (17)	Total (18)	Initial Fill Water (19)	Operational Losses (20)	Reservoir Storage Changes (21)	Water Supply (22)	Recreation (23)	Total (24)	Conservation Water (25)	Total (26)
1961	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1962	9	272	0	8,906	0	9,187	0	0	0	0	0	0	0	0
1963	71	185	0	12,645	0	12,901	0	0	0	0	0	0	0	0
1964	171	152	0	20,911	0	21,234	0	0	0	0	0	0	0	0
1965	93	729	0	34,026	0	34,848	0	0	0	0	0	0	0	0
1966	0	1,746	0	54,913	0	56,659	0	0	0	0	0	0	0	0
1967	0	1,677	0	56,763	0	58,440	5,746	1,183	0	11,538	0	18,467	2,957	21,424
1968	0	1,847	0	101,055	0	102,902	11,079	74,464	0	293,243	0	378,786	531,275	910,061
1969	3,449	2,668	0	69,712	0	75,829	7,336	44,287	0	265,417	0	317,040	531,185	848,225
1970	16,279	1,086	(5,355)	89,560	0	101,570	23,947	20,767	(5,355)	365,771	0	405,130	(12,995)	392,135
1971	0	1,815	8,854	98,584	0	109,253	23,207	(10,754)	8,854	651,665	8	672,980	7,708	680,688
1972	0	3,557	2,273	138,426	0	144,256	145,066	9,057	(4,285)	1,033,432	6,489	1,189,759	48,300	1,238,059
1973	0	(33)	(1,510)	94,078	0	92,535	214,941	(4,951)	2,902	733,008	1,155	947,055	55,846	1,002,901
1974	0	1,287	(10,056)	89,318	0	80,549	247,894	(11,526)	(32,510)	873,302	2,118	1,079,278	54,683	1,133,961
1975	0	320	8,550	93,604	0	102,474	110,149	(8,092)	16,101	1,223,332	3,377	1,344,867	(102,625)	1,242,242
1976	0	2,431	1,391	126,431	141	130,394	67,834	5,443	(244,124)	1,372,093	1,745	1,202,991	(442,348)	760,643
1977	0	2,866	2,685	107,704	112	113,367	0	39,897	(157,543)	573,146	1,111	456,611	(13,507)	443,104
1978	0	2,165	(11,249)	112,574	126	103,616	67,457	(36,898)	35,129	1,451,842	1,177	1,518,707	752,075	2,270,782
1979	0	2,401	1,069	122,190	89	125,749	17,397	60,958	(32,307)	1,659,265	1,398	1,706,711	(112,053)	1,594,658
1980	0	1,758	(6,563)	115,824	123	111,142	3,159	58,484	(275,538)	1,529,187	2,131	1,317,423	186,601	1,504,024
1981	0	2,627	13,742	129,507	121	145,997	46,060	85,350	40,536	1,908,986	4,974	2,085,906	(931,878)	1,154,028
1982	0	2,344	(23,928)	107,439	129	85,984	5,979	61,556	99,897	1,743,145	4,646	1,915,223	347,983	2,263,206
1983	0	2,151	(22,886)	94,656	132	74,053	6,071	47,022	(310,477)	1,184,282	7,853	934,751	835,771	1,770,522
1984	0	2,088	8,442	98,122	158	108,810	38,649	97,143	(108,548)	1,587,936	5,874	1,621,054	21,875	1,642,929
1985	0	2,817	(1,607)	122,088	152	123,450	0	110,469	137,783	1,985,632	5,452	2,239,336	(110,569)	2,128,767
1986	0	2,299	(1,850)	110,988	130	111,567	0	90,799	20,177	1,993,278	3,865	2,108,119	200,298	2,308,417
1987	0	2,625	(584)	136,796	137	138,974	0	91,428	(23,116)	2,121,366	7,672	2,197,350	(458,725)	1,738,625
1988	0	2,884	(698)	147,255	142	149,583	0	107,250	(35,484)	2,368,793	4,889	2,445,448	(303,583)	2,141,865
1989	0	2,673	3,296	142,269	152	148,390	0	117,603	(38,058)	2,829,107	8,135	2,916,787	421,131	3,337,918
1990	0	2,763	1,982	156,537	168	161,450	0	120,791	(318,420)	2,554,658	9,262	2,366,291	(218,200)	2,148,091
1991	0	2,637	(4,532)	50,259	150	48,514	0	80,106	265,223	539,984	4,879	890,192	210,643	1,100,835
1992	0	2,881	756	76,661	147	80,445	0	91,391	(18,371)	1,451,436	2,605	1,527,061	(138,456)	1,388,605
1993	0	1,940	(20,051)	105,971	143	88,003	0	149,372	(273,789)	2,279,323	2,609	2,157,515	849,249	3,006,764
1994	0	1,981	1,714	100,568	168	104,431	0	148,714	(28,269)	1,828,072	3,903	1,952,420	(417,358)	1,535,062
1995	0	1,188	(12,333)	76,640	146	65,641	0	173,074	(334,999)	2,003,475	2,575	1,844,125	230,553	2,074,678
1996	0	3,086	3,922	77,278	150	84,436	0	187,090	371,557	2,313,336	3,847	2,875,830	358,692	3,234,522
1997	0	3,726	2,504	140,147	400	146,777	0	106,379	57,727	2,814,160	8,722	2,986,988	(41,052)	2,945,936
1998	0	3,324	(7,493)	164,300	400	160,531	0	104,264	(3,339)	3,011,438	8,724	3,121,087	(75,687)	3,045,400
1999	0	3,407	0	179,665	400	183,472	0	103,796	(213,766)	3,348,082	8,726	3,246,838	(404,378)	2,842,460
2000	0	3,348	0	180,800	400	184,548	0	104,409	140,547	3,469,200	8,730	3,722,886	(416,293)	3,306,593
2001	0	3,409	0	180,800	400	184,609	0	103,132	45,542	3,380,372	8,732	3,537,778	414,589	3,952,367
2002	0	3,262	0	188,000	400	191,662	0	107,535	(422)	4,053,686	9,575	4,170,374	(60,865)	4,109,509
2003	0	3,262	0	188,000	400	191,662	0	105,404	23,102	4,054,686	9,575	4,192,767	273,689	4,466,456
2004	0	3,262	0	188,000	400	191,662	0	105,298	(35,160)	4,055,186	9,575	4,134,899	(141,016)	3,993,883
2005	0	3,262	0	188,000	400	191,662	0	107,390	14,154	4,055,686	9,575	4,186,805	(139,695)	4,047,110
2006	0	3,262	0	188,000	400	191,662	0	105,572	27,598	4,056,186	9,575	4,198,931	302,377	4,501,308
2007	0	3,262	0	188,000	400	191,662	0	105,336	(35,143)	4,065,986	9,575	4,145,754	(190,679)	3,955,075
2008	0	3,262	0	188,000	400	191,662	0	105,388	(1,200)	4,065,986	9,575	4,179,749	140,730	4,320,479
2009	0	3,262	0	188,000	400	191,662	0	105,529	10,911	4,065,986	9,575	4,192,001	7,787	4,199,788
2010	0	3,262	0	188,000	400	191,662	0	105,471	(11,542)	4,065,986	9,575	4,169,490	(72,446)	4,097,044
2011	0	3,262	0	188,000	400	191,662	0	105,446	2,524	4,065,986	9,575	4,183,531	(3,593)	4,179,938
2012	0	3,262	0	188,000	400	191,662	0	105,385	3,897	4,065,986	9,575	4,184,843	7,053	4,191,896
2013	0	3,262	0	188,000	400	191,662	0	105,428	19,364	4,065,986	9,575	4,200,353	143,760	4,344,113
2014	0	3,262	0	188,000	400	191,662	0	105,383	(24,282)	4,065,986	9,575	4,156,662	(188,541)	3,968,121
2015	0	3,262	0	188,000	400	191,662	0	105,466	22,839	4,065,986	9,575	4,203,866	14,607	4,218,473
2016	0	3,262	0	188,000	400	191,662	0	105,507	(9,921)	4,065,986	9,575	4,171,147	119,071	4,290,218
2017	0	3,262	0	188,000	400	191,662	0	105,450	3,117	4,065,986	9,575	4,184,128	9,624	4,193,752
2018	0	3,262	0	188,000	400	191,662	0	105,431	(14,722)	4,065,986	9,575	4,166,270	(7,593)	4,158,677
2019	0	3,262	0	188,000	400	191,662	0	105,398	9,286	4,065,986	9,575	4,190,245	(46,049)	4,144,196
2020	0	3,262	0	188,000	400	191,662	0	105,404	2,483	4,065,986	9,575	4,183,448	74,295	4,257,743
2021	0	3,262	0	188,000	400	191,662	0	105,438	(8,712)	4,065,986	9,575	4,172,287	63,888	4,236,175
2022	0	3,262	0	188,000	400	191,662	0	107,331	(5,688)	4,065,986	9,575	4,177,204	(279,056)	3,898,148
2023	0	3,262	0	188,000	400	191,662	0	105,397	10,692	4,065,986	9,575	4,191,650	155,058	4,346,708
2024	0	3,262	0	188,000	400	191,662	0	107,341	(10,055)	4,065,986	9,575	4,172,847	(144,478)	4,028,369
2025	0	3,262	0	188,000	400	191,662	0	105,443	4,364	4,065,986	9,575	4,185,368	145,512	4,330,880
2026	0	3,262	0	188,000	400	191,662	0	105,476	3,165	4,065,986	9,575	4,184,202	117,759	4,301,961
2027	0	3,262	0	188,000	400	191,662	0	107,362	(6,101)	4,065,986	9,575	4,176,822	(246,618)	3,930,204
2028	0	3,262	0	188,000	400	191,662	0	107,521	1,161	4,065,986	9,575	4,184,243	20,340	4,204,583
2029	0	3,262	0	188,000	400	191,662	0	105,481	18,075	4,065,986	9,575	4,199,117	286,276	4,485,393
2030	0	3,262	0	188,000	400	191,662	0	105,238	(26,161)	4,065,986	9,575	4,154,638	(216,966)	3,937,672
2031	0	3,262	0	188,000	400	191,662	0	107,339	8,984	4,065,986	9,575	4,191,884	(77,929)	4,113,955
2032	0	3,262	0	188,000	400	191,662	0	105,500	10,768	4,065,986	9,575	4,191,829	237,435	4,429,264
2033	0	3,262	0	188,000	400	191,662	0	105,469	(9,079)	4,065,986	9,575	4,171,951	3,166	4,175,117
2034	0	3,262	0	188,000	400	191,662	0	105,492	16,140	4,065,986	9,575	4,197,193	83,106	4,280,299
2035	0	3,262	0	188,000	400	191,662	0	105,225	(9,799)	4,065,986	9,575	4,170,987	(114,582)	4,056,405

b) For the period June 1962 through November 1967, deliveries were supplied by non-SWP water.

TABLE B-6

Annual Water Quantities Conveyed through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(Acre-Feet)

Calendar Year	California Aqueduct (continued)											
	San Luis Division						South San Joaquin Division					
	Dos Amigos Pumping Plant						Buena Vista Pumping Plant					
				Deliveries						Deliveries		
	Initial Fill Water (27)	Operational Losses (28)	Reservoir Storage Changes (29)	Water Supply (30)	Recreation (31)	Total (32)	Initial Fill Water (33)	Operational Losses (34)	Reservoir Storage Changes (35)	Water Supply (36)	Recreation (37)	Total (38)
1961	0	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0	0
1968	11,079	25,126	0	189,104	0	225,309	0	0	0	0	0	0
1969	3,887	9,922	0	192,689	0	206,498	0	0	0	0	0	0
1970	7,668	1,901	0	270,300	0	279,869	4,779	1,012	0	3	0	5,794
1971	23,207	(12,030)	0	545,869	0	557,046	7,853	8,399	0	101,512	0	117,764
1972	145,066	(6,635)	(6,558)	886,840	6,481	1,025,194	100,274	20,044	(6,558)	223,626	6,481	343,867
1973	214,941	(6,778)	1,329	635,716	1,147	846,355	204,638	35,695	1,329	311,096	1,147	553,905
1974	247,894	(16,765)	(15,295)	780,513	2,108	998,455	237,554	19,672	(15,295)	388,949	2,108	632,988
1975	110,149	(12,144)	(693)	1,126,152	3,358	1,226,822	103,352	26,342	(693)	672,531	3,358	804,890
1976	67,834	(456)	(152,171)	1,241,550	1,581	1,158,338	61,122	29,428	(152,171)	785,055	1,581	725,015
1977	0	26,359	(116,219)	463,970	737	374,847	0	25,173	(116,219)	271,944	560	181,458
1978	67,457	1,905	79,308	1,335,362	680	1,484,712	65,027	17,751	121,904	762,043	674	967,399
1979	17,397	33,884	(51,299)	1,530,926	685	1,531,593	12,302	46,157	(51,299)	737,714	502	745,376
1980	3,159	34,391	(272,825)	1,407,663	1,514	1,173,902	0	49,025	(134,009)	778,059	1,262	694,337
1981	46,060	36,962	23,359	1,775,179	4,348	1,885,908	0	38,842	23,359	1,077,322	4,112	1,143,735
1982	5,979	57,146	116,086	1,631,868	4,205	1,815,284	0	29,059	117,174	990,863	4,045	1,141,141
1983	6,071	63,583	(101,155)	1,085,804	7,475	1,061,778	0	40,205	(101,155)	593,920	7,291	540,261
1984	38,649	109,263	(112,744)	1,484,114	5,391	1,524,673	0	38,487	(114,984)	781,955	5,244	710,702
1985	0	86,772	138,898	1,858,111	4,936	2,088,717	0	42,838	139,689	992,606	4,804	1,179,937
1986	0	51,963	19,989	1,877,183	3,426	1,952,561	0	36,751	37,546	1,014,294	3,285	1,091,876
1987	0	64,828	(25,707)	1,978,945	7,121	2,025,187	0	30,495	(25,522)	1,027,361	6,937	1,039,271
1988	0	72,680	(34,592)	2,217,126	4,490	2,259,704	0	38,804	(29,747)	1,244,196	4,360	1,257,613
1989	0	90,090	(29,411)	2,679,845	7,652	2,748,176	0	29,594	(60,826)	1,532,625	7,490	1,508,883
1990	0	118,316	(15,942)	2,394,999	8,922	2,506,295	0	46,865	(14,959)	1,769,991	8,879	1,810,776
1991	0	922,227	9,325	489,584	4,605	1,425,741	0	39,274	96,506	447,152	4,560	587,492
1992	0	118,796	(225,603)	1,372,536	2,079	1,267,808	0	28,138	(98,271)	920,978	1,995	852,840
1993	0	136,432	(220,537)	2,170,494	1,864	2,088,253	0	14,186	(128,363)	908,200	1,676	795,699
1994	0	152,414	(78,957)	1,724,433	3,083	1,800,973	0	35,083	(88,211)	1,107,122	2,918	1,056,912
1995	0	137,937	(12,473)	1,921,666	1,711	2,048,841	0	33,963	(16,431)	706,742	1,669	725,943
1996	0	54,834	8,943	2,231,154	2,938	2,297,869	0	34,768	12,728	886,123	2,868	936,487
1997	0	63,685	55,223	2,668,313	7,210	2,794,431	0	45,666	55,223	1,437,842	7,010	1,545,741
1998	0	64,112	4,154	2,841,438	7,210	2,916,914	0	46,093	4,154	1,651,039	7,010	1,708,296
1999	0	58,476	(213,766)	3,162,717	7,210	3,014,637	0	40,457	(213,766)	2,040,760	7,010	1,874,461
2000	0	59,327	140,547	3,282,700	7,210	3,489,784	0	41,308	140,547	2,117,182	7,010	2,306,047
2001	0	59,000	45,542	3,193,872	7,210	3,305,624	0	40,981	45,542	2,071,797	7,010	2,165,330
2002	0	59,408	(422)	3,859,986	7,210	3,926,182	0	41,389	(422)	2,678,413	7,010	2,726,390
2003	0	59,334	23,102	3,860,986	7,210	3,950,632	0	41,315	23,102	2,679,413	7,010	2,750,840
2004	0	59,461	(35,160)	3,861,486	7,210	3,892,997	0	41,442	(35,160)	2,679,913	7,010	2,693,205
2005	0	59,363	14,154	3,861,986	7,210	3,942,713	0	41,344	14,154	2,680,413	7,010	2,742,921
2006	0	59,489	27,598	3,862,486	7,210	3,956,783	0	41,470	27,598	2,680,913	7,010	2,756,991
2007	0	59,467	(35,143)	3,872,286	7,210	3,903,820	0	41,448	(35,143)	2,690,713	7,010	2,704,028
2008	0	59,350	(1,200)	3,872,286	7,210	3,937,646	0	41,331	(1,200)	2,690,713	7,010	2,737,854
2009	0	59,405	10,911	3,872,286	7,210	3,949,812	0	41,386	10,911	2,690,713	7,010	2,750,020
2010	0	59,373	(11,542)	3,872,286	7,210	3,927,327	0	41,354	(11,542)	2,690,713	7,010	2,727,535
2011	0	59,381	2,524	3,872,286	7,210	3,941,401	0	41,362	2,524	2,690,713	7,010	2,741,609
2012	0	59,402	3,897	3,872,286	7,210	3,942,795	0	41,383	3,897	2,690,713	7,010	2,743,003
2013	0	59,331	19,364	3,872,286	7,210	3,958,191	0	41,312	19,364	2,690,713	7,010	2,758,399
2014	0	59,546	(24,282)	3,872,286	7,210	3,914,760	0	41,527	(24,282)	2,690,713	7,010	2,714,968
2015	0	59,353	22,839	3,872,286	7,210	3,961,688	0	41,334	22,839	2,690,713	7,010	2,761,896
2016	0	59,442	(9,921)	3,872,286	7,210	3,929,017	0	41,423	(9,921)	2,690,713	7,010	2,729,225
2017	0	59,378	3,117	3,872,286	7,210	3,941,991	0	41,359	3,117	2,690,713	7,010	2,742,199
2018	0	59,383	(14,722)	3,872,286	7,210	3,924,157	0	41,364	(14,722)	2,690,713	7,010	2,724,365
2019	0	59,402	9,286	3,872,286	7,210	3,948,184	0	41,383	9,286	2,690,713	7,010	2,748,392
2020	0	59,313	2,483	3,872,286	7,210	3,941,292	0	41,294	2,483	2,690,713	7,010	2,741,500
2021	0	59,355	(8,712)	3,872,286	7,210	3,930,139	0	41,336	(8,712)	2,690,713	7,010	2,730,347
2022	0	59,420	(5,688)	3,872,286	7,210	3,933,228	0	41,401	(5,688)	2,690,713	7,010	2,733,436
2023	0	59,309	10,692	3,872,286	7,210	3,949,497	0	41,290	10,692	2,690,713	7,010	2,749,705
2024	0	59,393	(10,055)	3,872,286	7,210	3,928,834	0	41,374	(10,055)	2,690,713	7,010	2,729,042
2025	0	59,375	4,364	3,872,286	7,210	3,943,235	0	41,356	4,364	2,690,713	7,010	2,743,443
2026	0	59,371	3,165	3,872,286	7,210	3,942,032	0	41,352	3,165	2,690,713	7,010	2,742,240
2027	0	59,424	(6,101)	3,872,286	7,210	3,932,819	0	41,405	(6,101)	2,690,713	7,010	2,733,027
2028	0	59,517	1,161	3,872,286	7,210	3,940,174	0	41,498	1,161	2,690,713	7,010	2,740,382
2029	0	59,414	18,075	3,872,286	7,210	3,956,985	0	41,395	18,075	2,690,713	7,010	2,757,193
2030	0	59,492	(26,161)	3,872,286	7,210	3,912,827	0	41,473	(26,161)	2,690,713	7,010	2,713,035
2031	0	59,451	8,984	3,872,286	7,210	3,947,931	0	41,432	8,984	2,690,713	7,010	2,748,139
2032	0	59,460	10,768	3,872,286	7,210	3,949,724	0	41,441	10,768	2,690,713	7,010	2,749,932
2033	0	59,377	(9,079)	3,872,286	7,210	3,929,794	0	41,358	(9,079)	2,690,713	7,010	2,730,002
2034	0	59,402	16,140	3,872,286	7,210	3,955,038	0	41,383	16,140	2,690,713	7,010	2,755,246
2035	0	59,441	(9,799)	3,872,286	7,210	3,929,138	0	41,422	(9,799)	2,690,713	7,010	2,729,346

TABLE B-6

Annual Water Quantities Conveyed through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(Acre-Feet)

Calendar Year	California Aqueduct (continued) / South San Joaquin Division (continued) / Teerink Pumping Plant						Chrisman Pumping Plant					
				Deliveries						Deliveries		
	Initial Fill Water (39)	Operational Losses (40)	Reservoir Storage Changes (41)	Water Supply (42)	Recreation (43)	Total (44)	Initial Fill Water (45)	Operational Losses (46)	Reservoir Storage Changes (47)	Water Supply (48)	Recreation (49)	Total (50)
1961	0	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0	0	0	0
1970	198	2	0	0	0	200	0	0	0	0	0	0
1971	7,533	(112)	0	3,552	0	10,973	7,366	(159)	0	0	0	7,207
1972	100,274	12,765	(6,558)	84,955	6,481	197,917	100,274	13,160	(6,558)	78,891	6,481	192,248
1973	204,638	21,543	1,329	229,685	1,147	458,342	204,638	32,414	1,329	209,769	1,147	449,297
1974	237,554	11,843	(15,295)	336,198	2,108	572,408	237,554	17,655	(15,295)	318,198	2,108	560,220
1975	103,352	19,763	(693)	621,706	3,358	747,486	103,352	25,326	(693)	586,286	3,358	717,629
1976	61,122	18,552	(152,171)	740,486	1,581	669,570	61,122	21,468	(152,171)	700,935	1,581	632,935
1977	0	16,415	(116,219)	246,349	560	147,105	0	15,698	(116,219)	240,191	560	140,230
1978	65,027	28,820	121,904	631,121	674	847,546	65,027	26,705	121,904	599,973	674	814,283
1979	12,302	50,663	(51,299)	625,561	502	637,729	12,302	50,580	(51,299)	586,959	502	599,044
1980	0	48,825	(134,009)	696,405	1,262	612,483	0	58,085	(134,009)	658,588	1,262	583,926
1981	0	51,600	23,359	998,307	4,112	1,077,378	0	48,844	23,359	959,274	4,112	1,035,589
1982	0	44,353	117,332	878,486	4,045	1,044,216	0	33,541	117,277	830,704	4,045	985,567
1983	0	43,961	(101,155)	487,915	7,291	438,012	0	34,698	(101,155)	450,489	7,291	391,323
1984	0	45,999	(115,088)	632,262	5,244	568,417	0	33,132	(115,092)	582,414	5,244	505,698
1985	0	50,106	139,973	854,684	4,804	1,049,567	0	54,831	139,954	810,606	4,804	1,010,195
1986	0	38,747	37,546	882,300	3,285	961,878	0	41,421	37,546	839,839	3,285	922,091
1987	0	47,815	(25,522)	897,905	6,937	927,135	0	33,195	(25,522)	853,157	6,937	867,767
1988	0	53,815	(29,747)	1,097,643	4,360	1,126,071	0	39,775	(29,747)	1,055,649	4,360	1,070,037
1989	0	49,088	(60,826)	1,382,599	7,490	1,378,351	0	42,307	(60,826)	1,339,358	7,490	1,328,329
1990	0	66,868	(14,959)	1,627,246	8,879	1,688,034	0	56,653	(14,959)	1,590,893	8,879	1,641,466
1991	0	40,564	105,176	446,384	4,560	596,684	0	34,016	105,176	446,384	4,560	590,136
1992	0	31,820	(92,123)	844,376	1,995	786,068	0	34,477	(92,123)	820,133	1,995	764,482
1993	0	27,158	(127,738)	799,143	1,676	700,239	0	28,614	(127,738)	771,146	1,676	673,698
1994	0	50,802	(88,211)	1,007,214	2,918	972,723	0	57,203	(88,211)	977,703	2,918	949,613
1995	0	48,705	(16,431)	2,586,829	1,669	2,620,772	0	36,309	(16,431)	560,695	1,669	582,242
1996	0	61,860	12,769	734,330	2,868	811,827	0	47,136	12,766	698,144	2,868	760,914
1997	0	42,036	55,223	1,288,742	7,010	1,393,011	0	41,786	55,223	1,248,042	7,010	1,352,061
1998	0	42,463	4,154	1,501,939	7,010	1,555,566	0	42,213	4,154	1,461,239	7,010	1,514,616
1999	0	36,827	(213,766)	1,891,660	7,010	1,721,731	0	36,577	(213,766)	1,850,960	7,010	1,680,781
2000	0	37,678	140,547	1,968,082	7,010	2,153,317	0	37,428	140,547	1,927,382	7,010	2,112,367
2001	0	37,351	45,542	1,922,697	7,010	2,012,600	0	37,101	45,542	1,881,997	7,010	1,971,650
2002	0	37,759	(422)	2,569,753	7,010	2,614,100	0	37,509	(422)	2,531,927	7,010	2,576,024
2003	0	37,685	23,102	2,570,753	7,010	2,638,550	0	37,435	23,102	2,532,927	7,010	2,600,474
2004	0	37,812	(35,160)	2,571,253	7,010	2,580,915	0	37,562	(35,160)	2,533,427	7,010	2,542,839
2005	0	37,714	14,154	2,571,753	7,010	2,630,631	0	37,464	14,154	2,533,927	7,010	2,592,555
2006	0	37,840	27,598	2,572,253	7,010	2,644,701	0	37,590	27,598	2,534,427	7,010	2,606,625
2007	0	37,818	(35,143)	2,582,053	7,010	2,591,738	0	37,568	(35,143)	2,544,227	7,010	2,553,662
2008	0	37,701	(1,200)	2,582,053	7,010	2,625,564	0	37,451	(1,200)	2,544,227	7,010	2,587,488
2009	0	37,756	10,911	2,582,053	7,010	2,637,730	0	37,506	10,911	2,544,227	7,010	2,599,654
2010	0	37,724	(11,542)	2,582,053	7,010	2,615,245	0	37,474	(11,542)	2,544,227	7,010	2,577,169
2011	0	37,732	2,524	2,582,053	7,010	2,629,319	0	37,482	2,524	2,544,227	7,010	2,591,243
2012	0	37,753	3,897	2,582,053	7,010	2,630,713	0	37,503	3,897	2,544,227	7,010	2,592,637
2013	0	37,682	19,364	2,582,053	7,010	2,646,109	0	37,432	19,364	2,544,227	7,010	2,608,033
2014	0	37,897	(24,282)	2,582,053	7,010	2,602,678	0	37,647	(24,282)	2,544,227	7,010	2,564,602
2015	0	37,704	22,839	2,582,053	7,010	2,649,606	0	37,454	22,839	2,544,227	7,010	2,611,530
2016	0	37,793	(9,921)	2,582,053	7,010	2,616,935	0	37,543	(9,921)	2,544,227	7,010	2,578,859
2017	0	37,729	3,117	2,582,053	7,010	2,629,909	0	37,479	3,117	2,544,227	7,010	2,591,833
2018	0	37,734	(14,722)	2,582,053	7,010	2,612,075	0	37,484	(14,722)	2,544,227	7,010	2,573,999
2019	0	37,753	9,286	2,582,053	7,010	2,636,102	0	37,503	9,286	2,544,227	7,010	2,598,026
2020	0	37,664	2,483	2,582,053	7,010	2,629,210	0	37,414	2,483	2,544,227	7,010	2,591,134
2021	0	37,706	(8,712)	2,582,053	7,010	2,618,057	0	37,456	(8,712)	2,544,227	7,010	2,579,981
2022	0	37,771	(5,688)	2,582,053	7,010	2,621,146	0	37,521	(5,688)	2,544,227	7,010	2,583,070
2023	0	37,660	10,692	2,582,053	7,010	2,637,415	0	37,410	10,692	2,544,227	7,010	2,599,339
2024	0	37,744	(10,055)	2,582,053	7,010	2,616,752	0	37,494	(10,055)	2,544,227	7,010	2,578,676
2025	0	37,726	4,364	2,582,053	7,010	2,631,153	0	37,476	4,364	2,544,227	7,010	2,593,077
2026	0	37,722	3,165	2,582,053	7,010	2,629,950	0	37,472	3,165	2,544,227	7,010	2,591,874
2027	0	37,775	(6,101)	2,582,053	7,010	2,620,737	0	37,525	(6,101)	2,544,227	7,010	2,582,661
2028	0	37,868	1,161	2,582,053	7,010	2,628,092	0	37,618	1,161	2,544,227	7,010	2,590,016
2029	0	37,765	18,075	2,582,053	7,010	2,644,903	0	37,515	18,075	2,544,227	7,010	2,606,827
2030	0	37,843	(26,161)	2,582,053	7,010	2,600,745	0	37,593	(26,161)	2,544,227	7,010	2,562,669
2031	0	37,802	8,984	2,582,053	7,010	2,635,849	0	37,552	8,984	2,544,227	7,010	2,597,773
2032	0	37,811	10,768	2,582,053	7,010	2,637,642	0	37,561	10,768	2,544,227	7,010	2,599,566
2033	0	37,728	(9,079)	2,582,053	7,010	2,617,712	0	37,478	(9,079)	2,544,227	7,010	2,579,636
2034	0	37,753	16,140	2,582,053	7,010	2,642,956	0	37,503	16,140	2,544,227	7,010	2,604,880
2035	0	37,792	(9,799)	2,582,053	7,010	2,617,056	0	37,542	(9,799)	2,544,227	7,010	2,578,980

TABLE B-6

Annual Water Quantities Conveyed through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(Acre-Feet)

Calendar Year	California Aqueduct (continued)											
	Tehachapi Division						Mojave Division					
	Edmonston Pumping Plant						Alamo Powerplant					
				Deliveries						Deliveries		
	Initial Fill Water (51)	Operational Losses (52)	Reservoir Storage Changes (53)	Water Supply (54)	Recreation (55)	Total (56)	Initial Fill Water (57)	Operational Losses (58)	Reservoir Storage Changes (59)	Water Supply (60)	Recreation (61)	Total (62)
1961	0	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0	0	0	0
1971	5,446	8	0	0	0	5,454	0	0	0	0	0	0
1972	100,274	16,067	(6,558)	74,123	6,481	190,387	0	0	0	0	0	0
1973	204,638	34,051	1,329	207,808	1,147	448,973	0	0	0	0	0	0
1974	237,554	18,181	(15,295)	313,634	2,108	556,182	0	0	0	0	0	0
1975	103,352	20,183	(693)	573,219	3,358	699,419	0	0	0	0	0	0
1976	61,122	21,096	(152,171)	685,768	1,581	617,396	0	0	0	0	0	0
1977	0	18,424	(116,219)	236,086	560	138,851	0	0	0	0	0	0
1978	65,027	20,887	121,904	590,329	674	798,821	0	0	0	0	0	0
1979	12,302	46,332	(51,299)	568,338	502	576,175	0	0	0	0	0	0
1980	0	52,967	(134,009)	639,743	1,262	559,963	0	0	0	0	0	0
1981	0	40,602	23,359	938,482	4,112	1,006,555	0	0	0	0	0	0
1982	0	37,244	117,296	812,206	4,045	970,791	0	0	0	0	0	0
1983	0	40,690	(101,155)	431,182	7,291	378,008	0	0	0	0	0	0
1984	0	42,112	(115,214)	556,830	5,244	488,972	0	0	0	0	0	0
1985	0	45,265	139,988	792,477	4,804	982,534	0	0	0	0	0	0
1986	0	36,918	37,546	823,067	3,285	900,816	0	14,735	12,258	429,864	1,508	458,365
1987	0	29,580	(25,522)	841,322	6,937	852,317	0	11,665	(15,270)	417,870	1,239	415,504
1988	0	42,017	(29,747)	1,044,737	4,360	1,061,367	0	21,696	1,101	537,568	971	561,336
1989	0	32,270	(60,826)	1,328,041	7,490	1,306,975	0	4,686	(200,363)	716,360	1,407	522,090
1990	0	42,188	(14,959)	1,579,466	8,879	1,615,574	0	8,888	(5,783)	788,111	1,388	792,604
1991	0	33,999	105,176	441,453	4,560	585,188	0	17,908	34,422	177,644	394	230,268
1992	0	23,121	(92,123)	809,771	1,995	742,764	0	14,873	(17,115)	374,110	423	372,291
1993	0	11,946	(127,738)	759,485	1,676	645,369	0	9,304	(3,455)	308,222	443	314,514
1994	0	40,808	(88,211)	960,815	2,918	916,330	0	21,837	3,395	469,996	430	495,658
1995	0	36,001	(16,431)	542,465	1,669	563,704	0	14,139	(30,761)	384,836	427	368,641
1996	0	40,712	12,837	677,429	2,868	733,846	0	10,769	(14,607)	390,107	565	386,934
1997	0	40,236	55,223	1,225,842	7,010	1,328,311	0	22,821	59,719	909,793	1,630	993,963
1998	0	40,663	4,154	1,439,039	7,010	1,490,866	0	23,228	(383)	1,095,039	1,630	1,119,514
1999	0	35,027	(213,766)	1,828,760	7,010	1,657,031	0	20,945	(54,860)	1,275,080	1,630	1,242,795
2000	0	35,878	140,547	1,905,182	7,010	2,088,617	0	21,067	26,129	1,438,733	1,630	1,487,559
2001	0	35,551	45,542	1,859,797	7,010	1,947,900	0	21,044	(19,591)	1,464,185	1,630	1,467,268
2002	0	35,959	(422)	2,510,200	7,010	2,552,747	0	20,860	9,363	1,340,795	1,630	1,372,648
2003	0	35,885	23,102	2,511,200	7,010	2,577,197	0	20,802	19,022	1,341,795	1,630	1,383,249
2004	0	36,012	(35,160)	2,511,700	7,010	2,519,562	0	20,960	(20,992)	1,342,295	1,630	1,343,893
2005	0	35,914	14,154	2,512,200	7,010	2,569,278	0	20,906	5,544	1,342,795	1,630	1,370,875
2006	0	36,040	27,598	2,512,700	7,010	2,583,348	0	20,949	22,377	1,343,295	1,630	1,388,251
2007	0	36,018	(35,143)	2,522,500	7,010	2,530,385	0	20,986	(16,898)	1,353,095	1,630	1,358,813
2008	0	35,901	(1,200)	2,522,500	7,010	2,564,211	0	20,938	(13,411)	1,353,095	1,630	1,362,252
2009	0	35,956	10,911	2,522,500	7,010	2,576,377	0	20,879	6,684	1,353,095	1,630	1,382,288
2010	0	35,924	(11,542)	2,522,500	7,010	2,553,892	0	20,838	(8,592)	1,353,095	1,630	1,366,971
2011	0	35,932	2,524	2,522,500	7,010	2,567,966	0	20,856	(1,972)	1,353,095	1,630	1,373,609
2012	0	35,953	3,897	2,522,500	7,010	2,569,360	0	20,847	2,369	1,353,095	1,630	1,377,941
2013	0	35,862	19,364	2,522,500	7,010	2,584,756	0	20,763	22,057	1,353,095	1,630	1,397,545
2014	0	36,097	(24,282)	2,522,500	7,010	2,541,325	0	21,047	(20,338)	1,353,095	1,630	1,355,434
2015	0	35,904	22,839	2,522,500	7,010	2,588,253	0	20,815	19,960	1,353,095	1,630	1,395,500
2016	0	35,993	(9,921)	2,522,500	7,010	2,555,582	0	20,908	(12,156)	1,353,095	1,630	1,363,477
2017	0	35,929	3,117	2,522,500	7,010	2,568,556	0	20,818	1,982	1,353,095	1,630	1,377,525
2018	0	35,934	(14,722)	2,522,500	7,010	2,550,722	0	20,836	(11,839)	1,353,095	1,630	1,363,722
2019	0	35,953	9,286	2,522,500	7,010	2,574,749	0	20,857	8,526	1,353,095	1,630	1,384,108
2020	0	35,864	2,483	2,522,500	7,010	2,567,857	0	20,788	3,455	1,353,095	1,630	1,378,968
2021	0	35,906	(8,712)	2,522,500	7,010	2,556,704	0	20,822	(9,132)	1,353,095	1,630	1,366,415
2022	0	35,971	(5,688)	2,522,500	7,010	2,559,793	0	20,876	(5,445)	1,353,095	1,630	1,370,156
2023	0	35,860	10,692	2,522,500	7,010	2,576,062	0	20,793	12,672	1,353,095	1,630	1,388,190
2024	0	35,944	(10,055)	2,522,500	7,010	2,555,399	0	20,876	(10,679)	1,353,095	1,630	1,364,922
2025	0	35,926	4,364	2,522,500	7,010	2,569,800	0	20,830	749	1,353,095	1,630	1,376,304
2026	0	35,922	3,165	2,522,500	7,010	2,568,597	0	20,811	1,832	1,353,095	1,630	1,377,368
2027	0	35,975	(6,101)	2,522,500	7,010	2,559,384	0	20,873	(2,769)	1,353,095	1,630	1,372,829
2028	0	36,068	1,161	2,522,500	7,010	2,566,739	0	21,014	1,897	1,353,095	1,630	1,377,636
2029	0	35,965	18,075	2,522,500	7,010	2,583,550	0	20,885	16,730	1,353,095	1,630	1,392,340
2030	0	36,043	(26,161)	2,522,500	7,010	2,539,392	0	21,005	(9,050)	1,353,095	1,630	1,366,680
2031	0	36,002	8,984	2,522,500	7,010	2,574,496	0	21,054	(1,822)	1,353,095	1,630	1,373,957
2032	0	36,011	10,768	2,522,500	7,010	2,576,289	0	20,945	4,505	1,353,095	1,630	1,380,175
2033	0	35,928	(9,079)	2,522,500	7,010	2,556,359	0	20,821	(9,294)	1,353,095	1,630	1,366,252
2034	0	35,953	16,140	2,522,500	7,010	2,581,603	0	20,851	15,049	1,353,095	1,630	1,390,625
2035	0	35,992	(9,799)	2,522,500	7,010	2,555,703	0	21,005	14,972	1,353,095	1,630	1,390,702

TABLE B-6

Annual Water Quantities Conveyed through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(Acre-Feet)

Calendar Year	California Aqueduct (continued) / Mojave Division (continued) / Pearblossom Pumping Plant						Mojave Siphon Powerplant					
				Deliveries						Deliveries		
	Initial Fill Water (63)	Operational Losses (64)	Reservoir Storage Changes (65)	Water Supply (66)	Recreation (67)	Total (68)	Initial Fill Water (69)	Operational Losses (70)	Reservoir Storage Changes (71)	Water Supply (72)	Recreation (73)	Total (74)
1961	0	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0	0	0	0
1971	21	0	0	0	0	21	0	0	0	0	0	0
1972	35,243	5,282	(153)	1,794	0	42,166	0	0	0	0	0	0
1973	80,177	21,522	(2,700)	52,201	72	151,272	0	0	0	0	0	0
1974	76,694	10,847	(11,149)	102,839	44	179,275	0	0	0	0	0	0
1975	10,000	2,364	(8,397)	190,351	70	194,388	0	0	0	0	0	0
1976	4,168	7,040	(16,055)	236,713	152	232,018	0	0	0	0	0	0
1977	0	11,398	(17,534)	102,326	580	96,770	0	0	0	0	0	0
1978	19,922	5,696	69,130	374,845	498	470,091	0	0	0	0	0	0
1979	12,302	6,836	(32,518)	362,114	502	349,236	0	0	0	0	0	0
1980	0	16,200	6,159	401,214	781	424,354	0	0	0	0	0	0
1981	0	4,992	(36,278)	574,573	933	544,220	0	0	0	0	0	0
1982	0	5,251	55,232	401,037	1,919	463,439	0	0	0	0	0	0
1983	0	11,745	(26,847)	231,188	1,180	217,266	0	0	0	0	0	0
1984	0	18,228	23,230	252,066	1,494	295,018	0	0	0	0	0	0
1985	0	25,292	(2,815)	350,758	1,076	374,311	0	0	0	0	0	0
1986	0	30,876	12,258	394,156	1,508	438,798	0	0	0	0	0	0
1987	0	27,552	(15,270)	367,531	1,239	381,052	0	0	0	0	0	0
1988	0	32,209	1,101	501,300	971	535,581	0	0	0	0	0	0
1989	0	31,500	(20,363)	661,189	1,407	673,733	0	0	0	0	0	0
1990	0	32,672	(5,793)	730,560	1,388	758,827	0	0	0	0	0	0
1991	0	15,209	34,774	164,149	394	214,526	0	0	0	0	0	0
1992	0	13,989	(17,451)	338,249	423	335,210	0	0	0	0	0	0
1993	0	9,779	(3,455)	255,117	443	261,884	0	0	0	0	0	0
1994	0	150	3,395	409,928	430	413,903	0	0	0	0	0	0
1995	0	6,820	(29,282)	328,882	427	306,847	0	0	0	0	0	0
1996	0	11,564	(13,035)	320,611	565	319,705	0	0	0	0	0	0
1997	0	17,471	59,719	827,736	1,430	906,356	0	14,001	59,719	814,636	1,430	889,786
1998	0	17,878	(383)	935,549	1,430	954,474	0	14,408	(383)	917,050	1,430	932,505
1999	0	15,595	(54,860)	1,115,580	1,430	1,077,745	0	12,125	(54,860)	1,087,080	1,430	1,045,775
2000	0	15,717	26,129	1,279,233	1,430	1,322,509	0	12,247	26,129	1,215,750	1,430	1,255,556
2001	0	15,694	(19,591)	1,304,685	1,430	1,302,218	0	12,224	(19,591)	1,236,185	1,430	1,230,248
2002	0	15,510	9,363	1,182,795	1,430	1,209,098	0	12,040	9,363	1,157,795	1,430	1,180,628
2003	0	15,452	19,022	1,183,795	1,430	1,219,699	0	11,982	19,022	1,158,795	1,430	1,191,229
2004	0	15,610	(20,992)	1,184,295	1,430	1,180,343	0	12,140	(20,992)	1,159,295	1,430	1,151,873
2005	0	15,556	5,544	1,184,795	1,430	1,207,325	0	12,086	5,544	1,159,795	1,430	1,178,855
2006	0	15,599	22,377	1,185,295	1,430	1,224,701	0	12,129	22,377	1,160,295	1,430	1,196,231
2007	0	15,636	(16,898)	1,195,095	1,430	1,195,263	0	12,166	(16,898)	1,170,095	1,430	1,166,793
2008	0	15,588	(13,411)	1,195,095	1,430	1,198,702	0	12,118	(13,411)	1,170,095	1,430	1,170,232
2009	0	15,529	6,684	1,195,095	1,430	1,218,738	0	12,059	6,684	1,170,095	1,430	1,190,268
2010	0	15,488	(8,592)	1,195,095	1,430	1,203,421	0	12,018	(8,592)	1,170,095	1,430	1,174,951
2011	0	15,506	(1,972)	1,195,095	1,430	1,210,059	0	12,036	(1,972)	1,170,095	1,430	1,181,589
2012	0	15,497	2,369	1,195,095	1,430	1,214,391	0	12,027	2,369	1,170,095	1,430	1,185,921
2013	0	15,413	22,057	1,195,095	1,430	1,233,995	0	11,943	22,057	1,170,095	1,430	1,205,525
2014	0	15,697	(20,338)	1,195,095	1,430	1,191,884	0	12,227	(20,338)	1,170,095	1,430	1,163,414
2015	0	15,465	19,960	1,195,095	1,430	1,231,950	0	11,995	19,960	1,170,095	1,430	1,203,480
2016	0	15,558	(12,156)	1,195,095	1,430	1,199,927	0	12,088	(12,156)	1,170,095	1,430	1,171,457
2017	0	15,468	1,982	1,195,095	1,430	1,213,975	0	11,998	1,982	1,170,095	1,430	1,185,505
2018	0	15,486	(11,839)	1,195,095	1,430	1,200,172	0	12,016	(11,839)	1,170,095	1,430	1,171,702
2019	0	15,507	8,526	1,195,095	1,430	1,220,558	0	12,037	8,526	1,170,095	1,430	1,192,088
2020	0	15,438	3,455	1,195,095	1,430	1,215,418	0	11,968	3,455	1,170,095	1,430	1,186,948
2021	0	15,472	(9,132)	1,195,095	1,430	1,202,865	0	12,002	(9,132)	1,170,095	1,430	1,174,395
2022	0	15,526	(5,445)	1,195,095	1,430	1,206,606	0	12,056	(5,445)	1,170,095	1,430	1,178,136
2023	0	15,443	12,672	1,195,095	1,430	1,224,640	0	11,973	12,672	1,170,095	1,430	1,196,170
2024	0	15,526	(10,679)	1,195,095	1,430	1,201,372	0	12,056	(10,679)	1,170,095	1,430	1,172,902
2025	0	15,480	749	1,195,095	1,430	1,212,754	0	12,010	749	1,170,095	1,430	1,184,284
2026	0	15,461	1,832	1,195,095	1,430	1,213,818	0	11,991	1,832	1,170,095	1,430	1,185,348
2027	0	15,523	(2,769)	1,195,095	1,430	1,209,279	0	12,053	(2,769)	1,170,095	1,430	1,180,809
2028	0	15,664	1,897	1,195,095	1,430	1,214,086	0	12,194	1,897	1,170,095	1,430	1,185,616
2029	0	15,535	16,730	1,195,095	1,430	1,228,790	0	12,065	16,730	1,170,095	1,430	1,200,320
2030	0	15,655	(9,050)	1,195,095	1,430	1,203,130	0	12,185	(9,050)	1,170,095	1,430	1,174,660
2031	0	15,704	(1,822)	1,195,095	1,430	1,210,407	0	12,234	(1,822)	1,170,095	1,430	1,181,937
2032	0	15,595	4,505	1,195,095	1,430	1,216,625	0	12,125	4,505	1,170,095	1,430	1,188,155
2033	0	15,471	(9,294)	1,195,095	1,430	1,202,702	0	12,001	(9,294)	1,170,095	1,430	1,174,232
2034	0	15,501	15,049	1,195,095	1,430	1,227,075	0	12,031	15,049	1,170,095	1,430	1,198,605
2035	0	15,655	14,972	1,195,095	1,430	1,227,152	0	12,185	14,972	1,170,095	1,430	1,198,682

TABLE B-6

Annual Water Quantities Conveyed through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(Acre-Feet)

Calendar Year	California Aqueduct (continued)											
	Santa Ana Division						West Branch, California Aqueduct					
	Devil Canyon Powerplant						Oso Pumping Plant					
				Deliveries						Deliveries		
	Initial Fill Water (75)	Operational Losses (76)	Reservoir Storage Changes (77)	Water Supply (78)	Recreation (79)	Total (80)	Initial Fill Water (81)	Operational Losses (82)	Reservoir Storage Changes (83)	Water Supply (84)	Recreation (85)	Total (86)
1961	0	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	2,444	133	0	0	0	2,577
1972	37	0	0	1,275	0	1,312	63,883	6,557	(6,405)	71,991	6,481	142,507
1973	40,848	14,745	0	51,812	0	107,405	124,461	16,995	4,029	155,317	1,075	301,877
1974	74,666	8,367	(4,925)	102,198	0	180,306	160,860	12,702	(4,146)	209,172	2,064	380,652
1975	10,000	1,996	(6,719)	189,526	0	194,802	93,352	23,008	7,704	374,306	3,288	501,658
1976	4,168	5,180	(9,182)	235,711	23	235,900	56,954	15,845	(136,116)	420,708	1,429	358,820
1977	0	8,082	(5,235)	101,137	469	104,453	0	4,407	(98,685)	122,447	(20)	28,149
1978	14,820	3,754	21,686	373,636	481	414,377	45,105	9,061	52,774	171,139	176	278,255
1979	12,302	5,620	(27,107)	356,854	485	348,154	0	25,355	(18,781)	145,598	0	152,172
1980	0	9,468	12,714	395,975	742	418,899	0	24,576	(140,168)	165,931	481	50,820
1981	0	8,401	(23,448)	569,088	807	554,848	0	15,254	59,637	283,264	3,179	361,334
1982	0	6,012	44,469	399,799	1,798	452,078	0	23,824	61,685	360,878	2,126	448,513
1983	0	8,597	5,188	230,277	1,078	245,140	0	23,601	(74,308)	166,995	6,111	122,399
1984	0	12,861	(850)	250,938	1,414	264,363	0	12,461	(138,146)	272,101	3,750	150,166
1985	0	14,325	(8,791)	349,336	956	355,826	0	28,257	142,219	403,097	3,728	577,301
1986	0	9,486	8,339	392,650	1,378	411,853	0	22,387	25,288	393,203	1,777	442,655
1987	0	7,919	(11,331)	365,451	1,118	363,157	0	18,164	(10,252)	433,452	5,698	447,062
1988	0	11,090	2,238	499,285	861	513,474	0	20,885	(30,848)	507,169	3,389	500,595
1989	0	13,116	(5,487)	658,730	1,301	667,660	0	28,925	(40,463)	611,681	6,083	606,226
1990	0	13,439	(4,622)	728,723	1,281	738,821	0	34,778	(9,176)	791,355	7,491	824,448
1991	0	10,836	18,308	161,032	340	190,516	0	16,323	70,754	263,909	4,166	355,152
1992	0	9,157	(9,084)	328,354	371	328,798	0	8,200	(75,008)	435,661	1,572	370,425
1993	0	5,602	5,593	244,678	364	256,237	0	2,668	(124,283)	451,263	1,233	330,881
1994	0	10,915	(11,045)	393,690	357	393,917	0	17,831	(91,606)	490,819	2,488	419,532
1995	0	11,268	2,331	320,978	358	334,935	0	21,506	14,330	157,629	1,242	194,707
1996	0	10,503	12,008	314,015	494	337,020	0	29,954	27,344	287,322	2,303	346,923
1997	0	10,040	719	812,686	1,250	824,695	0	17,365	(4,496)	316,049	5,380	334,298
1998	0	10,160	(383)	915,100	1,250	926,127	0	17,385	4,537	344,000	5,380	371,302
1999	0	8,460	(22,328)	1,085,130	1,250	1,072,512	0	14,032	(158,906)	553,680	5,380	414,186
2000	0	8,466	4,719	1,213,800	1,250	1,228,235	0	14,761	114,418	466,449	5,380	601,008
2001	0	8,448	(5,772)	1,234,235	1,250	1,238,161	0	14,457	65,133	395,612	5,380	480,582
2002	0	8,448	5,244	1,101,195	1,250	1,116,137	0	15,049	(9,785)	1,169,405	5,380	1,180,049
2003	0	8,408	3,292	1,102,195	1,250	1,115,145	0	15,033	4,080	1,169,405	5,380	1,193,898
2004	0	8,467	481	1,102,695	1,250	1,112,893	0	15,002	(14,168)	1,169,405	5,380	1,175,619
2005	0	8,442	(4,031)	1,103,195	1,250	1,108,856	0	14,958	8,610	1,169,405	5,380	1,198,353
2006	0	8,452	4,347	1,103,695	1,250	1,117,744	0	15,041	5,221	1,169,405	5,380	1,195,047
2007	0	8,432	(2,500)	1,113,495	1,250	1,120,677	0	14,982	(18,245)	1,169,405	5,380	1,171,522
2008	0	8,451	1,799	1,113,495	1,250	1,124,995	0	14,913	12,211	1,169,405	5,380	1,201,909
2009	0	8,448	(3,471)	1,113,495	1,250	1,119,722	0	15,027	4,227	1,169,405	5,380	1,194,039
2010	0	8,462	(914)	1,113,495	1,250	1,122,293	0	15,036	(2,950)	1,169,405	5,380	1,186,871
2011	0	8,456	1,241	1,113,495	1,250	1,124,442	0	15,026	4,496	1,169,405	5,380	1,194,307
2012	0	8,456	2,225	1,113,495	1,250	1,125,426	0	15,056	1,528	1,169,405	5,380	1,191,369
2013	0	8,453	1,663	1,113,495	1,250	1,124,861	0	15,069	(2,693)	1,169,405	5,380	1,187,161
2014	0	8,458	2,123	1,113,495	1,250	1,125,326	0	15,000	(3,944)	1,169,405	5,380	1,185,841
2015	0	8,426	(8,435)	1,113,495	1,250	1,114,736	0	15,039	2,879	1,169,405	5,380	1,192,703
2016	0	8,423	4,804	1,113,495	1,250	1,127,972	0	15,035	2,235	1,169,405	5,380	1,192,055
2017	0	8,411	(2,801)	1,113,495	1,250	1,120,355	0	15,061	1,135	1,169,405	5,380	1,190,981
2018	0	8,445	2,941	1,113,495	1,250	1,126,131	0	15,048	(2,883)	1,169,405	5,380	1,186,950
2019	0	8,463	309	1,113,495	1,250	1,123,517	0	15,046	760	1,169,405	5,380	1,190,591
2020	0	8,405	(4,072)	1,113,495	1,250	1,119,078	0	15,026	(972)	1,169,405	5,380	1,188,839
2021	0	8,455	4,752	1,113,495	1,250	1,127,952	0	15,034	420	1,169,405	5,380	1,190,239
2022	0	8,482	(5,840)	1,113,495	1,250	1,117,387	0	15,045	(243)	1,169,405	5,380	1,189,587
2023	0	8,414	3,678	1,113,495	1,250	1,126,837	0	15,017	(1,980)	1,169,405	5,380	1,187,822
2024	0	8,463	(3,238)	1,113,495	1,250	1,119,970	0	15,018	624	1,169,405	5,380	1,190,427
2025	0	8,463	3,416	1,113,495	1,250	1,126,624	0	15,046	3,615	1,169,405	5,380	1,193,446
2026	0	8,431	(1,792)	1,113,495	1,250	1,121,384	0	15,061	1,333	1,169,405	5,380	1,191,179
2027	0	8,452	(443)	1,113,495	1,250	1,122,754	0	15,052	(3,332)	1,169,405	5,380	1,186,505
2028	0	8,458	(5,187)	1,113,495	1,250	1,118,016	0	15,004	(736)	1,169,405	5,380	1,189,053
2029	0	8,468	7,439	1,113,495	1,250	1,130,652	0	15,030	1,345	1,169,405	5,380	1,191,160
2030	0	8,471	4,083	1,113,495	1,250	1,127,299	0	14,988	(17,111)	1,169,405	5,380	1,172,662
2031	0	8,447	(9,004)	1,113,495	1,250	1,114,188	0	14,898	10,806	1,169,405	5,380	1,200,489
2032	0	8,413	1,970	1,113,495	1,250	1,125,128	0	15,016	6,263	1,169,405	5,380	1,196,064
2033	0	8,453	719	1,113,495	1,250	1,123,917	0	15,057	215	1,169,405	5,380	1,190,057
2034	0	8,463	2,279	1,113,495	1,250	1,125,487	0	15,052	1,091	1,169,405	5,380	1,190,928
2035	0	8,464	6,317	1,113,495	1,250	1,129,526	0	14,937	(24,771)	1,169,405	5,380	1,164,951

TABLE B-6

Annual Water Quantities Conveyed through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(Acre-Feet)

Calendar Year	Warne Powerplant						Castaic Powerplant					
				Deliveries						Deliveries		
	Initial Fill Water (87)	Operational Losses (88)	Reservoir Storage Changes (89)	Water Supply (90)	Recreation (91)	Total (92)	Initial Fill Water (93)	Operational Losses (94)	Reservoir Storage Changes (95)	Water Supply (96)	Recreation (97)	Total (98)
	California Aqueduct (continued) / West Branch, California Aqueduct (continued)											
1961	0	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	57,364	1,788	(6,162)	71,938	6,481	131,409
1973	0	0	0	0	0	0	37,198	6,430	4,542	155,297	1,075	204,542
1974	0	0	0	0	0	0	82,364	1,772	(950)	209,136	541	292,863
1975	0	0	0	0	0	0	90,460	5,002	(1,534)	374,280	1,563	469,771
1976	0	0	0	0	0	0	55,990	(7,695)	(132,036)	420,684	1,429	338,372
1977	0	0	0	0	0	0	0	(1,485)	(102,532)	122,447	(20)	18,410
1978	0	0	0	0	0	0	45,105	(2,264)	129,523	171,139	176	343,679
1979	0	0	0	0	0	0	0	(2,339)	(20,400)	145,598	0	122,859
1980	0	0	0	0	0	0	0	991	(118,026)	165,931	481	49,377
1981	0	0	0	0	0	0	0	(44,416)	47,244	283,264	2,704	288,796
1982	0	24,468	61,169	360,878	2,126	448,641	0	(60,135)	59,069	360,878	1,187	360,999
1983	0	20,780	(74,308)	166,995	6,111	119,578	0	(33,418)	(46,904)	166,995	2,618	89,291
1984	0	13,572	(139,219)	275,212	2,208	151,773	0	(29,618)	(139,545)	275,212	2,201	108,250
1985	0	29,286	141,492	403,097	874	574,749	0	(4,622)	135,007	403,097	844	534,326
1986	0	21,579	25,288	393,203	1,777	441,847	0	(6,664)	21,520	393,203	623	408,682
1987	0	20,885	(10,252)	433,452	5,698	449,783	0	(519)	(6,241)	433,452	2,734	429,426
1988	0	23,253	(31,453)	507,169	3,389	502,358	0	12,650	(28,498)	507,169	1,359	492,680
1989	0	27,131	(40,463)	611,681	6,083	604,432	0	634	(40,154)	611,681	3,161	575,322
1990	0	34,208	(9,176)	791,355	7,491	823,878	0	(14,012)	(1,501)	786,519	3,419	774,425
1991	0	16,908	70,754	263,909	4,166	355,737	0	(871)	89,637	262,921	2,283	353,970
1992	0	9,638	(75,008)	435,661	1,572	371,863	0	(609)	(71,795)	435,661	1,543	364,800
1993	0	1,922	(124,283)	451,257	1,233	330,129	0	21,959	(77,428)	451,257	1,211	396,999
1994	0	23,151	(91,606)	490,819	2,488	424,852	0	5,205	(95,738)	490,819	2,465	402,751
1995	0	15,860	14,330	157,629	1,242	189,061	0	20,400	75,863	157,629	1,223	255,115
1996	0	21,326	27,042	287,322	2,303	337,993	0	(5,486)	22,006	287,322	2,302	306,144
1997	0	15,455	(4,496)	316,049	5,380	332,388	0	9,734	(2,496)	311,049	2,330	320,617
1998	0	15,475	4,537	344,000	5,380	369,392	0	9,750	4,537	339,000	2,330	355,617
1999	0	12,122	(158,906)	553,680	5,380	412,276	0	5,834	(163,808)	548,680	2,330	393,036
2000	0	12,851	114,418	466,449	5,380	599,098	0	6,566	114,418	461,449	2,330	584,763
2001	0	12,547	65,133	395,612	5,380	478,672	0	6,262	65,133	390,612	2,330	464,337
2002	0	13,139	(9,785)	1,169,405	5,380	1,178,139	0	6,854	(9,785)	1,164,405	2,330	1,163,804
2003	0	13,123	4,080	1,169,405	5,380	1,191,988	0	6,838	4,080	1,164,405	2,330	1,177,653
2004	0	13,092	(14,168)	1,169,405	5,380	1,173,709	0	6,807	(14,168)	1,164,405	2,330	1,159,374
2005	0	13,048	8,610	1,169,405	5,380	1,196,443	0	6,763	8,610	1,164,405	2,330	1,182,108
2006	0	13,131	5,221	1,169,405	5,380	1,193,137	0	6,846	5,221	1,164,405	2,330	1,178,802
2007	0	13,072	(18,245)	1,169,405	5,380	1,169,612	0	6,787	(18,245)	1,164,405	2,330	1,155,277
2008	0	13,003	12,211	1,169,405	5,380	1,199,999	0	6,718	12,211	1,164,405	2,330	1,185,664
2009	0	13,117	4,227	1,169,405	5,380	1,192,129	0	6,832	4,227	1,164,405	2,330	1,177,794
2010	0	13,126	(2,950)	1,169,405	5,380	1,184,961	0	6,841	(2,950)	1,164,405	2,330	1,170,626
2011	0	13,116	4,496	1,169,405	5,380	1,192,397	0	6,831	4,496	1,164,405	2,330	1,178,062
2012	0	13,146	1,528	1,169,405	5,380	1,189,459	0	6,861	1,528	1,164,405	2,330	1,175,124
2013	0	13,159	(2,693)	1,169,405	5,380	1,185,251	0	6,874	(2,693)	1,164,405	2,330	1,170,916
2014	0	13,090	(3,944)	1,169,405	5,380	1,183,931	0	6,805	(3,944)	1,164,405	2,330	1,169,596
2015	0	13,129	2,879	1,169,405	5,380	1,190,793	0	6,844	2,879	1,164,405	2,330	1,176,458
2016	0	13,125	2,235	1,169,405	5,380	1,190,145	0	6,840	2,235	1,164,405	2,330	1,175,810
2017	0	13,151	1,135	1,169,405	5,380	1,189,071	0	6,866	1,135	1,164,405	2,330	1,174,736
2018	0	13,138	(2,883)	1,169,405	5,380	1,185,040	0	6,853	(2,883)	1,164,405	2,330	1,170,705
2019	0	13,136	760	1,169,405	5,380	1,188,681	0	6,851	760	1,164,405	2,330	1,174,346
2020	0	13,116	(972)	1,169,405	5,380	1,186,929	0	6,831	(972)	1,164,405	2,330	1,172,594
2021	0	13,124	420	1,169,405	5,380	1,188,329	0	6,839	420	1,164,405	2,330	1,173,994
2022	0	13,135	(243)	1,169,405	5,380	1,187,677	0	6,850	(243)	1,164,405	2,330	1,173,342
2023	0	13,107	(1,980)	1,169,405	5,380	1,185,912	0	6,822	(1,980)	1,164,405	2,330	1,171,577
2024	0	13,108	624	1,169,405	5,380	1,188,517	0	6,823	624	1,164,405	2,330	1,174,182
2025	0	13,136	3,615	1,169,405	5,380	1,191,536	0	6,851	3,615	1,164,405	2,330	1,177,201
2026	0	13,151	1,333	1,169,405	5,380	1,189,269	0	6,866	1,333	1,164,405	2,330	1,174,934
2027	0	13,142	(3,332)	1,169,405	5,380	1,184,595	0	6,857	(3,332)	1,164,405	2,330	1,170,260
2028	0	13,094	(736)	1,169,405	5,380	1,187,143	0	6,809	(736)	1,164,405	2,330	1,172,808
2029	0	13,120	1,345	1,169,405	5,380	1,189,250	0	6,835	1,345	1,164,405	2,330	1,174,915
2030	0	13,078	(17,111)	1,169,405	5,380	1,170,752	0	6,793	(17,111)	1,164,405	2,330	1,156,417
2031	0	12,988	10,806	1,169,405	5,380	1,198,579	0	6,703	10,806	1,164,405	2,330	1,184,244
2032	0	13,106	6,263	1,169,405	5,380	1,194,154	0	6,821	6,263	1,164,405	2,330	1,179,819
2033	0	13,147	215	1,169,405	5,380	1,188,147	0	6,862	215	1,164,405	2,330	1,173,812
2034	0	13,142	1,091	1,169,405	5,380	1,189,018	0	6,857	1,091	1,164,405	2,330	1,174,683
2035	0	13,027	(24,771)	1,169,405	5,380	1,163,041	0	6,742	(24,771)	1,164,405	2,330	1,148,706

TABLE B-6

Annual Water Quantities Conveyed through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(Acre-Feet)

Calendar Year	California Aqueduct (continued)						
	Coastal Branch, California Aqueduct						
	Las Perillas and Badger Hill Pumping Plants				Devil's Den, Bluestone, and Polonio Pass Pumping Plants		
	Initial Fill Water (99)	Operational Losses (100)	Water Supply (101)	Total (102)	Operational Losses (103)	Water Supply (104)	Total (105)
1961	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0
1968	210	873	79,039	80,122	0	0	0
1969	0	1,042	62,064	63,106	0	0	0
1970	0	638	83,649	84,287	0	0	0
1971	0	3,455	110,971	114,426	0	0	0
1972	0	1,745	121,755	123,500	0	0	0
1973	0	5,479	78,645	84,124	0	0	0
1974	0	7,344	78,174	85,518	0	0	0
1975	0	5,819	85,216	91,035	0	0	0
1976	0	6,562	90,058	96,620	0	0	0
1977	0	5,777	40,579	46,356	0	0	0
1978	0	9,085	92,604	101,689	0	0	0
1979	0	10,896	123,155	134,051	0	0	0
1980	0	9,449	111,379	120,828	0	0	0
1981	0	13,232	109,754	122,986	0	0	0
1982	0	7,984	95,776	103,760	0	0	0
1983	0	5,710	100,518	106,228	0	0	0
1984	0	5,740	126,387	132,127	0	0	0
1985	0	7,563	120,823	128,386	0	0	0
1986	0	8,562	131,599	140,161	0	0	0
1987	0	11,363	128,080	139,443	0	0	0
1988	0	12,831	120,969	133,800	0	0	0
1989	0	11,454	116,801	128,255	0	0	0
1990	0	13,022	109,802	122,824	0	0	0
1991	0	5,802	1,496	7,298	0	0	0
1992	0	7,893	79,635	87,528	0	0	0
1993	0	9,282	94,921	104,203	0	0	0
1994	0	8,414	87,158	95,572	0	0	0
1995	0	6,979	94,536	101,515	0	0	0
1996	0	9,663	114,630	124,293	0	0	0
1997	0	802	149,871	150,673	212	44,871	45,083
1998	0	802	149,799	150,601	212	44,799	45,011
1999	0	802	156,357	157,159	212	51,357	51,569
2000	0	802	156,418	157,220	212	51,418	51,630
2001	0	802	156,475	157,277	212	51,475	51,687
2002	0	802	176,271	177,073	212	70,486	70,698
2003	0	802	176,271	177,073	212	70,486	70,698
2004	0	802	176,271	177,073	212	70,486	70,698
2005	0	802	176,271	177,073	212	70,486	70,698
2006	0	802	176,271	177,073	212	70,486	70,698
2007	0	802	176,271	177,073	212	70,486	70,698
2008	0	802	176,271	177,073	212	70,486	70,698
2009	0	802	176,271	177,073	212	70,486	70,698
2010	0	802	176,271	177,073	212	70,486	70,698
2011	0	802	176,271	177,073	212	70,486	70,698
2012	0	802	176,271	177,073	212	70,486	70,698
2013	0	802	176,271	177,073	212	70,486	70,698
2014	0	802	176,271	177,073	212	70,486	70,698
2015	0	802	176,271	177,073	212	70,486	70,698
2016	0	802	176,271	177,073	212	70,486	70,698
2017	0	802	176,271	177,073	212	70,486	70,698
2018	0	802	176,271	177,073	212	70,486	70,698
2019	0	802	176,271	177,073	212	70,486	70,698
2020	0	802	176,271	177,073	212	70,486	70,698
2021	0	802	176,271	177,073	212	70,486	70,698
2022	0	802	176,271	177,073	212	70,486	70,698
2023	0	802	176,271	177,073	212	70,486	70,698
2024	0	802	176,271	177,073	212	70,486	70,698
2025	0	802	176,271	177,073	212	70,486	70,698
2026	0	802	176,271	177,073	212	70,486	70,698
2027	0	802	176,271	177,073	212	70,486	70,698
2028	0	802	176,271	177,073	212	70,486	70,698
2029	0	802	176,271	177,073	212	70,486	70,698
2030	0	802	176,271	177,073	212	70,486	70,698
2031	0	802	176,271	177,073	212	70,486	70,698
2032	0	802	176,271	177,073	212	70,486	70,698
2033	0	802	176,271	177,073	212	70,486	70,698
2034	0	802	176,271	177,073	212	70,486	70,698
2035	0	802	176,271	177,073	212	70,486	70,698

TABLE B-7

Reconciliation of Capital Costs Allocated to Water Supply and Power Generation

(Thousands of Dollars)

Item	Project Costs Allocated to Water Supply and Power Generation: Miscellaneous Income Credited to Construction (a (1)	Allowance for Future Price Escalation (b (2)	Costs of Construction of Delivery Structures (c (3)	Costs of Requested Excess Capacity and Future Enlargement (d (4)	Capital Cost Component of Delta Water Charge (e (5)	Capital Cost Component of Transportation Water Charge (f (6)	Water Supply and Power Total (7)	Capital Costs Allocated to Other Purposes (8)	Total State Water Project Capital Cost (9)
Conservation Facilities									
Upper Feather Division									
Frenchman Dam & Lake	153	0	0	0	603	0	756	2,887	3,643
Grizzly Valley Dam & Lake Davis	55	0	0	0	39	0	94	7,379	7,473
Antelope Dam & Lake	1	0	0	0	0	0	1	5,532	5,533
Abbey Bridge Dam & Reservoir	0	0	0	0	0	0	0	519	519
Dixie Refuge Dam & Reservoir	0	0	0	0	0	0	0	236	236
Total, Upper Feather Division	209	0	0	0	642	0	851	16,553	17,404
Oroville Division									
Multipurpose Facilities	5,149	0	0	0	373,256	0	378,405	88,730	467,135
Specific Power Facilities	379	3	0	0	95,972	0	96,354	611	96,965
Total, Oroville Division	5,528	3	0	0	469,228	0	474,759	89,341	564,100
California Aqueduct									
North San Joaquin Division	228	12	0	0	80,742	0	80,982	2,889	83,871
San Luis Division	7,613	1	0	0	105,145	0	112,759	4,564	117,323
Total, California Aqueduct	7,841	13	0	0	185,887	0	193,741	7,453	201,194
Delta Facilities	20,836	6,240	0	0	306,639	0	333,715	45,588	379,303
Planning and Pre-operation	(74)	5,187	0	0	130,559	0	135,672	0	135,672
Total, Conservation Facilities	34,340	11,443	0	0	1,092,955	0	1,138,738	158,935	1,297,673
Transportation Facilities									
Upper Feather Division									
Grizzly Valley Pipeline	0	0	181	0	0	341	522	0	522
North Bay Aqueduct	570	13	676	0	0	94,929	96,188	0	96,188
South Bay Aqueduct	2,048	1	1,594	0	0	55,007	58,650	21,691	80,341
California Aqueduct									
North San Joaquin Division	506	29	51	0	0	180,382	180,968	6,430	187,398
San Luis Division	4,678	2	0	0	0	119,514	124,194	7,240	131,434
South San Joaquin Division	748	1	3,343	2,093	0	282,761	288,946	16,594	305,540
Tehachapi Division	(73)	6	0	5,230	0	302,132	307,295	18,195	325,490
Mojave Division	1,811	2	704	0	0	352,104	354,621	37,050	391,671
Santa Ana Division	4,659	10	5,810	5,331	0	201,360	217,170	31,476	248,646
West Branch	36,044	67	522	37	0	470,030	506,700	33,449	540,149
Coastal Branch	7,223	48	76	0	0	454,727	462,074	0	462,074
Total, California Aqueduct	55,596	165	10,506	12,691	0	2,363,010	2,441,968	150,434	2,592,402
Total, Transportation Facilities	58,214	179	12,957	12,691	0	2,513,287	2,597,328	172,125	2,769,453
East Branch Enlargements	0	0	0	0	0	453,041	453,041	0	453,041
East Branch Extension	0	0	0	0	0	51,240	51,240	0	51,240
Coastal Branch Extension	0	0	0	0	0	26,035	26,035	0	26,035
San Joaquin Drainage Facilities	0	0	0	0	0	0	0	93,068	93,068
Off-Aqueduct Power Generation Facilities	0	0	0	0	0	458,215	458,215	0	458,215
Small Hydro Power Generation Facilities	0	0	0	0	14,103	72,426	86,529	0	86,529
Land Purchase-Kern Water Bank	0	0	0	0	34,686	0	34,686	0	34,686
Unassigned / Miscellaneous	0	0	0	0	0	0	0	265	265
Davis-Grunsky	0	1,411	0	0	0	0	1,411	128,589	130,000
Total through 2010	92,554	13,033	12,957	12,691	1,141,744	3,574,244	4,847,223	552,982	5,400,205

a) Miscellaneous project receipts that are applied for accounting purposes to reduce the capital costs of the particular facilities.
b) These allowances are included for planning the future financial program, but not for determining current water charges. The costs shown in this appendix are based on prices prevailing on December 31, 1995.
c) See Table B-8.
d) See Table B-9.
e) See Table B-13. A portion of these costs will be offset by power generation sales and credits. Planning and Pre-operations line item includes $47,644,000 of planning costs financed from Systems Revenues and not included in Table 15-3. Oroville Division total reduced by $14,103,000 for costs included under Small Hydro. CALFED Program costs totaling $9,000,000 are not inculded in Table B-7, but are included in Table 15-3.
f) See Table B-10. Mojave Division total reduced by $72,426,000 for costs included under Small Hydro.

TABLE B-8

State Water Project Capital Costs of Requested Delivery Structures

(Dollars)

Project Service Area and Water Supply Contractor	Calendar Year Capital Costs (a 1952-1994 (1)	1995 (2)	1996 (3)	1997 (4)	1998 (5)	1999 (6)	Total (7)
Feather River Area							
County of Butte	135,019	1,527	0	0	0	0	136,546
Plumas County Flood Control and Water Conservation District	645	0	0	0	0	0	645
Thermalito Irrigation District (b	43,939	0	0	0	0	0	43,939
Subtotal	179,603	1,527	0	0	0	0	181,130
North Bay Area							
Napa County Flood Control and Water Conservation District	13,590	0	0	0	0	0	13,590
Solano County Water Agency	662,113	0	0	0	0	0	662,113
Subtotal	675,703	0	0	0	0	0	675,703
South Bay Area							
Alameda County Flood Control and Water Conservation District, Zone 7	248,329	1,996	801	20,000	0	0	271,126
Alameda County Water District	232,484	0	0	0	0	0	232,484
Santa Clara Valley Water District	21,500	0	0	0	0	0	21,500
San Francisco Water Department (b	1,043,262	15,307	3,935	3,700	0	3,170	1,069,374
Subtotal	1,545,575	17,303	4,736	23,700	0	3,170	1,594,484
Central Coastal Area							
San Luis Obispo County Flood Control and Water Conservation District	7,000	2,192	0	0	0	0	9,192
Santa Barbara County Flood Control and Water Conservation District	65,000	2,058	0	0	0	0	67,058
Subtotal	72,000	4,250	0	0	0	0	76,250
San Joaquin Valley Area							
Castaic Lake Water Agency	82,567	0	0	0	0	0	82,567
Dudley Ridge Water District	289,412	0	8,619	10,000	0	0	308,031
Empire West Side Irrigation District	6,358	0	0	0	0	0	6,358
Green Valley Water District (c	5,292	0	0	0	0	0	5,292
Kern County Water Agency	2,738,334	6,875	1,761	4,000	0	0	2,750,970
Oak Flat Water District	46,882	0	0	0	0	0	46,882
Tracy Golf and Country Club (c	1,028	0	0	0	0	0	1,028
Tulare Lake Basin Water Storage District	277,483	0	0	0	0	0	277,483
Veterans Administration Cemetery (b	3,342	0	0	0	0	0	3,342
Subtotal	3,450,698	6,875	10,380	14,000	0	0	3,481,953
Southern California Area							
Antelope Valley-East Kern Water Agency	374,323	10,427	0	0	0	0	384,750
Castaic Lake Water Agency	354,745	0	0	0	0	0	354,745
Coachella Valley Water District	14,206	0	0	0	0	0	14,206
Crestline-Lake Arrowhead Water Agency	12,097	8,957	4,042	4,000	0	0	29,096
Desert Water Agency	23,438	0	0	0	0	0	23,438
Littlerock Creek Irrigation District	23,732	0	0	0	0	0	23,732
Mojave Water Agency	141,998	31,308	18,397	2,950	0	0	194,653
Palmdale Water District	34,173	0	0	0	0	0	34,173
San Bernardino Valley Municipal Water District	801,669	0	0	0	0	0	801,669
San Gabriel Valley Municipal Water District	131,052	0	0	0	0	0	131,052
San Gorgonio Pass Water Agency	66,530	0	0	0	0	0	66,530
Metropolitan Water District of Southern California	4,788,494	8,341	7,485	6,000	0	0	4,810,320
Ventura County Flood Control District	79,699	0	0	0	0	0	79,699
Subtotal	6,846,156	59,033	29,924	12,950	0	0	6,948,063
Total	12,697,735	84,738	45,040	50,650	0	3,170	12,957,583

a) Approximate only, not to be construed as invoice amounts.
b) Not a SWP water supply contractor.
c) Not a SWP water supply contractor, but has contracted for water.

TABLE B-9

Capital Costs of Requested Excess Peaking Capacity

(Dollars)

Calendar Year	Total Advance Payments and Credits for Excess Capacity (1)	Total Incremental Costs for Excess Capacity (2)	Overpayment (+) or Underpayment (-) (a (3)	Annual Surplus Money Investment Fund Interest Rate (b January-June (4)	Annual Surplus Money Investment Fund Interest Rate (b July-December (5)	Net Over or Underpayment with Interest (c (6)
	Metropolitan Water District Of Southern California					
1965	0	158,000	(158,000)	3.968%	4.184%	(163,412)
1966	8,056,000	435,800	7,620,200	4.540%	5.057%	7,701,103
1967	9,094,963	1,878,270	7,216,693	4.815%	4.744%	15,524,533
1968	1,523,252	2,887,351	(1,364,099)	5.330%	5.540%	14,959,187
1969	8,310,651	3,059,310	5,251,341	5.946%	6.389%	21,369,973
1970	3,426,736	2,397,102	1,029,634	7.071%	7.125%	23,986,083
1971	1,086,045	1,146,648	(60,603)	5.154%	5.580%	25,238,017
1972	(4,244,807)	487,394	(4,732,201)	4.477%	4.977%	21,532,965
1973	(15,913,829)	25,041	(15,938,870)	6.023%	8.717%	6,014,116
1974	0	37,775	(37,775)	9.222%	10.351%	6,576,393
1975	0	2,085	(2,085)	7.089%	6.791%	7,038,515
1976	0	0	0	6.048%	6.021%	7,469,662
1977	0	0	0	5.788%	6.182%	7,923,403
1978	0	0	0	7.171%	8.096%	8,539,736
1979	0	0	0	8.979%	9.671%	9,354,605
1980	0	0	0	11.500%	11.500%	10,461,314
Total	11,339,011	12,514,776	(1,175,765)	-	-	10,461,314
	San Gabriel Valley Municipal Water District					
1967	0	25,730	(25,730)	4.815%	4.744%	(26,611)
1968	184,422	44,053	140,369	5.330%	5.540%	117,587
1969	49,052	38,075	10,977	5.946%	6.389%	136,751
1970	44,911	17,959	26,952	7.071%	7.125%	175,186
1971	61,588	5,900	55,688	5.154%	5.580%	242,927
1972	(20,263)	6,835	(27,098)	4.477%	4.977%	226,230
1973	(180,465)	0	(180,465)	6.023%	8.717%	49,198
1974	0	0	0	9.222%	10.351%	54,130
1975	0	0	0	7.089%	6.791%	57,952
1976	0	0	0	6.048%	6.021%	61,501
1977	0	0	0	5.788%	6.182%	65,237
1978	0	0	0	7.171%	8.096%	70,312
1979	0	0	0	8.979%	9.671%	77,021
1980	0	0	0	11.500%	11.500%	86,133
Total	139,245	138,552	693	-	-	86,133
	Antelope Valley-East Kern Water Agency					
1968	85,495	1,645	83,850	5.330%	5.540%	86,962
1969	52,625	6,326	46,299	5.946%	6.389%	140,964
1970	101,648	15,076	86,572	7.071%	7.125%	243,222
1971	34,062	11,748	22,314	5.154%	5.580%	279,673
1972	(12,794)	2,018	(14,812)	4.477%	4.977%	277,552
1973	(205,354)	308	(205,662)	6.023%	8.717%	77,288
1974	0	96	(96)	9.222%	10.351%	84,933
1975	0	0	0	7.089%	6.791%	90,929
1976	0	190	(190)	6.048%	6.021%	96,300
1977	0	0	0	5.788%	6.182%	102,150
1978	0	0	0	7.171%	8.096%	110,096
1979	0	0	0	8.979%	9.671%	120,601
1980	0	0	0	11.500%	11.500%	134,869
Total	55,682	37,407	18,275	-	-	134,869

a) Overpayment or underpayment for each calendar year - column (1) minus column (2).
b) Interest rates shown are annual rates. Interest is credited daily at applicable rates on funds deposited in the State's Surplus Money Investment Fund.
c) Amounts shown are end-of-year balances. Interest on overpayments is credited at applicable Surplus Money Investment Fund Interest Rates shown in columns (4) and (5). Interest on underpayments is charged at the 1980 Project Interest Rate of 4.584 percent.

TABLE B-9

Capital Costs of Requested Excess Peaking Capacity

(Dollars)

Reach Number	Annual Required Advance of Funds — Incremental Costs and Advance Payments by Calendar Year 1965 (7)	1966 (8)	1967 (9)	1968 (10)	1969 (11)	1970 (12)	1971 (13)	1972 (14)	1973 (15)	1974 (16)	1975 (17)	1976 (18)	1981 (19)	Reach Total (20)
Metropolitan Water District Of Southern California														
Incremental Costs														
8C		1,000	1,000											2,000
8D		43,500	43,500											87,000
9		27,000	27,000	13,500										67,500
10A		29,700	29,700	14,800										74,200
11B	10,100	18,300	18,300	9,200										55,900
12D	1,800		19,300	25,800	12,900									59,800
12E	1,800		12,400	18,800	10,800									43,800
13B			12,600	37,800	31,600									82,000
14A	2,500	500	11,100	80,216	107,504	124,069	37,519	6,413	381	87				370,289
14B	1,200	1,800		19,100	19,100	12,800								54,000
14C	1,800	900		13,500	13,500	9,000								38,700
15A	700		14,000	66,947	133,357	128,099	54,821	5,327	946	2,076				406,273
16A	700		18,900	137,894	182,000	211,608	133,927	26,203	5,767	6,156				723,155
17E		51,500	444,600	537,247	860,024	998,985	699,281	193,286	17,947	29,456	2,085			3,834,411
17F	109,100	261,600	261,600	261,600	261,600	239,500								1,395,000
25			964,270	1,650,947	1,426,925	673,041	221,100	256,165						5,192,448
28J		304,612	13,706	296,668	65,966	230,169	1,209,586	2,017,134	235,900	4,900				4,378,641
Total	129,700	740,412	1,891,976	3,184,019	3,125,276	2,627,271	2,356,234	2,504,528	260,941	42,675	2,085			16,865,117
Current Adjustment														
8C through 25	1. Advance Payments Applied to Incremental Costs Amendment 2 (d													
	0	8,056,000	9,094,963	1,523,252	8,310,651	3,426,736	1,086,045	(4,244,807)	(14,381,396)				(356,668)	12,514,776
	2. Interest Credits-Amendment 2 (e													
									(1,532,433)				(10,104,646)	(11,637,079)
28J	3. Advance Payments Applied to Incremental Costs Amendment 5 (f													
	0	1,240,000	1,483,180	2,469,325	(927,035)	1,729,160	3,215,258	2,967,475	1,690,000	(9,488,722)				4,378,641
	4. Interest Credits-Amendment 5 (g													
										(2,721,803)				(2,721,803)
	5. Net Required Advance of Funds													
	0	9,296,000	10,578,143	3,992,577	7,383,616	5,155,896	4,301,303	(1,277,332)	(14,233,829)	(12,210,525)			(10,461,314)	2,524,535
San Gabriel Valley Municipal Water District														
Incremental Costs														
25			25,730	44,053	38,075	17,959	5,900	6,835						138,552
	Total Unadjusted Incremental Costs for Past Payments													
			25,730	44,053	38,075	17,959	5,900	6,835						138,552
Current Adjustment														
	1. Advance Payments Applied to Incremental Costs (d													
			0	184,422	49,052	44,911	61,588	(20,263)	(174,133)				(7,025)	138,552
	2. Interest Credit													
									(6,332)				(79,108)	(85,440)
	3. Net Required Advance of Funds													
			0	184,422	49,052	44,911	61,588	(20,263)	(180,465)				(h (86,133)	53,112
Antelope Valley-East Kern Water Agency														
Incremental Costs														
29A				1,645	6,326	13,376	10,048	2,018	308	96		190		34,007
29F						1,700	1,700							3,400
	Total Unadjusted Incremental Costs for Past Payments													
				1,645	6,326	15,076	11,748	2,018	308	96		190		37,407
Current Adjustment														
	1. Advance Payments Applied to Incremental Costs (d													
				85,495	52,625	101,648	34,062	(12,794)	(189,120)	0		0	(34,509)	37,407
	2. Interest Credit								(16,234)				(100,360)	(116,594)
	3. Net Required Advance of Funds												(h	
				85,495	52,625	101,648	34,062	(12,794)	(205,354)	0		0	(134,869)	(79,187)

d) Actual payments are shown for 1965 through 1976 with 1981 adjusted to reflect overpayments and underpayments without interest for prior years.
e) Interest for overpayments and underpayments under provisions of Amendment 2 of the contract.
f) Actual payments are shown for 1965 through 1973 with 1974 adjusted to reflect overpayments and underpayments without interest for prior years.
g) Interest for overpayments and underpayments under provisions of Amendment 5 of the contract.
h) Amounts in excess of incremental costs, under the provisions of the contract, reduce the Transportation Charge capital cost component of the Agency's Statement of Charges for January 1981.

TABLE B-10

Capital Costs of Each Aqueduct Reach to Be Reimbursed through Capital Cost Component of Transportation Charge

(Dollars)

Calendar Year	Upper Feather River Division (1)	North Bay Aqueduct					South Bay Aqueduct			
		Reach 1 (2)	Reach 2 (3)	Reach 3A (4)	Reach 3B (5)	Total (6)	Reach 1 (7)	Reach 2 (8)	Reach 4 (9)	Reach 5 (10)
1952	0	0	0	0	0	0	97	34	30	57
1953	0	0	0	0	0	0	477	166	144	297
1954	0	0	0	0	0	0	1,466	508	437	959
1955	0	0	0	0	0	0	1,944	674	560	1,266
1956	0	0	0	0	0	0	18,789	6,515	5,090	12,545
1957	0	13,290	3,391	0	9,953	26,634	45,090	15,639	12,285	33,218
1958	2	19,202	5,011	0	25,798	50,011	195,985	80,961	7,714	21,930
1959	14	7,517	2,118	0	17,653	27,288	496,140	148,516	24,945	17,118
1960	28	8,797	4,292	0	4,838	17,927	1,130,378	67,351	71,779	68,028
1961	10	1,551	10,318	0	2,526	14,395	3,273,247	180,596	307,885	74,398
1962	32	217	(1,751)	0	414	(1,120)	1,548,884	203,535	695,446	35,102
1963	51	2,510	(1,063)	0	983	2,430	480,716	69,182	2,284,291	206,587
1964	7,791	39,879	12,046	0	21,934	73,859	2,549,118	15,903	181,900	264,410
1965	3,139	72,793	17,900	0	170,361	261,054	807,505	153,454	85,425	447,830
1966	(48)	59,615	12,972	0	438,949	511,536	898,074	149,529	142,096	1,690,200
1967	47	47,257	11,597	0	1,551,023	1,609,877	607,614	50,423	293,304	3,496,284
1968	51,573	70,586	19,560	0	831,158	921,304	965,119	19,543	89,300	2,931,101
1969	234,232	63,650	23,628	0	46,428	133,706	455,173	9,618	3,860	896,727
1970	16,227	59,090	42,733	0	9,415	111,238	52,481	3,380	10,517	154,358
1971	27,204	20,819	31,516	0	8,480	60,815	24,505	4,645	5,035	20,395
1972	9	15,538	12,952	0	10,058	38,548	26,918	825	2,945	26,090
1973	25	18,488	29,018	0	39,878	87,384	24,468	4,010	6,016	12,708
1974	45	67,352	29,978	0	134,332	231,662	17,108	1,192	1,765	65,587
1975	21	62,855	73,112	0	45,091	181,058	57,619	561	1,165	7,291
1976	51	52,419	75,611	218	13,168	141,416	104,242	2,846	8,915	12,701
1977	28	53,274	65,662	2,240	23,138	144,314	176,062	3,625	3,225	16,158
1978	38	61,936	57,158	2,955	28,987	151,036	264,581	4,494	3,668	14,028
1979	23	316,620	91,367	3,953	62,240	474,180	111,106	17,151	8,515	31,725
1980	26	422,804	111,600	19,910	96,125	650,439	368,942	17,708	8,249	38,045
1981	34	430,992	147,295	(10,752)	43,157	610,692	(145,428)	3,600	6,533	12,448
1982	11	934,812	357,720	(7,165)	134,408	1,419,775	(44,778)	18,971	7,451	37,824
1983	19	1,091,091	1,076,627	2,628	517,615	2,687,961	429,225	73,925	38,185	72,415
1984	26	1,875,968	2,317,661	3,290	1,068,363	5,265,282	506,951	36,354	9,610	92,846
1985	29	2,248,491	7,849,886	27,815	3,416,370	13,542,562	34,103	2,822	5,034	27,138
1986	31	16,420,238	10,020,277	1,309,599	1,819,349	29,569,463	85,732	14,715	17,144	13,982
1987	32	11,873,774	7,214,307	1,628,902	1,670,596	22,387,579	126,377	15,693	27,881	32,931
1988	55	3,293,768	1,648,286	1,016,901	690,697	6,649,652	329,513	36,748	51,790	26,344
1989	45	1,057,778	950,991	271,820	375,800	2,656,389	139,876	16,911	35,610	12,973
1990	63	493,680	537,881	215,818	71,873	1,319,252	252,547	29,949	97,813	38,675
1991	54	76,662	17,130	29,827	70,608	194,227	1,153,864	26,944	53,660	21,972
1992	42	56,898	6,636	32,115	38,038	133,687	402,862	53,130	62,019	52,544
1993	30	104,341	24,591	103,528	82,119	314,579	314,486	55,794	79,319	39,493
1994	14	69,633	13,735	118,070	47,231	248,669	(208,215)	29,451	363,180	36,676
1995	3	38,280	7,946	50,862	30,685	127,773	287,766	45,180	51,980	22,936
1996	(1)	22,152	5,045	42,762	21,014	90,973	156,043	15,873	28,504	11,789
1997	0	72,000	5,000	0	51,000	128,000	25,000	7,000	9,000	5,292
1998	0	374,000	5,000	0	182,000	561,000	18,000	6,000	9,000	4,536
1999	0	1,100,071	0	0	0	1,100,071	1,693	0	0	0
2000	0	83	0	0	0	83	1,968	0	0	0
2001	0	83	0	0	0	83	1,968	0	0	0
2002	0	83	0	0	0	83	1,968	0	0	0
2003	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0
Total	341,055	43,192,937	32,946,740	4,865,296	13,923,853	94,928,826	18,575,369	1,721,644	5,220,219	11,159,957

TABLE B-10

Capital Costs of Each Aqueduct Reach to Be Reimbursed through Capital Cost Component of Transportation Charge

(Dollars)

Calendar Year	South Bay Aqueduct (continued)					California Aqueduct			
						North San Joaquin Division			
	Reach 6 (11)	Reach 7 (12)	Reach 8 (13)	Reach 9 (14)	Total (15)	Reach 1 (16)	Reach 2A (17)	Reach 2B (18)	Subtotal (19)
1952	8	66	72	132	496	4,012	3,279	1,499	8,790
1953	38	327	336	640	2,425	10,559	8,589	3,964	23,112
1954	123	1,005	1,003	1,954	7,455	13,796	11,163	5,179	30,138
1955	160	1,293	1,149	2,454	8,500	7,370	5,952	2,760	16,082
1956	1,559	11,959	11,043	28,372	95,872	9,880	5,020	2,398	17,298
1957	3,659	28,675	27,385	563,114	729,065	11,953	5,456	2,612	20,021
1958	2,243	17,872	17,385	560,904	904,994	18,585	17,191	7,994	43,770
1959	357	3,200	3,568	149,874	843,718	123,170	100,306	45,510	268,986
1960	1,102	2,944	4,498	359,749	1,705,829	191,408	102,136	48,968	342,512
1961	4,726	18,325	22,765	(1,367)	3,880,575	153,765	195,947	42,843	392,555
1962	17,295	160,939	178,242	209,042	3,048,485	612,258	491,225	168,218	1,271,701
1963	265,414	1,250,386	939,832	129,902	5,626,310	1,993,284	1,525,734	684,095	4,203,113
1964	100,603	1,716,371	2,327,770	2,947,522	10,103,597	4,674,280	2,369,858	700,074	7,744,212
1965	42,345	368,476	637,266	1,921,844	4,464,145	5,877,189	6,873,699	2,975,719	15,726,607
1966	17,663	34,915	140,350	777,887	3,850,714	8,553,362	14,112,820	5,677,099	28,343,281
1967	(41,567)	137,856	147,183	379,764	5,070,861	9,678,607	10,672,113	6,646,739	26,997,459
1968	84,553	2,130	68,057	253,152	4,412,955	6,392,664	891,681	1,303,186	8,587,531
1969	4,279	11,572	162,300	32,000	1,575,529	3,542,767	792,259	443,924	4,778,950
1970	2,487	6,820	20,086	(15,718)	234,411	2,236,607	149,692	115,578	2,501,877
1971	4,350	6,923	17,750	39,084	122,687	98,138	215,512	69,410	383,060
1972	1,084	203	4,800	32,199	95,064	159,608	43,721	7,744	211,073
1973	288	989	7,449	9,693	65,621	105,581	25,496	22,418	153,495
1974	527	6,020	30,628	11,433	134,260	177,700	16,627	45,707	240,034
1975	126	679	1,086	3,464	71,991	239,144	14,680	169,676	423,500
1976	701	3,529	8,362	26,186	167,482	641,860	45,533	65,943	753,336
1977	270	1,310	8,651	24,938	234,239	274,381	20,283	22,568	317,232
1978	231	1,204	1,631	17,123	306,960	801,265	36,221	9,714	847,200
1979	1,367	1,721	2,134	7,322	181,041	1,051,792	59,695	26,106	1,137,593
1980	1,321	1,718	2,182	7,102	445,267	4,173,603	96,760	38,789	4,309,152
1981	308	1,462	1,398	5,077	(114,602)	(502,921)	1,487,516	38,451	1,023,046
1982	716	1,561	1,746	6,074	29,565	700,738	46,501	22,308	769,547
1983	407	5,721	8,143	23,367	651,388	706,104	84,435	211,619	1,002,158
1984	269	1,853	1,667	13,301	662,851	1,559,539	41,352	48,478	1,649,369
1985	402	1,657	2,129	6,750	80,035	677,955	24,812	19,404	722,171
1986	1,119	2,744	3,313	12,234	150,983	398,788	63,830	35,420	498,038
1987	1,496	3,081	3,560	21,842	232,861	799,672	88,945	41,659	930,276
1988	5,707	6,690	7,605	33,731	498,128	3,369,428	(128,038)	(56,443)	3,184,947
1989	2,652	3,890	4,770	14,582	231,264	7,005,955	346,907	174,135	7,526,997
1990	5,078	19,819	36,521	86,450	566,852	13,465,221	111,264	2,410,190	15,986,675
1991	1,947	5,064	7,364	31,732	1,302,547	13,920,879	133,269	115,084	14,169,232
1992	1,211	2,187	2,427	35,885	612,265	6,264,684	243,149	240,250	6,748,083
1993	3,637	6,052	8,901	42,370	550,052	2,545,896	257,923	200,335	3,004,154
1994	2,968	4,866	5,440	90,374	324,740	1,155,193	151,917	89,942	1,397,052
1995	11,951	4,154	15,259	26,806	466,032	1,519,978	242,735	143,080	1,905,793
1996	3,599	3,338	3,506	14,560	237,212	916,745	92,374	50,805	1,059,924
1997	1,000	3,000	6,000	11,000	67,292	1,688,346	37,993	13,997	1,740,336
1998	1,000	3,000	6,000	11,000	58,536	3,929,920	33,994	11,998	3,975,912
1999	0	0	0	0	1,693	2,949,589	0	0	2,949,589
2000	0	0	0	0	1,968	15,076	0	0	15,076
2001	0	0	0	0	1,968	15,076	0	0	15,076
2002	0	0	0	0	1,968	15,076	0	0	15,076
2003	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0
Total	562,779	3,879,566	4,920,712	8,966,900	55,007,146	114,945,525	42,269,526	23,167,146	180,382,197

TABLE B-10

Capital Costs of Each Aqueduct Reach to Be Reimbursed through Capital Cost Component of Transportation Charge

(Dollars)

Calendar Year	California Aqueduct (continued)								
	San Luis Division						South San Joaquin Division		
	Reach 3 (20)	Reach 4 (21)	Reach 5 (22)	Reach 6 (23)	Reach 7 (24)	Subtotal (25)	Reach 8C (26)	Reach 8D (27)	Reach 9 (28)
1952	2,492	3,549	3,987	1,010	1,390	12,428	13	727	1,109
1953	6,999	10,144	10,986	2,834	3,869	34,832	45	2,671	4,185
1954	8,704	12,545	13,693	3,520	4,766	43,228	50	2,719	4,026
1955	4,273	6,055	6,813	1,728	2,325	21,194	19	888	1,100
1956	3,295	5,600	5,857	1,445	3,556	19,753	98	3,850	4,376
1957	3,543	6,115	6,357	1,565	3,998	21,578	234	10,604	13,209
1958	11,927	19,393	22,037	5,509	7,512	66,378	375	19,033	25,073
1959	21,979	37,358	39,689	9,813	19,679	128,518	436	20,578	25,697
1960	207,025	45,419	41,044	12,074	37,633	343,195	1,673	44,565	25,290
1961	184,443	292,639	170,559	38,338	70,068	756,047	3,949	75,726	30,852
1962	495,836	549,984	252,698	22,397	26,967	1,347,882	6,131	159,481	62,375
1963	2,772,189	2,034,351	2,498,712	66,353	30,647	7,402,252	5,861	161,252	81,343
1964	4,348,311	4,932,301	1,053,227	161,422	251,461	10,746,722	4,014	90,622	117,907
1965	3,860,997	5,688,252	2,869,931	1,072,111	667,768	14,159,059	15,049	491,042	564,036
1966	2,312,372	8,527,843	5,765,798	4,230,221	7,708,334	28,544,568	201,274	5,197,322	2,539,278
1967	(44,527)	2,062,305	6,942,522	222,885	6,675,398	15,858,583	212,285	4,982,844	3,363,650
1968	119,884	395,689	973,956	179,917	461,031	2,130,477	64,234	611,192	940,074
1969	(6,065)	126,946	98,492	107,486	160,668	487,527	58,960	116,146	85,130
1970	32,387	(20,243)	105,385	(827,457)	1,215,966	506,038	23,011	106,810	84,116
1971	99,945	230,624	305,227	26,995	341,010	1,003,801	8,813	33,099	23,088
1972	15,990	90,852	17,053	14,621	281,343	419,859	10,818	13,349	16,603
1973	6,753	103,707	41,549	13,810	41,427	207,246	5,145	11,089	13,249
1974	6,618	117,165	55,978	16,199	71,796	267,756	5,434	24,433	16,567
1975	18,921	107,275	23,671	8,797	152,574	311,238	5,424	15,960	12,966
1976	17,485	79,554	13,041	5,138	41,687	156,905	19,931	76,280	62,164
1977	35,707	84,669	9,412	4,028	9,655	143,471	21,096	70,005	97,952
1978	8,539	428,395	7,006	3,536	6,994	454,470	7,584	40,453	17,395
1979	(35,394)	543,225	19,463	9,485	(242,253)	294,526	10,474	6,181	6,227
1980	66,622	3,450,695	191,307	75,209	185,384	3,969,217	2,158	17,492	17,706
1981	28,491	(2,244,127)	(44,017)	(15,456)	918,984	(1,356,125)	1,151	9,687	9,541
1982	100,629	(1,616,569)	20,184	10,359	3,525,738	2,040,341	2,469	8,283	6,956
1983	75,639	33,881	11,785	6,638	1,811,638	1,939,581	7,955	13,785	11,090
1984	31,748	87,083	26,712	12,754	3,053,662	3,211,959	26,489	10,112	6,268
1985	53,243	56,733	13,685	6,934	582,927	713,522	7,220	9,762	7,688
1986	73,979	201,509	50,668	19,223	1,282,469	1,627,848	8,902	25,024	20,503
1987	(7,829)	116,268	40,009	15,946	518,349	682,743	12,744	18,927	56,042
1988	(149,379)	631,854	(406,387)	(137,348)	923,644	862,384	9,834	(119,733)	(60,632)
1989	39,808	687,128	233,086	80,208	576,658	1,616,888	5,309	91,628	278,188
1990	23,749	247,531	75,897	28,020	447,606	822,803	5,772	40,908	2,012,206
1991	4,916,234	403,182	98,988	35,929	511,975	5,966,308	4,601	43,195	41,415
1992	(756,157)	551,107	213,203	74,940	399,212	482,305	3,591	104,287	109,648
1993	110,611	728,307	186,772	71,065	722,544	1,819,299	15,074	101,873	91,167
1994	1,375,969	791,483	111,196	43,045	1,048,075	3,369,768	6,928	43,581	41,584
1995	295,656	638,347	149,323	65,626	2,008,071	3,157,023	13,469	57,529	48,982
1996	83,659	322,833	70,820	26,989	1,914,847	2,419,148	21,003	79,648	52,325
1997	19,745	67,896	33,948	12,259	17,917	151,765	2,829	16,031	13,202
1998	16,924	49,979	32,062	11,316	16,974	127,255	1,886	14,145	12,259
1999	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0
Total	20,919,969	31,726,831	22,483,384	5,859,436	38,523,943	119,513,563	851,814	12,975,085	11,015,175

Table B-10

Capital Costs of Each Aqueduct Reach to Be Reimbursed through Capital Cost Component of Transportation Charge

(Dollars)

Calendar Year	California Aqueduct (continued)								
	South San Joaquin Division (continued)								
	Reach 10A (29)	Reach 11B (30)	Reach 12D (31)	Reach 12E (32)	Reach 13B (33)	Reach 14A (34)	Reach 14B (35)	Reach 14C (36)	Reach 15A (37)
1952	695	1,279	1,980	995	1,663	794	212	212	1,911
1953	2,569	4,790	7,480	3,745	6,236	2,599	733	741	7,016
1954	2,821	4,855	7,565	3,792	6,319	2,880	810	817	7,073
1955	1,097	1,557	2,404	1,211	2,025	1,183	325	327	2,253
1956	4,428	6,223	9,233	4,737	8,054	7,026	1,638	1,584	9,939
1957	13,269	18,772	29,082	14,615	24,411	15,651	3,834	3,864	26,871
1958	25,086	48,191	78,564	39,087	61,715	33,726	12,330	11,813	49,499
1959	25,787	67,246	107,781	53,836	86,478	64,824	22,102	21,828	70,838
1960	47,492	66,317	77,936	39,867	63,517	84,363	23,260	22,305	73,305
1961	68,505	46,073	88,274	51,457	28,015	242,753	91,290	65,565	150,205
1962	57,705	56,056	69,189	44,851	49,179	208,180	61,489	47,608	133,653
1963	52,585	91,914	173,985	86,405	67,733	425,626	104,436	77,970	102,072
1964	124,014	333,621	291,013	174,469	86,271	1,093,795	684,005	485,033	571,173
1965	622,257	1,053,029	1,524,848	1,044,851	196,487	3,385,205	1,655,024	1,436,258	476,830
1966	2,800,056	3,709,779	673,429	466,228	418,141	4,916,319	974,862	724,354	1,829,852
1967	3,652,342	4,636,627	1,881,333	1,244,265	1,238,428	2,788,299	525,653	400,183	1,721,304
1968	1,025,969	1,323,302	4,726,074	3,145,775	8,343,706	10,210,266	1,330,361	1,405,117	7,522,015
1969	145,111	229,185	706,272	529,080	3,704,065	15,112,041	1,223,457	1,134,395	9,523,012
1970	74,366	85,151	70,725	72,798	320,797	11,031,255	987,213	738,955	8,836,897
1971	15,595	45,006	43,988	42,624	339,078	2,925,191	193,255	36,514	3,275,227
1972	19,736	32,657	43,939	24,748	81,937	1,388,348	101,784	20,165	1,003,380
1973	14,283	16,448	9,980	16,320	25,090	680,834	19,584	13,469	798,805
1974	22,111	14,951	19,555	32,240	29,582	524,504	30,735	16,333	776,696
1975	15,865	13,479	10,793	13,678	25,827	269,197	25,164	21,048	370,265
1976	76,202	54,217	37,464	59,842	105,332	507,519	59,753	42,776	434,574
1977	75,628	52,919	22,826	54,444	81,293	301,515	49,972	30,152	235,514
1978	48,754	16,469	(2,816)	27,331	43,126	348,674	(653)	1,500	297,817
1979	241	6,906	13,401	14,229	25,411	293,786	9,846	7,856	245,590
1980	18,165	18,813	15,608	27,498	34,190	1,676,267	29,169	23,023	1,719,775
1981	10,309	15,334	28,253	21,885	25,515	(1,074,560)	28,987	34,617	(1,142,332)
1982	8,237	6,608	7,680	8,346	16,339	(745,914)	9,886	29,393	(804,147)
1983	14,488	9,820	14,285	13,107	35,872	419,753	17,478	24,992	116,008
1984	7,533	29,139	93,958	52,373	22,732	60,234	80,335	66,264	64,859
1985	9,215	6,949	5,263	8,013	8,875	(49,408)	9,523	5,867	54,782
1986	22,335	16,796	16,540	25,300	20,483	141,132	26,384	14,191	154,203
1987	16,704	13,512	12,369	20,023	15,435	101,453	20,411	8,581	227,047
1988	(159,351)	(73,645)	(151,036)	(51,396)	(120,096)	365,494	(75,271)	(75,303)	356,403
1989	70,313	65,313	63,456	121,044	73,130	2,825,444	119,696	36,765	3,000,325
1990	32,597	27,059	25,129	44,847	33,825	626,372	41,977	14,416	481,425
1991	36,969	32,244	30,183	55,182	34,182	426,096	50,412	12,163	450,703
1992	103,802	100,300	98,655	192,833	98,270	994,581	185,778	9,603	453,981
1993	90,592	70,310	63,381	118,663	80,705	688,990	110,043	39,155	998,037
1994	66,650	29,935	27,646	51,429	36,047	405,371	45,659	17,843	686,985
1995	440,439	37,176	29,985	58,131	47,947	554,401	56,831	31,457	564,209
1996	299,948	46,777	29,037	76,169	24,828	363,933	28,906	15,678	255,580
1997	16,031	9,430	10,373	10,373	11,316	45,264	11,316	8,487	33,948
1998	14,145	7,544	10,373	8,487	10,373	31,119	9,430	7,544	21,689
1999	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0
Total	10,153,690	12,506,433	11,157,435	8,169,827	15,979,884	64,722,375	8,999,424	7,093,478	46,249,066

TABLE B-10

Capital Costs of Each Aqueduct Reach to Be Reimbursed through Capital Cost Component of Transportation Charge

(Dollars)

Calendar Year	California Aqueduct (continued)								
	South San Joaquin (cont.)		Tehachapi Division			Mojave Division			
	Reach 16A (38)	Subtotal (39)	Reach 17E (40)	Reach 17F (41)	Subtotal (42)	Reach 18A (43)	Reach 19 (44)	Reach 19C (45)	Reach 20A (46)
1952	4,440	16,030	9,703	4,072	13,775	4,090	1,520	0	2,561
1953	16,513	59,323	31,337	13,284	44,621	12,610	4,685	0	7,246
1954	16,601	60,328	46,243	20,010	66,253	16,642	6,184	0	9,506
1955	5,223	19,612	25,880	11,362	37,242	5,612	2,086	0	2,529
1956	21,754	82,940	47,487	17,609	65,096	6,038	2,244	0	2,440
1957	62,657	237,073	119,673	49,130	168,803	22,348	8,304	0	9,035
1958	133,083	537,575	164,056	72,091	236,147	37,917	14,166	123	15,391
1959	205,748	773,179	151,389	57,883	209,272	38,620	23,450	1,102	23,605
1960	204,788	774,678	203,222	45,323	248,545	21,356	26,093	5,318	40,523
1961	206,305	1,148,969	387,819	85,558	473,377	35,664	32,281	2,262	34,918
1962	171,396	1,127,293	353,119	82,610	435,729	68,508	266,284	1,841	10,323
1963	481,941	1,913,123	1,191,633	124,757	1,316,390	37,379	435,881	4,137	39,706
1964	1,778,952	5,834,889	1,866,000	775,005	2,641,005	95,693	706,369	8,564	43,342
1965	1,268,176	13,733,092	2,574,824	2,284,869	4,859,693	121,060	716,092	9,156	108,519
1966	2,896,274	27,347,168	5,537,412	9,323,517	14,860,929	366,116	1,644,699	13,373	159,282
1967	3,442,021	30,089,234	26,239,390	12,398,708	38,638,098	1,312,022	903,880	24,103	645,078
1968	7,578,498	48,226,583	33,363,479	7,416,464	40,779,943	136,804	7,109,653	71,388	1,889,601
1969	13,136,056	45,702,910	40,368,425	6,883,206	47,251,631	213,805	2,465,641	7,423	5,939,151
1970	13,890,751	36,322,845	35,446,706	6,786,231	42,232,937	2,211,077	1,210,665	6,217	3,652,478
1971	7,903,937	14,885,415	20,141,395	6,835,303	26,976,698	1,496,843	284,738	6,994	1,074,759
1972	3,025,555	5,783,019	10,002,935	34,791	10,037,726	129,417	409,903	3,620	471,963
1973	1,472,313	3,096,609	3,090,140	36,207	3,126,347	23,931	75,638	2,539	88,416
1974	1,031,843	2,546,984	4,798,348	152,494	4,950,842	28,399	205,581	2,703	138,673
1975	489,545	1,289,211	2,144,178	411,404	2,555,582	44,774	70,652	5,066	68,157
1976	618,049	2,154,103	1,124,357	174,629	1,298,986	121,043	84,593	6,786	59,967
1977	580,209	1,673,525	655,047	31,512	686,559	261,400	133,767	7,521	117,878
1978	582,775	1,428,409	1,900,843	27,956	1,928,799	553,014	57,150	5,872	51,615
1979	542,554	1,182,702	2,099,385	61,381	2,160,766	633,284	339,536	10,831	37,085
1980	3,772,498	7,372,362	17,433,610	6,046	17,439,656	1,141,829	1,073,430	3,604	308,188
1981	(2,526,104)	(4,557,717)	(3,848,206)	6,908	(3,841,298)	1,226,519	845,702	4,498	48,625
1982	(1,850,736)	(3,296,600)	11,370,111	6,054	11,376,165	7,054,354	746,900	3,920	33,869
1983	166,301	864,934	8,862,914	8,269	8,871,183	11,038,206	64,660	2,596	40,793
1984	123,150	643,446	3,227,937	31,701	3,259,638	8,382,266	309,491	3,124	17,505
1985	82,117	165,866	1,926,289	10,460	1,936,749	5,269,457	252,781	3,885	72,697
1986	186,674	678,467	1,381,955	33,788	1,415,743	2,093,799	2,324,852	4,261	2,510,915
1987	194,936	718,184	671,183	13,807	684,990	1,348,349	54,431	4,684	623,872
1988	727,675	572,943	3,053,431	(49,733)	3,003,698	848,019	(84,477)	13,409	(64,069)
1989	6,060,503	12,811,114	875,038	64,706	939,744	377,336	232,440	50,953	150,430
1990	557,370	3,943,903	800,801	25,095	825,896	199,936	(378,237)	35,291	(585,973)
1991	685,891	1,903,236	711,666	33,429	745,095	273,261	61,392	81,604	(165,105)
1992	671,307	3,126,636	754,565	26,425	780,990	621,845	419,536	86,644	228,454
1993	804,647	3,272,637	1,227,602	35,457	1,263,059	1,131,832	268,667	72,746	112,125
1994	501,796	1,961,454	816,958	17,147	834,105	999,927	166,710	60,147	53,087
1995	580,055	2,520,611	1,600,647	22,674	1,623,321	400,936	171,765	45,856	103,642
1996	286,630	1,580,462	2,461,350	13,200	2,474,550	100,361	78,736	21,772	44,386
1997	55,637	244,237	74,497	4,715	79,212	2,829	16,031	0	13,202
1998	38,663	187,657	47,150	4,715	51,865	2,829	15,088	0	12,259
1999	0	0	14,704	0	14,704	0	0	0	0
2000	0	0	17,098	0	17,098	0	0	0	0
2001	0	0	17,098	0	17,098	0	0	0	0
2002	0	0	17,098	0	17,098	0	0	0	0
2003	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0
Total	72,886,967	282,760,653	247,599,921	54,532,229	302,132,150	50,569,356	23,881,633	705,933	18,302,649

TABLE B-10

Capital Costs of Each Aqueduct Reach to Be Reimbursed through Capital Cost Component of Transportation Charge

(Dollars)

Calendar Year	California Aqueduct (continued)								
	Mojave Division (continued)							Santa Ana Division	
	Reach 20B (47)	Reach 21 (48)	Reach 22A (49)	Reach 22B (50)	Reach 23 (51)	Reach 24 (52)	Subtotal (53)	Reach 25 (54)	Reach 26A (55)
1952	892	5,788	35	2,013	2,074	2,413	21,386	3,334	5,599
1953	3,402	17,846	71	5,752	6,886	7,438	65,936	10,275	17,264
1954	4,548	23,558	369	8,560	7,849	9,820	87,036	13,566	22,790
1955	2,213	7,947	178	2,754	2,725	3,313	29,357	4,575	7,687
1956	2,655	8,542	216	2,905	2,961	3,561	31,562	4,917	8,264
1957	9,826	31,616	800	10,757	10,962	13,177	116,825	18,205	30,586
1958	16,752	53,569	1,397	18,717	18,578	22,627	199,237	31,001	52,019
1959	18,604	56,724	1,844	25,421	20,372	45,646	255,388	39,325	58,137
1960	37,179	43,893	11,029	136,751	17,152	109,816	449,110	65,655	93,700
1961	37,102	21,532	14,517	215,859	9,546	373,473	777,154	26,979	56,734
1962	10,730	8,197	4,186	164,168	4,336	279,421	817,994	9,964	36,235
1963	40,865	26,670	17,081	237,695	7,228	358,503	1,205,145	31,013	112,271
1964	71,116	33,912	22,793	262,996	6,863	244,003	1,495,651	69,669	202,642
1965	343,506	91,095	65,689	827,655	11,836	621,566	2,916,174	279,237	206,356
1966	1,311,628	160,388	178,538	1,746,245	31,078	1,018,628	6,629,975	415,066	364,004
1967	1,718,942	498,257	367,961	3,146,128	62,135	2,331,106	11,009,612	3,184,296	638,539
1968	2,291,691	1,141,929	1,145,768	4,588,850	102,207	2,600,293	21,078,184	8,264,126	1,268,194
1969	5,626,284	2,358,737	1,515,147	7,750,478	260,659	11,131,406	37,268,731	6,807,783	1,768,456
1970	5,304,372	3,232,911	2,081,810	23,451,612	1,240,798	16,885,193	59,277,133	2,169,051	7,229,429
1971	1,091,123	825,070	432,464	16,772,680	1,922,115	5,385,721	29,292,507	1,135,248	9,811,736
1972	635,507	484,772	324,865	3,786,894	48,049	788,479	7,085,469	1,095,740	5,528,987
1973	83,840	63,774	36,179	1,623,274	24,333	4,225,877	6,247,801	136,994	1,810,729
1974	118,639	103,545	54,198	5,699,605	130,567	766,562	7,248,472	68,180	1,922,999
1975	169,294	167,240	19,453	4,793,580	19,467	373,783	5,731,466	166,653	3,787,797
1976	102,909	44,896	24,732	3,103,916	84,188	204,705	3,837,735	475,176	1,494,750
1977	120,160	71,389	49,445	1,654,122	60,112	232,230	2,708,024	76,255	776,085
1978	66,838	32,855	18,183	677,448	36,484	210,198	1,711,657	57,463	131,076
1979	36,225	18,948	10,675	560,506	10,634	103,615	1,761,339	29,960	80,482
1980	284,545	133,526	121,171	2,239,224	64,447	559,963	5,929,927	31,462	181,638
1981	32,214	13,223	6,466	(774,614)	160,862	203,941	1,767,436	5,864	69,031
1982	77,988	13,158	14,459	432,274	437,307	79,819	8,894,048	9,224	159,280
1983	58,714	25,900	10,363	451,428	2,198,410	58,989	13,950,059	4,304	528,764
1984	35,378	845,423	6,052	(38,439)	1,369,400	34,764	10,964,964	3,850	270,455
1985	(201,541)	(432,054)	1,985,548	663,873	974,482	51,634	8,640,762	5,555	97,740
1986	(1,918,884)	(1,245,542)	3,328,851	1,200,178	257,448	51,994	8,607,872	9,927	233,121
1987	(306,867)	78,262	66,943	4,567,279	327,301	91,223	6,855,477	4,908	262,960
1988	(48,671)	44,811	353,772	1,471,879	1,194,551	197,774	3,926,998	7,359	357,771
1989	184,718	173,398	536,186	4,839,057	2,639,896	433,434	9,619,848	8,102	(8,702,418)
1990	(394,435)	(585,296)	(86,876)	9,913,279	3,511,027	343,722	11,972,438	176,846	(282,322)
1991	334	(123,267)	(11,910)	9,167,944	8,674,108	139,276	18,097,637	202,292	224,756
1992	341,118	(261,440)	76,236	5,401,064	20,496,621	129,943	27,540,021	335,006	93,733
1993	181,946	134,832	49,582	3,190,636	32,813,768	159,889	38,116,023	1,506,806	4,258,808
1994	115,971	67,295	27,317	987,387	15,344,894	83,430	17,906,165	2,104,631	2,717,637
1995	132,457	79,710	35,208	198,753	11,349,343	132,538	12,650,208	3,428,787	752,682
1996	57,397	52,632	20,760	2,118,829	3,877,400	103,249	6,475,522	18,983,857	845,031
1997	11,316	8,487	5,658	82,041	2,163,242	16,031	2,318,837	7,888,195	28,290
1998	10,373	7,544	4,715	62,238	814,752	10,373	940,171	139,564	17,917
1999	0	0	0	0	0	0	0	174,455	0
2000	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0
Total	17,932,913	8,666,202	12,952,124	127,453,651	112,831,453	51,234,559	424,530,473	58,720,700	39,638,421

TABLE B-10

Capital Costs of Each Aqueduct Reach to Be Reimbursed through Capital Costs Component of Transportation Charge

(Dollars)

Calendar Year	California Aqueduct (continued)								
	Santa Ana Division (continued)				West Branch				
	Reach 28G (a (56)	Reach 28H (57)	Reach 28J (58)	Subtotal (59)	Reach 29A (60)	Reach 29F (61)	Reach 29G (62)	Reach 29H (63)	Reach 29J (64)
1952	4,785	4,055	3,020	20,793	2,924	136	175	459	553
1953	15,580	11,511	9,476	64,106	9,093	344	237	1,754	1,683
1954	18,015	18,100	12,160	84,631	7,389	1,201	2,229	2,350	4,162
1955	6,052	6,081	4,151	28,546	1,019	585	1,086	1,147	2,029
1956	6,496	6,525	4,480	30,682	490	698	1,297	1,366	2,420
1957	24,044	24,156	16,585	113,576	1,809	2,583	4,792	5,057	8,952
1958	40,844	41,033	28,470	193,367	3,256	4,516	8,714	8,878	15,847
1959	45,746	45,946	44,331	233,485	7,953	9,150	19,414	18,243	35,583
1960	59,102	58,548	118,969	395,974	21,753	14,990	34,447	29,764	69,752
1961	32,226	34,382	674,787	825,108	22,442	12,775	21,559	20,086	39,761
1962	21,383	20,530	47,484	135,596	40,237	28,729	86,938	58,215	108,962
1963	43,884	41,698	1,506,440	1,735,306	91,959	69,162	163,347	110,015	211,592
1964	89,710	45,762	98,569	506,352	150,670	66,420	207,977	143,340	291,404
1965	96,956	76,899	146,095	805,543	361,811	77,914	403,115	127,430	589,638
1966	170,878	308,756	589,107	1,847,811	489,512	203,497	1,233,640	348,918	3,231,797
1967	233,968	283,126	987,832	5,327,761	1,589,715	882,096	1,117,243	891,607	31,088,491
1968	871,337	266,295	780,587	11,450,539	3,899,363	300,921	396,190	1,104,832	36,157,768
1969	1,117,873	1,444,654	756,442	11,895,208	6,592,580	336,480	693,348	1,184,454	9,655,871
1970	1,843,621	1,013,468	2,829,523	15,085,092	7,986,733	6,089,401	2,624,747	3,002,968	8,463,475
1971	16,095,702	6,401,303	12,111,623	45,555,612	4,247,037	3,768,699	1,120,231	8,244,651	5,844,024
1972	1,537,880	11,960,791	21,542,747	41,666,145	1,871,831	426,932	985,512	18,787,722	(23,015,734)
1973	209,664	247,769	3,673,344	6,078,500	775,824	168,064	399,856	9,408,706	1,821,206
1974	162,178	101,638	1,980,991	4,235,986	560,657	168,878	169,717	3,901,261	(3,454,239)
1975	157,365	124,399	1,626,274	5,862,488	353,670	421,176	925,693	664,113	609,891
1976	178,287	118,748	1,497,465	3,764,426	396,809	650,417	1,274,484	706,244	650,209
1977	127,106	89,036	323,091	1,391,573	390,637	3,018,637	2,152,961	196,012	1,135,148
1978	147,112	153,867	347,482	837,000	1,427,190	2,219,135	6,694,615	57,817	149,932
1979	29,723	19,225	225,947	385,337	940,013	2,168,382	19,813,742	597,858	331,313
1980	137,833	154,821	1,077,900	1,583,654	1,276,793	4,108,143	24,537,814	550,337	204,751
1981	28,815	22,654	61,349	187,713	(711,751)	2,699,873	19,806,531	94,944	28,852
1982	16,069	58,900	55,841	299,314	(465,217)	351,251	17,964,617	215,678	42,587
1983	18,213	89,581	(264,804)	376,058	100,394	180,971	6,751,649	220,029	24,295
1984	14,462	12,259	49,547	350,573	71,759	68,930	2,870,259	335,942	17,285
1985	17,816	11,481	54,070	186,662	142,244	25,386	2,126,670	102,366	21,971
1986	31,564	25,037	86,794	386,443	133,914	62,294	274,660	141,894	36,149
1987	17,141	8,005	45,528	338,542	13,936	453,949	711,773	192,511	27,931
1988	41,896	21,116	90,798	518,940	559,740	118,014	1,660,980	203,154	95,941
1989	28,791	12,678	51,892	(8,600,955)	237,449	430,765	584,992	242,092	97,542
1990	27,102	12,670	54,830	(10,874)	199,216	311,964	363,268	812,680	54,065
1991	142,174	15,549	62,950	647,721	221,197	344,568	453,816	1,132,639	55,205
1992	35,099	14,311	71,989	550,138	542,965	296,210	468,445	4,404,498	51,039
1993	44,453	27,158	163,478	6,000,703	466,482	320,375	644,694	3,361,980	74,328
1994	16,746	11,942	55,750	4,906,706	207,709	232,867	365,578	307,862	34,694
1995	37,582	29,653	170,238	4,418,942	368,630	401,082	546,455	479,175	40,759
1996	79,263	75,801	340,423	20,324,375	170,234	168,146	249,118	207,010	20,944
1997	12,259	11,316	27,347	7,967,407	34,891	9,430	58,466	24,518	9,430
1998	11,316	11,316	16,974	197,087	21,689	7,544	8,141,862	15,088	7,544
1999	0	0	0	174,455	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0
Total	24,146,111	23,594,549	54,260,366	201,360,147	35,836,650	31,703,680	129,138,953	62,669,664	74,996,802

a) Includes excess capacity costs (not shown in Table B-9) allocated to MWDSC in the following years and repaid under Article 24(c) of its contract: 1970 - $362,000; 1971 - $6,198,000; 1972 - $139,000.

TABLE B-10

Capital Costs of Each Aqueduct Reach to Be Reimbursed through Capital Cost Component of Transportation Charge

(Dollars)

Calendar Year	California Aqueduct (continued)								
	West Branch (continued)		Coastal Branch						
	Reach 30 (65)	Subtotal (66)	Reach 31A (67)	Reach 33A (68)	Reach 34 (69)	Reach 35 (70)	Subtotal (71)	Total (72)	Grand Total (73)
1952	1,408	5,655	0	0	0	0	0	98,857	99,353
1953	4,346	17,457	0	0	0	0	0	309,387	311,812
1954	5,743	23,074	0	0	0	0	0	394,688	402,143
1955	1,943	7,809	0	0	0	0	0	159,842	169,342
1956	2,077	8,348	0	0	0	0	0	255,679	351,551
1957	7,684	30,877	0	0	0	0	0	708,753	1,464,452
1958	13,931	55,142	0	0	0	0	0	1,331,616	2,286,623
1959	44,384	134,727	28,046	49,114	7,441	8,236	92,837	2,096,392	2,967,412
1960	84,703	255,409	34,404	70,450	8,507	14,265	127,626	2,937,049	4,660,833
1961	123,330	239,953	13,801	17,868	1,501	3,931	37,101	4,650,264	8,545,244
1962	348,366	671,447	10,121	7,798	524	1,689	20,132	5,827,774	8,875,171
1963	521,491	1,167,566	20,470	14,299	880	2,943	38,592	18,981,487	24,610,278
1964	1,372,464	2,232,275	315,418	26,963	1,687	5,639	349,707	31,550,813	41,736,060
1965	3,383,950	4,943,858	747,023	36,178	2,118	7,060	792,379	57,936,405	62,664,743
1966	9,364,753	14,872,117	2,258,915	35,864	1,736	5,764	2,302,279	124,748,128	129,110,330
1967	17,618,827	53,187,979	6,310,419	38,331	1,891	6,213	6,356,854	187,465,580	194,146,365
1968	15,736,691	57,595,765	2,707,580	30,784	1,324	4,369	2,744,057	192,593,079	197,978,911
1969	16,228,175	34,690,908	423,797	26,549	907	2,905	454,158	182,530,023	184,473,490
1970	22,330,328	50,497,652	269,194	24,368	851	2,787	297,200	206,720,774	207,082,650
1971	16,890,503	40,115,145	164,446	32,230	1,315	3,804	201,795	158,414,033	158,624,739
1972	3,818,001	2,874,264	131,332	17,601	522	1,660	151,115	68,228,670	68,362,291
1973	13,426,222	25,999,878	182,493	16,154	542	1,758	200,947	45,110,823	45,263,853
1974	2,988,318	4,334,592	190,866	18,799	463	1,405	211,533	24,036,199	24,402,166
1975	1,808,235	4,782,778	64,582	36,012	2,255	6,656	109,505	21,065,768	21,318,838
1976	1,253,067	4,931,230	198,266	68,898	5,088	14,988	287,240	17,183,961	17,492,910
1977	345,023	7,238,418	918,473	81,305	1,834	5,387	1,006,999	15,165,801	15,544,382
1978	763,445	11,312,134	52,994	83,300	1,302	3,852	141,448	18,661,117	19,119,151
1979	282,145	24,133,453	38,182	108,951	1,505	4,433	153,071	31,208,787	31,864,031
1980	2,055,206	32,733,044	189,070	376,035	1,153	3,448	569,706	73,906,718	75,002,450
1981	275,460	22,193,909	19,897	(157,537)	1,428	4,260	(131,952)	15,285,012	15,781,136
1982	351,376	18,460,292	(16,381)	(96,449)	589	1,787	(110,454)	38,432,653	39,882,004
1983	566,545	7,843,883	85,496	67,106	795	2,398	155,795	35,003,651	38,343,019
1984	1,118,954	4,483,129	28,568	54,074	988	2,959	86,589	24,649,667	30,577,826
1985	284,243	2,702,880	36,834	54,316	2,111	6,266	99,527	15,168,139	28,790,765
1986	213,353	862,264	82,358	223,133	17,458	51,280	374,229	14,450,904	44,171,381
1987	158,313	1,558,413	53,817	1,061,939	92,505	272,969	1,481,230	13,249,855	35,870,327
1988	222,086	2,859,915	205,911	1,182,010	99,440	293,559	1,780,920	16,710,745	23,858,580
1989	149,110	1,741,950	90,131	902,586	77,254	227,945	1,297,916	26,953,502	29,841,200
1990	118,387	1,859,580	127,567	1,092,238	103,747	277,755	1,601,307	37,001,728	38,887,895
1991	229,526	2,436,951	165,133	1,634,971	123,538	363,680	2,287,322	46,253,502	47,750,330
1992	211,941	5,975,098	184,260	3,075,951	176,653	478,091	3,914,955	49,118,226	49,864,220
1993	297,161	5,165,020	345,901	10,812,089	1,065,048	629,811	12,852,849	71,493,744	72,358,405
1994	170,302	1,319,012	174,861	44,387,474	4,508,833	2,367,908	51,439,076	83,133,338	83,706,761
1995	315,334	2,151,435	328,874	106,313,783	10,200,464	9,807,380	126,650,501	155,077,834	155,671,642
1996	108,424	923,876	617,638	60,894,943	29,523,400	12,233,668	103,269,649	138,527,506	138,855,690
1997	39,606	176,341	162,000	18,561,000	12,278,051	1,117,708	32,118,759	44,796,894	44,992,186
1998	29,233	8,222,960	177,000	144,000	210,000	126,000	657,000	14,359,907	14,979,443
1999	0	0	125,000	0	49,000	22,000	196,000	3,334,748	4,436,512
2000	0	0	150,000	0	0	0	150,000	182,174	184,225
2001	0	0	150,000	0	0	0	150,000	182,174	184,225
2002	0	0	150,000	0	0	0	150,000	182,174	184,225
2003	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0
Total	135,684,113	470,029,862	18,714,757	251,425,478	58,576,648	28,400,616	357,117,499	2,337,826,544	2,488,103,571

TABLE B-11

Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of Transportation Charge

(Dollars)

Calendar Year	Upper Feather River Division	North Bay Aqueducts					South Bay Aqueduct			
		Reach 1	Reach 2	Reach 3A	Reach 3B	Total	Reach 1	Reach 2	Reach 4	Reach 5
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	37,396	5,522	0	0
1963	0	0	0	0	0	0	147,719	20,639	0	0
1964	0	0	0	0	0	0	149,750	15,574	19,405	0
1965	0	0	0	0	0	0	259,939	45,718	46,485	0
1966	0	0	0	0	0	0	270,890	23,799	63,921	0
1967	0	0	0	0	0	0	438,050	32,798	108,127	0
1968	0	0	0	0	130	130	410,919	44,277	66,973	706
1969	0	0	0	0	80,875	80,875	487,377	48,339	75,644	706
1970	0	0	0	0	94,872	94,872	381,734	44,852	64,833	71,376
1971	54	0	0	0	45,579	45,579	357,850	25,666	50,344	38,735
1972	40	0	0	0	37,895	37,895	347,941	30,606	56,800	100,106
1973	1	0	0	0	32,993	32,993	386,897	36,172	58,288	28,810
1974	143	0	0	0	46,498	46,498	456,381	57,081	83,120	61,623
1975	1,069	0	0	0	37,707	37,707	624,989	46,111	81,361	36,682
1976	139	0	0	0	60,786	60,786	614,362	47,862	123,838	91,096
1977	892	0	0	0	78,400	78,400	511,065	48,926	104,280	102,083
1978	39	0	0	0	56,318	56,318	671,195	125,224	176,855	50,289
1979	3,235	0	0	0	73,851	73,851	650,803	76,849	212,826	91,374
1980	416	0	0	0	81,748	81,748	1,128,416	212,974	242,118	110,679
1981	3,847	0	0	0	100,780	100,780	882,757	130,127	167,121	204,794
1982	10,956	0	0	0	191,981	191,981	1,156,467	141,702	249,398	116,652
1983	(422)	0	0	0	80,229	80,229	1,258,441	84,370	373,905	151,891
1984	643	0	0	0	139,099	139,099	1,998,554	113,797	340,347	34,429
1985	2,599	0	0	0	259,615	259,615	2,045,482	207,479	427,930	247,521
1986	2,595	0	0	0	229,525	229,525	1,834,776	285,914	305,164	159,064
1987	2,595	0	0	0	309,361	309,361	2,101,630	163,720	400,565	283,177
1988	2,600	(4)	339	(19)	331,251	331,567	2,077,441	186,325	300,009	370,915
1989	2,672	469,152	178,131	236,071	373,280	1,256,634	2,167,947	163,549	320,843	497,042
1990	2,687	549,796	244,875	121,678	424,704	1,341,053	2,217,344	251,429	355,010	570,185
1991	2,730	647,722	302,250	204,076	426,146	1,580,194	1,790,611	152,450	95,651	92,656
1992	2,774	440,608	189,336	263,880	279,482	1,173,306	2,061,502	405,988	409,482	362,928
1993	2,529	441,439	294,391	216,529	290,520	1,242,879	3,924,978	621,705	480,797	400,631
1994	3,058	425,495	198,368	204,107	363,463	1,191,433	4,646,145	302,180	404,790	406,878
1995	3,210	426,941	282,080	150,656	295,362	1,155,039	3,837,914	315,965	564,884	330,013
1996	3,370	716,317	267,162	212,420	309,431	1,505,330	3,347,851	305,639	623,060	533,293
1997	3,437	839,127	253,018	401,623	481,929	1,975,697	3,568,028	412,056	636,116	544,245
1998	3,506	906,387	247,903	423,115	360,741	1,938,146	3,662,589	424,508	668,786	547,604
1999	3,576	905,341	255,450	436,692	369,333	1,966,816	3,783,045	438,463	691,133	595,986
2000	3,576	884,775	248,880	426,955	361,048	1,921,658	3,698,330	427,466	673,783	592,067
2001	3,576	884,079	248,876	426,591	360,860	1,920,406	3,697,732	427,408	673,620	591,460
2002	3,576	886,241	248,890	427,721	361,444	1,924,296	3,699,599	427,596	674,147	593,535
2003	3,576	886,121	248,889	427,657	361,411	1,924,078	3,699,494	427,586	674,117	593,390
2004	3,576	886,622	248,892	427,919	361,547	1,924,980	3,699,927	427,629	674,240	593,994
2005	3,576	885,512	248,886	427,339	361,248	1,922,985	3,698,969	427,532	673,969	592,657
2006	3,576	885,671	248,887	427,422	361,291	1,923,271	3,699,105	427,546	674,008	592,847
2007	3,576	885,499	248,886	427,332	361,245	1,922,962	3,698,957	427,531	673,967	592,640
2008	3,576	885,696	248,888	427,435	361,298	1,923,317	3,699,126	427,548	674,014	592,877
2009	3,576	885,711	248,888	427,443	361,302	1,923,344	3,699,140	427,550	674,018	592,896
2010	3,576	885,703	248,888	427,439	361,300	1,923,330	3,699,133	427,548	674,016	592,887
2011	3,576	885,714	248,888	427,444	361,304	1,923,350	3,699,142	427,550	674,019	592,899
2012	3,576	885,734	248,885	427,455	361,307	1,923,381	3,699,122	427,546	674,017	592,920
2013	3,576	886,440	248,889	427,824	361,498	1,924,651	3,699,732	427,608	674,189	593,770
2014	3,576	887,238	248,895	428,240	361,711	1,926,084	3,700,418	427,674	674,374	594,687
2015	3,576	887,413	248,896	428,332	361,759	1,926,400	3,700,571	427,693	674,426	594,939
2016	3,576	887,369	248,896	428,308	361,747	1,926,320	3,700,533	427,689	674,415	594,887
2017	3,576	887,405	248,896	428,327	361,758	1,926,386	3,700,564	427,692	674,423	594,930
2018	3,576	887,383	248,896	428,315	361,751	1,926,345	3,700,545	427,690	674,418	594,902
2019	3,576	887,380	248,896	428,314	361,751	1,926,341	3,700,542	427,689	674,417	594,899
2020	3,576	887,106	248,895	428,170	361,677	1,925,848	3,700,306	427,666	674,351	594,569
2021	3,576	887,084	248,895	428,160	361,672	1,925,811	3,700,287	427,664	674,345	594,543
2022	3,576	887,069	248,895	428,152	361,668	1,925,784	3,700,274	427,662	674,341	594,525
2023	3,576	887,159	248,895	428,198	361,692	1,925,944	3,700,352	427,670	674,364	594,634
2024	3,576	887,063	248,895	428,148	361,666	1,925,772	3,700,268	427,662	674,340	594,517
2025	3,576	887,136	248,895	428,186	361,686	1,925,903	3,700,331	427,669	674,358	594,606
2026	3,576	887,088	248,895	428,161	361,673	1,925,817	3,700,290	427,664	674,346	594,547
2027	3,576	886,962	248,894	428,096	361,638	1,925,590	3,700,181	427,653	674,316	594,396
2028	3,576	886,954	248,894	428,092	361,636	1,925,576	3,700,175	427,653	674,314	594,386
2029	3,576	887,030	248,894	428,131	361,658	1,925,713	3,700,240	427,659	674,332	594,476
2030	3,576	886,794	248,893	428,008	361,594	1,925,289	3,700,037	427,639	674,275	594,194
2031	3,576	886,854	248,893	428,040	361,611	1,925,398	3,700,089	427,643	674,290	594,266
2032	3,576	886,913	248,894	428,070	361,625	1,925,502	3,700,139	427,649	674,304	594,336
2033	3,576	886,841	248,893	428,032	361,606	1,925,372	3,700,077	427,643	674,286	594,250
2034	3,576	886,901	248,893	428,064	361,623	1,925,481	3,700,129	427,647	674,301	594,324
2035	3,576	886,857	248,893	428,040	361,611	1,925,401	3,700,091	427,644	674,290	594,270
Total	193,726	38,683,838	11,673,396	18,274,388	19,358,800	87,990,422	189,891,122	21,490,613	33,721,959	28,615,091

TABLE B-11

Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of Transportation Charge

(Dollars)

Calendar Year	South Bay Aqueduct (continued)					California Aqueduct			
						North San Joaquin Division			
	Reach 6 (11)	Reach 7 (12)	Reach 8 (13)	Reach 9 (14)	Total (15)	Reach 1 (16)	Reach 2A (17)	Reach 2B (18)	Subtotal (19)
1961	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	42,918	0	0	0	0
1963	0	0	0	0	168,358	0	0	0	0
1964	0	0	0	0	184,729	0	0	0	0
1965	2,634	6,490	4,704	12,904	378,874	0	0	0	0
1966	4,707	10,328	9,233	25,519	408,397	0	0	0	0
1967	2,712	7,659	10,812	34,347	634,505	0	0	0	0
1968	3,109	7,960	10,166	40,372	584,482	1,001,998	228,359	103,116	1,333,473
1969	3,944	5,975	8,795	38,566	669,346	933,116	301,596	188,194	1,422,906
1970	2,464	(1,991)	6,870	28,210	598,348	971,602	306,198	151,539	1,429,339
1971	3,116	9,394	9,895	31,068	526,068	1,103,021	254,786	113,694	1,471,501
1972	5,125	10,247	12,054	44,699	607,578	1,107,855	230,906	110,109	1,448,870
1973	4,178	7,500	4,890	43,816	570,551	1,150,864	221,445	100,221	1,472,530
1974	7,812	7,564	5,523	48,054	727,158	1,272,034	231,383	117,156	1,620,573
1975	18,120	14,683	18,325	68,377	908,648	1,434,736	455,110	201,075	2,090,921
1976	10,873	5,557	19,920	49,921	963,429	1,519,801	217,348	453,400	2,190,549
1977	(240)	2,228	8,391	89,579	866,312	1,913,643	292,380	196,564	2,402,587
1978	(1,404)	16,766	(5,313)	104,078	1,137,690	1,860,456	306,503	188,214	2,355,173
1979	1,269	29,294	7,351	106,835	1,176,601	1,847,993	231,339	145,205	2,224,537
1980	3,621	24,270	17,404	110,852	1,850,334	2,363,147	472,660	247,608	3,083,415
1981	4,038	20,109	17,586	98,143	1,524,675	2,651,837	435,371	154,231	3,241,439
1982	2,236	22,870	21,919	202,590	1,913,834	3,192,096	599,785	244,662	4,036,543
1983	(2,047)	48,781	45,573	216,434	2,177,348	4,246,423	802,903	273,079	5,322,405
1984	4,449	44,017	23,563	455,058	3,014,214	4,374,289	810,669	291,622	5,476,580
1985	13,097	74,565	57,920	238,066	3,312,060	5,138,714	811,987	278,258	6,228,959
1986	11,614	31,084	46,864	363,357	3,037,837	5,376,105	995,477	391,402	6,762,984
1987	15,273	25,182	37,949	416,375	3,443,871	5,293,678	968,481	366,208	6,628,367
1988	30,214	41,049	49,157	335,478	3,390,588	5,350,578	822,635	360,463	6,533,676
1989	9,740	54,866	114,259	179,357	3,507,603	5,768,764	850,932	907,803	7,527,499
1990	31,157	69,391	119,276	247,712	3,861,504	6,743,967	1,063,541	882,386	8,689,894
1991	22,422	(18,755)	99,508	261,929	2,496,472	6,717,078	1,053,028	578,512	8,348,618
1992	26,791	332,051	98,660	186,609	3,884,011	9,395,721	1,419,388	673,747	11,488,856
1993	24,840	181,572	94,143	315,983	6,044,649	10,304,181	1,371,475	903,472	12,579,128
1994	28,391	90,799	80,996	416,088	6,376,267	8,175,709	1,326,005	804,827	10,306,541
1995	29,199	63,896	80,143	372,246	5,594,260	10,099,533	2,374,369	956,513	13,430,415
1996	19,059	71,690	70,895	311,842	5,283,329	9,874,328	2,682,759	696,355	13,253,442
1997	82,047	165,340	124,755	483,769	6,016,356	11,278,092	2,119,944	822,328	14,220,364
1998	80,258	73,870	90,517	478,964	6,027,096	11,579,134	2,181,212	1,107,321	14,867,667
1999	83,575	76,680	93,214	494,922	6,257,018	11,755,205	2,157,441	1,043,779	14,956,425
2000	81,306	74,715	90,753	427,606	6,066,026	11,319,399	2,100,192	698,224	14,117,815
2001	81,306	74,715	90,753	427,606	6,064,600	11,316,391	2,098,869	697,820	14,113,080
2002	81,306	74,715	90,753	427,606	6,069,257	11,325,777	2,103,854	699,344	14,128,975
2003	81,306	74,715	90,753	427,606	6,068,967	11,325,250	2,103,570	699,256	14,128,076
2004	81,306	74,715	90,753	427,606	6,070,170	11,327,428	2,104,746	699,616	14,131,790
2005	81,306	74,715	90,753	427,606	6,067,507	11,322,605	2,102,145	698,821	14,123,571
2006	81,306	74,715	90,753	427,606	6,067,886	11,323,294	2,102,514	698,933	14,124,741
2007	81,306	74,715	90,753	427,606	6,067,475	11,322,547	2,102,113	698,812	14,123,472
2008	81,306	74,715	90,753	427,606	6,067,945	11,323,401	2,102,573	698,952	14,124,926
2009	81,306	74,715	90,753	427,606	6,067,984	11,323,467	2,102,610	698,964	14,125,041
2010	81,306	74,715	90,753	427,606	6,067,964	11,323,432	2,102,591	698,957	14,124,980
2011	81,306	74,715	90,753	427,606	6,067,990	11,323,478	2,102,615	698,965	14,125,058
2012	81,305	74,714	90,752	427,601	6,067,977	11,323,483	2,102,659	698,979	14,125,121
2013	81,305	74,714	90,752	427,601	6,069,671	11,326,550	2,104,311	699,483	14,130,344
2014	81,305	74,714	90,752	427,601	6,071,525	11,329,995	2,105,852	699,954	14,135,801
2015	81,305	74,714	90,752	427,601	6,072,001	11,330,769	2,106,587	700,180	14,137,536
2016	81,305	74,714	90,752	427,601	6,071,896	11,330,580	2,106,485	700,149	14,137,214
2017	81,305	74,714	90,752	427,601	6,071,981	11,330,734	2,106,569	700,174	14,137,477
2018	81,305	74,714	90,752	427,601	6,071,927	11,330,636	2,106,515	700,157	14,137,308
2019	81,305	74,714	90,752	427,601	6,071,919	11,330,623	2,106,508	700,156	14,137,287
2020	81,305	74,714	90,752	427,601	6,071,264	11,329,432	2,105,867	699,960	14,135,259
2021	81,305	74,714	90,752	427,601	6,071,211	11,329,339	2,105,816	699,943	14,135,098
2022	81,305	74,714	90,752	427,601	6,071,174	11,329,274	2,105,783	699,936	14,134,993
2023	81,305	74,714	90,752	427,601	6,071,392	11,329,666	2,105,991	699,998	14,135,655
2024	81,305	74,714	90,752	427,601	6,071,159	11,329,245	2,105,767	699,929	14,134,941
2025	81,305	74,714	90,752	427,601	6,071,336	11,329,564	2,105,937	699,982	14,135,483
2026	81,305	74,714	90,752	427,601	6,071,219	11,329,355	2,105,823	699,947	14,135,125
2027	81,305	74,714	90,752	427,601	6,070,918	11,328,810	2,105,533	699,857	14,134,200
2028	81,305	74,714	90,752	427,601	6,070,900	11,328,776	2,105,513	699,852	14,134,141
2029	81,305	74,714	90,752	427,601	6,071,079	11,329,104	2,105,689	699,905	14,134,698
2030	81,305	74,714	90,752	427,601	6,070,517	11,328,081	2,105,139	699,737	14,132,957
2031	81,305	74,714	90,752	427,601	6,070,660	11,328,342	2,105,279	699,779	14,133,400
2032	81,305	74,714	90,752	427,601	6,070,800	11,328,596	2,105,414	699,821	14,133,831
2033	81,305	74,714	90,752	427,601	6,070,628	11,328,281	2,105,247	699,769	14,133,297
2034	81,305	74,714	90,752	427,601	6,070,773	11,328,547	2,105,391	699,813	14,133,751
2035	81,305	74,714	90,752	427,601	6,070,667	11,328,355	2,105,286	699,782	14,133,423
Total	3,515,385	4,322,697	4,783,001	22,345,815	308,685,683	563,568,304	104,360,768	39,236,969	707,166,041

TABLE B-11

Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of Transportation Charge

(Dollars)

Calendar Year	California Aqueduct (continued)								
	San Luis Division						South San Joaquin Division		
	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Subtotal	Reach 8C	Reach 8D	Reach 9
	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
1961	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0
1968	120,038	428,308	130,105	44,591	104,033	827,075	0	0	0
1969	90,033	460,907	184,467	35,696	235,322	1,006,425	22,013	134,760	86,103
1970	89,547	484,300	226,002	66,070	192,582	1,058,501	26,207	156,981	128,273
1971	99,917	541,574	175,592	64,193	158,170	1,039,446	32,312	190,753	118,372
1972	116,708	647,979	174,519	73,670	154,783	1,167,659	35,031	187,242	130,396
1973	116,791	611,705	158,145	58,344	153,955	1,098,940	51,150	225,747	127,530
1974	120,309	671,455	150,835	63,905	150,230	1,156,734	34,752	199,127	131,298
1975	133,593	839,285	178,974	81,478	157,586	1,390,916	78,523	250,377	159,006
1976	54,938	883,956	220,832	90,305	174,835	1,424,866	39,348	133,933	123,424
1977	73,331	1,114,465	270,734	98,132	196,311	1,752,973	38,086	121,348	178,078
1978	45,867	898,992	203,261	106,938	203,079	1,458,137	45,552	178,805	129,928
1979	223,973	842,355	144,055	99,670	180,734	1,490,787	69,973	150,679	129,756
1980	243,507	1,173,699	222,942	127,625	281,860	2,049,633	57,726	274,848	185,155
1981	266,787	1,067,173	192,600	90,373	1,611,941	3,228,874	80,124	198,366	144,296
1982	279,263	1,240,465	209,336	114,408	1,433,163	3,276,635	59,425	269,115	233,520
1983	215,365	1,950,400	339,626	131,313	2,143,589	4,780,293	49,448	383,441	223,042
1984	241,183	2,228,195	335,406	163,942	2,111,502	5,080,228	42,186	459,341	301,458
1985	322,373	2,881,735	363,611	177,564	1,607,182	5,352,465	64,900	548,818	254,943
1986	423,121	2,993,266	484,124	255,459	615,928	4,771,898	93,883	502,562	611,010
1987	369,850	3,070,075	423,192	235,867	441,027	4,540,011	114,401	417,613	450,572
1988	365,492	2,977,330	456,647	231,714	639,236	4,670,419	96,759	379,325	418,258
1989	263,009	3,196,419	394,408	333,430	634,084	4,821,350	83,312	389,277	400,475
1990	396,460	3,964,788	578,238	464,880	730,688	6,135,054	111,180	439,027	517,496
1991	250,709	4,330,654	543,478	727,991	765,390	6,618,222	104,389	496,659	465,838
1992	298,877	3,759,154	789,498	361,245	809,019	6,017,793	117,837	507,885	414,319
1993	438,887	4,367,110	1,008,710	551,984	734,793	7,101,484	230,328	746,089	490,423
1994	284,193	4,367,914	816,522	397,047	493,155	6,358,831	125,428	602,493	572,702
1995	117,584	4,965,707	1,054,099	436,232	1,343,369	7,916,991	185,086	654,351	430,007
1996	977,324	4,445,431	940,292	624,428	1,123,784	8,111,259	157,155	569,385	501,008
1997	692,039	6,058,097	1,040,248	484,984	677,632	8,953,000	286,052	846,608	701,613
1998	803,166	4,959,699	1,245,827	501,975	643,140	8,153,807	238,293	908,093	745,712
1999	839,163	4,458,640	1,202,578	431,793	588,490	7,520,664	249,372	948,011	777,349
2000	773,867	4,399,362	899,911	425,356	579,673	7,078,169	243,145	925,231	759,043
2001	772,463	4,393,099	899,911	424,917	579,116	7,069,506	243,130	924,504	758,363
2002	777,748	4,413,171	899,911	426,579	581,217	7,098,626	243,184	927,247	760,931
2003	777,448	4,412,045	899,911	426,485	581,097	7,096,986	243,181	927,091	760,785
2004	778,695	4,416,714	899,911	426,877	581,592	7,103,789	243,194	927,736	761,389
2005	775,937	4,406,375	899,911	426,011	580,498	7,088,732	243,166	926,308	760,052
2006	776,328	4,407,849	899,911	426,134	580,652	7,090,874	243,169	926,510	760,241
2007	775,903	4,406,251	899,911	425,999	580,483	7,088,547	243,166	926,290	760,034
2008	776,390	4,408,080	899,911	426,153	580,677	7,091,211	243,169	926,541	760,271
2009	776,427	4,408,221	899,911	426,164	580,693	7,091,416	243,170	926,561	760,289
2010	776,408	4,408,144	899,911	426,158	580,684	7,091,305	243,169	926,551	760,280
2011	776,435	4,408,246	899,911	426,166	580,696	7,091,454	243,170	926,565	760,292
2012	776,496	4,408,485	899,901	426,184	580,719	7,091,785	243,168	926,593	760,319
2013	778,248	4,415,055	899,901	426,736	581,415	7,101,355	243,186	927,502	761,170
2014	779,881	4,422,244	899,901	427,248	582,062	7,111,336	243,203	928,347	761,961
2015	780,660	4,424,101	899,901	427,494	582,373	7,114,529	243,210	928,754	762,341
2016	780,552	4,423,696	899,901	427,460	582,329	7,113,938	243,209	928,697	762,288
2017	780,640	4,424,024	899,901	427,488	582,364	7,114,417	243,210	928,743	762,332
2018	780,585	4,423,815	899,901	427,469	582,341	7,114,111	243,210	928,714	762,305
2019	780,576	4,423,784	899,901	427,468	582,338	7,114,067	243,210	928,710	762,300
2020	779,895	4,421,237	899,901	427,254	582,069	7,110,356	243,204	928,356	761,970
2021	779,843	4,421,034	899,901	427,237	582,048	7,110,063	243,203	928,328	761,943
2022	779,807	4,420,895	899,901	427,226	582,033	7,109,862	243,203	928,311	761,926
2023	780,029	4,421,736	899,901	427,296	582,122	7,111,084	243,205	928,426	762,036
2024	779,792	4,420,836	899,901	427,222	582,027	7,109,778	243,203	928,302	761,919
2025	779,970	4,421,518	899,901	427,278	582,100	7,110,767	243,204	928,396	762,007
2026	779,851	4,421,068	899,901	427,240	582,051	7,110,111	243,203	928,333	761,948
2027	779,542	4,419,902	899,901	427,142	581,928	7,108,415	243,200	928,172	761,798
2028	779,521	4,419,827	899,901	427,135	581,921	7,108,305	243,200	928,162	761,788
2029	779,707	4,420,530	899,901	427,195	581,994	7,109,327	243,201	928,259	761,878
2030	779,125	4,418,337	899,901	427,012	581,762	7,106,137	243,195	927,956	761,595
2031	779,275	4,418,900	899,901	427,058	581,823	7,106,957	243,197	928,033	761,668
2032	779,415	4,419,440	899,901	427,104	581,879	7,107,739	243,198	928,109	761,737
2033	779,239	4,418,772	899,901	427,047	581,808	7,106,767	243,197	928,017	761,650
2034	779,390	4,419,340	899,901	427,095	581,868	7,107,594	243,198	928,094	761,725
2035	779,281	4,418,924	899,901	427,060	581,825	7,106,991	243,197	928,037	761,671
Total	37,398,766	235,856,289	47,255,459	23,092,393	42,424,869	386,027,776	11,775,058	45,865,545	37,687,605

TABLE B-11

Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of Transportation Charge

(Dollars)

Calendar Year	California Aqueduct (continued)								
	South San Joaquin Division (continued)								
	Reach 10A (29)	Reach 11B (30)	Reach 12D (31)	Reach 12E (32)	Reach 13B (33)	Reach 14A (34)	Reach 14B (35)	Reach 14C (36)	Reach 15A (37)
1961	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0
1969	83,706	59,077	0	0	0	0	0	0	0
1970	118,046	85,758	94,171	123,374	152,424	0	0	0	0
1971	129,811	80,282	95,075	91,389	167,142	691,791	151,979	111,623	529,723
1972	117,625	84,287	98,647	115,592	146,096	877,535	124,831	101,479	609,058
1973	117,706	92,257	74,238	114,843	221,385	961,855	120,106	99,429	692,748
1974	141,658	98,103	74,914	193,523	141,540	898,272	143,866	115,649	853,098
1975	207,908	124,105	61,799	117,194	108,154	1,156,757	180,614	119,889	988,045
1976	139,134	69,715	33,655	147,908	134,063	1,124,051	177,086	114,133	1,037,799
1977	194,086	108,644	91,547	175,039	137,975	1,397,006	203,837	119,467	1,339,196
1978	168,634	106,702	72,585	170,578	151,120	1,254,043	139,662	132,224	1,265,813
1979	175,107	85,942	56,331	174,147	150,029	1,490,377	201,935	260,981	1,216,063
1980	284,207	120,896	123,120	167,249	164,749	1,987,055	189,132	238,607	1,436,441
1981	200,043	77,034	33,420	113,272	171,780	1,735,427	163,799	161,086	1,793,267
1982	264,977	158,196	142,657	224,190	224,079	1,793,324	195,002	15,709	1,933,830
1983	308,758	136,321	124,693	203,707	217,278	2,422,935	199,754	181,913	2,551,236
1984	397,252	164,515	109,487	188,738	245,949	3,310,399	329,448	204,173	3,215,114
1985	346,406	252,692	206,439	239,944	360,512	3,468,959	237,078	180,032	3,432,670
1986	438,930	266,509	259,983	362,230	349,110	3,780,774	321,006	360,173	3,574,540
1987	493,355	336,865	329,103	472,030	325,052	3,690,709	463,843	241,675	4,037,604
1988	532,804	291,049	220,849	374,858	318,464	3,472,714	411,088	313,790	3,769,386
1989	732,702	267,764	207,008	595,388	380,399	3,523,067	334,375	221,233	3,758,962
1990	653,572	364,163	225,976	481,307	678,633	3,989,466	439,390	212,417	4,348,452
1991	716,191	328,555	269,785	371,202	433,153	4,277,711	424,536	273,049	4,533,877
1992	570,485	334,294	270,564	409,018	423,390	4,720,239	729,337	571,516	4,261,373
1993	723,543	413,984	278,545	497,191	594,466	5,203,474	663,560	423,423	5,281,357
1994	703,683	346,692	239,920	482,432	446,132	3,984,767	414,825	254,280	3,713,676
1995	878,275	403,259	240,477	620,025	505,068	4,601,136	310,243	311,318	3,985,938
1996	1,025,931	418,319	276,337	598,307	588,112	4,851,248	280,294	235,825	4,514,254
1997	1,017,758	588,524	556,715	741,718	683,360	5,727,666	716,272	687,522	5,383,737
1998	857,676	565,299	669,867	959,858	929,316	5,592,018	778,593	703,868	5,499,332
1999	893,026	589,536	696,927	1,000,831	971,390	5,779,877	772,579	600,412	5,595,888
2000	782,648	575,427	531,550	818,847	859,120	5,593,991	719,422	496,874	5,450,931
2001	781,917	575,025	530,898	818,426	858,524	5,590,957	718,689	496,338	5,449,106
2002	784,673	576,544	533,358	820,012	860,770	5,600,740	721,262	498,220	5,454,842
2003	784,517	576,457	533,218	819,922	860,641	5,600,190	721,115	498,114	5,454,522
2004	785,165	576,816	533,798	820,296	861,171	5,602,471	721,719	498,555	5,455,853
2005	783,728	576,024	532,516	819,469	860,001	5,597,421	720,379	497,574	5,452,901
2006	783,933	576,136	532,698	819,585	860,186	5,598,143	720,570	497,714	5,453,322
2007	783,711	576,013	532,500	819,459	859,986	5,597,359	720,363	497,562	5,452,865
2008	783,965	576,154	532,727	819,604	860,193	5,598,252	720,601	497,735	5,453,389
2009	783,986	576,165	532,745	819,616	860,210	5,598,323	720,619	497,750	5,453,430
2010	783,975	576,159	532,735	819,610	860,201	5,598,284	720,609	497,741	5,453,407
2011	783,989	576,167	532,748	819,618	860,213	5,598,335	720,622	497,752	5,453,437
2012	784,017	576,178	532,775	819,630	860,231	5,598,410	720,648	497,772	5,453,457
2013	784,931	576,682	533,590	820,156	860,976	5,601,620	721,501	498,395	5,455,334
2014	785,781	577,151	534,348	820,645	861,669	5,605,002	722,265	498,953	5,457,389
2015	786,189	577,375	534,713	820,879	862,000	5,606,038	722,674	499,255	5,457,915
2016	786,133	577,345	534,662	820,847	861,954	5,605,839	722,622	499,216	5,457,799
2017	786,178	577,369	534,703	820,873	861,993	5,606,002	722,663	499,248	5,457,894
2018	786,150	577,355	534,677	820,857	861,968	5,605,897	722,638	499,227	5,457,833
2019	786,146	577,352	534,673	820,854	861,965	5,605,883	722,634	499,223	5,457,826
2020	785,790	577,157	534,357	820,651	861,676	5,604,640	722,303	498,981	5,457,099
2021	785,768	577,141	534,333	820,634	861,653	5,604,539	722,276	498,963	5,457,041
2022	785,745	577,130	534,315	820,623	861,638	5,604,472	722,259	498,950	5,457,000
2023	785,861	577,195	534,419	820,690	861,732	5,604,884	722,368	499,030	5,457,241
2024	785,736	577,126	534,308	820,618	861,631	5,604,443	722,250	498,944	5,456,984
2025	785,830	577,177	534,391	820,677	861,708	5,604,777	722,340	499,008	5,457,179
2026	785,768	577,143	534,336	820,637	861,657	5,604,556	722,281	498,965	5,457,049
2027	785,606	577,055	534,192	820,543	861,525	5,603,987	722,130	498,856	5,456,717
2028	785,595	577,048	534,182	820,538	861,516	5,603,950	722,120	498,847	5,456,695
2029	785,693	577,102	534,269	820,593	861,596	5,604,295	722,212	498,915	5,456,897
2030	785,388	576,935	533,998	820,419	861,348	5,603,222	721,927	498,707	5,456,269
2031	785,467	576,977	534,067	820,464	861,411	5,603,497	722,001	498,760	5,456,430
2032	785,541	577,019	534,134	820,506	861,473	5,603,763	722,070	498,812	5,456,584
2033	785,448	576,967	534,051	820,453	861,398	5,603,434	721,982	498,748	5,456,393
2034	785,527	577,011	534,122	820,498	861,461	5,603,714	722,056	498,802	5,456,556
2035	785,470	576,979	534,070	820,466	861,414	5,603,509	722,003	498,761	5,456,436
Total	41,894,955	28,182,394	25,448,010	40,055,291	41,519,109	289,439,491	35,796,263	25,512,162	281,554,499

TABLE B-11

Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of Transportation Charge

(Dollars)

Calendar Year	California Aqueduct (continued)								
	South San Joaquin Division (continued)		Tehachapi Division			Mojave Division			
	Reach 16A (38)	Subtotal (39)	Reach 17E (40)	Reach 17F (41)	Subtotal (42)	Reach 18A (43)	Reach 19 (44)	Reach 19C (45)	Reach 20A (46)
1961	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0
1969	0	385,659	0	0	0	0	0	0	0
1970	0	885,234	0	0	0	0	0	0	0
1971	10,291	2,400,543	3,471	0	3,471	0	0	0	0
1972	1,106,884	3,734,703	1,424,782	28,127	1,452,909	36,699	135,675	0	130,711
1973	1,243,941	4,142,935	1,777,260	49,949	1,827,209	36,207	146,739	0	161,838
1974	1,343,972	4,369,772	2,298,091	16,259	2,314,350	30,525	90,404	0	115,571
1975	1,537,862	5,090,233	2,403,430	35,193	2,438,623	40,588	122,584	0	137,684
1976	1,727,428	5,001,677	2,776,194	126,653	2,902,847	118,610	201,215	0	182,927
1977	1,961,081	6,065,390	3,845,464	83,936	3,929,400	93,565	226,906	0	180,884
1978	1,922,950	5,738,596	2,954,313	42,637	2,996,950	91,815	200,759	0	215,673
1979	1,798,482	5,959,802	3,539,192	45,997	3,585,189	99,670	307,386	0	261,205
1980	2,229,892	7,459,077	4,745,363	54,806	4,800,169	116,487	446,175	0	290,719
1981	2,747,390	7,619,304	5,469,466	64,906	5,534,372	316,675	585,358	0	325,381
1982	2,960,714	8,474,738	6,347,966	56,016	6,403,982	447,834	639,020	0	276,072
1983	4,303,348	11,305,874	14,154,969	96,401	14,251,370	345,246	564,768	0	368,192
1984	5,075,391	14,043,451	18,442,387	77,216	18,519,603	267,573	563,523	0	413,690
1985	5,694,050	15,287,443	18,186,232	137,928	18,324,160	298,927	475,002	0	450,422
1986	5,781,596	16,702,306	19,301,659	109,932	19,411,591	706,253	350,750	0	347,575
1987	5,533,893	16,906,715	16,751,176	98,306	16,849,482	1,266,246	558,178	0	817,806
1988	5,192,216	15,791,560	17,901,687	138,276	18,039,963	1,244,177	560,662	0	584,865
1989	5,469,239	16,363,201	17,667,487	88,222	17,755,709	1,058,793	282,475	0	366,213
1990	6,377,776	18,838,855	19,588,022	99,451	19,687,473	1,303,208	228,713	0	469,204
1991	5,743,768	18,438,713	19,535,371	131,086	19,666,457	1,430,229	665,170	0	1,024,786
1992	6,438,905	19,769,162	18,052,998	279,341	18,332,339	1,164,877	738,194	0	666,005
1993	7,608,405	23,154,788	18,973,969	199,282	19,173,251	1,878,447	606,889	0	1,232,159
1994	7,115,968	19,002,998	17,121,937	204,775	17,326,712	1,696,941	762,687	0	1,144,959
1995	6,567,838	19,693,021	19,577,160	190,505	19,767,665	1,276,975	608,155	0	1,935,634
1996	7,187,760	21,203,935	19,107,966	216,369	19,324,335	1,294,162	608,723	0	1,085,755
1997	7,840,346	25,777,891	22,889,141	472,651	23,361,792	2,085,485	1,084,799	0	2,059,325
1998	8,353,014	26,800,939	23,981,838	543,222	24,525,060	1,639,963	853,393	0	1,291,656
1999	8,487,355	27,362,553	23,956,871	374,157	24,331,028	1,756,080	896,515	0	1,384,883
2000	8,000,307	25,756,536	23,294,026	164,922	23,458,948	1,669,022	887,107	0	1,358,111
2001	7,995,806	25,741,683	23,288,679	164,733	23,453,412	1,667,567	880,197	0	1,353,671
2002	8,010,159	25,791,942	23,305,298	165,333	23,470,631	1,672,066	901,291	0	1,367,225
2003	8,009,351	25,789,104	23,304,369	165,299	23,469,668	1,671,816	900,086	0	1,366,450
2004	8,012,700	25,800,863	23,308,222	165,440	23,473,662	1,672,865	905,057	0	1,369,644
2005	8,005,276	25,774,815	23,299,686	165,128	23,464,814	1,670,535	893,928	0	1,362,495
2006	8,006,336	25,778,523	23,300,903	165,175	23,466,078	1,670,867	895,524	0	1,363,520
2007	8,005,179	25,774,487	23,299,582	165,124	23,464,706	1,670,504	893,759	0	1,362,386
2008	8,006,497	25,779,098	23,301,093	165,180	23,466,273	1,670,920	895,750	0	1,363,663
2009	8,006,604	25,779,468	23,301,211	165,186	23,466,397	1,670,953	895,940	0	1,363,789
2010	8,006,544	25,779,265	23,301,147	165,181	23,466,328	1,670,932	895,809	0	1,363,702
2011	8,006,619	25,779,527	23,301,230	165,187	23,466,417	1,670,955	895,918	0	1,363,774
2012	8,006,742	25,779,940	23,301,308	165,191	23,466,499	1,671,000	896,274	0	1,363,987
2013	8,011,468	25,796,511	23,306,735	165,390	23,472,125	1,672,484	903,388	0	1,368,560
2014	8,016,090	25,812,804	23,312,862	165,555	23,478,417	1,674,051	909,521	0	1,372,499
2015	8,017,972	25,819,315	23,314,206	165,662	23,479,868	1,674,526	913,187	0	1,374,855
2016	8,017,676	25,818,287	23,313,871	165,652	23,479,523	1,674,431	912,714	0	1,374,551
2017	8,017,917	25,819,125	23,314,142	165,661	23,479,803	1,674,510	913,128	0	1,374,814
2018	8,017,763	25,818,594	23,313,969	165,654	23,479,623	1,674,458	912,840	0	1,374,634
2019	8,017,741	25,818,517	23,313,943	165,653	23,479,596	1,674,455	912,848	0	1,374,638
2020	8,015,910	25,812,094	23,311,841	165,576	23,477,417	1,673,876	909,986	0	1,372,798
2021	8,015,763	25,811,580	23,311,672	165,572	23,477,244	1,673,831	909,830	0	1,372,697
2022	8,015,664	25,811,236	23,311,557	165,565	23,477,122	1,673,801	909,732	0	1,372,635
2023	8,016,269	25,813,356	23,312,252	165,591	23,477,843	1,673,992	910,628	0	1,373,210
2024	8,015,618	25,811,082	23,311,508	165,563	23,477,071	1,673,788	909,649	0	1,372,584
2025	8,016,113	25,812,801	23,312,072	165,585	23,477,657	1,673,944	910,389	0	1,373,058
2026	8,015,790	25,811,666	23,311,700	165,574	23,477,274	1,673,840	909,910	0	1,372,749
2027	8,014,950	25,808,731	23,310,737	165,535	23,476,272	1,673,575	908,591	0	1,371,901
2028	8,014,896	25,808,537	23,310,676	165,533	23,476,209	1,673,557	908,507	0	1,371,848
2029	8,015,407	25,810,317	23,311,257	165,556	23,476,813	1,673,720	909,322	0	1,372,373
2030	8,013,823	25,804,782	23,309,445	165,486	23,474,931	1,673,223	906,901	0	1,370,815
2031	8,014,233	25,806,205	23,309,909	165,504	23,475,413	1,673,351	907,494	0	1,371,198
2032	8,014,618	25,807,564	23,310,356	165,521	23,475,877	1,673,475	908,142	0	1,371,612
2033	8,014,137	25,805,875	23,309,803	165,501	23,475,304	1,673,323	907,437	0	1,371,160
2034	8,014,548	25,807,312	23,310,273	165,519	23,475,792	1,673,451	908,032	0	1,371,541
2035	8,014,247	25,806,260	23,309,930	165,504	23,475,434	1,673,359	907,571	0	1,371,246
Total	417,798,488	1,322,528,870	1,201,847,332	10,016,590	1,211,863,922	82,359,280	46,067,204	0	67,212,187

TABLE B-11

Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of Transportation Charge

(Dollars)

Calendar Year	California Aqueduct (continued)								
	Mojave Division (Continued)							Santa Ana Division	
	Reach 20B (47)	Reach 21 (48)	Reach 22A (49)	Reach 22B (50)	Reach 23 (51)	Reach 24 (52)	Subtotal (53)	Reach 25 (54)	Reach 26A (55)
1961	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0
1972	120,271	75,768	80,436	1,036,831	51,520	362,153	2,030,064	26	578
1973	148,631	60,641	66,539	1,283,816	65,475	353,262	2,323,148	20,541	679,328
1974	88,200	65,007	77,667	1,477,946	86,340	334,302	2,375,962	24,380	799,400
1975	118,898	135,462	77,825	1,630,554	111,141	419,450	2,794,186	29,337	885,021
1976	151,555	106,314	131,007	1,598,071	107,787	304,638	2,902,124	51,356	1,103,139
1977	112,589	98,757	86,279	1,882,080	71,228	48,359	2,800,647	62,584	1,412,740
1978	120,584	109,271	71,763	2,211,965	72,179	637,401	3,731,410	67,186	1,159,950
1979	194,104	203,078	121,586	2,104,748	76,960	202,566	3,571,303	84,462	1,235,149
1980	237,250	156,794	117,274	2,668,830	147,009	688,605	4,869,143	72,651	1,531,691
1981	292,357	181,221	119,724	3,024,760	134,895	45,392	5,025,763	35,662	1,570,900
1982	330,816	186,291	125,561	3,250,821	299,712	624,015	6,180,142	26,852	1,822,263
1983	326,822	219,976	140,547	3,900,346	223,626	382,195	6,471,718	19,017	1,665,975
1984	330,203	267,077	146,984	4,783,988	59,337	1,106,756	7,939,131	11,319	2,324,915
1985	388,307	799,502	125,775	5,336,658	261,135	811,327	8,947,055	17,764	2,708,872
1986	315,442	242,085	178,795	6,191,808	156,053	515,535	9,004,296	31,012	2,776,520
1987	357,311	297,777	235,951	5,681,388	151,796	731,794	10,098,247	19,362	2,854,355
1988	399,772	331,020	149,787	6,936,404	253,852	969,403	11,429,942	36,500	3,090,943
1989	345,227	193,798	138,657	5,971,206	349,647	1,242,715	9,948,731	30,742	3,204,600
1990	202,088	273,565	49,037	6,859,785	436,754	1,891,031	11,713,385	25,302	3,337,596
1991	515,999	478,385	231,134	7,449,865	262,673	1,560,432	13,618,673	31,893	3,844,690
1992	696,414	585,081	168,196	7,113,613	317,010	637,453	12,086,843	55,662	4,040,172
1993	817,909	509,172	207,861	7,805,978	359,593	1,685,228	15,103,236	72,289	5,736,008
1994	956,429	872,793	241,322	8,368,538	1,220,852	1,258,654	16,523,175	105,288	6,600,449
1995	2,402,511	352,728	177,782	7,555,281	845,221	813,922	15,968,209	95,974	5,794,467
1996	2,114,884	574,154	170,210	8,677,378	678,114	(210,970)	14,992,410	85,180	5,483,158
1997	1,694,681	630,941	460,377	7,741,238	1,292,367	4,857,512	21,906,725	572,508	4,993,376
1998	968,335	568,837	361,303	7,681,633	1,558,702	1,682,467	16,606,289	129,836	4,837,803
1999	976,335	608,358	334,704	8,030,016	1,095,333	(60,044)	15,022,180	89,501	4,935,430
2000	802,717	597,760	329,993	7,742,191	1,082,797	2,836,460	17,306,158	60,687	4,829,238
2001	798,277	595,250	328,025	7,723,673	1,081,594	831,726	15,259,980	60,687	4,827,634
2002	811,831	602,912	334,036	7,780,390	1,085,335	1,890,060	16,445,146	60,687	4,832,621
2003	811,056	602,473	333,693	7,777,171	1,085,126	2,654,270	17,202,141	60,687	4,832,342
2004	814,250	604,279	335,108	7,790,454	1,085,993	125,819	14,703,469	60,687	4,833,498
2005	807,101	600,239	331,938	7,760,756	1,084,071	2,196,137	16,707,200	60,687	4,830,937
2006	808,126	600,818	332,391	7,765,020	1,084,346	2,753,300	17,273,912	60,687	4,831,302
2007	806,992	600,177	331,891	7,760,324	1,084,048	702,861	15,212,942	60,687	4,830,906
2008	808,269	600,898	332,458	7,765,624	1,084,388	635,974	15,157,944	60,687	4,831,359
2009	808,395	600,968	332,512	7,766,118	1,084,414	2,249,562	16,772,651	60,687	4,831,394
2010	808,308	600,919	332,475	7,765,790	1,084,400	1,108,783	15,631,118	60,687	4,831,375
2011	808,380	600,960	332,506	7,766,090	1,084,419	1,394,771	15,917,773	60,687	4,831,400
2012	808,602	601,086	332,606	7,766,949	1,084,471	1,608,710	16,133,685	60,685	4,831,413
2013	813,175	603,668	334,633	7,785,936	1,085,692	3,008,797	17,576,333	60,685	4,833,041
2014	817,114	605,896	336,379	7,801,978	1,087,071	8,827	14,613,336	60,685	4,834,879
2015	819,470	607,226	337,424	7,812,057	1,087,374	3,770,690	18,396,809	60,685	4,835,282
2016	819,166	607,055	337,291	7,810,799	1,087,298	373,964	14,997,269	60,685	4,835,182
2017	819,429	607,205	337,407	7,811,870	1,087,359	2,000,324	16,626,046	60,685	4,835,264
2018	819,249	607,103	337,327	7,811,141	1,087,320	532,060	15,156,132	60,685	4,835,211
2019	819,253	607,105	337,328	7,811,147	1,087,315	2,253,918	16,878,007	60,685	4,835,203
2020	817,413	606,064	336,512	7,803,586	1,086,842	2,180,679	16,787,756	60,685	4,834,573
2021	817,312	606,007	336,470	7,803,111	1,086,804	618,312	15,224,374	60,685	4,834,522
2022	817,250	605,973	336,438	7,802,815	1,086,778	1,659,851	16,265,273	60,685	4,834,487
2023	817,825	606,297	336,696	7,805,229	1,086,934	2,292,643	16,903,454	60,685	4,834,697
2024	817,199	605,944	336,416	7,802,605	1,086,766	1,091,078	15,696,029	60,685	4,834,473
2025	817,673	606,212	336,627	7,804,588	1,086,893	1,435,829	16,045,213	60,685	4,834,642
2026	817,364	606,038	336,490	7,803,300	1,086,810	1,895,021	16,501,522	60,685	4,834,531
2027	816,516	605,559	336,114	7,799,820	1,086,593	1,483,275	16,061,944	60,685	4,834,241
2028	816,463	605,526	336,092	7,799,603	1,086,579	2,152,158	16,750,333	60,685	4,834,223
2029	816,988	605,823	336,323	7,801,750	1,086,710	2,307,083	16,910,092	60,685	4,834,398
2030	815,430	604,942	335,633	7,795,307	1,086,302	700,441	15,288,994	60,685	4,833,854
2031	815,813	605,160	335,802	7,796,908	1,086,407	2,157,061	16,749,194	60,685	4,833,993
2032	816,227	605,394	335,984	7,798,590	1,086,507	1,821,361	16,417,292	60,685	4,834,127
2033	815,775	605,139	335,787	7,796,689	1,086,382	910,338	15,502,030	60,685	4,833,961
2034	816,156	605,356	335,955	7,798,311	1,086,489	2,542,928	17,138,219	60,685	4,834,103
2035	815,861	605,188	335,823	7,797,086	1,086,411	2,259,265	16,851,810	60,685	4,833,999
Total	45,020,349	30,928,472	16,650,666	418,640,321	49,847,349	84,319,889	841,045,717	4,088,870	254,427,793

TABLE B-11

Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of Transportation Charge

(Dollars)

Calendar Year	California Aqueduct (continued)								
	Santa Ana Division (continued)				West Branch				
	Reach 28G (56)	Reach 28H (57)	Reach 28J (58)	Subtotal (59)	Reach 29A (60)	Reach 29F (61)	Reach 29G (62)	Reach 29H (63)	Reach 29J (64)
1961	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0
1972	109	30	0	743	719,255	159,249	199,145	234,196	88,198
1973	136,352	79	0	836,300	779,949	339,363	122,664	264,850	119,743
1974	155,262	34,693	854,637	1,868,372	883,312	158,366	112,458	350,160	(4,525)
1975	110,729	69,082	723,814	1,817,983	1,049,990	176,676	194,724	801,457	75,870
1976	138,575	100,400	635,853	2,029,323	1,220,429	215,588	202,591	624,614	98,268
1977	127,543	92,647	825,880	2,521,394	1,268,813	116,939	218,129	684,679	184
1978	166,919	68,363	835,082	2,297,500	1,174,708	342,479	267,308	415,641	17,764
1979	142,586	92,812	265,525	1,820,534	1,366,900	285,575	284,188	972,584	29,850
1980	158,340	129,897	1,120,131	3,012,710	1,697,437	224,472	455,619	874,259	288,303
1981	160,053	111,722	332,124	2,210,461	1,781,858	123,216	615,045	2,309,557	8,794
1982	205,350	135,463	1,530,845	3,720,773	1,919,813	190,480	702,262	2,223,146	414,230
1983	244,720	124,651	413,556	2,467,919	2,740,354	149,816	890,684	747,492	579,839
1984	240,496	190,924	770,804	3,538,458	3,462,240	80,998	2,357,057	543,274	719,165
1985	451,600	182,242	871,350	4,231,828	3,872,902	295,854	3,051,915	976,380	616,843
1986	439,048	256,526	983,200	4,486,306	3,792,215	457,661	2,900,602	1,481,302	1,033,007
1987	278,094	218,717	1,118,108	4,488,636	3,380,008	212,724	2,911,461	948,116	418,565
1988	271,877	200,798	1,178,954	4,779,072	3,470,452	254,903	3,031,654	884,875	457,471
1989	230,942	281,901	1,131,348	4,879,533	4,031,803	405,878	2,759,583	1,401,388	865,467
1990	437,641	307,974	1,538,344	5,646,857	4,042,595	383,510	3,224,658	3,155,388	752,183
1991	843,049	632,653	1,629,795	6,982,080	3,821,414	303,876	3,521,130	638,827	739,746
1992	281,766	5,636,520	1,102,279	11,116,399	4,273,138	328,660	3,886,181	1,022,444	873,505
1993	382,043	570,420	1,005,237	7,765,997	3,963,921	343,970	4,518,612	1,667,697	833,123
1994	617,188	415,617	1,020,433	8,758,975	3,620,875	297,161	3,342,536	1,875,209	803,276
1995	1,284,457	704,900	861,541	8,741,339	4,147,084	866,987	4,534,041	1,582,385	927,439
1996	1,041,613	856,011	1,161,493	8,627,455	4,352,702	999,459	3,761,839	3,817,645	880,261
1997	579,146	1,090,381	2,117,012	9,352,423	5,718,896	783,465	3,203,472	3,788,794	655,561
1998	683,245	384,781	1,789,037	7,824,702	5,829,508	560,249	2,605,978	3,154,415	640,729
1999	704,891	396,152	1,244,075	7,370,049	5,988,736	533,862	2,576,856	3,471,758	652,868
2000	529,543	386,108	1,944,342	7,749,918	5,561,918	534,379	2,370,577	3,197,060	651,929
2001	529,543	386,108	1,606,573	7,410,545	5,560,442	527,006	2,368,359	3,173,229	651,929
2002	529,543	386,108	2,077,792	7,886,751	5,565,052	550,343	2,375,372	3,255,305	651,929
2003	529,543	386,108	1,989,660	7,798,340	5,564,796	549,027	2,374,985	3,251,026	651,929
2004	529,543	386,108	1,913,424	7,723,260	5,565,869	554,491	2,376,604	3,269,542	651,929
2005	529,543	386,108	1,689,201	7,496,476	5,563,491	542,358	2,373,012	3,228,296	651,929
2006	529,543	386,108	1,995,224	7,802,864	5,563,830	544,096	2,373,526	3,234,163	651,929
2007	529,543	386,108	1,742,773	7,550,017	5,563,461	542,195	2,372,966	3,227,440	651,929
2008	529,543	386,108	1,905,098	7,712,795	5,563,884	544,360	2,373,607	3,235,200	651,929
2009	529,543	386,108	1,715,761	7,523,493	5,563,917	544,531	2,373,654	3,235,636	651,929
2010	529,543	386,108	1,807,957	7,615,670	5,563,899	544,433	2,373,627	3,235,213	651,929
2011	529,543	386,108	1,885,642	7,693,380	5,563,922	544,557	2,373,663	3,235,786	651,929
2012	529,536	386,104	1,923,306	7,731,044	5,563,926	544,885	2,373,735	3,236,844	651,925
2013	529,536	386,104	1,950,172	7,759,538	5,565,438	552,618	2,376,016	3,263,179	651,925
2014	529,536	386,104	2,012,992	7,824,196	5,567,026	559,175	2,378,493	3,285,677	651,925
2015	529,536	386,104	1,535,655	7,347,262	5,567,522	563,255	2,379,168	3,299,711	651,925
2016	529,536	386,104	2,160,929	7,972,436	5,567,426	562,763	2,379,025	3,298,044	651,925
2017	529,536	386,104	1,802,205	7,613,794	5,567,504	563,154	2,379,141	3,299,339	651,925
2018	529,536	386,104	2,073,614	7,885,150	5,567,454	562,900	2,379,067	3,298,392	651,925
2019	529,536	386,104	1,950,096	7,761,624	5,567,448	562,875	2,379,058	3,298,380	651,925
2020	529,536	386,104	1,732,473	7,543,371	5,566,863	559,878	2,378,171	3,288,093	651,925
2021	529,536	386,104	2,133,047	7,943,894	5,566,814	559,634	2,378,100	3,287,298	651,925
2022	529,536	386,104	1,655,214	7,466,026	5,566,781	559,473	2,378,050	3,286,713	651,925
2023	529,536	386,104	2,089,105	7,900,127	5,566,976	560,465	2,378,344	3,290,096	651,925
2024	529,536	386,104	1,771,990	7,582,788	5,566,768	559,401	2,378,030	3,286,497	651,925
2025	529,536	386,104	2,077,529	7,888,496	5,566,926	560,208	2,378,270	3,289,316	651,925
2026	529,536	386,104	1,836,508	7,647,364	5,566,821	559,678	2,378,111	3,287,446	651,925
2027	529,536	386,104	1,891,788	7,702,354	5,566,554	558,306	2,377,705	3,282,652	651,925
2028	529,536	386,104	1,681,437	7,491,985	5,566,536	558,220	2,377,681	3,282,416	651,925
2029	529,536	386,104	2,250,491	8,061,214	5,566,699	559,055	2,377,927	3,285,326	651,925
2030	529,536	386,104	2,081,370	7,891,549	5,566,194	556,458	2,377,157	3,276,221	651,925
2031	529,536	386,104	1,511,664	7,321,982	5,566,326	557,133	2,377,360	3,278,878	651,925
2032	529,536	386,104	1,995,457	7,805,909	5,566,448	557,770	2,377,548	3,281,044	651,925
2033	529,536	386,104	1,936,430	7,746,716	5,566,293	556,973	2,377,310	3,278,145	651,925
2034	529,536	386,104	2,009,174	7,819,602	5,566,425	557,653	2,377,511	3,280,493	651,925
2035	529,536	386,104	2,185,161	7,995,485	5,566,331	557,154	2,377,360	3,278,375	651,925
Total	29,577,014	27,186,148	95,581,711	410,861,536	284,735,287	29,522,296	142,000,682	158,509,003	37,055,075

TABLE B-11

Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of Transportation Charge

(Dollars)

Calendar Year	California Aqueduct (continued)								
	West Branch (contd.)		Coastal Branch					Total	Grand Total
	Reach 30 (65)	Subtotal (66)	Reach 31A (a (67)	Reach 33A (68)	Reach 34 (69)	Reach 35 (70)	Subtotal (71)	(72)	(73)
1961	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	42,918
1963	0	0	0	0	0	0	0	0	168,358
1964	0	0	0	0	0	0	0	0	184,729
1965	0	0	0	0	0	0	0	0	378,874
1966	0	0	0	0	0	0	0	0	408,397
1967	0	0	0	0	0	0	0	0	634,505
1968	0	0	0	0	0	0	0	2,160,548	2,745,160
1969	0	0	509,728	0	0	0	509,728	3,324,718	4,074,939
1970	0	0	609,988	0	0	0	609,988	3,983,062	4,676,282
1971	0	0	699,052	0	0	0	699,052	5,614,013	6,185,714
1972	420,789	1,820,832	697,576	0	0	0	697,576	12,353,356	12,998,869
1973	621,431	2,248,000	641,626	0	0	0	641,626	14,590,688	15,194,233
1974	723,949	2,223,720	669,279	0	0	0	669,279	16,598,762	17,372,561
1975	841,991	3,140,708	806,429	0	0	0	806,429	19,569,999	20,517,423
1976	(650,944)	1,710,546	840,927	0	0	0	840,927	19,002,859	20,027,213
1977	634,581	2,923,325	872,169	0	0	0	872,169	23,267,885	24,213,489
1978	3,088,954	5,306,854	934,119	0	0	0	934,119	24,818,739	26,012,786
1979	958,068	3,897,165	871,644	0	0	0	871,644	23,420,961	24,674,648
1980	222,549	3,762,639	1,051,477	0	0	0	1,051,477	30,088,263	32,020,761
1981	1,094,117	5,932,587	1,037,184	0	0	0	1,037,184	33,829,984	35,459,286
1982	978,814	6,428,745	1,020,254	0	0	0	1,020,254	39,541,812	41,658,583
1983	3,124,027	8,232,212	1,151,761	0	0	0	1,151,761	53,983,552	56,240,707
1984	727,530	7,890,264	1,431,755	0	0	0	1,431,755	63,919,470	67,073,426
1985	1,775,929	10,589,823	1,859,521	0	0	0	1,859,521	70,821,254	74,395,528
1986	1,339,162	11,003,949	1,719,396	0	0	0	1,719,396	73,862,726	77,132,683
1987	1,405,139	9,276,013	1,697,686	0	0	0	1,697,686	70,485,157	74,240,984
1988	1,450,302	9,549,657	1,975,914	0	0	0	1,975,914	72,770,203	76,494,958
1989	1,500,557	10,964,676	1,778,776	0	0	0	1,778,776	74,039,475	78,806,384
1990	845,391	12,403,725	2,265,585	0	0	0	2,265,585	85,380,828	90,586,072
1991	1,190,235	10,215,228	2,178,746	0	0	0	2,178,746	86,066,737	90,146,133
1992	2,206,313	12,590,241	2,453,762	0	0	0	2,453,762	93,855,395	98,915,486
1993	1,148,299	12,475,622	2,826,821	0	0	0	2,826,821	100,180,327	107,470,384
1994	1,715,395	11,654,452	3,884,811	0	0	0	3,884,811	93,816,495	101,387,253
1995	71,873	12,129,809	3,461,567	0	0	0	3,461,567	101,109,016	107,861,525
1996	1,729,424	15,541,330	4,695,328	0	0	0	4,695,328	105,749,494	112,541,523
1997	1,901,728	16,051,916	4,725,955	1,045,292	59,063	39,922	5,870,232	125,494,343	133,489,833
1998	1,878,600	14,669,479	4,325,642	685,777	16,823	14,877	5,043,119	118,491,062	126,459,810
1999	(563,881)	12,660,199	4,458,953	663,653	3,568	4,760	5,130,934	114,354,032	122,581,442
2000	4,056,584	16,372,447	4,352,325	660,806	1,616	4,294	5,019,041	116,859,032	124,850,292
2001	2,739,688	15,020,653	4,350,832	660,178	1,507	4,003	5,016,520	113,085,379	121,073,961
2002	1,428,902	13,826,903	4,355,616	662,143	1,856	4,931	5,024,546	113,673,520	121,670,649
2003	1,845,391	14,237,154	4,355,347	662,033	1,836	4,881	5,024,097	114,745,566	122,742,187
2004	1,276,391	13,694,826	4,356,460	662,489	1,917	5,097	5,025,963	111,657,622	119,656,348
2005	1,922,370	14,281,456	4,353,996	661,480	1,737	4,619	5,021,832	113,958,896	121,952,964
2006	1,846,942	14,214,486	4,354,347	661,623	1,763	4,687	5,022,420	114,773,898	122,768,631
2007	1,219,464	13,577,455	4,353,967	661,467	1,734	4,613	5,021,781	111,813,407	119,807,420
2008	2,036,913	14,405,893	4,354,403	661,645	1,767	4,698	5,022,513	112,760,653	120,755,491
2009	1,822,133	14,191,800	4,354,437	661,660	1,770	4,702	5,022,569	113,972,835	121,967,739
2010	1,625,126	13,994,227	4,354,419	661,654	1,768	4,701	5,022,542	112,725,435	120,720,305
2011	1,829,787	14,199,644	4,354,442	661,663	1,770	4,704	5,022,579	113,295,832	121,290,748
2012	1,750,519	14,121,834	4,354,452	661,688	1,774	4,718	5,022,632	113,472,540	121,467,474
2013	1,651,942	14,061,118	4,356,020	662,327	1,889	5,022	5,025,258	114,922,582	122,920,480
2014	1,620,234	14,062,530	4,357,734	663,045	2,015	5,356	5,028,150	112,066,570	120,067,755
2015	1,886,069	14,347,650	4,358,175	663,212	2,047	5,440	5,028,874	115,671,843	123,673,820
2016	1,859,139	14,318,322	4,358,078	663,170	2,039	5,423	5,028,710	112,865,699	120,867,491
2017	1,820,499	14,281,562	4,358,157	663,203	2,046	5,436	5,028,842	114,101,066	122,103,009
2018	1,667,781	14,127,519	4,358,107	663,184	2,041	5,426	5,028,758	112,747,195	120,749,043
2019	1,804,608	14,264,294	4,358,099	663,180	2,041	5,425	5,028,745	114,482,137	122,483,973
2020	1,729,034	14,173,964	4,357,493	662,933	1,997	5,307	5,027,730	114,067,947	122,068,635
2021	1,778,395	14,222,166	4,357,444	662,912	1,994	5,297	5,027,647	112,952,066	120,952,664
2022	1,754,428	14,197,370	4,357,412	662,897	1,991	5,291	5,027,591	113,489,473	121,490,007
2023	1,694,069	14,141,875	4,357,612	662,979	2,006	5,329	5,027,926	114,511,320	122,512,232
2024	1,784,162	14,226,783	4,357,398	662,893	1,990	5,289	5,027,570	113,066,042	121,066,549
2025	1,896,604	14,343,249	4,357,560	662,961	2,001	5,320	5,027,842	113,841,508	121,842,323
2026	1,812,238	14,256,219	4,357,452	662,916	1,994	5,299	5,027,661	113,966,942	121,967,554
2027	1,642,108	14,079,250	4,357,174	662,801	1,974	5,246	5,027,195	113,398,361	121,398,445
2028	1,731,154	14,167,932	4,357,157	662,797	1,972	5,242	5,027,168	113,964,610	121,964,662
2029	1,808,758	14,249,690	4,357,325	662,864	1,984	5,276	5,027,449	114,779,600	122,779,968
2030	1,167,890	13,595,845	4,356,802	662,651	1,946	5,173	5,026,572	112,321,767	120,321,149
2031	2,121,549	14,553,171	4,356,936	662,705	1,956	5,199	5,026,796	114,173,118	122,172,752
2032	1,973,724	14,408,459	4,357,065	662,755	1,965	5,223	5,027,008	114,183,679	122,183,557
2033	1,761,417	14,192,063	4,356,904	662,691	1,954	5,194	5,026,743	112,988,795	120,988,371
2034	1,794,317	14,228,324	4,357,041	662,746	1,964	5,219	5,026,970	114,737,564	122,737,394
2035	899,662	13,330,807	4,356,942	662,707	1,957	5,200	5,026,806	113,727,016	121,726,660
Total	97,440,313	749,262,656	214,978,561	26,241,780	148,032	241,839	241,610,212	5,870,366,730	6,267,236,561

a) Includes certain costs to be assigned directly to Kern County Water Agency. Refer to Appendix B text discussion of Table B-16A under "Project Water Charges."

TABLE B-12

Variable OMP&R Costs to Be Reimbursed through Variable OMP&R Component of Transportation Charge (a

(Dollars)

Calendar Year	North Bay Aqueduct				South Bay Aqueduct	California Aqueduct			
	Reach 1	Reach 3A	Reach 3B		Reach 1	Reach 1	Reach 4	Reach 14A	Reach 15A
	Barker Slough Pumping Plant	Cordelia Pumping Plant (Solano)	Cordelia Pumping Plant (Napa) (b	Total	South Bay & Del Valle Pumping Plants (c	Banks Pumping Plant	Dos Amigos Pumping Plant	Buena Vista Pumping Plant	Teerink Pumping Plant
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1962	0	0	0	0	36,970	0	0	0	0
1963	0	0	0	0	57,711	0	0	0	0
1964	0	0	0	0	74,134	0	0	0	0
1965	0	0	0	0	142,609	0	0	0	0
1966	0	0	0	0	192,605	0	0	0	0
1967	0	0	0	0	223,117	13,881	0	0	0
1968	0	0	6,989	6,989	336,671	452,630	202,947	0	0
1969	0	0	8,551	8,551	257,579	293,741	135,425	0	0
1970	0	0	13,598	13,598	396,358	346,215	211,198	0	0
1971	0	0	10,609	10,609	381,662	574,015	225,188	138,001	17,664
1972	0	0	14,434	14,434	598,702	927,369	498,482	234,626	89,516
1973	0	0	14,449	14,449	493,490	685,014	379,305	303,105	275,021
1974	0	0	17,473	17,473	565,575	769,839	438,997	344,632	350,558
1975	0	0	14,779	14,779	349,758	1,330,133	514,241	542,726	585,744
1976	0	0	20,856	20,856	571,361	1,456,742	562,537	609,257	600,780
1977	0	0	22,635	22,635	512,996	801,033	211,120	166,598	173,208
1978	0	0	21,692	21,692	586,355	2,215,828	574,813	658,309	578,337
1979	0	0	16,237	16,237	605,136	3,431,968	973,702	760,080	724,534
1980	0	0	19,945	19,945	523,369	1,882,630	1,010,938	853,317	826,802
1981	0	0	23,841	23,841	567,692	3,920,954	1,897,018	1,289,727	1,269,451
1982	0	0	12,159	12,159	531,147	3,060,402	1,360,551	1,196,255	1,208,785
1983	0	0	2,335	2,335	124,260	866,082	372,224	362,477	337,756
1984	0	0	4,866	4,866	274,071	1,726,890	889,800	680,440	603,604
1985	0	0	10,186	10,186	451,019	3,203,309	1,615,350	1,397,491	1,397,101
1986	0	0	15,472	15,472	826,289	6,536,377	2,621,017	2,410,367	2,437,487
1987	0	0	27,222	27,222	895,814	6,172,584	2,522,219	2,237,997	2,220,340
1988	17,913	20,036	24,103	62,052	913,717	6,309,598	2,620,309	2,570,841	2,568,722
1989	26,413	45,485	6,589	78,487	1,083,079	9,551,090	3,989,995	3,981,891	3,992,439
1990	58,687	68,476	43,084	170,247	1,860,728	10,687,807	4,509,560	5,801,098	6,038,538
1991	11,125	10,117	5,875	27,117	378,980	1,926,358	493,809	904,473	1,031,967
1992	13,421	13,168	9,477	36,066	314,541	3,131,301	1,139,820	1,202,024	1,252,667
1993	(11,725)	(8,700)	(5,363)	(25,788)	(158,666)	554,095	354,653	(61,782)	(37,886)
1994	46,526	39,386	28,924	114,836	794,438	5,680,413	2,314,257	2,498,684	2,506,825
1995	19,637	20,232	11,570	51,439	245,465	3,758,374	1,420,363	775,720	692,557
1996	56,659	45,013	22,286	123,958	588,171	8,179,925	3,951,313	2,501,332	2,300,483
1997	116,828	76,357	75,459	268,644	1,503,616	12,542,934	4,917,275	4,824,444	5,294,412
1998	143,404	87,508	84,337	315,249	1,999,562	13,909,987	5,459,471	5,580,787	6,182,248
1999	123,912	81,636	79,772	285,320	2,046,967	13,898,586	5,314,943	5,813,102	6,502,888
2000	142,194	91,324	94,011	327,529	2,307,172	16,831,035	6,558,614	7,581,669	8,590,453
2001	134,460	84,370	90,306	309,136	2,142,740	15,455,732	5,976,861	6,839,703	7,731,542
2002	173,466	117,207	124,507	415,180	2,757,333	22,447,099	8,927,249	10,949,161	12,803,655
2003	175,651	120,160	128,571	424,382	2,727,963	22,286,224	8,857,286	10,877,199	12,721,781
2004	187,743	129,633	139,870	457,246	2,849,763	22,996,199	9,167,657	11,211,645	13,105,347
2005	172,338	115,916	131,627	419,881	2,579,938	21,167,602	8,369,783	10,275,125	12,016,918
2006	176,697	119,108	137,396	433,201	2,618,402	21,476,523	8,505,011	10,446,423	12,218,207
2007	176,088	117,209	139,815	433,112	2,576,652	21,034,901	8,313,546	10,180,886	11,902,611
2008	182,059	119,382	148,114	449,555	2,624,434	21,493,525	8,512,371	10,448,663	12,219,743
2009	184,503	119,551	153,221	457,275	2,628,131	21,584,006	8,550,162	10,509,749	12,293,519
2010	186,679	119,459	158,227	464,365	2,626,121	21,526,520	8,525,499	10,469,349	12,244,566
2011	189,512	119,580	164,364	473,456	2,628,767	21,590,168	8,552,665	10,513,007	12,297,306
2012	192,305	119,916	170,034	482,255	2,636,175	21,662,656	8,583,863	10,555,275	12,347,390
2013	207,782	127,718	187,620	523,120	2,807,689	22,930,190	9,136,430	11,231,346	13,137,756
2014	225,319	136,527	207,832	569,678	3,001,328	23,985,000	9,594,155	11,699,250	13,669,672
2015	231,571	138,460	218,072	588,103	3,043,813	24,661,570	9,890,088	12,149,960	14,211,100
2016	233,440	138,882	224,210	596,532	3,033,215	24,530,426	9,833,807	12,067,927	14,113,023
2017	236,822	139,275	231,837	607,934	3,041,812	24,681,006	9,897,670	12,166,742	14,231,862
2018	239,185	139,024	238,812	617,021	3,036,309	24,549,864	9,842,056	12,076,854	14,123,281
2019	241,838	138,988	246,367	627,193	3,035,516	24,651,121	9,884,329	12,154,501	14,218,082
2020	239,273	135,944	248,572	623,789	2,969,054	24,123,219	9,655,620	11,865,780	13,879,253
2021	239,177	135,700	249,343	624,220	2,963,749	24,031,321	9,616,210	11,805,137	13,806,386
2022	238,882	135,533	249,036	623,451	2,960,095	24,052,003	9,623,388	11,825,088	13,831,396
2023	240,655	136,540	250,885	628,080	2,982,071	24,238,435	9,705,667	11,931,742	13,957,106
2024	238,757	135,463	248,906	623,126	2,958,558	24,012,595	9,607,242	11,798,578	13,799,367
2025	240,195	136,279	250,406	626,880	2,976,375	24,191,836	9,685,344	11,905,633	13,926,452
2026	239,247	135,741	249,417	624,405	2,964,624	24,109,255	9,649,538	11,862,456	13,876,163
2027	236,792	134,348	246,857	617,997	2,934,195	23,858,231	9,539,217	11,721,486	13,710,283
2028	236,634	134,259	246,693	617,586	2,932,245	23,843,305	9,533,721	11,714,750	13,702,506
2029	238,119	135,101	248,240	621,460	2,950,641	24,014,446	9,608,595	11,814,987	13,821,000
2030	233,496	132,478	243,421	609,395	2,893,356	23,412,951	9,347,604	11,453,705	13,391,805
2031	234,679	133,150	244,655	612,484	2,908,024	23,644,781	9,447,451	11,605,015	13,573,469
2032	235,818	133,796	245,843	615,457	2,922,139	23,801,394	9,515,653	11,700,510	13,687,127
2033	234,409	132,996	244,373	611,778	2,904,669	23,613,566	9,433,913	11,586,533	13,551,591
2034	235,607	133,676	245,622	614,905	2,919,515	23,782,440	9,506,769	11,690,258	13,675,113
2035	234,731	133,179	244,709	612,619	2,908,667	23,557,946	9,410,496	11,538,557	13,492,338
Total	8,308,923	5,104,586	7,976,232	21,389,741	123,898,298	954,627,195	382,068,370	452,802,668	521,901,717

Note: B-12 excludes Extra Peaking Charges for additional power shown in Table 7.

a) Includes extra peaking costs assigned directly to contractors. Refer to Appendix B text discussion of Table B-17 under "Project Water Charges."

b) Costs for the period 1968 through 1987 are for an interim facility.

c) The relatively minor costs of Del Valle Pumping Plant have been combined with those of South Bay Pumping Plant to simplify the allocation procedures.

TABLE B-12

Variable OMP&R Costs to Be Reimbursed through Variable OMP&R Component of Transportation Charge (a

(Dollars)

Calendar Years	California Aqueduct (continued)								
	Reach 16A	Reach 17E	Reach 18A	Reach 22B	Reach 23	Reach 24	Reach 26A	Reach 28J	Reach 29A
	Chrisman Pumping Plant (10)	Edmonston Pumping Plant (11)	Alamo Powerplant (12)	Pearblossom Pumping Plant (13)	Mojave Siphon Powerplant (14)	Silverwood Lake (d (15)	Devil Canyon Powerplant (16)	Lake Perris (d (17)	Oso Pumping Plant (18)
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0
1972	165,589	494,616	0	23,387	0	4,216	(3,024)	0	93,212
1973	434,834	1,524,488	0	219,421	0	47,861	(436,769)	0	158,063
1974	589,117	2,058,680	0	315,705	0	98,179	(496,517)	52,549	189,479
1975	1,130,256	3,940,915	0	577,509	0	25,950	(1,033,054)	65,938	349,000
1976	1,222,413	4,235,934	0	869,201	0	122,336	(1,459,978)	104,257	245,397
1977	351,987	1,160,085	0	296,678	0	261,704	(1,115,096)	50,523	18,075
1978	1,034,893	3,636,671	0	1,551,015	0	0	(3,038,194)	0	69,043
1979	1,438,690	4,965,847	0	1,712,620	0	122,803	(3,159,826)	355,442	118,995
1980	1,634,049	5,416,333	0	1,733,275	0	154,695	(3,318,152)	0	36,761
1981	2,726,625	8,975,564	0	2,152,072	0	290,518	(3,678,813)	372,857	443,282
1982	2,416,093	8,325,450	0	1,489,997	0	0	(2,734,735)	0	539,246
1983	610,175	1,812,417	0	346,500	0	381,004	(5,478,332)	0	135,164
1984	1,131,600	3,457,125	0	627,129	0	0	(7,326,090)	(10,024)	237,006
1985	2,781,959	9,261,696	0	1,195,775	0	0	(10,477,628)	(56,410)	874,071
1986	5,011,171	16,995,600	(1,013,756)	2,364,991	0	0	(11,484,996)	0	1,271,720
1987	4,449,668	14,663,055	(1,024,962)	1,828,573	0	137,936	(10,805,393)	51,049	1,323,470
1988	5,144,932	16,886,375	(742,774)	2,381,205	0	38,438	(14,495,967)	0	1,427,584
1989	8,409,982	28,231,716	(766,953)	4,128,448	0	667,880	(18,532,961)	90,677	2,021,036
1990	13,673,377	48,524,509	(834,989)	6,509,146	0	71,150	(20,911,839)	147,351	2,876,983
1991	2,427,686	8,646,393	(269,665)	996,386	0	0	(4,884,015)	0	535,369
1992	2,507,517	8,380,661	(929,667)	1,166,220	0	188,995	(9,485,416)	(68,171)	655,216
1993	(382,983)	(1,833,735)	(56,410)	(249,116)	0	(40,103)	(7,502,549)	0	90,334
1994	5,254,818	18,225,895	(58,666)	2,557,815	0	0	(11,662,318)	145,724	1,201,405
1995	1,347,705	4,415,170	(1,324,810)	1,089,620	0	0	(9,742,248)	0	122,138
1996	4,911,681	17,217,913	(2,965,290)	2,779,528	(992,438)	0	(12,174,720)	0	888,387
1997	11,108,272	38,944,874	(4,243,328)	7,712,195	(4,834,058)	0	(22,628,125)	0	1,169,343
1998	13,019,261	45,723,363	(3,665,267)	9,157,618	(4,824,444)	0	(25,541,402)	10,727	1,352,233
1999	13,742,779	48,393,722	(4,859,511)	9,710,658	(4,664,125)	1,706,417	(29,474,837)	551,955	1,454,812
2000	18,224,792	64,317,342	(5,328,822)	13,162,013	(5,563,927)	0	(34,067,037)	0	1,947,065
2001	16,391,060	57,822,801	(5,457,663)	12,288,005	(5,388,507)	766,332	(34,740,990)	156,853	1,535,175
2002	27,327,099	96,723,390	(5,371,746)	13,950,240	(5,632,634)	0	(31,479,878)	0	5,558,810
2003	27,154,068	96,114,836	(5,373,053)	13,815,862	(5,651,775)	0	(31,497,650)	0	5,546,029
2004	27,966,854	98,979,105	(5,339,406)	14,167,153	(5,260,478)	1,550,665	(31,644,222)	0	5,723,444
2005	25,649,224	90,787,104	(5,366,106)	13,029,965	(5,649,813)	0	(31,400,646)	144,386	5,245,112
2006	26,079,618	92,312,002	(5,390,027)	13,278,899	(5,411,394)	0	(31,652,148)	0	5,323,265
2007	25,402,026	89,905,364	(5,369,242)	12,982,277	(5,149,663)	931,495	(31,932,790)	89,882	5,156,677
2008	26,082,041	92,318,725	(5,381,987)	13,242,786	(5,501,537)	1,000,050	(31,844,218)	0	5,335,541
2009	26,241,135	92,885,857	(5,403,635)	13,398,094	(5,610,764)	0	(31,724,605)	129,307	5,343,046
2010	26,135,570	92,509,293	(5,415,477)	13,326,734	(5,582,620)	504,814	(31,796,119)	33,974	5,325,502
2011	26,249,356	92,914,803	(5,440,188)	13,402,203	(5,714,307)	211,203	(31,773,602)	0	5,344,338
2012	26,356,747	93,296,114	(5,407,712)	13,477,272	(5,787,287)	0	(31,751,956)	0	5,359,434
2013	28,043,499	99,265,779	(5,418,209)	14,358,887	(5,808,664)	0	(31,742,761)	0	5,694,958
2014	29,166,920	103,216,430	(5,152,367)	14,469,333	(4,989,555)	1,689,668	(31,972,241)	0	6,081,224
2015	30,333,622	107,370,104	(5,393,536)	15,455,995	(5,701,847)	0	(31,520,404)	412,816	6,188,150
2016	30,122,677	106,620,192	(5,372,985)	15,283,085	(5,335,274)	1,313,070	(31,923,796)	0	6,166,651
2017	30,378,835	107,532,077	(5,391,575)	15,514,493	(5,578,144)	0	(31,756,502)	137,125	6,184,062
2018	30,144,466	106,696,936	(5,381,227)	15,327,131	(5,615,778)	1,142,113	(31,793,753)	0	6,157,693
2019	30,350,086	107,431,265	(5,417,536)	15,520,473	(5,729,725)	0	(31,774,985)	0	6,171,284
2020	29,625,871	104,866,012	(5,478,242)	15,127,562	(5,706,500)	0	(31,656,527)	190,474	6,031,150
2021	29,468,712	104,306,849	(5,385,684)	14,972,813	(5,673,305)	1,043,827	(31,773,643)	0	6,025,371
2022	29,523,549	104,503,351	(5,376,735)	15,057,266	(5,833,693)	0	(31,540,952)	271,748	6,016,718
2023	29,792,602	105,457,375	(5,418,317)	15,248,238	(5,726,866)	0	(31,779,466)	0	6,052,398
2024	29,454,269	104,256,637	(5,370,133)	14,986,809	(5,553,352)	559,363	(31,729,120)	150,876	6,014,823
2025	29,726,982	105,224,810	(5,406,078)	15,182,035	(5,701,515)	201,583	(31,786,338)	0	6,051,011
2026	29,619,632	104,845,269	(5,404,871)	15,133,562	(5,745,330)	0	(31,709,837)	83,686	6,027,166
2027	29,264,899	103,587,936	(5,441,395)	14,964,698	(5,680,751)	173,014	(31,774,336)	20,305	5,948,250
2028	29,248,309	103,529,347	(5,435,505)	14,925,720	(5,502,691)	0	(31,709,175)	237,874	5,957,550
2029	29,502,376	104,430,887	(5,421,190)	15,088,626	(5,639,746)	0	(31,820,846)	0	5,998,707
2030	28,580,985	101,158,474	(5,388,497)	14,626,646	(5,308,107)	965,419	(31,942,212)	0	5,796,185
2031	28,972,433	102,551,682	(5,427,055)	14,754,045	(5,326,013)	0	(31,671,016)	407,380	5,912,090
2032	29,216,602	103,419,199	(5,417,312)	14,939,734	(5,386,776)	0	(31,932,146)	0	5,940,774
2033	28,925,510	102,385,122	(5,353,677)	14,722,467	(5,641,410)	736,898	(31,789,509)	0	5,905,293
2034	29,190,934	103,328,471	(5,417,848)	14,929,045	(5,695,622)	0	(31,791,316)	0	5,935,464
2035	28,796,540	101,923,470	(5,419,125)	14,873,570	(5,286,593)	0	(31,979,540)	0	5,788,157
Total	1,111,004,046	3,921,475,762	(216,890,211)	584,227,307	(215,387,028)	17,069,495	(1,401,259,276)	4,331,130	220,685,391

d) These values represent a proportionate allocation of the total variable OMP&R costs of pumping and recovery plants (Table B-3) associated with net annual withdrawals from storage for Project Transportation Facilities. The allocation is determined annually by applying the following ratio, calculated from the data shown in Table B-6: "Reservoir Storage Changes" (withdrawals, as a positive value) conveyed through each plant, divided by "Total" annual quantity conveyed through each plant, in acre-feet. The costs so determined are accumulated for all upstream plants for each year, for each respective reservoir.

TABLE B-12

Variable OMP&R Costs to Be Reimbursed through Variable OMP&R Component of Transportation Charge (a

(Dollars)

Calendar Year	California Aqueduct (continued)							Grand Total
	Reach 29G	Reach 29H	Reach 29J	Reach 30	Reach 31A	Reach 33A		
	Warne Powerplant	Pyramid Lake (d	Castaic Powerplant	Castaic Lake (d	Las Perillas & Badger Hill Pumping Plants	Devil's Den, Bluestone & Polonio Pumping Plants	Total	
	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
1962	0	0	0	0	0	0	0	36,970
1963	0	0	0	0	0	0	0	57,711
1964	0	0	0	0	0	0	0	74,134
1965	0	0	0	0	0	0	0	142,609
1966	0	0	0	0	0	0	0	192,605
1967	0	0	0	0	0	0	13,881	236,998
1968	0	0	0	118,676	0	0	774,253	1,117,913
1969	0	0	0	78,350	0	0	507,516	773,646
1970	0	0	0	136,429	0	0	693,842	1,103,798
1971	0	0	0	166,296	0	0	1,121,164	1,513,435
1972	3,578	(193,058)	72,639	237,638		0	2,648,786	3,261,922
1973	0	7,344	(1,057,564)	0	120,913	0	2,661,036	3,168,975
1974	0	42,364	(1,540,853)	5,561	118,582	0	3,336,872	3,919,920
1975	0	0	(2,445,397)	10,225	94,848	0	5,689,034	6,053,571
1976	0	60,068	(1,940,099)	1,056,464	141,260	0	7,886,569	8,478,786
1977	0	0	(607,380)	(1,211,050)	71,311	0	628,796	1,164,427
1978	0	1,061,100	(1,542,479)	0	179,925	0	6,979,261	7,587,308
1979	0	0	(2,384,748)	(12,206)	192,126	0	9,240,027	9,861,400
1980	0	456,892	(984,154)	10,716	168,458	0	9,882,560	10,425,874
1981	0	0	(3,201,635)	0	169,178	0	16,626,798	17,218,331
1982	(783,626)	0	(3,463,971)	0	168,390	0	12,782,837	13,326,143
1983	(843,635)	68,779	(4,369,425)	(1,588,849)	17,887	0	(6,969,776)	(6,843,181)
1984	(1,991,601)	0	(1,799,546)	(1,647,629)	113,728	0	(3,307,568)	(3,028,631)
1985	(5,930,176)	0	(16,350,536)	0	147,587	0	(10,940,411)	(10,479,206)
1986	(5,579,301)	0	(11,072,448)	0	298,277	0	10,796,506	11,638,267
1987	(6,292,822)	83,012	(11,557,616)	(39,678)	245,082	0	6,214,516	7,137,552
1988	(7,003,483)	43,857	(12,295,001)	(200,147)	215,561	0	5,470,050	6,445,819
1989	(8,238,763)	8,859	(14,515,993)	131,399	283,590	0	23,434,332	24,595,898
1990	(11,095,239)	324,955	(20,471,397)	24,409	416,504	0	46,291,923	48,322,898
1991	(3,604,790)	432,501	(6,579,194)	0	3,609	0	2,060,887	2,466,984
1992	(4,927,650)	31,155	(8,950,593)	(1,069,900)	62,354	0	(5,713,467)	(5,362,860)
1993	(3,700,155)	(668,686)	(8,306,381)	(2,825,434)	(51,822)	0	(24,717,960)	(24,902,414)
1994	(5,835,213)	0	(10,565,857)	(103,880)	204,988	0	12,364,890	13,274,164
1995	(861,231)	578,953	(3,608,979)	0	112,405	0	(1,224,263)	(927,359)
1996	(4,250,292)	0	(8,457,419)	0	292,791	0	14,183,194	14,895,323
1997	(4,304,628)	89,110	(8,187,119)	49,785	559,851	1,239,002	44,254,239	46,026,499
1998	(4,761,067)	0	(8,927,987)	0	588,576	1,302,565	54,566,669	56,881,480
1999	(6,296,472)	0	(10,137,658)	2,389,004	576,579	1,448,209	56,071,051	58,403,338
2000	(7,418,771)	0	(11,959,913)	0	645,235	1,622,024	75,141,772	77,776,473
2001	(6,199,930)	0	(10,225,986)	0	600,042	1,509,357	65,060,387	67,512,263
2002	(17,746,244)	0	(28,751,179)	309,102	835,050	2,553,576	113,402,750	116,575,263
2003	(17,853,276)	0	(28,977,983)	0	826,155	2,526,375	111,372,078	114,524,423
2004	(17,672,569)	0	(28,645,367)	481,145	863,041	2,639,172	120,289,385	123,596,394
2005	(17,834,569)	0	(28,973,627)	0	781,326	2,389,289	100,631,073	103,630,892
2006	(17,849,486)	0	(28,976,881)	0	792,975	2,424,912	103,577,899	106,629,502
2007	(17,613,743)	0	(28,543,686)	491,599	780,331	2,386,247	100,948,738	103,958,502
2008	(17,824,037)	0	(28,966,041)	0	794,802	2,430,499	104,360,926	107,434,915
2009	(17,853,445)	0	(28,973,345)	0	795,922	2,433,921	104,598,924	107,684,330
2010	(17,824,955)	0	(28,906,699)	83,331	795,312	2,432,057	104,386,651	107,477,137
2011	(17,840,557)	0	(28,971,483)	0	796,114	2,434,510	104,565,536	107,667,759
2012	(17,850,583)	0	(28,974,140)	0	798,357	2,441,371	105,106,801	108,225,231
2013	(17,834,068)	0	(28,913,540)	88,633	850,300	2,600,208	117,620,744	120,951,553
2014	(17,805,177)	0	(28,882,625)	144,591	908,942	2,779,540	128,602,760	132,173,766
2015	(17,851,159)	0	(28,973,618)	0	921,808	2,818,884	134,973,533	138,605,449
2016	(17,848,129)	0	(28,973,568)	0	918,600	2,809,070	134,324,776	137,954,523
2017	(17,857,415)	0	(28,975,289)	0	921,203	2,817,032	134,903,182	138,552,928
2018	(17,828,063)	0	(28,908,603)	111,798	919,535	2,811,936	134,376,239	138,029,569
2019	(17,857,200)	0	(28,975,299)	0	919,296	2,811,200	134,356,892	138,019,601
2020	(17,847,848)	0	(28,953,156)	36,027	899,168	2,749,648	129,407,511	133,000,354
2021	(17,855,551)	0	(28,975,332)	0	897,562	2,744,737	129,055,410	132,643,379
2022	(17,857,063)	0	(28,970,347)	8,952	896,455	2,741,354	128,772,478	132,356,024
2023	(17,835,364)	0	(28,929,568)	74,049	903,110	2,761,705	130,432,846	134,042,997
2024	(17,855,260)	0	(28,975,248)	0	895,989	2,739,930	128,793,365	132,375,049
2025	(17,845,056)	0	(28,972,414)	0	901,386	2,756,429	130,042,100	133,645,355
2026	(17,856,065)	0	(28,974,965)	0	897,827	2,745,547	129,159,033	132,748,062
2027	(17,822,506)	0	(28,898,003)	120,475	888,611	2,717,366	126,897,780	130,449,972
2028	(17,851,877)	0	(28,958,843)	26,583	888,021	2,715,562	126,865,157	130,414,988
2029	(17,853,056)	0	(28,974,631)	0	893,591	2,732,596	128,196,342	131,768,443
2030	(17,633,415)	0	(28,571,141)	600,208	876,243	2,679,545	124,046,398	127,549,149
2031	(17,827,666)	0	(28,967,136)	0	880,685	2,693,130	125,223,275	128,743,783
2032	(17,829,290)	0	(28,969,275)	0	884,961	2,706,201	126,277,356	129,814,952
2033	(17,864,364)	0	(28,976,560)	0	879,670	2,690,022	124,805,065	128,321,512
2034	(17,859,514)	0	(28,975,530)	0	884,166	2,703,772	125,886,602	129,421,022
2035	(17,559,424)	0	(28,393,661)	877,590	880,881	2,693,725	125,194,927	128,716,213
Total	(705,613,261)	2,427,205	(1,190,133,472)	(829,738)	36,225,210	97,232,225	4,575,964,735	4,721,252,774

TABLE B-13

Capital and Operating Costs of Project Conservation Facilities to Be Reimbursed through Delta Water Charge

(Dollars)

Calendar Year	Initial Project Conservation Facilities (Portions of Upper Feather Lakes, Oroville-Thermalito, and California Aqueduct Facilities)					Planning and Pre-operating Costs (a (f	Total
	Capital Costs (a	Capital Cost Credits (b	Operating Costs (c	Application of Oroville Power Revenues to: Capital Costs (d	Operating Costs (e		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1952	171,322	0	0	0	0	0	171,322
1953	312,190	0	0	0	0	0	312,190
1954	308,624	0	0	0	0	0	308,624
1955	194,645	0	0	0	0	0	194,645
1956	1,357,077	0	0	0	0	0	1,357,077
1957	6,210,709	0	0	0	0	0	6,210,709
1958	9,510,916	0	0	0	0	0	9,510,916
1959	11,390,586	0	0	0	0	0	11,390,586
1960	14,456,356	(4,850,000)	0	0	0	0	9,606,356
1961	18,682,616	(431,527)	0	0	0	0	18,251,089
1962	9,012,960	(479,280)	0	0	0	0	8,533,680
1963	72,965,728	(478,743)	(14,000)	0	0	0	72,472,985
1964	62,490,522	(751,330)	(14,000)	0	0	107,780	61,832,972
1965	70,913,845	(762,541)	(14,000)	0	0	551,850	70,688,154
1966	125,205,400	(748,649)	(14,000)	0	0	1,081,023	125,523,774
1967	94,296,914	(812,145)	(13,446)	0	0	1,189,212	94,660,535
1968	39,888,442	(431,574)	1,303,821	(951,000)	0	793,399	40,603,088
1969	5,279,786	(259,015)	2,890,772	(11,007,000)	0	601,867	(2,493,590)
1970	4,130,490	(203,733)	4,818,634	(14,650,600)	(1,500,000)	516,659	(6,887,950)
1971	3,877,493	(193,631)	6,026,480	(14,650,000)	(1,500,000)	408,754	(6,030,904)
1972	4,569,024	(196,361)	5,393,011	(14,650,000)	(1,500,000)	287,374	(6,096,952)
1973	3,585,414	(136,997)	6,135,774	(14,650,000)	(1,500,000)	203,384	(5,962,425)
1974	6,660,000	(137,503)	6,944,723	(17,950,000)	(1,500,000)	201,907	(5,780,873)
1975	9,084,450	(234,567)	7,697,390	(14,650,000)	(1,500,000)	146,188	(456,539)
1976	5,870,531	(204,944)	7,067,037	(14,650,000)	(1,500,000)	205,234	(3,212,142)
1977	21,285,849	(150,214)	10,547,977	(14,650,000)	(1,500,000)	857,419	16,391,031
1978	7,713,252	(64,566)	12,851,158	(14,650,000)	(1,500,000)	2,131,286	6,481,130
1979	9,030,801	0	9,546,656	(14,650,000)	(1,500,000)	2,131,884	4,559,341
1980	10,372,763	0	13,289,413	(14,650,000)	(1,500,000)	3,638,851	11,151,027
1981	11,194,479	0	10,384,212	(14,650,000)	(1,500,000)	4,597,474	10,036,165
1982	16,634,428	0	16,245,375	(14,650,000)	(1,500,000)	4,594,682	21,324,485
1983	12,037,206	0	22,260,593	(34,705,000)	(8,735,000)	3,751,993	(5,390,208)
1984	8,786,271	0	22,955,209	(14,650,000)	(10,348,000)	2,979,126	9,722,606
1985	12,027,235	0	23,944,107	(14,650,000)	(8,079,000)	2,069,024	15,311,366
1986	20,464,281	0	27,136,991	(14,650,000)	(9,107,000)	1,602,419	25,446,691
1987	30,814,266	0	24,525,223	(14,650,000)	(9,451,000)	1,762,179	33,000,668
1988	28,514,653	0	27,387,959	(14,650,000)	(8,677,000)	1,807,958	34,383,570
1989	9,806,713	0	29,366,117	(14,650,000)	(8,104,000)	2,676,313	19,095,143
1990	27,811,589	0	38,251,491	(14,650,000)	(8,497,000)	1,434,371	44,350,451
1991	35,926,399	0	77,361,434	(14,650,000)	(9,487,000)	1,725,246	90,876,079
1992	27,634,485	0	35,110,883	(14,650,000)	(8,526,000)	1,717,617	41,286,985
1993	21,166,841	0	37,288,220	(14,650,000)	(8,768,000)	1,706,613	36,743,674
1994	14,709,506	0	39,414,506	(14,650,000)	(7,484,000)	2,133,419	34,123,430
1995	14,399,539	0	44,410,831	(14,650,000)	(7,041,000)	2,034,117	39,153,487
1996	13,956,832	0	53,851,391	(14,650,000)	(7,286,000)	2,414,273	48,284,496
1997	9,893,833	0	53,336,588	(14,650,000)	(7,009,000)	7,386,000	48,957,421
1998	14,841,748	0	54,899,917	(14,650,000)	(8,155,000)	5,582,000	52,507,665
1999	23,664,526	0	51,853,343	(14,650,000)	(7,733,000)	11,861,000	64,995,869
2000	25,043,203	0	49,276,636	(14,650,000)	(6,828,000)	14,079,000	66,920,839
2001	10,110,593	0	55,680,532	(14,650,000)	(6,828,000)	5,899,000	50,212,125
2002	7,190,893	0	53,173,260	(14,650,000)	(6,828,000)	5,899,000	44,785,153
2003	283,600	0	55,621,356	(14,650,000)	(6,828,000)	5,849,000	40,276,156
2004	283,600	0	52,585,607	(14,650,000)	(6,828,000)	2,849,000	34,240,407
2005	0	0	52,787,174	(14,650,000)	(6,828,000)	2,849,000	34,158,174
2006	0	0	56,224,010	(14,650,000)	(6,828,000)	2,849,000	37,595,010
2007	0	0	52,026,124	(14,650,000)	(6,828,000)	2,849,000	33,397,124
2008	0	0	54,535,351	(14,650,000)	(6,828,000)	2,849,000	35,906,351
2009	0	0	53,288,672	(14,650,000)	(6,828,000)	2,849,000	34,659,672
2010	0	0	52,821,858	(14,650,000)	(6,828,000)	2,849,000	33,992,858
2011	0	0	49,117,134	(14,650,000)	(6,828,000)	0	27,639,134
2012	0	0	48,961,683	(14,650,000)	(6,828,000)	0	27,483,683
2013	0	0	50,570,547	(14,650,000)	(6,828,000)	0	29,092,547
2014	0	0	48,257,036	(14,650,000)	(6,828,000)	0	26,779,036
2015	0	0	49,886,957	(14,650,000)	(6,828,000)	0	28,408,957
2016	0	0	50,874,809	(14,650,000)	(6,828,000)	0	29,396,809
2017	0	0	49,681,438	(14,650,000)	(6,828,000)	0	28,203,438
2018	0	0	49,467,609	(14,650,000)	(6,828,000)	0	27,989,609
2019	0	0	49,125,298	(14,650,000)	(6,828,000)	0	27,647,298
2020	0	0	50,216,876	(14,650,000)	(6,828,000)	0	28,738,876
2021	0	0	49,147,870	(14,650,000)	(6,828,000)	0	27,669,870
2022	0	0	46,366,936	(14,650,000)	(6,828,000)	0	24,888,936
2023	0	0	50,362,775	(14,650,000)	(6,828,000)	0	28,884,775
2024	0	0	47,827,053	(14,650,000)	(6,828,000)	0	26,349,053
2025	0	0	50,260,754	(14,650,000)	(6,828,000)	0	28,782,754
2026	0	0	49,830,407	(14,650,000)	(6,828,000)	0	28,352,407
2027	0	0	46,722,237	(14,650,000)	(6,828,000)	0	25,244,237
2028	0	0	49,484,919	(14,650,000)	(6,828,000)	0	28,006,919
2029	0	0	51,712,080	(14,650,000)	(6,828,000)	0	30,234,080
2030	0	0	46,886,246	(14,650,000)	(6,828,000)	0	25,408,246
2031	0	0	48,497,043	(14,650,000)	(6,828,000)	0	27,019,043
2032	0	0	51,129,374	(14,650,000)	(6,828,000)	0	29,651,374
2033	0	0	48,420,074	(14,650,000)	(6,828,000)	0	26,942,074
2034	0	0	49,241,049	(14,650,000)	(6,828,000)	0	27,763,049
2035	0	0	47,914,456	(14,650,000)	(6,828,000)	0	26,436,456
Total	1,025,425,824	(11,528,320)	2,602,210,031	(1,002,213,000)	(407,797,000)	130,558,895	2,336,656,430

a) Reimbursed through the capital cost component of the Delta Water Charge.
b) Negotiated settlements as to the magnitude of SWP planning costs from 1952 through 1978.
c) Reimbursed through the minimum OMP&R component of the Delta Water Charge. Credits for Gianelli power generation are reflected in these net costs.
d) Revenues credited through the capital cost component of the Delta Water Charge.
e) Revenues credited through the minimum OMP&R component of the Delta Water Charge.
f) Under amendments of Articles 22(e) and 22(g), planning and pre-operating costs of additional Project Conservation Facilities incurred through the previous year (1986) are reflected in the Delta Water Charge.

TABLE B-14

Capital Costs of Transportation Facilities Allocated to Each Contractor

(Dollars)

Calendar Year	North Bay Area			South Bay Area				Central Coastal Area		
	Napa County FC&WCD	Solano County Water Agency (a	Total	Alameda County FC&WCD, Zone 7	Alameda County Water District	Santa Clara Valley Water District	Total	San Luis Obispo County FC&WCD	Santa Barbara County FC&WCD	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1952	0	0	0	83	114	410	607	121	224	345
1953	0	0	0	324	479	1,808	2,611	336	619	955
1954	0	0	0	819	1,305	5,150	7,274	422	779	1,201
1955	0	0	0	976	1,570	6,297	8,843	211	388	599
1956	0	0	0	8,844	14,459	63,816	87,119	227	419	646
1957	15,199	11,435	26,634	21,563	35,239	649,598	706,400	290	535	825
1958	33,420	16,591	50,011	67,764	71,717	733,415	872,896	721	1,330	2,051
1959	20,697	6,591	27,288	154,254	143,731	493,049	791,034	25,853	53,921	79,774
1960	9,097	8,830	17,927	296,491	275,611	1,018,661	1,590,763	37,106	77,941	115,047
1961	6,950	7,445	14,395	853,505	802,675	1,914,710	3,570,890	15,637	31,208	46,845
1962	(195)	(925)	(1,120)	545,123	615,142	1,686,043	2,846,308	19,638	37,213	56,851
1963	1,320	1,110	2,430	657,426	1,281,271	3,243,840	5,182,537	73,104	136,563	209,667
1964	38,392	35,467	73,859	712,651	1,747,784	7,251,802	9,712,237	146,712	273,914	420,626
1965	198,833	62,221	261,054	360,780	606,027	3,414,461	4,381,268	261,453	486,421	747,874
1966	461,619	49,917	511,536	592,716	592,600	2,245,221	3,430,537	598,316	1,107,149	1,705,465
1967	1,569,498	40,379	1,609,877	796,996	803,953	2,401,869	4,002,818	947,505	1,751,623	2,699,128
1968	859,613	61,691	921,304	736,472	696,075	1,997,928	3,430,475	359,887	666,471	1,026,358
1969	74,389	59,317	133,706	269,699	293,275	764,954	1,327,928	84,314	157,237	241,551
1970	43,362	67,876	111,238	58,677	61,200	135,570	255,447	54,662	102,455	157,117
1971	26,764	34,051	60,815	12,086	18,227	84,089	114,402	37,649	71,703	109,352
1972	19,643	18,905	38,548	12,291	12,762	63,612	88,665	24,098	45,422	69,520
1973	56,510	30,874	87,384	10,494	12,137	39,380	62,011	27,479	51,710	79,189
1974	165,830	65,832	231,662	15,721	24,402	73,121	113,244	30,087	56,331	86,418
1975	91,825	89,233	181,058	16,730	15,807	41,395	73,932	25,396	50,761	76,157
1976	57,766	83,650	141,416	34,004	34,663	109,611	178,278	54,576	109,504	164,080
1977	64,167	80,147	144,314	46,229	45,116	133,375	224,720	130,014	243,030	373,044
1978	69,319	81,717	151,036	71,234	66,009	174,898	312,141	43,226	82,011	125,237
1979	191,272	282,908	474,180	45,469	42,943	110,667	199,079	51,322	97,291	148,613
1980	264,433	386,006	650,439	134,523	124,353	304,617	563,493	198,296	367,860	566,156
1981	227,606	383,086	610,692	(33,738)	(29,856)	(65,638)	(129,232)	(53,836)	(96,820)	(150,656)
1982	549,164	870,611	1,419,775	7,875	8,322	27,066	43,263	(19,623)	(35,153)	(54,776)
1983	1,254,900	1,433,061	2,687,961	138,413	131,516	339,246	609,175	49,590	92,896	142,486
1984	2,547,878	2,750,040	5,297,918	152,992	140,972	351,921	645,885	49,717	93,461	143,178
1985	7,143,121	6,443,613	13,586,734	19,777	19,245	53,491	92,513	32,565	63,760	96,325
1986	10,565,937	16,926,630	27,492,567	32,033	31,581	88,068	151,682	112,626	237,964	350,590
1987	7,979,817	12,599,440	20,579,257	50,153	48,675	138,960	237,788	459,970	1,009,140	1,469,110
1988	2,318,514	4,348,581	6,667,095	129,682	124,634	331,910	586,226	535,801	1,161,130	1,696,931
1989	1,225,808	1,601,450	2,827,258	111,529	105,748	267,214	484,491	436,749	939,822	1,376,571
1990	442,984	894,290	1,337,274	217,806	218,179	609,502	1,045,487	563,761	1,206,299	1,770,060
1991	99,932	94,295	194,227	413,691	383,615	946,890	1,744,196	797,320	1,684,943	2,482,263
1992	57,467	76,220	133,687	182,724	170,512	443,817	797,053	1,269,844	2,628,259	3,898,103
1993	122,522	192,057	314,579	129,692	125,651	343,403	598,746	4,240,448	8,447,029	12,687,477
1994	73,166	175,503	248,669	47,195	59,178	232,734	339,107	17,187,528	34,204,837	51,392,365
1995	45,094	82,679	127,773	104,952	104,026	276,201	485,179	41,719,026	84,781,775	126,500,801
1996	29,524	61,449	90,973	55,392	53,749	143,180	252,321	30,983,803	71,909,910	102,893,713
1997	74,282	53,718	128,000	26,017	26,609	74,899	127,525	9,784,431	22,250,135	32,034,566
1998	294,879	266,121	561,000	45,501	44,426	117,333	207,260	165,867	429,905	595,772
1999	326,368	773,703	1,100,071	28,545	26,098	62,190	116,833	44,985	108,295	153,280
2000	25	58	83	589	539	1,282	2,410	15,920	29,372	45,292
2001	25	58	83	589	539	1,282	2,410	15,920	29,372	45,292
2002	25	58	83	589	539	1,282	2,410	15,920	29,372	45,292
2003	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0
							0			0
2006	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0
Total	39,718,761	51,607,989	91,326,750	8,395,942	10,235,143	33,949,600	52,580,685	111,656,990	237,267,736	348,924,726

a) Costs from Table B-10 allocated to Solano County Water Agency are reduced herein by $2,102,700 in 1986 and $1,823,500 in 1987 under provisions of Amendment No. 10 to its water supply contract.

TABLE B-14

Capital Costs of Transportation Facilities Allocated to Each Contractor

(Dollars)

Calendar Year	San Joaquin Valley Area									
				Kern County Water Agency						
	Dudley Ridge Water District (11)	Empire West Side Irrigation District (b (12)	Future Contractor San Joaquin Valley (13)	Municipal and Industrial (14)	Municipal and Industrial (c (15)	Agricultural (16)	County of Kings (17)	Oak Flat Water District (18)	Tulare Lake Basin Water Storage District (19)	Total (20)
1952	389	19	59	938	120	9,247	19	13	784	11,588
1953	1,076	53	161	2,888	344	27,725	56	33	2,158	34,494
1954	1,350	67	200	3,374	416	32,787	70	42	2,719	41,025
1955	676	36	100	1,498	198	14,916	36	22	1,371	18,853
1956	727	33	107	2,703	272	24,529	34	26	1,417	29,848
1957	932	38	139	6,047	495	50,427	38	30	1,707	59,853
1958	2,308	100	345	14,372	1,154	120,203	103	61	4,367	143,013
1959	7,386	363	2,517	26,219	2,597	256,487	372	381	14,758	311,080
1960	12,941	629	3,666	34,053	4,155	356,322	644	498	25,697	438,605
1961	21,849	1,063	3,957	51,406	6,500	545,210	1,087	599	43,378	675,049
1962	49,322	2,410	7,866	94,932	13,836	1,030,981	2,466	1,879	98,144	1,301,836
1963	208,765	10,686	32,175	364,014	55,715	3,990,352	10,933	5,990	425,346	5,103,976
1964	328,298	16,962	64,892	600,151	88,904	6,725,183	17,349	11,943	672,037	8,525,719
1965	538,235	27,482	117,999	1,097,428	152,931	11,687,950	28,116	21,803	1,095,168	14,767,112
1966	1,107,799	52,588	279,179	2,216,297	339,222	24,146,152	53,792	38,893	2,173,173	30,407,095
1967	852,570	39,539	445,565	2,008,944	286,990	22,638,437	40,445	34,777	1,653,493	28,000,760
1968	198,747	9,740	166,267	1,098,483	70,088	11,158,920	9,962	12,238	396,089	13,120,534
1969	94,440	4,794	35,473	612,748	27,216	6,301,813	4,902	7,302	191,582	7,280,270
1970	54,346	2,720	21,686	411,906	15,521	4,072,881	2,784	3,999	109,473	4,695,316
1971	25,462	1,290	12,094	189,275	7,112	1,587,586	1,321	540	51,620	1,876,300
1972	11,590	589	8,355	82,341	3,409	702,949	601	343	23,526	833,703
1973	6,657	336	10,202	39,731	1,976	436,810	341	220	13,449	509,722
1974	9,478	469	11,044	45,168	2,767	460,418	478	326	18,982	549,130
1975	13,328	678	5,245	36,343	3,710	370,229	692	426	27,049	457,700
1976	17,508	837	12,617	52,909	5,621	626,260	856	1,152	34,457	752,217
1977	9,671	437	47,790	36,340	3,753	795,376	445	494	18,496	912,802
1978	23,499	(30,407)	6,178	54,091	6,579	559,277	1,208	1,402	47,449	669,276
1979	25,051	1,295	5,665	53,752	6,609	544,925	1,324	1,862	51,295	691,778
1980	144,986	(4,617)	31,163	321,116	38,126	3,129,009	7,682	7,144	297,227	3,971,836
1981	(5,425)	(15,463)	201	(44,299)	(1,220)	(381,198)	(297)	1,752	(11,324)	(457,273)
1982	49,917	2,584	6,600	83,241	13,142	637,052	2,638	1,252	102,292	898,718
1983	52,430	(35,296)	12,123	110,246	13,872	1,042,845	2,769	1,327	107,342	1,307,658
1984	86,351	4,475	14,302	155,190	22,775	1,581,948	4,571	2,678	177,030	2,049,320
1985	25,437	1,311	5,649	47,003	6,765	470,226	1,342	1,176	52,016	610,925
1986	38,313	(41,067)	9,864	71,626	10,321	772,116	2,008	777	78,145	942,103
1987	28,770	1,476	7,004	55,467	7,968	599,077	1,509	1,491	58,681	781,443
1988	67,665	3,627	20,478	104,536	16,051	1,207,772	3,708	5,408	141,190	1,570,435
1989	159,618	8,201	28,350	359,074	43,860	3,829,903	8,387	12,314	325,820	4,775,527
1990	290,552	15,048	49,773	548,760	86,679	5,899,348	15,392	22,698	595,533	7,523,783
1991	349,646	18,114	60,479	580,866	91,823	6,292,455	18,527	23,498	716,768	8,152,176
1992	126,215	6,456	28,120	241,965	34,649	2,648,368	6,600	10,894	257,028	3,360,295
1993	86,311	4,386	30,324	174,746	23,894	1,994,508	4,482	4,705	175,170	2,498,526
1994	85,192	4,381	21,526	157,351	22,976	1,749,170	4,482	2,196	174,004	2,221,278
1995	90,584	(612)	30,095	181,564	26,458	2,055,530	4,754	2,963	184,801	2,576,137
1996	63,308	3,213	40,597	130,297	18,667	1,619,444	3,282	1,693	128,392	2,008,893
1997	32,818	1,689	13,069	56,072	8,771	674,728	1,727	2,888	67,043	858,805
1998	70,502	3,648	19,445	115,970	18,578	1,326,584	3,729	6,627	144,425	1,709,508
1999	50,374	2,616	13,821	80,899	13,142	929,476	2,675	4,930	103,386	1,201,319
2000	257	13	7,607	449	67	76,785	14	25	528	85,745
2001	257	13	7,607	449	67	76,785	14	25	528	85,745
2002	257	13	7,607	449	67	76,785	14	25	528	85,745
2003	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0
Total	5,518,735	129,055	1,767,347	12,771,388	1,625,708	137,583,068	280,483	265,780	11,075,737	171,017,301

b) Costs from Table B-10 allocated to Empire West Side Irrigation District are reduced herein by $31,588 in 1978; $12,129 in 1980; $15,173 in 1981; $38,004 in 1983; $43,033 in 1986; and $5,261 in 1995 in accordance with letters of agreement with the district.

c) Costs related to maximum annual entitlement of 15,000 acre-feet under Amendment No. 18 of the water supply contract with Kern County Water Agency.

TABLE B-14

Capital Costs of Transportation Facilities Allocated to Each Contractor

(Dollars)

Calendar Year	Southern California Area									
	Antelope Valley-East Kern Water Agency (21)	Castaic Lake Water Agency (d (22)	Coachella Valley Water District (23)	Crestline-Lake Arrowhead Water Agency (24)	Desert Water Agency (25)	Littlerock Creek Irrigation District (26)	Mojave Water Agency (27)	Palmdale Water District (28)	San Bernardino Valley Municipal Water District (29)	San Gabriel Valley Municipal Water District (30)
1952	3,132	1,040	844	250	1,389	72	2,325	414	6,038	1,538
1953	9,939	3,309	2,641	794	4,356	221	7,293	1,317	18,943	4,819
1954	12,631	4,171	3,431	1,024	5,655	283	9,439	1,675	24,454	6,246
1955	5,369	1,868	1,364	397	2,246	114	3,836	708	9,171	2,359
1956	9,695	3,565	2,178	607	3,590	189	6,300	1,258	13,046	3,414
1957	26,067	9,193	6,281	1,802	10,355	535	17,669	3,418	40,362	10,456
1958	48,784	17,484	11,467	3,262	18,913	981	32,556	6,357	72,203	18,758
1959	69,718	29,598	15,730	4,582	25,942	1,334	47,763	8,959	97,973	25,346
1960	84,017	38,611	21,871	6,746	36,076	1,532	64,208	10,691	146,302	37,230
1961	125,741	54,019	34,346	12,462	56,640	2,230	92,413	16,320	234,948	57,368
1962	197,409	85,135	43,423	13,784	71,617	3,325	125,101	24,792	252,113	63,961
1963	577,892	254,738	116,216	33,001	191,667	9,787	363,213	72,954	607,677	159,900
1964	1,089,261	500,471	208,298	55,151	343,528	18,348	686,692	137,091	1,020,855	274,670
1965	1,899,207	944,802	383,260	103,182	632,073	32,650	1,264,236	243,358	1,902,910	510,037
1966	3,941,578	2,145,429	807,691	214,603	1,332,045	68,950	2,724,186	514,555	3,921,358	1,056,238
1967	4,944,610	4,090,260	1,069,033	293,945	1,763,053	87,673	3,786,092	648,731	5,784,134	1,539,814
1968	5,871,590	3,984,375	1,337,126	364,714	2,205,185	106,317	4,061,455	776,544	7,921,893	2,106,003
1969	5,767,725	3,063,210	1,672,716	535,417	2,758,693	120,036	4,489,969	856,629	10,819,680	2,747,796
1970	4,984,394	3,263,784	2,028,120	689,612	3,344,860	105,242	5,167,374	729,165	13,712,943	3,428,800
1971	2,553,018	2,139,292	1,059,176	335,460	1,746,820	47,848	2,785,955	343,614	8,399,540	1,971,706
1972	964,221	280,379	327,937	91,112	540,833	18,935	911,047	133,021	2,681,158	693,191
1973	351,238	913,196	157,244	81,887	259,358	6,244	340,017	45,676	1,754,605	401,920
1974	447,325	279,501	255,976	73,305	422,157	8,066	693,892	58,581	1,603,082	421,925
1975	251,260	245,795	191,156	52,194	315,255	4,906	511,075	33,678	1,522,588	404,815
1976	235,639	254,678	135,070	36,810	222,759	4,207	380,801	30,732	954,761	253,798
1977	197,773	371,107	90,284	25,578	148,902	3,722	324,680	26,568	586,530	154,162
1978	299,484	469,586	77,762	22,023	128,242	5,183	220,997	38,300	425,352	110,755
1979	355,316	938,378	81,112	21,617	133,767	5,921	232,047	44,097	400,454	107,536
1980	1,853,013	1,772,711	419,878	112,218	692,468	32,168	1,236,345	238,954	2,023,970	543,417
1981	(156,923)	612,460	(46,367)	(8,513)	(76,461)	(2,545)	(161,708)	(19,373)	(137,716)	(41,876)
1982	1,552,013	860,286	297,765	79,314	491,074	26,131	815,270	195,886	1,428,687	390,183
1983	2,056,333	519,515	395,245	116,725	651,832	34,583	1,070,258	259,114	2,144,782	586,635
1984	1,508,602	295,590	297,070	85,556	489,925	27,078	801,638	187,339	1,554,677	425,532
1985	892,413	158,415	220,176	63,367	363,115	13,230	581,234	107,430	1,136,970	310,679
1986	889,206	104,533	240,898	63,330	397,286	10,569	648,212	102,744	1,157,970	316,104
1987	343,342	105,387	195,395	52,731	322,248	5,938	519,862	43,104	973,477	264,953
1988	427,785	243,168	129,968	43,622	214,342	6,780	375,690	50,048	828,387	222,871
1989	1,092,212	448,060	359,889	114,747	593,534	18,249	1,006,420	133,739	731,537	201,862
1990	650,584	367,165	369,503	122,699	609,382	7,532	1,027,160	67,554	2,155,822	585,453
1991	839,864	402,401	416,244	170,494	686,470	12,227	1,123,709	94,092	3,086,305	842,196
1992	636,629	357,771	324,306	234,175	534,847	9,621	731,437	77,129	4,207,112	1,151,104
1993	633,537	331,913	308,362	321,104	508,563	10,174	592,880	73,834	6,542,587	1,785,610
1994	501,042	173,430	163,395	155,098	269,471	7,822	343,180	57,434	3,464,495	943,880
1995	484,470	240,714	130,033	117,740	214,456	7,905	309,981	57,819	2,729,185	736,189
1996	355,200	201,062	136,570	64,102	225,223	5,860	409,719	42,996	4,435,709	1,101,929
1997	74,652	48,133	23,678	22,069	39,053	1,305	68,044	9,638	2,952,869	423,296
1998	135,288	361,373	29,499	13,562	48,652	2,317	106,027	17,234	11,137,010	71,992
1999	87,441	47,436	15,711	3,974	25,911	1,463	66,247	10,980	7,415,240	26,314
2000	1,346	11,598	244	61	401	22	14,754	169	1,088	299
2001	1,346	11,598	244	61	401	22	14,754	169	1,088	299
2002	1,346	11,598	244	61	401	22	14,754	169	1,088	299
2003	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0
Total	50,184,774	32,073,291	14,569,703	5,023,618	24,028,570	903,324	41,068,498	6,617,405	124,907,412	27,463,781

d) Costs from Table B-10 allocated to Castaic Lake Water Agency are reduced herein by $14,088 in 1978 in accordance with a letter of agreement with the district.

TABLE B-14

Capital Costs of Transportation Facilities Allocated to Each Contractor

(Dollars)

Calendar Year	Southern California Area (continued)				Feather River Area				South Bay Area Future Contractor	Grand Total
	San Gorgonio Pass Water Agency (31)	Metropolitan Water District of Southern California (3 (32)	Ventura County Flood Control District (33)	Total (34)	City of Yuba City (35)	County of Butte (36)	Plumas County FC&WCD (37)	Total (38)	(39)	(40)
1952	956	68,693	369	87,060	0	0	0	0	59	99,659
1953	2,991	216,553	1,182	274,358	0	0	0	0	263	312,681
1954	3,876	278,568	1,484	352,937	0	0	0	0	767	403,204
1955	1,461	111,025	667	140,585	0	0	0	0	969	169,849
1956	2,108	178,209	1,290	225,449	0	0	0	0	9,173	352,235
1957	6,477	512,800	3,345	648,760	0	0	0	0	23,173	1,465,645
1958	11,616	939,853	6,351	1,188,585	0	0	2	2	32,888	2,289,446
1959	15,710	1,357,052	9,841	1,709,548	0	0	14	14	57,919	2,976,657
1960	23,160	1,905,804	12,745	2,388,993	0	0	28	28	123,202	4,674,565
1961	35,950	3,198,987	18,681	3,940,105	0	0	10	10	316,221	8,563,515
1962	39,788	3,530,391	28,989	4,479,828	0	0	32	32	228,201	8,911,936
1963	98,824	11,157,911	86,618	13,730,398	0	0	51	51	528,495	24,757,554
1964	169,129	17,999,845	164,197	22,667,536	0	0	7,791	7,791	590,035	41,997,803
1965	314,367	33,635,064	306,470	42,171,616	0	0	3,139	3,139	332,680	62,664,743
1966	650,442	74,215,089	679,853	92,272,017	0	0	(48)	(48)	783,728	129,110,330
1967	952,071	130,119,611	1,275,287	156,354,314	0	0	47	47	1,479,421	194,146,365
1968	1,304,562	146,779,400	1,355,310	178,174,474	0	0	51,573	51,573	1,254,192	197,978,910
1969	1,713,647	139,233,059	1,079,044	174,857,621	0	0	234,232	234,232	398,182	184,473,490
1970	2,143,017	161,033,519	1,142,447	201,773,277	0	0	16,227	16,227	74,028	207,082,650
1971	1,228,258	133,077,527	735,996	156,424,210	0	0	27,204	27,204	12,456	158,624,739
1972	431,624	43,753,878	65,817	50,893,153	0	0	9	9	13,183	51,936,781
1973	255,703	39,660,726	289,610	44,517,424	0	0	25	25	8,098	45,263,853
1974	261,935	18,781,493	85,860	23,393,098	0	0	45	45	28,569	24,402,166
1975	251,974	16,653,331	83,719	20,521,746	0	0	21	21	8,224	21,318,838
1976	157,582	13,489,128	84,418	16,240,383	0	0	51	51	16,485	17,492,910
1977	95,688	11,732,599	110,699	13,868,292	0	0	28	28	21,182	15,544,382
1978	68,540	15,745,988	174,659	17,786,871	0	0	38	38	28,876	19,073,475
1979	66,319	27,593,994	343,132	30,323,690	0	0	23	23	26,667	31,864,030
1980	334,980	59,279,186	639,895	69,179,203	0	0	26	26	59,168	74,990,321
1981	(25,317)	15,738,613	224,871	15,899,145	0	0	34	34	(6,747)	15,765,963
1982	240,017	30,866,799	315,502	37,558,927	0	0	11	11	16,086	39,882,004
1983	360,919	25,103,103	186,447	33,485,491	0	0	19	19	72,225	38,305,015
1984	261,684	16,353,101	103,090	22,390,882	0	0	26	26	83,253	30,610,462
1985	191,075	10,337,915	56,014	14,432,033	0	0	29	29	16,338	28,834,897
1986	194,492	8,938,231	34,654	13,098,229	0	0	31	31	16,250	42,051,452
1987	163,156	7,959,664	36,055	10,985,312	0	0	32	32	29,063	34,062,005
1988	137,512	10,538,414	81,578	13,300,165	0	0	55	55	50,088	23,870,995
1989	119,142	15,526,231	158,002	20,503,624	0	0	45	45	43,428	30,010,944
1990	360,125	20,689,621	122,961	27,135,561	0	0	63	63	93,829	38,906,057
1991	517,866	26,702,806	132,698	35,027,372	0	0	54	54	150,382	47,750,670
1992	707,847	32,504,326	117,251	41,593,555	0	0	42	42	82,920	49,865,655
1993	1,101,274	43,884,099	105,594	56,199,531	0	0	29	29	60,155	72,359,043
1994	583,228	22,751,920	56,200	29,470,595	0	0	11	11	36,323	83,708,348
1995	475,254	20,391,145	76,140	25,971,031	0	0	16	16	47,824	155,708,761
1996	1,023,973	26,196,384	55,207	34,253,934	0	0	0	0	7,102	139,506,936
1997	3,075,352	9,270,079	12,368	16,020,536	0	0	0	0	15,007	49,184,439
1998	20,308,720	10,666,817	126,586	43,025,077	0	0	0	0	11,063	46,109,680
1999	13,644,133	1,443,942	12,772	22,801,564	0	0	0	0	6,976	25,380,043
2000	183	20,133	197	50,495	0	0	0	0	174	184,199
2001	183	20,133	197	50,495	0	0	0	0	174	184,199
2002	183	20,133	197	50,495	0	0	0	0	174	184,199
2003	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0
Total	54,083,756	1,462,162,892	10,802,556	1,853,889,580	0	0	341,065	341,065	7,288,591	2,525,368,698

a) Costs from Table B-10 allocated to MWDSC are reduced herein by $16,425,510 in 1972 under provisions of Amendment No. 7 to its water contract.

TABLE B-15

Capital Cost Component of Transportation Charge for Each Contractor a) b)

(Dollars)

Calendar Year	North Bay Area			South Bay Area				Central Coastal Area		
	Napa County FC&WCD (1)	Solano County WA (2)	Total (3)	Alameda County FC&WCD, Zone 7 (4)	Alameda County Water District (5)	Santa Clara Valley Water District (6)	Total (7)	San Luis Obispo County FC&WCD (8)	Santa Barbara County FC&WCD (9)	Total (10)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	105,192	105,854	366,552	577,598	0	0	0
1964	0	0	0	123,718	171,212	532,023	826,953	6,064	20,521	26,585
1965	0	0	0	156,271	260,368	901,943	1,318,582	11,435	31,771	43,206
1966	18,096	0	18,096	172,750	291,282	1,076,118	1,540,150	20,198	49,707	69,905
1967	41,644	0	41,644	199,825	321,511	1,190,648	1,711,984	38,006	84,262	122,268
1968	121,705	0	121,705	236,230	362,521	1,313,170	1,911,921	51,764	111,464	163,228
1969	165,555	0	165,555	269,871	398,029	1,415,086	2,082,986	55,088	118,999	174,087
1970	169,349	0	169,349	282,190	412,989	1,454,107	2,149,286	56,731	123,183	179,914
1971	171,561	0	171,561	284,871	416,111	1,461,022	2,162,004	57,723	126,079	183,802
1972	172,926	0	172,926	332,088	417,041	1,465,312	2,214,441	58,298	128,562	186,860
1973	173,928	31,433	205,361	332,715	417,692	1,468,557	2,218,964	58,574	129,819	188,393
1974	176,811	33,008	209,819	333,251	418,311	1,470,565	2,222,127	58,765	130,871	189,636
1975	185,270	36,366	221,636	334,053	419,556	1,474,295	2,227,904	59,014	132,106	191,120
1976	189,954	40,918	230,872	334,906	420,362	1,476,407	2,231,675	165,886	331,018	496,904
1977	192,901	45,185	238,086	336,641	422,130	1,481,998	2,240,769	167,602	337,672	505,274
1978	196,174	49,273	245,447	338,999	424,431	1,488,802	2,252,232	173,127	351,175	524,302
1979	199,710	53,442	253,152	342,633	427,799	1,497,724	2,268,156	174,219	356,471	530,690
1980	209,467	67,873	277,340	344,952	429,989	1,503,369	2,278,310	175,390	362,882	538,272
1981	222,956	87,563	310,519	351,814	436,333	1,518,907	2,307,054	180,657	386,494	567,151
1982	234,566	107,105	341,671	350,093	434,810	1,515,559	2,300,462	179,870	379,596	559,466
1983	262,580	151,516	414,096	350,495	435,234	1,516,940	2,302,669	180,080	376,592	556,672
1984	326,593	224,617	551,210	357,555	441,943	1,534,245	2,333,743	181,722	382,218	563,940
1985	456,562	364,899	821,461	365,360	449,134	1,552,197	2,366,691	183,530	387,713	571,243
1986	820,939	693,593	1,514,532	366,368	450,116	1,554,926	2,371,410	184,419	391,738	576,157
1987	1,362,839	1,561,716	2,924,555	368,011	451,735	1,559,442	2,379,188	186,682	407,455	594,137
1988	1,774,438	2,211,596	3,986,034	370,598	454,246	1,566,610	2,391,454	193,233	476,682	669,915
1989	1,894,745	2,437,243	4,331,988	377,327	460,713	1,583,833	2,421,873	201,720	554,123	755,843
1990	1,958,754	2,520,867	4,479,621	383,151	466,235	1,597,786	2,447,172	209,752	617,495	827,247
1991	1,982,040	2,567,876	4,549,916	394,600	477,704	1,629,825	2,502,129	219,952	682,529	902,481
1992	1,987,330	2,572,867	4,560,197	416,499	498,010	1,679,948	2,594,457	233,973	776,996	1,010,969
1993	1,990,394	2,576,932	4,567,326	426,243	507,103	1,703,614	2,636,960	251,067	930,211	1,181,278
1994	1,996,979	2,587,253	4,584,232	433,212	513,856	1,722,069	2,669,137	313,676	1,526,043	1,839,719
1995	2,000,943	2,596,763	4,597,706	435,770	517,062	1,734,680	2,687,512	560,731	3,969,209	4,529,940
1996	2,003,408	2,601,281	4,604,689	441,505	522,747	1,749,775	2,714,027	1,331,016	12,314,832	13,645,848
1997	2,005,036	2,604,670	4,609,706	444,561	525,712	1,757,672	2,727,945	2,129,352	22,002,607	24,131,959
1998	2,009,173	2,607,662	4,616,835	446,009	527,194	1,761,843	2,735,046	2,398,009	24,863,418	27,261,427
1999	2,025,762	2,622,633	4,648,395	448,569	529,693	1,768,444	2,746,706	2,402,216	24,899,366	27,301,582
2000	2,044,321	2,666,630	4,710,951	450,192	531,177	1,771,980	2,753,349	2,404,182	24,907,822	27,312,004
2001	2,044,322	2,666,633	4,710,955	450,226	531,208	1,772,054	2,753,488	2,405,098	24,909,512	27,314,610
2002	2,044,324	2,666,637	4,710,961	450,261	531,239	1,772,128	2,753,628	2,406,025	24,911,221	27,317,246
2003	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2004	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2005	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2006	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2007	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2008	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2009	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2010	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2011	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2012	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2013	2,044,325	2,666,640	4,710,965	339,164	425,417	1,405,652	2,170,233	2,406,963	24,912,953	27,319,916
2014	2,044,325	2,666,640	4,710,965	303,833	360,059	1,240,181	1,904,073	2,400,900	24,892,432	27,293,332
2015	2,044,325	2,666,640	4,710,965	265,831	270,903	870,260	1,406,994	2,395,528	24,881,182	27,276,710
2016	2,026,229	2,666,640	4,692,869	246,733	239,989	696,086	1,182,808	2,386,765	24,863,246	27,250,011
2017	2,002,681	2,666,640	4,669,321	215,577	209,760	581,555	1,006,892	2,368,958	24,828,691	27,197,649
2018	1,922,620	2,666,640	4,589,260	173,959	168,750	459,034	801,743	2,355,199	24,801,489	27,156,688
2019	1,878,770	2,666,640	4,545,410	135,744	133,242	357,118	626,104	2,351,875	24,793,954	27,145,829
2020	1,874,976	2,666,640	4,541,616	121,833	118,282	318,097	558,212	2,350,233	24,789,770	27,140,003
2021	1,872,764	2,666,640	4,539,404	118,823	115,160	311,182	545,165	2,349,240	24,786,874	27,136,114
2022	1,871,399	2,666,640	4,538,039	118,207	114,230	306,892	539,329	2,348,665	24,784,391	27,133,056
2023	1,870,397	2,635,207	4,505,604	117,580	113,579	303,647	534,806	2,348,389	24,783,134	27,131,523
2024	1,867,514	2,633,632	4,501,146	117,045	112,960	301,639	531,644	2,348,198	24,782,082	27,130,280
2025	1,859,055	2,630,274	4,489,329	116,243	111,716	297,909	525,868	2,347,949	24,780,847	27,128,796
2026	1,854,371	2,625,722	4,480,093	115,389	110,909	295,797	522,095	2,241,077	24,581,935	26,823,012
2027	1,851,424	2,621,455	4,472,879	113,655	109,141	290,206	513,002	2,239,362	24,575,281	26,814,643
2028	1,848,151	2,617,367	4,465,518	111,296	106,840	283,402	501,538	2,233,836	24,561,778	26,795,614
2029	1,844,615	2,613,199	4,457,814	107,663	103,472	274,480	485,615	2,232,744	24,556,482	26,789,226
2030	1,834,858	2,598,767	4,433,625	105,343	101,282	268,835	475,460	2,231,574	24,550,071	26,781,645
2031	1,821,369	2,579,077	4,400,446	98,481	94,939	253,296	446,716	2,226,307	24,526,459	26,752,766
2032	1,809,759	2,559,535	4,369,294	100,202	96,461	256,645	453,308	2,227,093	24,533,357	26,760,450
2033	1,781,745	2,515,125	4,296,870	99,800	96,037	255,264	451,101	2,226,884	24,536,361	26,763,245
2034	1,717,732	2,442,023	4,159,755	92,740	89,328	237,959	420,027	2,225,242	24,530,735	26,755,977
2035	1,587,763	2,301,741	3,889,504	84,936	82,137	220,007	387,080	2,223,433	24,525,240	26,748,673
Total	99,408,472	128,761,974	228,170,446	21,662,602	26,027,695	87,169,358	134,859,655	97,460,890	991,268,708	1,088,729,598

a) Unadjusted for prior overpayments or underpayments of charges.
b) Determined at the current Project Interest Rate of 4.620 percent per annum.

TABLE B-15

Capital Cost Component of Transportation Charge for Each Contractor

(Dollars)

Calendar Year	San Joaquin Valley Area									
				Kern County Water Agency						
	Dudley Ridge Water (11)	Empire West Side Irrigation (12)	Future Contractor San Joaquin (13)	Municipal and Industrial (14)	Municipal and Industrial (c (15)	Agricultural (16)	County of Kings (17)	Oak Flat Water District (18)	Tulare Lake Basin Water Storage District (19)	Total (20)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0
1964	0	0	2,729	0	0	0	0	0	0	2,729
1965	0	0	6,039	64,321	9,300	0	0	0	0	79,660
1966	0	0	12,059	120,302	17,101	0	0	0	0	149,462
1967	0	0	26,300	233,357	34,405	0	0	0	0	294,062
1968	77,372	2,431	49,028	335,835	49,045	415,488	8,519	4,711	64,370	1,006,799
1969	77,508	7,292	57,510	391,869	52,620	853,267	9,027	5,121	243,554	1,697,768
1970	84,947	7,292	59,319	423,126	54,008	1,037,829	9,277	5,326	180,235	1,861,359
1971	96,851	7,292	60,426	444,138	54,800	1,378,423	9,419	5,736	191,795	2,248,880
1972	108,213	7,292	61,043	453,793	55,163	2,064,068	9,486	10,992	591,676	3,361,726
1973	119,035	7,292	61,469	457,993	55,337	2,380,588	9,517	6,350	228,851	3,326,432
1974	180,662	7,292	61,989	460,020	55,438	2,665,902	9,534	7,110	379,855	3,827,802
1975	219,429	7,292	62,552	462,324	55,579	3,193,019	9,559	7,325	453,257	4,470,336
1976	167,303	7,292	62,820	464,178	55,768	3,442,045	9,594	8,274	324,250	4,541,524
1977	164,484	7,292	63,464	466,877	56,055	3,771,493	9,638	7,579	310,026	4,856,908
1978	175,847	7,292	65,901	468,730	56,246	4,192,331	9,660	7,989	332,621	5,316,617
1979	208,549	7,292	66,217	471,490	56,582	4,603,361	9,722	8,194	374,348	5,805,755
1980	221,837	7,292	66,506	474,232	56,919	5,023,308	9,789	11,676	376,760	6,248,319
1981	221,837	7,292	68,095	490,512	58,864	5,497,642	10,181	8,808	399,355	6,762,686
1982	221,837	7,292	68,105	488,352	58,801	5,935,420	10,166	9,218	421,425	7,220,616
1983	232,117	7,292	68,442	492,599	59,472	6,433,828	10,301	9,423	50,172	7,363,646
1984	244,021	7,292	69,061	498,222	60,180	6,883,198	10,442	9,832	329,000	8,111,248
1985	255,383	7,292	69,790	506,139	61,341	7,320,976	10,675	10,037	239,345	8,480,978
1986	266,746	7,292	70,078	508,536	61,686	7,755,188	10,744	10,447	510,754	9,201,471
1987	278,108	7,292	70,584	512,210	62,216	8,197,425	10,847	10,652	532,824	9,682,158
1988	289,470	7,292	70,945	515,071	62,627	8,610,238	10,924	11,062	554,893	10,132,522
1989	300,833	7,292	72,008	520,495	63,460	8,908,035	11,117	11,471	577,488	10,472,199
1990	312,195	7,292	73,488	539,245	65,750	9,217,422	11,555	11,676	622,678	10,861,301
1991	312,195	7,292	76,105	568,091	70,306	9,217,422	12,364	11,676	622,678	10,898,129
1992	312,195	7,292	79,306	598,839	75,167	9,217,422	13,345	11,676	622,678	10,937,920
1993	312,195	7,292	80,806	611,742	77,014	9,217,422	13,696	11,676	622,678	10,954,521
1994	312,195	7,292	82,435	621,133	78,299	9,217,422	13,937	11,676	622,678	10,967,067
1995	312,195	7,292	83,602	629,658	79,543	9,217,422	14,180	11,676	622,678	10,978,246
1996	288,767	7,292	85,246	639,582	80,989	8,890,470	14,440	11,676	622,678	10,641,140
1997	288,767	7,292	87,466	646,768	82,019	8,854,806	14,621	11,676	622,678	10,616,113
1998	288,767	7,292	88,213	649,890	82,507	8,631,904	14,717	11,676	622,678	10,397,644
1999	288,767	7,292	89,307	656,415	83,553	8,631,904	14,927	11,676	622,678	10,406,519
2000	288,767	7,292	90,093	661,015	84,300	8,631,904	15,079	11,676	622,678	10,412,804
2001	288,767	7,292	90,531	661,041	84,304	8,631,904	15,080	11,676	622,678	10,413,273
2002	288,767	7,292	90,974	661,067	84,308	8,631,904	15,081	11,676	622,678	10,413,747
2003	288,767	7,292	91,422	661,093	84,312	8,631,904	15,082	11,676	622,678	10,414,226
2004	288,767	7,292	91,422	661,093	84,312	8,631,904	15,082	11,676	622,678	10,414,226
2005	288,767	7,292	91,422	661,093	84,312	8,631,904	15,082	11,676	622,678	10,414,226
2006	288,767	7,292	91,422	661,093	84,312	8,631,904	15,082	11,676	622,678	10,414,226
2007	288,767	7,292	91,422	661,093	84,312	8,631,904	15,082	11,676	622,678	10,414,226
2008	288,767	7,292	91,422	661,093	84,312	8,631,904	15,082	11,676	622,678	10,414,226
2009	288,767	7,292	91,422	661,093	84,312	8,631,904	15,082	11,676	622,678	10,414,226
2010	288,767	7,292	91,422	661,093	84,312	8,631,904	15,082	11,676	622,678	10,414,226
2011	288,767	7,292	91,422	661,093	84,312	8,631,904	15,082	11,676	622,678	10,414,226
2012	288,767	7,292	91,422	661,093	84,312	8,631,904	15,082	11,676	622,678	10,414,226
2013	288,767	7,292	91,422	661,093	84,312	8,631,904	15,082	11,676	622,678	10,414,226
2014	288,767	7,292	88,693	661,093	84,312	8,631,904	15,082	11,676	622,678	10,411,497
2015	288,767	7,292	85,383	596,772	75,012	8,631,904	15,082	11,676	622,678	10,334,566
2016	288,767	7,292	79,363	540,792	67,210	8,631,904	15,082	11,676	622,678	10,264,764
2017	288,767	7,292	65,122	427,736	49,906	8,631,904	15,082	11,676	622,678	10,120,163
2018	288,767	7,292	42,394	325,259	35,267	8,631,904	6,563	11,676	622,678	9,971,800
2019	288,767	7,292	33,912	269,224	31,692	8,631,904	6,055	11,676	622,678	9,903,200
2020	288,767	7,292	32,103	237,967	30,303	8,631,904	5,805	11,676	622,678	9,868,495
2021	288,767	7,292	30,996	216,956	29,512	8,631,904	5,663	11,676	622,678	9,845,444
2022	288,767	7,292	30,380	207,300	29,149	8,631,904	5,595	11,676	622,678	9,834,741
2023	288,767	7,292	29,953	203,100	28,975	8,631,904	5,565	11,676	622,678	9,829,910
2024	288,767	7,292	29,433	201,073	28,874	8,631,904	5,547	11,676	622,678	9,827,244
2025	288,767	7,292	28,870	198,769	28,733	8,631,904	5,523	11,676	622,678	9,824,212
2026	288,767	7,292	28,602	196,916	28,544	8,631,904	5,488	11,676	622,678	9,821,867
2027	288,767	7,292	27,958	194,217	28,257	8,631,904	5,444	11,676	622,678	9,818,193
2028	288,767	7,292	25,521	192,363	28,065	8,631,904	5,421	11,676	622,678	9,813,687
2029	288,767	7,292	25,205	189,604	27,730	8,631,904	5,360	11,676	622,678	9,810,216
2030	288,767	7,292	24,916	186,862	27,393	8,631,904	5,292	11,676	622,678	9,806,780
2031	288,767	7,292	23,327	170,481	25,448	8,631,904	4,900	11,676	622,678	9,786,473
2032	288,767	7,292	23,317	172,741	25,510	8,631,904	4,915	11,676	622,678	9,788,800
2033	288,767	7,292	22,980	168,495	24,840	8,631,904	4,781	11,676	622,678	9,783,413
2034	288,767	7,292	22,361	162,871	24,132	8,631,904	4,640	11,676	622,678	9,776,321
2035	288,767	7,292	21,632	154,955	22,970	8,631,904	4,406	11,676	622,678	9,766,280
Total	17,636,239	490,995	4,398,134	32,016,876	4,060,338	501,625,232	724,353	724,429	36,310,042	597,986,638

c) Charges under Amendment No. 18 of the water supply contract with Kern County Water Agency.

TABLE B-15

Capital Cost Component of Transportation Charge for Each Contractor

(Dollars)

Calendar Year	Southern California Area									
	Antelope Valley-East Kern Water Agency (21)	Castaic Lake Water Agency (22)	Coachella Valley Water District (23)	Crestline-Lake Arrowhead Water Agency (24)	Desert Water Agency (25)	Littlerock Creek Irrigation District (26)	Mojave Water Agency (27)	Palmdale Water District (28)	San Bernardino Valley Municipal Water District (29)	San Gabriel Valley Municipal Water District (30)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0
1963	33,153	0	0	0	0	0	0	0	51,523	0
1964	62,632	27,409	14,353	4,353	36,951	1,138	42,521	8,171	82,521	34,841
1965	118,196	52,938	24,978	7,166	40,580	2,074	77,549	15,164	134,596	35,209
1966	215,076	101,133	44,529	12,429	72,823	3,739	142,039	27,578	231,665	61,227
1967	416,139	210,574	85,730	23,376	140,772	7,256	281,002	53,826	431,696	115,106
1968	668,367	419,221	140,262	38,371	230,706	11,729	474,134	86,918	726,750	193,653
1969	967,882	622,467	208,470	56,975	343,195	17,152	681,312	126,530	1,130,852	301,082
1970	1,262,098	778,724	293,796	84,287	483,918	23,275	910,349	170,228	1,682,773	441,250
1971	1,516,356	945,212	397,253	119,465	654,542	28,644	1,173,941	207,423	2,382,281	616,155
1972	1,646,588	1,054,339	451,282	136,577	743,649	31,084	1,316,055	224,951	2,810,749	716,734
1973	1,695,774	1,068,642	468,010	141,225	771,237	32,050	1,362,528	231,737	2,947,517	752,094
1974	1,713,691	1,115,225	476,031	145,402	784,467	32,369	1,379,872	234,067	3,037,020	772,596
1975	1,736,509	1,129,482	489,089	149,141	806,002	32,780	1,415,268	237,055	3,118,795	794,119
1976	1,749,326	1,142,020	498,840	151,803	822,083	33,030	1,441,339	238,773	3,196,463	814,769
1977	1,761,346	1,155,012	505,730	153,681	833,446	33,245	1,460,764	240,341	3,245,167	827,715
1978	1,771,435	1,173,942	510,336	154,986	841,042	33,435	1,477,326	241,696	3,275,086	835,579
1979	1,786,712	1,197,896	514,302	156,109	847,583	33,699	1,488,599	243,649	3,296,783	841,229
1980	1,804,837	1,245,764	518,440	157,212	854,407	34,001	1,500,436	245,899	3,317,211	846,715
1981	1,899,360	1,336,191	539,858	162,936	889,730	35,642	1,563,503	258,088	3,420,455	874,435
1982	1,891,356	1,367,433	537,493	162,502	885,830	35,512	1,555,254	257,100	3,413,430	872,299
1983	1,970,525	1,411,317	552,682	166,548	910,880	36,845	1,596,842	267,092	3,486,309	892,202
1984	2,075,420	1,437,818	572,844	172,502	944,131	38,610	1,651,436	280,310	3,595,716	922,127
1985	2,152,375	1,452,896	587,998	176,867	969,122	39,991	1,692,329	289,866	3,675,021	943,834
1986	2,197,898	1,460,977	599,229	180,099	987,645	40,666	1,721,978	295,346	3,733,019	959,682
1987	2,243,503	1,466,338	611,584	183,347	1,008,021	41,208	1,755,223	300,616	3,792,408	975,894
1988	2,261,213	1,471,774	621,663	186,067	1,024,642	41,514	1,782,038	302,839	3,842,620	989,560
1989	2,283,410	1,484,392	628,407	188,330	1,035,764	41,866	1,801,532	305,436	3,885,605	1,001,125
1990	2,340,443	1,507,789	647,199	194,322	1,066,757	42,819	1,854,085	312,420	3,923,804	1,011,666
1991	2,374,642	1,527,089	666,622	200,772	1,098,790	43,215	1,908,078	315,971	4,037,126	1,042,440
1992	2,419,099	1,548,390	688,656	209,797	1,135,128	43,862	1,967,561	320,951	4,200,497	1,087,021
1993	2,453,048	1,567,468	705,950	222,284	1,163,649	44,375	2,006,565	325,064	4,424,844	1,148,404
1994	2,487,095	1,585,306	722,521	239,541	1,190,980	44,922	2,038,427	329,032	4,776,451	1,244,365
1995	2,514,243	1,594,703	731,375	247,945	1,205,580	45,346	2,057,022	332,144	4,964,168	1,295,508
1996	2,540,721	1,607,858	738,481	254,380	1,217,301	45,778	2,073,963	335,304	5,113,327	1,335,743
1997	2,560,311	1,618,948	746,014	257,915	1,229,723	46,101	2,096,561	337,676	5,357,973	1,396,518
1998	2,564,468	1,621,628	747,332	259,144	1,231,898	46,173	2,100,350	338,212	5,522,411	1,420,091
1999	2,572,079	1,641,958	748,992	259,907	1,234,635	46,304	2,106,315	339,182	6,148,947	1,424,141
2000	2,577,052	1,644,655	749,885	260,133	1,236,108	46,387	2,110,082	339,806	6,570,618	1,425,637
2001	2,577,129	1,645,322	749,899	260,136	1,236,131	46,388	2,110,931	339,816	6,570,681	1,425,654
2002	2,577,208	1,645,998	749,914	260,140	1,236,155	46,390	2,111,790	339,826	6,570,744	1,425,672
2003	2,577,287	1,646,681	749,928	260,144	1,236,178	46,391	2,112,659	339,836	6,570,808	1,425,689
2004	2,577,287	1,646,681	749,928	260,144	1,236,178	46,391	2,112,659	339,836	6,570,808	1,425,689
2005	2,577,287	1,646,681	749,928	260,144	1,236,178	46,391	2,112,659	339,836	6,570,808	1,425,689
2006	2,577,287	1,646,681	749,928	260,144	1,236,178	46,391	2,112,659	339,836	6,570,808	1,425,689
2007	2,577,287	1,646,681	749,928	260,144	1,236,178	46,391	2,112,659	339,836	6,570,808	1,425,689
2008	2,577,287	1,646,681	749,928	260,144	1,236,178	46,391	2,112,659	339,836	6,570,808	1,425,689
2009	2,577,287	1,646,681	749,928	260,144	1,236,178	46,391	2,112,659	339,836	6,570,808	1,425,689
2010	2,577,287	1,646,681	749,928	260,144	1,236,178	46,391	2,112,659	339,836	6,570,808	1,425,689
2011	2,577,287	1,646,681	749,928	260,144	1,236,178	46,391	2,112,659	339,836	6,570,808	1,425,689
2012	2,577,287	1,646,681	749,928	260,144	1,236,178	46,391	2,112,659	339,836	6,570,808	1,425,689
2013	2,544,134	1,646,681	749,928	260,144	1,222,899	46,391	2,112,659	339,836	6,519,286	1,412,648
2014	2,514,655	1,619,273	735,575	255,791	1,213,122	45,253	2,070,139	331,664	6,488,287	1,404,491
2015	2,459,091	1,593,743	724,950	252,978	1,195,598	44,317	2,035,110	324,671	6,436,213	1,390,480
2016	2,362,211	1,545,548	705,399	247,714	1,163,355	42,652	1,970,620	312,257	6,339,144	1,364,463
2017	2,161,148	1,436,108	664,198	236,767	1,095,407	39,134	1,831,657	286,010	6,139,112	1,310,583
2018	1,908,919	1,227,460	609,666	221,773	1,005,472	34,662	1,638,526	252,917	5,844,059	1,232,036
2019	1,609,405	1,024,214	541,458	203,169	892,984	29,239	1,431,348	213,305	5,439,957	1,124,607
2020	1,315,188	867,957	456,131	175,856	752,260	23,116	1,202,311	169,608	4,888,036	984,440
2021	1,060,930	701,469	352,675	140,679	581,636	17,747	938,719	132,413	4,188,527	809,534
2022	930,699	592,342	298,646	123,567	492,530	15,306	796,605	114,884	3,760,060	708,956
2023	881,513	578,040	281,918	118,919	464,941	14,341	750,132	108,099	3,623,292	673,595
2024	863,596	531,457	273,896	114,742	451,711	14,022	732,787	105,769	3,533,788	653,093
2025	840,778	517,199	260,839	111,003	430,177	13,611	697,391	102,781	3,452,014	631,570
2026	827,961	504,661	251,088	108,340	414,095	13,360	671,321	101,063	3,374,345	610,920
2027	815,941	491,670	244,198	106,462	402,732	13,146	651,896	99,495	3,325,642	597,974
2028	805,852	472,739	239,592	105,158	395,136	12,956	635,334	98,140	3,295,723	590,110
2029	790,575	448,785	235,626	104,034	388,595	12,691	624,060	96,186	3,274,025	584,460
2030	772,450	400,918	231,488	102,931	381,771	12,389	612,223	93,937	3,253,598	578,975
2031	677,927	310,490	210,070	97,207	346,448	10,749	549,156	81,747	3,150,353	551,255
2032	685,931	279,248	212,435	97,641	350,348	10,878	557,405	82,736	3,157,378	553,391
2033	606,762	235,364	197,246	93,596	325,298	9,545	515,818	72,743	3,084,500	533,487
2034	501,867	208,864	177,084	87,641	292,048	7,781	461,223	59,526	2,975,093	503,563
2035	424,912	193,785	161,930	83,277	267,056	6,400	420,331	49,969	2,895,787	481,856
Total	126,594,030	80,981,073	36,601,345	12,449,001	60,333,402	2,284,210	103,320,260	16,724,219	300,271,921	67,657,468

TABLE B-15

Capital Cost Component of Transportation Charge for Each Contractor

(Dollars)

Calendar Year	Southern California Area (continued)				Feather River Area				South Bay Area Future Contractor	Grand Total
	San Gorgonio Pass Water Agency	Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC&WCD	Total		
	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0
1963	0	688,882	0	773,558	0	0	0	0	43,197	1,394,353
1964	21,648	1,258,056	9,363	1,603,957	0	0	0	0	70,156	2,530,380
1965	21,784	2,176,243	17,738	2,724,215	0	0	405	405	100,254	4,266,322
1966	37,820	3,891,995	33,372	4,875,425	0	0	565	565	117,224	6,770,827
1967	71,000	7,677,768	68,052	9,582,297	0	0	563	563	157,203	11,910,021
1968	119,566	14,315,276	133,105	17,558,058	0	0	565	565	232,669	20,994,945
1969	186,113	21,802,613	202,240	26,646,883	0	0	3,196	3,196	296,646	31,067,121
1970	273,527	28,905,005	257,283	35,566,513	0	0	15,144	15,144	316,958	40,258,523
1971	382,844	37,119,456	315,561	45,859,133	0	0	15,972	15,972	320,734	50,962,086
1972	445,499	43,907,850	353,104	53,838,461	0	0	17,360	17,360	321,370	60,113,144
1973	467,516	46,139,771	356,462	56,434,563	0	0	17,360	17,360	322,042	62,713,115
1974	480,560	48,162,897	371,235	58,705,432	0	0	17,362	17,362	322,455	65,494,633
1975	493,921	49,120,956	375,615	59,898,732	0	0	17,364	17,364	323,913	67,351,006
1976	506,775	49,970,456	379,885	60,945,562	0	0	17,365	17,365	324,332	68,788,234
1977	514,813	50,658,548	384,191	61,773,999	0	0	17,368	17,368	325,173	69,957,577
1978	519,694	51,257,037	389,838	62,481,432	0	0	17,369	17,369	326,254	71,163,653
1979	523,190	52,060,253	398,748	63,388,752	0	0	17,371	17,371	327,726	72,591,602
1980	526,573	53,467,845	416,251	64,935,591	0	0	17,372	17,372	329,087	74,624,291
1981	543,661	56,491,725	448,893	68,464,477	0	0	17,374	17,374	332,105	78,761,366
1982	542,370	57,294,564	460,364	69,275,507	0	0	17,375	17,375	331,761	80,046,858
1983	554,613	58,869,105	476,458	71,191,418	0	0	17,376	17,376	332,581	82,178,458
1984	573,024	60,149,635	485,969	72,899,542	0	0	17,377	17,377	336,266	84,813,326
1985	586,372	60,983,820	491,227	74,041,718	0	0	17,378	17,378	340,513	86,639,982
1986	596,119	61,511,165	494,085	74,777,908	0	0	17,380	17,380	341,346	88,800,204
1987	606,094	61,969,584	495,862	75,449,682	0	0	17,381	17,381	342,179	91,389,280
1988	614,510	62,380,144	497,722	76,016,306	0	0	17,383	17,383	343,678	93,557,292
1989	621,645	62,926,980	501,955	76,706,447	0	0	17,386	17,386	346,538	95,052,274
1990	627,867	63,737,726	510,205	77,777,102	0	0	17,388	17,388	348,865	96,758,696
1991	646,797	64,825,287	516,669	79,203,498	0	0	17,391	17,391	353,790	98,427,334
1992	674,210	66,238,779	523,693	81,057,644	0	0	17,394	17,394	361,732	100,540,313
1993	711,956	67,972,091	529,945	83,275,643	0	0	17,396	17,396	366,077	102,999,201
1994	771,140	70,330,477	535,620	86,295,877	0	0	17,398	17,398	369,276	106,742,706
1995	802,741	71,563,246	538,665	87,892,686	0	0	17,399	17,399	371,158	111,074,647
1996	828,715	72,677,688	542,827	89,312,086	0	0	17,399	17,399	373,642	121,308,831
1997	885,191	74,122,520	545,871	91,201,322	0	0	17,399	17,399	374,958	133,679,402
1998	1,056,450	74,638,748	546,560	92,093,465	0	0	17,399	17,399	375,600	137,497,416
1999	2,198,959	75,238,832	553,682	94,513,933	0	0	17,399	17,399	376,630	140,011,164
2000	2,974,840	75,320,943	554,408	95,810,554	0	0	17,399	17,399	377,212	141,394,273
2001	2,974,851	75,322,101	554,419	95,813,458	0	0	17,399	17,399	377,223	141,400,406
2002	2,974,861	75,323,273	554,431	95,816,402	0	0	17,399	17,399	377,235	141,406,618
2003	2,974,872	75,324,460	554,442	95,819,375	0	0	17,399	17,399	377,247	141,412,898
2004	2,974,872	75,324,460	554,442	95,819,375	0	0	17,399	17,399	377,247	141,412,898
2005	2,974,872	75,324,460	554,442	95,819,375	0	0	17,399	17,399	377,247	141,412,898
2006	2,974,872	75,324,460	554,442	95,819,375	0	0	17,399	17,399	377,247	141,412,898
2007	2,974,872	75,324,460	554,442	95,819,375	0	0	17,399	17,399	377,247	141,412,898
2008	2,974,872	75,324,460	554,442	95,819,375	0	0	17,399	17,399	377,247	141,412,898
2009	2,974,872	75,324,460	554,442	95,819,375	0	0	17,399	17,399	377,247	141,412,898
2010	2,974,872	75,324,460	554,442	95,819,375	0	0	17,399	17,399	377,247	141,412,898
2011	2,974,872	75,324,460	554,442	95,819,375	0	0	17,398	17,399	377,247	141,412,898
2012	2,974,872	75,324,460	554,442	95,819,375	0	0	17,399	17,399	377,247	141,412,898
2013	2,966,756	74,635,578	554,442	95,011,382	0	0	17,399	17,399	334,050	139,978,171
2014	2,961,715	74,066,403	545,080	94,251,446	0	0	17,399	17,399	307,091	138,895,805
2015	2,953,088	73,148,217	536,704	93,095,160	0	0	16,994	16,994	276,993	137,118,382
2016	2,937,052	71,432,465	521,071	90,943,951	0	0	16,834	16,834	260,023	134,611,260
2017	2,903,872	67,646,692	486,391	86,237,079	0	0	16,836	16,836	220,044	129,467,984
2018	2,855,306	61,009,184	421,337	78,261,317	0	0	16,834	16,834	144,578	120,942,220
2019	2,788,760	53,521,847	352,202	69,172,495	0	0	14,203	14,203	80,600	111,487,841
2020	2,701,345	46,419,455	297,159	60,252,862	0	0	2,254	2,254	60,289	102,423,731
2021	2,592,028	38,205,004	238,882	49,960,243	0	0	1,427	1,427	56,512	92,084,309
2022	2,529,373	31,416,610	201,338	41,980,916	0	0	39	39	55,877	84,081,997
2023	2,507,356	29,184,689	197,981	39,384,816	0	0	39	39	55,205	81,441,903
2024	2,494,312	27,161,563	183,207	37,113,943	0	0	37	37	54,791	79,159,085
2025	2,480,951	26,203,504	178,828	35,920,646	0	0	35	35	53,334	77,942,220
2026	2,468,097	25,354,004	174,557	34,873,812	0	0	34	34	52,915	76,573,828
2027	2,460,059	24,665,912	170,251	34,045,378	0	0	31	31	52,074	75,716,200
2028	2,455,178	24,067,423	164,604	33,337,945	0	0	30	30	50,993	74,965,325
2029	2,451,682	23,264,207	155,694	32,430,620	0	0	28	28	49,520	74,023,039
2030	2,448,299	21,856,615	138,191	30,883,785	0	0	27	27	48,160	72,429,482
2031	2,431,211	18,832,735	105,549	27,354,897	0	0	25	25	45,142	68,786,465
2032	2,432,503	18,029,896	94,079	26,543,869	0	0	24	24	45,486	67,961,231
2033	2,420,259	16,455,355	77,985	24,627,958	0	0	23	23	44,665	65,967,275
2034	2,401,848	15,174,825	66,474	22,919,837	0	0	22	22	40,981	64,072,920
2035	2,388,500	14,340,640	63,215	21,777,658	0	0	21	21	36,734	62,605,950
Total	118,738,099	3,661,806,763	27,293,214	4,615,055,005	0	0	869,855	869,855	18,626,285	6,684,297,482

TABLE B-16A

Minimum OMP&R Component of Transportation Charge for Each Contractor

(Dollars)

Calendar Year	North Bay Area			South Bay Area				Central Coastal Area		
	Napa County FC&WCD	Solano County Water Agency	Total	Alameda County FC&WCD, Zone 7	Alameda County Water District	Santa Clara Valley Water District	Total	San Luis Obispo County FC&WCD	Santa Barbara County FC&WCD	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	9,699	8,868	0	18,567	0	0	0
1963	0	0	0	38,048	34,788	82,896	155,732	0	0	0
1964	0	0	0	41,148	38,323	91,320	170,791	0	0	0
1965	0	0	0	78,529	75,616	195,792	349,937	0	0	0
1966	0	0	0	79,753	78,779	218,544	377,076	0	0	0
1967	0	0	0	127,896	123,665	335,225	586,786	0	0	0
1968	130	0	130	126,058	120,563	333,506	580,127	11,801	21,769	33,570
1969	80,875	0	80,875	145,410	138,051	372,584	656,045	63,112	116,434	179,546
1970	94,872	0	94,872	128,993	120,246	320,663	569,902	74,187	136,867	211,054
1971	45,579	0	45,579	113,071	108,346	296,004	517,421	74,011	136,541	210,552
1972	37,895	0	37,895	122,407	117,483	334,366	574,256	79,195	146,107	225,302
1973	32,993	0	32,993	122,738	116,785	325,727	565,250	75,714	139,685	215,399
1974	46,498	0	46,498	154,434	146,929	403,081	704,444	76,531	141,190	217,721
1975	37,707	0	37,707	189,176	182,087	513,823	885,086	92,605	170,845	263,450
1976	60,786	0	60,786	203,063	193,436	524,814	921,313	94,933	175,142	270,075
1977	78,400	0	78,400	179,870	169,065	500,102	849,037	102,946	189,923	292,869
1978	56,318	0	56,318	239,301	228,854	647,829	1,115,984	104,061	191,982	296,043
1979	73,851	0	73,851	236,979	232,097	666,729	1,135,805	100,743	185,862	286,605
1980	81,748	0	81,748	389,444	372,066	1,010,540	1,772,050	125,028	230,662	355,690
1981	100,780	0	100,780	316,980	301,879	833,322	1,452,181	138,616	255,727	394,343
1982	191,981	0	191,981	389,670	372,261	1,105,688	1,867,619	140,827	259,809	400,636
1983	80,229	0	80,229	438,573	429,008	1,269,449	2,137,030	169,841	313,339	483,180
1984	106,463	0	106,463	591,153	565,639	1,817,435	2,974,227	200,527	369,949	570,476
1985	215,443	0	215,443	679,338	659,478	1,849,719	3,188,535	246,353	454,491	700,844
1986	203,721	0	203,721	614,780	584,455	1,787,346	2,986,581	233,489	430,757	664,246
1987	294,183	0	294,183	683,743	648,916	1,992,359	3,325,018	229,964	462,839	692,803
1988	313,808	1	313,809	679,164	657,395	1,915,236	3,251,795	258,663	560,721	819,384
1989	402,016	683,749	1,085,765	717,747	713,206	1,899,218	3,330,171	244,430	667,802	912,232
1990	654,476	668,555	1,323,031	778,432	776,489	2,120,772	3,675,693	308,909	674,600	983,509
1991	723,361	856,833	1,580,194	538,566	520,487	1,510,267	2,569,320	300,723	670,820	971,543
1992	481,636	708,354	1,189,990	794,976	854,073	2,251,105	3,900,154	344,685	733,649	1,078,334
1993	527,038	715,841	1,242,879	1,281,153	1,261,796	3,339,577	5,882,526	388,491	738,627	1,127,118
1994	570,031	651,941	1,221,972	1,359,163	1,304,083	3,539,664	6,202,910	479,555	885,586	1,365,141
1995	538,253	657,405	1,195,658	1,225,157	1,180,568	3,199,223	5,604,948	472,676	871,643	1,344,319
1996	628,847	920,706	1,549,553	1,151,608	1,113,547	2,984,310	5,249,465	591,505	1,090,833	1,682,338
1997	829,789	1,188,896	2,018,685	1,251,294	1,248,675	3,481,831	5,981,800	997,032	1,876,033	2,873,065
1998	709,403	1,228,743	1,938,146	1,255,438	1,220,943	3,408,993	5,885,374	836,629	1,555,740	2,392,369
1999	720,601	1,246,215	1,966,816	1,299,323	1,263,484	3,527,844	6,090,651	835,043	1,543,938	2,378,981
2000	704,042	1,217,616	1,921,658	1,269,251	1,234,013	3,390,040	5,893,304	815,018	1,506,182	2,321,200
2001	703,658	1,216,748	1,920,406	1,268,955	1,233,737	3,389,367	5,892,059	814,480	1,505,021	2,319,501
2002	704,852	1,219,444	1,924,296	1,269,911	1,234,625	3,391,542	5,896,078	816,195	1,508,738	2,324,933
2003	704,785	1,219,293	1,924,078	1,269,853	1,234,571	3,391,412	5,895,836	816,100	1,508,532	2,324,632
2004	705,062	1,219,918	1,924,980	1,270,093	1,234,794	3,391,958	5,896,845	816,498	1,509,395	2,325,893
2005	704,450	1,218,535	1,922,985	1,269,563	1,234,302	3,390,749	5,894,614	815,615	1,507,481	2,323,096
2006	704,538	1,218,733	1,923,271	1,269,639	1,234,373	3,390,919	5,894,931	815,741	1,507,754	2,323,495
2007	704,443	1,218,519	1,922,962	1,269,557	1,234,296	3,390,733	5,894,586	815,603	1,507,458	2,323,061
2008	704,552	1,218,765	1,923,317	1,269,650	1,234,382	3,390,948	5,894,980	815,760	1,507,797	2,323,557
2009	704,561	1,218,783	1,923,344	1,269,658	1,234,390	3,390,965	5,895,013	815,772	1,507,820	2,323,592
2010	704,556	1,218,774	1,923,330	1,269,653	1,234,387	3,390,955	5,894,995	815,767	1,507,810	2,323,577
2011	704,563	1,218,787	1,923,350	1,269,659	1,234,390	3,390,969	5,895,018	815,774	1,507,825	2,323,599
2012	704,571	1,218,810	1,923,381	1,269,655	1,234,387	3,390,956	5,894,998	815,791	1,507,865	2,323,656
2013	704,961	1,219,690	1,924,651	1,269,993	1,234,700	3,391,726	5,896,419	816,350	1,509,082	2,325,432
2014	705,400	1,220,684	1,926,084	1,270,363	1,235,044	3,392,572	5,897,979	816,966	1,510,416	2,327,382
2015	705,496	1,220,904	1,926,400	1,270,457	1,235,130	3,392,784	5,898,371	817,122	1,510,759	2,327,881
2016	705,472	1,220,848	1,926,320	1,270,435	1,235,111	3,392,736	5,898,282	817,089	1,510,681	2,327,770
2017	705,493	1,220,893	1,926,386	1,270,453	1,235,127	3,392,774	5,898,354	817,116	1,510,741	2,327,857
2018	705,480	1,220,865	1,926,345	1,270,442	1,235,117	3,392,750	5,898,309	817,099	1,510,702	2,327,801
2019	705,479	1,220,862	1,926,341	1,270,440	1,235,117	3,392,745	5,898,302	817,097	1,510,695	2,327,792
2020	705,329	1,220,519	1,925,848	1,270,310	1,234,994	3,392,449	5,897,753	816,879	1,510,228	2,327,107
2021	705,317	1,220,494	1,925,811	1,270,300	1,234,984	3,392,424	5,897,708	816,862	1,510,185	2,327,047
2022	705,309	1,220,475	1,925,784	1,270,293	1,234,977	3,392,408	5,897,678	816,852	1,510,159	2,327,011
2023	705,358	1,220,586	1,925,944	1,270,335	1,235,018	3,392,507	5,897,860	816,921	1,510,317	2,327,238
2024	705,306	1,220,466	1,925,772	1,270,289	1,234,975	3,392,401	5,897,665	816,845	1,510,152	2,326,997
2025	705,346	1,220,557	1,925,903	1,270,324	1,235,007	3,392,481	5,897,812	816,902	1,510,278	2,327,180
2026	705,320	1,220,497	1,925,817	1,270,301	1,234,985	3,392,428	5,897,714	816,864	1,510,194	2,327,058
2027	705,249	1,220,341	1,925,590	1,270,241	1,234,931	3,392,292	5,897,464	816,765	1,509,979	2,326,744
2028	705,245	1,220,331	1,925,576	1,270,238	1,234,926	3,392,284	5,897,448	816,760	1,509,966	2,326,726
2029	705,288	1,220,425	1,925,713	1,270,273	1,234,959	3,392,366	5,897,598	816,821	1,510,096	2,326,917
2030	705,157	1,220,132	1,925,289	1,270,161	1,234,855	3,392,111	5,897,127	816,631	1,509,689	2,326,320
2031	705,191	1,220,207	1,925,398	1,270,190	1,234,883	3,392,175	5,897,248	816,681	1,509,793	2,326,474
2032	705,223	1,220,279	1,925,502	1,270,218	1,234,908	3,392,238	5,897,364	816,725	1,509,890	2,326,615
2033	705,183	1,220,189	1,925,372	1,270,183	1,234,877	3,392,161	5,897,221	816,669	1,509,769	2,326,438
2034	705,216	1,220,265	1,925,481	1,270,213	1,234,903	3,392,226	5,897,342	816,718	1,509,874	2,326,592
2035	705,192	1,220,209	1,925,401	1,270,191	1,234,884	3,392,178	5,897,253	816,682	1,509,797	2,326,479
Total	34,400,354	53,440,682	87,841,036	64,494,015	62,733,488	173,113,632	300,341,135	37,884,355	70,733,032	108,617,387

TABLE B-16A

Minimum OMP&R Component of Transportation Charge for Each Contractor

(Dollars)

Calendar Year	San Joaquin Valley Area								
				Kern County Water Agency					
	Dudley Ridge Water District	Empire West Side Irrigation District	Future Contractor San Joaquin Valley	Municipal and Industrial	Agricultural	County of Kings	Oak Flat Water District	Tulare Lake Basin Water Storage District	Total
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1961	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0
1968	37,806	1,963	5,639	60,702	678,085	2,007	2,073	77,592	865,867
1969	45,479	2,237	30,159	80,553	1,197,126	2,286	2,086	90,772	1,450,698
1970	46,969	2,292	35,450	96,672	1,381,493	2,345	2,158	93,407	1,660,786
1971	47,997	2,315	35,365	106,654	1,643,161	2,366	2,288	94,874	1,935,020
1972	49,867	2,414	37,845	122,312	1,729,170	2,470	2,254	98,776	2,045,108
1973	50,005	2,386	36,180	125,553	1,719,871	2,439	2,310	98,329	2,037,073
1974	52,816	2,557	36,571	135,661	1,823,063	2,615	2,529	104,610	2,160,422
1975	66,962	3,242	44,250	162,739	2,235,242	3,317	3,191	132,663	2,651,606
1976	66,504	3,327	45,365	159,304	2,215,996	3,404	2,919	133,940	2,630,759
1977	75,596	3,810	49,192	189,661	2,522,288	3,900	3,708	152,836	3,000,991
1978	70,688	3,504	49,725	174,899	2,427,160	3,583	3,644	141,673	2,874,876
1979	68,873	3,437	48,140	173,668	2,378,175	3,514	3,492	138,484	2,817,783
1980	95,811	4,719	59,744	235,566	3,147,017	4,825	4,774	191,405	3,743,861
1981	118,526	5,968	66,237	266,278	3,439,544	6,103	5,191	239,480	4,147,327
1982	134,057	6,708	67,294	311,833	3,851,091	6,861	6,380	270,007	4,654,231
1983	184,961	9,245	81,158	426,595	5,034,410	9,454	8,497	372,305	6,126,625
1984	194,215	9,655	95,821	471,923	5,638,818	9,873	8,724	389,850	6,818,879
1985	213,925	10,594	117,719	516,100	6,348,318	10,834	10,004	428,596	7,656,090
1986	212,552	10,567	111,572	542,557	6,495,091	10,805	10,721	426,663	7,820,528
1987	204,896	10,250	109,887	531,401	6,373,936	10,462	10,536	412,569	7,663,957
1988	204,501	10,264	123,599	518,723	6,415,634	10,496	10,377	412,483	7,706,077
1989	224,564	11,296	116,801	565,184	6,763,613	11,553	11,125	453,471	8,157,607
1990	269,422	13,580	147,612	659,940	8,069,056	13,887	13,126	544,592	9,731,215
1991	272,908	13,707	143,700	657,490	8,052,732	14,019	13,062	550,646	9,718,264
1992	316,559	15,962	161,734	761,166	9,078,203	16,326	18,176	640,022	11,008,148
1993	360,968	18,046	185,640	833,681	10,403,768	18,455	19,610	726,629	12,566,797
1994	304,331	15,239	223,708	730,093	9,687,922	15,588	15,974	613,121	11,605,976
1995	388,414	19,556	218,625	867,179	11,052,377	20,004	21,016	784,706	13,391,877
1996	386,857	19,556	274,765	903,688	11,958,193	20,001	21,178	783,124	14,367,362
1997	425,358	21,295	282,784	1,022,777	13,158,012	21,781	22,543	856,864	15,811,414
1998	422,681	21,096	281,328	1,006,456	12,200,800	21,580	23,154	850,201	14,827,296
1999	413,728	20,595	286,722	1,000,101	12,182,328	21,067	23,406	831,064	14,779,011
2000	390,665	19,418	277,898	936,353	11,527,002	19,864	22,579	784,164	13,977,943
2001	390,415	19,407	277,787	935,765	11,520,218	19,851	22,571	783,663	13,969,677
2002	391,263	19,449	278,156	937,784	11,543,264	19,893	22,596	785,350	13,997,755
2003	391,214	19,446	278,133	937,670	11,541,965	19,892	22,594	785,256	13,996,170
2004	391,414	19,455	278,222	938,143	11,547,352	19,901	22,599	785,649	14,002,735
2005	390,974	19,435	278,030	937,100	11,535,426	19,878	22,587	784,776	13,988,206
2006	391,036	19,438	278,059	937,246	11,537,121	19,882	22,590	784,901	13,990,273
2007	390,970	19,434	278,029	937,083	11,535,279	19,878	22,587	784,766	13,988,026
2008	391,047	19,438	278,061	937,267	11,537,389	19,882	22,590	784,920	13,990,594
2009	391,053	19,438	278,064	937,285	11,537,553	19,882	22,590	784,932	13,990,797
2010	391,049	19,438	278,063	937,274	11,537,464	19,882	22,590	784,927	13,990,687
2011	391,053	19,438	278,066	937,286	11,537,581	19,882	22,590	784,934	13,990,830
2012	391,061	19,439	278,067	937,303	11,537,767	19,882	22,590	784,949	13,991,058
2013	391,341	19,452	278,186	937,968	11,545,353	19,898	22,598	785,503	14,000,299
2014	391,628	19,467	278,316	938,640	11,553,125	19,910	22,606	786,080	14,009,772
2015	391,725	19,470	278,353	938,883	11,555,794	19,916	22,609	786,267	14,013,017
2016	391,706	19,470	278,344	938,839	11,555,325	19,916	22,608	786,233	14,012,441
2017	391,720	19,470	278,352	938,876	11,555,705	19,916	22,609	786,260	14,012,908
2018	391,711	19,470	278,347	938,853	11,555,460	19,916	22,609	786,244	14,012,610
2019	391,710	19,470	278,345	938,851	11,555,428	19,916	22,609	786,241	14,012,570
2020	391,603	19,465	278,300	938,591	11,552,488	19,909	22,605	786,025	14,008,986
2021	391,592	19,465	278,297	938,571	11,552,252	19,908	22,605	786,008	14,008,698
2022	391,587	19,465	278,295	938,560	11,552,098	19,908	22,605	785,997	14,008,515
2023	391,623	19,467	278,310	938,644	11,553,063	19,910	22,606	786,068	14,009,691
2024	391,586	19,465	278,294	938,551	11,552,027	19,908	22,604	785,993	14,008,427
2025	391,612	19,467	278,306	938,620	11,552,813	19,910	22,606	786,051	14,009,385
2026	391,593	19,465	278,297	938,575	11,552,294	19,908	22,605	786,011	14,008,748
2027	391,546	19,463	278,274	938,458	11,550,952	19,907	22,604	785,912	14,007,116
2028	391,542	19,462	278,274	938,448	11,550,863	19,907	22,604	785,905	14,007,005
2029	391,572	19,464	278,288	938,520	11,551,672	19,908	22,604	785,967	14,007,995
2030	391,480	19,460	278,248	938,301	11,549,143	19,904	22,602	785,781	14,004,919
2031	391,502	19,460	278,257	938,356	11,549,791	19,905	22,602	785,828	14,005,701
2032	391,526	19,462	278,266	938,410	11,550,413	19,907	22,603	785,873	14,006,460
2033	391,497	19,460	278,254	938,343	11,549,641	19,905	22,602	785,817	14,005,519
2034	391,522	19,462	278,264	938,400	11,550,297	19,906	22,603	785,865	14,006,319
2035	391,502	19,460	278,258	938,358	11,549,820	19,905	22,602	785,831	14,005,736
Total	20,118,435	1,001,736	13,625,691	48,207,284	596,972,891	1,024,592	1,123,789	40,416,701	722,491,119

TABLE B-16A

Minimum OMP&R Component of Transportation Charge for Each Contractor

(Dollars)

Calendar Year	Southern California Area									
	Antelope Valley-East Kern Water Agency (20)	Castaic Lake Water Agency (21)	Coachella Valley Water District (22)	Crestline-Lake Arrowhead Water Agency (23)	Desert Water Agency (24)	Littlerock Creek Irrigation District (25)	Mojave Water Agency (26)	Palmdale Water District (27)	San Bernardino Valley Municipal Water District (28)	San Gabriel Valley Municipal Water District (29)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0
1968	65,073	28,084	11,697	2,958	19,290	1,088	24,380	8,171	52,314	14,399
1969	86,340	70,345	15,522	3,924	25,595	1,444	32,346	10,843	69,418	19,106
1970	107,806	84,580	19,391	4,902	31,979	1,802	40,392	13,540	86,726	23,866
1971	178,822	105,978	32,230	8,152	53,149	2,991	66,998	22,459	144,137	39,636
1972	363,554	202,628	106,741	30,966	176,039	6,603	213,029	48,104	548,122	144,113
1973	404,662	222,767	121,341	34,673	200,118	7,347	243,320	53,976	724,532	190,155
1974	434,864	235,526	130,629	37,060	215,431	7,678	262,736	56,382	786,108	207,020
1975	504,790	289,504	151,033	43,179	249,085	9,082	303,109	65,579	905,424	238,842
1976	559,011	262,418	160,688	44,454	265,002	10,030	325,512	73,253	964,525	256,572
1977	675,504	335,750	184,810	47,744	304,794	11,886	381,160	87,354	1,069,446	289,792
1978	600,343	376,950	187,027	54,153	308,449	10,711	373,191	78,304	1,148,279	300,751
1979	661,092	349,059	196,257	52,209	323,665	12,124	401,451	87,121	1,125,411	302,497
1980	857,480	415,662	252,944	71,884	417,161	15,424	508,078	112,785	1,517,632	401,010
1981	999,506	510,618	284,443	73,377	469,099	18,014	586,981	131,748	1,544,896	419,621
1982	1,128,580	558,180	321,003	89,580	529,399	20,192	649,333	148,013	1,870,901	497,958
1983	1,745,283	818,183	450,112	119,269	742,317	30,650	922,244	225,836	2,373,407	639,788
1984	2,105,373	943,142	548,750	150,200	905,005	36,805	1,112,077	271,143	3,018,507	803,408
1985	2,193,509	1,071,156	591,271	159,502	975,118	39,566	1,204,987	281,715	3,251,717	869,300
1986	2,325,017	1,108,265	621,135	163,349	1,024,374	40,270	1,273,784	297,638	3,330,403	896,306
1987	2,324,485	1,017,975	619,202	164,974	1,021,190	41,072	1,265,202	302,588	3,361,409	903,119
1988	2,319,765	1,049,326	652,965	176,621	1,076,864	40,878	1,329,199	300,497	3,604,704	965,596
1989	2,284,744	1,090,868	614,316	170,264	1,013,128	39,574	1,243,049	293,353	3,506,811	934,376
1990	2,606,404	1,262,902	702,152	199,555	1,157,996	44,973	1,410,632	332,339	4,055,311	1,070,451
1991	2,715,328	1,194,164	758,879	209,339	1,251,549	48,566	1,536,030	355,386	4,325,318	1,144,179
1992	2,768,418	1,571,171	749,058	198,084	1,235,345	49,608	1,535,934	361,191	4,128,546	1,114,488
1993	3,111,800	1,690,510	851,817	234,796	1,404,820	56,156	1,725,468	411,774	5,039,477	1,342,791
1994	2,799,274	1,595,748	809,869	228,934	1,335,641	50,852	1,664,662	372,915	5,080,578	1,344,589
1995	3,116,362	1,729,866	863,847	236,278	1,424,655	58,681	1,796,345	444,176	5,122,611	1,351,263
1996	3,116,574	1,928,759	870,046	226,759	1,434,872	57,364	1,834,754	431,014	4,892,832	1,308,475
1997	3,812,996	2,135,337	1,035,544	323,328	1,707,842	69,379	2,064,904	519,786	6,566,869	1,688,393
1998	3,638,520	2,087,259	951,619	268,832	1,569,415	65,276	3,132,586	479,277	5,529,367	1,474,192
1999	3,663,579	2,036,691	948,097	247,235	1,563,591	65,910	3,184,660	483,277	5,156,489	1,402,006
2000	3,488,933	2,071,043	933,764	272,267	1,539,975	62,594	3,044,732	458,583	5,574,031	1,467,881
2001	3,485,983	2,030,763	911,911	246,836	1,503,912	62,523	3,041,045	458,116	5,121,838	1,379,170
2002	3,495,344	1,998,124	926,834	261,141	1,528,541	62,738	3,052,535	459,588	5,376,744	1,430,441
2003	3,494,815	2,010,005	934,433	270,649	1,541,080	62,728	3,051,884	459,503	5,545,622	1,463,300
2004	3,497,009	1,994,665	909,484	239,252	1,499,916	62,779	3,054,581	459,848	4,987,789	1,354,829
2005	3,492,124	2,010,647	928,561	264,606	1,531,387	62,665	3,048,567	459,079	5,438,089	1,441,877
2006	3,492,824	2,008,854	934,572	271,655	1,541,311	62,683	3,049,429	459,190	5,563,481	1,466,455
2007	3,492,058	1,990,024	913,229	245,909	1,506,095	62,664	3,048,478	459,070	5,105,794	1,377,040
2008	3,492,928	2,014,484	912,924	245,172	1,505,589	62,685	3,049,553	459,207	5,092,735	1,374,632
2009	3,492,999	2,008,235	929,492	265,375	1,532,924	62,686	3,049,648	459,219	5,451,813	1,444,698
2010	3,492,956	2,002,441	917,781	251,090	1,513,601	62,685	3,049,587	459,211	5,197,961	1,395,164
2011	3,493,000	2,008,469	920,732	254,677	1,518,473	62,686	3,049,646	459,218	5,261,677	1,407,604
2012	3,493,116	2,006,208	922,983	257,366	1,522,186	62,689	3,049,802	459,236	5,309,525	1,416,961
2013	3,496,227	2,005,183	938,694	275,245	1,548,104	62,758	3,053,637	459,726	5,627,461	1,479,499
2014	3,499,200	2,006,012	909,175	238,019	1,499,407	62,827	3,057,113	460,187	4,966,088	1,350,940
2015	3,500,515	2,014,615	948,383	285,267	1,564,084	62,856	3,058,918	460,402	5,805,890	1,515,019
2016	3,500,318	2,013,709	913,490	242,730	1,506,517	62,851	3,058,667	460,369	5,049,931	1,367,505
2017	3,500,484	2,012,671	930,229	263,107	1,534,134	62,855	3,058,879	460,397	5,412,040	1,438,180
2018	3,500,372	2,008,138	915,132	244,716	1,509,229	62,853	3,058,738	460,378	5,085,212	1,374,399
2019	3,500,367	2,012,139	932,774	266,266	1,538,337	62,853	3,058,735	460,377	5,468,203	1,449,116
2020	3,499,137	2,009,198	931,481	265,214	1,536,204	62,827	3,057,214	460,185	5,449,326	1,445,232
2021	3,499,055	2,010,589	915,436	245,651	1,509,735	62,826	3,057,113	460,174	5,101,644	1,377,384
2022	3,499,001	2,009,848	926,088	258,679	1,527,308	62,826	3,057,049	460,165	5,333,207	1,422,554
2023	3,499,396	2,008,321	932,745	266,646	1,538,288	62,833	3,057,540	460,225	5,474,783	1,450,236
2024	3,498,969	2,010,702	920,245	251,556	1,517,667	62,825	3,057,013	460,159	5,206,622	1,397,854
2025	3,499,290	2,014,191	923,920	255,908	1,523,729	62,831	3,057,412	460,208	5,283,986	1,412,998
2026	3,499,077	2,011,588	928,530	261,631	1,531,342	62,826	3,057,147	460,177	5,385,683	1,432,802
2027	3,498,514	2,006,275	923,859	256,161	1,523,629	62,813	3,056,450	460,089	5,288,459	1,413,742
2028	3,498,480	2,008,863	930,899	264,777	1,535,248	62,813	3,056,404	460,083	5,441,616	1,443,611
2029	3,498,825	2,011,334	932,641	266,760	1,538,118	62,822	3,056,832	460,135	5,476,805	1,450,539
2030	3,497,775	1,991,945	915,716	246,529	1,510,198	62,797	3,055,537	459,971	5,117,236	1,380,213
2031	3,498,038	2,020,033	930,756	264,787	1,535,011	62,801	3,055,861	460,012	5,441,779	1,443,576
2032	3,498,308	2,015,858	927,438	260,619	1,529,537	62,809	3,056,197	460,053	5,367,683	1,429,163
2033	3,497,992	2,009,446	917,969	249,181	1,513,910	62,800	3,055,813	460,003	5,164,392	1,389,451
2034	3,498,262	2,010,575	934,813	269,641	1,541,696	62,808	3,056,136	460,045	5,528,082	1,460,449
2035	3,498,062	1,984,256	931,815	266,070	1,536,759	62,801	3,055,890	460,015	5,464,567	1,448,026
Total	180,154,611	100,738,822	48,123,363	13,387,689	79,365,158	3,231,712	142,598,315	23,714,140	276,870,021	73,790,598

TABLE B-16A

Minimum OMP&R Component of Transportation Charge for Each Contractor

(Dollars)

Calendar Year	Southern California Area (continued)				Feather River Area				South Bay Area Future Contractor	Grand Total
	San Gorgonio Pass Water Agency	Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC&WCD	Total		
	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	18,567
1963	0	0	0	0	0	0	0	0	12,626	168,358
1964	0	0	0	0	0	0	0	0	13,938	184,729
1965	0	0	0	0	0	0	0	0	28,937	378,874
1966	0	0	0	0	0	0	0	0	31,321	408,397
1967	0	0	0	0	0	0	0	0	47,719	634,505
1968	8,819	972,744	9,504	1,218,521	0	0	0	0	46,945	2,745,160
1969	11,706	1,295,613	12,610	1,654,812	0	0	0	0	52,963	4,074,939
1970	14,621	1,624,573	15,745	2,069,923	0	0	0	0	69,745	4,676,282
1971	24,302	2,716,582	26,120	3,421,556	0	0	54	54	55,532	6,185,714
1972	89,132	8,038,457	68,368	10,035,856	0	0	40	40	80,412	12,998,869
1973	117,781	9,890,314	78,312	12,289,298	0	0	1	1	54,219	15,194,233
1974	128,166	11,581,499	83,451	14,166,550	0	0	143	143	76,783	17,372,561
1975	147,900	13,584,540	101,892	16,593,959	0	0	1,069	1,069	84,546	20,517,423
1976	158,663	12,862,497	94,799	16,037,424	0	0	139	139	106,717	20,027,213
1977	178,774	16,203,703	121,966	19,892,683	0	0	892	892	98,617	24,213,489
1978	186,386	17,811,759	132,438	21,568,741	0	0	39	39	100,785	26,012,786
1979	186,678	16,413,707	126,751	20,238,022	0	0	3,235	3,235	119,347	24,674,648
1980	248,269	20,915,931	154,005	25,888,265	0	0	416	416	178,731	32,020,761
1981	258,678	23,692,307	186,308	29,175,596	0	0	3,847	3,847	185,212	35,459,286
1982	308,007	28,020,865	209,252	34,351,263	0	0	10,956	10,956	181,897	41,658,583
1983	394,588	38,410,167	321,406	47,193,250	0	0	(422)	(422)	220,815	56,240,707
1984	496,822	45,571,127	381,823	56,344,182	0	0	643	643	225,920	67,040,790
1985	536,994	50,648,854	422,206	62,245,895	0	0	2,599	2,599	341,950	74,351,356
1986	553,053	53,071,503	444,341	65,149,438	0	0	2,595	2,595	279,770	77,106,879
1987	557,712	49,959,317	403,724	61,941,969	0	0	2,595	2,595	343,864	74,264,389
1988	596,634	51,578,544	409,240	64,100,833	0	0	2,600	2,600	366,222	76,560,720
1989	578,002	52,740,905	431,901	64,941,291	0	0	2,672	2,672	422,636	78,852,374
1990	662,816	60,489,355	489,265	74,484,151	0	0	2,687	2,687	472,467	90,672,753
1991	707,834	60,494,116	466,751	75,207,439	0	0	2,730	2,730	212,666	90,262,156
1992	687,883	67,235,530	499,660	82,134,916	0	0	2,774	2,774	442,966	99,757,282
1993	831,100	68,831,371	538,479	86,070,359	0	0	2,529	2,529	600,080	107,492,288
1994	831,983	65,051,144	469,320	81,635,509	0	0	3,058	3,058	606,539	102,641,105
1995	834,735	69,949,213	527,078	87,455,110	0	0	3,210	3,210	532,547	109,527,669
1996	806,451	73,455,431	562,416	90,925,747	0	0	3,370	3,370	577,639	114,355,474
1997	1,047,055	86,322,368	636,424	107,930,225	0	0	3,437	3,437	634,529	135,253,155
1998	911,114	80,038,717	633,065	100,779,239	0	0	3,506	3,506	633,880	126,459,810
1999	863,863	76,465,036	615,964	96,696,398	0	0	3,576	3,576	666,009	122,581,442
2000	909,511	79,633,100	622,357	100,078,771	0	0	3,576	3,576	653,840	124,850,292
2001	851,450	76,611,193	610,470	96,315,210	0	0	3,576	3,576	653,532	121,073,961
2002	884,826	76,791,543	601,044	96,869,443	0	0	3,576	3,576	654,568	121,670,649
2003	906,375	77,598,479	604,524	97,943,397	0	0	3,576	3,576	654,498	122,742,187
2004	835,248	75,352,079	600,055	94,847,534	0	0	3,576	3,576	654,785	119,656,348
2005	892,395	76,991,676	604,666	97,166,339	0	0	3,576	3,576	654,148	121,952,964
2006	908,487	77,615,750	604,154	97,978,845	0	0	3,576	3,576	654,240	122,768,631
2007	849,909	75,372,195	598,603	95,021,068	0	0	3,576	3,576	654,141	119,807,420
2008	848,316	76,301,180	605,809	95,965,214	0	0	3,576	3,576	654,253	120,755,491
2009	894,224	76,981,869	603,973	97,177,155	0	0	3,576	3,576	654,262	121,967,739
2010	861,768	76,123,364	602,272	95,929,881	0	0	3,576	3,576	654,259	120,720,305
2011	869,918	76,589,969	604,043	96,500,112	0	0	3,576	3,576	654,263	121,290,748
2012	876,046	76,697,037	603,380	96,676,535	0	0	3,576	3,576	654,270	121,467,474
2013	916,956	77,648,803	603,135	98,115,428	0	0	3,576	3,576	654,675	122,920,480
2014	832,652	75,762,802	603,426	95,247,848	0	0	3,576	3,576	655,114	120,067,755
2015	940,134	78,087,278	605,982	98,849,343	0	0	3,576	3,576	655,232	123,673,820
2016	843,472	76,418,622	605,713	96,043,894	0	0	3,576	3,576	655,208	120,867,491
2017	889,778	77,110,534	605,412	97,278,700	0	0	3,576	3,576	655,228	122,103,009
2018	847,988	76,253,957	604,075	95,925,187	0	0	3,576	3,576	655,215	120,749,043
2019	896,947	77,408,614	605,251	97,660,179	0	0	3,576	3,576	655,213	122,483,973
2020	894,437	77,035,488	604,366	97,250,309	0	0	3,576	3,576	655,056	122,088,635
2021	849,980	76,440,420	604,774	96,134,781	0	0	3,576	3,576	655,043	120,952,664
2022	879,578	76,631,549	604,557	96,672,409	0	0	3,576	3,576	655,034	121,490,007
2023	897,711	77,440,001	604,112	97,692,837	0	0	3,576	3,576	655,086	122,512,232
2024	863,391	76,397,273	604,805	96,249,081	0	0	3,576	3,576	655,031	121,066,549
2025	873,312	77,049,773	605,835	97,023,393	0	0	3,576	3,576	655,074	121,842,323
2026	886,295	77,027,431	605,067	97,149,596	0	0	3,576	3,576	655,045	121,967,554
2027	873,812	76,615,682	603,497	96,582,982	0	0	3,576	3,576	654,973	121,398,445
2028	893,390	76,948,923	604,256	97,149,363	0	0	3,576	3,576	654,968	121,964,662
2029	897,917	77,705,441	604,988	97,963,157	0	0	3,576	3,576	655,012	122,779,968
2030	851,863	75,819,992	599,269	95,509,041	0	0	3,576	3,576	654,877	120,321,149
2031	893,373	77,145,886	607,531	97,359,444	0	0	3,576	3,576	654,911	122,172,752
2032	883,922	77,271,198	606,310	97,369,095	0	0	3,576	3,576	654,945	122,183,557
2033	857,909	76,392,059	604,417	96,175,342	0	0	3,576	3,576	654,903	120,988,371
2034	904,426	77,591,460	604,753	97,923,146	0	0	3,576	3,576	654,938	122,737,394
2035	896,287	76,711,740	597,014	96,913,302	0	0	3,576	3,576	654,913	121,726,660
Total	45,620,524	4,003,512,349	31,438,479	5,022,545,781	0	0	193,726	193,726	32,778,244	6,274,808,428

TABLE B-16B

Minimum OMP&R Component of Transportation Charge for Each Contractor for Off-Aqueduct Power Facilities

(Dollars)

Calendar Year	North Bay Area			South Bay Area				Central Coastal Area		
	Napa County FC&WCD (1)	Solano County Water Agency (2)	Total (3)	Alameda County FC&WCD, Zone 7 (4)	Alameda County Water District (5)	Santa Clara Valley Water District (6)	Total (7)	San Luis Obispo County FC&WCD (8)	Santa Barbara County FC&WCD (9)	Total (10)
1971	0	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0
1983	10,070	0	10,070	47,473	31,446	863,937	942,856	0	0	0
1984	29,957	0	29,957	157,280	77,388	2,040,188	2,274,856	0	0	0
1985	54,709	0	54,709	458,427	582,679	2,696,449	3,737,555	0	0	0
1986	45,886	0	45,886	312,937	365,147	2,595,766	3,273,850	0	0	0
1987	90,385	0	90,385	622,029	674,111	2,306,079	3,602,219	0	0	0
1988	115,970	114,196	230,166	616,865	804,606	2,116,236	3,537,707	0	0	0
1989	64,584	138,240	202,824	407,353	396,069	1,389,347	2,192,769	0	0	0
1990	77,126	138,805	215,931	535,269	514,372	1,490,250	2,539,891	0	0	0
1991	35,178	245,181	280,359	355,578	477,883	1,065,488	1,898,949	0	165,930	165,930
1992	74,573	230,716	305,289	405,244	529,119	1,183,466	2,117,829	0	0	0
1993	89,213	247,977	337,190	841,383	256,930	1,552,562	2,650,875	0	0	0
1994	111,942	229,598	341,540	501,812	559,683	1,395,238	2,456,733	0	0	0
1995	96,842	235,606	332,448	833,226	492,579	796,524	2,122,329	0	0	0
1996	63,698	205,414	269,112	367,297	304,845	1,189,291	1,861,433	711	105	816
1997	122,765	198,974	321,739	556,803	782,628	976,997	2,316,428	119,277	767,520	886,797
1998	116,552	206,063	322,615	483,985	519,893	1,561,241	2,565,119	220,383	1,478,038	1,698,421
1999	107,397	184,769	292,166	625,314	457,635	1,359,378	2,442,327	134,215	1,667,093	1,801,308
2000	109,985	180,845	290,830	608,180	460,102	1,322,130	2,390,412	132,712	1,621,414	1,754,126
2001	117,081	186,971	304,052	627,072	474,394	1,363,201	2,464,667	138,929	1,671,782	1,810,711
2002	95,549	142,859	238,408	459,259	419,324	998,391	1,876,974	672,949	1,224,392	1,897,341
2003	87,960	128,169	216,129	405,215	369,979	880,902	1,656,096	593,759	1,080,308	1,674,067
2004	91,539	130,259	221,798	405,272	370,032	881,027	1,656,331	593,843	1,080,461	1,674,304
2005	103,974	142,025	245,999	443,063	404,536	963,180	1,810,779	649,216	1,181,211	1,830,427
2006	106,927	142,627	249,554	443,181	404,644	963,438	1,811,263	649,390	1,181,526	1,830,916
2007	110,068	142,159	252,227	441,441	403,054	959,655	1,804,150	646,840	1,176,886	1,823,726
2008	136,156	169,487	305,643	525,961	480,225	1,143,394	2,149,580	770,687	1,402,218	2,172,905
2009	140,318	169,499	309,817	525,660	479,950	1,142,737	2,148,347	770,245	1,401,414	2,171,659
2010	144,526	169,569	314,095	525,539	479,840	1,142,477	2,147,856	770,068	1,401,093	2,171,161
2011	149,506	169,644	319,150	525,432	479,743	1,142,244	2,147,419	769,912	1,400,809	2,170,721
2012	154,129	170,178	324,307	526,748	480,943	1,145,102	2,152,793	771,839	1,404,313	2,176,152
2013	72,156	77,205	149,361	238,816	218,049	519,165	976,030	349,936	636,686	986,622
2014	32,555	33,789	66,344	104,453	95,369	227,071	426,893	153,053	278,471	431,524
2015	14,259	14,370	28,629	44,394	40,533	96,507	181,434	65,050	118,353	183,403
2016	7,282	7,159	14,441	22,067	20,148	47,971	90,186	32,334	58,831	91,165
2017	3,398	3,254	6,652	10,030	9,158	21,805	40,993	14,697	26,741	41,438
2018	3,485	3,253	6,738	10,026	9,155	21,796	40,977	14,692	26,730	41,422
2019	3,585	3,263	6,848	10,059	9,184	21,866	41,109	14,739	26,817	41,556
2020	3,687	3,275	6,962	10,095	9,218	21,946	41,259	14,793	26,914	41,707
2021	3,696	3,269	6,965	10,079	9,203	21,911	41,193	14,769	26,870	41,639
2022	3,705	3,277	6,982	10,104	9,224	21,964	41,292	14,804	26,936	41,740
2023	3,715	3,288	7,003	10,132	9,252	22,027	41,411	14,847	27,014	41,861
2024	7,661	6,778	14,439	20,893	19,076	45,420	85,389	30,614	55,701	86,315
2025	0	0	0	0	0	0	0	0	0	0
2026	0	0	0	0	0	0	0	0	0	0
2027	0	0	0	0	0	0	0	0	0	0
2028	0	0	0	0	0	0	0	0	0	0
2029	0	0	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0	0	0
2035	0	0	0	0	0	0	0	0	0	0
Total	3,013,749	4,582,010	7,595,759	15,091,446	13,991,348	41,715,764	70,798,558	9,139,303	22,642,577	31,781,880

TABLE B-16B

Minimum OMP&R Component of Transportation Charge for Each Contractor for Off-Aqueduct Power Facilities

(Dollars)

Calendar Year	San Joaquin Valley Area							
			Kern County Water Agency					
	Dudley Ridge Water District	Empire West Side Irrigation District	Municipal and Industrial	Agricultural	County of Kings	Oak Flat Water District	Tulare Lake Basin Water Storage District	Total
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1971	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	159,191	0	34,366	2,964,185	13,174	9,673	3,733	3,184,322
1984	389,518	0	816,103	9,095,509	26,774	33,576	49,601	10,411,081
1985	527,952	59,324	1,053,957	11,978,046	38,810	42,297	1,253,257	14,953,643
1986	552,171	12,858	885,988	11,788,715	40,659	38,275	872,009	14,190,675
1987	450,941	24,936	1,192,388	10,448,063	39,134	37,538	911,938	13,104,938
1988	425,261	31,146	1,130,988	9,910,050	35,851	26,779	850,225	12,410,300
1989	331,852	17,226	607,908	7,400,983	22,959	24,306	754,007	9,159,241
1990	219,381	7,731	428,482	5,216,562	12,089	12,046	344,943	6,241,234
1991	13,048	3,111	570,942	146,276	0	1,354	30,685	765,416
1992	244,630	13,935	706,155	5,788,599	18,587	15,716	480,903	7,268,525
1993	471,706	25,543	1,202,455	11,405,212	37,276	36,803	1,159,908	14,338,903
1994	262,029	15,161	901,463	6,786,208	19,257	19,061	567,521	8,570,700
1995	626,214	16,830	1,486,494	12,489,555	41,276	36,378	1,051,178	15,747,925
1996	407,919	13,446	1,226,968	9,219,091	28,668	24,001	1,691,135	12,611,228
1997	505,610	0	910,831	8,342,019	0	26,986	212,508	9,997,954
1998	310,407	17,448	770,280	7,158,185	23,264	22,611	689,211	8,991,406
1999	270,273	15,192	670,685	6,232,657	20,256	19,687	600,098	7,828,848
2000	262,867	14,776	652,308	6,061,880	19,701	19,147	583,656	7,614,335
2001	271,032	15,235	672,572	6,250,184	20,314	19,743	601,786	7,850,866
2002	198,500	11,158	557,385	4,420,587	14,877	14,459	440,740	5,657,706
2003	175,142	9,845	491,793	3,900,383	13,126	12,758	388,875	4,991,922
2004	175,166	9,847	491,862	3,900,937	13,128	12,759	388,930	4,992,629
2005	191,500	10,765	537,727	4,264,686	14,352	13,949	425,196	5,458,175
2006	191,551	10,767	537,871	4,265,826	14,357	13,953	425,310	5,459,635
2007	190,799	10,725	535,759	4,249,074	14,300	13,898	423,640	5,438,195
2008	227,330	12,778	638,338	5,062,620	17,038	16,559	504,752	6,479,415
2009	227,199	12,772	637,971	5,059,715	17,028	16,550	504,462	6,475,697
2010	227,147	12,769	637,825	5,058,558	17,025	16,546	504,347	6,474,217
2011	227,101	12,766	637,696	5,057,530	17,021	16,543	504,244	6,472,901
2012	227,670	12,797	639,292	5,070,186	17,064	16,584	505,506	6,489,099
2013	103,221	5,802	289,841	2,296,716	7,736	7,518	229,186	2,942,020
2014	45,146	2,537	126,770	1,005,403	3,384	3,288	100,240	1,286,768
2015	19,187	1,079	53,878	427,307	1,438	1,398	42,603	546,890
2016	9,537	536	26,782	212,403	715	695	21,177	271,845
2017	4,335	243	12,174	96,544	325	316	9,626	123,563
2018	4,334	243	12,169	96,508	325	316	9,622	123,517
2019	4,348	244	12,208	96,819	325	317	9,653	123,914
2020	4,364	245	12,252	97,173	327	318	9,688	124,367
2021	4,356	245	12,232	97,015	327	318	9,672	124,165
2022	4,367	246	12,262	97,249	327	318	9,696	124,465
2023	4,380	246	12,297	97,531	328	319	9,724	124,825
2024	9,030	508	25,357	201,104	677	658	20,050	257,384
2025	0	0	0	0	0	0	0	0
2026	0	0	0	0	0	0	0	0
2027	0	0	0	0	0	0	0	0
2028	0	0	0	0	0	0	0	0
2029	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0
2035	0	0	0	0	0	0	0	0
Total	9,177,712	443,061	22,873,074	203,815,853	643,599	646,314	18,205,241	255,804,854

TABLE B-16B

Minimum OMP&R Component of Transportation Charge for Each Contractor for Off-Aqueduct Power Facilities

(Dollars)

Calendar Year	Southern California Area									
	Antelope Valley-East Kern Water Agency (19)	Castaic Lake Water Agency (20)	Coachella Valley Water District (21)	Crestline-Lake Arrowhead Water Agency (22)	Desert Water Agency (23)	Littlerock Creek Irrigation District (24)	Mojave Water Agency (25)	Palmdale Water District (26)	San Bernardino Valley Municipal Water District (27)	San Gabriel Valley Municipal Water District (28)
1971	0	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0
1983	1,083,881	411,247	565,798	35,432	894,572	1,250	0	0	233,134	28,548
1984	2,499,848	1,122,640	1,427,428	102,114	2,263,172	77	0	0	502,967	693,074
1985	3,775,658	1,572,025	2,032,672	170,137	3,230,452	0	0	131,200	884,188	601,582
1986	3,159,858	1,694,487	2,097,407	173,460	3,340,188	15,872	0	301,486	739,563	1,088,902
1987	3,167,759	1,694,698	1,991,841	190,149	3,230,424	95,994	1,786	258,719	1,951,799	1,091,691
1988	2,688,113	1,776,471	1,940,156	187,156	3,194,137	30,395	846	126,639	2,000,664	839,774
1989	2,357,669	1,348,806	1,326,863	132,076	2,218,516	50,948	13,206	493,424	1,257,332	792,087
1990	2,528,625	1,335,341	1,463,452	115,746	2,413,745	110,678	0	545,342	1,192,997	1,054,762
1991	1,048,414	531,160	1,022,405	125,256	1,686,304	65,111	473,291	488,207	540,119	796,531
1992	2,760,199	1,548,472	1,124,775	55,985	1,855,065	22,891	1,130,876	367,996	362,232	853,047
1993	3,559,486	1,332,392	2,256,338	29,498	3,721,492	60,615	1,101,799	640,919	425,969	1,406,255
1994	3,963,982	1,450,328	1,345,145	74,879	2,218,411	88,549	1,371,116	678,876	871,358	1,452,741
1995	4,324,008	1,901,361	2,498,461	44,237	4,120,838	43,893	881,146	636,540	75,278	1,397,624
1996	3,572,856	1,507,542	4,652,945	77,384	7,674,388	31,691	760,763	723,670	458,246	1,201,941
1997	3,859,586	1,563,315	4,227,387	141,883	3,863,585	141,488	1,045,437	1,064,230	873,126	1,322,277
1998	7,133,281	1,429,729	1,408,224	118,876	2,322,656	118,029	1,205,049	891,660	2,499,446	1,755,708
1999	3,097,140	1,356,083	1,226,146	103,506	0	103,217	1,580,093	776,371	2,653,996	849,279
2000	3,145,269	1,437,815	1,192,549	100,670	0	100,389	2,052,175	755,098	2,891,028	826,008
2001	3,399,045	1,617,565	1,229,594	103,797	0	103,508	2,382,974	778,555	3,193,751	851,668
2002	4,561,628	1,544,795	900,538	226,110	1,485,304	75,807	1,980,406	570,203	3,999,796	1,122,750
2003	4,024,827	1,363,007	794,566	199,501	1,310,518	66,886	1,747,357	503,103	3,529,110	990,628
2004	4,025,398	1,363,200	794,679	199,529	1,310,703	66,896	1,747,605	503,174	3,529,611	990,767
2005	4,400,753	1,490,314	868,780	218,135	1,432,922	73,134	1,910,562	550,094	3,858,735	1,083,153
2006	4,401,930	1,490,712	869,012	218,193	1,433,305	73,154	1,911,073	550,241	3,859,767	1,083,443
2007	4,384,642	1,484,859	865,599	217,337	1,427,676	72,866	1,903,568	548,081	3,844,609	1,079,188
2008	5,224,145	1,769,156	1,031,330	258,949	1,701,025	86,818	2,268,034	653,018	4,580,714	1,285,814
2009	5,221,149	1,768,141	1,030,738	258,800	1,700,050	86,768	2,266,732	652,644	4,578,086	1,285,077
2010	5,219,954	1,767,736	1,030,503	258,741	1,699,661	86,748	2,266,214	652,494	4,577,039	1,284,783
2011	5,218,894	1,767,378	1,030,293	258,689	1,699,315	86,730	2,265,754	652,362	4,576,109	1,284,522
2012	5,231,953	1,771,800	1,032,872	259,336	1,703,567	86,948	2,271,423	653,994	4,587,560	1,287,737
2013	2,372,057	803,297	468,282	117,578	772,361	39,420	1,029,816	296,507	2,079,903	583,832
2014	1,037,481	351,342	204,816	51,425	337,813	17,241	450,416	129,685	909,700	255,354
2015	440,941	149,324	87,049	21,856	143,574	7,328	191,431	55,118	386,632	108,528
2016	219,180	74,225	43,270	10,864	71,367	3,643	95,155	27,398	192,185	53,946
2017	99,625	33,738	19,668	4,938	32,439	1,655	43,252	12,453	87,355	24,521
2018	99,588	33,725	19,660	4,937	32,426	1,655	43,236	12,448	87,322	24,512
2019	99,908	33,833	19,724	4,952	32,531	1,660	43,375	12,488	87,603	24,590
2020	100,273	33,958	19,795	4,970	32,650	1,666	43,533	12,535	87,922	24,681
2021	100,110	33,903	19,763	4,962	32,597	1,664	43,462	12,514	87,780	24,640
2022	100,352	33,984	19,811	4,974	32,676	1,667	43,568	12,544	87,992	24,699
2023	100,643	34,083	19,868	4,989	32,770	1,672	43,694	12,580	88,247	24,771
2024	207,521	70,277	40,968	10,287	67,570	3,449	90,094	25,940	181,962	51,077
2025	0	0	0	0	0	0	0	0	0	0
2026	0	0	0	0	0	0	0	0	0	0
2027	0	0	0	0	0	0	0	0	0	0
2028	0	0	0	0	0	0	0	0	0	0
2029	0	0	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0	0	0
2035	0	0	0	0	0	0	0	0	0	0
Total	118,017,629	45,898,264	46,261,170	4,902,293	66,772,765	2,130,070	38,700,317	16,770,550	73,492,932	32,906,512

TABLE B-16B

Minimum OMP&R Component of Transportation Charge for Each Contractor for Off-Aqueduct Power Facilities

(Dollars)

Calendar Year	Southern California Area (continued)				Feather River Area				Total State Water Project (a
	San Gorgonio Pass Water Agency (29)	Metropolitan Water District of Southern California (30)	Ventura County Flood Control District (31)	Total (32)	City of Yuba City (33)	County of Butte (34)	Plumas County FC&WCD (35)	Total (36)	(37)
1971	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0
1983	0	12,791,358	0	16,045,220	0	0	0	0	20,182,468
1984	0	39,229,567	0	47,840,887	0	0	0	0	60,556,781
1985	0	77,446,522	0	89,844,436	0	0	0	0	108,590,343
1986	0	77,581,267	0	90,192,510	0	0	0	0	107,702,921
1987	0	68,939,195	0	82,614,055	0	0	0	0	99,411,597
1988	0	79,936,309	0	92,720,660	0	0	0	0	108,898,833
1989	0	68,311,546	0	78,302,473	0	0	0	0	89,857,307
1990	0	83,964,409	277,885	95,002,982	0	0	0	0	104,000,038
1991	0	54,214,229	132,209	61,123,236	0	0	0	0	64,233,890
1992	0	72,401,054	0	82,482,592	0	0	0	0	92,174,235
1993	0	55,312,617	0	69,847,380	0	0	0	0	87,174,348
1994	0	72,838,621	0	86,354,006	0	0	0	0	97,722,979
1995	0	40,862,810	0	56,786,196	0	0	0	0	74,988,898
1996	0	36,536,259	401	57,198,086	0	0	0	0	71,940,675
1997	0	55,093,403	0	73,195,717	0	0	0	0	86,718,635
1998	0	65,427,301	552,934	84,862,893	0	0	0	0	98,440,454
1999	222,935	74,896,149	481,441	87,346,356	0	0	0	0	99,711,005
2000	258,128	75,146,336	468,250	88,373,715	0	0	0	0	100,423,418
2001	266,145	74,579,526	482,795	88,988,923	0	0	0	0	101,419,219
2002	194,921	74,400,827	707,186	91,770,271	0	0	0	0	101,440,700
2003	206,380	65,645,529	623,966	81,005,378	0	0	0	0	89,543,592
2004	223,611	65,654,832	624,055	81,034,060	0	0	0	0	89,579,122
2005	263,267	71,776,927	682,246	88,609,022	0	0	0	0	97,954,402
2006	282,148	71,796,119	682,428	88,651,523	0	0	0	0	98,002,891
2007	648,262	71,514,171	679,748	88,670,606	0	0	0	0	97,988,904
2008	772,382	85,206,580	809,896	105,647,861	0	0	0	0	116,755,404
2009	771,938	85,157,700	809,431	105,587,254	0	0	0	0	116,692,774
2010	771,762	85,138,220	809,246	105,563,101	0	0	0	0	116,670,430
2011	771,605	85,120,928	809,082	105,541,661	0	0	0	0	116,651,852
2012	773,536	85,333,927	811,106	105,805,759	0	0	0	0	116,948,110
2013	350,705	38,688,601	367,738	47,970,097	0	0	0	0	53,024,130
2014	153,390	16,921,458	160,840	20,980,961	0	0	0	0	23,192,490
2015	65,193	7,191,801	68,359	8,917,134	0	0	0	0	9,857,490
2016	32,406	3,574,860	33,979	4,432,478	0	0	0	0	4,900,115
2017	14,729	1,624,901	15,445	2,014,719	0	0	0	0	2,227,365
2018	14,723	1,624,290	15,439	2,013,961	0	0	0	0	2,226,615
2019	14,772	1,629,513	15,489	2,020,438	0	0	0	0	2,233,865
2020	14,825	1,635,467	15,545	2,027,820	0	0	0	0	2,242,115
2021	14,801	1,632,812	15,520	2,024,528	0	0	0	0	2,238,490
2022	14,837	1,636,756	15,557	2,029,417	0	0	0	0	2,243,896
2023	14,880	1,641,497	15,603	2,035,297	0	0	0	0	2,250,397
2024	30,681	3,384,697	32,172	4,196,695	0	0	0	0	4,640,222
2025	0	0	0	0	0	0	0	0	0
2026	0	0	0	0	0	0	0	0	0
2027	0	0	0	0	0	0	0	0	0
2028	0	0	0	0	0	0	0	0	0
2029	0	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0	0
2035	0	0	0	0	0	0	0	0	0
Total	7,162,960	2,113,440,911	11,215,991	2,577,672,364	0	0	0	0	2,943,653,415

a) Costs allocated to contractors in 1989 through 1993 are reduced by credits for Off-Aqueduct Power Facility costs allocated to the pumping of non-SWP water.

TABLE B-17

Unit Variable OMP&R Component of Transportation Charge

(Dollars per Acre-Foot)

Calendar Year	North Bay Aqueduct						South Bay Aqueduct		California Aqueduct	
	Reach 1		Reach 3A		Reach 3B		Reach 1		Reach 1	
	Barker Slough Pumping Plant		Cordelia Pumping Plant Solano County Water Agency		Cordelia Pumping Plant Napa County FC&WCD (a		South Bay and Del Valle Pumping Plants (b		Banks Pumping Plant	
	Unit Rate	Cumulative Unit Rate	Unit Rate	Cumulative Unit Rate	Unit Rate	Cumulative Unit Rate	Unit Rate	Cumulative Unit Rate	Unit Rate	Cumulative Unit Rate
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	4.1511341	4.1511341	0	0
1963	0	0	0	0	0	0	4.5639383	4.5639383	0	0
1964	0	0	0	0	0	0	3.5452154	3.5452154	0	0
1965	0	0	0	0	0	0	4.1911773	4.1911773	0	0
1966	0	0	0	0	0	0	3.5074573	3.5074573	0	0
1967	0	0	0	0	0	0	3.9306767	4.1752198	0.2445431	0.2445431
1968	0	0	0	0	5.7570016	5.7570016	3.3315620	4.8750942	1.5435322	1.5435322
1969	0	0	0	0	3.1823595	3.1823595	3.6949019	4.8016170	1.1067151	1.1067151
1970	0	0	0	0	3.7584301	3.7584301	4.4256141	5.3721490	0.9465349	0.9465349
1971	0	0	0	0	4.2082507	4.2082507	3.8714396	4.7522833	0.8808437	0.8808437
1972	0	0	0	0	3.9577735	3.9577735	4.3250690	5.2281686	0.9030996	0.9030996
1973	0	0	0	0	3.8103903	3.8103903	5.2455409	6.1841800	0.9386391	0.9386391
1974	0	0	0	0	3.5878850	3.5878850	6.3321503	7.2293909	0.8972406	0.8972406
1975	0	0	0	0	2.1606725	2.1606725	3.7365711	4.8327731	1.0962020	1.0962020
1976	0	0	0	0	2.9283909	2.9283909	4.5191527	5.7132795	1.1941268	1.1941268
1977	0	0	0	0	2.7516411	2.7516411	4.7630172	6.5309908	1.7679736	1.7679736
1978	0	0	0	0	3.5949619	3.5949619	5.2086183	6.8200209	1.6114026	1.6114026
1979	0	0	0	0	2.4747752	2.4747752	4.9524184	7.0889234	2.1365050	2.1365050
1980	0	0	0	0	2.9737588	2.9737588	4.5186576	5.8865852	1.3679276	1.3679276
1981	0	0	0	0	2.6487057	2.6487057	4.3834851	6.4772202	2.0937351	2.0937351
1982	0	0	0	0	10.0239077	10.0239077	4.9779475	6.7284782	1.7505307	1.7505307
1983	0	0	0	0	1.0209882	1.0209882	1.3127535	2.1162150	0.8034615	0.8034615
1984	0	0	0	0	1.6647280	1.6647280	2.7931657	3.9861839	1.1930182	1.1930182
1985	0	0	0	0	2.5219114	2.5219114	3.6942124	5.3146305	1.6204181	1.6204181
1986	0	0	0	0	4.3967036	4.3967036	7.4448499	10.7240598	3.2792099	3.2792099
1987	0	0	0	0	3.5385415	3.5385415	6.5485394	9.5078150	2.9592756	2.9592756
1988	1.1849573	1.1849573	2.0602571	3.2452144	4.4701409	5.6550982	6.2049981	8.9148887	2.7098906	2.7098906
1989	1.1263059	1.1263059	2.6374232	3.7637291	1.0635997	2.1899056	7.6128953	11.0630833	3.4501880	3.4501880
1990	2.2510452	2.2510452	4.3186176	6.5696628	6.2080692	8.4591144	11.8868255	16.0951387	4.2083132	4.2083132
1991	1.3320163	1.3320163	2.6243839	3.9564002	4.2572464	5.5892627	7.5405400	11.2389233	3.6983833	3.6983833
1992	0.7148716	0.7148716	1.4281996	2.1430712	2.3686578	3.0835294	4.1030120	6.4071722	2.3041602	2.3041602
1993	-0.3401903	-0.3401903	-0.6012024	-0.9413927	-1.0145668	-1.3547571	-1.4972587	-1.2378447	0.2594140	0.2594140
1994	1.2314330	1.2314330	1.6535539	2.8849869	4.2585395	5.4899725	7.8995108	11.1996035	3.3000927	3.3000927
1995	0.7402646	0.7402646	1.2730133	2.0132779	2.2327287	2.9729933	3.2028314	5.1382002	1.9353688	1.9353688
1996	1.6279451	1.6279451	2.6371199	4.2650650	4.5546699	6.1826150	7.6111054	10.8721730	3.2610676	3.2610676
1997	2.7337779	2.7337779	4.7752971	7.5090750	7.2382734	9.9720513	10.7288490	15.1930603	4.4642113	4.4642113
1998	2.8810447	2.8810447	5.0729275	7.9539722	7.6219611	10.5030058	11.9589836	16.5901472	4.6311636	4.6311636
1999	2.4353774	2.4353774	4.5177643	6.9531417	6.8122972	9.2476746	11.3932430	15.8345174	4.4412744	4.4412744
2000	2.7371319	2.7371319	5.0539015	7.7910334	7.6245742	10.3617061	12.7609071	17.6124680	4.8515609	4.8515609
2001	2.5504552	2.5504552	4.6924360	7.2428912	7.0939513	9.6444065	11.8514381	16.4502896	4.5988515	4.5988515
2002	3.1697762	3.1697762	6.0760498	9.2458260	8.7773705	11.9471467	14.6666649	20.2175176	5.5508527	5.5508527
2003	3.1478674	3.1478674	6.0994924	9.2473598	8.6872297	11.8350971	14.5104415	20.0068533	5.4964118	5.4964118
2004	3.3024274	3.3024274	6.4494030	9.7518304	9.0824675	12.3848949	15.1583138	20.8794087	5.7210949	5.7210949
2005	2.9959842	2.9959842	5.8021824	8.7981666	8.2266875	11.2226717	13.7230745	18.9475080	5.2244335	5.2244335
2006	3.0465000	3.0465000	5.9257711	8.9722711	8.3523404	11.3988404	13.9276702	19.2224281	5.2947579	5.2947579
2007	3.0049147	3.0049147	5.8312935	8.8362082	8.2244118	11.2293265	13.7055957	18.9240824	5.2184867	5.2184867
2008	3.0701349	3.0701349	5.9394030	9.0095379	8.3917280	11.4618629	13.9597553	19.2657819	5.3060266	5.3060266
2009	3.0801836	3.0801836	5.9478109	9.0279945	8.4187363	11.4989199	13.9794202	19.2923866	5.3129664	5.3129664
2010	3.0856033	3.0856033	5.9432338	9.0288371	8.4387733	11.5243766	13.9687287	19.2780930	5.3093643	5.3093643
2011	3.0966013	3.0966013	5.9492537	9.0458550	8.4723711	11.5689724	13.9828032	19.2969489	5.3141457	5.3141457
2012	3.1117314	3.1117314	5.9659701	9.0777015	8.5230075	11.6347389	14.0222074	19.3499818	5.3277744	5.3277744
2013	3.3245120	3.3245120	6.3541294	9.6786414	9.1077670	12.4322790	14.9345160	20.5777688	5.6432528	5.6432528
2014	3.5651741	3.5651741	6.7923881	10.3575622	9.7803294	13.3455035	15.9645106	21.9020074	5.9374968	5.9374968
2015	3.6239593	3.6239593	6.8885572	10.5125165	9.9576256	13.5815849	16.1904947	22.2684391	6.0779444	6.0779444
2016	3.6192248	3.6192248	6.8807967	10.5000215	9.9648889	13.5841137	16.1341223	22.1924747	6.0583524	6.0583524
2017	3.6378187	3.6378187	6.9002675	10.5380862	10.0362338	13.6740525	16.1798511	22.2541514	6.0743003	6.0743003
2018	3.6405632	3.6405632	6.8878319	10.5283951	10.0764557	13.7170189	16.1505798	22.2147856	6.0642058	6.0642058
2019	3.6476320	3.6476320	6.8860484	10.5336804	10.1385597	13.7861917	16.1463617	22.2091275	6.0627658	6.0627658
2020	3.5765770	3.5765770	6.7352358	10.3118128	9.9828112	13.5593882	15.7928404	21.7331417	5.9403013	5.9403013
2021	3.5698060	3.5698060	6.7231470	10.2929530	9.9737200	13.5435260	15.7646223	21.6952037	5.9305814	5.9305814
2022	3.5654030	3.5654030	6.7148732	10.2802762	9.9614400	13.5268430	15.7451862	21.6694666	5.9242804	5.9242804
2023	3.5918657	3.5918657	6.7647642	10.3566299	10.0354000	13.6272657	15.8620798	21.8262528	5.9641730	5.9641730
2024	3.5635373	3.5635373	6.7114051	10.2749424	9.9562400	13.5197773	15.7370106	21.6582873	5.9212767	5.9212767
2025	3.5850000	3.5850000	6.7518331	10.3368331	10.0162400	13.6012400	15.8317819	21.7854952	5.9537133	5.9537133
2026	3.5708507	3.5708507	6.7251784	10.2960291	9.9766800	13.5475307	15.7692766	21.7013888	5.9321122	5.9321122
2027	3.5342090	3.5342090	6.6561633	10.1903723	9.8742800	13.4084890	15.6074202	21.4839982	5.8765780	5.8765780
2028	3.5318507	3.5318507	6.6517539	10.1836046	9.8677200	13.3995707	15.5970479	21.4696918	5.8726439	5.8726439
2029	3.5540149	3.5540149	6.6934701	10.2474850	9.9296000	13.4836149	15.6948989	21.6010791	5.9061802	5.9061802
2030	3.4850149	3.4850149	6.5635157	10.0485306	9.7368400	13.2218549	15.3901915	21.1915910	5.8013995	5.8013995
2031	3.5026716	3.5026716	6.5968094	10.0994810	9.7862000	13.2888716	15.4682128	21.2963829	5.8281701	5.8281701
2032	3.5196716	3.5196716	6.6288149	10.1484865	9.8337200	13.3533916	15.5432926	21.3970742	5.8537816	5.8537816
2033	3.4986418	3.4986418	6.5891795	10.0878213	9.7749200	13.2735618	15.4503670	21.2722909	5.8219239	5.8219239
2034	3.5165224	3.5165224	6.6228696	10.1393920	9.8248800	13.3414024	15.5293351	21.3784551	5.8491200	5.8491200
2035	3.5034478	3.5034478	6.5982461	10.1016939	9.7883600	13.2918078	15.4716330	21.3010547	5.8294217	5.8294217

a) For the period 1968 through 1987, rates are for an interim facility.
b) The relatively minor costs of Del Valle Pumping Plant have been combined with those of South Bay Pumping Plant to simplify the allocation procedure.

TABLE B-17

Unit Variable OMP&R Component of Transportation Charge

(Dollars per Acre-Foot)

Calendar Year	California Aqueduct (continued)									
	Reach 4		Reach 14A		Reach 15A		Reach 16A		Reach 17E	
	Dos Amigos Pumping Plant		Buena Vista Pumping Plant		Teerink Pumping Plant		Chrisman Pumping Plant		Edmonston Pumping Plant	
	Unit Rate (11)	Cumulative Unit Rate (12)	Unit Rate (13)	Cumulative Unit Rate (14)	Unit Rate (15)	Cumulative Unit Rate (16)	Unit Rate (17)	Cumulative Unit Rate (18)	Unit Rate (19)	Cumulative Unit Rate (20)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0
1968	1.0732031	2.6167353	0	0	0	0	0	0	0	0
1969	0.7028165	1.8095316	0	0	0	0	0	0	0	0
1970	0.7813430	1.7278779	0.3333333	2.0612112	0	0	0	0	0	0
1971	0.4125312	1.2933749	1.3594550	2.6528299	4.9729730	7.6258029	0	0	0	0
1972	0.5662758	1.4693754	1.0808850	2.5502604	1.1418280	3.6920884	2.2892599	5.9813483	7.3206022	13.3019505
1973	0.5996892	1.5383283	0.9844807	2.5228090	1.2143719	3.7371809	2.1051633	5.8423442	7.4512435	13.2935877
1974	0.5736884	1.4709300	0.9223291	2.3932591	1.0924098	3.4856689	1.9449022	5.4305711	6.9004732	12.3310443
1975	0.4606980	1.5569000	0.8190849	2.3759849	0.9574493	3.3334342	1.9610412	5.2944754	6.9962702	12.2907456
1976	0.5163827	1.7105095	0.9626676	2.6731771	1.0211874	3.6943645	2.2275746	5.9219391	7.9384515	13.8603906
1977	0.6138931	2.3818667	1.0969170	3.4787837	1.3715867	4.8503704	2.9301764	7.7805468	9.9990004	17.7795472
1978	0.4545898	2.0659924	0.9606230	3.0266154	1.0432294	4.0698448	1.9779157	6.0477605	7.0810192	13.1287797
1979	0.6587934	2.7952984	1.1099369	3.9052353	1.2652451	5.1704804	2.6939701	7.8644505	9.6345625	17.4990130
1980	0.8056952	2.1736228	1.3516057	3.5252285	1.5041463	5.0293748	3.1923433	8.2217181	10.9860288	19.2077469
1981	1.0909294	3.1846645	1.2388784	4.4235429	1.3195560	5.7430989	2.9541028	8.6972017	9.9484860	18.6456877
1982	0.8307526	2.5812833	1.2001820	3.7814653	1.3668611	5.1483264	2.8880977	8.0364241	10.1769284	18.2133525
1983	0.3789496	1.1824111	0.7434250	1.9258361	0.8851706	2.8110067	1.7730111	4.5840178	5.5794328	10.1634506
1984	0.6622140	1.8552322	1.0606757	2.9159079	1.2272792	4.1431871	2.5603259	6.7035130	8.3017115	15.0052245
1985	0.8734833	2.4939014	1.4204810	3.9143824	1.6516280	5.5660104	3.4695771	9.0355875	11.8181222	20.8537097
1986	1.3962501	4.6754600	2.3763988	7.0518588	2.7626510	9.8145098	5.9668234	15.7813332	20.6491088	36.4304420
1987	1.2978236	4.2570992	2.2564137	6.5135129	2.5746561	9.0881690	5.3763657	14.4645347	17.9738340	32.4383687
1988	1.2038035	3.9136941	2.1362050	6.0498991	2.4304101	8.4803092	5.0693228	13.5496320	16.8190471	30.3686791
1989	1.5234695	4.9736575	2.7054583	7.6791158	3.0205179	10.6996337	6.5778425	17.2774762	22.2785524	39.5560286
1990	1.8947494	6.1030626	3.3054275	9.4084901	3.7453477	13.1538378	8.6764188	21.8302566	31.0160447	52.8463013
1991	1.0496191	4.7480024	2.1130928	6.8610952	2.4152860	9.2763812	5.6819217	14.9583029	20.4728762	35.4311791
1992	0.8904306	3.1945908	1.4579607	4.6525515	1.6750151	6.3275666	3.4652836	9.7928502	11.7499777	21.5428279
1993	0.1749542	0.4343682	-0.0797324	0.3546358	-0.0569022	0.2977336	-0.6004609	-0.3027273	-2.9285687	-3.2312960
1994	1.4306291	4.7307218	2.4978367	7.2285585	2.7840280	10.0125865	6.0336401	16.0462266	21.3409980	37.3872246
1995	0.7635812	2.6969500	1.2022775	3.9012275	1.3164130	5.2196405	2.6999349	7.9195754	9.1804467	17.1000221
1996	1.6286176	4.8896852	2.5272004	7.4168856	2.7453014	10.1621870	6.1259328	16.2881198	22.0440076	38.3321274
1997	1.8459506	6.3101619	3.3658615	9.6760234	4.1225639	13.7986073	8.9327394	22.7313467	31.8868476	54.6181943
1998	1.9216351	6.5527987	3.3809510	9.9337497	4.1172278	14.0509775	8.9120767	22.9630542	31.7819990	54.7450532
1999	1.8053174	6.2465918	3.1903448	9.4369366	3.8869813	13.3239179	8.4193138	21.7432317	30.0564946	51.7997263
2000	1.9979328	6.8494937	3.5810190	10.4305127	4.3648857	14.7953984	9.4557239	24.2511223	33.7591584	58.0102807
2001	1.8829023	6.4817538	3.3328540	9.8146078	4.0625912	13.8771990	8.8010130	22.6782120	31.4219170	54.1001290
2002	2.3186449	7.8694976	4.1029177	11.9724153	5.0014904	16.9739057	10.8348772	27.8087829	38.6829348	66.4917177
2003	2.2940477	7.7904595	4.0595455	11.8500050	4.9486594	16.7986644	10.7204306	27.5190950	38.2744648	65.7935598
2004	2.3962438	8.1173387	4.2399742	12.3573129	5.1685147	17.5258276	11.1966573	28.7224849	39.9744532	68.6969381
2005	2.1694869	7.3939204	3.8391849	11.2331053	4.6799918	15.9130971	10.1384499	26.0515470	36.1965656	62.2481126
2006	2.2019526	7.4967105	3.8965916	11.3933021	4.7500020	16.1433041	10.2901437	26.4334478	36.7381709	63.1716187
2007	2.1665980	7.3850847	3.8337853	11.2188700	4.6733533	15.8922233	10.1240239	26.0162472	36.1449463	62.1611935
2008	2.2069493	7.5129759	3.9053080	11.4182839	4.7606118	16.1788957	10.3131140	26.4920097	36.8201229	63.3121326
2009	2.2100209	7.5229873	3.9109797	11.4339670	4.7675501	16.2015171	10.3280816	26.5295987	36.8736757	63.4032744
2010	2.2082527	7.5176170	3.9076825	11.4252995	4.7634754	16.1887749	10.3193135	26.5080884	36.8422311	63.3503195
2011	2.2105203	7.5246660	3.9118167	11.4364827	4.7685415	16.2050242	10.3302681	26.5352923	36.8813891	63.4166814
2012	2.2167430	7.5445174	3.9228543	11.4673717	4.7820049	16.2493766	10.3594322	26.6088088	36.9855758	63.5943646
2013	2.3610828	8.0043356	4.1782970	12.1826326	5.0934171	17.2760497	11.0340838	28.3101335	39.3941998	67.7043333
2014	2.4946572	8.4321540	4.3911030	12.8232570	5.3488089	18.1720659	11.5841865	29.7562524	41.3511627	71.1074151
2015	2.5596454	8.6375898	4.5297168	13.1673066	5.5218375	18.6891441	11.9621885	30.6513328	42.7077681	73.3591007
2016	2.5507070	8.6090594	4.5134788	13.1225382	5.5019537	18.6244919	11.9190717	30.5435636	42.5537780	73.0973416
2017	2.5578780	8.6321783	4.5264660	13.1586443	5.5178252	18.6764695	11.9534605	30.6299300	42.6765570	73.3064870
2018	2.5533122	8.6175180	4.5180051	13.1355231	5.5074621	18.6429852	11.9310121	30.5739973	42.5963592	73.1703565
2019	2.5525824	8.6153482	4.5172045	13.1325527	5.5065028	18.6390555	11.9290008	30.5680563	42.5892036	73.1572599
2020	2.4967717	8.4370730	4.4181640	12.8552570	5.3857992	18.2410562	11.6674817	29.9085379	41.6555493	71.5640872
2021	2.4922779	8.4228593	4.4101199	12.8329792	5.3759648	18.2089440	11.6461334	29.8550774	41.5794406	71.4345180
2022	2.4891057	8.4133861	4.4047366	12.8181227	5.3693933	18.1875160	11.6319444	29.8194604	41.5286303	71.3480907
2023	2.5077259	8.4718989	4.4376821	12.9095810	5.4095780	18.3191590	11.7190038	30.0381628	41.8395314	71.8776942
2024	2.4878870	8.4091637	4.4023985	12.8115622	5.3665343	18.1780965	11.6257001	29.8037966	41.5063964	71.3101930
2025	2.5029192	8.4566325	4.4291030	12.8857355	5.3991343	18.2848698	11.6963526	29.9812224	41.7586446	71.7398670
2026	2.4931025	8.4252147	4.4116047	12.8368194	5.3778137	18.2146331	11.6501039	29.8647370	41.5935802	71.4583172
2027	2.4673462	8.3439242	4.3661751	12.7100993	5.3224140	18.0325133	11.5301205	29.5626338	41.1651477	70.7277815
2028	2.4658112	8.3384551	4.3633765	12.7018316	5.3190275	18.0208591	11.5227765	29.5436356	41.1389550	70.6825906
2029	2.4813753	8.3875555	4.3910246	12.7785801	5.3527174	18.1312975	11.5958112	29.7271087	41.3997574	71.1268661
2030	2.4329781	8.2343776	4.3051448	12.5395224	5.2479655	17.7874879	11.3688063	29.1562942	40.5891187	69.7454129
2031	2.4454470	8.2736171	4.3274701	12.6010872	5.2752469	17.8763341	11.4279622	29.3042963	40.8004163	70.1047126
2032	2.4573735	8.3111551	4.3484794	12.6596345	5.3008699	17.9605044	11.4834887	29.4439931	40.9986918	70.4426849
2033	2.4425807	8.2645046	4.3222042	12.5867088	5.2688105	17.8555193	11.4139965	29.2695158	40.7505086	70.0200244
2034	2.4550792	8.3041992	4.3446692	12.6488684	5.2962170	17.9450854	11.4734000	29.4184854	40.9627243	70.3812097
2035	2.4458632	8.2752849	4.3281350	12.6034199	5.2760462	17.8794661	11.4296557	29.3091318	40.8064571	70.1155889

TABLE B-17

Unit Variable OMP&R Component of Transportation Charge

(Dollars per Acre-Foot)

Calendar Year	California Aqueduct (continued)									
	Reach 18A		Reach 22B		Reach 23		Reach 26A		Reach 29A	
	Alamo Powerplant		Pearblossom Pumping Plant		Mojave Siphon Powerplant		Devil Canyon Powerplant		Oso Pumping Plant	
	Unit Rate (21)	Cumulative Unit Rate (22)	Unit Rate (23)	Cumulative Unit Rate (24)	Unit Rate (25)	Cumulative Unit Rate (26)	Unit Rate (27)	Cumulative Unit Rate (28)	Unit Rate (29)	Cumulative Unit Rate (30)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	0
1972	0	13.3019505	14.2519509	27.5539014	0	27.5539014		25.1821367	1.4212193	14.7231698
1973	0	13.2935877	4.4326545	17.7262422	0	17.7262422	-8.4298618	9.2963804	1.0210537	14.3146414
1974	0	12.3310443	3.4431782	15.7742225	0	15.7742225	-5.1043660	10.6698565	0.9241725	13.2552168
1975	0	12.2907456	3.1739313	15.4646769	0	15.4646769	-5.6510611	9.8136158	0.9362286	13.2269742
1976	0	13.8603906	3.9391330	17.7995236	0	17.7995236	-6.4449941	11.3545295	0.8622774	14.7226680
1977	0	17.7795472	3.4988957	21.2784429	0	21.2784429	-11.6274558	9.6509871	0.9076172	18.6871644
1978	0	13.1287797	4.1377503	17.2665300	0	17.2665300	-8.1314274	9.1351026	0.7314697	13.8602494
1979	0	17.4990130	5.1961178	22.6951308	0	22.6951308	-9.5825772	13.1125536	0.9504526	18.4494656
1980	0	19.2077469	4.3918283	23.5995752	0	23.5995752	-8.3797007	15.2198745	1.4269064	20.6346533
1981	0	18.6456877	3.9979411	22.6436288	0	22.6436288	-6.7421980	15.9014308	1.5649076	20.2105953
1982	0	18.2133525	3.6618080	21.8751605	0	21.8751605	-6.9205064	14.9546541	1.4942612	19.7076137
1983	0	10.1634506	1.7398697	11.9033203	0	11.9033203	-23.7901875	-11.8868672	1.4582832	11.6217338
1984	0	15.0052245	2.4963740	17.5015985	0	17.5015985	-29.2940487	-11.7924502	1.7879684	16.7931929
1985	0	20.8537097	3.4967556	24.3504653	0	24.3504653	-30.7672356	-6.4167703	2.1683888	23.0220985
1986	-2.3583180	34.0721240	6.0001395	40.0722635	0	40.0722635	-29.2499580	10.8223055	3.2342581	39.6647001
1987	-2.6107019	29.8276668	5.1909608	35.0186276	0	35.0186276	-30.5133657	4.5052619	3.1272921	35.5656608
1988	-1.4076158	28.9610633	4.8456180	33.8066813	0	33.8066813	-29.5512806	4.2554007	2.9971055	33.3657846
1989	-1.1019487	38.4540799	6.4423849	44.8964648	0	44.8964648	-28.3706997	16.5257651	3.5381171	43.0941457
1990	-1.0673268	51.7789745	8.9810187	60.7599932	0	60.7599932	-28.8797266	31.8802666	3.6781647	56.5244660
1991	-1.5208846	33.9102945	6.0787491	39.9890436	0	39.9890436	-30.3294687	9.6595749	2.1849463	37.6161254
1992	-2.6366353	18.9061926	3.6820064	22.5881990	0	22.5881990	-30.0926575	-7.5044585	1.8167497	23.3595776
1993	-0.1885524	-3.4198484	-1.0123826	-4.4322310	0	-4.4322310	-30.6629489	-35.0951799	0.2762690	-2.9550270
1994	-0.1278266	37.2593980	6.4124432	43.6718412	0	43.6718412	-30.4781656	13.1936756	3.0409092	40.4281338
1995	-3.4425314	13.6574907	3.3131032	16.9705939	0	16.9705939	-30.3517624	-13.3811685	1.2709971	18.3710192
1996	-6.0056750	32.3264524	6.5515967	38.8780491	-2.3734530	36.5045961	-29.1501140	7.3544821	3.0919561	41.4240835
1997	-4.6640587	49.9541356	9.3172159	59.2713515	-5.9340098	53.3373417	-27.8436260	25.4937157	3.7532724	58.3714667
1998	-3.3483273	51.3967259	9.7925058	61.1892317	-5.2630282	55.9262035	-27.9227363	28.0034672	3.9309099	58.6759631
1999	-3.9824874	47.8172389	9.1547796	56.9720185	-4.5185377	52.4534808	-27.7331407	24.7203401	3.7315128	55.5312391
2000	-3.7038297	54.3064510	10.2889880	64.5954390	-4.5765388	60.0189002	-28.0664335	31.9524667	4.1742291	62.1845098
2001	-3.7779912	50.3221378	9.5619510	59.8840888	-4.4291744	55.4549144	-28.2800455	27.1748689	3.8805067	57.9806357
2002	-4.0063887	62.4853290	11.7943008	74.2796298	-4.8649666	69.4146632	-28.5870150	40.8276482	4.7936481	71.2853658
2003	-4.0043770	61.7891828	11.6708231	73.4600059	-4.8772863	68.5827196	-28.5772028	40.0055168	4.7426076	70.5361674
2004	-4.0424869	64.6544512	12.1834239	76.8378751	-4.6232874	72.2145877	-28.6971665	43.5174212	4.9543460	73.6512841
2005	-4.0082537	58.2398589	11.0351985	69.2750574	-4.8883794	64.3866780	-28.5677537	35.8189243	4.4852827	66.7333953
2006	-4.0125415	59.1590772	11.2030330	70.3621102	-4.6638088	65.6983014	-28.6783468	37.0199546	4.5521141	67.7237328
2007	-4.0183017	58.1428918	11.0187659	69.1616577	-4.4655537	64.6961040	-28.7425143	35.9535897	4.4795481	66.6407416
2008	-4.0227575	59.2893751	11.2237939	70.5131690	-4.7637098	65.7494592	-28.5984383	37.1510209	4.5626118	67.8747444
2009	-4.0038076	59.3994668	11.2435580	70.6430248	-4.8094018	65.8336230	-28.5801077	37.2535153	4.5690295	67.9723039
2010	-4.0278650	59.3224545	11.2319431	70.5543976	-4.8063756	65.7480220	-28.5787004	37.1693216	4.5655440	67.9158635
2011	-4.0301213	59.3865601	11.2445722	70.6311323	-4.8970733	65.7340590	-28.5350199	37.1990391	4.5701344	67.9868158
2012	-3.9965501	59.5978345	11.2771554	70.8749899	-4.9459975	65.9289924	-28.5155802	37.4134122	4.5830435	68.1774281
2013	-4.0043079	63.7000254	12.0148499	75.7148753	-4.9642670	70.7506083	-28.5073224	42.2432859	4.8812028	72.5855361
2014	-3.8721147	67.2353004	12.3391722	79.5744726	-4.3476880	75.2267846	-28.7134123	46.5133723	5.2178698	76.3252849
2015	-4.0110776	69.3480231	13.0247880	82.3728111	-4.9083613	77.4644498	-28.5237033	48.9407465	5.2917082	78.6508089
2016	-4.0212890	69.0760526	12.9722700	82.0483226	-4.6267559	77.4215667	-28.6699051	48.7516616	5.2733236	78.3706652
2017	-3.9928896	69.3135974	13.0123045	82.3259019	-4.7786966	77.5472053	-28.5915851	48.9556202	5.2882124	78.5946994
2018	-4.0208973	69.1494592	12.9856279	82.1350871	-4.8608198	77.2742673	-28.5531170	48.7211503	5.2786768	78.4490333
2019	-4.0038105	69.1534494	12.9868111	82.1402605	-4.8968033	77.2434572	-28.5362619	48.7071953	5.2772855	78.4345454
2020	-4.0608959	67.5031913	12.7013183	80.2045096	-4.8939855	75.3105241	-28.5342260	46.7762981	5.1617421	76.7258293
2021	-4.0215351	67.4129829	12.6758157	80.0887986	-4.9068076	75.1819910	-28.5350567	46.6469343	5.1525100	76.5870280
2022	-3.9908816	67.3572091	12.6610914	80.0183005	-5.0106658	75.0076347	-28.4754301	46.5322046	5.1461803	76.4942710
2023	-4.0043877	67.8733065	12.7590175	80.6323240	-4.8943599	75.7379641	-28.5402862	47.1976779	5.1843998	77.0620940
2024	-4.0003496	67.3098434	12.6533313	79.9631747	-4.7897837	75.1733910	-28.5781759	46.5952151	5.1434901	76.4536831
2025	-4.0032333	67.7366337	12.7320347	80.4686684	-4.8838257	75.5848427	-28.5464578	47.0383849	5.1744357	76.9143027
2026	-3.9997480	67.4585692	12.6820780	80.1406472	-4.9176708	75.2229764	-28.5236584	46.6993180	5.1540450	76.6123622
2027	-4.0296897	66.6980918	12.5508441	79.2489359	-4.8664647	74.3824712	-28.5470361	45.8354351	5.1010959	75.8288774
2028	-4.0325491	66.6500415	12.5435919	79.1936334	-4.7237130	74.4699204	-28.6104356	45.8594848	5.0977223	75.7803129
2029	-4.0065110	67.1203551	12.6254616	79.7458167	-4.8199044	74.9259123	-28.5774485	46.3484638	5.1297087	76.2565748
2030	-4.0213806	65.7240323	12.3748865	78.0989188	-4.5879702	73.5109486	-28.6864440	44.8245046	5.0301273	74.7755402
2031	-4.0377143	66.0669983	12.4392186	78.5062169	-4.5870763	73.9191406	-28.6747619	45.2443787	5.0556394	75.1603520
2032	-4.0036450	66.4390399	12.5008757	78.9399156	-4.6037082	74.3362074	-28.6774040	45.6588034	5.0801681	75.5228530
2033	-3.9861133	66.0339111	12.4231630	78.4570741	-4.8629410	73.5941331	-28.5493056	45.0448275	5.0498270	75.0698514
2034	-4.0040411	66.3771686	12.4919316	78.8691002	-4.8676578	74.0014424	-28.5509284	45.4505140	5.0756273	75.4568370
2035	-4.0049849	66.1106040	12.4455127	78.5561167	-4.5180887	74.0380280	-28.7199673	45.3180607	5.0567750	75.1723639

TABLE B-17

Unit Variable OMP&R Component of Transportation Charge

(Dollars per Acre-Foot)

Calendar Year	California Aqueduct (continued)							
	Reach 29G		Reach 29J		Reach 31A		Reach 33A	
	Warne Powerplant		Castaic Powerplant		Las Perillas and Badger Hill Pumping Plants		Devil's Den, Bluestone, and Polonio Pass Pumping Plants and San Luis Obispo Powerplant	
	Unit Rate (31)	Cumulative Unit Rate (32)	Unit Rate (33)	Cumulative Unit Rate (34)	Unit Rate (35)	Cumulative Unit Rate (36)	Unit Rate (37)	Cumulative Unit Rate (38)
1961	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0
1968	0	0	0	0	1.5014866	4.1182219	0	0
1969	0	0	0	0	1.2624065	3.0719381	0	0
1970	0	0	0	0	1.6309699	3.3588478	0	0
1971	0	0	0	0	1.4985537	2.7919286	0	0
1972	0	14.7231698	-2.9350830	11.7880868	1.9517720	3.4211474	0	0
1973	0	14.3146414	-6.8099448	7.5046966	1.5374531	3.0757814	0	0
1974	0	13.2552168	-7.4013274	5.8538894	1.5168982	2.9878282	0	0
1975	0	13.2269742	-6.5604921	6.6664821	1.1130304	2.6699304	0	0
1976	0	14.7226680	-6.7213324	8.0013356	1.5685447	3.2790542	0	0
1977	0	18.6871644	-30.4985994	-11.8114350	1.7573375	4.1392042	0	0
1978	0	13.8602494	-9.0130187	4.8472307	1.9429506	4.0089430	0	0
1979	0	18.4494656	-19.0478097	-0.5983441	1.5600341	4.3553325	0	0
1980	0	20.6346533	-20.5438586	0.0907947	1.5124754	3.6860982	0	0
1981	0	20.2105953	-11.3026541	8.9079412	1.5414290	4.7260935	0	0
1982	-2.1714430	17.5361707	-9.5987314	7.9374393	1.7581649	4.3394482	0	0
1983	-9.1019731	2.5197607	-36.3842929	-33.8645322	0.1779482	1.3603593	0	0
1984	-15.0246012	1.7685917	-13.5757421	-11.8071504	0.8626279	2.7178601	0	0
1985	-14.7115359	8.3105626	-40.5622865	-32.2517239	1.2075223	3.7014237	0	0
1986	-14.1893653	25.4753348	-28.1596224	-2.6842876	2.2865598	6.9420198	0	0
1987	-14.8696165	20.6960443	-27.0536484	-6.3576041	1.9135072	6.1706064	0	0
1988	-14.7032843	18.6625003	-25.6857024	-7.0232021	1.7819524	5.6956465	0	0
1989	-14.4231503	28.6709954	-25.3986130	3.2723824	2.4279758	7.4016333	0	0
1990	-14.1850383	42.3394277	-26.0776141	16.2618136	3.7932278	9.8962904	0	0
1991	-14.7118666	22.9042588	-25.0234633	-2.1192045	2.4124332	7.1604356	0	0
1992	-13.6631326	9.6964450	-24.5985962	-14.9021512	0.7449879	3.9395787	0	0
1993	-11.3163585	14.2713855	-22.2197351	-36.4911206	-0.5459487	-0.1115805	0	0
1994	-14.7696625	25.6584713	-26.7435205	-1.0850492	2.3519126	7.0826344	0	0
1995	-8.9621960	9.4088232	-22.8954000	-13.4865768	1.1890179	3.8879679	0	0
1996	-14.7927830	26.6313005	-29.4353339	-2.8040334	2.5542266	7.4439118	0	0
1997	-13.8166803	44.5547864	-26.5184682	18.0363182	3.7355526	10.0457145	27.6125337	37.6582482
1998	-13.8403110	44.8356521	-26.3362448	18.4994073	3.9291050	10.4819037	29.0757606	39.5576643
1999	-16.1501011	39.3811380	-25.8795636	13.5015744	3.6875803	9.9341721	28.1988629	38.1330350
2000	-15.9047849	46.2797249	-25.9181686	20.3615563	4.1250687	10.9745624	31.5458400	42.5204024
2001	-15.6717440	42.3088917	-26.1793954	16.1294963	3.8347468	10.3165006	29.3221370	39.6386376
2002	-15.3034996	55.9818662	-24.8967155	31.0851507	4.7373079	12.6068055	36.2281304	48.8349359
2003	-15.2669742	55.2691932	-24.8865154	30.3826778	4.6868458	12.4773053	35.8422240	48.3195293
2004	-15.2977865	58.3534976	-24.8976722	33.4558254	4.8961032	13.0134419	37.4424992	50.4559411
2005	-15.2509772	51.4824181	-24.8827745	26.5996436	4.4325272	11.8264476	33.8973555	45.7238031
2006	-15.2637333	52.4599995	-24.8855690	27.5744305	4.4986129	11.9953234	34.4027466	46.3980700
2007	-15.3008641	51.3398775	-24.8957906	26.4440869	4.4268825	11.8119672	33.8541980	45.6661652
2008	-15.2419709	52.6327735	-24.8762596	27.7565139	4.5089777	12.0219536	34.4820106	46.5039642
2009	-15.2671187	52.7051852	-24.8825323	27.8226529	4.5153315	12.0383188	34.5305593	46.5688781
2010	-15.2813055	52.6345580	-24.8870797	27.7474783	4.5118709	12.0294879	34.5041143	46.5336022
2011	-15.2560978	52.7307180	-24.8809332	27.8497848	4.5164207	12.0410867	34.5389155	46.5800022
2012	-15.2646713	52.9127568	-24.8832150	28.0295418	4.5291455	12.0736629	34.6362540	46.7099169
2013	-15.2857504	57.2997857	-24.8875735	32.4122122	4.8238224	12.8281580	36.8897086	49.7178666
2014	-15.2773684	61.0479165	-24.8872231	36.1606934	5.1565033	13.5886573	39.4339301	53.0225874
2015	-15.2651639	63.3856450	-24.8827667	38.5028783	5.2294932	13.8670830	39.9921119	53.8591949
2016	-15.2625728	63.1080924	-24.8827238	38.2253686	5.2112940	13.8203534	39.8528786	53.6732320
2017	-15.2705136	63.3241858	-24.8842018	38.4399840	5.2260610	13.8582393	39.9658372	53.8240765
2018	-15.2830918	63.1659415	-24.8873124	38.2786291	5.2165983	13.8341163	39.8935391	53.7276554
2019	-15.2703298	63.1642156	-24.8842104	38.2800052	5.2152424	13.8305906	39.8830974	53.7136880
2020	-15.2750288	61.4508005	-24.8855501	36.5652504	5.1010546	13.5381276	39.0098459	52.5479735
2021	-15.2689197	61.3181083	-24.8842387	36.4338696	5.0919437	13.5148030	38.9401725	52.4549755
2022	-15.2733860	61.2208850	-24.8850469	36.3358381	5.0856636	13.4990497	38.8921772	52.3912269
2023	-15.2775240	61.7845700	-24.8864038	36.8981662	5.1234179	13.5953168	39.1809012	52.7762180
2024	-15.2686708	61.1850123	-24.8841666	36.3008457	5.0830199	13.4921836	38.8719746	52.3641582
2025	-15.2599450	61.6543577	-24.8817327	36.7726250	5.1136375	13.5702700	39.1060494	52.6763194
2026	-15.2693592	61.3430030	-24.8839236	36.4590794	5.0934470	13.5186617	38.9516642	52.4703259
2027	-15.2842112	60.5446662	-24.8876139	35.6570523	5.0411639	13.3850881	38.5518543	51.9369424
2028	-15.2753922	60.5049207	-24.8854917	35.6194290	5.0378168	13.3762719	38.5262605	51.9025324
2029	-15.2667861	60.9897887	-24.8836367	36.1061520	5.0694158	13.4569713	38.7679255	52.2248968
2030	-15.3028788	59.4726614	-24.8956076	34.5770538	4.9709992	13.2053768	38.0152796	51.2206564
2031	-15.2450742	59.9152778	-24.8771999	35.0380779	4.9961990	13.2698161	38.2080129	51.4778290
2032	-15.2464629	60.2763901	-24.8790369	35.3973532	5.0204571	13.3316122	38.3934540	51.7250662
2033	-15.2764560	59.7933954	-24.8852934	34.9081020	4.9904409	13.2549455	38.1639191	51.4188646
2034	-15.2723086	60.1845284	-24.8844088	35.3001196	5.0159470	13.3201462	38.3589933	51.6791395
2035	-15.3406450	59.8317189	-24.9038453	34.9278736	4.9973110	13.2725959	38.2164543	51.4890502

TABLE B-18

Variable OMP&R Component of Transportation Charge for Each Contractor

(Dollars)

Calendar Year	North Bay Area			South Bay Area				Central Coastal Area		
	Napa County FC&WCD	Solano County WA	Total	Alameda County FC&WCD, Zone 7	Alameda County Water District	Santa Clara Valley Water District	Total	San Luis Obispo County FC&WCD	Santa Barbara County FC&WCD	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	2,051	34,919	0	36,970	0	0	0
1963	0	0	0	7,900	49,811	0	57,711	0	0	0
1964	0	0	0	5,931	68,203	0	74,134	0	0	0
1965	0	0	0	10,918	68,765	62,926	142,609	0	0	0
1966	0	0	0	19,330	52,135	121,140	192,605	0	0	0
1967	0	0	0	19,958	53,785	163,255	236,998	0	0	0
1968	6,989	0	6,989	29,898	120,985	341,769	492,652	0	0	0
1969	8,551	0	8,551	31,859	3,904	298,968	334,731	0	0	0
1970	13,598	0	13,598	49,688	0	431,442	481,130	0	0	0
1971	10,609	0	10,609	23,842	28,329	416,328	468,499	0	0	0
1972	14,434	0	14,434	54,839	144,669	524,207	723,715	0	0	0
1973	14,449	0	14,449	18,397	15,590	547,808	581,795	0	0	0
1974	17,473	0	17,473	9,499	29	636,187	645,715	0	0	0
1975	14,779	0	14,779	22,317	4,765	425,285	452,367	0	0	0
1976	20,856	0	20,856	97,875	121,693	502,768	722,336	0	0	0
1977	22,635	0	22,635	82,578	123,044	497,792	703,414	0	0	0
1978	21,692	0	21,692	74,911	39,986	652,861	767,758	0	0	0
1979	16,237	0	16,237	136,993	77,085	652,117	866,195	0	0	0
1980	19,945	0	19,945	98,836	64,953	518,020	681,809	0	0	0
1981	23,841	0	23,841	126,888	141,961	569,996	838,845	0	0	0
1982	12,159	0	12,159	88,298	42,497	587,133	717,928	0	0	0
1983	2,335	0	2,335	10,086	6,681	183,594	200,361	0	0	0
1984	4,866	0	4,866	27,042	13,306	353,658	394,006	0	0	0
1985	10,186	0	10,186	80,102	103,092	467,688	650,882	0	0	0
1986	15,472	0	15,472	113,771	132,753	943,717	1,190,241	0	0	0
1987	27,222	0	27,222	222,770	241,403	837,289	1,301,462	0	0	0
1988	31,383	31,659	63,042	230,933	298,889	784,163	1,313,985	0	0	0
1989	17,043	66,384	83,427	290,247	288,105	995,678	1,574,030	0	0	0
1990	58,770	111,541	170,311	532,131	510,264	1,478,376	2,520,771	0	0	0
1991	7,713	19,404	27,117	105,769	142,150	316,937	564,856	0	(2,628)	(2,628)
1992	12,437	23,729	36,166	93,987	122,717	274,477	491,181	0	0	0
1993	(7,161)	(18,627)	(25,788)	(35,895)	(12,714)	(76,827)	(125,436)	0	0	0
1994	37,288	78,729	116,017	230,457	256,594	639,665	1,126,716	0	0	0
1995	15,406	36,033	51,439	155,392	91,424	147,754	394,570	0	0	0
1996	30,259	93,706	123,965	206,278	179,170	707,653	1,093,101	489	0	489
1997	103,959	164,685	268,644	688,960	528,719	1,163,990	2,381,669	221,619	1,468,144	1,689,763
1998	116,216	199,033	315,249	514,294	552,452	1,659,015	2,725,761	229,948	1,542,196	1,772,144
1999	108,290	177,030	285,320	728,388	533,070	1,583,451	2,844,909	223,880	1,734,519	1,958,399
2000	127,760	199,769	327,529	810,174	612,914	1,761,246	3,184,334	252,231	1,934,083	2,186,314
2001	122,773	186,363	309,136	756,713	572,470	1,645,029	2,974,212	237,396	1,803,003	2,040,399
2002	169,470	245,710	415,180	930,006	849,136	2,021,751	3,800,893	1,220,873	2,221,306	3,442,179
2003	175,159	249,223	424,382	920,315	840,288	2,000,685	3,761,288	1,207,988	2,197,862	3,405,850
2004	190,727	266,519	457,246	960,452	876,935	2,087,941	3,925,328	1,261,398	2,295,040	3,556,438
2005	179,563	240,318	419,881	871,585	795,795	1,894,751	3,562,131	1,143,095	2,079,793	3,222,888
2006	187,511	245,690	433,201	884,232	807,342	1,922,243	3,613,817	1,159,952	2,110,462	3,270,414
2007	190,899	242,213	433,112	870,507	794,811	1,892,409	3,557,727	1,141,654	2,077,171	3,218,825
2008	202,302	247,253	449,555	886,226	809,163	1,926,578	3,621,967	1,162,599	2,115,279	3,277,878
2009	209,280	247,995	457,275	887,449	810,281	1,929,239	3,626,969	1,164,222	2,118,232	3,282,454
2010	216,082	248,283	464,365	886,793	809,680	1,927,808	3,624,281	1,163,340	2,116,628	3,279,968
2011	224,438	249,018	473,456	887,660	810,472	1,929,695	3,627,827	1,164,501	2,118,738	3,283,239
2012	232,113	250,142	482,255	890,100	812,700	1,934,997	3,637,797	1,167,748	2,124,648	3,292,396
2013	256,105	267,015	523,120	946,578	864,267	2,057,776	3,868,621	1,242,947	2,261,466	3,504,413
2014	283,592	286,086	569,678	1,007,492	919,884	2,190,202	4,117,578	1,325,564	2,411,786	3,737,350
2015	297,437	290,666	588,103	1,024,348	935,275	2,226,843	4,186,466	1,346,480	2,449,839	3,796,319
2016	305,643	290,889	596,532	1,020,854	932,084	2,219,247	4,172,185	1,341,831	2,441,380	3,783,211
2017	315,871	292,063	607,934	1,023,691	934,675	2,225,415	4,183,781	1,345,603	2,448,243	3,793,846
2018	325,093	291,928	617,021	1,021,880	933,021	2,221,479	4,176,380	1,343,191	2,443,856	3,787,047
2019	335,004	292,189	627,193	1,021,620	932,783	2,220,913	4,175,316	1,342,842	2,443,222	3,786,064
2020	337,629	286,160	623,789	999,725	912,792	2,173,314	4,085,831	1,313,699	2,390,198	3,703,897
2021	338,588	285,632	624,220	997,980	911,198	2,169,520	4,078,698	1,311,375	2,385,967	3,697,342
2022	338,171	285,280	623,451	996,796	910,118	2,166,946	4,073,860	1,309,781	2,383,067	3,692,848
2023	340,682	287,398	628,080	1,004,008	916,702	2,182,625	4,103,335	1,319,405	2,400,578	3,719,983
2024	337,994	285,132	623,126	996,281	909,648	2,165,830	4,071,759	1,309,103	2,381,836	3,690,939
2025	340,031	286,849	626,880	1,002,133	914,991	2,178,549	4,095,673	1,316,908	2,396,036	3,712,944
2026	338,688	285,717	624,405	998,264	911,459	2,170,138	4,079,861	1,311,759	2,386,665	3,698,424
2027	335,212	282,785	617,997	988,264	902,328	2,148,400	4,038,992	1,298,423	2,362,404	3,660,827
2028	334,989	282,597	617,586	987,606	901,727	2,146,969	4,036,302	1,297,563	2,360,838	3,658,401
2029	337,090	284,370	621,460	993,649	907,246	2,160,108	4,061,003	1,305,622	2,375,502	3,681,124
2030	330,546	278,849	609,395	974,813	890,047	2,119,159	3,984,019	1,280,516	2,329,822	3,610,338
2031	332,222	280,262	612,484	979,634	894,448	2,129,638	4,003,720	1,286,945	2,341,521	3,628,466
2032	333,835	281,622	615,457	984,265	898,677	2,139,708	4,022,650	1,293,126	2,352,767	3,645,893
2033	331,839	279,939	611,778	978,525	893,436	2,127,229	3,999,190	1,285,472	2,338,838	3,624,310
2034	333,535	281,370	614,905	983,409	897,895	2,137,846	4,019,150	1,291,979	2,350,677	3,642,656
2035	332,295	280,324	612,619	979,848	894,645	2,130,105	4,004,598	1,287,227	2,342,032	3,629,259
Total	10,750,099	10,646,924	21,397,023	39,561,393	36,366,516	95,092,611	171,020,520	44,230,294	86,833,016	131,063,310

Note: Table B-18 includes Extra Peaking Charges for additional power shown in Table 8.

TABLE B-18

Variable OMP&R Component of Transportation Charge for Each Contractor

(Dollars)

Calendar Year	San Joaquin Valley Area								
				Kern County Water Agency					
	Dudley Ridge Water District (11)	Empire West Side Irrigation District (12)	Future Contractor San Joaquin Valley (13)	Municipal and Industrial (14)	Agricultural (15)	County of Kings (16)	Oak Flat Water District (17)	Tulare Lake Basin Water Storage District (18)	Total (19)
1961	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0
1968	68,978	5,176	0	0	440,922	2,355	4,760	65,680	587,871
1969	56,774	101	0	0	321,387	181	3,338	17,956	399,737
1970	69,819	6,811	0	0	470,866	0	5,595	16,550	569,641
1971	53,097	7,747	0	0	769,055	4,785	6,353	158,419	999,456
1972	62,364	8,515	0	0	1,151,788	2,057	7,375	379,687	1,611,786
1973	33,931	4,615	0	0	770,120	2,308	3,017	77,630	891,621
1974	49,114	4,413	0	46,752	677,660	2,207	3,114	106,332	889,592
1975	63,140	4,671	0	34,580	848,249	2,491	3,920	134,295	1,091,346
1976	70,851	5,131	0	94,653	966,820	2,737	4,910	100,597	1,245,699
1977	26,565	1,758	0	84,875	498,624	3,644	2,602	43,067	661,135
1978	108,944	938	0	190,675	1,616,974	4,319	6,294	24,901	1,953,045
1979	107,742	4,861	0	193,697	2,367,376	5,591	13,137	433,610	3,126,014
1980	89,119	1,943	0	122,020	1,736,941	4,782	7,797	150,511	2,113,113
1981	130,571	18,659	0	264,677	2,411,123	7,325	9,003	265,722	3,107,080
1982	108,006	932	0	145,663	2,363,614	4,517	6,719	47,885	2,677,336
1983	60,173	0	0	13,734	910,284	5,552	3,071	1,189	994,003
1984	83,671	0	0	219,000	2,020,940	6,032	7,609	10,655	2,347,907
1985	115,345	13,024	0	244,127	2,581,254	8,479	8,902	273,808	3,244,939
1986	234,937	5,471	0	375,031	4,848,805	17,299	16,760	373,240	5,871,543
1987	197,366	10,833	0	530,370	4,425,983	17,028	16,741	396,268	5,594,589
1988	189,686	16,178	0	523,486	4,290,999	15,655	12,028	377,558	5,425,590
1989	282,839	15,324	0	676,153	6,119,803	19,895	21,254	644,203	7,779,471
1990	221,517	7,805	0	853,964	4,821,183	12,206	12,297	348,301	6,277,273
1991	4,401	1,049	0	185,311	47,950	0	521	10,350	249,582
1992	75,936	4,358	0	222,086	1,640,103	6,422	5,159	149,277	2,103,341
1993	21,987	4,812	0	78,528	400,831	5,082	1,610	120,611	633,461
1994	136,212	8,277	0	488,111	3,425,148	10,861	10,135	295,017	4,373,761
1995	175,368	4,402	0	388,932	3,136,019	13,146	10,004	274,939	4,002,810
1996	278,571	9,446	0	721,790	6,143,766	23,000	15,992	1,167,045	8,359,610
1997	336,773	18,931	0	833,000	7,534,395	25,241	25,446	747,754	9,521,540
1998	349,723	19,658	0	862,461	7,788,488	26,212	26,398	776,507	9,849,447
1999	333,381	18,740	0	821,572	7,408,981	24,986	25,315	740,221	9,373,196
2000	365,558	20,549	0	902,506	8,158,671	27,398	27,654	811,665	10,314,001
2001	345,931	19,446	0	852,966	7,696,207	25,927	26,213	768,088	9,734,778
2002	419,995	23,609	0	1,171,850	9,052,438	31,478	31,640	932,535	11,663,545
2003	415,776	23,371	0	1,160,019	8,960,673	31,162	31,330	923,170	11,545,501
2004	433,223	24,352	0	1,208,973	9,340,542	32,469	32,610	961,905	12,034,074
2005	394,614	22,181	0	1,100,597	8,499,381	29,576	29,779	876,179	10,952,307
2006	400,099	22,490	0	1,116,006	8,619,052	29,987	30,180	888,360	11,106,174
2007	394,142	22,155	0	1,099,262	8,486,963	29,540	29,745	875,133	10,938,940
2008	400,968	22,539	0	1,118,438	8,637,876	30,052	30,244	890,287	11,130,404
2009	401,502	22,569	0	1,119,939	8,649,549	30,092	30,284	891,474	11,145,409
2010	401,215	22,553	0	1,119,127	8,643,207	30,070	30,263	890,838	11,137,273
2011	401,591	22,574	0	1,120,188	8,651,473	30,099	30,291	891,673	11,147,889
2012	402,651	22,633	0	1,123,163	8,674,568	30,178	30,368	894,025	11,177,586
2013	427,191	24,013	0	1,192,065	9,209,428	32,017	32,167	948,513	11,865,394
2014	450,024	25,296	0	1,256,097	9,704,672	33,729	33,844	999,210	12,502,872
2015	460,988	25,913	0	1,286,945	9,945,910	34,551	34,644	1,023,554	12,812,505
2016	459,465	25,827	0	1,282,662	9,912,611	34,436	34,533	1,020,174	12,769,708
2017	460,699	25,897	0	1,286,130	9,939,543	34,529	34,624	1,022,914	12,804,336
2018	459,917	25,853	0	1,283,926	9,922,390	34,470	34,566	1,021,175	12,782,297
2019	459,801	25,846	0	1,283,609	9,919,987	34,461	34,558	1,020,919	12,779,181
2020	450,287	25,311	0	1,256,897	9,712,628	33,748	33,860	999,793	12,512,524
2021	449,528	25,269	0	1,254,763	9,696,047	33,691	33,804	998,109	12,491,211
2022	449,023	25,240	0	1,253,340	9,684,976	33,653	33,768	996,986	12,476,986
2023	452,145	25,416	0	1,262,118	9,753,184	33,888	33,996	1,003,921	12,564,668
2024	448,798	25,228	0	1,252,708	9,680,070	33,637	33,751	996,486	12,470,678
2025	451,331	25,370	0	1,259,829	9,735,401	33,827	33,936	1,002,111	12,541,805
2026	449,654	25,275	0	1,255,120	9,698,639	33,700	33,813	998,388	12,494,789
2027	445,315	25,032	0	1,242,932	9,604,189	33,375	33,496	988,755	12,373,094
2028	445,023	25,015	0	1,242,119	9,597,911	33,354	33,474	988,107	12,365,003
2029	447,644	25,163	0	1,249,483	9,655,138	33,551	33,665	993,925	12,438,569
2030	439,469	24,703	0	1,226,513	9,476,715	32,938	33,068	975,774	12,209,180
2031	441,563	24,821	0	1,232,405	9,522,516	33,085	33,221	980,423	12,268,044
2032	443,566	24,933	0	1,238,034	9,566,242	33,244	33,367	984,872	12,324,258
2033	441,077	24,794	0	1,231,036	9,511,865	33,058	33,185	979,344	12,254,359
2034	443,196	24,912	0	1,236,993	9,558,162	33,216	33,340	984,048	12,313,867
2035	441,652	24,826	0	1,232,649	9,524,386	33,101	33,228	980,621	12,270,463
Total	19,691,522	1,105,553	0	52,226,655	419,561,861	1,447,692	1,473,685	43,133,239	538,640,207

TABLE B-18

Variable OMP&R Component of Transportation Charge for Each Contractor

(Dollars)

Calendar Year	Southern California Area									
	Antelope Valley-East Kern Water Agency (20)	Castaic Lake Water Agency (21)	Coachella Valley Water District (22)	Crestline-Lake Arrowhead Water Agency (23)	Desert Water Agency (24)	Littlerock Creek Irrigation District (25)	Mojave Water Agency (26)	Palmdale Water District (27)	San Bernardino Valley Municipal Water District (28)	San Gabriel Valley Municipal Water District (29)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0
1968	0	30,401	0	0	0	0	0	0	0	0
1969	0	30,627	0	0	0	0	0	0	0	0
1970	0	39,429	0	0	0	0	0	0	0	0
1971	0	34,871	0	0	0	0	0	0	0	0
1972	780	47,571	0	12,786	0	4,495	1,516	0	32,107	0
1973	286	28,968	102,811	6,895	159,535	3,854	0	0	301,444	0
1974	15,558	28,982	100,954	9,891	157,742	4,932	221	0	177,172	6,529
1975	99,186	28,567	108,253	12,758	170,111	6,392	0	0	136,067	53,485
1976	385,090	38,365	135,276	17,835	213,595	8,163	0	0	139,356	68,933
1977	199,168	21,006	0	23,598	0	1,973	1,702	0	239,663	86,821
1978	581,728	45,550	174,115	20,875	264,178	2,731	0	0	37,042	70,989
1979	1,058,567	83,834	228,381	28,596	340,428	2,327	90,780	0	236	3,803
1980	1,390,776	51,281	256,858	29,240	401,192	3,668	94,398	0	0	16,513
1981	1,480,002	111,339	274,101	33,627	430,230	23,855	90,575	0	254,758	57,548
1982	920,638	131,772	291,510	27,080	459,378	0	229,690	0	125,753	188,836
1983	334,998	(303,309)	173,159	10,843	273,777	386	0	0	(71,250)	(8,725)
1984	490,100	(97,976)	275,966	19,741	437,539	15	0	0	(65,520)	(90,282)
1985	821,689	(354,915)	413,691	34,626	657,462	0	0	32,491	(47,420)	(32,264)
1986	1,110,219	54,950	729,716	60,349	1,162,096	5,555	0	105,487	69,490	102,313
1987	1,036,262	(28,458)	680,447	64,751	1,103,087	33,027	595	160,442	39,427	47,892
1988	1,031,486	(66,449)	698,177	67,815	1,149,427	12,133	304	51,263	53,774	38,078
1989	1,741,775	180,514	982,020	97,426	1,638,721	38,373	8,980	351,923	343,439	212,174
1990	2,444,369	423,751	1,403,557	111,009	2,314,957	90,535	0	446,685	600,339	530,774
1991	286,550	(3,024)	277,125	33,951	457,075	17,702	128,428	132,724	35,364	52,153
1992	572,195	(196,468)	235,527	11,723	388,449	4,744	236,553	76,286	(25,201)	(59,346)
1993	(147,400)	(498,863)	(787,025)	(1,946)	(1,298,123)	(2,512)	(49,501)	(22,157)	(153,050)	(505,265)
1994	1,831,411	68,455	187,723	34,283	309,577	40,993	726,986	313,650	120,524	200,939
1995	645,808	(200,287)	(309,105)	6,941	(419,679)	9,251	143,952	95,069	(9,313)	(172,909)
1996	1,819,205	49,578	470,206	17,705	775,350	15,969	280,126	371,977	44,599	120,401
1997	3,045,055	785,420	588,903	104,008	971,309	114,895	851,387	864,206	637,343	734,219
1998	7,113,307	595,047	646,881	109,057	1,066,931	117,698	1,209,036	889,163	1,148,143	806,500
1999	6,617,906	502,022	571,039	102,284	941,845	109,979	1,695,427	827,238	1,236,018	711,946
2000	7,516,013	744,678	738,103	117,039	1,217,388	124,904	4,182,171	939,502	1,789,339	920,232
2001	6,964,584	660,999	627,738	108,138	1,035,363	115,741	4,177,544	870,573	1,630,492	782,637
2002	8,647,969	1,450,140	943,118	402,605	1,555,534	143,716	5,383,256	1,080,996	4,188,915	1,175,837
2003	8,551,622	1,419,341	924,129	397,779	1,524,209	142,115	5,320,502	1,068,952	4,104,564	1,152,160
2004	8,948,175	1,553,685	1,005,252	418,845	1,658,014	148,705	5,589,448	1,118,522	4,464,888	1,253,302
2005	8,060,397	1,254,079	827,416	373,442	1,364,702	133,951	5,002,719	1,007,550	3,675,020	1,031,586
2006	8,187,615	1,296,680	855,160	381,050	1,410,459	136,065	5,096,527	1,023,451	3,798,246	1,066,174
2007	8,046,977	1,247,441	830,526	375,237	1,369,830	133,729	5,015,603	1,005,872	3,688,837	1,035,463
2008	8,205,650	1,304,573	858,189	381,347	1,415,456	136,365	5,102,902	1,025,706	3,811,694	1,069,951
2009	8,220,887	1,307,528	860,557	381,835	1,419,360	136,618	5,110,424	1,027,611	3,822,210	1,072,900
2010	8,210,227	1,304,295	858,611	381,338	1,416,151	136,442	5,103,859	1,026,279	3,813,573	1,070,475
2011	8,219,099	1,308,687	859,298	381,259	1,417,283	136,590	5,105,068	1,027,388	3,816,621	1,071,332
2012	8,248,339	1,316,557	864,250	382,389	1,425,449	137,077	5,121,067	1,031,042	3,838,617	1,077,506
2013	8,816,083	1,508,022	975,819	410,353	1,609,469	146,509	5,487,003	1,102,011	4,334,162	1,216,607
2014	9,305,366	1,673,244	1,074,458	436,314	1,772,159	154,642	5,810,882	1,163,170	4,772,272	1,339,586
2015	9,597,767	1,773,982	1,130,531	449,295	1,864,641	159,500	5,994,514	1,199,720	5,021,321	1,409,494
2016	9,560,126	1,761,871	1,126,162	449,045	1,857,439	158,875	5,984,224	1,195,015	5,001,922	1,404,047
2017	9,593,001	1,771,258	1,130,873	449,774	1,865,210	159,421	5,997,545	1,199,124	5,022,846	1,409,922
2018	9,570,285	1,764,257	1,125,458	448,190	1,856,275	159,044	5,978,911	1,196,285	4,998,790	1,403,168
2019	9,570,838	1,764,269	1,125,136	448,013	1,855,744	159,053	5,977,474	1,196,355	4,997,358	1,402,766
2020	9,342,442	1,689,390	1,080,531	436,801	1,782,176	155,258	5,830,888	1,167,805	4,799,248	1,347,157
2021	9,329,958	1,683,645	1,077,545	436,057	1,777,250	155,049	5,821,466	1,166,243	4,785,976	1,343,432
2022	9,322,237	1,679,375	1,074,894	435,043	1,772,877	154,922	5,810,844	1,165,281	4,774,204	1,340,128
2023	9,393,666	1,703,936	1,090,264	439,281	1,798,232	156,110	5,863,296	1,174,209	4,842,483	1,359,294
2024	9,315,683	1,677,836	1,076,349	436,005	1,775,277	154,813	5,817,889	1,164,460	4,780,668	1,341,942
2025	9,374,750	1,698,406	1,086,587	438,393	1,792,162	155,796	5,851,426	1,171,844	4,826,138	1,354,706
2026	9,336,264	1,684,738	1,078,754	436,293	1,779,244	155,155	5,824,843	1,167,034	4,791,351	1,344,940
2027	9,231,016	1,649,759	1,058,799	431,420	1,746,331	153,406	5,759,854	1,153,877	4,702,717	1,320,060
2028	9,224,364	1,648,085	1,059,354	431,925	1,747,247	153,295	5,762,911	1,153,046	4,705,182	1,320,752
2029	9,289,456	1,669,311	1,070,650	434,572	1,765,876	154,375	5,799,881	1,161,183	4,755,352	1,334,835
2030	9,096,206	1,602,656	1,035,446	426,363	1,707,811	151,165	5,686,829	1,137,026	4,598,995	1,290,945
2031	9,143,673	1,622,606	1,045,147	428,729	1,723,811	151,954	5,717,749	1,142,959	4,642,073	1,303,037
2032	9,195,163	1,638,303	1,054,718	431,149	1,739,600	152,811	5,749,778	1,149,395	4,684,594	1,314,972
2033	9,139,092	1,617,024	1,040,536	426,846	1,716,207	151,877	5,700,011	1,142,386	4,621,599	1,297,290
2034	9,186,600	1,634,120	1,049,909	429,209	1,731,666	152,668	5,731,001	1,148,326	4,663,223	1,308,974
2035	9,149,708	1,618,069	1,046,847	429,420	1,726,617	152,055	5,725,034	1,143,714	4,649,634	1,305,159
Total	357,038,012	56,365,396	44,677,380	15,608,540	73,518,708	5,990,904	204,736,498	44,710,359	161,615,428	47,834,823

TABLE B-18

Variable OMP&R Component of Transportation Charge for Each Contractor

(Dollars)

	Southern California Area (continued)				Feather River Area					
	San Gorgonio Pass Water Agency (30)	Metropolitan Water District of Southern California (31)	Ventura County Flood Control District (32)	Total (33)	City of Yuba City (34)	County of Butte (35)	Plumas County FC&WCD (36)	Total (37)	South Bay Area Future Contractor (38)	Grand Total (39)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	36,970
1963	0	0	0	0	0	0	0	0	0	57,711
1964	0	0	0	0	0	0	0	0	0	74,134
1965	0	0	0	0	0	0	0	0	0	142,609
1966	0	0	0	0	0	0	0	0	0	192,605
1967	0	0	0	0	0	0	0	0	0	236,998
1968	0	0	0	30,401	0	0	0	0	0	1,117,913
1969	0	0	0	30,627	0	0	0	0	0	773,646
1970	0	0	0	39,429	0	0	0	0	0	1,103,798
1971	0	0	0	34,871	0	0	0	0	0	1,513,435
1972	0	848,011	0	947,266	0	0	0	0	0	3,297,201
1973	0	1,083,333	0	1,687,126	0	0	0	0	0	3,174,991
1974	0	1,872,299	0	2,374,280	0	0	0	0	0	3,927,060
1975	0	3,887,151	0	4,501,970	0	0	0	0	0	6,060,462
1976	0	5,485,263	0	6,491,876	0	0	0	0	0	8,480,767
1977	0	(796,688)	0	(222,757)	0	0	0	0	0	1,164,427
1978	0	3,696,430	0	4,893,638	0	0	0	0	0	7,636,133
1979	0	4,019,308	0	5,856,260	0	0	0	0	0	9,864,706
1980	0	5,367,081	0	7,611,007	0	0	0	0	0	10,425,874
1981	0	10,504,656	0	13,260,691	0	0	0	0	0	17,230,457
1982	0	7,633,402	0	10,008,059	0	0	0	0	0	13,415,482
1983	0	(8,438,539)	0	(8,028,660)	0	0	0	0	0	(6,831,961)
1984	0	(6,594,102)	0	(5,624,519)	0	0	0	0	0	(2,877,740)
1985	0	(15,833,695)	0	(14,308,335)	0	0	0	0	0	(10,402,328)
1986	0	1,167,681	0	4,567,856	0	0	0	0	0	11,645,112
1987	0	(2,877,334)	0	260,138	0	0	0	0	0	7,183,411
1988	0	(3,281,208)	0	(245,200)	0	0	0	0	0	6,557,417
1989	0	9,640,239	0	15,235,584	0	0	0	0	0	24,672,512
1990	0	30,812,463	204,754	39,383,193	0	0	0	0	0	48,351,548
1991	0	187,379	22,630	1,628,057	0	0	0	0	0	2,466,984
1992	0	(9,228,604)	0	(7,984,142)	0	0	0	0	0	(5,353,454)
1993	0	(21,722,926)	0	(25,188,768)	0	0	0	0	0	(24,706,531)
1994	0	3,863,480	0	7,698,021	0	0	0	0	0	13,314,515
1995	0	(5,045,492)	0	(5,255,764)	0	0	0	0	0	(806,945)
1996	0	1,411,243	0	5,376,359	0	0	0	0	0	14,953,524
1997	0	23,155,182	312,956	32,164,883	0	0	0	0	0	46,026,499
1998	0	28,200,440	316,676	42,218,879	0	0	0	0	0	56,881,480
1999	103,824	30,257,573	264,413	43,941,514	0	0	0	0	0	58,403,338
2000	159,763	42,981,957	333,206	61,764,295	0	0	0	0	0	77,776,473
2001	135,875	35,051,861	292,193	52,453,738	0	0	0	0	0	67,512,263
2002	204,138	71,331,055	746,187	97,253,466	0	0	0	0	0	116,575,263
2003	240,033	69,809,910	732,086	95,387,402	0	0	0	0	0	114,524,423
2004	282,863	76,388,005	793,604	103,623,308	0	0	0	0	0	123,596,394
2005	250,731	61,835,685	656,407	85,473,685	0	0	0	0	0	103,630,892
2006	277,649	64,000,904	675,916	88,205,896	0	0	0	0	0	106,629,502
2007	621,998	61,785,024	653,361	85,809,898	0	0	0	0	0	103,958,502
2008	642,713	64,321,054	679,511	88,955,111	0	0	0	0	0	107,434,915
2009	644,486	64,486,940	680,867	89,172,223	0	0	0	0	0	107,684,330
2010	643,030	64,327,584	679,386	88,971,250	0	0	0	0	0	107,477,137
2011	643,544	64,467,779	681,400	89,135,348	0	0	0	0	0	107,667,759
2012	647,251	64,860,645	685,008	89,635,197	0	0	0	0	0	108,225,231
2013	730,809	74,080,476	772,682	101,190,005	0	0	0	0	0	120,951,553
2014	804,681	82,091,865	847,649	111,246,288	0	0	0	0	0	132,173,766
2015	846,674	86,880,146	894,471	117,222,056	0	0	0	0	0	138,605,449
2016	843,403	86,401,837	888,921	116,632,887	0	0	0	0	0	137,954,523
2017	846,932	86,823,904	893,221	117,163,031	0	0	0	0	0	138,552,928
2018	842,875	86,433,278	890,008	116,666,824	0	0	0	0	0	138,029,569
2019	842,635	86,422,185	890,021	116,651,847	0	0	0	0	0	138,019,601
2020	809,230	82,777,654	855,733	112,074,313	0	0	0	0	0	133,000,354
2021	806,991	82,515,197	853,099	111,751,908	0	0	0	0	0	132,643,379
2022	805,008	82,302,923	851,143	111,488,879	0	0	0	0	0	132,356,024
2023	816,521	83,527,242	862,397	113,026,931	0	0	0	0	0	134,042,997
2024	806,098	82,321,088	850,439	111,518,547	0	0	0	0	0	132,375,049
2025	813,764	83,244,220	859,861	112,668,053	0	0	0	0	0	133,645,355
2026	807,899	82,590,467	853,601	111,850,583	0	0	0	0	0	132,748,062
2027	792,953	80,921,290	837,580	109,759,062	0	0	0	0	0	130,449,972
2028	793,369	80,901,350	836,816	109,737,696	0	0	0	0	0	130,414,988
2029	801,829	81,882,427	846,540	110,966,287	0	0	0	0	0	131,768,443
2030	775,465	78,811,291	816,019	107,136,217	0	0	0	0	0	127,549,149
2031	782,728	79,701,456	825,147	108,231,069	0	0	0	0	0	128,743,783
2032	789,897	80,473,972	832,342	109,206,694	0	0	0	0	0	129,814,952
2033	779,275	79,377,144	822,588	107,831,875	0	0	0	0	0	128,321,512
2034	786,295	80,178,029	830,424	108,830,444	0	0	0	0	0	129,421,022
2035	784,003	79,645,938	823,076	108,199,274	0	0	0	0	0	128,716,213
Total	24,007,232	2,795,227,808	28,944,339	3,860,275,427	0	0	0	0	0	4,722,396,487

TABLE B-19

Total Transportation Charge for Each Contractor

(Dollars)

	North Bay Area			South Bay Area				Central Coastal Area		
Calendar Year	Napa County FC&WCD (1)	Solano County WA (2)	Total (3)	Alameda County FC&WCD, Zone 7 (4)	Alameda County Water District (5)	Santa Clara Valley Water District (6)	Total (7)	San Luis Obispo County FC&WCD (8)	Santa Barbara County FC&WCD (9)	Total (10)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	11,750	43,787	0	55,537	0	0	0
1963	0	0	0	151,140	190,453	449,448	791,041	0	0	0
1964	0	0	0	170,797	277,738	623,343	1,071,878	6,064	20,521	26,585
1965	0	0	0	245,718	404,749	1,160,661	1,811,128	11,435	31,771	43,206
1966	18,096	0	18,096	271,833	422,196	1,415,802	2,109,831	20,198	49,707	69,905
1967	41,644	0	41,644	347,679	498,961	1,689,128	2,535,768	38,006	84,262	122,268
1968	128,824	0	128,824	392,186	604,069	1,988,445	2,984,700	63,565	133,233	196,798
1969	254,981	0	254,981	447,140	539,984	2,086,638	3,073,762	118,200	235,433	353,633
1970	277,819	0	277,819	460,871	533,235	2,206,212	3,200,318	130,918	260,050	390,968
1971	227,749	0	227,749	421,784	552,786	2,173,354	3,147,924	131,734	262,620	394,354
1972	225,255	0	225,255	509,334	679,193	2,323,885	3,512,412	137,493	274,669	412,162
1973	221,370	31,433	252,803	473,850	550,067	2,342,092	3,366,009	134,288	269,504	403,792
1974	240,782	33,008	273,790	497,184	565,269	2,509,833	3,572,286	135,296	272,061	407,357
1975	237,756	36,366	274,122	545,546	606,408	2,413,403	3,565,357	151,619	302,951	454,570
1976	271,596	40,918	312,514	635,844	735,491	2,503,989	3,875,324	260,819	506,160	766,979
1977	293,936	45,185	339,121	599,089	714,239	2,479,892	3,793,220	270,548	527,595	798,143
1978	274,184	49,273	323,457	653,211	693,271	2,789,492	4,135,974	277,188	543,157	820,345
1979	289,798	53,442	343,240	716,605	736,981	2,816,570	4,270,156	274,962	542,333	817,295
1980	311,160	67,873	379,033	833,232	867,008	3,031,929	4,732,169	300,418	593,544	893,962
1981	347,577	87,563	435,140	795,682	880,173	2,922,225	4,598,080	319,273	642,221	961,494
1982	438,706	107,105	545,811	828,061	849,568	3,208,380	4,886,009	320,697	639,405	960,102
1983	355,214	151,516	506,730	846,627	902,369	3,833,920	5,582,916	349,921	689,931	1,039,852
1984	467,879	224,617	692,496	1,133,030	1,098,276	5,745,526	7,976,832	382,249	752,167	1,134,416
1985	736,900	364,899	1,101,799	1,583,227	1,794,383	6,566,053	9,943,663	429,883	842,204	1,272,087
1986	1,086,018	693,593	1,779,611	1,407,856	1,532,471	6,881,755	9,822,082	417,908	822,495	1,240,403
1987	1,774,629	1,561,716	3,336,345	1,896,553	2,016,165	6,695,169	10,607,887	416,646	870,294	1,286,940
1988	2,235,599	2,357,452	4,593,051	1,897,560	2,215,136	6,382,245	10,494,941	451,896	1,037,403	1,489,299
1989	2,378,388	3,325,616	5,704,004	1,792,674	1,858,093	5,868,076	9,518,843	446,150	1,221,925	1,668,075
1990	2,749,126	3,439,768	6,188,894	2,228,983	2,267,360	6,687,184	11,183,527	518,661	1,292,095	1,810,756
1991	2,748,292	3,689,294	6,437,586	1,394,513	1,618,224	4,522,517	7,535,254	520,675	1,516,651	2,037,326
1992	2,555,976	3,535,666	6,091,642	1,710,706	2,003,919	5,388,996	9,103,621	578,658	1,510,645	2,089,303
1993	2,599,484	3,522,123	6,121,607	2,512,884	2,013,115	6,518,926	11,044,925	639,558	1,668,838	2,308,396
1994	2,716,240	3,547,521	6,263,761	2,524,644	2,634,216	7,296,636	12,455,496	793,231	2,411,629	3,204,860
1995	2,651,444	3,525,807	6,177,251	2,649,545	2,281,633	5,878,181	10,809,359	1,033,407	4,840,852	5,874,259
1996	2,726,212	3,821,107	6,547,319	2,166,688	2,120,309	6,631,029	10,918,026	1,923,721	13,405,770	15,329,491
1997	3,061,549	4,157,225	7,218,774	2,941,618	3,085,734	7,380,490	13,407,842	3,467,280	26,114,304	29,581,584
1998	2,951,344	4,241,501	7,192,845	2,699,726	2,820,482	8,391,092	13,911,300	3,684,969	29,439,392	33,124,361
1999	2,962,050	4,230,647	7,192,697	3,101,594	2,783,882	8,239,117	14,124,593	3,595,354	29,844,916	33,440,270
2000	2,986,108	4,264,860	7,250,968	3,137,797	2,838,206	8,245,396	14,221,399	3,604,143	29,969,501	33,573,644
2001	2,987,834	4,256,715	7,244,549	3,102,966	2,811,809	8,169,651	14,084,426	3,595,903	29,889,318	33,485,221
2002	3,014,195	4,274,650	7,288,845	3,109,437	3,034,324	8,183,812	14,327,573	5,116,042	29,865,657	34,981,699
2003	3,012,229	4,263,325	7,275,554	3,045,678	2,976,109	8,045,203	14,066,990	5,024,810	29,699,655	34,724,465
2004	3,031,653	4,283,336	7,314,989	3,086,112	3,013,032	8,133,130	14,232,274	5,078,702	29,797,849	34,876,551
2005	3,032,312	4,267,518	7,299,830	3,034,506	2,965,904	8,020,884	14,021,294	5,014,889	29,681,438	34,696,327
2006	3,043,301	4,273,690	7,316,991	3,047,347	2,977,630	8,048,804	14,073,781	5,032,046	29,712,695	34,744,741
2007	3,049,735	4,269,531	7,319,266	3,031,800	2,963,432	8,015,001	14,010,233	5,011,060	29,674,468	34,685,528
2008	3,087,335	4,302,145	7,389,480	3,132,132	3,055,041	8,233,124	14,420,297	5,156,009	29,938,247	35,094,256
2009	3,098,484	4,302,917	7,401,401	3,133,062	3,055,892	8,235,145	14,424,099	5,157,202	29,940,419	35,097,621
2010	3,109,489	4,303,266	7,412,755	3,132,280	3,055,178	8,233,444	14,420,902	5,156,138	29,938,484	35,094,622
2011	3,122,832	4,304,089	7,426,921	3,133,046	3,055,876	8,235,112	14,424,034	5,157,150	29,940,325	35,097,475
2012	3,135,138	4,305,770	7,440,908	3,136,798	3,059,301	8,243,259	14,439,358	5,162,341	29,949,779	35,112,120
2013	3,077,547	4,230,550	7,308,097	2,794,551	2,742,433	7,374,319	12,911,303	4,816,196	29,320,187	34,136,383
2014	3,065,872	4,207,199	7,273,071	2,686,141	2,610,356	7,050,026	12,346,523	4,696,483	29,093,105	33,789,588
2015	3,061,517	4,192,580	7,254,097	2,605,030	2,481,841	6,586,394	11,673,265	4,624,180	28,960,133	33,584,313
2016	3,044,626	4,185,536	7,230,162	2,560,089	2,427,332	6,356,040	11,343,461	4,578,019	28,874,138	33,452,157
2017	3,027,443	4,182,850	7,210,293	2,519,751	2,388,720	6,221,549	11,130,020	4,546,374	28,814,416	33,360,790
2018	2,956,678	4,182,686	7,139,364	2,476,307	2,346,043	6,095,059	10,917,409	4,530,181	28,782,777	33,312,958
2019	2,922,838	4,182,954	7,105,792	2,437,863	2,310,326	5,992,642	10,740,831	4,526,553	28,774,688	33,301,241
2020	2,921,621	4,176,594	7,098,215	2,401,963	2,275,286	5,905,806	10,583,055	4,495,604	28,717,110	33,212,714
2021	2,920,365	4,176,035	7,096,400	2,397,182	2,270,545	5,895,037	10,562,764	4,492,246	28,709,896	33,202,142
2022	2,918,584	4,175,672	7,094,256	2,395,400	2,268,549	5,888,210	10,552,159	4,490,102	28,704,553	33,194,655
2023	2,920,152	4,146,479	7,066,631	2,402,055	2,274,551	5,900,806	10,577,412	4,499,562	28,721,043	33,220,605
2024	2,918,475	4,146,008	7,064,483	2,404,508	2,276,659	5,905,290	10,586,457	4,504,760	28,729,771	33,234,531
2025	2,904,432	4,137,680	7,042,112	2,388,700	2,261,714	5,868,939	10,519,353	4,481,759	28,687,161	33,168,920
2026	2,898,379	4,131,936	7,030,315	2,383,954	2,257,353	5,858,363	10,499,670	4,369,700	28,478,794	32,848,494
2027	2,891,885	4,124,581	7,016,466	2,372,160	2,246,400	5,830,898	10,449,458	4,354,550	28,447,664	32,802,214
2028	2,888,385	4,120,295	7,008,680	2,369,140	2,243,493	5,822,655	10,435,288	4,348,159	28,432,582	32,780,741
2029	2,886,993	4,117,994	7,004,987	2,371,585	2,245,677	5,826,954	10,444,216	4,355,187	28,442,080	32,797,267
2030	2,870,561	4,097,748	6,968,309	2,350,317	2,226,184	5,780,105	10,356,606	4,328,721	28,389,582	32,718,303
2031	2,858,782	4,079,546	6,938,328	2,348,305	2,224,270	5,775,109	10,347,684	4,329,933	28,377,773	32,707,706
2032	2,848,817	4,061,436	6,910,253	2,354,685	2,230,046	5,788,591	10,373,322	4,336,944	28,396,014	32,732,958
2033	2,818,767	4,015,253	6,834,020	2,348,508	2,224,350	5,774,654	10,347,512	4,329,025	28,384,968	32,713,993
2034	2,756,483	3,943,658	6,700,141	2,346,362	2,222,126	5,768,031	10,336,519	4,333,939	28,391,286	32,725,225
2035	2,625,250	3,802,274	6,427,524	2,334,975	2,211,666	5,742,290	10,288,931	4,327,342	28,377,069	32,704,411
Total	147,572,674	197,431,590	345,004,264	140,809,456	139,119,047	397,091,365	677,019,868	188,714,842	1,171,477,333	1,360,192,175

TABLE B-19

Total Transportation Charge for Each Contractor

(Dollars)

Calendar Year	San Joaquin Valley Area								
				Kern County Water Agency					
	Dudley Ridge Water District	Empire West Side Irrigation District	Future Contractor San Joaquin Valley	Municipal and Industrial	Agricultural	County of Kings	Oak Flat Water District	Tulare Lake Basin Water Storage District	Total
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1961	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0
1964	0	0	2,729	0	0	0	0	0	2,729
1965	0	0	6,039	73,621	0	0	0	0	79,660
1966	0	0	12,059	137,403	0	0	0	0	149,462
1967	0	0	26,300	267,762	0	0	0	0	294,062
1968	184,156	9,570	54,667	445,582	1,534,495	12,881	11,544	207,642	2,460,537
1969	179,761	9,630	87,669	525,042	2,371,780	11,494	10,545	352,282	3,548,203
1970	201,735	16,395	94,769	573,806	2,890,188	11,622	13,079	290,192	4,091,786
1971	197,945	17,354	95,791	605,592	3,790,639	16,570	14,377	445,088	5,183,356
1972	220,444	18,221	98,888	631,268	4,945,026	14,013	20,621	1,070,139	7,018,620
1973	202,971	14,293	97,649	638,883	4,870,579	14,264	11,677	404,810	6,255,126
1974	282,592	14,262	98,560	687,871	5,166,625	14,356	12,753	590,797	6,877,816
1975	349,531	15,205	106,802	715,222	6,276,510	15,367	14,436	720,215	8,213,288
1976	304,658	15,750	108,185	773,903	6,624,861	15,735	16,103	558,787	8,417,982
1977	266,645	12,860	112,656	797,468	6,792,405	17,182	13,889	505,929	8,519,034
1978	355,479	11,734	115,626	890,550	8,236,465	17,562	17,927	499,195	10,144,538
1979	385,164	15,590	114,357	895,437	9,348,912	18,827	24,823	946,442	11,749,552
1980	406,767	13,954	126,250	888,737	9,907,266	19,396	24,247	718,676	12,105,293
1981	470,934	31,919	134,332	1,080,431	11,348,309	23,609	23,002	904,557	14,017,093
1982	463,900	14,932	135,399	1,004,649	12,150,125	21,544	22,317	739,317	14,552,183
1983	636,442	16,537	149,600	1,026,766	15,342,707	38,481	30,664	427,399	17,668,596
1984	911,425	16,947	164,882	2,065,428	23,638,465	53,121	59,741	779,106	27,689,115
1985	1,112,605	90,234	187,509	2,381,664	28,228,594	68,798	71,240	2,195,006	34,335,650
1986	1,266,406	36,188	181,650	2,373,798	30,887,799	79,507	76,203	2,182,666	37,084,217
1987	1,131,311	53,311	180,471	2,828,585	29,445,407	77,491	75,467	2,253,599	36,045,642
1988	1,108,918	64,880	194,544	2,750,895	29,226,921	72,926	60,246	2,195,159	35,674,489
1989	1,140,088	51,138	188,809	2,433,200	29,192,434	65,524	68,156	2,429,169	35,568,518
1990	1,022,515	36,408	221,100	2,547,381	27,324,223	49,737	49,145	1,860,514	33,111,023
1991	602,552	25,159	219,805	2,052,140	17,464,380	26,383	26,613	1,214,359	21,631,391
1992	949,320	41,547	241,040	2,363,413	25,724,327	54,680	50,727	1,892,880	31,317,934
1993	1,166,856	55,693	266,446	2,803,420	31,427,233	74,509	69,699	2,629,826	38,493,682
1994	1,014,767	45,969	306,143	2,819,099	29,116,700	59,643	56,846	2,098,337	35,517,504
1995	1,502,191	48,080	302,227	3,471,806	35,895,373	88,606	79,074	2,733,501	44,120,858
1996	1,362,114	49,740	360,011	3,573,017	36,211,520	86,109	72,847	4,263,982	45,979,340
1997	1,556,508	47,518	370,270	3,495,395	37,889,232	61,643	86,651	2,439,804	45,947,021
1998	1,371,578	65,494	369,541	3,371,594	35,779,377	85,773	83,839	2,938,597	44,065,793
1999	1,306,149	61,819	376,029	3,232,326	34,455,870	81,236	80,084	2,794,061	42,387,574
2000	1,307,857	62,035	367,991	3,236,482	34,379,457	82,042	81,056	2,802,163	42,319,083
2001	1,296,145	61,380	368,318	3,206,648	34,098,513	81,172	80,203	2,776,215	41,968,594
2002	1,298,525	61,508	369,130	3,412,394	33,648,193	81,329	80,371	2,781,303	41,732,753
2003	1,270,899	59,954	369,555	3,334,887	33,034,925	79,262	78,358	2,719,979	40,947,819
2004	1,288,570	60,946	369,644	3,384,383	33,420,735	80,580	79,644	2,759,162	41,443,664
2005	1,265,855	59,673	369,452	3,320,829	32,931,397	78,888	77,991	2,708,829	40,812,914
2006	1,271,453	59,987	369,481	3,336,528	33,053,903	79,308	78,399	2,721,249	40,970,308
2007	1,264,678	59,606	369,451	3,317,509	32,905,220	78,800	77,906	2,706,217	40,779,387
2008	1,308,112	62,047	369,483	3,439,448	33,869,789	82,054	81,069	2,802,637	42,014,639
2009	1,308,521	62,071	369,486	3,440,600	33,878,721	82,084	81,100	2,803,546	42,026,129
2010	1,308,178	62,052	369,485	3,439,631	33,871,133	82,059	81,075	2,802,790	42,016,403
2011	1,308,512	62,070	369,488	3,440,575	33,878,488	82,084	81,100	2,803,529	42,025,846
2012	1,310,149	62,161	369,489	3,445,163	33,914,425	82,206	81,218	2,807,158	42,071,969
2013	1,210,520	56,559	369,608	3,165,279	31,685,401	74,733	73,959	2,585,880	39,221,939
2014	1,175,565	54,592	367,009	3,066,912	30,895,104	72,105	71,414	2,508,208	38,210,909
2015	1,160,667	53,754	363,736	2,951,490	30,560,915	70,987	70,327	2,475,102	37,706,978
2016	1,149,475	53,125	357,707	2,856,285	30,312,243	70,149	69,512	2,450,262	37,318,758
2017	1,145,521	52,902	343,474	2,714,822	30,223,696	69,852	69,225	2,441,478	37,060,970
2018	1,144,729	52,858	320,741	2,595,474	30,206,262	61,274	69,167	2,439,719	36,890,224
2019	1,144,626	52,852	312,257	2,535,584	30,204,138	60,757	69,160	2,439,491	36,818,865
2020	1,135,021	52,313	310,403	2,476,010	29,994,193	59,789	68,459	2,416,184	36,514,372
2021	1,134,243	52,271	309,293	2,452,034	29,977,218	59,589	68,403	2,416,467	36,469,518
2022	1,133,744	52,243	308,675	2,440,611	29,966,227	59,483	68,367	2,415,357	36,444,707
2023	1,136,915	52,421	308,263	2,445,134	30,035,682	59,691	68,597	2,422,391	36,529,094
2024	1,138,180	52,493	307,727	2,446,563	30,065,105	59,769	68,689	2,425,207	36,563,733
2025	1,131,710	52,129	307,176	2,425,951	29,920,118	59,260	68,218	2,410,840	36,375,402
2026	1,130,014	52,032	306,899	2,419,155	29,883,037	59,096	68,094	2,407,077	36,325,404
2027	1,125,628	51,787	306,232	2,403,864	29,787,045	58,726	67,776	2,397,345	36,196,403
2028	1,125,332	51,769	303,795	2,400,995	29,780,678	58,682	67,754	2,396,690	36,185,695
2029	1,127,983	51,919	303,493	2,405,337	29,838,714	58,819	67,945	2,402,570	36,256,780
2030	1,119,716	51,455	303,164	2,379,069	29,657,762	58,134	67,346	2,384,233	36,020,879
2031	1,121,832	51,573	301,584	2,366,690	29,704,211	57,900	67,499	2,388,929	36,060,218
2032	1,123,859	51,687	301,583	2,374,695	29,748,559	58,066	67,646	2,393,423	36,119,518
2033	1,121,341	51,546	301,234	2,362,714	29,693,410	57,744	67,463	2,387,839	36,043,291
2034	1,123,485	51,666	300,625	2,362,396	29,740,363	57,762	67,619	2,392,591	36,096,507
2035	1,121,921	51,578	299,890	2,348,932	29,706,110	57,412	67,508	2,389,130	36,042,479
Total	66,623,908	3,041,345	18,023,825	159,384,227	1,721,975,837	3,840,236	3,968,217	138,065,223	2,114,922,818

TABLE B-19

Total Transportation Charge for Each Contractor

(Dollars)

Calendar Year	Southern California Area									
	Antelope Valley-East Kern Water Agency (20)	Castaic Lake Water Agency (21)	Coachella Valley Water District (22)	Crestline-Lake Arrowhead Water Agency (23)	Desert Water Agency (24)	Littlerock Creek Irrigation District (25)	Mojave Water Agency (26)	Palmdale Water District (27)	San Bernardino Valley Municipal Water District (28)	San Gabriel Valley Municipal Water District (29)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0
1963	33,153	0	0	0	0	0	0	0	51,523	0
1964	62,632	27,409	14,353	4,353	36,951	1,138	42,521	8,171	82,521	34,841
1965	118,196	52,938	24,978	7,166	40,580	2,074	77,549	15,164	134,596	35,209
1966	215,076	101,133	44,529	12,429	72,823	3,739	142,039	27,578	231,665	61,227
1967	416,139	210,574	85,730	23,376	140,772	7,256	281,002	53,826	431,696	115,106
1968	733,440	477,706	151,959	41,329	249,996	12,817	498,514	95,089	779,064	208,052
1969	1,054,222	723,439	223,992	60,899	368,790	18,596	713,658	137,373	1,200,270	320,188
1970	1,369,904	902,733	313,187	89,189	515,897	25,077	950,741	183,768	1,769,499	465,116
1971	1,695,178	1,086,061	429,483	127,617	707,691	31,635	1,240,939	229,882	2,526,418	655,791
1972	2,010,922	1,304,538	558,023	180,329	919,688	42,182	1,530,600	273,055	3,390,978	860,847
1973	2,100,722	1,320,377	692,162	182,793	1,130,890	43,251	1,605,848	285,713	3,973,493	942,249
1974	2,164,113	1,379,733	707,614	192,353	1,157,640	44,979	1,642,829	290,449	4,000,300	986,145
1975	2,340,485	1,447,553	748,375	205,078	1,225,198	48,254	1,718,377	302,634	4,160,286	1,086,446
1976	2,693,427	1,442,803	794,804	214,092	1,300,680	51,223	1,766,851	312,026	4,300,344	1,140,274
1977	2,636,018	1,511,768	690,540	225,023	1,138,240	47,104	1,843,626	327,695	4,554,276	1,204,328
1978	2,953,506	1,596,442	871,478	230,014	1,413,669	46,877	1,850,517	320,000	4,460,407	1,207,319
1979	3,506,371	1,630,789	938,940	236,914	1,511,676	48,150	1,980,830	330,770	4,422,430	1,147,529
1980	4,053,093	1,712,707	1,028,242	258,336	1,672,760	53,093	2,102,912	358,684	4,834,843	1,264,238
1981	4,378,868	1,958,148	1,098,402	269,940	1,789,059	77,511	2,241,059	389,836	5,220,109	1,351,604
1982	3,940,574	2,057,385	1,150,006	279,162	1,874,607	55,704	2,434,277	405,113	5,410,084	1,559,093
1983	5,134,687	2,337,438	1,741,751	332,092	2,821,546	69,131	2,519,086	492,928	6,021,600	1,551,813
1984	7,170,741	3,405,624	2,824,988	444,557	4,549,847	75,507	2,763,513	551,453	7,051,670	2,328,327
1985	8,943,231	3,741,162	3,625,632	541,132	5,832,154	79,557	2,897,316	735,272	7,763,506	2,382,452
1986	8,792,992	4,318,679	4,047,487	577,257	6,514,303	102,363	2,995,762	999,957	7,872,475	3,047,203
1987	8,772,009	4,150,553	3,903,074	603,221	6,362,722	211,301	3,022,806	1,022,365	9,145,043	3,018,596
1988	8,300,577	4,231,122	3,912,961	617,659	6,445,070	124,920	3,112,387	781,238	9,501,762	2,833,008
1989	8,667,598	4,104,580	3,551,606	588,096	5,906,129	170,761	3,066,767	1,444,136	8,993,187	2,939,762
1990	9,919,841	4,529,783	4,216,360	620,632	6,953,455	289,005	3,264,717	1,636,786	9,772,451	3,667,653
1991	6,424,934	3,249,389	2,725,031	569,318	4,493,718	174,594	4,045,827	1,292,288	8,937,927	3,035,303
1992	8,519,911	4,471,565	2,798,016	475,589	4,613,987	121,105	4,870,924	1,126,424	8,666,074	2,995,210
1993	8,976,934	4,091,507	3,027,080	484,632	4,991,838	158,634	4,784,331	1,355,600	9,737,240	3,392,185
1994	11,081,762	4,699,837	3,065,258	577,637	5,054,609	225,316	5,801,191	1,694,473	10,848,911	4,242,634
1995	10,600,421	5,025,643	3,784,578	535,401	6,331,394	157,171	4,878,465	1,507,929	10,152,744	3,871,486
1996	11,049,356	5,093,737	6,731,678	576,228	11,101,911	150,802	4,949,606	1,861,965	10,509,004	3,966,560
1997	13,277,948	6,103,020	6,597,848	827,134	7,772,459	371,863	6,058,289	2,785,898	13,435,311	5,141,407
1998	20,449,576	5,733,663	3,754,056	755,909	6,190,900	347,176	7,647,021	2,598,312	14,699,367	5,456,491
1999	15,950,704	5,536,754	3,494,274	712,932	3,740,071	325,410	8,566,495	2,426,068	15,195,450	4,387,372
2000	16,727,267	5,898,191	3,614,301	750,109	3,993,471	334,274	11,389,160	2,492,989	16,825,016	4,639,758
2001	16,426,741	5,954,649	3,519,142	718,907	3,775,406	328,160	11,712,494	2,447,060	16,516,762	4,439,129
2002	19,282,149	6,639,057	3,520,404	1,149,996	5,805,534	328,651	12,527,987	2,450,613	20,136,199	5,154,700
2003	18,648,551	6,439,034	3,403,056	1,128,073	5,611,985	318,120	12,232,402	2,371,394	19,750,104	5,031,777
2004	19,047,869	6,558,231	3,459,343	1,117,770	5,704,811	324,771	12,504,293	2,421,380	19,553,096	5,024,587
2005	18,530,561	6,401,721	3,374,685	1,116,327	5,565,189	316,141	12,074,507	2,356,559	19,542,652	4,982,305
2006	18,659,656	6,442,927	3,408,672	1,131,042	5,621,253	318,293	12,169,688	2,372,718	19,792,302	5,041,761
2007	18,500,964	6,369,005	3,359,282	1,098,627	5,539,779	315,650	12,080,308	2,352,859	19,210,048	4,917,380
2008	19,500,010	6,734,894	3,552,371	1,145,612	5,858,248	332,259	12,533,148	2,477,767	20,055,951	5,156,086
2009	19,512,322	6,730,585	3,570,715	1,166,154	5,888,512	332,463	12,539,463	2,479,310	20,422,917	5,228,364
2010	19,500,424	6,721,153	3,556,823	1,151,313	5,865,591	332,266	12,532,319	2,477,820	20,159,381	5,176,111
2011	19,508,280	6,731,215	3,560,251	1,154,769	5,871,249	332,397	12,533,127	2,478,804	20,225,215	5,189,147
2012	19,550,695	6,741,246	3,570,033	1,159,235	5,887,380	333,105	12,554,951	2,484,108	20,306,510	5,207,893
2013	17,228,501	5,963,183	3,132,723	1,063,320	5,152,833	295,078	11,683,115	2,198,080	18,560,812	4,692,586
2014	16,356,702	5,649,871	2,924,024	981,549	4,822,501	279,963	11,388,550	2,084,706	17,136,347	4,350,371
2015	15,998,314	5,531,664	2,890,913	1,009,396	4,767,897	274,001	11,279,973	2,039,911	17,650,056	4,423,521
2016	15,641,835	5,395,353	2,788,321	950,353	4,598,678	268,021	11,108,666	1,995,039	16,583,182	4,189,961
2017	15,354,258	5,253,775	2,744,968	954,586	4,527,190	263,065	10,931,333	1,957,984	16,661,353	4,183,206
2018	15,079,164	5,033,580	2,669,916	919,616	4,403,402	258,214	10,719,411	1,922,028	16,015,383	4,034,115
2019	14,780,518	4,834,455	2,619,092	922,400	4,319,596	252,805	10,510,932	1,882,525	15,993,121	4,001,079
2020	14,257,040	4,600,503	2,487,938	882,841	4,103,290	242,867	10,133,946	1,810,133	15,224,532	3,801,510
2021	13,990,053	4,429,606	2,365,419	827,349	3,901,218	237,286	9,860,760	1,771,344	14,163,927	3,554,990
2022	13,852,289	4,315,549	2,319,439	822,263	3,825,391	234,721	9,708,066	1,752,874	13,955,463	3,496,337
2023	13,875,218	4,324,380	2,324,795	829,835	3,834,231	234,956	9,714,662	1,755,113	14,028,805	3,507,896
2024	13,885,769	4,290,272	2,311,458	812,590	3,812,225	235,109	9,697,783	1,756,328	13,703,040	3,443,966
2025	13,714,818	4,229,796	2,271,346	805,304	3,746,068	232,238	9,606,229	1,734,833	13,562,138	3,399,274
2026	13,663,302	4,200,987	2,258,372	806,264	3,724,681	231,341	9,553,311	1,728,274	13,551,379	3,388,662
2027	13,545,471	4,147,704	2,226,856	794,043	3,672,692	229,365	9,468,200	1,713,461	13,316,818	3,331,776
2028	13,528,696	4,129,687	2,229,845	801,860	3,677,631	229,064	9,454,649	1,711,269	13,442,521	3,354,473
2029	13,578,856	4,129,430	2,238,917	805,366	3,692,589	229,888	9,480,773	1,717,504	13,506,182	3,369,834
2030	13,366,431	3,995,519	2,182,650	775,823	3,599,780	226,351	9,354,589	1,690,934	12,969,829	3,250,133
2031	13,319,638	3,953,129	2,185,973	790,723	3,605,270	225,504	9,322,766	1,684,718	13,234,205	3,297,868
2032	13,379,402	3,933,409	2,194,591	789,409	3,619,485	226,498	9,363,380	1,692,184	13,209,655	3,297,526
2033	13,243,846	3,861,834	2,155,751	769,623	3,555,415	224,222	9,271,642	1,675,132	12,870,491	3,220,228
2034	13,186,729	3,853,559	2,161,806	786,491	3,565,410	223,257	9,248,360	1,667,897	13,166,398	3,272,986
2035	13,072,682	3,796,110	2,140,592	778,767	3,530,432	221,256	9,201,255	1,653,698	13,009,988	3,235,041
Total	781,804,282	283,983,555	175,663,258	46,347,523	279,990,033	13,636,896	489,355,390	101,919,268	812,250,302	222,189,401

TABLE B-19

Total Transportation Charge for Each Contractor

(Dollars)

Calendar Year	Southern California Area (continued)				Feather River Area				South Bay Area Future Contractor	Grand Total
	San Gorgonio Pass Water Agency (30)	Metropolitan Water District of Southern California (31)	Ventura County Flood Control District (32)	Total (33)	City of Yuba City (34)	County of Butte (35)	Plumas County FC&WCD (36)	Total (37)	(38)	(39)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	55,537
1963	0	688,882	0	773,558	0	0	0	0	55,823	1,620,422
1964	21,648	1,258,056	9,363	1,603,957	0	0	0	0	84,094	2,789,243
1965	21,784	2,176,243	17,738	2,724,215	0	0	405	405	129,191	4,787,805
1966	37,820	3,891,995	33,372	4,875,425	0	0	565	565	148,545	7,371,829
1967	71,000	7,677,768	68,052	9,582,297	0	0	563	563	204,922	12,781,524
1968	128,385	15,288,020	142,609	18,806,980	0	0	565	565	279,614	24,858,018
1969	197,819	23,098,226	214,850	28,332,322	0	0	3,196	3,196	349,609	35,915,706
1970	288,148	30,529,578	273,028	37,675,865	0	0	15,144	15,144	386,703	46,038,603
1971	407,146	39,836,038	341,681	49,315,560	0	0	16,026	16,026	376,266	58,661,235
1972	534,631	52,794,318	421,472	64,821,583	0	0	17,400	17,400	401,782	76,409,214
1973	585,297	57,113,418	434,774	70,410,987	0	0	17,361	17,361	376,261	81,082,339
1974	608,726	61,616,695	454,686	75,246,262	0	0	17,505	17,505	399,238	86,794,254
1975	641,821	66,592,647	477,507	80,994,661	0	0	18,433	18,433	408,459	93,928,890
1976	665,438	68,318,216	474,684	83,474,862	0	0	17,504	17,504	431,049	97,296,214
1977	693,587	66,065,563	506,157	81,443,925	0	0	18,260	18,260	423,790	95,335,493
1978	706,080	72,765,226	522,276	88,943,811	0	0	17,408	17,408	427,039	104,812,572
1979	709,868	72,493,268	525,499	89,483,034	0	0	20,606	20,606	447,073	107,130,956
1980	774,842	79,750,857	570,256	98,434,863	0	0	17,788	17,788	507,818	117,070,926
1981	802,339	90,688,688	635,201	110,900,764	0	0	21,221	21,221	517,317	131,451,109
1982	850,377	92,948,831	669,616	113,634,829	0	0	28,331	28,331	513,658	135,120,923
1983	949,201	101,632,091	797,864	126,401,228	0	0	16,954	16,954	553,396	151,769,672
1984	1,069,846	138,356,227	867,792	171,460,092	0	0	18,020	18,020	562,186	209,533,157
1985	1,123,366	173,245,501	913,433	211,823,714	0	0	19,977	19,977	682,463	259,179,353
1986	1,149,172	193,331,636	938,426	234,687,712	0	0	19,975	19,975	621,116	285,255,116
1987	1,163,806	177,990,762	899,586	220,265,844	0	0	19,976	19,976	686,043	272,248,677
1988	1,211,144	190,613,789	906,962	232,592,599	0	0	19,983	19,983	709,900	285,574,262
1989	1,199,647	193,619,670	933,856	235,185,795	0	0	20,058	20,058	769,174	288,434,467
1990	1,290,683	239,003,953	1,482,109	286,647,428	0	0	20,075	20,075	821,332	339,783,035
1991	1,354,631	179,721,011	1,138,259	217,162,230	0	0	20,121	20,121	566,456	255,390,364
1992	1,362,093	196,646,759	1,023,353	237,691,010	0	0	20,168	20,168	804,698	287,118,376
1993	1,543,056	170,393,153	1,068,424	214,004,614	0	0	19,925	19,925	966,157	272,959,306
1994	1,603,123	212,083,722	1,004,940	261,983,413	0	0	20,456	20,456	975,815	320,421,305
1995	1,637,476	177,329,777	1,065,743	226,878,228	0	0	20,609	20,609	903,705	294,784,269
1996	1,635,166	184,080,621	1,105,644	242,812,278	0	0	20,769	20,769	951,281	322,558,504
1997	1,932,246	238,693,473	1,495,251	304,492,147	0	0	20,836	20,836	1,009,487	401,677,691
1998	1,967,564	248,305,206	2,049,235	319,954,476	0	0	20,905	20,905	1,009,480	419,279,160
1999	3,389,581	256,857,590	1,915,500	322,498,201	0	0	20,975	20,975	1,042,639	420,706,949
2000	4,302,242	273,082,336	1,978,221	346,027,335	0	0	20,975	20,975	1,031,052	444,444,456
2001	4,228,321	261,564,681	1,939,877	333,571,329	0	0	20,975	20,975	1,030,755	431,405,849
2002	4,258,746	297,846,698	2,608,848	381,709,582	0	0	20,975	20,975	1,031,803	481,093,230
2003	4,327,660	288,378,378	2,515,018	370,155,552	0	0	20,975	20,975	1,031,745	468,223,100
2004	4,316,594	292,719,376	2,572,156	375,324,277	0	0	20,975	20,975	1,032,032	474,244,762
2005	4,381,265	285,928,748	2,497,761	367,068,421	0	0	20,975	20,975	1,031,395	464,951,156
2006	4,443,154	288,737,233	2,516,940	370,655,639	0	0	20,975	20,975	1,031,487	468,813,922
2007	5,095,041	283,995,850	2,486,154	365,320,947	0	0	20,975	20,975	1,031,388	463,167,724
2008	5,238,283	301,153,274	2,649,658	386,387,561	0	0	20,975	20,975	1,031,500	486,358,708
2009	5,285,520	301,950,969	2,648,713	387,756,007	0	0	20,975	20,975	1,031,509	487,757,741
2010	5,251,432	300,913,628	2,645,346	386,283,607	0	0	20,975	20,975	1,031,506	486,280,770
2011	5,259,939	301,503,136	2,648,967	386,996,496	0	0	20,975	20,975	1,031,510	487,023,257
2012	5,271,705	302,216,069	2,653,936	387,936,866	0	0	20,975	20,975	1,031,517	488,053,713
2013	4,965,226	265,053,458	2,297,997	342,286,912	0	0	20,975	20,975	988,725	436,874,334
2014	4,752,438	248,842,528	2,156,995	321,726,545	0	0	20,975	20,975	962,205	414,329,816
2015	4,805,089	245,307,442	2,105,516	318,083,693	0	0	20,570	20,570	932,225	409,255,141
2016	4,656,333	237,827,784	2,049,684	308,053,210	0	0	20,410	20,410	915,231	398,333,389
2017	4,655,311	233,206,031	2,000,469	302,693,529	0	0	20,412	20,412	875,272	392,351,286
2018	4,560,892	225,320,709	1,930,859	292,867,289	0	0	20,410	20,410	799,793	381,947,447
2019	4,543,114	218,982,359	1,862,963	285,504,959	0	0	17,779	17,779	735,813	374,225,280
2020	4,419,837	207,868,064	1,772,803	271,605,304	0	0	5,830	5,830	715,345	359,734,835
2021	4,263,800	198,793,433	1,712,275	259,871,460	0	0	5,003	5,003	711,555	347,918,842
2022	4,228,796	191,987,638	1,672,595	252,171,621	0	0	3,615	3,615	710,911	340,171,924
2023	4,236,468	191,793,429	1,680,093	252,139,881	0	0	3,615	3,615	710,291	340,247,529
2024	4,194,482	189,264,621	1,670,623	249,078,266	0	0	3,613	3,613	709,822	337,240,905
2025	4,168,027	186,497,497	1,644,524	245,612,092	0	0	3,611	3,611	706,408	333,429,898
2026	4,162,291	184,971,902	1,633,225	243,873,991	0	0	3,610	3,610	707,960	331,289,444
2027	4,126,824	182,202,884	1,611,328	240,387,422	0	0	3,607	3,607	707,047	327,564,617
2028	4,141,937	181,917,696	1,605,676	240,225,004	0	0	3,606	3,606	705,961	327,344,975
2029	4,151,428	182,852,075	1,607,222	241,360,064	0	0	3,604	3,604	704,532	328,571,450
2030	4,075,627	176,487,898	1,553,479	233,529,043	0	0	3,603	3,603	703,037	320,299,780
2031	4,107,312	175,680,077	1,538,227	232,945,410	0	0	3,601	3,601	700,053	319,703,000
2032	4,106,322	175,775,066	1,532,731	233,119,658	0	0	3,600	3,600	700,431	319,959,740
2033	4,057,443	172,224,558	1,504,990	228,635,175	0	0	3,599	3,599	699,568	315,277,158
2034	4,092,569	172,944,314	1,503,651	229,673,427	0	0	3,598	3,598	695,919	316,231,336
2035	4,068,790	170,698,318	1,483,305	226,890,234	0	0	3,597	3,597	691,647	313,048,823
Total	195,528,815	12,573,987,831	98,892,023	16,075,548,577	0	0	1,063,581	1,063,581	51,404,529	20,625,155,812

TABLE B-20A

Calculation of Delta Water Rates

Calculation in accordance with Article 53(i) of the Monterey Amendment

(Values in millions of dollars [$] or millions of acre-feet [AF] discounted to 1997 at 4.620 percent per annum)

Procedure	*Capital Cost Component (1)*		*Minimum Operation, Maintenance, Power and Replacement Component (a (2)*		*Total Delta Water Rate (3)*	
Commencing in 1998						
Total Costs of "Initial" Project Conservation Facilities to be Reimbursed and Project Water Entitlements during the Project Repayment Period.	$3,154.91 (b	198.18 AF	$1,964.37 (c	198.18 AF	$5,119.28	198.18 AF
Less, Project Power Revenues to be Realized During the Project Repayment Period.	(1,155.65)		(354.00)		(1,509.65)	
Less, Delta Water Charges Paid and Project Water Entitlements, Prior to 1998	(1,143.72) (d	(124.40) AF	(720.39)	(124.40) AF	(1,864.11)	(124.40) AF
Total	$855.54	73.78 AF	$889.98	73.78 AF	$1,745.52	73.78 AF
Rate Applicable in 1998	$11.60	per acre-foot	$12.06	per acre-foot	$23.66	per acre-foot

Calculation under original provisions, without the Monterey Amendment

(for Yuba City, Plumas County, Empire and Ventura)

Procedure	*Capital Cost Component (1)*		*Minimum Operation, Maintenance, Power and Replacement Component (a (2)*		*Total Delta Water Rate (3)*	
Commencing in 1998						
Total Costs of "Initial" Project Conservation Facilities to be Reimbursed and Project Water Entitlements during the Project Repayment Period.	$3,144.49 (b	198.18 AF	$1,955.20 (c	198.18 AF	$5,099.69	198.18 AF
Less, Project Power Revenues to be Realized During the Project Repayment Period.	(1,155.65)		(354.00)		(1,509.65)	
Less, Delta Water Charges Paid and Project Water Entitlements, Prior to 1998	(1,143.72) (d	(124.40) AF	(720.39)	(124.40) AF	(1,864.11)	(124.40) AF
Total	$845.12	73.78 AF	$880.80	73.78 AF	$1,725.92	73.78 AF
Rate Applicable in 1998	$11.45	per acre-foot	$11.94	per acre-foot	$23.39	per acre-foot

a) Considering that all operating costs of Project Conservation Facilities will not vary with annual amounts of Project water delivered, and therefore are properly classified as "Minimum" OMP&R Costs.
b) Including net credits of $4,850,000 for settlements as to the magnitude of Project Capital costs incurred prior to December 31, 1960, and net credits of $6,678,320 for settlement as to the magnitude of Project Capital costs incurred during the 1961 through 1978 period.
c) Includes conservation power costs and credits at San Luis.
d) Applying all Delta Water Charges paid prior to 1970 to reimburse Capital costs (the charge was not divided into components until 1970).

TABLE B-20B

Delta Water Rates by Facility

(Dollars per Acre-foot)

Item	Capital Cost Component (1)	Minimum Operation, Maintenance, Power and Replacement Component (2)	Total Delta Water Rate (3)
Initial Conservation Facilities			
Oroville Division			
Water Supply and power costs (a	26.04	13.34	39.38
Less, Oroville Power Revenues	-15.66	-4.80	-20.46
Subtotal	10.38	8.54	18.92
Delta Facilities (b	7.33	6.80	14.13
California Aqueduct, portion			
Reach 1	1.78	2.61	4.39
Reach 2A	1.00	0.47	1.47
Reach 2B	0.50	0.20	0.70
Reach 3	0.36	0.13	0.49
Subtotal	3.64	3.41	7.05
San Luis Facilities	5.04	3.07	8.11
Planning and preoperating costs through 1996	1.42	0.00	1.42
Less, Capital Cost Credits	-0.71	0.00	-0.71
Less, Delta Water Charges paid prior to 1998	-15.50	-9.76	-25.26
Rate applicable in 1998	11.60	12.06	23.66

a) Includes revenue received from non-contractors.
b) Includes (1) Delta Facility planning costs, (2) Delta Studies costs, and (3) Suisun Marsh Facilities Costs.

TABLE B-21

Total Delta Water Charge for Each Contractor

(Dollars)

Calendar Year	North Bay Area			South Bay Area				Central Coastal Area		
	Napa County FC&WCD	Solano County WA	Total	Alameda County FC&WCD, Zone 7	Alameda County Water District	Santa Clara Valley Water District	Total	San Luis Obispo County FC&WCD	Santa Barbara County FC&WCD	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1964	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	14,000	50,050	177,100	241,150	0	0	0
1968	0	0	0	19,156	29,701	193,245	242,102	0	0	0
1969	0	0	0	30,324	44,096	215,483	289,903	0	0	0
1970	0	0	0	80,908	107,730	585,200	773,838	0	0	0
1971	0	0	0	57,320	123,080	637,120	817,520	0	0	0
1972	0	0	0	99,668	143,877	707,328	950,873	0	0	0
1973	0	0	0	120,880	167,099	782,167	1,070,146	0	0	0
1974	0	0	0	137,684	182,339	818,664	1,138,687	0	0	0
1975	0	0	0	146,204	187,324	804,123	1,137,651	0	0	0
1976	0	0	0	168,489	208,652	862,036	1,239,177	0	0	0
1977	0	0	0	172,931	208,645	827,062	1,208,638	0	0	0
1978	0	0	0	206,378	243,231	926,594	1,376,203	0	0	0
1979	0	0	0	237,771	273,208	1,005,955	1,516,934	0	0	0
1980	0	18,325	18,325	272,717	307,426	1,090,867	1,671,010	12,396	3,479	15,875
1981	0	25,440	25,440	415,564	469,768	1,589,984	2,475,316	18,068	10,414	28,482
1982	0	34,917	34,917	457,988	519,053	1,679,289	2,656,330	38,166	99,788	137,954
1983	0	12,035	12,035	316,703	359,775	1,114,795	1,791,273	38,004	68,902	106,906
1984	0	22,453	22,453	334,587	380,914	1,132,448	1,847,949	57,909	105,498	163,407
1985	0	22,001	22,001	381,970	435,728	1,244,939	2,062,637	106,103	192,937	299,040
1986	35,358	21,767	57,125	423,378	485,372	1,330,615	2,239,365	151,206	275,347	426,553
1987	0	22,984	22,984	430,024	493,786	1,304,900	2,228,710	185,355	336,664	522,019
1988	88,878	150,466	239,344	464,114	533,731	1,361,400	2,359,245	239,792	436,607	676,399
1989	102,688	305,328	408,016	513,853	591,760	1,491,833	2,597,446	331,518	602,402	933,920
1990	112,723	355,132	467,855	534,787	616,676	1,537,512	2,688,975	417,802	760,166	1,177,968
1991	129,296	395,515	524,811	603,028	681,067	1,667,194	2,951,289	443,403	806,745	1,250,148
1992	158,879	489,808	648,687	729,545	808,579	1,945,453	3,483,577	506,628	921,780	1,428,408
1993	172,457	530,778	703,235	771,894	840,958	1,990,673	3,603,525	507,825	923,957	1,431,782
1994	177,824	546,610	724,434	778,647	817,579	1,946,615	3,542,841	486,654	885,437	1,372,091
1995	203,738	713,497	917,235	874,946	874,946	2,083,205	3,833,097	520,801	947,567	1,468,368
1996	213,506	774,152	987,658	901,129	860,168	2,048,020	3,809,317	512,005	931,562	1,443,567
1997	250,558	866,141	1,116,699	1,041,633	951,056	2,264,420	4,257,109	566,105	1,029,994	1,596,099
1998	277,026	915,772	1,192,798	1,088,233	993,604	2,365,725	4,447,562	591,431	922,301	1,513,732
1999	291,694	926,654	1,218,348	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2000	308,727	937,300	1,246,027	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2001	323,276	948,182	1,271,458	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2002	335,578	959,065	1,294,643	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2003	350,127	969,947	1,320,074	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2004	364,322	980,593	1,344,915	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2005	378,516	981,776	1,360,292	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2006	389,162	982,959	1,372,121	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2007	402,173	984,141	1,386,314	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2008	417,550	985,324	1,402,874	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2009	430,562	986,507	1,417,069	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2010	443,573	987,690	1,431,263	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2011	458,951	988,873	1,447,824	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2012	471,962	990,056	1,462,018	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2013	487,339	991,239	1,478,578	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2014	502,716	992,421	1,495,137	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2015	518,094	993,604	1,511,698	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2016	532,288	993,604	1,525,892	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2017	546,482	993,604	1,540,086	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2018	560,677	993,604	1,554,281	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2019	574,871	993,604	1,568,475	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2020	589,065	993,604	1,582,669	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2021	591,431	993,604	1,585,035	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2022	591,431	993,604	1,585,035	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2023	591,431	993,604	1,585,035	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2024	591,431	993,604	1,585,035	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2025	591,431	993,604	1,585,035	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2026	591,431	993,604	1,585,035	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2027	591,431	993,604	1,585,035	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2028	591,431	993,604	1,585,035	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2029	591,431	993,604	1,585,035	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2030	591,431	993,604	1,585,035	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2031	591,431	993,604	1,585,035	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2032	591,431	993,604	1,585,035	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2033	591,431	993,604	1,585,035	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2034	591,431	993,604	1,585,035	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
2035	591,431	993,604	1,585,035	1,088,233	993,604	2,365,725	4,447,562	591,431	1,076,073	1,667,504
Total	20,472,101	42,681,532	63,153,633	53,091,074	50,754,326	127,263,789	231,109,189	27,614,118	50,076,248	77,690,366

TABLE B-21

Total Delta Water Charge for Each Contractor

(Dollars)

Calendar Year	San Joaquin Valley Area								
				Kern County Water Agency					
	Dudley Ridge Water District (11)	Empire West Side Irrigation District (12)	Future Contractor San Joaquin Valley (13)	Municipal and Industrial (14)	Agricultural (15)	County of Kings (16)	Oak Flat Water District (17)	Tulare Lake Basin Water Storage District (18)	Total (19)
1964	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0
1968	40,695	10,469	0	0	165,522	3,177	8,073	98,608	326,544
1969	61,267	3,281	0	0	337,686	4,200	8,805	102,478	517,717
1970	104,405	19,950	0	0	964,915	8,645	17,290	228,095	1,343,300
1971	129,596	21,720	0	0	1,377,772	9,412	20,272	264,260	1,823,032
1972	160,756	24,113	0	0	2,175,835	11,253	43,131	905,057	3,320,145
1973	195,541	26,664	0	386,638	2,373,167	13,333	27,553	373,307	3,396,203
1974	224,202	27,909	0	446,545	2,781,595	13,954	29,770	445,138	3,969,113
1975	329,688	27,413	0	481,560	3,041,048	14,620	33,702	827,591	4,755,622
1976	414,245	29,388	0	549,549	3,931,785	15,673	35,966	877,151	5,853,757
1977	312,532	28,195	0	569,545	4,071,218	15,977	40,289	626,210	5,663,966
1978	342,208	31,588	0	674,939	4,950,959	20,006	41,065	666,516	6,727,281
1979	395,523	34,294	0	772,757	5,901,986	22,863	45,725	771,613	7,944,761
1980	555,341	37,679	0	881,371	6,984,026	27,272	70,658	933,481	9,489,828
1981	740,789	54,204	0	1,351,487	11,140,730	41,556	77,692	1,373,168	14,779,626
1982	782,396	57,248	0	1,518,993	12,703,436	47,707	85,873	1,530,443	16,726,096
1983	543,462	38,004	0	1,057,789	9,141,315	35,471	58,273	78,506	10,952,820
1984	580,379	13,572	0	1,333,200	9,741,623	39,893	61,770	756,132	12,526,569
1985	667,740	42,441	0	1,540,611	11,403,920	48,100	69,320	644,383	14,416,515
1986	745,447	45,362	0	1,714,679	12,925,113	55,946	77,115	1,469,725	17,033,387
1987	762,180	44,485	0	1,766,065	13,410,817	59,314	77,108	1,503,601	17,623,570
1988	827,669	46,411	0	1,916,790	14,707,763	61,882	83,540	1,633,680	19,277,735
1989	921,621	49,728	0	2,125,033	16,312,361	66,304	92,825	1,821,693	21,389,565
1990	964,288	50,136	0	1,998,766	17,276,959	66,848	95,259	1,980,383	22,432,639
1991	1,023,374	53,208	0	2,121,239	18,335,590	70,944	101,096	2,101,729	23,807,180
1992	1,169,299	60,795	0	2,727,688	20,646,125	81,061	115,511	2,401,419	27,201,898
1993	1,172,060	60,939	0	2,734,129	20,694,874	81,252	115,784	2,407,089	27,266,127
1994	1,123,198	58,398	0	2,156,809	20,295,455	77,865	110,957	2,306,739	26,129,421
1995	1,202,009	62,497	0	2,603,995	21,223,694	83,328	118,743	2,468,598	27,962,864
1996	623,497	61,441	0	2,756,635	20,237,064	81,921	102,219	2,426,904	26,289,681
1997	1,208,521	67,162	0	2,708,246	22,488,635	90,577	129,072	2,683,338	29,375,551
1998	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
1999	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2000	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2001	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2002	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2003	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2004	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2005	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2006	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2007	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2008	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2009	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2010	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2011	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2012	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2013	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2014	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2015	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2016	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2017	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2018	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2019	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2020	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2021	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2022	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2023	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2024	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2025	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2026	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2027	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2028	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2029	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2030	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2031	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2032	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2033	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2034	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2035	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
Total	66,302,234	3,855,344	0	146,612,524	1,182,068,008	4,866,256	7,118,604	143,235,627	1,554,058,597

TABLE B-21

Total Delta Water Charge for Each Contractor

(Dollars)

Calendar Year	Southern California Area									
	Antelope Valley-East Kern Water Agency (20)	Castaic Lake Water Agency (21)	Coachella Valley Water District (22)	Crestline-Lake Arrowhead Water Agency (23	Desert Water Agency (24)	Littlerock Creek Irrigation District (25)	Mojave Water Agency (26)	Palmdale Water District (27)	San Bernardino Valley Municipal Water District (28)	San Gabriel Valley Municipal Water District (29)
1964	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0
1968	0	13,060	0	0	0	0	0	0	0	0
1969	0	17,804	0	0	0	0	0	0	0	0
1970	0	37,905	0	0	0	0	0	0	0	0
1971	0	48,508	0	0	0	0	0	0	0	0
1972	160,756	74,751	41,797	4,662	64,303	1,367	67,518	13,021	369,739	85,202
1973	222,207	107,163	51,552	7,279	79,994	2,577	95,104	26,131	54,908	14,338
1974	279,090	143,266	59,539	10,791	93,030	3,721	121,869	39,631	465,150	114,427
1975	319,822	166,307	63,964	13,250	100,515	4,752	140,722	50,989	479,733	119,705
1976	431,018	207,673	74,449	17,045	117,550	6,269	174,366	67,591	538,772	137,142
1977	469,922	226,502	79,144	19,079	122,180	6,861	189,848	77,255	540,410	139,097
1978	600,180	274,819	97,313	24,428	147,413	9,687	236,913	98,345	631,768	165,313
1979	720,173	320,077	115,033	29,836	171,470	11,889	284,640	117,285	714,457	189,760
1980	857,818	376,845	134,920	35,949	210,736	14,256	337,177	138,590	811,952	215,694
1981	1,355,100	592,631	218,713	57,637	343,292	22,946	534,813	211,396	1,237,658	330,644
1982	1,551,434	664,082	254,298	66,408	400,739	26,335	313,057	235,100	1,364,422	364,482
1983	1,110,994	472,521	184,283	47,759	291,367	19,002	434,517	163,925	943,775	252,096
1984	450,405	509,602	202,914	52,247	321,718	20,719	472,282	174,500	1,003,760	266,383
1985	565,881	591,346	240,344	61,540	381,970	24,474	551,734	200,605	1,152,983	308,405
1986	635,066	659,259	275,347	70,160	438,498	27,822	625,994	223,785	1,285,253	350,799
1987	652,450	676,176	288,131	73,104	467,095	29,064	648,002	228,654	1,319,729	364,779
1988	711,641	742,582	319,496	80,756	525,996	32,024	711,641	248,146	1,438,752	402,232
1989	2,083,593	830,453	362,565	91,333	605,021	36,301	803,932	276,155	1,607,864	454,180
1990	2,207,667	869,029	386,049	96,930	636,731	38,438	848,974	289,119	1,696,277	481,308
1991	2,454,678	961,298	409,704	102,869	675,746	40,793	900,994	306,835	1,819,725	510,800
1992	2,804,695	1,098,371	468,125	117,538	772,102	46,610	1,029,469	350,587	2,079,203	583,636
1993	2,811,318	1,100,964	469,230	117,815	773,925	46,720	1,031,900	351,415	2,084,113	585,014
1994	2,694,116	1,055,065	449,668	112,905	741,661	44,772	988,880	336,766	1,997,227	560,625
1995	2,883,156	1,129,097	481,220	120,826	793,702	47,914	1,058,269	360,394	2,137,369	599,963
1996	2,834,460	1,110,027	473,093	118,785	780,296	47,104	1,040,394	354,307	2,101,269	589,830
1997	3,133,957	1,227,316	523,081	131,336	862,744	52,082	1,150,325	391,745	2,274,440	652,153
1998	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
1999	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2000	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2001	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2002	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2003	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2004	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2005	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2006	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2007	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2008	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2009	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2010	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2011	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2012	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2013	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2014	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2015	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2016	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2017	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2018	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2019	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2020	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2021	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2022	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2023	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2024	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2025	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2026	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2027	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2028	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2029	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2030	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2031	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2032	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2033	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2034	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2035	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
Total	159,419,791	65,028,973	27,490,288	6,896,323	45,170,752	2,732,155	82,935,656	20,884,532	124,385,562	34,728,509

TABLE B-21

Total Delta Water Charge for Each Contractor

(Dollars)

Calendar Year	Southern California Area (continued)				Feather River Area				South Bay Area Future Contractor	Grand Total
	San Gorgonio Pass Water Agency (30)	Metropolitan Water District of Southern California (31)	Ventura County Flood Control District (32)	Total (33)	City of Yuba City (34)	County of Butte (35)	Plumas County FC&WCD (36)	Total (37)	(38)	(39)
1964	0	0	0	0	0	0	0	0	0	
1965	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	241,150
1968	0	0	0	13,060	0	1,050	875	1,925	0	583,631
1969	0	0	0	17,804	0	1,225	929	2,154	0	827,578
1970	0	0	0	37,905	0	3,848	1,995	5,843	0	2,160,886
1971	0	0	0	48,508	0	4,546	3,186	7,732	0	2,696,792
1972	0	2,043,211	0	2,926,327	0	4,929	3,778	8,707	0	7,206,052
1973	0	2,317,893	0	2,979,146	0	7,059	4,444	11,503	0	7,456,998
1974	0	4,231,933	0	5,562,447	0	8,336	4,931	13,267	0	10,683,514
1975	0	5,073,286	0	6,533,045	0	9,416	5,117	14,533	0	12,440,851
1976	0	6,422,167	0	8,194,042	0	7,004	5,780	12,784	0	15,299,760
1977	0	7,104,278	0	8,974,576	0	16,917	5,827	22,744	0	15,869,924
1978	0	9,016,389	0	11,302,568	0	12,635	6,844	19,479	0	19,425,531
1979	0	10,935,192	0	13,609,812	0	16,575	7,773	24,348	0	23,095,855
1980	84,294	13,102,796	12,396	16,333,423	0	19,834	8,801	28,635	0	27,557,096
1981	140,930	20,910,099	36,136	25,991,995	0	21,682	13,370	35,052	0	43,335,911
1982	167,929	23,998,560	57,248	29,464,094	0	16,117	14,694	30,811	0	49,050,202
1983	124,148	17,203,307	50,672	21,298,366	0	15,202	10,134	25,336	0	34,186,736
1984	138,982	18,766,458	64,344	22,444,314	20,590	15,442	10,681	46,713	0	37,051,405
1985	166,935	22,050,974	84,882	26,382,073	24,050	16,976	12,166	53,192	0	43,235,458
1986	195,056	25,089,658	120,965	29,997,662	31,753	18,145	13,457	63,355	0	49,817,447
1987	207,598	26,095,043	148,284	31,198,109	37,071	17,794	13,642	68,507	0	51,663,899
1988	233,604	28,781,238	201,116	34,429,224	46,722	18,565	14,852	80,139	0	57,062,086
1989	268,530	32,505,376	265,215	40,190,518	61,184	19,891	16,576	97,651	0	65,617,116
1990	289,119	33,616,369	334,242	41,790,252	63,506	20,055	17,381	100,942	0	68,658,631
1991	306,835	35,676,185	354,722	44,521,184	170,267	21,283	19,155	210,705	0	73,265,317
1992	350,587	40,763,329	405,303	50,869,555	194,545	24,318	22,697	241,560	0	83,873,685
1993	351,415	40,859,579	406,260	50,989,668	195,005	24,376	23,563	242,944	0	84,237,281
1994	336,766	39,156,173	389,323	48,863,947	186,875	23,360	23,360	233,595	0	80,866,329
1995	360,394	41,903,674	416,641	52,292,619	199,987	24,999	26,040	251,026	0	86,725,209
1996	0	41,195,923	409,604	51,055,092	196,610	24,576	26,624	247,810	0	83,833,125
1997	0	45,548,810	447,746	56,395,735	214,918	27,173	30,223	272,314	0	93,013,507
1998	47,314	47,586,550	467,833	59,608,581	224,560	28,389	32,748	285,697	0	97,146,688
1999	70,972	47,586,550	467,833	59,632,239	224,560	28,389	33,918	286,867	0	97,350,838
2000	94,629	47,586,550	467,833	59,655,896	224,560	28,389	35,321	288,270	0	97,403,577
2001	94,629	47,586,550	467,833	59,655,896	224,560	650,574	36,725	911,859	0	98,052,597
2002	118,286	47,586,550	467,833	59,679,553	224,560	650,574	38,128	913,262	0	98,100,842
2003	141,943	47,586,550	467,833	59,703,210	224,560	650,574	39,532	914,666	0	98,151,334
2004	153,772	47,586,550	467,833	59,715,039	224,560	650,574	40,935	916,069	0	98,189,407
2005	165,601	47,586,550	467,833	59,726,868	224,560	650,574	42,339	917,473	0	98,218,017
2006	177,429	47,586,550	467,833	59,738,696	224,560	650,574	43,976	919,110	0	98,243,311
2007	409,270	47,586,550	467,833	59,970,537	224,560	650,574	45,614	920,748	0	98,490,983
2008	409,270	47,586,550	467,833	59,970,537	224,560	650,574	47,251	922,385	0	98,509,180
2009	409,270	47,586,550	467,833	59,970,537	224,560	650,574	48,889	924,023	0	98,525,013
2010	409,270	47,586,550	467,833	59,970,537	224,560	650,574	50,526	925,660	0	98,540,844
2011	409,270	47,586,550	467,833	59,970,537	224,560	650,574	52,397	927,531	0	98,559,276
2012	409,270	47,586,550	467,833	59,970,537	224,560	650,574	54,269	929,403	0	98,575,342
2013	409,270	47,586,550	467,833	59,970,537	224,560	650,574	56,374	931,508	0	98,594,007
2014	409,270	47,586,550	467,833	59,970,537	224,560	650,574	58,479	933,613	0	98,612,671
2015	409,270	47,586,550	467,833	59,970,537	224,560	650,574	60,818	935,952	0	98,631,571
2016	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,648,104
2017	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,662,298
2018	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,676,493
2019	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,690,687
2020	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,704,881
2021	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,707,247
2022	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,707,247
2023	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,707,247
2024	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,707,247
2025	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,707,247
2026	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,707,247
2027	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,707,247
2028	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,707,247
2029	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,707,247
2030	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,707,247
2031	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,707,247
2032	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,707,247
2033	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,707,247
2034	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,707,247
2035	409,270	47,586,550	467,833	59,970,537	224,560	650,574	63,157	938,291	0	98,707,247
Total	16,656,527	2,402,656,800	21,982,753	3,010,968,621	10,176,363	23,318,585	2,450,274	35,945,222	0	4,972,925,628

TABLE B-22

Water System Revenue Bond Surcharge for Each Contractor

(Dollars)

Calendar Year	North Bay Area			South Bay Area				Central Coastal Area		
	Napa County FC&WCD (1)	Solano County WA (2)	Total (3)	Alameda County FC&WCD, Zone 7 (4)	Alameda County Water District (5)	Santa Clara Valley Water District (6)	Total (7)	San Luis Obispo County FC&WCD (8)	Santa Barbara County FC&WCD (9)	Total (10)
1971	0	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0
1988	29,131	40,505	69,636	25,436	30,176	100,035	155,647	13,126	24,392	37,518
1989	48,804	69,621	118,425	43,343	51,681	170,303	265,327	26,828	49,634	76,462
1990	41,166	60,482	101,648	38,407	51,185	149,440	239,032	27,956	51,795	79,751
1991	63,389	92,401	155,790	62,470	81,991	235,712	380,173	44,887	83,709	128,596
1992	84,320	126,227	210,547	89,247	115,208	325,629	530,084	61,137	113,925	175,062
1993	90,152	137,473	227,625	98,432	125,174	347,457	571,063	67,725	126,662	194,387
1994	91,785	141,222	233,007	102,021	126,216	352,415	580,652	81,420	159,156	240,576
1995	108,311	181,787	290,098	126,001	149,377	416,956	692,334	131,675	270,726	402,401
1996	132,305	232,343	364,648	158,514	180,787	505,042	844,343	242,654	534,449	777,103
1997	252,468	442,322	694,790	318,973	348,586	972,451	1,640,010	264,118	1,576,807	1,840,925
1998	303,723	530,012	833,735	382,647	417,944	1,165,849	1,966,440	323,069	1,907,213	2,230,282
1999	301,004	525,267	826,271	379,221	414,202	1,155,411	1,948,834	320,176	1,890,137	2,210,313
2000	294,830	514,494	809,324	371,443	405,707	1,131,714	1,908,864	313,610	1,851,371	2,164,981
2001	292,515	510,454	802,969	368,526	402,521	1,122,827	1,893,874	311,147	1,836,833	2,147,980
2002	289,171	504,618	793,789	364,313	397,919	1,109,989	1,872,221	307,590	1,815,833	2,123,423
2003	286,963	500,765	787,728	361,532	394,881	1,101,516	1,857,929	305,241	1,801,970	2,107,211
2004	290,044	506,140	796,184	365,412	399,120	1,113,339	1,877,871	308,518	1,821,312	2,129,830
2005	288,181	502,890	791,071	363,066	396,557	1,106,190	1,865,813	306,537	1,809,617	2,116,154
2006	286,534	500,016	786,550	360,991	394,290	1,099,867	1,855,148	304,785	1,799,273	2,104,058
2007	271,392	473,593	744,985	341,915	373,454	1,041,746	1,757,115	288,679	1,704,193	1,992,872
2008	305,068	532,360	837,428	384,341	419,795	1,171,012	1,975,148	324,500	1,915,660	2,240,160
2009	305,762	533,569	839,331	385,215	420,749	1,173,674	1,979,638	325,237	1,920,014	2,245,251
2010	306,393	534,671	841,064	386,010	421,617	1,176,096	1,983,723	325,908	1,923,976	2,249,884
2011	283,934	495,480	779,414	357,716	390,713	1,089,889	1,838,318	302,019	1,782,950	2,084,969
2012	284,554	496,561	781,115	358,496	391,566	1,092,267	1,842,329	302,679	1,786,840	2,089,519
2013	305,626	533,333	838,959	385,044	420,563	1,173,154	1,978,761	325,093	1,919,163	2,244,256
2014	286,670	500,253	786,923	361,162	394,477	1,100,388	1,856,027	304,929	1,800,126	2,105,055
2015	287,349	501,438	788,787	362,018	395,412	1,102,996	1,860,426	305,652	1,804,393	2,110,045
2016	288,144	502,826	790,970	363,019	396,506	1,106,048	1,865,573	306,497	1,809,384	2,115,881
2017	273,550	477,359	750,909	344,633	376,424	1,050,030	1,771,087	290,974	1,717,745	2,008,719
2018	274,337	478,732	753,069	345,624	377,507	1,053,049	1,776,180	291,811	1,722,684	2,014,495
2019	292,969	511,245	804,214	369,098	403,145	1,124,568	1,896,811	311,629	1,839,681	2,151,310
2020	294,017	513,074	807,091	370,418	404,587	1,128,591	1,903,596	312,744	1,846,262	2,159,006
2021	295,271	515,262	810,533	371,998	406,313	1,133,405	1,911,716	314,078	1,854,137	2,168,215
2022	293,343	511,899	805,242	369,570	403,661	1,126,006	1,899,237	312,028	1,842,033	2,154,061
2023	326,695	570,100	896,795	411,588	449,555	1,254,028	2,115,171	347,504	2,051,466	2,398,970
2024	274,424	478,883	753,307	345,734	377,626	1,053,382	1,776,742	291,903	1,723,229	2,015,132
2025	134,094	234,000	368,094	168,938	184,522	514,721	868,181	142,635	842,033	984,668
2026	67,708	118,155	185,863	85,303	93,171	259,901	438,375	72,021	425,171	497,192
2027	37,537	65,503	103,040	47,291	51,653	144,085	243,029	39,927	235,709	275,636
2028	0	0	0	0	0	0	0	0	0	0
2029	0	0	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0	0	0
2035	0	0	0	0	0	0	0	0	0	0
Total	9,063,633	15,697,335	24,760,968	11,295,126	12,436,538	34,751,178	58,482,842	9,600,646	53,991,663	63,592,309

TABLE B-22

Water System Revenue Bond Surcharge for Each Contractor

(Dollars)

Calendar Year	San Joaquin Valley Area								
				Kern County Water Agency					
	Dudley Ridge Water District (11)	Empire West Side Irrigation District (12)	Future Contractor San Joaquin Valley (13)	Municipal and Industrial (14)	Agricultural (15)	County of Kings (16)	Oak Flat Water District (17)	Tulare Lake Basin Water Storage District (18)	Total (19)
1971	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0
1988	33,986	1,657	0	67,288	726,501	2,228	2,851	66,748	901,259
1989	59,273	2,785	0	116,689	1,251,452	3,733	4,927	116,736	1,555,595
1990	53,349	2,419	0	287,811	947,351	3,248	4,367	109,118	1,407,663
1991	82,252	3,731	0	359,380	1,564,983	5,035	6,771	168,217	2,190,369
1992	112,566	5,127	0	452,691	2,153,423	6,927	9,285	230,217	2,970,236
1993	119,670	5,459	0	272,449	2,491,672	7,381	9,894	244,813	3,151,338
1994	118,265	5,379	0	244,671	2,485,820	7,300	9,766	241,933	3,113,134
1995	139,226	6,340	0	317,885	2,894,181	8,599	11,490	284,798	3,662,519
1996	169,333	7,703	0	354,341	2,722,240	10,461	13,978	346,367	3,624,423
1997	307,988	14,860	0	682,198	4,979,988	20,164	26,941	666,744	6,698,883
1998	369,489	17,838	0	815,649	5,759,279	24,202	32,326	799,866	7,818,649
1999	366,181	17,679	0	808,347	5,777,474	23,985	32,037	792,705	7,818,408
2000	358,670	17,316	0	791,768	5,658,979	23,493	31,379	776,447	7,658,052
2001	355,854	17,180	0	785,551	5,614,542	23,308	31,133	770,350	7,597,918
2002	351,786	16,984	0	776,570	5,550,350	23,042	30,777	761,542	7,511,050
2003	349,100	16,854	0	770,641	5,507,979	22,866	30,542	755,729	7,453,711
2004	352,847	17,035	0	778,913	5,567,099	23,111	30,870	763,840	7,533,715
2005	350,581	16,926	0	773,912	5,531,353	22,963	30,672	758,936	7,485,343
2006	348,577	16,829	0	769,488	5,499,735	22,832	30,496	754,598	7,442,555
2007	330,157	15,940	0	728,825	5,209,108	21,625	28,885	714,722	7,049,262
2008	371,125	17,918	0	819,262	5,855,487	24,309	32,469	803,409	7,923,979
2009	371,969	17,958	0	821,124	5,868,794	24,364	32,543	805,235	7,941,987
2010	372,736	17,995	0	822,819	5,880,906	24,414	32,610	806,897	7,958,377
2011	345,415	16,676	0	762,507	5,449,839	22,625	30,220	747,752	7,375,034
2012	346,169	16,713	0	764,171	5,461,731	22,674	30,286	749,383	7,391,127
2013	371,804	17,950	0	820,761	5,866,196	24,353	32,528	804,878	7,936,470
2014	348,743	16,837	0	769,852	5,502,341	22,843	30,511	754,955	7,446,082
2015	349,569	16,877	0	771,677	5,515,382	22,897	30,583	756,745	7,463,730
2016	350,536	16,924	0	773,812	5,530,641	22,960	30,668	758,838	7,484,379
2017	332,783	16,066	0	734,621	5,250,532	21,797	29,115	720,405	7,105,319
2018	333,739	16,113	0	736,733	5,265,628	21,860	29,198	722,477	7,125,748
2019	356,406	17,207	0	786,769	5,623,247	23,344	31,181	771,544	7,609,698
2020	357,681	17,269	0	789,583	5,643,362	23,428	31,293	774,304	7,636,920
2021	359,206	17,342	0	792,951	5,667,434	23,528	31,426	777,607	7,669,494
2022	356,861	17,229	0	787,775	5,630,437	23,374	31,221	772,531	7,619,428
2023	397,435	19,188	0	877,342	6,270,597	26,032	34,771	860,365	8,485,730
2024	333,845	16,118	0	736,966	5,267,293	21,867	29,208	722,705	7,128,002
2025	163,129	7,876	0	360,109	2,573,793	10,685	14,272	353,140	3,483,004
2026	82,369	3,977	0	181,831	1,299,597	5,395	7,206	178,313	1,758,688
2027	45,664	2,205	0	100,805	720,478	2,991	3,995	98,854	974,992
2028	0	0	0	0	0	0	0	0	0
2029	0	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0	0
2035	0	0	0	0	0	0	0	0	0
Total	11,076,333	532,479	0	24,966,537	178,037,224	722,243	964,691	23,864,763	240,164,270

TABLE B-22

Water System Revenue Bond Surcharge for Each Contractor

(Dollars)

Calendar Year	Southern California Area									
	Antelope Valley-East Kern Water Agency (20)	Castaic Lake Water Agency (21)	Coachella Valley Water District (22)	Crestline Lake Arrowhead Water Agency (23)	Desert Water Agency (24)	Littlerock Creek Irrigation District (25)	Mojave Water Agency (26)	Palmdale Water District (27)	San Bernardino Valley Municipal Water District (28)	San Gabriel Valley Municipal Water District (29)
1971	0	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0
1988	64,266	57,111	27,032	7,656	44,492	2,154	55,996	16,240	151,182	39,907
1989	205,668	98,720	46,993	13,263	78,104	3,763	97,138	27,981	259,860	69,104
1990	185,010	87,808	42,449	11,905	69,970	3,385	87,327	24,956	231,650	61,851
1991	296,854	140,371	65,947	18,548	108,704	5,236	135,623	38,641	363,310	96,172
1992	402,015	234,421	89,358	25,192	147,297	7,053	183,813	52,160	491,537	130,372
1993	424,871	247,076	93,981	26,566	154,919	7,437	193,361	55,045	517,379	137,298
1994	424,023	247,222	94,502	26,865	155,776	7,431	194,191	54,968	525,394	139,422
1995	500,084	290,998	111,730	31,822	184,170	8,769	229,530	64,852	623,848	165,593
1996	606,388	353,132	135,428	38,634	223,237	10,640	278,178	78,696	760,333	201,821
1997	1,166,191	675,664	259,937	74,132	428,478	20,434	534,121	151,132	1,505,782	386,414
1998	1,386,249	805,671	308,340	90,051	508,263	24,248	1,171,403	179,436	1,782,381	469,620
1999	1,373,837	798,457	305,580	89,245	503,713	24,030	1,160,916	177,830	1,766,424	465,416
2000	1,345,660	782,081	299,313	87,414	493,382	23,537	1,137,106	174,182	1,730,195	455,870
2001	1,335,093	775,940	296,962	86,728	489,507	23,353	1,128,177	172,815	1,716,609	452,291
2002	1,319,829	767,068	293,567	85,736	483,911	23,086	1,115,278	170,839	1,696,983	447,119
2003	1,309,753	761,213	291,326	85,082	480,216	22,909	1,106,764	169,535	1,684,028	443,706
2004	1,323,812	769,383	294,453	85,995	485,371	23,155	1,118,644	171,354	1,702,103	448,469
2005	1,315,312	764,443	292,562	85,443	482,254	23,007	1,111,461	170,254	1,691,174	445,589
2006	1,307,793	760,073	290,890	84,955	479,498	22,875	1,105,108	169,281	1,681,507	443,042
2007	1,238,684	719,908	275,518	80,465	454,159	21,666	1,046,710	160,335	1,592,650	419,630
2008	1,392,388	809,239	309,706	90,450	510,514	24,355	1,176,592	180,231	1,790,276	471,700
2009	1,395,553	811,078	310,410	90,655	511,674	24,410	1,179,266	180,640	1,794,345	472,772
2010	1,398,433	812,752	311,051	90,842	512,730	24,461	1,181,700	181,013	1,798,048	473,748
2011	1,295,928	753,178	288,251	84,184	475,148	22,668	1,095,082	167,745	1,666,252	439,023
2012	1,298,756	754,821	288,880	84,367	476,184	22,717	1,097,471	168,111	1,669,888	439,981
2013	1,394,935	810,719	310,273	90,615	511,448	24,399	1,178,744	180,560	1,793,550	472,563
2014	1,308,413	760,434	291,028	84,995	479,725	22,886	1,105,631	169,361	1,682,304	443,252
2015	1,311,514	762,236	291,718	85,196	480,862	22,940	1,108,252	169,762	1,686,292	444,303
2016	1,315,142	764,345	292,525	85,432	482,192	23,004	1,111,318	170,232	1,690,957	445,532
2017	1,248,535	725,633	277,709	81,105	457,771	21,839	1,055,033	161,610	1,605,315	422,967
2018	1,252,124	727,719	278,508	81,338	459,087	21,901	1,058,067	162,075	1,609,931	424,183
2019	1,337,163	777,143	297,423	86,862	490,266	23,389	1,129,926	173,083	1,719,271	452,992
2020	1,341,947	779,923	298,487	87,173	492,020	23,473	1,133,968	173,702	1,725,421	454,612
2021	1,347,671	783,250	299,760	87,545	494,119	23,573	1,138,805	174,443	1,732,780	456,551
2022	1,338,873	778,136	297,803	86,973	490,893	23,419	1,131,371	173,304	1,721,469	453,571
2023	1,491,098	866,608	331,662	96,862	546,706	26,081	1,260,004	193,008	1,917,194	505,140
2024	1,252,520	727,949	278,596	81,364	459,232	21,908	1,058,401	162,126	1,610,440	424,317
2025	612,027	355,703	136,132	39,757	224,398	10,705	517,174	79,221	786,920	207,337
2026	309,034	179,607	68,738	20,075	113,306	5,405	261,139	40,001	397,343	104,692
2027	171,324	99,571	38,107	11,129	62,815	2,997	144,772	22,176	220,281	58,040
2028	0	0	0	0	0	0	0	0	0	0
2029	0	0	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0	0	0
2035	0	0	0	0	0	0	0	0	0	0
Total	41,344,770	23,976,804	9,212,635	2,682,616	15,186,511	724,698	33,313,561	5,362,936	53,092,606	13,985,982

TABLE B-22

Water System Revenue Bond Surcharge for Each Contractor

(Dollars)

Calendar Year	Southern California Area (continued)				Feather River Area				South Bay Area Future Contractor	Grand Total
	San Gorgonio Pass Water Agency (30)	Metropolitan Water District of Southern California (31)	Ventura County Flood Control District (32)	Total (33)	City of Yuba City (34)	County of Butte (35)	Plumas County FC&WCD (36)	Total (37)	(38)	(39)
1971	0	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0
1988	24,019	2,642,354	18,118	3,150,527	1,336	552	853	2,741	0	4,317,328
1989	42,040	4,587,641	34,565	5,564,840	0	918	1,454	2,372	0	7,583,021
1990	38,023	4,037,980	34,994	4,917,308	2,535	800	1,283	4,618	0	6,750,020
1991	59,122	6,259,893	54,115	7,642,536	9,945	1,243	2,027	13,215	0	10,510,679
1992	80,131	8,435,312	72,892	10,351,553	13,671	1,710	2,806	18,187	0	14,255,669
1993	84,371	8,885,273	76,858	10,904,435	14,608	1,827	3,026	19,461	0	15,068,309
1994	85,698	8,926,755	76,794	10,959,041	14,409	1,801	3,070	19,280	0	15,145,690
1995	101,792	10,539,430	90,436	12,943,054	16,958	2,119	3,705	22,782	0	18,013,188
1996	124,074	12,810,359	109,783	15,730,703	20,640	2,578	4,620	27,839	0	21,369,059
1997	52,633	24,525,568	210,384	29,990,870	39,826	4,980	9,074	53,880	0	40,919,358
1998	105,678	29,406,932	250,745	36,489,017	47,781	5,977	11,132	64,890	0	49,403,013
1999	104,731	29,143,657	248,500	36,162,336	47,353	5,924	11,032	64,309	0	49,030,471
2000	102,583	28,545,928	243,403	35,420,654	46,382	5,802	10,806	62,990	0	48,024,865
2001	101,778	28,321,770	241,492	35,142,515	46,018	5,757	10,721	62,496	0	47,647,752
2002	100,614	27,997,965	238,731	34,740,726	45,492	5,691	10,599	61,782	0	47,102,991
2003	99,846	27,784,227	236,908	34,475,513	45,144	5,648	10,518	61,310	0	46,743,402
2004	100,917	28,082,451	239,451	34,845,558	45,629	5,708	10,631	61,968	0	47,245,126
2005	100,270	27,902,136	237,914	34,621,819	45,336	5,672	10,562	61,570	0	46,941,770
2006	99,696	27,742,641	236,554	34,423,913	45,077	5,639	10,502	61,218	0	46,673,442
2007	94,428	26,276,619	224,053	32,604,825	42,695	5,341	9,947	57,983	0	44,207,042
2008	106,145	29,537,183	251,855	36,650,634	47,993	6,004	11,181	65,178	0	49,692,527
2009	106,386	29,604,312	252,428	36,733,929	48,102	6,017	11,207	65,326	0	49,805,462
2010	106,606	29,665,409	252,948	36,809,741	48,201	6,030	11,230	65,461	0	49,908,250
2011	98,792	27,490,950	234,407	34,111,608	44,668	5,588	10,407	60,663	0	46,250,006
2012	99,007	27,550,939	234,919	34,186,041	44,765	5,600	10,429	60,794	0	46,350,925
2013	106,339	29,591,204	252,316	36,717,665	48,080	6,015	11,202	65,297	0	49,783,408
2014	99,744	27,755,791	236,666	34,440,230	45,098	5,642	10,507	61,247	0	46,695,564
2015	99,980	27,821,575	237,227	34,521,857	45,205	5,655	10,532	61,392	0	46,806,237
2016	100,257	27,898,542	237,883	34,617,361	45,330	5,671	10,561	61,562	0	46,935,726
2017	95,179	26,485,571	225,835	32,864,102	43,034	5,384	10,026	58,444	0	44,558,580
2018	95,453	26,561,722	226,484	32,958,592	43,158	5,399	10,055	58,612	0	44,686,696
2019	101,935	28,365,685	241,866	35,197,004	46,089	5,766	10,738	62,593	0	47,721,630
2020	102,300	28,467,151	242,731	35,322,908	46,254	5,786	10,776	62,816	0	47,892,337
2021	102,736	28,588,578	243,767	35,473,578	46,451	5,811	10,822	63,084	0	48,096,620
2022	102,066	28,401,949	242,175	35,242,002	46,148	5,773	10,752	62,673	0	47,782,643
2023	113,670	31,631,152	269,710	39,248,895	51,395	6,429	11,974	69,798	0	53,215,359
2024	95,483	26,570,122	226,556	32,969,014	43,172	5,401	10,058	58,631	0	44,700,828
2025	46,656	12,983,136	110,704	16,109,870	21,095	2,639	4,915	28,649	0	21,842,466
2026	23,558	6,555,634	55,898	8,134,430	10,652	1,333	2,482	14,467	0	11,029,015
2027	13,060	3,634,352	30,989	4,509,613	5,905	739	1,376	8,020	0	6,114,330
2028	0	0	0	0	0	0	0	0	0	0
2029	0	0	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0	0	0
2035	0	0	0	0	0	0	0	0	0	0
Total	3,517,796	878,015,848	7,484,054	1,087,900,817	1,411,630	178,370	329,598	1,919,598	0	1,476,820,804

TABLE B-23

Total Transportation and Delta Water Charge for Each Contractor

(Dollars)

Calendar Year	North Bay Area			South Bay Area				Central Coastal Area		
	Napa County FC&WCD	Solano County WA	Total	Alameda County FC&WCD, Zone 7	Alameda County Water District	Santa Clara Valley Water District	Total	San Luis Obispo County FC&WCD	Santa Barbara County FC&WCD	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	11,750	43,787	0	55,537	0	0	0
1963	0	0	0	151,140	190,453	449,448	791,041	0	0	0
1964	0	0	0	170,797	277,738	623,343	1,071,878	6,064	20,521	26,585
1965	0	0	0	245,718	404,749	1,160,661	1,811,128	11,435	31,771	43,206
1966	18,096	0	18,096	271,833	422,196	1,415,802	2,109,831	20,198	49,707	69,905
1967	41,644	0	41,644	361,679	549,011	1,866,228	2,776,918	38,006	84,262	122,268
1968	128,824	0	128,824	411,342	633,770	2,181,690	3,226,802	63,565	133,233	196,798
1969	254,981	0	254,981	477,464	584,080	2,302,121	3,363,665	118,200	235,433	353,633
1970	277,819	0	277,819	541,779	640,965	2,791,412	3,974,156	130,918	260,050	390,968
1971	227,749	0	227,749	479,104	675,866	2,810,474	3,965,444	131,734	262,620	394,354
1972	225,255	0	225,255	609,002	823,070	3,031,213	4,463,285	137,493	274,669	412,162
1973	221,370	31,433	252,803	594,730	717,166	3,124,259	4,436,155	134,288	269,504	403,792
1974	240,782	33,008	273,790	634,868	747,608	3,328,497	4,710,973	135,296	272,061	407,357
1975	237,756	36,366	274,122	691,750	793,732	3,217,526	4,703,008	151,619	302,951	454,570
1976	271,596	40,918	312,514	804,333	944,143	3,366,025	5,114,501	260,819	506,160	766,979
1977	293,936	45,185	339,121	772,020	922,884	3,306,954	5,001,858	270,548	527,595	798,143
1978	274,184	49,273	323,457	859,589	936,502	3,716,086	5,512,177	277,188	543,157	820,345
1979	289,798	53,442	343,240	954,376	1,010,189	3,822,525	5,787,090	274,962	542,333	817,295
1980	311,160	86,198	397,358	1,105,949	1,174,434	4,122,796	6,403,179	312,814	597,023	909,837
1981	347,577	113,003	460,580	1,211,246	1,349,941	4,512,209	7,073,396	337,341	652,635	989,976
1982	438,706	142,022	580,728	1,286,049	1,368,621	4,887,669	7,542,339	358,863	739,193	1,098,056
1983	355,214	163,551	518,765	1,163,330	1,262,144	4,948,715	7,374,189	387,925	758,833	1,146,758
1984	467,879	247,070	714,949	1,467,617	1,479,190	6,877,974	9,824,781	440,158	857,665	1,297,823
1985	736,900	386,900	1,123,800	1,965,197	2,230,111	7,810,992	12,006,300	535,986	1,035,141	1,571,127
1986	1,121,376	715,360	1,836,736	1,831,234	2,017,843	8,212,370	12,061,447	569,114	1,097,842	1,666,956
1987	1,774,629	1,584,700	3,359,329	2,326,577	2,509,951	8,000,069	12,836,597	602,001	1,206,958	1,808,959
1988	2,353,608	2,548,423	4,902,031	2,387,110	2,779,043	7,843,680	13,009,833	704,814	1,498,402	2,203,216
1989	2,529,880	3,700,565	6,230,445	2,349,870	2,501,534	7,530,212	12,381,616	804,496	1,873,961	2,678,457
1990	2,903,015	3,855,382	6,758,397	2,802,177	2,935,221	8,374,136	14,111,534	964,419	2,104,056	3,068,475
1991	2,940,977	4,177,210	7,118,187	2,060,011	2,381,282	6,425,423	10,866,716	1,008,965	2,407,105	3,416,070
1992	2,799,175	4,151,701	6,950,876	2,529,498	2,927,706	7,660,078	13,117,282	1,146,423	2,546,350	3,692,773
1993	2,862,093	4,190,374	7,052,467	3,383,210	2,979,247	8,857,056	15,219,513	1,215,108	2,719,457	3,934,565
1994	2,985,849	4,235,353	7,221,202	3,405,312	3,578,011	9,595,666	16,578,989	1,361,305	3,456,222	4,817,527
1995	2,963,493	4,421,091	7,384,584	3,650,492	3,305,956	8,378,342	15,334,790	1,685,883	6,059,145	7,745,028
1996	3,072,023	4,827,602	7,899,625	3,226,331	3,161,264	9,184,091	15,571,686	2,678,380	14,871,781	17,550,161
1997	3,564,575	5,465,688	9,030,263	4,302,224	4,385,376	10,617,361	19,304,961	4,297,503	28,721,105	33,018,608
1998	3,532,093	5,687,285	9,219,378	4,170,606	4,232,030	11,922,666	20,325,302	4,599,469	32,268,906	36,868,375
1999	3,554,748	5,682,568	9,237,316	4,569,048	4,191,688	11,760,253	20,520,989	4,506,961	32,811,126	37,318,087
2000	3,589,665	5,716,654	9,306,319	4,597,473	4,237,517	11,742,835	20,577,825	4,509,184	32,896,945	37,406,129
2001	3,603,625	5,715,351	9,318,976	4,559,725	4,207,934	11,658,203	20,425,862	4,498,481	32,802,224	37,300,705
2002	3,638,944	5,738,333	9,377,277	4,561,983	4,425,847	11,659,526	20,647,356	6,015,063	32,757,563	38,772,626
2003	3,649,319	5,734,037	9,383,356	4,495,443	4,364,594	11,512,444	20,372,481	5,921,482	32,577,698	38,499,180
2004	3,686,019	5,770,069	9,456,088	4,539,757	4,405,756	11,612,194	20,557,707	5,978,651	32,695,234	38,673,885
2005	3,699,009	5,752,184	9,451,193	4,485,805	4,356,065	11,492,799	20,334,669	5,912,857	32,567,128	38,479,985
2006	3,718,997	5,756,665	9,475,662	4,496,571	4,365,524	11,514,396	20,376,491	5,928,262	32,588,041	38,516,303
2007	3,723,300	5,727,265	9,450,565	4,461,948	4,330,490	11,422,472	20,214,910	5,891,170	32,454,734	38,345,904
2008	3,809,953	5,819,829	9,629,782	4,604,706	4,468,440	11,769,861	20,843,007	6,071,940	32,929,980	39,001,920
2009	3,834,808	5,822,993	9,657,801	4,606,510	4,470,245	11,774,544	20,851,299	6,073,870	32,936,506	39,010,376
2010	3,859,455	5,825,627	9,685,082	4,606,523	4,470,399	11,775,265	20,852,187	6,073,477	32,938,533	39,012,010
2011	3,865,717	5,788,442	9,654,159	4,578,995	4,440,193	11,690,726	20,709,914	6,050,600	32,799,348	38,849,948
2012	3,891,654	5,792,387	9,684,041	4,583,527	4,444,471	11,701,251	20,729,249	6,056,451	32,812,692	38,869,143
2013	3,870,512	5,755,122	9,625,634	4,267,828	4,156,600	10,913,198	19,337,626	5,732,720	32,315,423	38,048,143
2014	3,855,258	5,699,873	9,555,131	4,135,536	3,998,437	10,516,139	18,650,112	5,592,843	31,969,304	37,562,147
2015	3,866,960	5,687,622	9,554,582	4,055,281	3,870,857	10,055,115	17,981,253	5,521,263	31,840,599	37,361,862
2016	3,865,058	5,681,966	9,547,024	4,011,341	3,817,442	9,827,813	17,656,596	5,475,947	31,759,595	37,235,542
2017	3,847,475	5,653,813	9,501,288	3,952,617	3,758,748	9,637,304	17,348,669	5,428,779	31,608,234	37,037,013
2018	3,791,692	5,655,022	9,446,714	3,910,164	3,717,154	9,513,833	17,141,151	5,413,423	31,581,534	36,994,957
2019	3,790,678	5,687,803	9,478,481	3,895,194	3,707,075	9,482,935	17,085,204	5,429,613	31,690,442	37,120,055
2020	3,804,703	5,683,272	9,487,975	3,860,614	3,673,477	9,400,122	16,934,213	5,399,779	31,639,445	37,039,224
2021	3,807,067	5,684,901	9,491,968	3,857,413	3,670,462	9,394,167	16,922,042	5,397,755	31,640,106	37,037,861
2022	3,803,358	5,681,175	9,484,533	3,853,203	3,665,814	9,379,941	16,898,958	5,393,561	31,622,659	37,016,220
2023	3,838,278	5,710,183	9,548,461	3,901,876	3,717,710	9,520,559	17,140,145	5,438,497	31,848,582	37,287,079
2024	3,784,330	5,618,495	9,402,825	3,838,475	3,647,889	9,324,397	16,810,761	5,388,094	31,529,073	36,917,167
2025	3,629,957	5,365,284	8,995,241	3,645,871	3,439,840	8,749,385	15,835,096	5,215,825	30,605,267	35,821,092
2026	3,557,518	5,243,695	8,801,213	3,557,490	3,344,128	8,483,989	15,385,607	5,033,152	29,980,038	35,013,190
2027	3,520,853	5,183,688	8,704,541	3,507,684	3,291,657	8,340,708	15,140,049	4,985,908	29,759,446	34,745,354
2028	3,479,816	5,113,899	8,593,715	3,457,373	3,237,097	8,188,380	14,882,850	4,939,590	29,508,655	34,448,245
2029	3,478,424	5,111,598	8,590,022	3,459,818	3,239,281	8,192,679	14,891,778	4,946,618	29,518,153	34,464,771
2030	3,461,992	5,091,352	8,553,344	3,438,550	3,219,788	8,145,830	14,804,168	4,920,152	29,465,655	34,385,807
2031	3,450,213	5,073,150	8,523,363	3,436,538	3,217,874	8,140,834	14,795,246	4,921,364	29,453,846	34,375,210
2032	3,440,248	5,055,040	8,495,288	3,442,918	3,223,650	8,154,316	14,820,884	4,928,375	29,472,087	34,400,462
2033	3,410,198	5,008,857	8,419,055	3,436,741	3,217,954	8,140,379	14,795,074	4,920,456	29,461,041	34,381,497
2034	3,347,914	4,937,262	8,285,176	3,434,595	3,215,730	8,133,756	14,784,081	4,925,370	29,467,359	34,392,729
2035	3,216,681	4,795,878	8,012,559	3,423,208	3,205,270	8,108,015	14,736,493	4,918,773	29,453,142	34,371,915
Total	177,108,408	255,810,457	432,918,865	205,195,656	202,309,911	559,106,332	966,611,899	225,929,606	1,275,545,244	1,501,474,850

TABLE B-23

Total Transportation and Delta Water Charge for Each Contractor

(Dollars)

Calendar Year	San Joaquin Valley Area								
				Kern County Water Agency					
	Dudley Ridge Water District (11)	Empire West Side Irrigation District (12)	Future Contractor San Joaquin Valley (13)	Municipal and Industrial (14)	Agricultural (15)	County of Kings (16)	Oak Flat Water District (17)	Tulare Lake Basin Water Storage District (18)	Total (19)
1961	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0
1964	0	0	2,729	0	0	0	0	0	2,729
1965	0	0	6,039	73,621	0	0	0	0	79,660
1966	0	0	12,059	137,403	0	0	0	0	149,462
1967	0	0	26,300	267,762	0	0	0	0	294,062
1968	224,851	20,039	54,667	445,582	1,700,017	16,058	19,617	306,250	2,787,081
1969	241,028	12,911	87,669	525,042	2,709,466	15,694	19,350	454,760	4,065,920
1970	306,140	36,345	94,769	573,806	3,855,103	20,267	30,369	518,287	5,435,086
1971	327,541	39,074	95,791	605,592	5,168,411	25,982	34,649	709,348	7,006,398
1972	381,200	42,334	98,888	631,268	7,120,861	25,266	63,752	1,975,196	10,338,765
1973	398,512	40,957	97,649	1,025,521	7,243,746	27,597	39,230	778,117	9,651,329
1974	506,794	42,171	98,560	1,144,416	7,948,220	28,310	42,523	1,035,935	10,846,929
1975	679,219	42,618	106,802	1,196,782	9,317,558	29,987	48,138	1,547,806	12,968,910
1976	718,903	45,138	108,185	1,323,452	10,556,646	31,408	52,069	1,435,938	14,271,739
1977	579,177	41,055	112,656	1,367,013	10,863,623	33,159	54,178	1,132,139	14,183,000
1978	697,687	43,322	115,626	1,565,489	13,187,424	37,568	58,992	1,165,711	16,871,819
1979	780,687	49,884	114,357	1,668,194	15,250,898	41,690	70,548	1,718,055	19,694,313
1980	962,108	51,633	126,250	1,770,108	16,891,292	46,668	94,905	1,652,157	21,595,121
1981	1,211,723	86,123	134,332	2,431,918	22,489,039	65,165	100,694	2,277,725	28,796,719
1982	1,246,296	72,180	135,399	2,523,642	24,853,561	69,251	108,190	2,269,760	31,278,279
1983	1,179,904	54,541	149,600	2,084,555	24,484,022	73,952	88,937	505,905	28,621,416
1984	1,491,804	30,519	164,862	3,398,628	33,380,088	93,014	121,511	1,535,238	40,215,684
1985	1,780,345	132,675	187,509	3,922,275	39,632,514	116,898	140,560	2,839,389	48,752,165
1986	2,011,853	81,550	181,650	4,088,477	43,812,912	135,453	153,318	3,652,391	54,117,604
1987	1,893,491	97,796	180,471	4,594,650	42,856,224	136,805	152,575	3,757,200	53,669,212
1988	1,970,573	112,948	194,544	4,734,973	44,661,185	137,036	146,637	3,895,587	55,853,483
1989	2,120,982	103,651	188,809	4,674,922	46,756,247	135,561	165,908	4,367,598	58,513,678
1990	2,040,152	88,963	221,100	4,833,958	45,548,533	119,833	148,771	3,950,015	56,951,325
1991	1,708,178	82,098	219,805	4,532,759	37,364,953	102,362	134,480	3,484,305	47,628,940
1992	2,231,185	107,469	241,040	5,543,792	48,523,875	142,668	175,523	4,524,516	61,490,068
1993	2,458,586	122,091	266,446	5,809,998	54,613,779	163,142	195,377	5,281,728	68,911,147
1994	2,256,230	109,746	306,143	5,220,579	51,897,975	144,808	177,569	4,647,009	64,760,059
1995	2,843,426	116,917	302,227	6,593,686	60,013,248	180,533	209,307	5,485,897	75,746,241
1996	2,154,944	118,884	360,011	6,683,993	59,170,824	178,491	189,044	7,037,253	75,893,444
1997	3,073,017	129,540	370,270	6,885,839	65,357,855	172,384	242,664	5,789,886	82,021,455
1998	3,003,654	153,507	369,541	7,016,650	64,441,946	204,604	251,011	6,541,847	81,982,760
1999	2,934,917	149,673	376,029	6,870,080	63,136,634	199,850	246,967	6,390,150	80,304,300
2000	2,929,114	149,526	367,991	6,857,657	62,941,726	200,164	247,281	6,381,994	80,075,453
2001	2,914,586	148,735	368,318	6,821,606	62,616,345	199,109	246,182	6,349,949	79,664,830
2002	2,912,887	148,667	369,130	7,018,371	62,101,833	199,000	245,994	6,346,229	79,342,121
2003	2,882,586	146,983	369,555	6,934,935	61,446,194	196,757	243,746	6,279,092	78,499,848
2004	2,904,004	148,156	369,644	6,992,703	61,891,124	198,320	245,360	6,326,386	79,075,697
2005	2,879,023	146,774	369,452	6,924,148	61,366,040	196,480	243,509	6,271,149	78,396,575
2006	2,882,617	146,991	369,481	6,935,423	61,456,928	196,769	243,741	6,279,231	78,511,181
2007	2,857,422	145,721	369,451	6,875,741	61,017,618	195,054	241,637	6,224,323	77,926,967
2008	2,941,824	150,140	369,483	7,088,117	62,628,566	200,992	248,384	6,409,430	80,036,936
2009	2,943,077	150,204	369,486	7,091,131	62,650,805	201,077	248,489	6,412,165	80,066,434
2010	2,943,501	150,222	369,485	7,091,857	62,655,329	201,102	248,531	6,413,071	80,073,098
2011	2,916,514	148,921	369,488	7,032,489	62,231,617	199,338	246,166	6,354,665	79,499,198
2012	2,918,905	149,049	369,489	7,038,741	62,279,446	199,509	246,350	6,359,925	79,561,414
2013	2,844,911	144,664	369,608	6,815,447	60,454,887	193,715	241,333	6,194,142	77,258,727
2014	2,786,895	141,604	367,009	6,666,171	59,300,735	189,577	236,771	6,066,547	75,755,309
2015	2,772,823	140,806	363,736	6,552,574	58,979,587	188,513	235,756	6,035,231	75,269,026
2016	2,762,598	140,224	357,707	6,459,504	58,746,174	187,738	235,026	6,012,484	74,901,455
2017	2,740,891	139,143	343,474	6,278,850	58,377,518	186,278	233,186	5,965,267	74,264,607
2018	2,741,055	139,146	320,741	6,161,614	58,375,180	177,763	233,211	5,965,580	74,114,290
2019	2,763,619	140,234	312,257	6,151,760	58,730,675	178,730	235,187	6,014,419	74,526,881
2020	2,755,289	139,757	310,403	6,095,000	58,540,845	177,846	234,598	5,995,872	74,249,610
2021	2,756,036	139,788	309,293	6,074,392	58,547,942	177,746	234,675	5,997,458	74,237,330
2022	2,753,192	139,647	308,675	6,057,793	58,499,954	177,486	234,434	5,991,272	74,162,453
2023	2,796,937	141,784	308,263	6,151,883	59,209,569	180,352	238,214	6,086,140	75,113,142
2024	2,734,612	138,786	307,727	6,012,936	58,235,688	176,265	232,743	5,951,296	73,790,053
2025	2,557,426	130,180	307,176	5,615,467	55,397,201	164,574	217,336	5,567,364	69,956,724
2026	2,474,970	126,184	306,899	5,430,393	54,085,924	159,120	210,146	5,388,774	68,182,410
2027	2,433,879	124,167	306,232	5,334,076	53,410,813	156,346	206,617	5,299,583	67,271,713
2028	2,387,919	121,944	303,795	5,230,402	52,683,968	153,311	202,600	5,200,074	66,284,013
2029	2,390,570	122,094	303,493	5,234,744	52,742,004	153,448	202,791	5,205,954	66,355,098
2030	2,382,303	121,630	303,164	5,208,476	52,561,052	152,763	202,192	5,187,617	66,119,197
2031	2,384,419	121,748	301,584	5,196,097	52,607,501	152,529	202,345	5,192,313	66,158,536
2032	2,386,446	121,862	301,583	5,204,102	52,651,849	152,695	202,492	5,196,807	66,217,836
2033	2,383,928	121,721	301,234	5,192,121	52,596,700	152,373	202,309	5,191,223	66,141,609
2034	2,386,072	121,841	300,625	5,191,803	52,643,653	152,391	202,465	5,195,975	66,194,825
2035	2,384,508	121,753	299,890	5,178,339	52,609,400	152,041	202,352	5,192,514	66,140,797
Total	144,002,475	7,429,168	16,023,825	330,963,288	3,082,081,069	9,428,735	12,051,512	305,165,613	3,909,145,685

TABLE B-23

Total Transportation and Delta Water Charge for Each Contractor

(Dollars)

Calendar Year	Southern California Area									
	Antelope Valley-East Kern Water Agency (20)	Castaic Lake Water Agency (21)	Coachella Valley Water District (22)	Crestline-Lake Arrowhead Water Agency (23)	Desert Water Agency (24)	Littlerock Creek Irrigation District (25)	Mojave Water Agency (26)	Palmdale Water District (27)	San Bernardino Valley Municipal Water District (28)	San Gabriel Valley Municipal Water District (29)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0
1963	33,153	0	0	0	0	0	0	0	51,523	0
1964	62,632	27,409	14,353	4,353	36,951	1,138	42,521	8,171	82,521	34,841
1965	118,196	52,938	24,978	7,166	40,580	2,074	77,549	15,164	134,596	35,209
1966	215,076	101,133	44,529	12,429	72,823	3,739	142,039	27,578	231,665	61,227
1967	416,139	210,574	85,730	23,376	140,772	7,256	281,002	53,826	431,696	115,106
1968	733,440	490,766	151,959	41,329	249,996	12,817	498,514	95,089	779,064	208,052
1969	1,054,222	741,243	223,992	60,899	368,790	18,596	713,658	137,373	1,200,270	320,188
1970	1,369,904	940,638	313,187	89,189	515,897	25,077	950,741	183,768	1,769,499	465,116
1971	1,695,178	1,134,569	429,483	127,617	707,691	31,635	1,240,939	229,882	2,526,418	655,791
1972	2,171,678	1,379,289	599,820	184,991	983,991	43,549	1,598,118	286,076	3,760,717	946,049
1973	2,322,929	1,427,540	743,714	190,072	1,210,884	45,828	1,700,952	311,844	4,028,401	956,587
1974	2,443,203	1,522,999	767,153	203,144	1,250,670	48,700	1,764,698	330,080	4,465,450	1,100,572
1975	2,660,307	1,613,860	812,339	218,328	1,325,713	53,006	1,859,099	353,623	4,640,019	1,206,151
1976	3,124,445	1,650,476	869,253	231,137	1,418,230	57,492	1,941,217	379,617	4,839,116	1,277,416
1977	3,105,940	1,738,270	769,684	244,102	1,260,420	53,965	2,033,474	404,950	5,094,686	1,343,425
1978	3,553,686	1,871,261	968,791	254,442	1,561,082	56,564	2,087,430	418,345	5,092,175	1,372,632
1979	4,226,544	1,950,866	1,053,973	266,750	1,683,146	60,039	2,265,470	448,055	5,136,887	1,337,289
1980	4,910,911	2,089,552	1,163,162	294,285	1,883,496	67,349	2,440,089	497,274	5,646,795	1,479,932
1981	5,733,968	2,550,779	1,317,115	327,577	2,132,351	100,457	2,775,872	601,232	6,457,767	1,682,248
1982	5,492,008	2,721,467	1,404,304	345,570	2,275,346	82,039	2,747,334	640,213	6,774,506	1,923,575
1983	6,245,681	2,809,959	1,926,034	379,851	3,112,913	88,133	2,953,603	656,853	6,965,375	1,803,909
1984	7,621,146	3,915,226	3,027,902	496,804	4,871,565	96,226	3,235,795	725,953	8,055,430	2,594,710
1985	9,509,112	4,332,508	3,865,976	602,672	6,214,124	104,031	3,449,050	935,877	8,916,489	2,690,857
1986	9,428,058	4,977,938	4,322,834	647,417	6,952,801	130,185	3,621,756	1,223,742	9,157,728	3,398,002
1987	9,424,459	4,826,729	4,191,205	676,325	6,829,817	240,365	3,670,808	1,251,019	10,464,772	3,383,375
1988	9,076,484	5,030,815	4,259,489	706,071	7,015,558	159,098	3,880,024	1,045,624	11,091,696	3,275,147
1989	10,956,859	5,033,753	3,961,164	692,692	6,589,254	210,825	3,967,837	1,748,272	10,860,911	3,463,046
1990	12,312,518	5,486,620	4,644,858	729,467	7,660,156	330,828	4,201,018	1,950,861	11,700,378	4,210,812
1991	9,176,466	4,351,058	3,200,682	690,735	5,278,168	220,623	5,082,444	1,637,764	11,120,962	3,642,275
1992	11,726,621	5,804,357	3,355,499	618,319	5,533,386	174,768	6,084,206	1,529,171	11,236,814	3,709,218
1993	12,213,123	5,439,547	3,590,291	629,013	5,920,682	212,791	6,009,592	1,762,060	12,338,732	4,114,497
1994	14,199,901	6,002,124	3,609,428	717,407	5,952,046	277,519	6,984,262	2,086,207	13,371,532	4,942,681
1995	13,983,661	6,445,738	4,377,528	688,049	7,309,266	213,854	6,166,264	1,933,175	12,913,961	4,637,042
1996	14,490,204	6,556,896	7,340,199	733,647	12,105,444	208,546	6,268,178	2,294,968	13,370,606	4,758,211
1997	17,578,096	8,006,000	7,380,866	1,032,602	9,063,681	444,379	7,742,735	3,328,775	17,215,533	6,179,974
1998	25,109,988	7,821,557	4,608,878	983,172	7,600,504	425,836	10,611,643	3,187,018	18,908,981	6,607,440
1999	20,598,704	7,617,434	4,346,336	939,389	5,145,125	403,852	11,520,630	3,013,168	19,389,107	5,534,117
2000	21,347,090	7,962,495	4,460,096	974,735	5,388,194	412,223	14,319,485	3,076,441	20,982,444	5,776,957
2001	21,035,997	8,012,812	4,362,586	942,847	5,166,254	405,925	14,633,890	3,029,145	20,660,604	5,572,749
2002	23,876,141	8,688,348	4,360,453	1,372,944	7,190,786	406,149	15,436,484	3,030,722	24,260,415	6,283,148
2003	23,232,467	8,482,470	4,240,864	1,350,367	6,993,542	395,441	15,132,385	2,950,199	23,861,365	6,156,812
2004	23,645,844	8,609,837	4,300,278	1,340,977	7,091,523	402,338	15,416,156	3,002,004	23,682,432	6,154,385
2005	23,120,036	8,448,387	4,213,729	1,338,982	6,948,784	393,560	14,979,187	2,936,083	23,661,059	6,109,223
2006	23,241,612	8,485,223	4,246,044	1,353,209	7,002,092	395,580	15,068,015	2,951,269	23,901,042	6,166,132
2007	23,013,811	8,371,136	4,181,282	1,316,304	6,895,279	391,728	14,920,237	2,922,464	23,229,931	6,018,339
2008	24,166,561	8,826,356	4,408,559	1,373,274	7,270,103	411,026	15,502,959	3,067,268	24,273,460	6,309,115
2009	24,182,038	8,823,886	4,427,607	1,394,021	7,301,527	411,285	15,511,948	3,069,220	24,644,495	6,382,465
2010	24,173,020	8,816,128	4,414,356	1,379,367	7,279,662	411,139	15,507,238	3,068,103	24,384,662	6,331,188
2011	24,078,371	8,766,616	4,394,984	1,376,165	7,247,738	409,477	15,421,428	3,055,819	24,318,700	6,309,499
2012	24,123,614	8,778,290	4,405,395	1,380,814	7,264,905	410,234	15,445,641	3,061,489	24,403,631	6,329,203
2013	21,897,599	8,056,125	3,989,478	1,291,147	6,565,622	373,889	14,655,078	2,787,910	22,781,595	5,846,478
2014	20,939,278	7,692,528	3,761,534	1,203,756	6,203,567	357,261	14,287,400	2,663,337	21,245,884	5,474,952
2015	20,583,991	7,576,123	3,729,113	1,231,804	6,150,100	351,353	14,181,444	2,618,943	21,763,581	5,549,153
2016	20,231,140	7,441,921	3,627,328	1,172,997	5,982,211	345,437	14,013,203	2,574,541	20,701,372	5,316,822
2017	19,876,956	7,261,631	3,569,159	1,172,903	5,886,302	339,316	13,779,585	2,528,864	20,693,901	5,287,502
2018	19,605,451	7,043,522	3,494,906	1,138,166	5,763,830	334,527	13,570,697	2,493,373	20,052,547	5,139,627
2019	19,391,844	6,893,821	3,462,997	1,146,474	5,711,203	330,606	13,434,077	2,464,878	20,139,625	5,135,400
2020	18,873,150	6,662,649	3,332,907	1,107,226	5,496,651	320,752	13,061,133	2,393,105	19,377,186	4,937,451
2021	18,611,887	6,495,079	3,211,661	1,052,106	5,296,678	315,271	12,792,784	2,355,057	18,323,940	4,692,870
2022	18,465,325	6,375,908	3,163,724	1,046,448	5,217,625	312,552	12,632,656	2,335,448	18,104,165	4,631,237
2023	18,640,479	6,473,211	3,202,939	1,063,909	5,282,278	315,449	12,767,885	2,357,391	18,373,232	4,694,365
2024	18,412,452	6,300,444	3,136,536	1,031,166	5,172,798	311,429	12,549,403	2,327,724	17,740,713	4,549,612
2025	17,601,008	5,867,722	2,953,960	982,273	4,871,807	297,355	11,916,622	2,223,324	16,776,291	4,287,940
2026	17,246,499	5,662,817	2,873,592	963,551	4,739,328	291,158	11,607,669	2,177,545	16,375,955	4,174,683
2027	16,990,958	5,529,498	2,811,445	942,384	4,636,848	286,774	11,406,191	2,144,907	15,964,332	4,071,145
2028	16,802,859	5,411,910	2,776,327	939,072	4,578,972	283,476	11,247,868	2,120,539	15,869,754	4,035,802
2029	16,853,019	5,411,653	2,785,399	942,578	4,593,930	284,300	11,273,992	2,126,774	15,933,415	4,051,163
2030	16,640,594	5,277,742	2,729,132	913,035	4,501,121	280,763	11,147,808	2,100,204	15,397,062	3,931,462
2031	16,593,801	5,235,352	2,732,455	927,935	4,506,611	279,916	11,115,985	2,093,988	15,661,438	3,979,197
2032	16,653,565	5,215,632	2,741,073	926,621	4,520,826	280,910	11,156,599	2,101,454	15,636,888	3,978,855
2033	16,518,009	5,144,057	2,702,233	906,835	4,456,756	278,634	11,064,861	2,084,402	15,297,724	3,901,557
2034	16,460,892	5,135,782	2,708,288	923,703	4,466,751	277,669	11,041,579	2,077,167	15,593,631	3,954,315
2035	16,346,845	5,078,333	2,687,074	915,979	4,431,773	275,668	10,994,474	2,062,968	15,437,221	3,916,370
Total	982,568,843	372,989,332	212,366,181	55,926,462	340,347,296	17,093,749	605,604,607	128,166,736	989,728,470	270,903,892

TABLE B-23

Total Transportation and Delta Water Charge for Each Contractor

(Dollars)

Calendar Year	Southern California Area (continued)				Feather River Area				South Bay Area Future Contractor	Grand Total
	San Gorgonio Pass Water Agency (30)	Metropolitan Water District of Southern California (31)	Ventura County Flood Control District (32)	Total (33)	City of Yuba City (34)	County of Butte (35)	Plumas County FC&WCD (36)	Total (37)	(38)	(39)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	55,537
1963	0	688,882	0	773,558	0	0	0	0	55,823	1,620,422
1964	21,648	1,258,056	9,363	1,603,957	0	0	0	0	84,094	2,789,243
1965	21,784	2,176,243	17,738	2,724,215	0	0	405	405	129,191	4,787,805
1966	37,820	3,881,995	33,372	4,875,425	0	0	565	565	148,545	7,371,829
1967	71,000	7,677,768	68,052	9,582,297	0	0	563	563	204,922	13,022,674
1968	128,385	15,288,020	142,609	18,820,040	0	1,050	1,440	2,490	279,614	25,441,649
1969	197,819	23,098,226	214,850	28,350,126	0	1,225	4,125	5,350	349,609	36,743,284
1970	288,148	30,529,578	273,028	37,713,770	0	3,848	17,139	20,987	386,703	48,199,489
1971	407,146	39,836,038	341,681	49,364,068	0	4,546	19,212	23,758	376,266	61,262,238
1972	534,631	54,837,529	421,472	67,747,810	0	4,929	21,178	26,107	401,782	83,615,266
1973	585,297	59,431,311	434,774	73,390,133	0	7,059	21,805	28,864	376,261	88,539,337
1974	608,726	65,848,628	454,686	80,808,709	0	8,336	22,436	30,772	399,238	97,477,768
1975	641,821	71,665,933	477,507	87,527,706	0	9,416	23,550	32,966	408,459	106,369,741
1976	665,438	74,740,383	474,684	91,668,904	0	7,004	23,284	30,288	431,049	112,595,974
1977	693,587	73,169,841	506,157	90,418,501	0	16,917	24,087	41,004	423,790	111,205,417
1978	706,080	81,781,615	522,276	100,246,379	0	12,635	24,252	36,887	427,039	124,238,103
1979	709,868	83,428,460	525,499	103,092,846	0	16,575	28,379	44,954	447,073	130,226,811
1980	859,136	92,853,653	582,652	114,768,286	0	19,834	26,589	46,423	507,816	144,628,022
1981	943,269	111,598,787	671,337	136,892,759	0	21,682	34,591	56,273	517,317	174,787,020
1982	1,018,306	116,947,391	726,864	143,098,923	0	16,117	43,025	59,142	513,658	184,171,125
1983	1,073,349	118,835,398	848,536	147,699,594	0	15,202	27,088	42,290	553,396	185,956,408
1984	1,208,828	157,122,685	932,136	193,904,406	20,590	15,442	28,701	64,733	562,186	246,584,562
1985	1,290,301	195,296,475	998,315	238,205,787	24,050	16,976	32,143	73,169	682,463	302,414,811
1986	1,344,228	218,421,294	1,059,391	264,685,374	31,753	18,145	33,432	83,330	621,116	335,072,563
1987	1,371,404	204,085,805	1,047,870	251,463,953	37,071	17,794	33,618	88,483	686,043	323,912,576
1988	1,468,767	222,037,381	1,126,196	270,172,350	48,058	19,117	35,688	102,863	709,900	346,953,676
1989	1,510,217	230,712,687	1,233,636	280,941,153	61,184	20,809	38,088	120,081	769,174	361,634,604
1990	1,617,825	276,658,302	1,851,345	333,354,988	66,041	20,855	36,739	125,635	821,332	415,191,686
1991	1,720,588	221,657,089	1,547,096	269,325,950	180,212	22,526	41,303	244,041	566,456	339,166,360
1992	1,792,811	245,845,400	1,501,548	298,912,118	208,216	26,028	45,671	279,915	804,698	385,247,730
1993	1,978,842	220,138,005	1,551,542	275,898,717	209,613	26,203	46,514	282,330	966,157	372,264,896
1994	2,025,587	260,166,650	1,471,057	321,806,401	201,284	25,161	46,886	273,331	975,815	416,433,324
1995	2,099,662	229,772,881	1,572,820	292,113,901	216,945	27,118	50,354	294,417	903,705	399,522,666
1996	1,759,240	238,086,903	1,625,031	309,598,073	217,250	27,155	52,013	296,418	951,281	427,760,688
1997	1,984,879	308,767,851	2,153,381	390,878,752	254,744	32,153	60,133	347,030	1,009,487	535,610,556
1998	2,120,556	325,298,688	2,767,813	416,052,074	272,341	34,366	64,785	371,492	1,009,480	565,828,861
1999	3,565,284	333,587,797	2,631,833	418,292,776	271,913	34,313	65,925	372,151	1,042,639	567,088,258
2000	4,499,454	349,214,814	2,689,457	441,103,885	270,942	34,191	67,102	372,235	1,031,052	589,872,898
2001	4,424,728	337,473,001	2,649,202	428,369,740	270,578	656,331	68,421	995,330	1,030,755	577,106,198
2002	4,477,646	373,431,213	3,315,412	476,129,861	270,052	656,265	69,702	996,019	1,031,803	626,297,063
2003	4,569,449	363,749,155	3,219,759	464,334,275	269,704	656,222	71,025	996,951	1,031,745	613,117,836
2004	4,571,283	368,388,377	3,279,440	469,884,874	270,189	656,282	72,541	999,012	1,032,032	619,679,295
2005	4,647,136	361,417,434	3,203,508	461,417,108	269,896	656,246	73,876	1,000,018	1,031,395	610,110,943
2006	4,720,279	364,066,424	3,221,327	464,818,248	269,637	656,213	75,453	1,001,303	1,031,487	613,730,678
2007	5,598,739	357,859,019	3,178,040	457,896,309	267,255	655,915	76,536	999,706	1,031,388	605,865,749
2008	5,753,698	378,277,007	3,369,346	483,008,732	272,553	656,578	79,407	1,008,538	1,031,500	634,560,415
2009	5,801,176	379,141,831	3,368,974	484,460,473	272,662	656,591	81,071	1,010,324	1,031,509	636,088,216
2010	5,767,308	378,165,587	3,366,127	483,063,885	272,761	656,604	82,731	1,012,096	1,031,506	634,729,864
2011	5,768,001	376,580,636	3,351,207	481,078,641	269,228	656,162	83,779	1,009,169	1,031,510	631,832,539
2012	5,779,982	377,353,558	3,356,688	482,093,444	269,325	656,174	85,673	1,011,172	1,031,517	632,979,980
2013	5,480,835	342,231,212	3,018,146	438,975,114	272,640	656,589	88,551	1,017,780	988,725	585,251,749
2014	5,261,452	324,184,869	2,861,494	416,137,312	269,858	656,216	89,961	1,015,835	962,205	559,638,051
2015	5,314,339	320,715,567	2,810,576	412,576,087	269,765	656,229	91,920	1,017,914	932,225	554,692,949
2016	5,165,860	313,312,878	2,755,400	402,641,108	269,890	656,245	94,128	1,020,263	915,231	543,917,219
2017	5,159,760	307,278,152	2,694,137	395,528,168	267,594	655,958	93,595	1,017,147	875,272	535,572,164
2018	5,065,615	299,468,981	2,625,176	385,796,418	267,718	655,973	93,622	1,017,313	799,793	525,310,636
2019	5,054,319	294,934,594	2,572,662	380,672,500	270,649	656,340	91,674	1,018,663	735,813	520,637,597
2020	4,931,407	283,921,765	2,483,367	366,898,749	270,814	656,360	79,763	1,006,937	715,345	506,332,053
2021	4,775,806	274,968,561	2,423,875	355,315,575	271,011	656,385	78,982	1,006,378	711,555	494,722,709
2022	4,740,132	267,976,337	2,382,603	347,384,160	270,708	656,347	77,524	1,004,579	710,911	486,661,814
2023	4,759,408	271,011,131	2,417,636	351,359,313	275,955	657,003	78,746	1,011,704	710,291	492,170,135
2024	4,699,235	263,421,293	2,365,012	342,017,817	267,732	655,975	76,828	1,000,535	709,822	480,648,980
2025	4,623,953	247,067,183	2,223,061	321,692,499	245,655	653,213	71,683	970,551	708,408	453,979,611
2026	4,595,119	239,114,086	2,156,956	311,978,958	235,212	651,907	69,249	956,368	707,960	441,025,706
2027	4,549,154	233,423,786	2,110,150	304,867,572	230,465	651,313	68,140	949,918	707,047	432,386,194
2028	4,551,207	229,504,246	2,073,509	300,195,541	224,560	650,574	66,763	941,897	705,961	426,052,222
2029	4,560,698	230,438,625	2,075,055	301,330,601	224,560	650,574	66,761	941,895	704,532	427,278,697
2030	4,484,897	224,074,448	2,021,312	293,499,580	224,560	650,574	66,760	941,894	703,037	419,007,027
2031	4,516,582	223,266,627	2,006,060	292,915,947	224,560	650,574	66,758	941,892	700,053	418,410,247
2032	4,515,592	223,361,616	2,000,564	293,090,195	224,560	650,574	66,757	941,891	700,431	418,666,987
2033	4,466,713	219,811,108	1,972,823	288,605,712	224,560	650,574	66,756	941,890	699,568	413,984,405
2034	4,501,839	220,530,864	1,971,484	289,643,964	224,560	650,574	66,755	941,889	695,919	414,938,583
2035	4,478,060	218,284,868	1,951,138	286,860,771	224,560	650,574	66,754	941,888	691,647	411,756,070
Total	215,703,138	15,854,660,479	128,358,830	20,174,416,015	11,587,993	23,496,955	3,843,453	38,928,401	51,404,529	27,074,806,455

TABLE B-24

Equivalent Unit Charge for Water Supply for Each Contractor (a

(Dollars per Acre-Foot)

Project Service Area and Water Supply Contractor	Transportation Charge: Capital Cost Component (1)	Transportation Charge: Minimum OMP&R Component (2)	Transportation Charge: Off-Aqueduct Component (3)	Transportation Charge: Variable OMP&R Component (4)	Transportation Charge: Total (5)	Delta Water Charge (6)	Water System Revenue Bond Surcharge (7)	Total Equivalent Unit Charge (8)
Feather River Area								
City of Yuba City	0.00	0.00	0.00	0.00	0.00	46.88	5.95	52.83
County of Butte	0.00	0.00	0.00	0.00	0.00	14.58	1.85	16.43
Plumas County Flood Control and Water Conservation District	17.63	2.29	0.00	0.00	19.92	21.70	7.06	48.68
Feather River Area	1.30	0.17	0.00	0.00	1.47	19.58	2.80	23.85
North Bay Area								
Napa County Flood Control and Water Conservation District	115.59	37.53	4.35	8.26	165.73	15.75	30.25	211.73
Solano County Water Agency	85.72	30.59	4.29	5.28	125.88	24.07	24.01	173.96
North Bay Area	97.35	33.29	4.32	6.44	141.40	20.83	26.44	188.67
South Bay Area								
Alameda County Flood Control and Water Conservation District, Zone 7	17.97	28.92	8.86	13.28	69.03	22.27	7.22	98.52
Alameda County Water District	20.41	24.98	7.48	11.61	64.48	20.35	7.57	92.40
Santa Clara Valley Water District	18.50	18.21	6.54	9.65	52.90	14.91	6.41	74.22
South Bay Area	18.75	21.07	7.07	10.56	57.45	17.01	6.74	81.20
San Joaquin Valley Area								
County of Kings	4.28	3.84	3.61	4.59	16.32	18.25	3.36	37.93
Dudley Ridge Water District	5.15	4.56	3.09	4.05	16.85	15.67	3.25	35.77
Empire West Side Irrigation District	2.74	3.66	2.37	3.78	12.55	16.29	2.74	31.58
Kern County Water Agency	9.01	9.14	4.72	5.66	28.53	18.55	4.56	51.64
Oak Flat Water District	1.95	2.14	1.92	2.67	8.68	15.11	2.39	26.18
Tulare Lake Basin Water Storage District	5.25	4.68	2.98	4.33	17.24	16.71	3.40	37.35
San Joaquin Valley Area	8.35	8.38	4.43	5.41	26.57	18.19	4.35	49.11
Central Coastal Area								
San Luis Obispo County Flood Control and Water Conservation District	338.93	65.56	15.41	49.12	469.02	44.56	88.51	602.09
Santa Barbara County Flood Control and Water Conservation District	323.07	56.04	19.22	47.36	445.69	36.53	83.61	565.83
Central Coastal Area	328.01	59.01	18.03	47.91	452.96	39.03	85.14	577.13
Southern California Area								
Antelope Valley-East Kern Water Agency	37.69	33.14	27.33	46.10	144.26	27.06	12.65	183.97
Castaic Lake Water Agency	49.82	36.71	23.08	12.60	122.21	24.09	15.24	161.54
Coachella Valley Water District	41.46	35.31	49.65	28.26	154.68	19.29	12.58	186.55
Crestline-Lake Arrowhead Water Agency	95.55	70.81	31.94	54.51	252.81	34.88	27.78	315.47
Desert Water Agency	42.12	35.87	44.98	28.44	151.41	19.37	12.75	183.53
Littlerock Creek Irrigation District	43.80	37.58	30.20	49.00	160.58	30.50	14.58	205.66
Mojave Water Agency	89.49	69.16	21.53	67.00	247.18	39.45	26.88	313.51
Palmdale Water District	48.88	42.25	36.50	53.87	181.50	36.85	16.63	234.98
San Bernardino Valley Municipal Water District	137.66	95.69	27.06	33.51	293.92	42.95	39.10	375.97
San Gabriel Valley Municipal Water District	85.98	65.60	37.81	27.20	216.59	30.48	24.89	271.96
San Gorgonio Pass Water Agency	365.31	156.76	20.18	42.22	584.47	48.35	95.44	728.26
Metropolitan Water District of Southern California	70.95	50.31	34.66	20.96	176.88	28.84	21.00	226.72
Ventura County Flood Control District	97.94	70.37	23.11	37.69	229.11	40.87	29.13	299.11
Southern California Area	70.87	50.71	33.87	24.07	179.52	29.07	21.01	229.60
All Areas	42.86	30.43	18.98	15.15	107.42	23.59	13.47	144.48

a) Hypothetical charges, which, if assessed on all entitlement water delivered to date, all surplus water delivered prior to May 1, 1973, and all entitlement water now estimated to be delivered during the remainder of the project repayment period (Table B-5B), would provide a sum at the end of the period financially equivalent to all Transportation Charge and Delta Water Charge payments required under a water supply contract, considering interest at the Project Interest Rate, 4.620 percent per annum.

TABLE B-25

Equivalent Unit Transportation Costs of Water Delivered from or through Each Aqueduct Reach (a

(Dollars per Acre-Foot)

Aqueduct Reach	Unit Costs of Reach (b						Cumulative Unit Costs from the Delta					
	Capital Costs (1)	Water System Revenue Bond Surcharge (c (2)	Minimum OMP&R (3)	Off-Aqueduct Costs (4)	Variable OMP&R (5)	Total (6)	Capital Costs (7)	Water System Revenue Bond Surcharge (c (8)	Minimum OMP&R (9)	Off-Aqueduct Costs (10)	Variable OMP&R (11)	Total (12)
North Bay Aqueduct												
1	44.07	11.76	13.43	1.44	2.38	73.08	44.07	11.76	13.43	1.44	2.38	73.08
2	48.14	12.85	6.16	0.00	0.00	67.15	92.21	24.61	19.59	1.44	2.38	140.23
3A	9.96	2.66	13.34	2.63	3.37	31.96	102.17	27.27	32.93	4.07	5.75	172.19
3B	48.54	12.95	24.21	3.30	6.37	95.37	140.75	37.56	43.80	4.74	8.75	235.60
South Bay Aqueduct												
1	6.64	1.77	13.62	5.84	7.82	35.69	8.49	2.26	16.33	7.79	11.45	46.32
2	0.63	0.17	1.55	0.00	0.00	2.35	9.12	2.43	17.88	7.79	11.45	48.67
4	2.10	0.56	2.59	0.00	0.00	5.25	11.22	2.99	20.47	7.79	11.45	53.92
5	4.45	1.19	2.09	0.00	0.00	7.73	15.67	4.18	22.56	7.79	11.45	61.65
6	0.25	0.07	0.23	0.00	0.00	0.55	15.92	4.25	22.79	7.79	11.45	62.20
7	1.96	0.52	0.40	0.00	0.00	2.88	17.88	4.77	23.19	7.79	11.45	65.08
8	2.66	0.71	0.46	0.00	0.00	3.83	20.54	5.48	23.65	7.79	11.45	68.91
9	5.51	1.47	2.44	0.00	0.00	9.42	26.05	6.95	26.09	7.79	11.45	78.33
California Aqueduct												
1	1.85	0.49	2.71	1.95	3.63	10.63	1.85	0.49	2.71	1.95	3.63	10.63
2A	1.17	0.31	0.54	0.00	0.00	2.02	3.02	0.80	3.25	1.95	3.63	12.65
2B	0.59	0.16	0.23	0.00	0.00	0.98	3.61	0.96	3.48	1.95	3.63	13.63
3	0.52	0.14	0.19	0.00	0.00	0.85	4.13	1.10	3.67	1.95	3.63	14.48
4	0.83	0.22	1.31	0.91	1.58	4.85	4.96	1.32	4.98	2.86	5.21	19.33
5	0.64	0.17	0.26	0.00	0.00	1.07	5.60	1.49	5.24	2.86	5.21	20.40
6	0.17	0.05	0.13	0.00	0.00	0.35	5.77	1.54	5.37	2.86	5.21	20.75
7	0.74	0.20	0.32	0.00	0.00	1.26	6.51	1.74	5.69	2.86	5.21	22.01
8C	0.02	0.01	0.06	0.00	0.00	0.09	6.53	1.75	5.75	2.86	5.21	22.10
8D	0.37	0.10	0.25	0.00	0.00	0.72	6.90	1.85	6.00	2.86	5.21	22.82
9	0.30	0.08	0.23	0.00	0.00	0.61	7.20	1.93	6.23	2.86	5.21	23.43
10A	0.32	0.09	0.28	0.00	0.00	0.69	7.52	2.02	6.51	2.86	5.21	24.12
11B	0.47	0.13	0.20	0.00	0.00	0.80	7.99	2.15	6.71	2.86	5.21	24.92
12D	0.45	0.12	0.18	0.00	0.00	0.75	8.44	2.27	6.89	2.86	5.21	25.67
12E	0.31	0.08	0.30	0.00	0.00	0.69	8.75	2.35	7.19	2.86	5.21	26.36
13B	0.67	0.18	0.34	0.00	0.00	1.19	9.42	2.53	7.53	2.86	5.21	27.55
14A	2.60	0.69	2.63	1.58	2.95	10.45	12.02	3.22	10.16	4.44	8.16	38.00
14B	0.40	0.11	0.32	0.00	0.00	0.83	12.42	3.33	10.48	4.44	8.16	38.83
14C	0.34	0.09	0.25	0.00	0.00	0.68	12.76	3.42	10.73	4.44	8.16	39.51
15A	1.92	0.51	2.79	1.91	3.63	10.76	14.68	3.93	13.52	6.35	11.79	50.27
16A	3.14	0.84	4.29	4.13	7.90	20.30	17.82	4.77	17.81	10.48	19.69	70.57
17E	10.68	2.85	12.15	14.45	28.10	68.23	28.50	7.62	29.96	24.93	47.79	138.80
17F	2.77	0.74	0.11	0.00	0.00	3.62	31.27	8.36	30.07	24.93	47.79	142.42
18A	2.54	0.68	1.37	0.00	2.76	1.83	33.81	9.04	31.44	24.93	45.03	144.25
19	1.88	0.50	0.86	0.00	0.00	3.24	35.69	9.54	32.30	24.93	45.03	147.49
19C	0.00	0.00	0.00	0.00	0.00	0.00	35.69	9.54	32.30	24.93	45.03	147.49
20A	1.52	0.41	1.21	0.00	0.00	3.14	37.21	9.95	33.51	24.93	45.03	150.63
20B	1.80	0.48	0.92	0.00	0.00	3.20	39.01	10.43	34.43	24.93	45.03	153.83
21	0.90	0.24	0.63	0.00	0.00	1.77	39.91	10.67	35.06	24.93	45.03	155.60
22A	0.91	0.24	0.34	0.00	0.00	1.49	40.82	10.91	35.40	24.93	45.03	157.09
22B	9.23	2.46	9.10	4.74	8.83	34.36	50.05	13.37	44.50	29.67	53.86	191.45
23	4.21	1.12	0.88	0.00	2.94	3.27	54.26	14.49	45.38	29.67	50.92	194.72
24	4.86	1.30	1.75	0.00	0.00	7.91	59.12	15.79	47.13	29.67	50.92	202.63
25	3.66	0.98	0.11	0.00	0.00	4.75	62.78	16.77	47.24	29.67	50.92	207.38
26A	3.53	0.94	5.56	0.00	-24.80	(14.77)	66.31	17.71	52.80	29.67	26.12	192.61
28G	6.15	1.64	1.82	0.00	0.00	9.61	72.46	19.35	54.62	29.67	26.12	202.22
28H	5.93	1.58	1.84	0.00	0.00	9.35	78.39	20.93	56.46	29.67	26.12	211.57
28J	57.12	15.24	24.17	0.00	0.00	96.53	135.51	36.17	80.63	29.67	26.12	308.10
West Branch												
29A	3.48	0.93	6.54	1.73	3.57	16.25	34.75	9.29	36.61	26.66	51.36	158.67
29F	2.56	0.68	0.72	0.00	0.00	3.96	37.31	9.97	37.33	26.66	51.36	162.63
29G	8.40	2.24	3.52	0.00	-12.15	2.01	45.71	12.21	40.85	26.66	39.21	164.64
29H	5.30	1.41	3.43	0.00	0.00	10.14	51.01	13.62	44.28	26.66	39.21	174.78
29J	8.90	2.38	0.91	0.00	-22.36	(10.17)	59.91	16.00	45.19	26.66	16.85	164.61
30	14.24	3.80	2.60	0.00	0.00	20.64	74.15	19.80	47.79	26.66	16.85	185.25
Coastal Branch												
31A	6.76	1.80	17.32	1.84	2.67	30.39	13.66	3.65	23.32	4.70	7.88	53.21
33A	228.07	60.87	10.50	15.72	35.57	350.73	241.73	64.52	33.82	20.42	43.45	403.94
34	60.20	16.07	0.10	0.00	0.00	76.37	301.93	80.59	33.92	20.42	43.45	480.31
35	37.13	9.91	0.16	0.00	0.00	47.20	339.06	90.50	34.08	20.42	43.45	527.51

a) Representative of transportation unit costs only; does not include a unit cost of conservation. The Delta Water Rate should be added to these values in order to approximate unit costs at canal-side. Includes surplus water prior to May 1, 1973.

b) Hypothetical charges which, if assessed on all entitlement water delivered to date, all surplus water delivered prior to May 1, 1973, and all entitlement water now estimated to be delivered during the remainder of the Project repayment period(Table B-5B), would provide a sum at the end of the period financially equivalent to all Transportation Charges required under the water supply contract considering interest rate at the Project Interest Rate of 4.620 percent per annum.

c) The Water System Revenue Bond Surcharge equivalent unit rate is calculated by dividing the WSRB surcharge for 1998 (from 132-97, Table B-22) by the total Transportation Capital (132-97, B-15) and the Capital component of the Delta Water Charge (132-97, B-4 * 11.59527812). This rate is multiplied by the equivalent rate for the Transportation Capital cost (column 1).

TABLE B-26

Capital Costs of Each Aqueduct Reach to Be Reimbursed through the Capital Cost Component of the East Branch Enlargement Transportation Charge

(Dollars)

	California Aqueduct							
	Mojave Division							
Calendar Year	Reach 18A (1)	Reach 19 (2)	Reach 20A (3)	Reach 20B (4)	Reach 21 (5)	Reach 22A (6)	Reach 22B (7)	Reach 23B (8)
1952	0	0	0	0	0	0	0	0
1953	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	0	0
1958	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	0
1960	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0
1979	117,000	0	0	0	0	0	0	0
1980	200,000	0	0	0	0	0	0	74,000
1981	135,000	0	0	0	0	0	0	385,000
1982	1,503,000	0	0	0	0	0	0	1,586,000
1983	2,260,000	0	0	0	0	0	0	2,965,000
1984	735,000	0	0	0	0	0	796,000	1,380,000
1985	93,000	435,000	75,000	544,000	859,000	703,000	970,000	146,000
1986	784,000	4,477,000	3,144,000	2,234,000	1,569,000	1,203,000	1,808,000	34,000
1987	11,000	951,000	1,076,000	666,000	399,000	47,000	16,421,000	43,000
1988	1,000	125,000	1,681,000	1,730,000	2,024,000	40,000	13,326,000	70,000
1989	0	206,000	2,089,000	2,174,000	2,510,000	61,000	11,242,000	229,000
1990	1,000	577,000	903,000	735,000	928,000	194,000	20,131,000	887,000
1991	1,000	280,000	413,000	333,000	422,000	93,000	20,702,000	1,215,000
1992	0	40,000	41,000	39,000	35,000	13,000	9,599,000	3,719,000
1993	0	19,000	16,000	19,000	12,000	6,000	1,300,000	19,654,000
1994	0	2,000	3,000	2,000	4,000	3,000	803,000	3,173,000
1995	0	0	0	0	0	0	1,242,000	1,465,000
1996	0	0	0	0	0	0	6,014,000	478,000
1997	0	0	0	0	0	0	391,000	1,327,000
1998	0	0	0	0	0	0	13,000	0
1999	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0
Total	5,841,000	7,112,000	9,441,000	8,476,000	8,762,000	2,363,000	104,758,000	38,830,000

TABLE B-26

Capital Costs of Each Aqueduct Reach to Be Reimbursed through the Capital Cost Component of the East Branch Enlargement Transportation Charge

(Dollars)

Calendar Year	California Aqueduct (continued)							Grand Total
	Mojave Division (continued)			Santa Ana Division				
	Reach 23C	Reach 24	Total	Reach 25	Reach 26A	Reach 26B	Total	
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1952	0	0	0	0	0	0	0	0
1953	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	0	0
1958	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	0
1960	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0
1979	0	0	117,000	0	0	0	0	117,000
1980	0	0	274,000	0	0	0	0	274,000
1981	0	0	520,000	0	0	0	0	520,000
1982	0	0	3,089,000	0	0	0	0	3,089,000
1983	0	0	5,225,000	0	0	0	0	5,225,000
1984	0	0	2,911,000	0	0	0	0	2,911,000
1985	0	0	3,825,000	0	528,000	89,000	617,000	4,442,000
1986	25,000	0	15,278,000	0	1,926,000	154,000	2,080,000	17,358,000
1987	178,000	0	19,792,000	0	3,699,000	437,000	4,136,000	23,928,000
1988	632,000	0	19,629,000	0	5,667,000	3,329,000	8,996,000	28,625,000
1989	1,130,000	0	19,641,000	0	40,879,000	1,650,000	42,529,000	62,170,000
1990	2,066,000	0	26,422,000	0	29,853,000	1,650,000	31,503,000	57,925,000
1991	4,980,000	0	28,439,000	0	26,027,000	999,000	27,026,000	55,465,000
1992	11,920,000	0	25,406,000	0	15,317,000	299,000	15,616,000	41,022,000
1993	16,303,000	0	37,329,000	0	4,878,000	0	4,878,000	42,207,000
1994	7,081,000	0	11,071,000	0	3,151,000	0	3,151,000	14,222,000
1995	5,350,000	0	8,057,000	0	2,110,000	0	2,110,000	10,167,000
1996	1,706,000	0	8,198,000	0	9,181,000	0	9,181,000	17,379,000
1997	1,905,000	0	3,623,000	0	175,000	0	175,000	3,798,000
1998	28,000	0	41,000	0	0	0	0	41,000
1999	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0
Total	53,304,000	0	238,887,000	0	143,391,000	8,607,000	151,998,000	390,885,000

TABLE B-27

Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of the East Branch Enlargement Transportation Charge (a

(Dollars)

Calendar Year	California Aqueduct							
	Mojave Division							
	Reach 18A (1)	Reach 19 (2)	Reach 20A (3)	Reach 20B (4)	Reach 21 (5)	Reach 22A (6)	Reach 22B (7)	Reach 23B (8)
1971	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	1,216,000	0
1996	0	0	0	0	0	0	1,168,800	0
1997	0	0	0	0	0	0	1,063,000	0
1998	0	0	0	0	0	0	1,086,642	0
1999	0	0	0	0	0	0	1,127,499	0
2000	0	0	0	0	0	0	1,144,287	0
2001	0	0	0	0	0	0	1,144,287	0
2002	0	0	0	0	0	0	1,144,287	0
2003	0	0	0	0	0	0	1,144,287	0
2004	0	0	0	0	0	0	1,144,287	0
2005	0	0	0	0	0	0	1,144,287	0
2006	0	0	0	0	0	0	1,144,287	0
2007	0	0	0	0	0	0	1,144,287	0
2008	0	0	0	0	0	0	1,144,287	0
2009	0	0	0	0	0	0	1,144,287	0
2010	0	0	0	0	0	0	1,144,287	0
2011	0	0	0	0	0	0	1,144,287	0
2012	0	0	0	0	0	0	1,144,287	0
2013	0	0	0	0	0	0	1,144,287	0
2014	0	0	0	0	0	0	1,144,287	0
2015	0	0	0	0	0	0	1,144,287	0
2016	0	0	0	0	0	0	1,144,287	0
2017	0	0	0	0	0	0	1,144,287	0
2018	0	0	0	0	0	0	1,144,287	0
2019	0	0	0	0	0	0	1,144,287	0
2020	0	0	0	0	0	0	1,144,287	0
2021	0	0	0	0	0	0	1,144,287	0
2022	0	0	0	0	0	0	1,144,287	0
2023	0	0	0	0	0	0	1,144,287	0
2024	0	0	0	0	0	0	1,144,287	0
2025	0	0	0	0	0	0	1,144,287	0
2026	0	0	0	0	0	0	1,144,287	0
2027	0	0	0	0	0	0	1,144,287	0
2028	0	0	0	0	0	0	1,144,287	0
2029	0	0	0	0	0	0	1,144,287	0
2030	0	0	0	0	0	0	1,144,287	0
2031	0	0	0	0	0	0	1,144,287	0
2032	0	0	0	0	0	0	1,144,287	0
2033	0	0	0	0	0	0	1,144,287	0
2034	0	0	0	0	0	0	1,144,287	0
2035	0	0	0	0	0	0	1,144,287	0
Total	0	0	0	0	0	0	46,856,273	0

a) Presently, this table shows only the estimated incremental minimum OMP&R costs attributable to East Branch Enlargement. Under Article 49(e)(1), the contractors participating in the East Branch Enlargement will also share in the remaining minimum OMP&R costs of the affected reaches according to a formula to be developed by DWR in consultation with the affected contractors. Once the formula is developed, subsequent versions of this table will reflect the transfer of a share of the minimum OMP&R costs presently shown in Table B-11.

TABLE B-27

Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of the East Branch Enlargement Transportation Charge

(Dollars)

Calendar Year	California Aqueduct (continued)							Total
	Mojave Division (continued)			Santa Ana Division				
	Reach 23C (9)	Reach 24 (10)	Subtotal (11)	Reach 25 (12)	Reach 26A (b (13)	Reach 26B (14)	Subtotal (15)	(16)
1971	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0
1995	370,500	0	1,586,500	0	1,218,500	0	1,218,500	2,805,000
1996	554,500	0	1,723,300	0	1,435,900	0	1,435,900	3,159,200
1997	266,800	0	1,329,800	0	1,387,800	0	1,387,800	2,717,600
1998	272,800	0	1,359,442	0	1,459,106	0	1,459,106	2,818,548
1999	282,900	0	1,410,399	0	1,555,042	0	1,555,042	2,965,441
2000	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2001	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2002	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2003	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2004	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2005	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2006	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2007	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2008	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2009	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2010	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2011	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2012	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2013	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2014	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2015	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2016	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2017	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2018	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2019	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2020	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2021	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2022	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2023	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2024	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2025	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2026	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2027	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2028	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2029	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2030	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2031	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2032	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2033	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2034	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
2035	287,100	0	1,431,387	0	1,578,301	0	1,578,301	3,009,688
Total	12,083,100	0	58,939,373	0	63,875,184	0	63,875,184	122,814,557

b) Units 3 and 4 at Devil Canyon Powerplant were operational in 1993. These minimum OMP&R costs for Reach 26A will be revised to reflect operational date of those units.

TABLE B-28

Capital Costs of East Branch Enlargement Transportation Facilities Allocated to Each Contractor

(Dollars)

Calendar Year	Southern California Area							Total
	Antelope Valley-East Kern Water Agency	Coachella Valley Water District	Desert Water Agency	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	Metropolitan Water District of Southern California	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1971	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0
1979	0	11,731	1,010	10,566	466	0	93,227	117,000
1980	0	28,241	4,708	27,495	797	0	212,759	274,000
1981	0	56,134	16,676	61,271	538	0	385,381	520,000
1982	0	326,180	76,872	337,913	5,988	0	2,342,047	3,089,000
1983	0	554,658	138,964	582,070	9,004	0	3,940,304	5,225,000
1984	0	306,514	68,842	314,468	2,928	0	2,218,248	2,911,000
1985	49,675	447,266	65,773	347,262	4,514	21,614	3,505,896	4,442,000
1986	185,353	1,757,633	236,324	1,363,586	41,900	78,842	13,694,362	17,358,000
1987	49,735	2,455,279	378,535	1,774,447	10,615	151,421	19,107,968	23,928,000
1988	124,534	2,689,959	500,466	1,712,431	13,783	231,982	23,351,845	28,625,000
1989	155,446	7,118,094	2,423,000	1,671,088	17,419	1,673,409	49,111,544	62,170,000
1990	62,786	6,459,229	1,943,918	2,234,452	8,680	1,222,053	45,993,882	57,925,000
1991	28,686	6,265,822	1,875,066	2,168,712	4,024	1,065,433	44,057,257	55,465,000
1992	2,911	4,826,764	1,610,921	1,359,335	471	627,012	32,594,586	41,022,000
1993	1,205	4,991,658	1,819,579	2,629,767	212	199,684	32,564,895	42,207,000
1994	273	1,726,376	631,816	478,543	27	128,988	11,255,977	14,222,000
1995	0	1,230,156	430,618	299,367	0	86,374	8,120,485	10,167,000
1996	0	2,025,987	645,296	606,205	0	375,830	13,725,682	17,379,000
1997	0	449,702	154,253	204,617	0	7,164	2,982,264	3,798,000
1998	0	4,859	1,406	1,179	0	0	33,556	41,000
1999	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0
Total	660,604	43,732,242	13,024,043	18,184,774	121,366	5,869,806	309,292,165	390,885,000

TABLE B-29

Capital Cost Component of East Branch Enlargement Facilities Transportation Charge for Each Contractor

(Dollars)

Calendar Year	Southern California Area							Total
	Antelope Valley-East Kern Water Agency (1)	Coachella Valley Water District (2)	Desert Water Agency (3)	Mojave Water Agency (4)	Palmdale Water District (5)	San Bernardino Valley Municipal Water District (a (6)	Metropolitan Water District of Southern California (7)	(8)
1971	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0
1988	18,267	1,209,280	360,140	502,844	3,356	0	8,552,523	10,646,410
1989	19,177	1,269,511	378,077	527,889	3,523	0	8,978,498	11,176,675
1990	19,188	1,270,231	378,292	528,188	3,525	0	8,983,589	11,183,013
1991	19,188	1,270,248	378,297	528,195	3,525	0	8,983,711	11,183,164
1992	40,403	2,674,695	796,560	1,112,193	7,423	0	18,916,526	23,547,800
1993	41,980	2,779,078	827,646	1,155,598	7,713	0	19,654,765	24,466,780
1994	41,769	2,765,121	823,490	1,149,795	7,674	0	19,556,061	24,343,910
1995	43,714	2,893,865	861,832	1,203,329	8,031	0	20,466,588	25,477,359
1996	46,561	3,082,377	917,973	1,281,716	8,554	0	21,799,825	27,137,006
1997	63,122	4,178,722	1,244,479	1,737,599	11,597	0	29,553,617	36,789,136
1998	63,498	4,203,607	1,251,890	1,747,947	11,666	0	29,729,617	37,008,225
1999	63,387	4,196,226	1,249,692	1,744,878	11,646	0	29,677,416	36,943,245
2000	64,942	4,299,186	1,280,355	1,787,691	11,931	0	30,405,593	37,849,698
2001	64,915	4,297,416	1,279,828	1,786,955	11,926	0	30,393,076	37,834,116
2002	64,441	4,265,991	1,270,469	1,773,888	11,839	0	30,170,823	37,557,451
2003	64,390	4,262,608	1,269,461	1,772,481	11,830	0	30,146,894	37,527,664
2004	61,347	4,061,158	1,209,467	1,688,714	11,271	0	28,722,157	35,754,114
2005	61,314	4,058,984	1,208,820	1,687,810	11,265	0	28,706,786	35,734,979
2006	61,318	4,059,256	1,208,900	1,687,923	11,265	0	28,708,704	35,737,366
2007	61,883	4,096,651	1,220,037	1,703,472	11,369	0	28,973,181	36,066,593
2008	64,568	4,274,387	1,272,970	1,777,379	11,863	0	30,230,204	37,631,371
2009	64,653	4,280,041	1,274,653	1,779,730	11,878	0	30,270,188	37,681,143
2010	64,764	4,287,424	1,276,852	1,782,800	11,899	0	30,322,402	37,746,141
2011	61,100	4,044,811	1,204,598	1,681,916	11,225	0	28,606,544	35,610,194
2012	61,207	4,051,946	1,206,724	1,684,883	11,245	0	28,657,011	35,673,016
2013	65,426	4,331,244	1,289,902	1,801,021	12,020	0	30,632,318	38,131,931
2014	62,240	4,120,334	1,227,090	1,713,320	11,435	0	29,140,680	36,275,099
2015	62,348	4,127,457	1,229,212	1,716,282	11,455	0	29,191,056	36,337,810
2016	62,469	4,135,445	1,231,591	1,719,604	11,477	0	29,247,548	36,408,134
2017	64,266	4,254,458	1,267,034	1,769,092	11,807	0	30,089,258	37,455,915
2018	64,411	4,264,031	1,269,885	1,773,073	11,834	0	30,156,961	37,540,195
2019	62,722	4,152,185	1,236,576	1,726,565	11,523	0	29,365,938	36,555,509
2020	62,909	4,164,587	1,240,270	1,731,722	11,558	0	29,453,652	36,664,698
2021	63,132	4,179,377	1,244,674	1,737,872	11,599	0	29,558,256	36,794,910
2022	61,585	4,076,935	1,214,166	1,695,274	11,315	0	28,833,744	35,893,019
2023	49,605	3,283,856	977,976	1,365,495	9,114	0	23,224,763	28,910,809
2024	49,809	3,297,386	982,006	1,371,122	9,151	0	23,320,454	29,029,928
2025	38,651	2,558,707	762,017	1,063,963	7,101	0	18,096,215	22,526,654
2026	14,599	966,469	287,827	401,878	2,682	0	6,835,265	8,508,720
2027	11,641	770,666	229,515	320,459	2,139	0	5,450,460	6,784,880
2028	9,028	597,650	177,988	248,515	1,659	0	4,226,821	5,261,661
2029	9,096	602,169	179,334	250,394	1,671	0	4,258,784	5,301,448
2030	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0
2035	0	0	0	0	0	0	0	0
Total	2,115,033	140,015,776	41,696,565	58,221,464	388,579	0	990,248,472	1,232,687,889

a) Under Article 49(d)(4)(A) of its contract, San Bernardino Valley Municipal Water District elected to pay a portion of its allocated costs of East Branch Enlargement in advance rather than to participate in payment of Water System Revenue Bonds. This election made via a letter of agreement signed June 1, 1987. As of June 1996, $6,347,938 has been received from the San Bernardino Valley Municipal Water District.

TABLE B-30

Minimum OMP&R Component of East Branch Enlargement Facilities Transportation Charge for Each Contracator

(Dollars)

Calendar Year	Southern California Area							Total
	Antelope Valley-East Kern Water Agency	Coachella Valley Water District	Desert Water Agency	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	Metropolitan Water District of Southern California	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1971	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0
1995	0	322,201	93,362	110,251	0	49,880	2,229,306	2,805,000
1996	0	368,045	113,173	105,971	0	58,780	2,513,231	3,159,200
1997	0	314,880	96,378	96,379	0	56,811	2,153,152	2,717,600
1998	0	326,963	100,705	98,522	0	59,729	2,232,629	2,818,548
1999	0	344,388	106,700	102,227	0	63,657	2,348,469	2,965,441
2000	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2001	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2002	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2003	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2004	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2005	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2006	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2007	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2008	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2009	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2010	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2011	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2012	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2013	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2014	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2015	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2016	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2017	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2018	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2019	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2020	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2021	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2022	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2023	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2024	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2025	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2026	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2027	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2028	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2029	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2030	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2031	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2032	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2033	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2034	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2035	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
Total	0	14,259,449	4,408,902	4,248,314	0	2,614,781	97,283,111	122,814,557

TABLE B-31

Total East Branch Enlargement Facilities Transportation Charge for Each Contractor

(Dollars)

Calendar Year	Southern California Area							Total
	Antelope Valley-East Kern Water Agency (1)	Coachella Valley Water District (2)	Desert Water Agency (3)	Mojave Water Agency (4)	Palmdale Water District (5)	San Bernardino Valley Municipal Water District (6)	Metropolitan Water District of Southern California (7)	(8)
1971	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0
1988	18,267	1,209,280	360,140	502,844	3,356	0	8,552,523	10,646,410
1989	19,177	1,269,511	378,077	527,889	3,523	0	8,978,498	11,176,675
1990	19,188	1,270,231	378,292	528,188	3,525	0	8,983,589	11,183,013
1991	19,188	1,270,248	378,297	528,195	3,525	0	8,983,711	11,183,164
1992	40,403	2,674,695	796,560	1,112,193	7,423	0	18,916,526	23,547,800
1993	41,980	2,779,078	827,646	1,155,598	7,713	0	19,654,765	24,466,780
1994	41,769	2,765,121	823,490	1,149,795	7,674	0	19,556,061	24,343,910
1995	43,714	3,216,066	955,194	1,313,580	8,031	49,880	22,695,894	28,282,359
1996	46,561	3,450,422	1,031,146	1,387,687	8,554	58,780	24,313,056	30,296,206
1997	63,122	4,493,602	1,340,857	1,833,978	11,597	56,811	31,706,789	39,506,736
1998	63,498	4,530,570	1,352,595	1,846,469	11,666	59,729	31,962,246	39,826,773
1999	63,387	4,540,614	1,356,392	1,847,105	11,646	63,657	32,025,885	39,908,686
2000	64,942	4,648,713	1,388,649	1,891,440	11,931	64,609	32,789,102	40,859,386
2001	64,915	4,646,943	1,388,122	1,890,704	11,926	64,609	32,776,585	40,843,804
2002	64,441	4,615,518	1,378,763	1,877,637	11,839	64,609	32,554,332	40,567,139
2003	64,390	4,612,135	1,377,755	1,876,230	11,830	64,609	32,530,403	40,537,352
2004	61,347	4,410,685	1,317,761	1,792,463	11,271	64,609	31,105,666	38,763,802
2005	61,314	4,408,511	1,317,114	1,791,559	11,265	64,609	31,090,295	38,744,667
2006	61,318	4,408,783	1,317,194	1,791,672	11,265	64,609	31,092,213	38,747,054
2007	61,883	4,446,178	1,328,331	1,807,221	11,369	64,609	31,356,690	39,076,281
2008	64,568	4,623,914	1,381,264	1,881,128	11,863	64,609	32,613,713	40,641,059
2009	64,653	4,629,568	1,382,947	1,883,479	11,878	64,609	32,653,697	40,690,831
2010	64,764	4,636,951	1,385,146	1,886,549	11,899	64,609	32,705,911	40,755,829
2011	61,100	4,394,338	1,312,892	1,785,665	11,225	64,609	30,990,053	38,619,882
2012	61,207	4,401,473	1,315,018	1,788,632	11,245	64,609	31,040,520	38,682,704
2013	65,426	4,680,771	1,398,196	1,904,770	12,020	64,609	33,015,827	41,141,619
2014	62,240	4,469,861	1,335,384	1,817,069	11,435	64,609	31,524,189	39,284,787
2015	62,348	4,476,984	1,337,506	1,820,031	11,455	64,609	31,574,565	39,347,498
2016	62,469	4,484,972	1,339,885	1,823,353	11,477	64,609	31,631,057	39,417,822
2017	64,266	4,603,985	1,375,328	1,872,841	11,807	64,609	32,472,767	40,465,603
2018	64,411	4,613,558	1,378,179	1,876,822	11,834	64,609	32,540,470	40,549,883
2019	62,722	4,501,712	1,344,870	1,830,314	11,523	64,609	31,749,447	39,565,197
2020	62,909	4,514,114	1,348,564	1,835,471	11,558	64,609	31,837,161	39,674,386
2021	63,132	4,528,904	1,352,968	1,841,621	11,599	64,609	31,941,765	39,804,598
2022	61,585	4,426,462	1,322,460	1,799,023	11,315	64,609	31,217,253	38,902,707
2023	49,605	3,633,383	1,086,270	1,469,244	9,114	64,609	25,608,272	31,920,497
2024	49,809	3,646,913	1,090,300	1,474,871	9,151	64,609	25,703,963	32,039,616
2025	38,651	2,908,234	870,311	1,167,712	7,101	64,609	20,479,724	25,536,342
2026	14,599	1,315,996	396,121	505,627	2,682	64,609	9,218,774	11,518,408
2027	11,641	1,120,193	337,809	424,208	2,139	64,609	7,833,969	9,794,568
2028	9,028	947,177	286,282	352,264	1,659	64,609	6,610,330	8,271,349
2029	9,096	951,696	287,628	354,143	1,671	64,609	6,642,293	8,311,136
2030	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2031	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2032	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2033	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2034	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
2035	0	349,527	108,294	103,749	0	64,609	2,383,509	3,009,688
Total	2,115,033	154,275,225	46,107,467	62,469,778	388,579	2,614,781	1,087,531,583	1,355,502,446

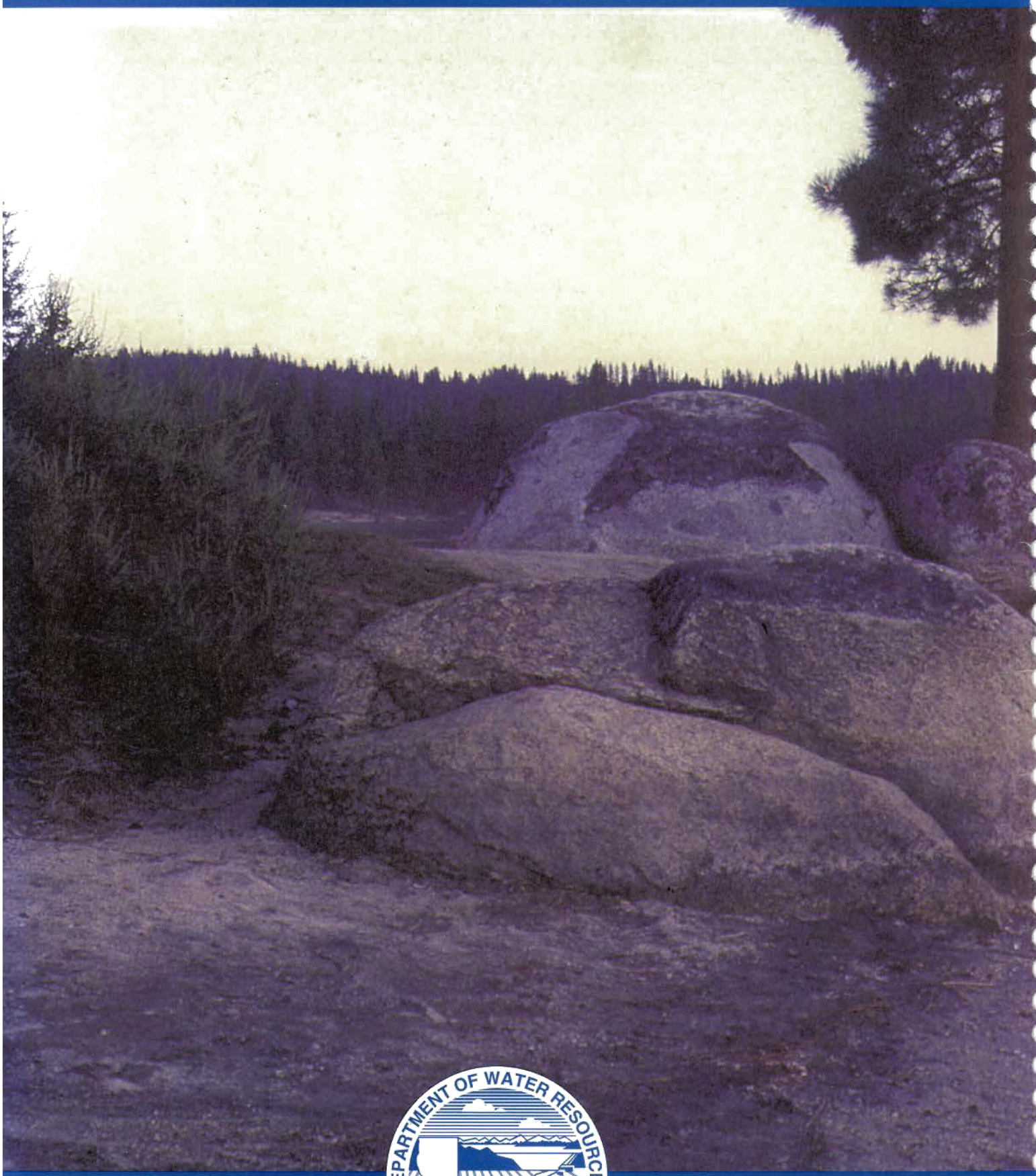
CONVERSION FACTORS

Quantity	To convert from customary unit	To metric unit	Multiply customary unit by	To convert to customary unit, multiply metric unit by
Length	inches (in)	millimeters (mm)*	25.4	0.03937
	inches (in)	centimeters (cm)	2.54	0.3937
	feet (ft)	meters (m)	0.3048	3.2808
	miles (mi)	kilometers (km)	1.6093	0.62139
Area	square inches (in^2)	square millimeters (mm^2)	645.16	0.00155
	square feet (ft^2)	square meters (m^2)	0.092903	10.764
	acres (ac)	hectares (ha)	0.40469	2.4710
	square miles (mi^2)	square kilometers (km^2)	2.590	0.3861
Volume	gallons (gal)	liters (L)	3.7854	0.26417
	million gallons (10^6 gal)	megaliters (ML)	3.7854	0.26417
	cubic feet (ft^3)	cubic meters (m^3)	0.028317	35.315
	cubic yards (yd^3)	cubic meters (m^3)	0.76455	1.308
	acre-feet (ac-ft)	thousand cubic meters ($m^3 \times 10^3$)	1.2335	0.8107
	acre-feet (ac-ft)	hectare-meters (ha – m)▪	0.1234	8.107
	thousand acre-feet (taf)	million cubic meters ($m^3 \times 10^6$)	1.2335	0.8107
	thousand acre-feet (taf)	hectare-meters (ha – m)▪	123.35	0.008107
	million acre-feet (maf)	billion cubic meters ($m^3 \times 10^9$)◆	1.2335	0.8107
	million acre-feet (maf)	cubic kilometers (km^3)	1.2335	0.8107
Flow	cubic feet per second (ft^3/s)	cubic meters per second (m^3/s)	0.028317	35.315
	gallons per minute (gal/min)	liters per minute (L/min)	3.7854	0.26417
	gallons per day (gal/day)	liters per day (L/day)	3.7854	0.26417
	million gallons per day (mgd)	megaliters per day (ML/day)	3.7854	0.26417
	acre-feet per day (ac-ft/day)	thousand cubic meters ($m^3 \times 10^3$/day)	1.2335	0.8107
Mass	pounds (lb)	kilograms (kg)	0.45359	2.2046
	tons (short, 2,000 lb)	megagrams (Mg)	0.90718	1.1023
Velocity	feet per second (ft/s)	meters per second (m/s)	0.3048	3.2808
Power	horsepower (hp)	kilowatts (kW)	0.746	1.3405
Pressure	pounds per square inch (psi)	kilopascals (kPa)	6.8948	0.14505
	feet head of water	kilopascals (kPa)	2.989	0.33456
Specific capacity	gallons per minute per foot of drawdown	liters per minute per meter of drawdown	12.419	0.08052
Concentration	parts per million (ppm)	milligrams per liter (mg/L)	1.0	1.0
Electrical conductivity	micromhos per centimeter	microsiemens per centimeter (μS/cm)	1.0	1.0
Temperature	degrees Fahrenheit (°F)	degrees Celsius (°C)	(°F – 32)/1.8	(1.8 x °C) + 32

* When using "dual units," inches are normally converted to millimeters (rather than centimeters).

▪ Not used often in metric countries, but is offered as a conceptual equivalent of customary western U.S. practice (a standard depth of water over a given area of land).

◆ ASTM Manual E380 discourages the use of billion cubic meters since that magnitude is represented by *giga* (a thousand million) in other countries. It is shown here for potential use for quantifying large reservoir volumes (similar to million acre-feet).



STATE OF CALIFORNIA THE RESOURCES AGENCY DEPARTMENT OF WATER RESOURCES