MANAGEMENT OF THE

CALIFORNIA STATE WATER PROJECT

BULLETIN 132-06 | *DECEMBER 2007*

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Management of the California State Water Project

Covers Activities during Calendar Year 2005

Published December 2007

Arnold Schwarzenegger *Governor*
State of California

Mike Chrisman *Secretary for Resources*
The Resources Agency

Lester A. Snow *Director*
Department of Water Resources

Foreword

Bulletin 132-06, Management of the California State Water Project, continues the Bulletin 132 annual series begun in 1963. Bulletin 132-06 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 2007. Appendix B was previously published as a separate document.

The Bulletin discusses significant events and issues that affect SWP management and operations. The Bulletin covers the period from January 1, 2005, to December 31, 2005.

Bulletin 132-06 also discusses water supply and delivery; Delta resources and environmental issues, including the CALFED Bay-Delta Authority; Oroville facilities relicensing; financial analysis of the SWP; and the update of business systems in the Department.

Lester A. Snow
Director

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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 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. As of March 2004, all members had either resigned or their terms had expired. New members have not been appointed by the Governor at the time of printing of this bulletin.

Abbreviations and Acronyms

A

AB Assembly Bill
ACWA Association of California Water Agencies
ADA Americans with Disabilities Act
af acre-feet
AFRP Anadromous Fish Restoration Plan
Ag Council Agricultural Water Management Council
ASCE American Society of Civil Engineers
AWMP Agricultural Water Management Plan

B

BDAC Bay-Delta Advisory Council
BDPAC Bay-Delta Public Advisory Committee
BOD biochemical oxygen demand

C

CAISO California Independent System Operator
CALFED State (CAL) and federal (FED) agencies participating in the Bay-Delta Accord
CalPX California Power Exchange
CAMAL California Association of Mutual Aid Laboratories
C.A.S.T. Catch a Special Thrill
CBDA California Bay-Delta Authority
CCSG Cantua Creek Stream Group
CCWA Central Coast Water Authority
CD Conservation District
CDEC California Date Exchange Center
CEA Capacity Exchange Agreement
CEQA California Environmental Quality Act
CESA California Endangered Species Act
cfs cubic feet per second
CIDH cast in drill hole
CIMIS California Irrigation Management Information System
COA Coordinated Operation Agreement
Corps U.S. Army Corps of Engineers

CPUC California Public Utilities Commission
CUSE Catholic University of Santiago del Estero
CVC Cross Valley Canal
CVHJV Central Valley Habitat Joint Venture
CVP Central Valley Project
CVPIA Central Valley Project Improvement Act
CVRWQCB Central Valley Regional Water Quality Control Board

D

D-1485 State Water Resources Control Board Water Right Decision 1485
D-1641 State Water Resources Control Board Water Right Decision 1641
DBPs disinfection by-products
DBW California Department of Boating and Waterways
DCC Delta Cross Channel
DCVCW Direct Cross Valley Canal Wheeling
DEIR draft environmental impact report
DFG California Department of Fish and Game
DHS California Department of Health Services
DLRD Delta Lands Reclamation District
DO dissolved oxygen
DOC dissolved organic carbon
DOE Department of Energy or Division of Engineering
DOI U.S. Department of the Interior or Delta Outflow Index
DPR California Department of Parks and Recreation
DPS Distinct Population Segment
DSM2 Delta Simulation Model 2
DSOD Division of Safety of Dams
DWR California Department of Water Resources

E

EA/IS Environmental Assessment/Initial Study
EBRPD East Bay Regional Park District
ECAT Environmental Coordination Advisory Team
EHV extra-high voltage
E/I Export/Import
EIR environmental impact report
EIS environmental impact statement
EPA U.S. Environmental Protection Agency
ESA Endangered Species Act
ESO Environmental Services Office
ESU Evolutionarily Significant Unit
ETo Reference Evapotranspiration
EWA Environmental Water Account

F

FERC Federal Energy Regulatory Commission
FLIMS Field and Laboratory Information Management System

G

GBP Grasslands Bypass Project
gpm gallons per minute

H

HMP Hazard Mitigation Plan

I

ICR Information Collection Rule
IEP Interagency Ecological Program
IFDM Integrated on-Farm Drainage Management
IHSim Integrated Hydrological Simulator
INDP Interim North Delta Plan
ISDP Interim South Delta Program
ISI Integrated Storage Investigation
ITRC Irrigation Training and Research Center

J

JWR&DTF Joint Water Reuse & Desalination Task Force

K

kV kilovolt
KWB Kern Water Bank
kWh kilowatt hour

L

LADWP Los Angeles Department of Water and Power
LSEs Load Serving Entities

M

maf million acre-feet
MCL maximum contaminant level
MCWA Mokelumne-Cosumnes Watershed Alliance

MD02 Market Design 2002
MFP Middle Fork Project
mg/L milligrams per liter
MIB Methylisoborneal
MIDS Morrow Island Distribution System
MRTU Market Redesign and Technology Upgrade
MTBE methyl tertiary butyl ether
MWh megawatt hour
MWQI Municipal Water Quality Investigations

N

NBA North Bay Aqueduct
NDOI Net Delta Outflow Index
NEMDC Natomas East Main Drainage Canal
NEPA National Environmental Policy Act
NOAA Fisheries National Marine Fisheries Service
NODOS north-of-the-Delta offstream storage
NOP/NOI Notice of Preparation/Notice of Intent
NPC Nevada Power Company
NPDES National Pollutant Discharge Elimination System

O

OBS optical backscatter
OCAP Operating Criteria and Plan
O&M Division of Operations and Maintenance
OM&P operations, maintenance, and power
OMP&R operations, maintenance, power, and replacement
OM&R operations, maintenance, and replacement

P

PCL Planning and Conservation League
PG&E Pacific Gas and Electric Company
pH [p(otential) of H(ydrogen)]
ppt parts per thousand
PAO Public Affairs Office
PDEA Preliminary Draft Environmental Assessment
PFMA Potential Failure Mode Analysis
PM particulate matter
POD pelagic organism decline
PSA Public Service Announcement
PSP Proposal Solicitation Packet

Q

QA/QC Quality Assurance/Quality Control

R

RCRC Regional Council of Rural Counties
RD reclamation district
Reclamation Bureau of Reclamation
RMR Reliability Must-Run
RMS Reliability Management System
ROD Record of Decision
RRR Red Rock Ranch
RTWQMP Real-time Water Quality Monitoring Program

S

SAP System Application Products
SB Senate Bill
SCE Southern California Edison
SDG&E San Diego Gas and Electric
SDIP South Delta Improvements Program
SDTBP South Delta Temporary Barriers Project
SDWA South Delta Water Agency
Se Selenium
SEW Suisun Ecological Workgroup
SGA Sacramento Groundwater Authority
SJVDIP San Joaquin Valley Drainage Implementation Program
SJRA San Joaquin River Agreement
SJREC San Joaquin River Exchange Contractors Water Authority
SJRIODAY San Joaquin River Input-Output Day
SLFD San Luis Field Division
SMPA Suisun Marsh Preservation Agreement
SMSCG Suisun Marsh Salinity Control Gates
SNL Sandia National Laboratories
SPPC Sierra Pacific Power Company
SRB State Reclamation Board
SRCD Suisun Resource Conservation District
STID Supporting Technical Information Document
SVUR Sacramento Valley Unimpaired Runoff
SVWMA Sacramento Valley Water Management Agreement
SVWMP Sacramento Valley Water Management Program
SWP State Water Project
SWRCB State Water Resources Control Board
SWT Sephton Water Technology

T

taf thousand acre-feet
TDF through-Delta facilities
TEAM Transmission Economic Assessment Methodology
THM trihalomethane
TOC total organic carbon

U

UCLA University of California at Los Angeles
USFWS U.S. Fish and Wildlife Service
USGS U.S. Geological Survey
UWMP Urban Water Management Plan

V

VAMP Vernalis Adaptive Management Plan
VTE vertical tube evaporation

W

WAM Water Awareness Month
WECC Western Electricity Coordinating Council
WET Water Education for Teachers
WQA water quality assessment
WQCP Water Quality Control Plan
WR 95-06 SWRCB Water Right Order 95-06
WSCC Western Systems Coordinating Council
WSDB West Side Detention Basin

The State Water Project long-term water supply contractors are listed below, followed by shortened forms of their names that are used in Bulletin 132 instead of acronyms.

Alameda County Flood Control and Water Conservation District, Zone 7	Alameda-Zone 7
Alameda County Water District	Alameda County
Antelope Valley-East Kern Water Agency	AVEK
Castaic Lake Water Agency	Castaic Lake
City of Yuba City	Yuba City
Coachella Valley Water District	Coachella
County of Butte	Butte
County of Kings	Kings
Crestline-Lake Arrowhead Water Agency	Crestline
Desert Water Agency	Desert
Dudley Ridge Water District	Dudley Ridge
Empire-West Side Irrigation District	Empire
Kern County Water Agency	Kern
Littlerock Creek Irrigation District	Littlerock
Metropolitan Water District of Southern California	Metropolitan
Mojave Water Agency	Mojave
Napa County Flood Control and Water Conservation District	Napa
Oak Flat Water District	Oak Flat
Palmdale Water District	Palmdale
Plumas County Flood Control and Water Conservation District	Plumas
San Bernardino Valley Municipal Water District	San Bernardino
San Gabriel Valley Municipal Water District	San Gabriel
San Gorgonio Pass Water Agency	San Gorgonio
San Luis Obispo County Flood Control and Water Conservation District	San Luis Obispo
Santa Barbara County Flood Control and Water Conservation District	Santa Barbara
Santa Clara Valley Water District	Santa Clara
Solano County Water Agency	Solano
Tulare Lake Basin Water Storage District	Tulare
Ventura County Watershed Protection District	Ventura

The non-SWP water contractors are listed below, followed by shortened forms of their names that are used in Bulletin 132 instead of acronyms.

Arvin-Edison Water Storage District	Arvin-Edison
Belridge Water Storage District	Belridge
Berrenda Mesa Water District	Berrenda Mesa
Buena Vista Water Storage District	Buena Vista
Byron-Bethany Irrigation District	Byron-Bethany
Cawelo Water District	Cawelo
Contra Costa Water District	Contra Costa
County of Tulare	Tulare
East Contra Costa Irrigation District	East Contra Costa
Fresno County Public Works	Fresno
Hills Valley Irrigation District	Hills Valley
Kern-Tulare Water District	Kern-Tulare
Lost Hills Water District	Lost Hills
Lower Tule River Irrigation District	Lower Tule
Merced Irrigation District	Merced
Pixley Irrigation District	Pixley
Placer County Water Agency	Placer
Rag Gulch Water District	Rag Gulch
Rosedale-Rio Bravo Water Storage District	Rosedale-Rio
San Luis & Delta-Mendota Water Authority	San Luis & Delta-Mendota
Semitropic Water Storage District	Semitropic
South Feather Water and Power Agency	South Feather
Tranquility Irrigation District	Tranquility
Tri-Valley Water District	Tri-Valley
United Water Conservation District	United
West Kern Water District	West Kern
Western Hills Water District	Western Hills
Westlands Water District	Westlands
Westside Mutual Water Company	Westside
Wheeler Ridge-Maricopa Water Storage District	Wheeler Ridge-Maricopa
Yuba County Water Agency	Yuba

Executive Summary

Part of the North Bay Aqueduct, the Cordelia Pumping Plant serves the cities of Benecia, Vallejo, and Napa.

The Bulletin 132 series began in 1963 and reported the first deliveries of water by the new State Water Project (SWP), which was still under construction. Bulletin 132-06, Management of the California State Water Project, continues this series with the forty-fourth edition. It reports planning, construction, financing, managing, and operating activities of the SWP in 2005. The SWP is operated and maintained by the California Department of Water Resources (DWR).

2005 SWP Highlights

The SWP is one of the largest water and power systems in the world. It conveys an average annual 2.4 million af of water through its 17 pumping plants, 8 hydroelectric power plants, 3 pumping-generating plants, 29 dams and reservoirs, and about 675 miles of aqueducts and pipelines.

California experienced higher-than-average rainfall and mountain snowpack during water year 2004–2005. The State received precipitation at 140 percent of average. The Sacramento Valley Water Year Hydrologic Classification (40-30-30 Index) was above normal and the San Joaquin Valley Water Year Hydrologic Classification (60-20-20 Index) was wet. The Northern Sierra Eight Station Index finished with 57.5 inches of precipitation, or 115 percent of average.

Water storage in all SWP reservoirs at the end of water year 2004–2005 was 4.52 maf, or 83 percent of average. Total water storage in major SWP reservoirs at the end of calendar year 2005 was about 4.64 maf, as compared with 3.07 maf in 2004.

The project provides water for approximately 24 million people throughout the State, irrigation for 750,000 acres of farmland, and environmental benefits to wildlife refuges, as well as environmental mitigation programs. In 2005, the SWP delivered 4,732,633 af of water to 27 of its 29 long-term contractors and 26 other agencies. Ten non-SWP agencies in the Feather River area received 1,074,706 af.

DWR continued to be its own energy scheduling coordinator with the California Independent System Operator (CAISO) and to schedule the purchase and sale of energy to operate the SWP. In 2005, energy used at the 28 SWP pumping and generating plants totaled 8.29 million MWh. DWR sold 2.15 million MWh of energy to 20 utilities and 22 power marketers, for total revenues of $148.62 million in 2005.

The project continued to pay bondholders as scheduled and remained financially viable. The long-term water contractors continued to repay project construction bonds and operating expenses. In 2005, the SWP handled approximately $789 million each in revenues and expenses, with General Fund contributions limited to recreation facilities.

2005 Precipitation and Water Storage

The water stored and delivered by the SWP conservation and transportation facilities originates from rainfall and snowmelt in Northern and Central California watersheds, where most of the State's

precipitation occurs. DWR monitors and records annual precipitation and runoff during each water year, which begins on October 1 and ends on September 30.

Precipitation and Snowpack in Water Year 2004–2005

California experienced higher-than-average rainfall and mountain snowpack during water year 2004–2005. The State received precipitation at 140 percent of average in 2004–2005, as compared to 85 percent of average in 2003–2004. During the second week of April 2005, the statewide average snowpack peaked at 40 inches of snow water content. This amount of mountain snowpack is 146 percent of normal. These snowpack conditions are in stark contrast to snowpack levels in 2003–2004. During that time period, the statewide snow water content peaked at 30 inches in the first week of March. The Northern Sierra Eight Station Index finished the 2004–2005 water year with 57.5 inches of precipitation, which was 115 percent of average.

Runoff

Statewide river runoff totaled 105 percent of average in water year 2004–2005. Runoff in the Sacramento River and San Joaquin River regions was 95 percent and 150 percent of average, respectively.

The Sacramento River Index for water year 2004–2005 was 18.5 maf (95 percent of average). The Sacramento Valley Water Year Hydrologic Classification (40-30-30 Index) was above normal, based on observed data for water year 2004-2005.

The San Joaquin River system unimpaired runoff from the Stanislaus, Tuolumne, Merced, and San Joaquin rivers was 9.2 maf (155 percent of average). The San Joaquin Valley Water Year Hydrologic Classification (60-20-20 Index) was wet, based on observed data for water year 2004-2005.

Water Year 2004–2005 Storage Totals

Total water storage in all SWP reservoirs at the end of water year 2004–2005 was 4.52 maf, or 83 percent of average, compared to 2.99 maf or 76 percent of average at the end of water year 2003–2004. The average end-of-month total storage in major SWP reservoirs was 4.19 maf. End-of-water-year storage on September 30, 2005, at Lake Oroville was 2.88 maf, which was about 1.13 maf more than water year 2003-2004.

Calendar Year 2005 Storage Totals

Total water storage in major SWP reservoirs at the end of calendar year 2005 was about 4.64 maf, as compared with 3.07 maf in 2004.

Water Year 2005–2006 October–December Water Conditions

The last three months of calendar year 2005 mark the beginning of a new water year, 2005–2006. By the end of October, the runoff was near 80 percent of average in the Northern Sierra and closer to average in the central and southern regions of the Sierra. November provided lower percentages of average runoff. By the end of November, statewide runoff since October 1 had fallen to near 70 percent of average. December, however, resulted in near 200 percent of normal precipitation statewide and, in addition, the statewide water year-to-date runoff rose to nearly 200 percent of average.

2005 Water Supplies, Contracts, and Deliveries

2005 Water Deliveries

DWR approved deliveries of 1.65 million af on November 30, 2004, resulting in initial approved Table A amounts of 40 percent of most SWP contractor requests. DWR increased the 2005 approved Table A amounts to 2.48 million af, or 60 percent on January 14, 2005. As water conditions improved, approved Table A amounts were increased to 2.89 million af (70 percent) on April 1, 2005, 3.30 million af (80 percent) on April 21, 2005, and 3.30 million af (90 percent) on May 27, 2005.

In 2005, 4,732,633 af of water were conveyed to 27 long-term contractors and 26 other agencies. That amount includes:

- 2,828,406 af of approved Table A water;
- 731,083 af of Article 21 water;
- 1,506 af of SWP water for recreation and fish and wildlife;
- 1,101,429 af of water delivered to satisfy water rights settlement agreements and agreements with SWP contractors for local water supplies; and
- 70,209 af of water delivered to satisfy agreements between the SWP and the Central Valley Project (CVP).

Table ES-1 on page 6 shows SWP water deliveries by category for 1962–2005.

Non-SWP Water Conveyance

In 2005, DWR conveyed 67,792 af of CVP water through SWP facilities for the Bureau of Reclamation (Reclamation).

Dry Year Water Purchase Program

Due to the wet hydrology of 2005, there was no need for a dry year water purchase program.

Power Resources

In 2005, energy used at the 29 SWP pumping and generating plants totaled 8.29 million MWh.

The Hyatt-Thermalito power complex in Oroville generated 1.83 million MWh of energy in 2005. Energy generated at SWP aqueduct recovery plants—Gianelli, Alamo, Devil Canyon, Mojave Siphon, and Warne—totaled 1.74 million MWh. The SWP share of energy generated at the coal-fired Reid Gardner Unit 4 in Nevada totaled 1.58 million MWh of energy.

DWR sold 2.15 million MWh of energy to 20 utilities and 22 power marketers, for total revenues of $148.62 million in 2005. DWR also received $33.50 million in revenues for capacity, including $21.03 million for transactions made through CAISO.

DWR purchased 4.74 million MWh of energy at a cost of $232.07 million. Other SWP power costs, including transmission, operation, maintenance, and CAISO ancillary services totaled $123.83 million. This amount includes $4.95 million for debt service and $3.81 million for operations and maintenance costs at Pine Flat Power Plant. It also includes $3.42 million for transmission at Reid Gardner Unit 4 and $59.33 million for costs associated with operations and maintenance, fuel, insurance, and property taxes at Reid Gardner Unit 4.

Table ES-1. SWP Water Delivered by Category, 1962–2005 (Acre-feet)

	Table A Water			Other SWP Water Deliveries					
				Article 21/Unscheduled					
Year	Municipal and Industrial (1)	Agricultural (2)	Total (3)	Municipal and Industrial (4)	Agricultural (5)	Other Water[a] (6)	Feather River Diversions[b] (7)	Fish and Wildlife/ 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	1,134,992	614,359	1,749,351	48,150	64,475	236,739	874,018	8,200	2,980,933
1995	801,570	1,165,523	1,967,093	17,984	46,346	78,425	860,077	2,575	2,972,500
1996	1,145,638	1,369,187	2,514,825	12,091	16,556	251,391	934,997	3,907	3,733,767
1997	1,258,456	1,067,319	2,325,775	2,814	18,618	322,000	993,211	4,146	3,666,564
1998	864,795	860,724	1,725,519	9,982	10,306	134,682	872,738	2,108	2,755,335
1999	1,405,299	1,333,592	2,738,891	61,191	96,879	85,312	1,108,672	4,324	4,095,269
2000	2,022,703	1,177,974	3,200,677	170,302	138,483	332,654	1,085,886	4,030	4,932,032
2001	1,162,897	383,845	1,546,742	10,261	33,174	535,160	1,078,656	2,929	3,206,922
2002	1,808,017	765,013	2,573,030	15,478	27,637	309,094	1,132,938	3,694	4,061,871
2003	2,118,150	782,891	2,901,041	23,019	36,809	251,447	1,008,093	2,846	4,223,255
2004	1,950,407	649,129	2,599,536	103,890	114,606	385,088	1,174,672	2,865	4,380,657
2005	1,959,162	869,244	2,828,406	199,834	531,249	96,932	1,074,706	1,506	4,732,633
Total	**36,291,614**	**28,051,700**	**64,343,314**	**899,937**	**6,808,302**	**8,781,967**	**32,908,813**	**136,893**	**113,879,226**

[a] Includes water conveyed for SWP and non-SWP water contractors.
[b] Includes amounts of water diverted according to various water rights agreements.

State Water Project Power Generation and Consumption in 2005

Power Generation and Consumption	Millions of Megawatt Hours
Energy generation by SWP facilities	5.151
Energy sources and firm purchases under long-term agreeements and exchanges	5.367
Total Energy Available to the SWP	**10.518**
Energy sales	(2.210)
Net Power Consumption of the SWP	**8.308**

The sidebar above shows 2005 power generation and consumption.

Oroville Facilities Relicensing

The existing 50-year term FERC hydropower license, Project Number 2100 for operation of the Oroville Facilities, will expire January 31, 2007. To obtain a new license, DWR must file a new application with FERC by January 31, 2005.

On January 26, 2005, DWR submitted its Application for New License for the Oroville Facilities with FERC. On September 12, 2005, following DWR's successful compliance with FERC's May 2005 Additional Information Request, FERC accepted DWR's Application for a New License for operating the Oroville Facilities. FERC's acceptance of DWR's license application marked the conclusion of the multiyear collaborative Alternative Licensing Process (ALP) involving federal and State agencies, Indian tribes, local agencies, environmental organizations, and other interested parties that worked to assist DWR in completing a comprehensive license application and accompanying Preliminary Draft Environmental Assessment (PDEA). While this procedurally completed the ALP phase of FERC relicensing, settlement negotiations and completion of all federal and State environmental documentation was still ongoing at the end of 2005 in pursuit of a new FERC license at the Oroville Facilities.

During 2005, primary achievements included:

- completing all 165 technical reports resulting from the 72 collaboratively developed and approved study plans. These roughly 40,000 pages of supporting documentation were submitted to FERC in support of DWR's application for license;
- completing a package of responses addressing deficiencies, clarifications, additional information requests, and revisions to the January 2005 license application;
- receiving notification that the Oroville Facilities New License Application was accepted for filing by FERC;

- submitting the application for water quality certification to the State Water Resources Control Board;
- continuing settlement agreement negotiations meetings with Indian tribes, Butte County, local governmental agencies, State and federal agencies, and other interested stakeholders; and
- continuing to prepare and update the recreation management plan submitted with the Application for License to reflect additional enhancements derived from the Settlement Agreement negotiations.

As an interim settlement activity, DWR obtained approval to provide $3 million to the Feather River Recreation and Park District to fund recreation improvements at Riverbend Park in Oroville through calendar year 2007.

The following SWP facilities will be subject to new license terms and conditions:

- Oroville Dam and Reservoir;
- Hyatt Pumping-Generating Plant;
- Thermalito Pumping-Generating Plant;
- Thermalito Diversion Dam Power Plant;
- Thermalito Diversion Dam;
- Fish Barrier Dam;
- Feather River Fish Hatchery;
- Thermalito Power Canal;
- Thermalito Forebay; and
- Thermalito Afterbay.

Financial Analysis

In 2005, DWR continued to pay bondholders as scheduled. The SWP was financially viable and was indirectly paid for by the approximately 24 million water users who were served by the project. Direct payment was through the 29 long-term water contractors. In 2005, the SWP handled approximately $789 million in revenues and $789 million in expenses. The sidebar on page 9 shows the 2005 income statement for the SWP.

California Water Plan Update 2005

On April 13, 2005, DWR released the public review draft of the *California Water Plan Update 2005*, a proposed strategic plan to meet the State's water needs through 2030.

California Water Plan Update 2005 is the product of unprecedented public input from a 65-member advisory committee representing agriculture, urban water districts, businesses, environmentalists, Native Americans, environmental justice advocacy, cities, counties, federal and State agencies, the California Bay-Delta Authority, academia, and different regions of California. The plan also incorporates input from a 350-member extended review forum, and more than 2,000 interested members of the public.

For the first time, the *California Water Plan* includes a short- and long-term implementation strategy, and details 25 actions, such as water conservation and recycling, conjunctive management and groundwater storage, surface storage and conveyance, system reoperation and water transfers, and desalination; as well as other strategies.

Public hearings on the review draft were held in June, and the final *California Water Plan Update 2005* and the *Water Plan Highlights* briefing book were completed in December 2005.

2005 Income Statement for the State Water Project

Revenues	Thousands of Dollars
Water Contract Payments	836,533
Revenue Bond Cover Adjustments	(37,121)
Rate Management Adjustments	(36,584)
Other Revenues	26,513
Total Operating Revenues	**789,341**
Expenses	
Project Operations, Maintenance, Power, and Replacement	571,073
Deposits to Reserves	(39,719)
Water Bond Principal	108,282
Water Bond Interest	149,705
Total Operating Expense and Debt Service	**789,341**
Net System Revenues	**0**

DWR first published the *California Water Plan* in 1957 and has updated it eight times in the Bulletin 160 series.

Monterey Amendment

The Monterey Amendment, based on Principles of Agreement released on December 16, 1994, was designed to increase the reliability of existing water supplies, provide stronger financial management for the SWP, and increase water management flexibility by providing more tools for local water agencies. In accordance with terms of the May 5, 2003, Monterey Settlement Agreement, the SWP continues to operate pursuant to the Monterey Amendments while the new EIR is being prepared. The draft EIR is expected to be released in 2007.

Delta Resources and Environmental Issues

The 738,000-acre Delta is the heart of California's water environment. The Delta, at the convergence of the Sacramento and San Joaquin rivers, is a network of islands, sloughs, marshes, and reclaimed farmland that stretches from Sacramento to San Francisco Bay. A source of drinking water for about two-thirds of California's population, the Delta also provides irrigation for the Central Valley. The State Water Resources Control Board has adopted water quality control plans and policies to protect the Delta's water quality

and ecosystem while at the same time maintaining SWP water supply reliability.

California Bay-Delta Authority

The California Bay-Delta Act of 2003 established the California Bay-Delta Authority as a new governance structure. The Authority oversees the 25 State and federal agencies working cooperatively through the CALFED Bay-Delta Program to improve the quality and reliability of California's water supplies while restoring the Bay-Delta ecosystem. The Authority is charged with tracking and assessing the CALFED Bay-Delta Program progress, using sound science, providing accountability and ensuring balanced implementation of the program, assuring public involvement and outreach, and coordinating and integrating related government programs.

Environmental Water Account

The Environmental Water Account (EWA) is designed to provide water at critical times to meet environmental needs while providing water supply reliability to SWP and CVP water users. To do that, EWA buys water from willing sellers or diverts surplus water when safe for fish. EWA then banks, stores, conveys, and releases the water as needed to protect fish and compensate water users.

In 2005, EWA's fifth operational year, exports were periodically curtailed at the SWP and CVP export facilities between December 15, 2004, and June 8, 2005. These actions resulted in an EWA debt of about 328,681 af at the SWP (December—4,163 af; February—33,967 af; April—121,888 af; May—133,997 af; June—34,666 af) and 11,400 af at the CVP in February.

During water year 2005, DWR and Reclamation acquired 171,917 af and 28,568 af, respectively, in operational assets and 154,560 af of purchase assets through contract agreements. All purchase asset acquisitions in 2005 were made by DWR and were covered under the EWA environmental impact statement/environmental impact report (EIS/EIR) in compliance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). A source shift was not implemented because there was no risk of a low-point problem at San Luis Reservoir.

In fall 2004, EWA carried a debt of 14,927 af to water year 2005. EWA ended with no debt at the end of December 2005.

North Delta Program

The North Delta Program is part of CALFED's Conveyance Program. Three North Delta conveyance facilities improvements are being evaluated. One is to improve operational procedures for the Delta Cross Channel (DCC) to address fishery and water quality concerns; the second is a screened Through-Delta Facility on the Sacramento River; and the third is the Franks Tract Project, which involves installation of operable gates either on Three Mile Slough or West False River to improve water quality and benefit fisheries. DWR is leading all three studies in cooperation with other agencies. DWR is in the process of initiating the preparation of an EIR/EIS for the Franks Tract Project.

In 2005, projects relating to the DCC Reoperation Project and Through-Delta Facility were limited to completing analyses and writing reports on field work. These activities included reevaluating project funding and schedules. For

example, the Flooded Islands Pre-Feasibility Study, initiated in April 2004, to develop and evaluate conceptual alternatives for modifying Franks Tract, Lower Sherman Lake, and Big Break was completed in June 2005. It provides conceptual modification alternatives on the three flooded islands, with their respective benefits and costs.

The Franks Tract 2005 modifications study showed significant Delta water quality improvements—at a relatively modest cost. This study recommends that operations of the proposed gates are refined for these alternatives to optimize water quality benefits. The report also recommends conducting a pilot project to evaluate, implement, and demonstrate the effectiveness and impacts of the facility before considering a full-scale project. Subsequently, in 2006 and 2007, DWR will continue to refine and evaluate the operation and design of several pilot project alternatives in the Franks Tract area. The scope of the proposed pilot project is currently under development. In mid-2007, an EIR/EIS will be initiated for the pilot project.

South Delta Improvements Program

The South Delta Improvements Program (SDIP) is the second component of CALFED's Conveyance Program. The purpose of SDIP is to do the following:

- improve the reliability of existing SWP facilities;
- ensure that water of adequate quantity and quality is available for diversion to the South Delta Water Agency's service area for beneficial use; and
- reduce the effects of SWP exports on both aquatic resources and direct losses of fish in the South Delta.

In November 2005, a draft EIS/EIR was released for the SDIP. The decision to proceed with the proposed project addresses a precipitous decline in the populations of pelagic (open water) fish in the Bay-Delta environment. One of the fish species is the delta smelt, which is an endangered fish. Stage 1 addresses the physical and structural component of the program, which is not expected to affect fish populations. Stage 2 is the operational component of the program. This stage will increase water deliveries and delivery reliability by increasing the Clifton Court Forebay diversion limit to 8,500 cfs. Only Stage 1 is being sought at this time, while Stage 2 is being deferred. Stage 1 of the SDIP includes the construction and operation of the following projects:

- three permanent operable gates to improve local water levels and circulation in South Delta channels;
- one permanent operable gate to prevent straying of salmon migrating to the San Joaquin River;
- extensive dredging in the South Delta to improve channel capacity for local agricultural users; and
- modifications to existing agricultural diversion intakes.

Several ways of operating the Clifton Court Forebay diversion at 8500 cfs are available, but a preferred operation is not identified in the draft EIR/EIS. DWR is committed to issuing a supplemental environmental document on Stage 2, and circulating this document for a minimum of 45 days, prior to making any decisions.

Status of Threatened or Endangered Species Listings

Delta Export Curtailment

SWP and CVP operated under a new Delta Smelt Biological Opinion in 2005, which was signed in August 2004. This biological opinion set new incidental take limits, based on the most recent 10 years of data (1993–2003). The new take limits are based on two categories of water year type: wet or above normal and below normal, dry, or critical. The Delta Smelt Risk Assessment Matrix (DSRAM) adult concern level is set at 892, and the reconsultation level varies by month, ranging from 100 to 44,800. When the incidental take is exceeded, a team of interagency scientists, known as the Delta Smelt Working Group, will convene a meeting to review smelt distribution, abundance, projected project operations, and other information. This work group will recommend any actions that should be taken to reduce salvage.

On January 24, 2005, the incidental take of pre-spawning adult delta smelt at SWP and CVP exceeded the concern level of 892. The Delta Smelt Working Group met to discuss possible actions. As a result, combined exports were reduced to 3,000 cfs for seven days.

In 2005, 2,922 delta smelt were salvaged by SWP and 818 were salvaged by CVP. These fish compare to 20,470 delta smelt salvaged at both facilities in 2004.

Pelagic Organism Decline in the Upper San Francisco Estuary

There have been marked declines of numerous pelagic fishes in the upper San Francisco Estuary. The major resident pelagic fishes sampled in the upper estuary include delta smelt, longfin smelt, striped bass, and threadfin shad. Historically, low populations of these fishes have been the result of dry years, such as the drought in 1987–1992. Abundance indices for 2002–2005 indicate record and near-record lows for these populations, which are unexpected given the moderate winter-spring flows of the past several years. In response to the Pelagic Organism Decline (POD), the Interagency Ecological Program (IEP) formed a work team to evaluate the potential causes. An interdisciplinary, multiagency research effort was undertaken in 2005 to identify the most likely causes of the POD. The overall approach was based on a "triage" model to identify the most likely causes and assign priorities to projects, based on funding and resources. The 2005 work fell into four general types: an expansion of existing monitoring; analysis of existing data; new studies; and ongoing studies. A conceptual model was developed to describe possible mechanisms, by which a combination of long-term and recent changes in the ecosystem could produce the observed declines in the abundance indices.

Possible stressors influencing the POD included entrainment, toxic effects on fish, toxic effects on fish food, harmful algal blooms, clam effects on food availability, disease, and parasites. Narrative explanations in the context of long-term trends have been developed for four major components: (1) prior fish abundance—which describes how the continued low abundance of adults leads to reduced juvenile production; (2) habitat—which describes how water quality variables, including contaminants and toxic algal blooms, affect estuarine species; (3) top-down effects—which posit that predation and water project entrainment affect mortality rates; and (4) bottom-up effects—

which focus on how food web interactions in Suisun Bay and the West Delta have affected fish abundance. These narrative explanations will be developed for 2006–2007 to cover each component of the conceptual model.

Flood Protection

Arroyo Pasajero

The Arroyo Pasajero and its tributaries drain the coastal mountains west of the California Aqueduct in Fresno County. During heavy rainfall, high flows in the Arroyo Pasajero carry heavy sediment loads. Over eons, this flood sediment has formed an alluvial fan that extends from Tulare Lake to Fresno Slough. The alluvial fan is traversed by the California Aqueduct, which forms a barrier to Arroyo flood flows. Flood control facilities constructed to solve this problem include the West Side Detention Basin, designed to store floodwaters and sediment, an evacuation culvert to release floodwaters east of the California Aqueduct, and drain inlets to release floodwaters into the California Aqueduct. Since the floods of 1969, when nearly all the West Side Detention Basin's planned 50-year sediment storage space was filled, DWR and Reclamation have worked to minimize the effects of heavy flooding. In 1990, DWR asked the U.S. Army Corps of Engineers to help identify solutions to the Arroyo Pasajero flooding and sediment problems. Two candidate plans were prepared and released to the public in 1999; however, due to prohibitive costs, neither plan was adopted. Since then, DWR and Reclamation have been working on an alternate plan. This plan would rely on increased storage in the existing West Side Detention Basin, possibly combined with a reservoir to be constructed in the western Tulare Lakebed east of the California Aqueduct. The State Water Contractors asked DWR to develop the least costly alternative that would still provide a 100-year level of flood protection to the California Aqueduct. In 2004, DWR finished its feasibility investigation into a more cost-effective plan and proceeded with final design, environmental documentation, and other procedural steps leading to construction. Construction started in fall 2004 and included implementing improvements to increase the storage capacity of the West Side Detention Basin. The plan also included both adding new and improving the existing flood control structures.

Security Measures for the State Water Project after September 11, 2001

Security and protection of the SWP is a primary goal for DWR. Since September 2001, DWR has taken action to further increase security, regulate access, and closely monitor activities at SWP facilities and DWR's offices. For example, SWP operations are monitored more closely now, and staff exercise vigilance in maintaining a secure environment. Security patrols are more frequent and planning is in place to address potential or actual acts of terrorism. Improvements to existing security systems are ongoing and done in conjunction with Reclamation and other federal and State agencies. In 2005, DWR continued to implement recommended actions from a security assessment completed by an independent consultant in 2004. While DWR does not discuss details of its security program, it does coordinate very closely on security issues and emergency preparedness with federal and State public safety and law enforcement agencies, Reclamation,

utilities, regional and municipal water entities, and others.

SWP Milestones through the Decades

Forty Years Ago – 1965

Construction begins on the Edmonston Pumping Plant, the largest pumping facility of the State Water Project. Edmonston lifts water almost 2,000 feet up and over the Tehachapi Mountains into Southern California. At peak capacity, the plant pumps almost 2 million gallons a minute through 10 miles of pipeline across the Tehachapi Mountains.

Thirty Years Ago – 1975

Governor Edmund G. Brown, Jr. appoints Ronald E. Robie, an attorney and legislative consultant on water law and policy, as DWR Director. Robie serves until 1983.

Twenty Years Ago – 1985

In March 1985, a groundbreaking ceremony is held for the North Bay Aqueduct, Phase Two.

Ten Years Ago – 1995

DWR relocates operational headquarters for the SWP from the Resources Building in downtown Sacramento to a renovated building north of downtown. The new Joint Operations Center is shared with Reclamation, operators of the CVP, and the National Weather Service, a partner in DWR's new Flood Center.

Chapter 1
The State Water Project

The State Water Project is the largest state-built, multipurpose water project in the country.

Information in this chapter was contributed by the Division of Operations and Maintenance and the State Water Project Analysis Office.

California's diverse geography contains both the highest and lowest elevations in the coterminous United States, with a resulting diversity of climate that ranges from desert to alpine to subtropical. In a typical year, some areas receive as little as 2 inches of rain, while others receive more than 100 inches. This diversity of geography and climate creates an intricate and constantly changing pattern of water supplies, which, in turn, creates enormous challenges in managing this vital resource.

Like present-day Californians, the earliest settlers 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 original 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 convey water from the Sierra Nevada to other parts of the State.

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 (SWP). In 1962, the first water was delivered through a portion of the South Bay Aqueduct to two long-term contracting agencies in Alameda County.

Today the SWP, managed by the Department of Water Resources (DWR), is the largest state-built, multipurpose water project in the country. It was designed and built to deliver water, control floods, generate power, provide recreational opportunities, and enhance habitat for fish and wildlife. SWP water irrigates about 750,000 acres of farmland, mainly in the south San Joaquin Valley. About 24 million of California's estimated 36 million residents benefit from SWP water.

Precipitation and Runoff

The water stored and delivered by the SWP originates from rainfall and snowmelt runoff in Northern and Central California's watersheds, where most of the State's precipitation occurs.

Since 1968, DWR has monitored and recorded annual precipitation and runoff, because precipitation, snowpack, and the rate and amount of snowmelt help determine how much water the SWP can deliver in any given year. The water year, as designated by DWR, is October 1 through September 30.

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 since been built, and still others are either under construction or are planned to be built, as needed.

The SWP facilities include 25 dams and reservoirs, 29 pumping and generating plants, and approximately 700 miles of aqueducts in total. Figure 1-1 shows the names and locations of primary water delivery facilities.

Existing long-term SWP water supply contracts call for the annual delivery of up to 4,125,686 af of Table A water during 2005 through SWP facilities, gradually increasing to a maximum of up to 4,172,786 af by 2021. Some changes have occurred since the long-term water contracts were signed in the 1960s. These changes include population growth variations, differences in local use, local water conservation programs, and conjunctive-use programs. The SWP delivered 2,828,406 af of approved Table A water to long-term contractors' service areas in 2005. Demands for SWP water are expected to increase as California's population continues to grow.

Project Design

Water from rainfall and snowmelt runoff is stored in SWP conservation facilities and delivered via SWP transportation facilities to water agencies and districts in the Southern California, Central Coastal, San Joaquin Valley, South Bay, North Bay, and Upper Feather River areas.

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 DWR.

Downstream from these three lakes lies 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 af (an acre-foot is about 326,000 gallons).

Releases from Lake Oroville flow down the Feather River into the Sacramento River, which drains the northern portion of California's great Central Valley. The Sacramento River flows into the Sacramento-San Joaquin Delta, comprised of 738,000 acres of land interlaced with channels that receive runoff from 40 percent of the State's land area. The SWP, federal Central Valley Project (CVP), and local agencies all divert 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, which was completed in 1988. Near Byron, in the southern Delta, the SWP diverts water into Clifton Court Forebay for delivery south of the Delta. Banks Pumping Plant lifts water from Clifton Court Forebay into the California Aqueduct, which flows to Bethany Reservoir. From Bethany Reservoir, the South Bay Pumping Plant lifts water into

Figure 1-1. Names and Locations of Primary Water Delivery Facilities, December 31, 2005

the South Bay Aqueduct to supply 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 agricultural lands of the San Joaquin Valley and the 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. San Luis Reservoir has a storage capacity of more than 2 million af and is jointly owned by DWR and the Bureau of Reclamation (Reclamation). DWR's share of gross storage in the reservoir is about 1,062,000 af. Generally, water is pumped into San Luis Reservoir during late fall through early spring, where it is temporarily stored for release back to the California Aqueduct to meet summertime peaking demands of SWP and CVP contractors.

SWP water not stored in San Luis Reservoir, as well as water eventually released from San Luis, flow south through the San Luis Canal, a portion of the California Aqueduct jointly owned by DWR and Reclamation.

As the water flows through the San Joaquin Valley, numerous turnouts convey the water to farmlands within the service areas of the SWP and CVP. Along its journey, water is lifted more than 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, Phase I of the Coastal Branch Aqueduct serves agricultural areas west of the California Aqueduct. In August 1997, completion of Phase II extended this branch to serve municipal and industrial water users in San Luis Obispo and Santa Barbara counties.

The remaining water conveyed by the California Aqueduct is delivered to Southern California, which is home to about two-thirds of California's population. Before this 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. The water enters 8.5 miles of tunnels and siphons as it flows into Antelope Valley, where the California Aqueduct divides into two branches: the East Branch and the West Branch.

The East Branch carries water through Alamo Power Plant, Pearblossom Pumping Plant, and Mojave Siphon Power Plant into Silverwood Lake in the San Bernardino Mountains. From Silverwood Lake, water flows through the San Bernardino Tunnel into Devil Canyon Power Plant. Water continues down the East Branch through the Santa Ana Pipeline to Lake Perris, the southernmost SWP reservoir.

The East Branch Extension is a nearly 33-mile pipeline linking parts of service areas for San Bernardino Valley Municipal Water District and San Gorgonio Pass Water Agency to the California Aqueduct. The East Branch Extension, Phase I, carries water from Devil Canyon Power Plant

Afterbay to Cherry Valley, bringing water to Yucaipa, Calimesa, Beaumont, Banning, and other communities. Phase II, when completed, will assist with delivery.

Water in the West Branch flows through Oso Pumping Plant, Quail Lake, and then through Warne Power Plant into Pyramid Lake in Los Angeles County. From there it flows through the Angeles Tunnel, Castaic Power Plant, Elderberry Forebay, and into Castaic Lake, terminus of the West Branch. Castaic Power Plant is operated by the Los Angeles Department of Water and Power.

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

Tables 1-1 through 1-5 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 10.

Additional Construction

SWP aqueduct facilities were initially designed and constructed to provide service to all agencies to meet their water delivery needs up to 1990. Project water conservation reservoirs were planned to be constructed in stages as water demands increased. Oroville and San Luis were the first SWP conservation reservoir facilities constructed. Additional SWP facilities were scheduled to meet increased demands. It was anticipated that population growth in delivery service areas and water supply areas of origin would influence the final schedule for the additional SWP facilities. However, increased costs, environmental issues, and increased non-SWP demands for limited water supplies delayed the construction schedule for some of the planned additional facilities.

Table 1-1. Physical Characteristics of Primary Storage Facilities

Facility	Gross Capacity at Absolute Maximum Elevation (Acre-feet)	Surface Area (Acres)	Shore-line (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, 1,062,180 af			
O'Neill Forebay	56,100	2,700	12
SWP storage, 29,500 af			
Los Banos Reservoir	34,600	620	12
Little Panoche Reservoir	5,580	190	6
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

Table 1-2. Physical Characteristics of Primary Dams

Facility	Crest Elevation (Feet)	Structural Height (Feet)	Crest Length (Feet)	Structural Volume (Thousands 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	4,180
Sisk	554	385	18,600	77,645
O'Neill	233	88	14,350	3,000
Los Banos Detention	384	167	1,370	2,100
Little Panoche Detention	676	152	1,440	1,210
Pyramid	2,606	400	1,090	6,800
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
Crafton Hills	2,932	95	500	144

Table 1-3. 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)[a]	85-102	9,120	120,000
Hyatt	3 (p-g)[a]	500-625	5,610	519,000
Barker Slough	9	95-120	228	4,800
Cordelia	11	110-376	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)[a]	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[b]	6	521	134	10,500
Bluestone[b]	6	484	134	10,500
Polonio Pass[b]	6	533	134	10,500
Buena Vista[b]	10	205	5,405	144,500
Teerink[b]	9	233	5,445	150,000
Chrisman[b]	9	518	4,995	330,000
Edmonston[b]	14	1,926	4,480	1,120,000
Oso	8	231	3,252	93,800
Pearblossom	9	540	2,525	203,200
Greenspot	4	382	50	3,900
Crafton Hills	3	613	40	4,000
Cherry Valley	2	75	16	300

[a] The term p-g indicates pumping-generating units.
[b] These plants have one unit in reserve.

Table 1-4. Power Plant Characteristics, by Type and Facility

Type and Facility	Number of Units	Normal Static Head (Feet)	Total Flow at Design Head (cfs)	Net Dependable Capacity	Nameplate Capacity
Hydro					
Thermalito Diversion Dam	1	63-77	615	3.3	3.3
Thermalito	4 (3 p-g)[a]	85-102	17,400	128	126.1
Hyatt	6 (3 p-g)[a]	410-676	16,950	639	714
Gianelli (total)	8 p-g[a]	99-327	16,960	362	424
Alamo	1	115-141	1,740	18	18
Warne	2	719-739	1,600	76	78.2
Mojave Siphon	3	81-136	2,880	14	30
Devil Canyon	4	1,406	2,940	235	291
Castaic	7 (6 p-g)[a]	900-1,050	20,820		1,319.7
Coal					
Reid Gardner, Unit 4 (total)	1[b]			275	265
SWP share of generation[c]					

[a] The term p-g indicates pumping-generating units.
[b] Life of the plants is expected to extend through 2013.
[c] SWP ownership share in Reid Gardner, Unit 4, is 67.8%.

Table 1-5. Total Miles of Aqueducts

Facility	Channel and Reservoir	Canal and Siphon	Pipeline and Discharge Line	Tunnel	Total
Grizzly Valley Pipeline	0.0	0.0	6.0	0.0	6.0
Thermalito Power Canal and Tail Channel	1.5	1.9	0.0	0.0	3.4
North Bay Aqueduct	0.0	0.0	27.6	0.0	27.6
South Bay Aqueduct (including Del Valle Branch)	0.3	10.7	31.9	1.7	44.6
Subtotal	*1.8*	*12.6*	*65.5*	*1.7*	*81.6*
California Aqueduct					
Clifton Court Forebay to O'Neill Forebay	4.5	61.9	0.3	0.0	66.7
O'Neill Forebay to Kettleman City	4.1	101.4	0.2	0.0	105.7
Kettleman City to Edmonston Pumping Plant	0.0	120.1	0.9	0.0	121.0
Edmonston Pumping Plant to Tehachapi Afterbay	0.0	0.2	1.9	7.9	10.0
Tehachapi Afterbay to Lake Perris	4.0	97.8	34.3	3.9	140.0
Subtotal	*12.6*	*381.4*	*37.6*	*11.8*	*443.4*
California Aqueduct Branches					
Coastal Branch	0.0	14.1	98.7	2.7	115.5
West Branch	9.7	9.3	5.8	7.1	31.9
East Branch Extension					
Devil Canyon Power Plant to Greenspot Pumping Station	0.0	0.0	15.8	0.0	15.8
Greenspot Pumping Station to Noble Creek Terminus	0.0	0.0	13.3	0.0	13.3
Subtotal	*9.7*	*23.4*	*133.6*	*9.8*	*176.5*
Total	**24.1**	**417.4**	**236.7**	**23.3**	**701.5**

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

In the mid-1980s, DWR began planning an offstream storage complex, Los Banos Grandes, in Merced County. Initial plans for Los Banos Grandes were completed, but additional planning has been suspended until environmental concerns have been addressed.

DWR also developed alternative methods of storing water, including the Kern Water Bank, a conjunctive-use groundwater storage facility located in Kern County.

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

DWR continues to plan, design, and construct transportation and power-producing facilities for the SWP. The enlarged Devil Canyon Power Plant and the new Devil Canyon Power Plant Second Afterbay became operational in 1995. Mojave Siphon Power Plant was completed in 1996. Phase II of the Coastal Branch of the California Aqueduct began operation in August 1997. The Coastal Branch can transport about 50,000 af of water annually to San Luis Obispo and Santa Barbara counties.

Methods of Financing

Project facilities have been constructed with several general types of financing: general obligation bonds and tideland oil revenues (under the Burns-Porter Act, which was approved by the Legislature in 1959, and the bond issue approved by voters in 1960); revenue bonds; and capital resources revenues. Repayment of these funds, and the operations, maintenance, power, and replacement costs associated with water supply, are paid by the 29 agencies and districts that have long-term contracts with DWR for SWP water. Costs are repaid as debt service on the bonds is due.

The contracts initially provided for a combined maximum annual Table A amount of 4,230,000 af of water supply. As a result of contract amendments in the 1980s and the Monterey Amendment, the current combined maximum annual Table A by 2021 totals 4,172,786 af. The contracts are in effect for the longest of the following periods:

- the project repayment period, which extends to the year 2035;
- 75 years from the date of the contract; or
- 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 DWR. 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 water supply contract. Therefore, only 29 agencies and districts now have long-term contracts with DWR as of December 31, 2005. These 29 are listed in Figure 1-2 and Table 1-6.

Figure 1-2 shows the name and location of each contracting agency and district and lists the first year of SWP delivery service for each. Table 1-6 presents information about each contracting agency.

Table 1-6. Long-Term Water Supply Contracting Agencies, by Area, as of December 31, 2005

Contracting Agency	Cumulative Deliveries (Acre-Feet)[a]	Annual Table A (Acre-Feet)	Payments (Dollars)	Gross Area (Acres)	Assessed Valuation (Dollars)[b]	Estimated Population
Upper Feather River Area						
City of Yuba City	17,158	9,600	3,770,255	5,888	1,680,000,000	47,144
County of Butte	12,923	1,200	1,080,462	1,069,000	13,000,000,000	214,119
Plumas County Flood Control and WCD	10,472	0	1,447,821	1,676,056[c]	2,060,744,342	21,200
Subtotal	*40,553*	*10,800*	*6,298,538*	*2,750,944*	*16,740,744,342*	*282,463*
North Bay Area						
Napa County Flood Control and WCD	215,830	22,225	67,690,686	510,010	20,782,359,897	132,765
Solano County Water Agency	544,599	47,256	93,244,608	537,600	32,733,946,293	421,657
Subtotal	*760,429*	*69,481*	*160,935,294*	*1,047,610*	*53,516,306,190*	*554,422*
South Bay Area						
Alameda County Flood Control and WCD–Zone 7	1,124,978	80,619	119,370,083	275,900	30,029,886,413	191,100
Alameda County WD	1,030,610	42,000	85,361,945	67,072	37,558,158,090	324,796
Santa Clara Valley WD	3,348,193	100,000	270,119,989	849,000	147,074,863,200	1,715,374
Subtotal	*5,503,781*	*222,619*	*474,852,017*	*1,191,972*	*214,662,907,703*	*2,231,270*
San Joaquin Valley Area						
County of Kings	89,970	9,000	4,605,001	893,300	7,300,545,655	147,729
Castaic Lake Water Agency	468,638	12,700	---	8,700	4,654,458	0
Dudley Ridge WD	1,985,178	57,343	64,752,959	37,568	45,390,000	36
Empire West Side Irrigation District	105,989	3,000	3,238,607	7,400	[d]	50
Kern County Water Agency	30,246,989	998,730	1,460,535,128	5,161,000	58,600,000,000	756,825
Oak Flat WD	187,876	5,700	5,187,714	4,500	[d]	10
Tulare Lake Basin Water Storage District	4,348,958	96,227	131,856,689	189,519	152,288,305	23
Subtotal	*37,433,598*	*1,182,700*	*1,670,176,098*	*6,301,987*	*66,102,878,418*	*904,673*
Central Coastal Area						
San Luis Obispo County Flood Control and WCD	34,003	25,000	54,652,638	2,122,240	34,023,607,303	255,478
Santa Barbara County Flood Control and WCD	196,549	45,486	331,148,234	1,775,296	49,196,921,210	421,625
Subtotal	*230,552*	*70,486*	*385,800,871*	*3,897,536*	*83,220,528,513*	*677,103*
Southern California Area						
Antelope Valley–East Kern Water Agency	1,482,392	141,400	352,527,421	1,525,547	18,000,000,000	365,000
Castaic Lake Water Agency[e]	600,560	82,500	199,994,142	133,500	26,243,095,000	249,000
Coachella Valley WD	726,423	121,100	177,217,908	639,857	40,703,747,303	264,869
Crestline-Lake Arrowhead Water Agency	44,789	5,800	20,380,365	55,100	1,500,527,807	25,000
Desert Water Agency	1,009,525	50,000	193,019,545	209,760	7,520,537,310	66,310
Littlerock Creek Irrigation District	18,995	2,300	5,213,975	10,000	375,160,450	2,900
Metropolitan WD of Southern California	25,975,429	1,911,500	7,309,242,182	3,328,000[f]	1,563,002,519,611	18,300,000
Mojave Water Agency	213,318	75,800	176,117,355	3,136,000	18,666,247,597	358,800
Palmdale WD	179,238	21,300	51,917,434	119,680	1,470,701,596	109,845
San Bernardino Valley Municipal WD	508,680	102,600	386,485,871	210,000	20,296,330,129	600,000
San Gabriel Valley Municipal WD	321,620	28,800	112,118,625	18,297	11,720,110,333	210,145
San Gorgonio Pass Water Agency	1,649	6,500	65,774,794	140,800	3,664,061,473	65,000
Ventura County Flood Control District	40,955	20,000	44,247,916	308,252	21,957,265,429	457,000
Subtotal	*31,123,573*	*2,569,600*	*9,094,257,534*	*9,834,793*	*1,735,120,304,038*	*21,073,869*
Total	**75,092,486**	**4,125,686**	**11,792,320,354**	**25,024,842[g]**	**2,169,363,669,204**	**25,723,800**

[a] All water delivered to long-term SWP contractors, including carryover, Article 21, 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% of full value for the 1981–82 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] Assessed valuation not available on an agency area breakdown.
[e] District includes land in the San Joaquin Valley Area formerly known as Devil's Den Water District.
[f] Total for Metropolitan, including Calleguas Municipal Water District, which is common to Metropolitan 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.

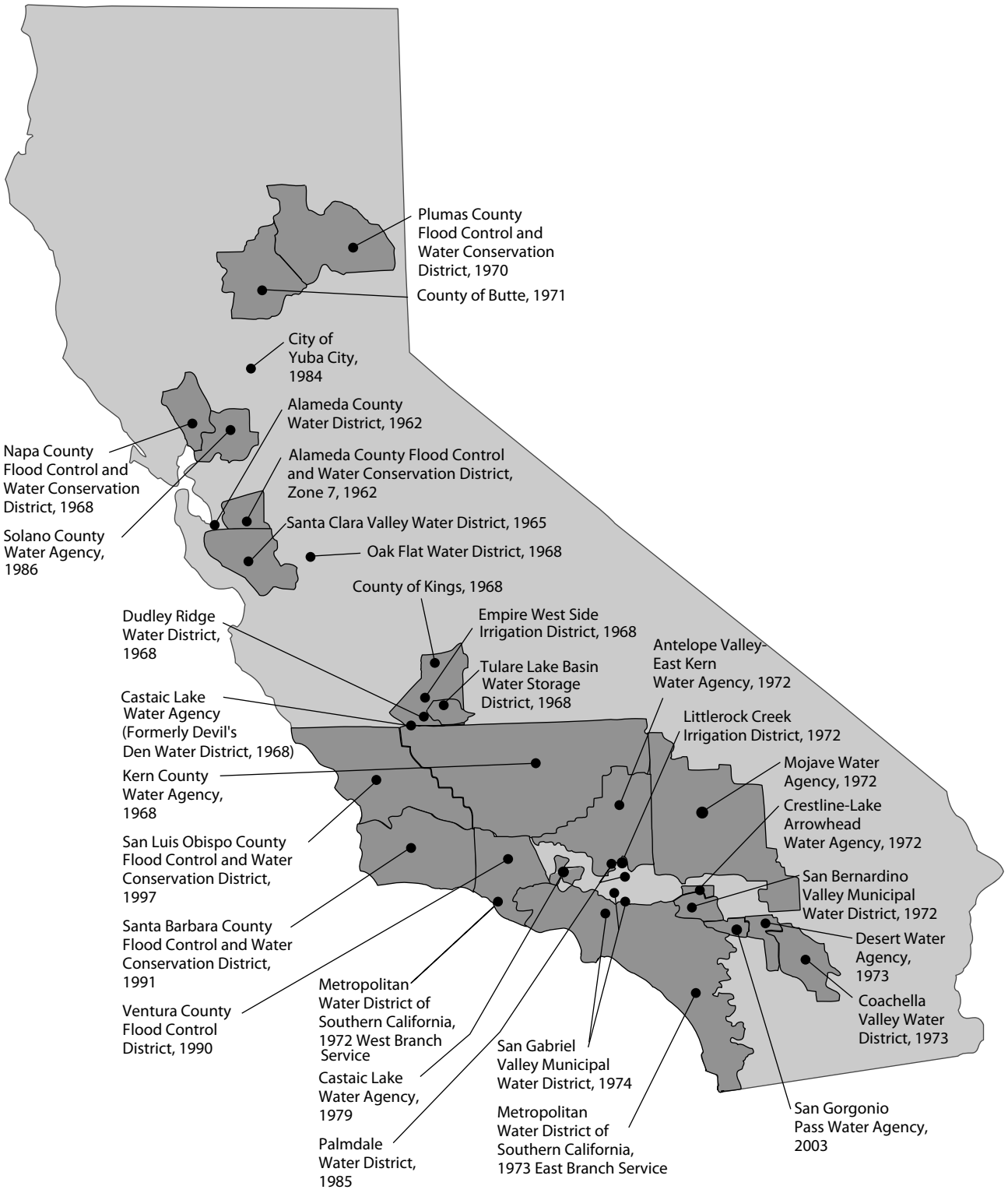


Figure 1-2. Names, Locations, and First Year of Service of Long-Term Contracting Agencies, December 31, 2005

Chapter 2
Delta Resources

An aerial view of the Sacramento River and oxbow formations.

Significant Events in 2005

In November 2005, a draft environmental impact statement/ environmental impact report (EIS/EIR) was released for the South Delta Improvements Program (SDIP). The decision to proceed with the proposed project addresses a precipitous decline in the populations of pelagic (open water) fish in the Bay-Delta environment. One of the fish species is the delta smelt, which is an endangered fish.

The CALFED Record of Decision (ROD) calls for various modifications. These modifications include changes in the North Delta's conveyance facilities to improve Delta water quality, fisheries, and water supply reliability, as well as other modifications to improve flood protection and ecosystem health.

The Franks Tract 2005 modifications study showed significant Delta water quality improvements—at a relatively modest cost. This study recommends that operations of the proposed gates are refined for these alternatives to optimize water quality benefits. The report also recommends conducting a pilot project to evaluate, implement, and demonstrate the effectiveness and impacts of the facility before considering a full-scale project.

Information for this chapter was contributed by the Division of Planning and Local Assistance, the Central District, and the Bay-Delta Office.

The Sacramento-San Joaquin Delta is a unique environmental resource and a major source of water for millions of Californians. Over the past 40 years, the Department of Water Resources (DWR), and other State and federal agencies, have developed and implemented numerous programs to manage the Delta.

DWR's water management programs focus on solving problems in three distinct areas of the Sacramento-San Joaquin Delta: the North Delta, West Delta, and South Delta (see Figure 2-1).

These programs share the following common goals:

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

Delta Water Management Programs

During the last decade, water management issues in the Delta have been complicated by the listing of native species under the federal Endangered Species Act (ESA); the creation of new Delta standards by the U.S. Environmental Protection Agency (EPA); the issuance of biological opinions under the ESA; and the implementation of 800,000 af of CVP yield for fish and wildlife protection (1992 Central Valley Improvement Act). Some of DWR's programs were deferred while solutions were sought.

In June 1994, a Framework Agreement between federal and State governments was established which defined a joint federal-State cooperative process for developing a long-term solution to water supply, water quality, and ecosystem problems of the Delta. Hence, the CALFED Bay-Delta Program was created with the goal of developing a long-term Delta solution. It put into place an extensive public outreach and input program as an important element of its planning methods.

In June 2000, the CALFED Bay-Delta Program issued a final programmatic Environmental Impact Report (EIR)/ Environmental Impact Statement (EIS). The associated decision documents, primarily a Record of Decision (ROD), were published in August 2000. The ROD defined the approach and projects to be undertaken by the CALFED Program over a 30-year period.

The first stage of the CALFED Program (2000–2007) focuses on conveying water supply through the Delta. Specific projects and studies will be undertaken during Stage 1 to determine the feasibility of a through-Delta approach. DWR is the lead State agency for the projects and studies contained in the CALFED Conveyance Program and the Levee System Integrity Program. Actions contained in the CALFED Conveyance and Levee programs affect the North, West, and South Delta regions.

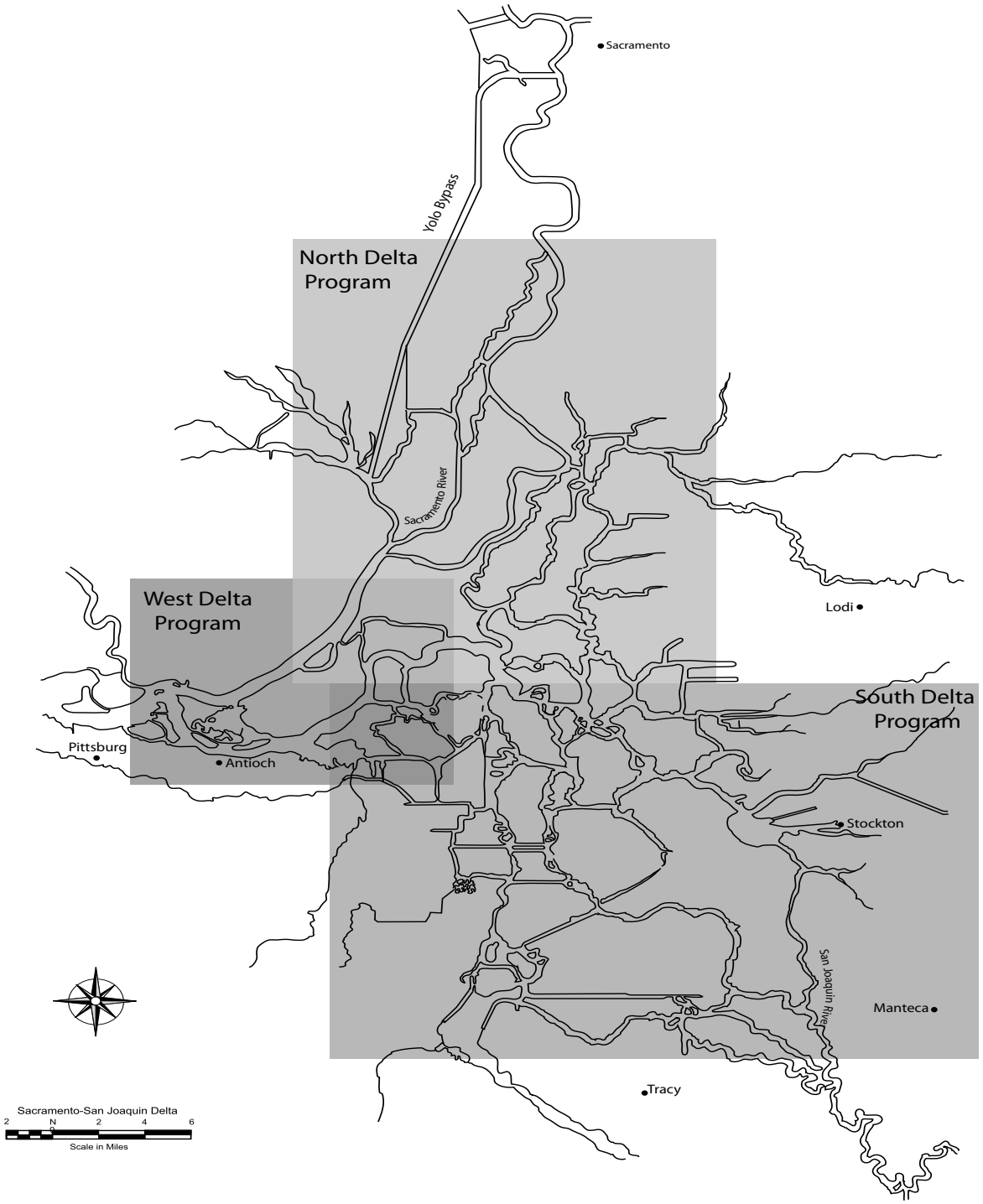


Figure 2-1. The North, West, and South Delta Water Management Programs

South Delta Improvements Program

During the late 1990s, DWR pursued the Interim South Delta Program (ISDP), which accelerated construction of South Delta facilities to improve Delta water conditions. During the same period, the CALFED Bay-Delta Program worked on an independent long-term solution. DWR released a draft EIS/EIR for the ISDP in July 1996; however, a final EIS/EIR was never produced. In 1999, the South Delta facilities became a key component of the CALFED Bay-Delta Program. Subsequently, the program was renamed the South Delta Improvements Program (SDIP). The purpose of SDIP is slightly different than that of the ISDP.

In October 2005, a draft EIS/EIR was released for the SDIP. The decision to proceed with the proposed project addresses a precipitous decline in the populations of pelagic (open water) fish in the Bay-Delta environment. One of the fish species is the delta smelt, an endangered species. Stage 1 addresses the physical and structural component of the program, which is not expected to affect fish populations. Stage 2 is the operational component of the program. This stage will increase water deliveries and delivery reliability by increasing the Clifton Court Forebay diversion limit to 8,500 cfs. Only Stage 1 is being sought at this time, while Stage 2 is being deferred. Stage 1 of the SDIP includes the construction and operation of the following projects:

- three permanent operable gates to improve local water levels and circulation in South Delta channels;
- one permanent operable gate to prevent straying of salmon migrating to the San Joaquin River;
- extensive dredging in the South Delta to improve channel capacity for local agricultural users; and
- modifications to existing agricultural diversion intakes.

Several ways of operating the Clifton Court Forebay diversion at 8,500 cfs are available, but a preferred operation is not identified in the draft EIR/EIS. DWR is committed to issuing a supplemental environmental document on Stage 2, and circulating this document for a minimum of 45 days, prior to making any decisions.

SDIP elements originally placed in the ROD included increasing diversions through Clifton Court Forebay (first to 8,500 cfs and then to 10,300 cfs), dredging and installing operable tidal barriers in the South Delta, installing a fish barrier at Head of Old River, and constructing the first phase of a new intake and fish screen into Clifton Court Forebay. DWR deferred the increase in diversions of up to 10,300 cfs and the associated new fish screens as components of the SDIP due to major funding issues, as well as significant technical uncertainties associated with the design and construction of the new fish screens.

The SDIP continues to implement its original purposes:

- to reduce the movement of Central Valley fall and late fall juvenile Chinook salmon runs into the South Delta via Old River;
- to maintain adequate water levels and water quality, through improved circulation, to provide water for agricultural diversions in the South Delta downstream of the Head of Old River;

- to increase water deliveries and delivery reliability to SWP and CVP water contractors south of the Delta; and
- to provide opportunities to convey water for fish and wildlife by increasing the maximum permitted level of daily diversion through the existing intake gates at Clifton Court Forebay to 8,500 cfs.

Preferred Plan

The preferred plan for SDIP is to construct the physical/structural component as soon as permitting is complete and defer the operational component until more is known about the project's potential effects on the delta smelt.

Temporary Barrier Facilities

Temporary rock barriers are being installed annually, during low flow conditions, until the four permanent gates are operational. These barriers are being installed at four sites, as follows:

1) Head of Old River, in Old River where it splits from the San Joaquin River;
2) Old River near Tracy, one-half mile east of the Tracy Pumping Plant intake, and about eight miles northwest of Tracy;
3) Middle River, just south of the confluence of Middle River, Trapper Slough, and North Canal; and
4) Grant Line Canal, 420 feet east of the Tracy Boulevard Bridge.

The Head of Old River barrier prevents the San Joaquin River flow from entering Old River and flowing toward export facilities. This additional flow in the San Joaquin River helps guide 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.

Since 1963, the Head of Old River barrier has been installed in the fall. Since 1992, this barrier has also been installed intermittently in the spring, although high San Joaquin River flows sometimes prevent installation. The Old River barrier near Tracy has been seasonally installed since 1991; the Middle River barrier has been seasonally installed since 1987; and the Grant Line Canal barrier has been seasonally installed since 1996.

West Delta Program

The objectives of the West Delta Program include the following goals:

- to effectively manage SWP-owned lands on Sherman and Twitchell islands (approximately 12,000 acres total);
- to improve the integrity of local levees;
- to implement land-use management techniques to control subsidence and soil erosion on Sherman and Twitchell islands;
- to implement mitigation requirements associated with the Temporary Barriers Program and proposed SDIP; and
- to provide diverse habitat for wildlife and waterfowl.

DWR contracted with a consultant to develop preliminary wildlife management plans for Sherman and Twitchell islands. These plans are designed to benefit wildlife species that occupy wetland, upland, and riparian habitats; as well as provide

recreational opportunities for hunting and viewing wildlife. Property acquired and habitat developed by DWR could mitigate impacts associated with current and future Delta water management programs, including programs proposed by DWR and the CALFED Bay-Delta Program. (See Chapter 7 for more information.)

DWR is a major landowner on Twitchell and Sherman islands and holds two of the three trustees' positions for Reclamation Districts 1601 (Twitchell Island) and 341 (Sherman Island). Consequently, DWR participates in the management and operation of each district, with the goal of improving conditions and accountability. The reclamation districts provide levee maintenance, island drainage, and some internal water supply. These districts assess the landowners for the operational needs of the public districts.

North Delta Program

The CALFED ROD calls for various modifications. These modifications include changes in the North Delta's conveyance facilities to improve Delta water quality, fisheries, and water supply reliability, as well as other modifications to improve flood protection and ecosystem health.

Mitigations include the following:

1) evaluation and implementation of improved operational procedures for the Delta Cross Channel (DCC) to address fishery and water quality concerns;
2) evaluation of a screened Through-Delta Facility on the Sacramento River of up to 4,000 cfs; and
3) design and construction of floodway improvements to provide conveyance, flood control, and ecosystem health.

The DCC Reoperation Project involves an evaluation of improved operational procedures for the DCC, which maintains high-quality water in the Central Delta, while reducing juvenile fish entrainment. The Through-Delta Facility is a diversion facility with a capacity of up to 4,000 cfs on the Sacramento River. Operation of the Through-Delta Facility is considered only after three separate assessments are satisfactorily completed: first, a thorough assessment of DCC operation strategies and the confirmation of continued concern over water quality impacts from its operations; second, a thorough evaluation of the technical viability of a diversion facility; and third, satisfactory resolution of the fisheries' concerns about a diversion facility.

The Franks Tract Project evaluates the restoration of remnant levees and the construction of tidal gates to inhibit salt trapping and mixing in Franks Tract. This process improves water quality in the Delta. Other benefits of restoring Franks Tract include the restoration of tidal marsh habitat and increased recreational opportunities.

In 2003, DWR became actively involved in the DCC Reoperation Project and Through-Delta Facilities (DCC/TDF) projects. DWR took the lead in managing the on-going DCC/TDF projects, as well as administering and funding all DCC/TDF contracts. DWR also initiated the Franks Tract Project in 2003 as part of the North Delta Convergence improvement project.

The purpose of the Franks Tract Project is to evaluate the feasibility of rehabilitating

Franks Tract's remnant levees for water quality, ecosystem, and recreation improvements. DWR is the implementing agency for the Franks Tract Project, Through-Delta Facility evaluation, and the design and construction of floodway improvements. DWR is a participating agency on the DCC Reoperation Project.

In 2005, projects relating to the DCC Reoperation Project and Through-Delta Facility were limited to completing analyses and writing reports on field work. These activities included reevaluating project funding and schedules. For example, the Flooded Islands Pre-Feasibility Study, initiated in April 2004, to develop and evaluate conceptual alternatives for modifying Franks Tract, Lower Sherman Lake, and Big Break, was completed in June 2005. It provides conceptual modification alternatives on the three flooded islands, with their respective benefits and costs.

The Franks Tract 2005 modifications study showed significant Delta water quality improvements—at a relatively modest cost. This study recommends that operations of the proposed gates are refined for these alternatives to optimize water quality benefits. The report also recommends conducting a pilot project to evaluate, implement, and demonstrate the effectiveness and impacts of the facility before considering a full-scale project. Subsequently, in 2006 and 2007, DWR will continue to refine and evaluate the operation and design of several pilot project alternatives in the Franks Tract area. The scope of the proposed pilot project is currently under development. In mid-2007, an EIR/EIS will be initiated for the pilot project.

North Delta Flood Control and Ecosystem Restoration Improvements, a Stage 1 action under the CALFED Bay-Delta Program, provides flood control and ecosystem restoration in the North Delta area. These improvements support other CALFED goals, which include water supply reliability, recreation, and agricultural land preservation. DWR is the State implementing agency, and many of the proposed CALFED elements for the project are similar to elements of earlier North Delta planning efforts. These earlier projects were suspended in deference to the CALFED program.

DWR is overseeing the preparation of an EIR and has engaged stakeholders and interested agencies in the North Delta planning process, through the North Delta Improvements Group and the Mokelumne-Cosumnes Watershed Alliance. DWR has worked cooperatively with stakeholders to develop and incorporate phases in project alternatives. These plans include implementation flexibility, complete hydraulic modeling analysis of phased alternatives, and significant progress on project impact analysis and cost estimates. DWR staff has also worked with federal regulatory agency scientists and academic experts. They are continuing the academic science panel project review and the provision of science advisement through alternatives refinement and project planning. Project environmental documentation is scheduled for completion in 2006.

Delta Flood Control

Many of the important assets in the Sacramento-San Joaquin Delta are protected from flooding by levees. Without the levees, the Delta as we know

it today would be an inland sea. The levees serve many needs: they protect valuable wildlife habitat, farms, homes, urban areas, recreational developments, highways, railroads, natural gas fields, utility lines, major aqueducts, and other public developments. They are critical to the protection of in-Delta water quality and water quality for approximately 24 million Californians who receive their water from the State's export system. The State Legislature recognized the importance of the Delta and enacted the Delta Flood Protection Act of 1988 (Senate Bill (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 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 Delta Special Flood Control Projects, including subsidence studies and monitoring on Bethel, Bradford, Jersey, Sherman, and Twitchell islands; Holland, Hotchkiss, and Webb tracts; and the towns of Thornton and Walnut Grove.

Since 1988, the program has managed $202 million in appropriated funds and, combined with local funds, has realized $275 million in levee improvements. In 1996, Assembly Bill (AB) 360 was signed into law and expanded the area covered by the Delta Special Flood Control Projects Program to include the remainder of the legal Delta and the northern Suisun Bay from Van Sickle Island to Montezuma Slough. Bond appropriations of $25 million from Proposition 204 (enacted in 1996) and $30 million from Proposition 13 (enacted in 2000) provide supplemental funding. In November 2002, Proposition 50 was approved. It provides $70 million in additional funding to implement the Delta Flood Protection Program as adopted in CALFED, where the program is known as the Levee System Integrity Program.

CALFED Levee System Integrity Program

The goals and objectives for the Levee System Integrity Program are listed as follows.

Base Level Protection

This program provides funding to help local reclamation districts reconstruct all Delta levees to a base level of protection (Public Law 84-99 standard). About 520 out of 1,100 miles of Delta levees initially do not meet this standard. During Stage 1, about 200 additional miles of levees are planned to be brought up to a base level of protection, provided there is sufficient funding.

Special Improvement Projects

This program will enhance levee stability on levees that have particular importance in the State. Priorities include protecting life and personal property (more than 400,000 people live in Delta towns and cities), water quality (preventing salinity intrusion), the Delta ecosystem, and agricultural production.

Suisun Marsh Flood Protection and Ecosystem Enhancement

This program provides levee integrity, ecosystem restoration, and water quality benefits by supporting maintenance

and improvement of the levee system in the Suisun Marsh. The Suisun Marsh Levee Investigation was undertaken in January 1999, at the request of the CALFED Policy Group, to determine if adding Suisun Marsh levees into the Levee System Integrity Program would contribute to CALFED program goals. The team has identified significant links between Suisun Marsh levee maintenance and achievement of CALFED drinking water quality and ecosystem restoration goals. Furthermore, modeling research indicates a significant risk of negative water quality impacts in the Delta if Suisun Marsh levees are inadequately maintained and allowed to fail. When adopted, the CALFED Suisun Marsh Charter will help guide future actions.

Levee Emergency Response Plan

The emergency response plan for the Delta has been improved recently to better coordinate response agency activities, and the distribution of materials, when combined with local agency efforts. This will enhance the combined ability to respond to levee emergencies.

Delta Levee Maintenance Subventions Program

The Delta Levee Maintenance Subventions Program provides matching funds for levee work critical to the long-term survival of Delta islands and the State water supply. This program assures the continuance of the Delta's ability to provide its many statewide and local benefits. Within CALFED's Levee System Integrity Program, the Delta Levee Maintenance Subventions Program provides funding, as a reimbursement, to local Delta reclamation districts for levee maintenance and improvement. Each year up to 65 participating districts prepare work plans and file applications with the State Reclamation Board (SRB) for funding.

The applications and work plans are reviewed by DWR, which then makes a recommendation and requests the approval of SRB for the program funding level. SRB approves each district's maximum possible reimbursement—up to 75 percent for levee work and habitat mitigation—and maximum advanced reimbursement amount. The reimbursement amount may be up to 75 percent of eligible costs. After SRB approval, agreements are executed between SRB and each participating district. These agreements state that eligible work will be completed during the current fiscal year. All work must be in compliance with appropriate State and federal laws, including the California Environmental Quality Act, the State and federal ESA, Section 1600 of the Fish and Game Code, and Section 404 of the Clean Water Act, and must have confirmation from the Department of Fish and Game (DFG) that a net long-term habitat improvement of riparian, fisheries, and wildlife habitat will result.

Delta Special Flood Control Projects

The Special Flood Control Projects Program under CALFED assists the eight western islands, portions of the Suisun Marsh, the towns of Thornton and Walnut Grove, and other locations in the Delta with flood protection and levee stability repairs. The California Water Commission approved a report of initial actions in September 1989, and it approved the long-term actions and priorities in May 1990. The long-term actions and priorities serve as a guide for DWR to determine how best to use appropriations to protect these

islands. Long-term actions and priorities include the following:

- rehabilitation of threatened levees through the use of imported dredged material;
- verification of elevations in the Delta through the use of Global Positioning System equipment;
- upgrading levees to the standards included in Bulletin 192-82, Delta Levees Investigation; and
- projects to achieve net long-term habitat improvement for fish and wildlife.

While DWR always seeks cost sharing for all projects, the actual reimbursement depends on each reclamation district's ability to pay. DWR provides up to 100 percent of the cost of these activities. Districts receiving these funds are required to participate in a habitat improvement program to ensure net long-term habitat enhancement.

Levee restoration projects in 2005 include the following:

- initiation of two large-scale levee rehabilitation projects on Sherman Island;
- initiation of the phase III levee rehabilitation project on Bethel Island;
- development of a 50-acre mitigation project on Bradford Island;
- completion of large scale rehabilitation projects on Jersey Island;
- continuation of a large scale rehabilitation project on New Hope Tract; and
- initiation of a Delta-wide program to conduct magnetic anomaly surveys of district levees.

Delta Levees Habitat Improvement

The Delta Suisun Marsh Office, as part of the CALFED Levee System Integrity Program, continues to make significant strides in its efforts to create valuable habitat in the Delta. By the end of 2005, the program had developed 247.4 acres of various types of habitat, 9,410 linear feet of shaded riverine aquatic habitat for mitigation, and 14.4 acres and 14,328 linear feet for enhancement. During 2005, the program continued to develop almost 36 acres of habitat for levee project mitigation and 10 acres for enhancement.

Completed mitigation and enhancement projects include the following:

- Medford, Bethel, and Kimball islands;
- Terminous, Wright Elmwood, Palm, and Thornton-New Hope (Grizzly Slough) tracts;
- Twitchell Island setback levee;
- Twitchell Island mitigation areas;
- Staten Island berm and channel islands;
- Canal Ranch attached berm;
- Lower Sacramento River revegetation, Grand Island, in participation with the U.S. Army Corps of Engineers (Corps);
- Webb Tract Sites 3 and 1, and Little Tinsley Island in-channel island protection and restoration;
- Decker Island Phase I and Phase II construction, and tidal wetlands restoration at Horseshoe Bend along the lower Sacramento River;
- Tyler Island bank stabilization demonstration; and

- purchase of 666 acres at Meins Landing in the Suisun Marsh for tidal wetland restoration.

Projects underway include the following:

- fish monitoring of Decker Island restoration site;
- construction of a setback levee on Sherman Island;
- Sherman Island Parcel 11 Revegetation Project;
- Dutch Slough feasibility study concepts; and
- Bradford Island Tract 19 mitigation area development.

Projects proposed include the following:

- Delta levees habitat mitigation; and
- Tidal restoration of Dutch Slough.

DWR, DFG, and reclamation districts are successfully providing avoidance or mitigation of habitat losses and net long-term habitat improvement in the Delta. Reclamation districts have been very cooperative in helping DWR meet its mitigation and enhancement needs. Decker Island Habitat Restoration Area, completed in 2004, is targeted specifically for the needs of endangered Sacramento splittail and delta smelt, providing 26 acres of tidal aquatic area. Continued monitoring is determining the amount of fishery use of the restoration site, evaluating the hydrogeomorphic performance of the site, and providing valuable data for future restoration work.

DWR and DFG will continue to work with the reclamation districts to preserve existing habitat and to improve the quantity and quality of newly developed habitat in the Delta.

Reuse of Dredged Material for Delta Levees

As local sources of fill material for levee repair are depleted, new economical sources must be located. During the last 15 years, DWR, in coordination with the Corps, local reclamation districts, and the Central Valley Regional Water Quality Control Board (CVRWQCB) implemented three pilot projects at Sherman, Twitchell, and Jersey islands to demonstrate the viability of relocating material from the San Francisco Bay Area to the Delta. Extensive monitoring and testing programs for salinity impact were required; no salinity impact was demonstrated. More recently, CVRWQCB has started looking at other constituents of dredged material and is becoming more stringent in its requirements. The addition of new monitoring and preparation requirements has raised the cost of reuse. If these costs continue to rise, DWR will reevaluate the practicality of participating in this portion of the program. Based on the assumption that reuse will remain economically beneficial, DWR has worked to find more opportunities to reuse clean, bay-dredged materials in the Sacramento-San Joaquin Delta. Current efforts for beneficial reuse of dredged material from the Bay area principally consist of the following:

- participation in the multiagency Delta Long Term Management Strategy (LTMS) for the beneficial reuse of dredged material;
- coordination with CVRWQCB to address water quality concerns;
- discussions with the Corps to promote identification and acquisition of federal funds to support beneficial reuse

projects;
- participation in a large regional meeting with various stakeholders in the Delta to address dredging and dredged material reuse issues;
- coordination with the Corps, CVRWQCB, CALFED, and Reclamation District 341 to stockpile dredged material from Suisun Bay and New York Slough on Sherman Island; this long-term project could consist of 200,000 cubic yards of material dredged annually for five years. This project will be initiated by a demonstration project with 150,000 cubic yards coupled with an intense monitoring program;
- levee restoration and habitat projects proposed or under construction;
- obtaining waste discharge requirements for the demonstration project on Sherman Island;
- obtaining 54,000 cubic yards of dredged material on Sherman Island; and
- reusing dredged material on Sherman Island to construct the set-back levee.

Levee Upgrades

Upgrading the Delta levees is an integral part of the CALFED Levee System Integrity Program plan being implemented through the DWR Delta Flood Control Program. According to the CALFED ROD, all Delta levees should be built to the Corps' Delta-specific Public Law 84-99 levee standard. This standard is comparable to DWR's Bulletin 192-82 standard and provides protection against flooding in a 100-year flood event. The minimum freeboard is 1.5 feet for levees protecting agricultural land, and 3 feet for levees protecting urban areas. A typical improved levee section would have a 16-foot crown width, a waterside slope of 2 horizontal to 1 vertical, and a landside slope designed for the depth of peat soils under the levee. Generally, the landside slope would be between 2:1 and 5:1.

DWR and the Corps signed an agreement in 2001 to co-manage the CALFED Levee System Integrity Program, including the Delta Flood Protection Program. This agreement allows close coordination of efforts and assures compatibility with CALFED goals and objectives.

Subsidence Investigations

Historically, draining and cultivating Sacramento-San Joaquin Delta marshlands caused the peat soil to break down and compact. The peat has oxidized and subsided since the mid-1800s, when the land was first drained and levees constructed. The surface of organic soils in the Delta is now between 10 and 29 feet below sea level. The Legislature recognized the problem and, with the initiation of the Delta Flood Protection Act of 1988, DWR began monitoring subsidence and studying its causes and the means for reversing its effects.

DWR and the U.S. Geological Survey conduct an ongoing subsidence investigation in the Delta. Preliminary data indicate the following:

- land management practices substantially influence subsidence rates;
- 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 (oxidation) appears to be the recent primary cause

of subsidence;
- permanently flooded shallow wetlands decrease release of gaseous carbon by as much as 80 percent, thereby mitigating subsidence; and
- permanently flooded shallow wetlands also promote the growth of wetland vegetation that adds biomass back into the system.

Current studies of subsidence mitigation and growth of wetland vegetation suggest that shallow permanent flooding will be part of the process to reverse subsidence through biomass accretion.

In 1999, CALFED granted Category III funds to DWR to construct a Subsidence Reversal Demonstration Project on Twitchell Island. To date, field monitoring, determination of hydrologic and tidal boundary conditions, and sediment modeling have been completed; construction, monitoring, and instrumentation installation continues at the field test sites. Water quality, soils, and hydraulic and carbon release data were collected from the test sites, and the preliminary model for groundwater has been completed. The contract amendments were completed in 2005, and work on the study was resumed. The study is to be completed by the end of 2006.

DWR will also work with the CALFED Science Program to develop best management practices to control and reverse subsidence and will work with local districts and landowners to implement cost-effective measures.

The U.S. Geological Survey and area consultants have set up a learning laboratory to study ways to reverse subsidence at Oulton Point on Twitchell Island. This project will combine the cultivation of tules and other aquatic vegetation in shallow ponds with application of thin layers of sediment. Land surface accretion and organic soil oxidation rates will be measured.

Delta Agricultural Water Users

In 1974, the Delta Water Agency was replaced by six Delta agricultural water agencies: North Delta, South Delta, and Central Delta water agencies; Contra Costa County Water Agency, East Contra Costa Irrigation District, and Byron-Bethany Irrigation District. In 1981, North Delta Water Agency and East Contra Costa Irrigation District signed water rights management contracts with DWR. The department negotiated contracts and requested negotiations with other agencies to provide water level, circulation, and quality needs in certain areas.

South Delta Water Agency Contract

In September 1990, DWR completed negotiations for a long-term agreement with the South Delta Water Agency and Reclamation. Under this proposal, the South Delta contract, the parties agreed to proceed with the design, construction, and operation of certain barrier facilities in the South Delta channels. These facilities resolved those portions of the lawsuit that South Delta filed in 1982, regarding the alleged effects of export pumping by SWP and CVP on water levels, quality, and circulation in the South Delta.

DWR has installed and operated temporary barrier facilities in the South Delta to improve area conditions, as well as collect data needed to design and operate

permanent barrier facilities. Data collected in the Temporary Barriers Program was used to assess the barriers' ability to reduce or eliminate adverse water levels and improve local hydraulic circulation patterns.

Western Delta Municipal Water Users

DWR signed contracts with Contra Costa Water District in 1967 and Antioch in 1968. These contracts compensated Contra Costa and Antioch for purchasing water of usable quality, when such water was not available from Mallard Slough and the San Joaquin River.

According to the terms of these contracts, DWR compensates each agency for the additional costs of purchasing a substitute water supply from the Contra Costa Canal. This water is purchased to replace water supplies of usable quality, which are lost due to SWP operations. Credits for the number of days of above-average water supplies of usable quality, from Mallard Slough and the San Joaquin River, accrue to offset the number of below-average days in future years.

Chapter 3
Environmental Programs

Pelicans take flight over a waterway in the Sacramento-San Joaquin Estuary.

Significant Events in 2005

In April 2005, the National Marine Fisheries Services (NOAA Fisheries) issued a proposed listing of the southern population of North American green sturgeon (*Acipenser medirostris*) as threatened under the Endangered Species Act (ESA). This listing was based on a March 2004 U.S. District Court decision. The court remanded a NOAA Fisheries finding that the North American green sturgeon does not warrant listing as a threatened or endangered species.

On September 2, 2005, NOAA Fisheries issued a final rule designating Critical Habitat for California salmonids. Approximately 8,935 miles of riverine habitat and 470 square miles of estuarine habitat were designated as Critical Habitat Area for seven Evolutionarily Significant Units (ESUs) of Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead (*O. mykiss*) in California. This rule will become effective on January 2, 2006.

On October 20, 2005, the Resources Agency released the Delta Smelt Action Plan, a researched-based, scientific approach to counteract the decline of pelagic fish in the Delta. During 2004, Interagency Ecological Program (IEP) scientists detected sharp population declines in pelagic fish species, including delta smelt, which are considered a key indicator of the health of the Delta ecosystem. The State will research potential causes of this decline, including pollutants, contaminants, invasive species, food chain disruptions, and water operations of State and federal projects. The Bureau of Reclamation (Reclamation) and the Department of Water Resources (DWR) increased the IEP 2005 budget by $1.7 million to support research to identify causes for the decline of pelagic fish in the Delta.

In April 2005, the Lower Yuba River Accord was announced. This collaborative proposal settled long-standing litigation over instream flow requirements in the lower Yuba River. The accord is based on three proposed agreements: a water purchase agreement, including water for the Environmental Water Account (EWA); a conjunctive use agreement; and a fisheries agreement. The fisheries agreement is intended to benefit some of the last wild populations of salmon and steelhead in the Central Valley by establishing instream flow requirements. On November 29, 2005, DWR and the Department of Fish and Game (DFG) announced their support for the proposed Lower Yuba River Accord pilot program. The Lower Yuba River Accord will formally take effect in late 2006.

On December 23, 2005, NOAA Fisheries published a final listing that recognized 10 Distinct Population Segments (DPSs) of West Coast Steelhead as either threatened or endangered under ESA. This listing confirmed the threatened status of all California steelhead DPSs.

Information in this chapter was contributed by the State Water Project Analysis Office, the Division of Environmental Services, and the Division of Operations and Maintenance.

The Department of Water Resources (DWR) has developed and implemented several programs to avoid, minimize, or offset adverse environmental impacts, which may result from the operation of State Water Project (SWP) facilities.

Operations for Species of Concern

A primary consideration in the operation of the SWP is avoiding, minimizing, and off-setting adverse environmental impacts to species of concern. A species of concern is listed (or proposed for listing) as threatened or endangered by a State or federal agency. The legal authority for listing is the federal Endangered Species Act (ESA) or the California ESA. A key to avoiding and minimizing adverse impacts to these species is maintaining flexibility in SWP operations, which is done mainly through the Environmental Water Account (EWA). EWA provides protection to Delta fisheries through changes in SWP and CVP operations, while maintaining water supply reliability to the projects' water users. Operational responses can include Delta Cross Channel gate closure, export curtailments, changes in delivery schedules, increased reservoir releases, preferential use of certain facilities, or a combination of these actions. (Additional information about EWA can be found in Chapters 7 and 9.)

San Joaquin River Activities

DWR coordinated with the Bureau of Reclamation (Reclamation) to increase flows in the San Joaquin River, from mid-April through mid-May (pulse flow period), to benefit fall-run Chinook salmon emigrating from the San Joaquin River Basin. This plan, known as the Vernalis Adaptive Management Plan (VAMP), is a 12-year federal and State research program, which is associated with the San Joaquin River Agreement. VAMP calls for intensive fisheries sampling in the lower San Joaquin River. Several studies were coordinated with the fisheries collection efforts to estimate the relative survival of marked salmon moving through the Delta under VAMP during the pulse flow period. The goal is to conduct operational changes and associated studies over a number of years (to determine if a relationship exists between river flow, Delta exports, and salmon survival) throughout the southern Delta. The resulting information will be used to determine if changing San Joaquin River flows and Delta exports in the spring can significantly benefit San Joaquin River fall-run Chinook salmon.

Temporary Barriers

VAMP-participating agencies use temporary barriers as a tool to facilitate the following goals:

- provide an adequate water supply for South Delta water diverters;
- improve water quality conditions in the Stockton Deep Water Channel; and
- prevent young Chinook salmon from entering Old River, thereby reducing the likelihood of entrainment at the South Delta facilities.

In 2005, the Spring Head of Old River barrier was not installed, due to high flows on the San Joaquin River. This spring season barrier will help improve conditions for juvenile Chinook salmon,

which migrate out of the San Joaquin River Basin. The barrier was installed in the fall, between September 30 and November 15. The purpose of this barrier is to help with low dissolved oxygen levels in the lower San Joaquin River and prevent migrating adult Chinook salmon from entering the area.

Temporary barriers were installed on Middle River and Old River near Tracy, on May 17 and June 6, respectively, and the Grant Line Canal barrier was completed on June 18. The primary purpose of these barriers is to increase water levels in the South Delta for local water users. The barriers were removed in mid- to late-November, due to the lack of need for irrigation water and possible conflicts with winter-run salmon.

Piru Creek/Pyramid Dam Operations

The original Federal Energy Regulatory Commission (FERC) License for the Castaic Power plant project, FERC Project No. 2426, contained a provision that specified continuous minimum releases from Pyramid Lake to Piru Creek (5 cfs from November 1 thorough March 31 and 10 cfs for the remainder of the year) for the maintenance of a trout fishery, located in middle Piru Creek. This requirement was amended in 1982 to require a continuous minimum flow (5 cfs from November 16 through April 30 and 10 cfs for the remainder of the year). Additional releases were stipulated, based on the daily ambient air temperature, to maintain water temperatures suitable for the trout fishery.

The daily flow fluctuations were found to be detrimental to the Arroyo toad, which is known to breed along middle Piru Creek. In 1994, the Arroyo toad was listed as a federally endangered species. Since 1995, at the request of the California Department of Fish and Game (DFG), the summer releases to Piru Creek were maintained at 25 cfs (April 1 through August 31). This release schedule provided water temperatures protective of the trout fishery and eliminated the flow fluctuations thought to be detrimental to the Arroyo toad.

Concerns were raised regarding the impact of the flow release schedule on the Arroyo toad population at a series of interagency meetings held in 2003 with representative from the U.S. Fish and Wildlife Service (USFWS), DWR, DFG, and other organizations. It was concluded that the higher summer maintenance flows were contributing to conditions in middle Piru Creek that were detrimental to the Arroyo toad and had resulted in incidental take. New operational criteria were developed to simulate the natural hydrology of middle Piru Creek, to the extent operationally feasible, to provide the greatest benefit to the Arroyo toad. DWR agreed to alter Pyramid operations to avoid further incidental take.

New operational guidelines for Pyramid Dam releases to Piru Creek were adopted in 2005. These guidelines were released after the certification of the Final EIR in February 2005 and FERC approval of a temporary waiver of the minimum flow requirements (Article 52 of the license for project 2426) in April 2005. Under the new criteria, releases to Piru Creek from Pyramid Dam will match natural surface inflow into Pyramid Lake to the extent operationally feasible.

DWR holds a water rights permit authorizing the appropriation of water from Piru Creek, at Pyramid Lake, when flows are greater than the demands of the downstream water users. DWR has appropriated water from Piru Creek in only seven years since 1978.

The operational revisions will limit future SWP appropriations from Piru Creek to those flows in excess of the safe release from Pyramid Dam. The new guidelines, consistent with the Final EIR, also allow for the delivery of up to 3,150 af of SWP water, via Piru Creek, to Ventura County Watershed Protection District, under the provisions of the long-term water supply contract for United Water Conservation District. The SWP water deliveries will occur only between November 1 and the end of February each year.

Biological Opinions Issued on the Revised CVP/SWP Operating Plan

USFWS Biological Opinion

On August 6, 2004, USFWS issued a non-jeopardy biological opinion on impacts to threatened delta smelt by proposed revised operations of CVP and SWP. The USFWS concluded that any adverse effects from the Operating Criteria and Plan (OCAP) for the two jointly operated projects will be avoided or minimized by conservation measures and the adaptive management measures which were newly incorporated into the project plan. This Biological Opinion was renewed in 2005.

OCAP addressed the operational impacts on delta smelt by committing the two projects to take early protective actions for the species. These actions will occur before high numbers of the fish reach the major export pumps, where losses often occur. OCAP incorporated the EWA into the delta smelt protective actions.

The biological opinion also set new incidental take limits for delta smelt. The new USFWS take limits are based on the most recent 11 years of data (1993–2003), using more recent information. The new take limits are based on two categories of water year type: (1) wet or above normal, and (2) below normal, dry, or critical. The Delta Smelt Risk Assessment Matrix (DSRAM) adult concern level is set at 892, and the reconsultation level varies by month, ranging from 100 to 44,800. When the incidental take is exceeded, a team of interagency scientists, called the Delta Smelt Working Group, will convene a meeting to review smelt distribution, abundance, projected project operations, and other information. This work group will recommend any actions that should be taken to reduce salvage. The adaptive management measures in OCAP are intended to provide better protection for the species.

NOAA Fisheries Biological Opinion

In its supplemental biological opinion, issued February 27, 2004, NOAA Fisheries concluded that the continuation of OCAP, through March 2006, is not likely to jeopardize the continued existence of spring-run Chinook salmon or steelhead in the Central Valley. This opinion was issued to provide an ESA take exemption for project operations, while work continued on the long-term consultation project. Notwithstanding this conclusion,

an incidental take statement and several reasonable and prudent measures were issued to minimize take.

Reasonable and prudent measures to protect spring-run Chinook salmon and steelhead in the Central Valley include the following:

- continuing research on the effects of flow and water temperature;
- operating to meet temperature objectives;
- minimizing adverse effects of Delta Cross Channel operations;
- minimizing Delta exports during fisheries' sensitive times;
- conducting research to improve facility operations at fish salvage collection facilities;
- conducting weekly scientific reviews of current data; and
- minimizing take from unscreened diversions that are part of interim water contract renewals.

Delta Export Curtailment

SWP and CVP operated under a new Delta Smelt Biological Opinion in 2005, which was signed in August 2004.

On January 24, 2005, the incidental take of pre-spawning adult delta smelt at SWP and CVP exceeded the concern level of 892. The Delta Smelt Working Group met to discuss possible actions. As a result, combined exports were reduced to 3,000 cfs for seven days.

In 2005, 2,922 delta smelt were salvaged by SWP and 818 were salvaged by CVP. This compares to 20,470 delta smelt salvaged at both facilities in 2004.

Decisions on Endangered Species

North American Green Sturgeon

In 2001, NOAA Fisheries received a petition from the Environmental Protection Information Center, the Center for Biological Diversity, and Waterkeepers Northern California that requested a listing of the North American green sturgeon (*Acipenser medirostris*) as either a threatened or an endangered species under ESA. The petition also noted a request for the designation of critical habitat for the species, concurrently with any listing determination.

In January 2003, NOAA Fisheries issued a 12-month determination that listing of the species was not warranted. However, on April 7, 2003, the plaintiffs challenged the NOAA Fisheries determination. The initial finding was set aside by the U.S. District Court, and the matter was remanded to NOAA Fisheries in March 2004. The court was not satisfied with the NOAA Fisheries examination of whether purported lost spawning habitat constituted a significant portion of either Distinct Population Segment's (DPS's) range.

On April 5, 2005, NOAA Fisheries filed a proposed rule with the Federal Register to list the southern DPS of North American green sturgeon, the population occurring south of the Eel River, as threatened under the ESA. The biological review team used previous studies of salmon in the Central Valley to examine the likelihood that spawning habitat has been lost within the range of the southern green sturgeon DPS. It was determined that dams built on the upper Sacramento and Feather rivers likely block migration of green sturgeon,

Endangered Species Acts

In planning, constructing, and operating the SWP, DWR must consider the effects its actions will have on organisms, including 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 unauthorized take of endangered species.

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

significantly reducing the historical habitat of the southern DPS.

Trends in Fish Abundance

Figure 3-1 shows the abundance index for delta smelt, from 1967 through 2005, based on fall midwater trawl sampling. Using the first two tow net surveys only, delta smelt abundance indices are calculated as the product of the total catch at each site and a weighting factor that represents the estimated water volume for the site, divided by 1,000. The fall abundance index provides one of the best indicators of the status of the adult delta smelt population. The 2005 index was the lowest index on record. Since 2002, abundance indices for this species have been lower than expected, given moderate flow conditions of the past several years. The Delta Smelt Action Plan was implemented in October 2005 to help understand and counteract the causes of the decline of delta smelt.

Figure 3-2 shows estimates of returning adult winter-run Chinook salmon, from 1967–2005. These estimates are referred to as escapement estimates—the number of adults that escape mortality and return to spawn. The Sacramento River winter-run Chinook salmon escapement estimates are generated using data from the DFG carcass survey. DFG has been using the carcass survey data to generate escapement estimates since 2002. Prior to 2002, Red Bluff Diversion Dam counts were used to generate the escapement estimate. Winter-run escapement has continued to increase since 2002. The estimated winter-run Chinook escapement for 2005 was 15,839, which was substantially more than the estimated 7,464 adults in the parent stock of 2002, and the highest escapement since 1981. Factors such as improved spawning

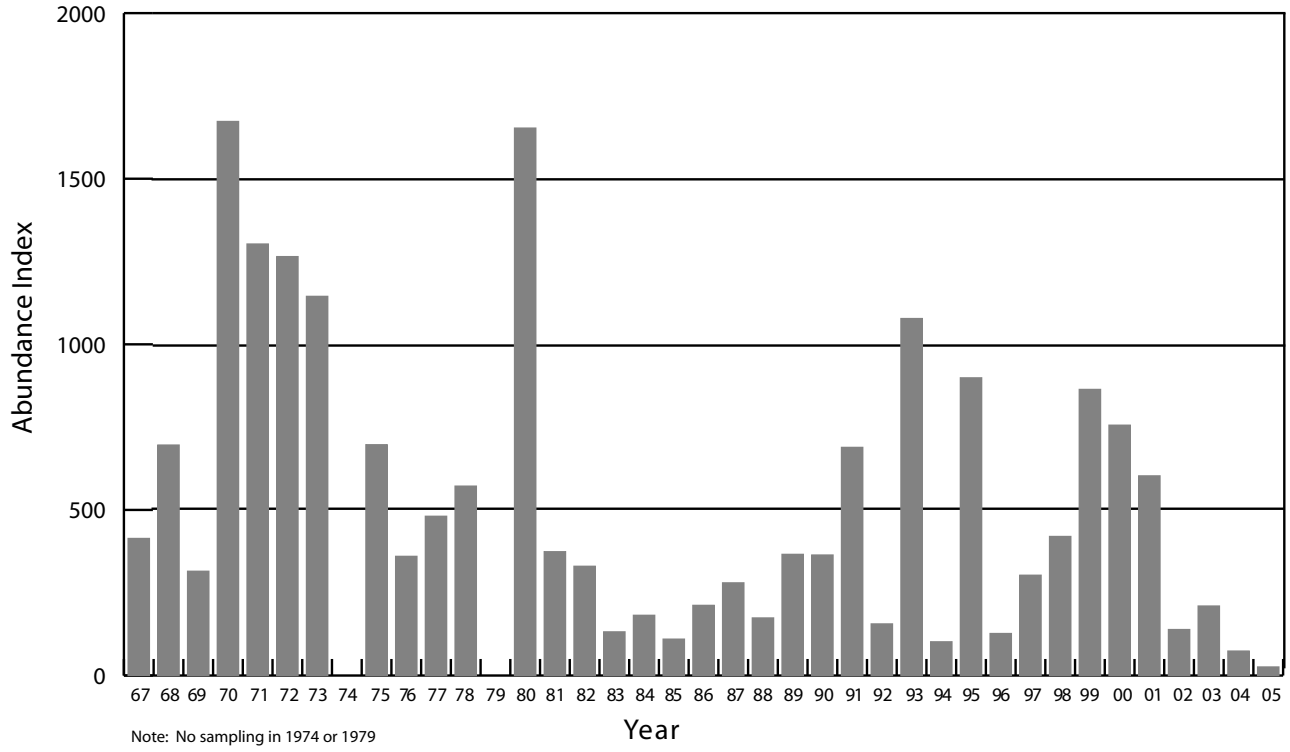


Figure 3-1. Delta Smelt Fall Midwater Trawl Abundance Index, 1967-2005

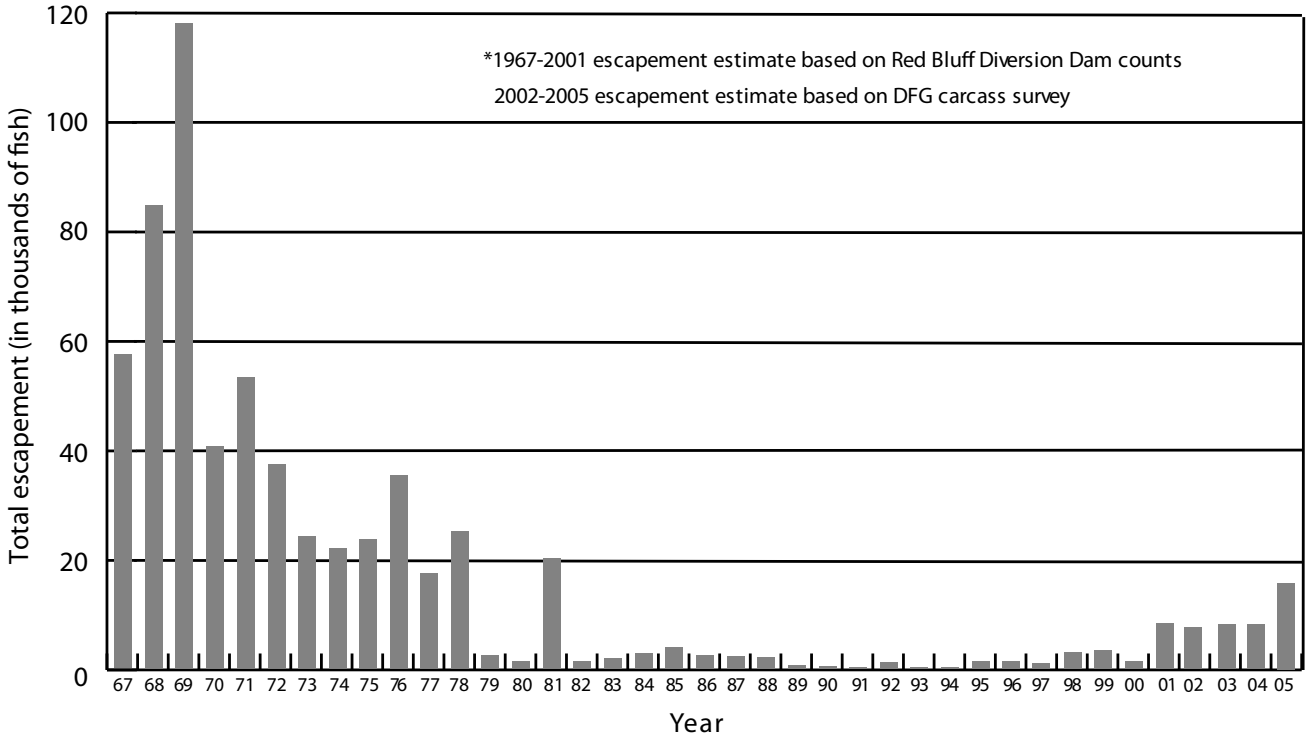


Figure 3-2. Estimated Total Adult Winter-Run Chinook Salmon Escapement, 1967-2005

and rearing habitat, reduced losses in the Delta, reduced commercial fishing losses, and changing ocean conditions are likely to benefit winter-run Chinook salmon.

Figure 3-3 shows estimates of returning adult spring-run Chinook salmon, from 1990–2005. Individual estimates are shown for Mill Creek, Deer Creek, Butte Creek, and the Feather River—the principal spawning streams for this race of salmon. The escapement estimates are shown separately for each stream, because the Feather River estimate is based on returns to the Feather River Hatchery, where the genetic integrity of spring-run Chinook salmon is uncertain. The estimated escapement for 2005 was 1,820 for the Feather River Hatchery and about 14,000 for the other streams combined.

Spring-run escapement in 2005 increased about 24 percent, as compared to 2004 statistics.

Counting methods for returning adult spring-run Chinook salmon from the Feather River Hatchery changed in 2004. From May 17 through June 30, 2005, the fish ladder was opened, allowing adult spring-run Chinook salmon to enter the Feather River Fish Hatchery. During this time period, 5,950 fish entered the hatchery. In an effort to better estimate spring-run Chinook salmon abundance, and to distinguish fall- from spring-run, the fish were tagged with an external "floy" tag and released back into the Feather River. When spawning commenced in the fall, a total of 2,991 spring-run fish were recaptured: 1,835 at the hatchery, 1,049 in

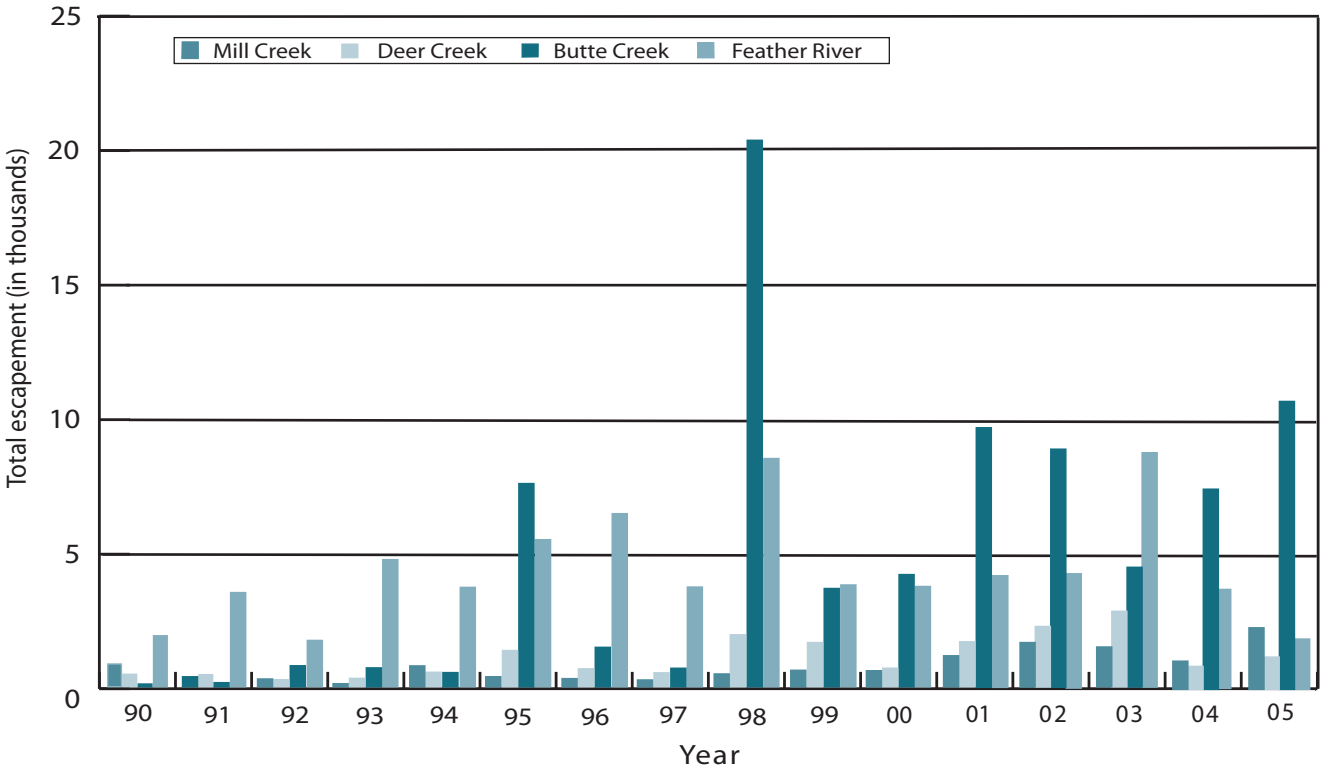


Figure 3-3. Estimated Spring-Run Chinook Salmon Escapement, 1990-2005

the river escapement survey, and 107 by anglers.

The Feather River Hatchery successfully spawned 1,830 (99.7 percent) of the fish returning to the hatchery. Four hundred twenty-three (89 percent) of the 474 female salmon recovered in the river escapement survey were classified as spent (and are thus assumed to have spawned successfully). Based on the escapement survey recapture data, the sex ratio of the marked spring-run was 2.24:1—females to males. While these methods do not yet provide a complete population estimate for Feather River spring-run Chinook salmon, future refinements may make such an estimate possible.

The return numbers for spring-run Chinook salmon remain consistently higher than the early 1990s statistics. Like winter-run Chinook salmon, factors such as improved spawning and rearing habitat, reduced losses in the Delta, and reduced commercial fishing losses likely benefited spring-run Chinook salmon.

Due to lack of comprehensive monitoring programs and the difficulty in conducting that monitoring, there are no reliable escapement estimates for wild Central Valley steelhead.

Feather River Fish Studies

In the early 1990s, the Feather River fish studies were initiated to document and monitor fish populations in the lower Feather River. Early efforts focused on studies to identify flow requirements for Chinook salmon and steelhead. This program has progressively expanded since the mid-1990s in preparation for the FERC relicensing of the SWP Oroville-Thermalito Complex. Field program elements include the operation of rotary screw traps, snorkeling, salmon spawning surveys, radiotelemetry, and spring-run Chinook tagging.

Rotary screw traps capture juvenile salmon and steelhead as they emigrate from the Feather River. Data collected from the traps are used to monitor the timing and abundance of salmonid emigrants. This long-term monitoring effort yields valuable baseline information about juvenile salmon production in the Feather River and the effects of project operations on abundance and migration timing. Snorkel surveys monitor juvenile and adult steelhead abundance, distribution, and habitat use in the Feather River. This information is used to identify major habitats used by steelhead and evaluate the impacts of project operations on the natural production of steelhead. Steelhead redd surveys are conducted to determine the distribution and physical characteristics of natural steelhead spawning sites in the Feather River. Salmon spawning surveys estimate the number and distribution of adult Chinook salmon that returned to spawn in the river. Radiotelemetry gathers baseline information on the migration and holding patterns of adult Chinook salmon in river.

Data from the Feather River sampling programs revealed several significant trends. For example, steelhead redd surveys show that in-river spawning continues at low levels. Juvenile steelhead first appear in March and are most abundant in well-vegetated side channels of the low-flow channel. Water temperatures do not appear to limit the abundance of juvenile steelhead within the low-flow channel. Rotary screw traps

show that the peak of salmon emigration occurs in February or March, indicating that flows do not cue or influence the timing of salmon emigration. Salmon spawning surveys demonstrated that two-thirds of all spawning occurs within the low-flow channel. In fall 2005, more than 43,738 adults and 4,838 grilse spawned in the Feather River, from the Fish Barrier Dam downstream to Gridley. These estimates include both fall- and spring-run Chinook salmon, since their spawning is currently not fully segregated on the Feather River.

Twenty-six adult salmon were captured and radio tagged in 2005 to assess patterns of holding habitat use for adult Chinook salmon which up-migrate in the spring. A combination of manual tracking and fixed station data logging was used to assess the location of adult Chinook salmon. The Chinook salmon were detected anywhere from 81 to 153 days after being tagged. The total observed distance traveled by tagged Chinook salmon ranged from 0.3 to 25.1 river miles. The largest surveyed net movement was 11.2 river miles, which was navigated downstream. Of the 25 fish successfully tracked, only three fish were detected at the Thermalito Outlet. These fish spent a total of one to six days at the outlet throughout the entire survey season. Twenty-three of the 25 fish were last detected or recovered in the low-flow channel above the Thermalito Outlet, while the remaining two fish were detected downstream of the outlet.

Pelagic Organism Decline in the Upper San Francisco Estuary

Abundance indices calculated by the Interagency Ecological Program (IEP) suggest recent marked declines in numerous pelagic fishes in the upper San Francisco Estuary. The major resident pelagic fishes sampled in the upper estuary include delta smelt, longfin smelt, striped bass, and threadfin shad. Historically, low populations of these fishes have been the result of dry years, such as the drought in 1987–1992. Abundance indices for 2002–2005 indicate record and near-record lows for these populations, which are unexpected given the moderate winter-spring flows of the past several years. In response to the Pelagic Organism Decline (POD), the IEP formed a work team to evaluate the potential causes. An interdisciplinary, multiagency research effort was undertaken in 2005 to identify the most likely causes of the POD. The overall approach was based on a "triage" model to identify the most likely causes and assign priorities to projects on the basis of where funds and resources can best be used. The 2005 work fell into four general types: an expansion of existing monitoring; analysis of existing data; new studies; and ongoing studies. A conceptual model was developed to describe possible mechanisms by which a combination of long-term and recent changes in the ecosystem could produce the observed declines in the abundance indices.

Possible stressors influencing the POD studied in this initial effort were: entrainment, toxic effects on fish, toxic effects on fish food, harmful algal blooms, clam *Corbula* effects on food availability, disease, and parasites. Narrative explanations in the context of long-term trends have been developed for four major components: (1) prior fish abundance—which describes how the continued low abundance of adults leads to reduced juvenile production; (2) habitat—which describes how water quality variables,

including contaminants and toxic algal blooms, affect estuarine species; (3) top-down effects—which posit that predation and water project entrainment affect mortality rates; and (4) bottom-up effects—which focus on how food web interactions in Suisun Bay and the West Delta have affected fish abundance. Based on the product of the 2005 effort, a suite of 47 proposals were developed, and several studies begun, for 2006–2007 to cover each component of the conceptual model.

Fish-Related Mitigation Projects

In 1986, DWR and DFG signed the Four Pumps Agreement to annually provide funds to replace fish lost at Banks Pumping Plant. This agreement provided a $15 million lump sum for additional projects to compensate for losses prior to 1986. The agreement focuses on Chinook salmon, striped bass, and steelhead, and considers other fish.

Since 1986, DWR has spent $42 million on mitigation projects, which were developed under the Four Pumps Agreement. These projects include the following:

- improving salmon spawning and rearing habitat and migration pathways in the San Joaquin Basin;
- planting hatchery-reared and net-pen-reared striped bass;
- expanding the Merced River Fish Facility to increase salmon production and cost-sharing in annual operating costs;
- implementing a conjunctive-use project to improve salmon migration flows in Mill and Deer creeks in Tehama County;
- constructing fish ladders and screens on Butte Creek;
- constructing fish screens in Suisun Marsh and in the San Joaquin Basin;
- operating an acclimation pen to improve the survival of hatchery-reared salmon during their release into San Pablo Bay; and
- enhancing the enforcement of fish and game laws in the Delta and upstream to benefit salmon, steelhead, and striped bass, as well as increasing protection for spring-run Chinook salmon.

In 1996, DWR and DFG amended the agreement to include the following:

- allow another five years to spend the remaining $9 million of the $15 million lump sum provided in the agreement, because of difficulties in developing mitigation projects; and
- specify the likely allocation of the remaining funds.

DWR could not spend the full $15 million lump sum in the 10 years required by the original agreement. The remaining funds were tentatively allocated to provide the following:

- $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 in Tehama County; and
- $4 million for a salmon conservation hatchery on the Tuolumne River.

In December 2001, the five-year extension expired with only $4 million of the remaining $9 million spent, due to difficulties in implementing several of the mitigation projects. Approximately $1.4 million remained of the allocations under Amendment 1, and $3.6 million became available for other projects when DFG halted planning for a conservation salmon hatchery in the San Joaquin Basin. DWR and DFG amended the agreement again, to provide three more years to spend the remaining $5 million of the $15 million lump sum, and to specify the likely allocation of the remaining unallocated funds.

The $3.6 million in available remaining funds were tentatively allocated to provide the following:

- $950,000 for a revised conjunctive-use project to improve spring-run salmon migration in Deer Creek in Tehama County;
- $300,000 for screening diversions on the San Joaquin River tributaries;
- $500,000 for salmon spawning habitat and floodplain restoration on the Stanislaus River;
- $700,000 for two salmon spawning habitat and channel restoration projects on the Tuolumne River;
- $1.1 million for salmon habitat and river restoration on the Merced River; and
- $68,000 for salmon spawning gravel replenishment at wing deflector sites on the Merced River.

In December 2004, about $3.6 million of the funds allocated in the previous two extensions were still unexpended, and the agreement was amended with a three-year extension, through December 2007. Much of this funding is currently encumbered in contracts.

Other mitigation projects approved in 2005, for implementation from the agreement's annual mitigation funds and the $15 million lump sum, included the following:

- $228,000 for the operations and maintenance of 14 fish screens in Suisun Marsh, to be completed by the Suisun Resource Conservation District (SRCD) over the next 12 years;
- $313,000 for the Expansion of the Robinson Reach Conservation Easement, Merced River Salmon Habitat Enhancement Project, to cost share with the Wildlife Conservation Board to complete funding for the $1.3 million estimated total easement cost; and
- $160,480 to complete design scenarios for the Upper Western Stones Reach, Merced River Salmon Habitat Enhancement Project.

Chapter 4
Water Quality Programs

Suisun Marsh salinity control gates help control the water quality of the marsh.

Significant Events in 2005

On March 23, 2005, a landslide occurred in Posey Canyon near Pyramid Lake that broke a 14-inch crude oil pipeline spilling about 120,000 gallons of oil. Within hours, crews from the Department of Water Resources (DWR) and Los Angeles County's Fire and Sheriff's departments built earthen dikes in the canyon to contain the oil. DWR staff deployed oil booms to contain the oil which had entered the small cove that receives runoff from Posey Canyon.

The bulk of the oil was contained within the canyon, and a light wind helped ensure that the oil that did make it into the lake remained isolated in the narrow cove. Water deliveries from Pyramid Lake were cancelled immediately after the spill and during the cleanup. Water quality monitoring began the morning after the spill and continued until it was determined that the water was safe to move.

On May 5, 2005, the State Water Resources Control Board (SWRCB) issued a draft cease and desist order to DWR and the Bureau of Reclamation (Reclamation) regarding alleged threatened noncompliance of their licenses and permits that pertain to the operation of the State Water Project (SWP) and the Central Valley Project (CVP). If the SWRCB adopts the draft order, it will find that DWR and Reclamation are threatening to violate the conditions of their licenses and permits, which require that they meet the 0.7 millimhos per centimeter electrical conductivity (EC) objective at three of the southern Delta compliance locations between April 1 and August 31. The SWRCB conducted a public hearing on October 24, 2005, to receive evidence relevant to determining whether to adopt the draft cease and desist order, but SWRCB did not adopt the draft order in 2005. The 0.7 millimhos objective was not exceeded in 2005.

Information in this chapter was contributed by the Division of Environmental Services and the Division of Operations and Maintenance.

The State Water Project (SWP) provides many Californians with part or all of their daily residential water needs. This includes water for agriculture, industry, power generation, recreation, and fish and wildlife. The water provided by the SWP is monitored by the Department of Water Resources (DWR) for quality throughout the system. This assurance of quality is made possible by the use of an automated network of continually operating recorders and laboratory analyses of field samples collected weekly, monthly, quarterly, and annually.

Delta Activities

The State Water Resources Control Board (SWRCB) sets water quality objectives for beneficial water uses in California, and the Department of Health Services (DHS) establishes maximum contaminant levels for treated drinking water. Additional water quality objectives are set at points of delivery by Article 19 of the long-term SWP water supply contracts. Water quality in the Delta and Suisun Marsh is protected under SWRCB's Decision 1641 (D-1641), adopted in December 1999 (see sidebar). SWRCB's issuance of D-1641 is part of its implementation of the 1995 Bay-Delta Water Quality Control Plan and, accordingly, this decision amends certain water rights of the water rights holders to help achieve the plan's objectives.

Water Supply Conditions

Water Year Classifications and Water Supply Indexes

DWR conducts extensive monitoring to protect beneficial uses of water in the Delta and Suisun Marsh, as required by D-1641. Figure 4-1 shows water quality compliance stations throughout the Sacramento-San Joaquin Delta required by D-1641.

SWRCB's D-1641 contains water quality and flow standards that are conditioned by water year type, which generally become less stringent in years with less precipitation. The water year classification system provides relative estimates of a basin's available water supply based on the amounts of rainfall, snowmelt runoff, and groundwater accretion rates. Water year types are classified as "wet," "above normal," "below normal," "dry," or "critical."

Water year 2005 was classified as above normal for California under criteria set forth by SWRCB in D-1641. (For a detailed discussion of water year 2005, see Chapter 8.)

D-1641 applies the Sacramento Valley 40-30-30 Index, a water supply forecasting tool which largely replaced the Sacramento River Index. SWRCB first introduced the Sacramento Valley 40-30-30 Index in its 1991 *Bay-Delta Water Quality Control Plan for Salinity*.

The Sacramento Valley unimpaired runoff is a sum of the major flows into the Sacramento Basin. The factors used in the Sacramento Valley 40-30-30 Index are: (1) the current year's April-through-July Sacramento Valley unimpaired runoff

State Water Resources Control Board

The State Water Resources Control Board (SWRCB), established by the California Legislature in 1967, oversees water rights and water quality for California. Among its many responsibilities, 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.

In 1978, to implement its mandate to set Delta water quality standards, SWRCB issued Water Right Decision 1485 (D-1485): Sacramento-San Joaquin Delta and Suisun Marsh. That decision focused on SWP and CVP water right permits and operations, requiring SWP and CVP to maintain Delta water quality as it would have existed without the projects. However, after D-1485 was adopted, various water users and the federal government challenged it in court. Since then, SWRCB updated its Water Quality Control Plan (WQCP), adopted on May 22, 1995. Water Right Order 95-06 amended D-1485 to be consistent with the plan on June 8, 1995. WR 95-06 modified the standards for Suisun Marsh and allowed the SWP and CVP to use either project's Delta pumping plant to pump project water to increase fish protection and maintain project delivery capability. Water Right Order 98-09, adopted by SWRCB on December 3, 1998, extended the terms and conditions of WR 95-06 to allow time for the issuance of a comprehensive Water Right Decision.

On December 29, 1999, SWRCB issued Decision 1641 (D-1641), replacing D-1485, and conditioning the water right permits of the SWP and CVP to implement the objectives of the Bay-Delta Water Quality Control Plan. D-1641 covers Phases 1-7 of the Bay-Delta Water Rights Hearings. On March 15, 2000, SWRCB adopted Water Right Order 2000-02, which denies the petitions for reconsideration of D-1641, clarifies findings, and amends several conditions of D-1641. On April 26, 2001, SWRCB adopted Water Right Order 2001-05, which facilitates negotiations to settle the potential responsibilities for implementing the WQCP. This order stayed Phase 8 for 18 months, and automatically dismisses it at the end of that period, unless SWRCB receives notice requesting its resumption. SWRCB dismissed Phase 8 on January 31, 2003.

(40 percent); (2) current October-through-March Sacramento Valley unimpaired runoff (30 percent); and (3) the previous year's 40-30-30 Index (30 percent, with a cap of 10 maf).

D-1641 also includes another water supply forecasting tool, the San Joaquin Valley 60-20-20 Index, which uses methods similar to the Sacramento Valley 40-30-30 Index.

The Eight River Index is a sum of the runoff from the eight major rivers of the Sacramento and San Joaquin valleys. This index determines the duration of the fish and wildlife salinity and flow standards at Chipps Island or Port Chicago from February through June.

The April-through-July Sacramento Valley unimpaired runoff forecast for May 1, 2005, was 6.63 maf (99 percent of average). The resulting Sacramento Valley 40-30-30 Index forecast was 7.4, resulting in the forecast classification of below normal for water year 2005. The forecast of the San Joaquin Valley 60-20-20 Index on May 1 was 4.3, resulting in the water year being classified as wet in the San Joaquin Basin. The Eight River Index forecast on May 1 was 12.1 maf for April through July.

Operations under the State Water Resources Control Board Water Right Decision 1641

During 2005, DWR and the U.S. Bureau of Reclamation (Reclamation) operated joint projects in accordance with SWRCB's D-1641, which includes water quality, flow, and operational criteria for the Delta. Operations of the SWP and Central Valley Project (CVP) were coordinated with various objectives of CALFED, the Bay-Delta Plan, Central Valley Project Improvement Act, and biological opinions for fish species listed under the federal and State Endangered Species Acts (ESA).

As mentioned above, the water quality and flow criteria contained within D-1641 are conditioned by water year type. Specifically, the 40-30-30 Index water year type forecast on May 1 of each year determines the water year type for the implementation of flow and water quality criteria contained within D-1641. During most years, the water year type forecast and the actual water year type (calculated at the end of the water year) are in agreement, but this was not the case in 2005. Due to late-season precipitation, the 2005 water year ended with an above normal classification; but on May 1, 2005, the forecast was for a below normal water year. It is important to mention that in 2005, the SWP and CVP were operated using water quality and flow criteria based on the May 1 forecast of below normal, as required by D-1641.

CALFED's Record of Decision mandates an Environmental Water Account (EWA) managed by DWR, Reclamation, the Department of Fish and Game (DFG), U.S. Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NOAA Fisheries) for the protection of listed fish species. Fish species currently listed under the federal and State ESA include the winter and spring runs of Chinook salmon, delta smelt, and steelhead.

Real-time monitoring of fish movement and conditions in the estuary aids daily water management and provides more

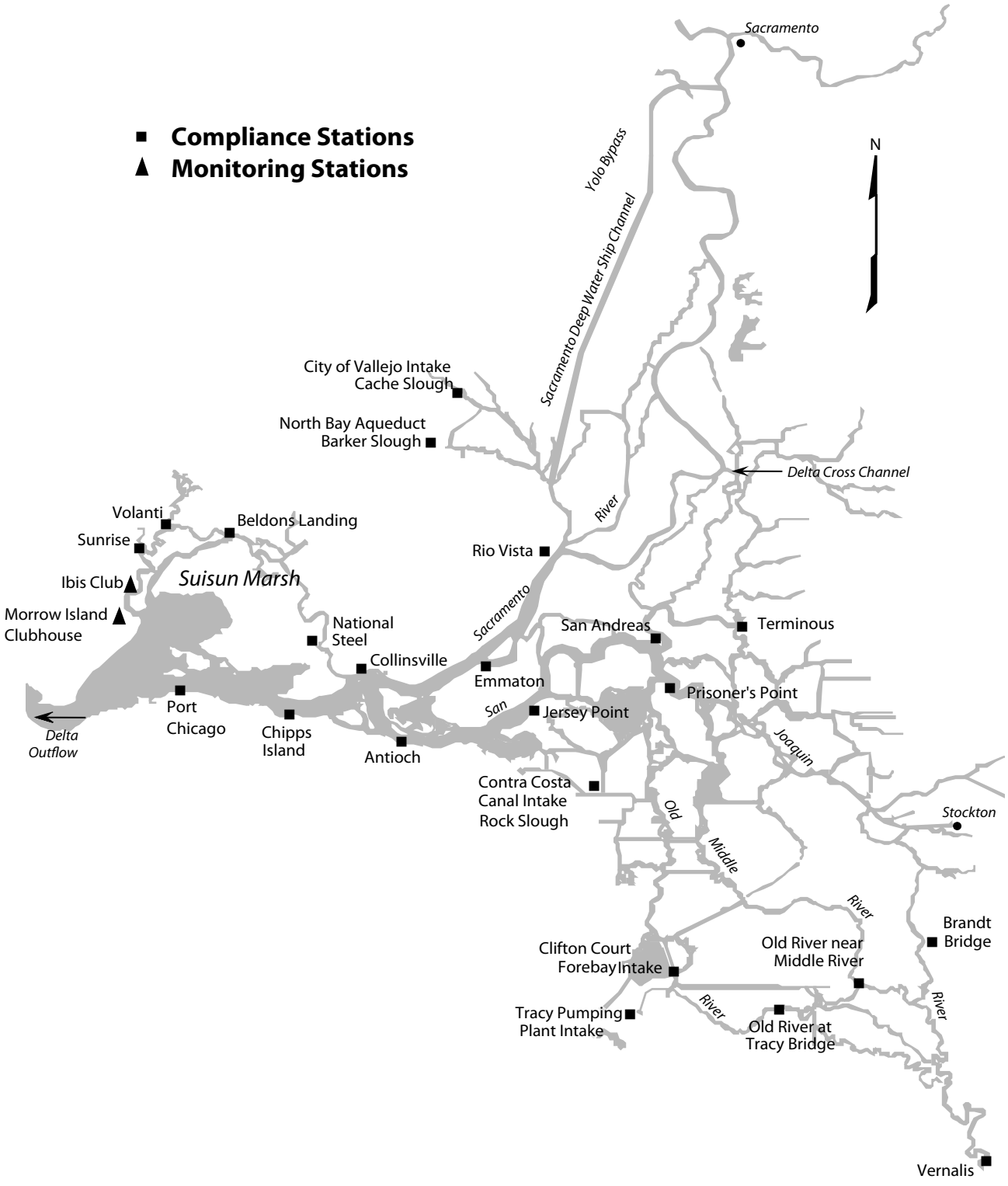


Figure 4-1. Decision 1641 Water Quality Compliance and Monitoring Stations in the Sacramento-San Joaquin Delta

timely protection of targeted fish species from entrainment at the Delta pumping facilities. (See Chapter 3 for a discussion of other environmental issues.)

Delta Cross Channel Gates

The Delta Cross Channel gates allow fresher Sacramento River water to flow into interior Delta channels toward the export facilities of the SWP and CVP. During 2005, the gates were open for 157 days. Reclamation's standard operating procedures call for gate closure any time the Sacramento River flow at Freeport reaches between 20,000 cfs and 25,000 cfs to reduce flooding potential on the Mokelumne River and to prevent scouring on the downstream side of the gate structure. D-1641 contains measures that require closure of the gates from February 1 until May 20, during peak migration of winter-, spring-, and fall-run Chinook salmon smolts and steelhead, and the spawning season for delta smelt, longfin smelt, Sacramento splittail, and striped bass.

During 2005, the gates remained closed from January 1 through late June. On June 25, the gates were opened, and they remained open until November 16, when the gates were closed to protect out-migrating winter-run salmon. The gates were reopened on November 20 and then were closed again on December 3, 2005, for fishery protection. The gates remained closed through the end of December.

Water Quality Standards

DWR attempts to meet D-1641 water quality and flow standards through releases from upstream reservoirs and Delta export operations, but D-1641 also contains a salinity standard for the San Joaquin River at Vernalis. San Joaquin River flows are not influenced by SWP upstream reservoirs, but they may be influenced by SWP exports and placement of South Delta barriers.

High river outflows, export restrictions, and water releases to benefit migrating fish (both pulse and attraction flows) help maintain most electrical conductivity (EC) values below standards.

Municipal and Industrial Objectives

D-1641 includes a year-round 250 mg/L chloride objective that is in effect at Delta export locations (Contra Costa Canal Pumping Plant No. 1, Clifton Court Forebay, Tracy Pumping Plant, Cache Slough at the City of Vallejo intake, and Barker Slough). Chloride levels remained below the objective throughout 2005.

An additional municipal and industrial water quality objective for chloride at the Contra Costa Canal Intake, near Rock Slough, specifies that the chloride level must be below 150 mg/L for a given number of days during the year, dependent upon the water year forecast. The below normal year requirement of 175 days was met on July 14, 2005.

Agricultural Objectives

D-1641 contains an agricultural EC objective, which varies by location, based on both water year type and a 14-day running average during the irrigation season, from April to mid-August, set at Emmaton, Jersey Point, Terminous, and San Andreas in the western and central Delta. The agricultural salinity objective at these Delta locations is also based on

water year type, becoming less stringent under dryer conditions. The agricultural EC objective was met at all four stations during 2005. An additional salinity objective is applied year round in the southern Delta at two locations on the San Joaquin River (Brandt Bridge and Vernalis) and two locations on Old River (Tracy Road Bridge and the head of Middle River). The SWP and CVP are jointly required by D-1641 to meet agricultural EC objectives imposed at these South Delta compliance locations. Meeting these objectives has sometimes been problematic. The SWRCB recognized in the 1995 Bay-Delta Water Quality Control Plan that elevated salinity in the South Delta is caused by multiple factors, including locally derived salts. On February 18, 2005, DWR and Reclamation jointly filed a petition with the SWRCB to change the effective date of the southern Delta water quality objective of 0.7 EC from April 1, 2005, to December 31, 2008, and to require that DWR and Reclamation continue to meet the 1.0 EC objective during these months. The request was made because installation of permanent operable gates in the South Delta had been delayed, and the gates are necessary for DWR and Reclamation to effectively implement the objective. A draft initial study and proposed negative declaration was submitted to the Office of Planning and Research on November 1, 2005. The SWRCB did not take action on the change petition by the end of the year.

Estuarine Habitat Protection Standard

The estuarine habitat protection standard incorporates modified X2 criteria (geographic isohaline) first established in the *1994 Delta Smelt Biological Opinion*. The upstream movement of 2 ppt isohaline (2 parts per thousand of salt in the water), measured as 2.64 mS/cm at the surface, is maintained within a certain range of positions in the estuary by adequate Delta outflow. These positions at Chipps Island or Port Chicago, from February through June, are associated with an abundance of fish and biota.

The number of days per month when the daily averaged EC maximum (2.64 mS/cm) is in effect at Chipps Island or Port Chicago is conditioned by the previous month's Eight River Index. This may alternately be met with a maximum 14-day running average EC of 2.64 mS/cm or with specific Delta outflow, set as a 3-day average Net Delta Outflow Index of 11,400 cfs or 29,200 cfs, when the X2 position is at Chipps Island or Port Chicago, respectively. The Port Chicago standard becomes effective 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 mS/cm. The Eight River Index, from December 2004 through May 2005, in af, was 1.56 million, 2.49 million, 2.01 million, 3.75 million, 3.18 million, and 7.23 million, respectively. On the last day of January 2005, the 14-day EC average at Port Chicago exceeded 2.64 mS/cm, triggering compliance at Chipps Island for February. Twenty-eight days were required for X2 at Chipps Island during February; all three criteria were met for 28 days. During March, the required 31 days were also met at Chipps Island, with all three criteria in compliance. During April, X2 was met at Port Chicago, and all criteria surpassed the required 18 days. In May, X2 was met for the required 31 days at Chipps Island. On the last day of May, due to above average May precipitation, the 14-day EC average at Port Chicago was less than 2.64 mS/cm, triggering X2 compliance at Port Chicago for June. The X2 requirement of 28 days was met for the entire month of June.

Net Delta Outflow Index Standard

Delta outflow cannot be measured directly due to the tidal influence in the Delta. Instead, an approximation of Delta outflow is calculated using measured inflows, exports, and estimated Delta water use. The Net Delta Outflow Index (NDOI), introduced in the 1995 Bay-Delta Plan, now part of D-1641, guided operations in 2005. NDOI calculates Delta outflow by including inflows of the Sacramento River, the Yolo Bypass system, the eastside stream system (consisting of the Mokelumne, Cosumnes, and Calaveras rivers), the Sacramento Regional Treatment Plant, and a measurement of San Joaquin River flow at Vernalis.

Excess outflow conditions, as defined by the Coordinated Operation Agreement, allow for greater flexibility in project operations. During 2005, Delta water conditions began and ended in excess, totaling an accumulated 306 days.

D-1641 sets specific minimum monthly NDOI standards, based upon water year type, between 3,000 and 8,000 cfs for the protection of fish and wildlife during January and from July to December. During below normal water years, July's NDOI objective of 6,500 cfs is the most stringent of all months. In 2005, the monthly mean NDOI was highest in May, averaging 59,442 cfs. This was unusual, because in most years, this occurs during the winter months. The monthly mean NDOI remained above 4,700 cfs during all months of the year, with the lowest monthly mean NDOI occurring in October with 4,749 cfs. All NDOI standards were met in 2005.

Flow Standards

D-1641 includes minimum flow requirements measured in the Sacramento River at Rio Vista. These flow standards, incorporated from the *Winter-Run Salmon Biological Opinion*, set flow requirements based on the May 1 water year classification forecast. Water year 2005 was forecast to be below normal, requiring mean monthly flows of 3,000 cfs for September; 4,000 cfs for October; and 4,500 cfs for November to December. During these periods, the seven-day running average could not be more than 1,000 cfs below the monthly standard. The actual mean monthly flows were 7,817 cfs for September; 8,487 cfs for October; and 38,232 cfs for November to December. All Rio Vista flow objectives were met during 2005.

D-1641 contains minimum San Joaquin River base and pulse flows measured at Vernalis from the *Winter-Run Salmon Biological Opinion*. These flows vary depending on the San Joaquin Valley water year type. Water year 2005 was forecast to be wet in the San Joaquin Valley.

If the X2 objective is required to be at or west of the Chipps Island location, wet year base flows are set at 3,420 cfs from February to April 14 and from May 16 through June 30. The base flow objective is relaxed to 2,130 cfs when X2 is required to be east of Chipps Island.

D-1641 requires the San Joaquin River spring pulse flow for April 15 to May 15 at Vernalis. This spring pulse flow requirement varies based on the location of X2 during April. However, the CALFED Operations Group may vary the actual timing and duration of the pulse attraction

flow based on real-time monitoring data. The Vernalis Adaptive Management Plan (VAMP), part of the San Joaquin River Agreement and approved in D-1641, contains SWRCB-approved alternate spring pulse flow and export limits. Typically, Reclamation and DWR use this alternate in lieu of D-1641 limits. The pulse flow objective for the spring 2005 VAMP period was 7,020 cfs. During October, D-1641 also requires a pulse attraction flow of up to 2,000 cfs at Vernalis to benefit salmon.

Export Standards

D-1641 includes an export limitation for SWP and CVP. It limits Delta exports to a ratio of Delta inflow to combined water project exports and is expressed as a maximum export rate in percentage of Delta inflow. The maximum percentage of Delta inflow diverted varies by month; for example, in February, it is conditioned by the previous month's Eight River Index. During the San Joaquin River spring pulse flow season, VAMP export rates are typically used as an alternative to the D-1641 spring export limitation, and the CALFED Operations Group may impose additional export restrictions.

The actual export amount is calculated using the three-day average that combines the 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 to inflow ratio limit is reported as either a 3-day or 14-day running average. A 14-day running average of inflows is used unless storage withdrawals from upstream reservoirs are being made for export, in which case a 3-day average of inflows is used. In all water year types, the maximum combined export rate from February through June is 35 percent of Delta inflow. This rate may be relaxed in February, during years with less precipitation, to between 35 and 45 percent. From July through January, the export to inflow ratio rises to 65 percent.

During January 2005, combined SWP and CVP exports averaged about 30 percent of Delta inflow, far below the 65 percent limitation. Excess conditions during January were beneficial to Delta water quality and prevented the need for export curtailments for water quality protection.

During the more restrictive period from February through June (35 percent objective), exports averaged about 19 percent. Combined exports were curtailed from February 2 through February 7 for the protection of delta smelt. Following the April 15 to May 15 VAMP period, exports continued to be restricted through the end of May due to concern over the level of delta smelt salvage.

From July through the following January, the SWP and CVP are allowed to export at 65 percent of Delta inflow. From July through December 2005, the combined inflow diverted averaged 52 percent. Exports were halted on June 22 to allow for pondweed eradication spraying on Clifton Court Forebay.

South Delta Temporary Barriers

The South Delta Temporary Barriers Project was initiated as a test project in 1991, was extended for five years in 1996, and extended again for seven years in 2001. The project was created partially in response to a 1982 lawsuit filed by the

South Delta Water Agency and consists of four rock barriers across South Delta channels.

These temporary seasonal barriers are designed to improve local water levels and circulation patterns, protect fishery resources, and improve water quality. They are placed across Middle River, Old River at Tracy, Grant Line Canal, and at Head of Old River.

The installation of the Middle River barrier was completed on May 17, 2005, and the Old River barrier near Tracy installation was completed on June 6. The spring barrier at Head of Old River, which functions as part of VAMP, was not installed in 2005 due to high flows on the San Joaquin River. The Grant Line Canal barrier was partially installed by May 2, with the installation completed on July 18. The Middle River barrier was notched on September 15, and removal was completed by November 9. The Old River near Tracy barrier and the Grant Line Canal barrier were both removed by November 30.

The barrier placed at Head of Old River in the fall, which helps keep upstream migrating adult salmon from straying out of the San Joaquin River into interior Delta channels, can help improve dissolved oxygen conditions in the Stockton Ship Channel. The Head of Old River barrier installation was completed on September 30 and removal was completed on November 15.

Special Study and Biological Surveys

DWR conducts several special studies and biological surveys each year. This includes a special study in the Stockton Ship Channel during the late summer and early fall to monitor the occurrence of low dissolved oxygen (DO) levels. Low DO levels can potentially cause physiological stress to fish and block the migration of salmon into the San Joaquin River. DWR also conducts biological surveys of benthic organism density and diversity, and of phytoplankton biomass and community composition in the Sacramento-San Joaquin Delta, Suisun Bay, and San Pablo Bay.

Fall Dissolved Oxygen Study in the Stockton Ship Channel

Historically, during the late summer and early fall, DO levels in the eastern and central portions of the Stockton Ship Channel have dropped below both the 5.0 mg/L and 6.0 mg/L water quality objectives set by SWRCB and the Regional Water Quality Control Board, respectively. These low DO levels are a result of several factors, including low San Joaquin River inflows, warm water temperatures, high biochemical oxygen demand, reduced tidal circulation, and intermittent reverse flow conditions in the San Joaquin River at Stockton.

To help reduce the severity of these low DO conditions, DWR normally installs a temporary rock barrier across the Head of Old River during periods of projected low fall flows in the San Joaquin River. The barrier increases net flows in the San Joaquin River past Stockton by reducing the upstream diversion of flows down Old River.

During the late summer and early fall of 2005, flows in the Stockton Ship Channel were not projected to be sufficient to

alleviate low DO concerns, and in-water construction of the barrier began on September 19. The barrier was in place and fully operational on September 30. Barrier removal began on November 7 and was completed by November 15.

Methods

Monitoring of DO concentrations in the Stockton Ship Channel was conducted by boat on eight monitoring runs, from August 3 to November 15, 2005. During each of the runs, 14 sites were sampled at low water slack tide from Prisoner's Point in the Central Delta to the Stockton Turning Basin at the terminus of the ship channel.

Because monitoring results differ within the channel, sampling stations were grouped into western, central, and eastern regions. The findings of previous fall studies have shown that fall DO levels are typically robust and high (7.0 to 9.0 mg/L) in the western channel; transitional, variable (4.0 to 7.0 mg/L), and stratified in the central channel; and low (3.0 to 5.0 mg/L) and stratified in the eastern channel. The western channel begins at Prisoner's Point and ends at Columbia Cut. The central channel begins one half mile east of Columbia Cut and ends at Fourteen Mile Slough. Finally, the eastern channel begins at Buckley Cove and ends at Rough and Ready Island. The Turning Basin is unique within the channel because it is east of the entry point of the San Joaquin River into the channel and isolated from down-channel flows.

Results

During the period of this study (August 3 to November 15), DO levels varied considerably between regions within the channel (not including the turning basin) from a low of 4.1 mg/L to a high of 8.9 mg/L. In the western channel, DO concentrations were relatively high and stable, ranging from 6.5 to 8.9 mg/L. The robustness of DO concentrations in this portion of the channel, in comparison to the east and central channels, is apparently due to greater tidal mixing, the absence of conditions creating biochemical oxygen demand, and shorter hydrological residence time. In the central channel, DO concentrations were more variable, ranging from 4.1 to 8.2 mg/L. In the eastern channel, DO levels were the most variable and stratified, ranging from a low of 4.5 mg/L to a high of 8.7 mg/L.

DO concentrations in the Stockton Ship Channel fell below both the State's 5.0 mg/L and 6.0 mg /L objectives in August, September, and the beginning of October 2005. This period coincided with warm temperatures and relatively low net flows in the San Joaquin River past Stockton.

Higher inflows in October coincided with improved DO conditions, with most stations showing levels above the 6.0 mg/L objective, except for DO levels in the central channel and in the turning basin, which were slightly below State objectives. DO levels remained high through the first half of November until the barrier was removed on November 15. The removal of the barrier coincided with a reduction in net flows at Vernalis. Further monitoring operations for the fall 2005 special study were suspended after November 15, 2005.

Benthic Survey

The benthic monitoring program documents changes in the composition, abundance, density, and distribution

of the benthic biota within the upper San Francisco Estuary. Benthic biota are relatively long-lived and can respond to changes in physical factors within the estuary, such as fresh water inflows, salinity, and substrate composition. As a result, benthic data can provide an indication of physical changes occurring within the upper estuary. Because the operation of the SWP can impact flow characteristics of the estuary, and subsequently influence the density and distribution of benthic biota, benthic monitoring is an important biological survey conducted by DWR. In addition, benthic monitoring data are also used to detect and document the presence of newly introduced species within the upper estuary.

Benthic monitoring was conducted at 10 sampling sites distributed throughout the major habitat types within the estuary. The sampling stations are as follows:

- Clifton Court Forebay Intake;
- San Joaquin River at Buckley Cove;
- San Joaquin River at Twitchell Island;
- Old River opposite Rancho del Rio;
- Sacramento River below the Rio Vista Bridge;
- Sacramento River above Point Sacramento;
- Suisun Bay at Bulls Head;
- Grizzly Bay at Dolphin near Suisun Slough;
- San Pablo Bay near Pinole Point; and
- San Pablo Bay near the mouth of the Petaluma River.

Four bottom grab samples for benthic analysis and one sample for sediment analysis were collected monthly at each site during 2005. Samples were analyzed to identify organisms to the lowest possible identifiable taxon and to count all organisms collected.

DWR maintains a database of benthic organisms located within the upper estuary. The benthic database is dynamic and regularly undergoes peer review and update. When a new organism is identified at any of the sampling stations it is added to the database. In addition, the taxonomic names of organisms on the list are updated when sufficient evidence is produced to warrant such changes.

A total of 152 species of benthic macrofauna were collected in 2005 at the 10 sampling sites. Of the 152 species, 10 species represented 88 percent of all organisms collected. The 10 dominant species were

- the amphipods: *Americorophium stimpsoni, Corophium alienense, Ampelisca abdita,* and *Gammarus daiberi;*
- the aquatic oligochaete: *Varichaetadrilus angustipenis;*
- the turbificid worm: *Limnodrilus hoffmeisteri;*
- the sabellide polychaetes: *Laonome* sp. A and *Manayunkia speciosa;* and
- the Asian clams: *Corbula amurensis,* and *Corbicula fluminea*.

Of the 10 dominant species, *Ampelisca abdita* and *Corbula amurensis* represent macrofauna that inhabit a typically high saline environment and were found in San Pablo Bay, Suisun Bay, and Grizzly Bay. *Corophium alienense, Americorophium stimpsoni, Limnodrilus hoffmeisteri,* and *Laonome* sp. A tolerate a wider range of salinity. They were collected both in the

higher saline western sites, and the more brackish to fresh water eastern sites, such as the San Joaquin River at Twitchell Island and the Sacramento River above Point Sacramento. The remaining four species, *Manayunkia speciosa, Gammarus daiberi, Varichaetadrilus angustipenis,* and *Corbicula fluminea* are predominantly fresh water species and were collected at sites east of Suisun Bay.

Phytoplankton and Chlorophyll *a* Survey

Monthly sampling of chlorophyll *a* concentrations and phytoplankton was conducted in 2005 by DWR's Bay-Delta Monitoring Branch at 13 stations throughout the upper San Francisco Estuary. These stations are

- Sacramento River at Greene's Landing/ Hood and above Point Sacramento;
- San Joaquin River at Vernalis, Buckley Cove, and Potato Point;
- Old River opposite Rancho Del Rio;
- Disappointment Slough near Bishop Cut;
- Frank's Tract near Russo's Landing;
- Suisun Bay at Bull's Head near Martinez and off Middle Point near Nichols;
- Grizzly Bay at Dolphin near Suisun Slough; and
- San Pablo Bay near Pinole Point and near Mouth of Petaluma River.

Chlorophyll *a* is one of the main groups of pigments contained in the algal species that make up phytoplankton. Phytoplankton are small, free-floating or attached algae that can be tiny, single-celled organisms (less than 5 µm in diameter) or larger colonial organisms. Phytoplankton are an important source of food in the estuary for zooplankton, invertebrates, and some species of fish. Phytoplankton biomass is an indicator of the status of primary productivity in the estuary. Chlorophyll *a* concentration was measured for each of the 13 monitoring stations to estimate overall phytoplankton biomass in the estuary. Phytoplankton samples were collected and analyzed separately to determine which species were present in the estuary.

Monthly chlorophyll *a* concentrations throughout much of the estuary were relatively low when compared to historical data. Of the 156 samples taken in 2005, 95.5 percent had chlorophyll *a* levels below 15 µg/L, and 85.9 percent of the samples were below 5 µg/L. The mean chlorophyll *a* concentration for all samples in 2005 was 3.48 µg/L, and the median value was 1.88 µg/L. In 2004, median chlorophyll *a* concentrations were higher, with a mean of 5.3 µg/L and a median of 2.0 µg/L. The maximum chlorophyll *a* concentration in 2005 was 21.5 µg/L, recorded in August at the San Joaquin River at Vernalis monitoring site. This maximum was considerably lower than the 2004 peak of 94.2 µg L. The minimum chlorophyll *a* concentration in 2005 was 0.4 µg/L, recorded in February at the San Joaquin River at Potato Point monitoring station.

The samples with chlorophyll *a* levels above 15 µg/L were all measured in the San Joaquin River at Vernalis, Buckley Cove, and Disappointment Slough near Bishop Cut. These three monitoring sites also had the highest chlorophyll *a* concentrations measured in 2004.

Phytoplankton biomass and resulting chlorophyll *a* concentrations in some areas of the estuary may be influenced by

extensive filtration of the water column by the introduced Asian clam, *Corbula amurensis*. Well-established benthic populations of *C. amurensis* in Suisun and San Pablo bays are thought to have contributed to the low chlorophyll *a* concentrations (and increased water clarity) measured in these westerly bays since the mid-1980s.

In addition to monitoring for chlorophyll *a*, water samples were analyzed for pheophytin. Pheophytin is a primary degradation product of chlorophyll *a*, and its relative concentration is useful for estimating the general physiological state of phytoplankton populations. When phytoplankton are actively growing, the concentrations of pheophytin are normally expected to be low in relation to chlorophyll *a*. The mean pheophytin *a* concentration for all samples in 2005 was 1.53 µg/L, and the median value was 0.97 µg/L. The maximum pheophytin *a* concentration was 15.10 µg/L, recorded at the San Joaquin River near Vernalis monitoring station. The minimum pheophytin *a* concentration was 0.13 µg/L, recorded at the San Pablo Bay near the mouth of Petaluma River.

Phytoplankton populations consisted of (families in order of abundance): Bacillariophyceae (diatoms), Chlorophyceae (green algae), Cryptophyceae (cryptomonads), Cyanophyceae (blue-green algae), unidentified flagellates, Euglenophyceae (euglenoids), Chrysophyceae (yellow-brown algae), and Dinophyceae (dinoflagellates). Of the genera identified, the following were the 10 most common, in order of abundance: *Cyclotella*, *Skeletonema*, *Monoraphidium*, *Cryptomonas*, *Rhodomonas*, *Aulacoseira*, unidentified flagellates, unidentified centric diatoms, *Aphanizomenon*, and *Pseudanabaena*.

Activities Outside the Delta

Activities conducted outside the Delta included scheduled routine SWP water quality monitoring, as well as special studies. Most of these special studies were 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 rely on SWP deliveries of 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 40 aqueduct and reservoir sites located throughout SWP facilities. 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 North Bay Aqueduct, Feather River, and at State reservoirs north of the Delta—Lake Oroville, Antelope Lake, Frenchman Lake, and Lake Davis.

The SWP Water Quality Program was established in 1968 when the California Aqueduct was completed. More than 200 different chemical constituents are monitored monthly or quarterly. In addition, 13 automated stations are maintained for continuous monitoring of aqueduct water.

DWR maintains a staff at its own Bryte Laboratory in West Sacramento, who process and analyze most SWP laboratory water quality samples. DWR also contracts for some laboratory services. Water samples from 15 SWP stations are analyzed monthly to determine concentrations of dissolved solids, nutrients, chloride, sulfate, sodium, trace metals, and other constituents. Herbicides, pesticides, organic substances, and phytoplankton are monitored three times per year.

During 2005, bromide, total and dissolved organic carbon, taste and odor producing algae, and turbidity were factors in defining water quality. Dissolved metals, pesticides, and other constituents were at very low levels, well below treated drinking water standards, and were not a factor in water treatment. Bromide levels at SWP locations were lowest from February through August, and peaked in the early fall and winter, until winter runoff in the Delta increased outflow. Dissolved and total organic carbon are the lowest from March through October and increase, often significantly, with the first heavy Delta outflow event in winter. Turbidity, taste, and odor events are sporadic and usually seasonal. Selected SWP water quality data are available electronically through DWR's website at http://www.omwq.water.ca.gov. Table 4-1 presents laboratory results of sampling at several representative stations in 2005.

Nonproject Water Turn-ins

Turn-ins are authorized during periods of reductions in approved Table A amounts. DWR previously accepted turn-ins in the early 1990s in response to the 1987–1992 drought. Nonproject groundwater was accepted into SWP facilities provided it did not result in the degradation of SWP water quality, toxicity to fish and wildlife, or adverse changes in the suitability of the water for beneficial uses.

In 2001, DWR established new interim criteria to review the water quality of the turn-ins using a two-tiered approach. Tier 1 programs have a "no adverse impact" criteria and are tied to historical water quality levels in California. Programs meeting Tier 1 criteria are generally approved by DWR without referral to the State Water Contractor facilitation group. Tier 2 programs involve water quality levels that exceed the historical water quality in the California Aqueduct and have the potential to cause adverse impacts to the State Water Contractors. Tier 2 programs are referred to the State Water Contractor facilitation group for review and recommendations to DWR. DWR considers all factors before making a decision on the proposed water turn-in.

Turn-ins not only add versatility to SWP water operations, but can also improve SWP water quality for some constituents. Turn-ins can reduce total dissolved solids, conductivity, bromide, and organic carbon in the California Aqueduct. Slight increases in nitrate, sulfate, and arsenic often result. During 2005, there were no water turn-ins to the SWP.

Municipal Water Quality Investigations Program

The Sacramento-San Joaquin Delta provides drinking water for more than 24 million people in California. Because the Delta and its tributaries are located in a relatively unprotected watershed, water quality degradation is possible from many sources, including industrial and municipal

Table 4-1. 2005 Mean Water Quality at Selected State Water Project Locations

Constituent	Units[a]	Detection Limit	Thermalito Afterbay at Outlet	North Bay Aqueduct Barker Slough Pumping Plant	Delta-Mendota Canal Upstream of McCabe Rd	California Aqueduct					
						Banks Delta Pumping Plant	O'Neill Forebay Outlet (Check 13)	Kettleman City (Check 21)	Near Highway 119 (Check 29)	Tehachapi Afterbay (Check 41)	Devil Canyon Afterbay Near San Bernardino
Alkalinity	mg/L as $CaCO_3$	1	41	102	70	65	71	71	72	70	71
Antimony	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NR	NR
Arsenic	mg/L	0.001	<0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Beryllium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	mg/L	0.1	<0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1
Bromide	mg/L	0.01	<0.01	0.05	0.17	0.16	0.18	0.19	0.19	0.18	0.17
Calcium	mg/L	1	8	16	20	18	20	20	20	19	20
Chloride	mg/L	1	<1	24	58	53	61	64	63	59	57
Chromium	mg/L	0.001	<0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Copper	mg/L	0.001	<0.001	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.003
Fluoride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Hardness	mg/L as $CaCO_3$	1	35	98	97	86	96	96	97	93	94
Iron	mg/L	0.005	<0.005	0.048	0.010	0.021	0.021	0.010	0.010	0.012	0.007
Lead	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	mg/L	1	4	14	11	10	12	12	12	11	11
Manganese	mg/L	0.005	<0.005	0.068	<0.005	0.016	0.005	<0.005	<0.005	<0.005	0.010
Nitrite + Nitrate	mg/L as N	0.01	<0.01	0.24	NR	0.66	0.80	0.78	0.79	0.76	0.79
Organic Carbon, Dissolved	mg/L as C	0.1	NR	6.8	3.7	3.7	4.0	3.8	3.6	3.4	3.7
Organic Carbon, Total	mg/L as C	0.1	NR	7.6	3.9	3.9	4.1	3.7	3.8	3.7	3.9
Phosphate-Ortho	mg/L as P	0.01	<0.01	0.12	NR	0.07	0.09	0.09	0.15	0.08	0.09
Phosphorus-Total	mg/L	0.01	0.01	0.25	NR	0.12	0.12	0.12	0.12	0.12	0.11
Selenium	mg/L	0.001	<0.001	<0.001	0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001
Sodium	mg/L	1	3	30	46	40	44	46	46	42	42
Specific Conductance	µS/cm	1	87	323	423	364	418	423	423	402	403
Sulfate	mg/L	1	2	25	46	33	38	39	39	35	36
Total Dissolved Solids	mg/L	1	57	188	240	212	239	242	246	228	221
Turbidity	N.T.U.	1	3	56	19	13	8	7	9	10	3
Zinc	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Note: All reported constituents are the yearly mean of laboratory analytical values sampled monthly. Nondetectable values were not used in the calculation of the yearly mean.
[a]mg/L = milligrams per liter; µS/cm = microSiemens per centimeter; N.T.U. = nephelometric turbidity unit; NR = No data recorded at this location.

wastewater discharges, storm water runoff from cities, agricultural discharges, recreational activities, abandoned mines, and illegal dumping. The Municipal Water Quality Investigations Program (MWQI) 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.

Participants in the program include the municipal water contractors of the SWP and Contra Costa Water District. Program advisors include representatives of participating agencies, including the U.S. Environmental Protection Agency (EPA), DHS, and California Urban Water Agencies.

Components of the MWQI Program include the following:

- Evaluation of the water quality impacts at drinking water intakes from the proposed Delta wetlands storage project;
- The study and fractionation of organic carbon molecules from Delta carbon sources;
- Evaluation of proposed CALFED restoration actions in terms of drinking water impacts;
- Working with the State and regional water quality control boards to develop drinking water policy as part of the basin plan;
- Evaluation of water quality effects from the Jones Tract Flood;
- Development of models to predict water quality based on sources and loads; and
- Investigation of new and increasing sources of pollution, including urban sources.

Collectively, these and other MWQI studies and activities are designed and conducted to address major water quality and water supply issues. Each study or activity serves to discover, test, and assess possible solutions to problems in the Delta and other watersheds of the SWP. Overall, the results of these studies and activities are intended to assure that future demands for safe, potable water supplies can be met.

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 continues to evolve.

The program's initial focus was to compile a comprehensive database on the quality of drinking water in the Delta. Since then, it has investigated ways of managing Delta lands and waters to minimize adverse impacts on drinking water quality. It has also identified sources of contaminants in the Delta and assessed their significance for drinking water quality and water treatment. Drinking water standards are more difficult to meet using Delta source waters because natural organic materials from agricultural drainage and watershed runoff potentially contain contaminants of concern.

The current MWQI Program has progressed from monitoring, problem identification, and assessment stages to the development of studies on source water improvement and management. The MWQI Program also continues to provide CALFED with expertise for assessing potential effects

from proposed Delta projects. The *2001 California State Water Project Watershed Sanitary Survey Report*, the third in a series for the SWP, provides this information in the latest five-year update from the original sanitary survey required by DHS in 1990. A searchable CD-ROM version of the report is available on the MWQI website at http://www.wq.water.ca.gov/mwqi/pubs.cfm. The next update of the sanitary survey will be available in mid-2007.

DWR, the Bureau of Land Management, Ducks Unlimited, DFG, and the Nature Conservancy partnered on a CALFED grant to develop a wildlife friendly farm management project on the Delta's Staten Island. The MWQI Program is responsible for the project's water quality monitoring component. Monitoring water quality on Staten Island provides a unique opportunity to examine the effects of agriculture management practices on water quality, the quantity of carbon exported off the island, and the effects of water management practices on agricultural lands under different soil regimes found in the Delta. Access to the island's pump facilities provides an unprecedented opportunity to measure carbon loads directly. Results from these experiments will provide direct measurement of carbon quantities discharged off a Delta island.

Starting at the end of October 2004, when the fields were first flooded, samples were collected weekly from two fields. Sampling continued until the fields were drained of water in early 2005. Carbon loading studies began in fall 2005 and will continue through fall 2007. Following the completion of this second portion of monitoring, a report on the results will be prepared for Ducks Unlimited. It is anticipated that the carbon loading studies may be submitted to a journal for publication and wider dissemination in the scientific community.

The MWQI Program received a CALFED grant in 2000 to purchase and install three automated carbon analyzers in the Delta. In summer 2001, the first analyzer began operating at Banks Pumping Plant. The analyzer automatically samples the exported water, determines the total organic carbon and dissolved organic carbon levels, and sends the data to Sacramento, where it is posted on the California Data Exchange Center (CDEC) website.

The second analyzer started operation in winter 2002, and is located at the Hood water quality monitoring station on the Sacramento River. The third analyzer started operation in March 2005 at the new San Joaquin River monitoring station near Vernalis (McCune Station). Construction of this station was partially funded by a 2002 CALFED grant.

Automated carbon analyzers can sample every hour compared to the historical grab-sample program that only sampled weekly or monthly. The more frequent data, coupled with flow measurements, will allow for the calculation of mass transport and loading of carbon from the two main Delta tributaries. These data, currently posted to DWR's CDEC website, will also be used by modelers to refine the Delta Simulation Model 2 (DSM2) for calculation of organic carbon transport through the Delta.

The MWQI Program, in partnership with the Dry Creek Conservancy, also received Proposition 13 and CALFED grant funding

of $595,000 in 2004 to assess water quality and loads of parameters of concern from an urban drain in metropolitan Sacramento in a watershed that includes several areas of rapid development. The Natomas East Main Drainage Canal (NEMDC), also known as Steelhead Creek, has been part of the routine MWQI monitoring program since 1997. The grant project expanded the scope of monitoring to include installation of a real-time stage recorder to determine daily flows, installation of an autosampler station to more accurately determine loads, and preparation of a GIS of land use and impervious cover in the NEMDC watershed to serve as a basis for change detection analysis in subsequent years.

From 2003 to 2004, MWQI staff conducted a collaborative special study on trihalomethane (THM) reactivity of organic carbon for carbon-rich soils of the Delta. Organic carbon of soil origin in Delta waterways results in elevated organic carbon levels in Delta waterways. Elevated organic carbon in drinking water source waters represents a major public health concern because organic carbon reacts with chlorine, a disinfectant currently used by most water utilities with entitlement to Delta source waters, and forms harmful disinfection by-products (DBPs), such as THMs. To date, the nature and properties of reactive organic carbon has been poorly characterized. MWQI staff collected representative soils from various Delta islands from the soil surface down to 10 feet. Organic carbon from the soils was extracted with different extractants and fractionated into relatively homogeneous isolates of distinct properties for determination of THM reactivity. MWQI staff has summarized findings of this study into three peer-reviewed manuscripts, one of which appeared in *Water Research* in May 2005. The other two manuscripts are being revised for publication in *The Journal of Environmental Quality*.

A two-year MWQI data summary report, entitled *The Municipal Water Quality Investigations Program Summary and Findings from Data Collected from October 2001 through September 2003*, was distributed in August 2005. This report summarizes and interprets MWQI grab-sampling data collected from 11 MWQI stations. The report is available in hard copy and searchable CD-ROM, as well as online on the MWQI website at http://www.wq.water.ca.gov/mwq/.

Bryte Chemical Laboratory

Bryte Chemical Laboratory was established in 1951 and certified in 1990 by the DHS Environmental Laboratory Accreditation Program to perform drinking water and wastewater analyses. The laboratory continues to perform the vast majority of chemical and other related analyses required to support DWR's water quality programs. Every year, thousands of water samples are routinely analyzed for minerals, nutrients, metals, pesticides, herbicides, volatile organic compounds, and many other chemical constituents.

In 2005, Bryte Chemical Laboratory upgraded the lab's capability to detect and analyze trace metals in water and wastewater with the purchase of a Perkin Elmer, ICP/MS, DRCe instrument system. The ICP/MS, DRCe is equipped with new collision cell technology that removes matrix and polyatomic interferences normally encountered when analyzing trace metals in water and wastewater. Removal of these interferences allows for lower detection limits, in the parts

per trillion ranges, for trace metals such as arsenic, selenium, vanadium, and chromium. The new ICP/MS, DRCe instrumentation became fully operational and was certified in October 2005 to perform trace metal analyses using EPA Method 200.8. The new instrumentation also performs EPA Method 1643, an ultra-low level trace metal analysis requirement for Northern District water quality programs. These specialized analyses were formerly performed through Bryte Lab's contract laboratories. The program savings in analytical costs alone for Northern District will be well over $150,000 per year.

Bryte Chemical Laboratory has continued to manage a variety of analytical contracts with other State agencies and several outside laboratories in accordance with the master contract policy approved in fiscal year 1994–1995. The laboratory works in conjunction with the Quality Assurance and Quality Control Section to replace these contracts as they expire each fiscal year. In 2005, no significant contracts expired or were required to be replaced.

Security and protection of the SWP has continued to be a primary goal for DWR since September 11, 2001. To help protect the SWP from biochemical and chemical agents, Bryte Laboratory has continued in 2005 to be an active member in a group of laboratories called the California Association of Mutual Aid Laboratories Network (CAMAL Net) headed by DHS. The laboratory network's main objective is to voluntarily assist DHS in the analysis of chemical agents in water quality samples should a natural disaster or terrorist event occur in California. The assistance to DHS is only required should the analytical capacity of DHS be exceeded or to confirm the presence or absence of chemical agents in water quality samples provided by DHS. Should DHS activate CAMAL Net, members will be notified, and water quality samples that are determined to be safe to handle by DHS will be shipped to the participating CAMAL Net laboratories. In 2005, Bryte Laboratory was classified as a Level II participating laboratory in the CAMAL Net organization.

Suisun Marsh Activities

Suisun Marsh consists of approximately 59,000 acres of tidal and managed brackish water wetlands and 30,000 acres of bays and sloughs. It is the largest contiguous brackish 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. In addition, the marsh is the resting and feeding ground for thousands of waterfowl migrating on the Pacific Flyway.

Since the early 1970s, the California Legislature, SWRCB, Reclamation, DFG, Suisun Resource Conservation District (SRCD), DWR, and other agencies have focused on preserving the Suisun Marsh as a unique environmental resource. As part of its responsibility for protecting Suisun Marsh, SWRCB included water quality standards for the marsh in Term 10 of D-1641, which applies to SWP and CVP operations. D-1641 was adopted by SWRCB on December 29, 1999. In 1987, DWR, Reclamation, DFG, and SRCD signed the Suisun Marsh Preservation Agreement (SMPA) (see sidebar). SMPA contains provisions for actions to control channel water and soil salinity to mitigate impacts of the SWP, CVP, and other upstream

Suisun Marsh Preservation Agreement

In 1986, federal legislation (Public Law 99-546) authorized funds to Reclamation to protect Suisun Marsh. On March 2, 1987, DWR, Reclamation, DFG, and SRCD signed the Suisun Marsh Preservation Agreement (SMPA). The objective of SMPA is to assure that Reclamation and DWR mitigate for any adverse effects of the CVP and SWP 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 primarily 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, which began operating in November 1988.

On August 4, 1995, the Suisun Marsh Coordinators, representing the four agencies party to SMPA, began discussions directed at updating the agreement, pursuant to SMPA Articles 4 and 17. Representatives from Reclamation, DWR, DFG, and SRCD established an ad hoc Negotiating Team, Technical Group, Drafting Committee, and Environmental Documentation Team. Beginning September 1995, the SMPA Negotiating 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 SMPA will reflect future hydrologic and salinity conditions in the Suisun Marsh as prescribed by the SWRCB 1995 Water Quality Control Plan and will place more emphasis on improving water and land management practices and facilities on managed wetlands.

diverters on managed wetlands in Suisun Marsh.

Revised Suisun Marsh Preservation Agreement

In 2005, SMPA parties completed the Revised SMPA. This agreement includes only those actions that would not cause any taking of listed species, as identified by the regulatory agencies. The Revised SMPA includes the following actions: operation of the initial facilities and Suisun Marsh Salinity Control Gates; channel water salinity standards consistent with D-1641; water manager program; portable pumps program; Individual Ownership Adaptive Management Habitat Plan updates; drought response fund; and replacing turnouts on the Roaring River Distribution System. The SMPA parties also completed the Revised Suisun Marsh Monitoring and Suisun Marsh Mitigation agreements.

Operation and Maintenance

Initial Facilities Maintenance

Several facilities constructed by DWR and Reclamation operate in the Suisun Marsh. They are identified in the *Plan of Protection for the Suisun Marsh* and the 1987 SMPA. These facilities provide lower salinity water to managed wetlands. The initial facilities, including the Roaring River Distribution System, Morrow Island Distribution System (MIDS), and Goodyear Slough Outfall, were constructed in 1979 and 1980. The Suisun Marsh Salinity Control Gates were installed and became operational in 1988. During 2005, DWR's Delta Field Division performed routine maintenance on all initial facilities in the Suisun Marsh, including MIDS.

Morrow Island Distribution System (MIDS) Fish Screen and Alternatives

In 1997, the USFWS issued a biological opinion requiring Reclamation and DWR to install a fish screen at the intake of MIDS on Goodyear Slough. Reclamation requested USFWS reinitiate consultation in a November 2002 memorandum and committed to reinitiate Section 7 consultation on the MIDS maintenance project after completion of the Habitat Management, Preservation, and Restoration Plan for the Suisun Marsh programmatic Environmental Impact Statement/Report. In March 2003, the USFWS reinitiated consultation and amended Term and Condition number 3, granting Reclamation and DWR until May 9, 2006, to begin construction of a screen or implement an approved mitigation or conservation alternative.

Because the cost of adding a fish screen to the MIDS intake structure is likely to be high, and the effectiveness of such screening to conserve Suisun Marsh fish populations is unknown, DWR and Reclamation proposed to investigate fish entrainment at the MIDS intake with regard to fishery populations in Goodyear Slough and to evaluate whether screening the diversion would provide substantial benefits to local populations of listed fish species. The objectives of this sampling project are: (1) to determine what species of fish and what life stages are entrained by the MIDS intake facility; and (2) to quantitatively assess whether certain species of fish are more likely to be entrained than others.

Sampling for the first year of the study began in September 2004 and continued through May 2005. The second year of sampling began in October 2005 and will continue through May 2006. A final report is anticipated by early 2007.

Suisun Marsh Salinity Control Gates

The Suisun Marsh Salinity Control Gates are operated from October 1 of the current year through May 31 of the following year, as needed, to meet salinity standards; otherwise, they are placed in an open position to minimize fish concerns related to predation and impedance. In the past, the gates' operation and installation or removal of the flashboards has varied due to salinity conditions, fisheries agencies' requests for sensitive species concerns, or special studies and repairs.

Gates Status for 2004–2005

During the 2004–2005 control season (October 2004 through May 2005), the fall 2004 fish passage study continued with modification to the boat lock in its fourth and final year as an alternative for passage, instead of flashboards as in previous years. The gates were operated for both the fish

study and for salinity control during this control season.

From September 28 through October 11, 2004, Phase I was carried out with gates open, flashboards out, and boat lock gates closed. From October 12 through October 25, Phase II was in action with gates operated to full-bore, boat lock open, and flashboards installed. In Phase III, from October 26 through November 9, the gates were operated full-bore with flashboards installed and boat lock closed for fish passage study. Thereafter, the gates were operated to control salinity with the boat lock gates held open until February 9, 2005, when salinity levels were not a concern any longer and the gates were held open. However, the flashboards remained installed until May 20, when conditions were so fresh that flashboard removal was ordered. During the 2004–2005 control season, many gate problems occurred. Gate #1 was in a closed position due to cable failure at the start of the fish study in late September, and the Gate #3 cable failed on January 14, 2005, leaving only Gate #2 functional thereafter to control salinity. Repair on both gates was not completed until late summer of 2005. Despite these issues, compliance was met at all stations.

Monitoring

Water Quality and Compliance

Suisun Marsh channel water salinity standards were specified in SWRCB WR 98-09 for seven compliance stations. Four of these—National Steel (S-64), Beldon's Landing (S-49), Volanti (S 42), and Sunrise (S-21)—are located within the marsh. A fifth, Collinsville (C-2), is located in the western Delta (Figure 4-2). Two remaining sites located in the western marsh, Morrow Island (S-35) and Ibis (S-97), are specified as baseline monitoring stations because of the SWP's minimal control on salinity levels at these locations. In 2000, SWRCB amended D-1641 to remove the compliance monitoring requirement for these stations. However, both remain active as water salinity monitoring stations. To be consistent with D-1641, the June 2005 Revised SMPA Monitoring Agreement had the same specification for S97 and S35 to become monitoring stations, instead of compliance stations. Details of the agreement can be viewed online at: http://iep/suisun/smpa/RevisedSMPAMonitoringAgreement_20JUN2005.pdf.

Salinity levels remained well within compliance during the period from October 1, 2004, through May 31, 2005. (See DWR's annual report to SWRCB, *Suisun Marsh Monitoring Program Data Summary: 2005 Water Year*, for details.)

Suisun Marsh Expenditure History

Suisun Marsh expenditures and reimbursements administered by DWR for calendar years 1968 through 2005 are summarized in Table 4-2. From 1968 through December 31, 2005, DWR disbursed more than $113.9 million SWP funds for planning, design, environmental documentation, construction, maintenance, monitoring, mitigation, and permit compliance in support of implementing the plan of protection for Suisun Marsh through the SMPA and for meeting standards set by SWRCB. Reclamation has reimbursed DWR about $44.8 million (40 percent), and the State's General Fund has reimbursed about $9.4 million (8 percent). These figures do not include up-front payments made by Reclamation for staff and other direct costs, as well as about $5.7 million in

Reclamation interest payments during 1988 and 1989.

Annual figures are reported in Table 4-2 for DWR's up-front payments, Reclamation reimbursements, General Fund reimbursements, and DWR's cumulative expenditure balance.

Figure 4-2. Compliance and Monitoring Stations in the Suisun Bay and Marsh

Table 4-2. Suisun Marsh Expenditures and Reimbursements Administered by DWR (in dollars)

Year [1]	Reach 305 Costs [2]	General Fund Payment [3]	Adjustment for General Fund Payment[a] [4]	USBR Invoice Payment [5]	Interest Payment Credited Back to Contractors [6]	Net SWP Costs [2] through [6] [7]	Recreation Costs [8]	SWP Contractors' Costs [7] minus [8] [9]
1968	10,571					10,571	1,480	9,091
1969	34,181					34,181	4,785	29,396
1970	23,343					23,343	3,268	20,075
1971	1,042					1,042	146	896
1972	47					47	7	40
1973	0					0	0	0
1974	0					0	0	0
1975	2,709					2,709	379	2,330
1976	32,960					32,960	4,614	28,346
1977	37,475					37,475	5,246	32,229
1978	350,831					350,831	49,117	301,714
1979	3,660,099					3,660,099	512,568	3,147,531
1980	5,005,759					5,005,759	701,227	4,304,532
1981	2,964,974					2,964,974	415,096	2,549,878
1982	2,955,705			(2,500,000)		455,705	413,801	41,904
1983	2,754,094					2,754,094	385,574	2,368,520
1984	2,418,344					2,418,344	338,567	2,079,777
1985	2,332,773					2,332,773	326,587	2,006,186
1986	6,495,322					6,495,322	909,344	5,585,978
1987	13,600,701					13,600,701	1,904,099	11,696,602
1988	7,456,364			(17,368,725)[b]	(2,039,752)	(11,952,113)	1,043,891	(12,996,004)
1989	2,341,960	(9,478,000)	6,634,600	(1,219,691)[b]	(283,857)	(2,004,988)	327,874	(2,332,862)
1990	3,030,010			(695,450)		2,334,560	424,202	1,910,358
1991	6,223,042			(2,925,429)		3,297,613	871,226	2,426,387
1992	2,737,259			(1,174,655)		1,562,604	383,218	1,179,386
1993	2,979,255			(238,130)		2,741,125	417,100	2,324,025
1994	3,192,213			(1,962,549)		1,229,664	446,914	782,750
1995	2,721,978			(647,138)		2,074,840	381,079	1,693,761
1996	3,391,678			(1,482,396)		1,909,282	474,838	1,434,444
1997	3,634,267			(1,520,219)		2,114,048	508,800	1,605,248
1998	5,342,834			(1,107,501)		4,235,333	748,000	3,487,333
1999	8,867,742			(2,696,200)		6,171,542	1,241,486	4,930,056
2000	2,857,534			(3,300,053)		(442,519)	400,055	(842,574)
2001	2,623,227			(444,009)		2,179,218	367,252	1,811,966
2002	3,752,265			(791,319)		2,960,946	525,317	2,435,629
2003	3,258,583			(2,389,979)		868,604	456,202	412,402
2004	2,874,629			(952,940)		1,921,689	402,448	1,519,241
2005	3,940,876			(1,409,296)		2,531,580	551,723	1,979,857
Total	113,906,645	(9,478,000)	6,634,600	(44,825,679)	(2,323,609)	63,913,957	15,947,529	47,966,428

[a]Under State Assembly Bill 1442 the General Fund paid 20% of the Suisun Marsh costs through 6/88 which amounts to $9,478,000. This payment includes $2,843,400, which represents 6% of the costs through 6/88 paid by the General Fund. This amount has reduced the costs billed to the SWP contractors. The remaining $6,634,600 received from the General Fund represents our Recreation project purpose share of 14%.
[b]Excludes interest payments made by USBR.

Chapter 5
Local Assistance

Reverse osmosis is a way to increase water supply.

Significant Events in 2005

By the end of 2005, 69 water districts, three environmental interest groups, and more than 55 other interested groups had signed the Agricultural Water Management Memorandum of Understanding (MOU) as members of the Agricultural Water Management Council (Ag Council).

DWR received 148 urban water management plans.

Southern Illinois University completed a report under contract with DWR. The report evaluated methods of removing selenium from agricultural subsurface drainage water using absorbent materials

Information in this chapter was contributed by the Division of Planning and Local Assistance and the Office of Water Use Efficiency.

The Department of Water Resources (DWR) manages water use efficiency, the Davis-Grunsky Act, agricultural drainage, environmental impact document review, and Water Conservation Bond Law programs, and participates in several other programs that assist local agencies and benefit State Water Project (SWP) contractors.

Davis-Grunsky Act Program

The Davis-Grunsky Act, authorized in 1960 as part of the Burns-Porter Act, provides construction loans for local domestic water projects and agricultural water conservation projects. It also provides grants for recreation and fish and wildlife enhancement. Loans and grants may be given to rehabilitate dams and reservoirs.

DWR'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 Act loans. The recreation grant contracts are being amended to reflect actual facilities constructed and the modification of DWR's fee oversight function.

Water Use Efficiency

The Water Conservation Office was reorganized and a new Office of Water Use Efficiency (OWUE) was created in 2001. OWUE activities include providing technical assistance to local agencies; managing water use efficiency financial assistance programs; managing the California Irrigation Management Information System; reviewing, tracking, and reporting on urban and agricultural water management plans; and managing drainage and water recycling/desalination projects.

California Irrigation Management Information System (CIMIS)

CIMIS is a network of automated weather stations that collects weather data and transmits it to a central repository in Sacramento each day. After performing quality control and calculations, the data are made available to the public for such diverse purposes as irrigation scheduling, resource planning, research, and modeling.

DWR's CIMIS network remained at 130 stations in 2005. Approximately 70 percent of the stations on the network belong to local cooperators. The demand for CIMIS data has been increasing steadily since its establishment in 1982. For example, the number of registered data users has grown from 661 in 1989, to more than 7,000 in 2005.

Due to the growing demand for data and information, the CIMIS database and the Web application were upgraded to increase performance and enhance content in 2004. Further enhancements will take place in 2007.

More than 196,000 reports were generated from the database with more than

20,000,000 visits to the website (http://wwwcimis.water.ca.gov), for information in 2005. Users can register online, access archived data, download data files, and peruse content about the CIMIS program and other helpful meta data and information. A separate but concurrently-operating database and a Web application were developed to keep pace with the rapidly evolving program. A Web administrative module was also created to make the website more dynamic.

Other ongoing enhancements for CIMIS include the non-ideal site weather station network study and the incorporation of the GOES model producing statewide daily evapotranspiration (ET_o) maps.

In addition, staff is updating CIMIS brochures, evapotranspiration calculation, other methods of data acquisition and dissemination, data quality refinements, and technical assistance.

Water Recycling and Desalination Branch

The Water Recycling and Desalination Branch of OWUE was established in 2001. The branch's goal is to improve water use efficiency and to promote increased use of nonconventional water sources through planning, technical, and financial assistance. As part of a balanced water portfolio, nonconventional water will help meet existing and future water supply and environmental needs, by increasing safe and beneficial use of recycled water. It will also encourage economically and environmentally acceptable use of desalinated brackish and sea waters.

In 2005, the Water Recycling and Desalination Branch activities included the following:

- awarding proposition 50 funds of $25 million for the first desalination grant cycle to fund 24 different projects, including: three constructions, six pilots and demonstrations, seven research and development projects, and eight feasibility studies.
- developing and managing grant agreements for the 24 different projects, which were awarded through the initial 2005 cycle of the desalination grant program.
- the Housing And Community Development, at the request of DWR and DHS, initiated recommendation 3.3.1 of the recycled water task force, which states that the "Housing And Community Development Department should submit a code change to remove the requirement for the skull and crossbones symbol in Sections 601.2.2 and 601.2.3 of the California Plumbing Code." The Housing And Community Development Department submitted this on September 24, 2004, and updated it on November 15, 2004 for the 2004 California Plumbing Code, and updated it again on March 1, 2005.
- disseminated information regarding AB 334 (Goldberg, Chapter 172, Statutes of 2003), which gives communities additional flexibility to regulate water softeners as a source-control measure. For example, on July 8, 2005, conducted a joint workshop between DWR and the Santa Clara Valley Water District entitled "A Salinity Management Strategy-Water Softener Replacement Rebate Program."
- presented a water fact brochure entitled *Water Recycling* (DWR water

facts no. 23) and Water Recycling 2030 at several workshops statewide.
- served as a member on the Executive Management Team of the Southern California Water Recycling Projects Initiative sponsored by Reclamation.
- participated on the Project Advisory Committee to design an activity booklet for upper elementary students, entitled *Give Water A Second Chance… Recycle It*, which provides information on the process and the need for recycled water and its similarity to the water cycle.

Agricultural Water Management Plans

By the end of 2005, 69 water districts, three environmental interest groups, and more than 55 other interested groups had signed the Agricultural Water Management Memorandum of Understanding (MOU) as members of the Agricultural Water Management Council (Ag Council). The agricultural signatories represent more than 4.75 million acres of irrigated agricultural land statewide.

In 2005, the council endorsed an additional three agricultural water management plans that had been submitted by agricultural water suppliers to the Ag Council. Subsequently, these plans have become the basis for the districts' water conservation efforts. The districts with endorsed water management plans are expected to prepare and submit a biannual progress report to the Ag Council from the date their plan was endorsed. DWR staff provides technical review and evaluation of these plans. DWR also reviewed four biannual progress reports for the Ag Council.

DWR staff provided technical assistance to water districts to prepare water management plans and helped implement efficient water management practices, as well as administrative and programmatic assistance to both the Council and water districts.

Three-Way Cooperative Agreement–Ag Council

In 2001, DWR set up a three-way cooperative agreement between itself, Reclamation, and CALFED, and has been managing the State-funded portion of the agreement. This agreement provides funding to the Ag Council for a period of three years to help implement the MOU. The management and implementation of tasks in the agreement are closely coordinated with Reclamation Mid-Pacific Region. This activity, with a $1.2 million budget, is shared equally between DWR and Reclamation. By the end of 2005, all DWR funds were spent for relevant tasks identified in the three-way cooperative agreement. The work continued with federal share of funds and tasks.

The Ag Council is making progress on tasks identified in this cooperative agreement. The Ag Council has hired additional staff to help with technical issues as well as with database development, and the enhancement of web-based applications related to the water management planning process. It is also making significant progress in implementing all tasks identified in the agreement. The council provided technical and financial assistance to the signatories of the MOU to develop water management plans, since development of a model water management plan and refinement of net benefit analysis are important tasks of the agreement.

Urban Water Management Plans

DWR received 148 urban water management plans in 2005. The 2005 Urban Water Management Plan Guidebook and DWR 2005 UWMP Review Sheets were published. In addition, a series of ten workshops on how to prepare an UWMP were conducted around the State.

Three-Way Cooperative Agreement—Urban Council

DWR set up a three-way cooperative agreement between itself, Reclamation, and CALFED and has been managing the State-funded portion of the agreement. This agreement provides funding to the California Urban Water Conservation Council, for a period of three years to provide technical assistance to urban water suppliers to implement the first four years of the CALFED incentive-driven Water Use Efficiency Program. The management and implementation of tasks in the agreement are closely coordinated with Reclamation's Mid-Pacific Region. This is a $1.5 million, three-year activity, of which $600,000 is funded by Reclamation.

The Urban Council continues to make progress on tasks identified in this cooperative agreement, including timely achievement of tasks outlined in the CALFED Water Use Efficiency Program Budget Change Proposal. In 2005, five of the tasks in the three-way cooperative agreement between DWR, Reclamation, and CALFED were performed for DWR.

Draft Senate Bill 610 and Senate Bill 221 Guidebook

Senate Bill 610 became effective on January 1, 2002. It expands the requirement for public water systems to prepare water supply assessments for large-scale projects, requires that additional information be included in assessments, and makes related changes. The draft Senate Bill 610/Senate Bill 221 Guidebook was published to provide assistance to water suppliers, cities, and counties in integrating water and land use planning.

Outreach

OWUE outreach extends to presentations, workshops, trade shows, expositions, and exhibits.

In 2005, OWUE staff performed outreach that included the following:

- organized staff meeting with University California Rice Workgroup;
- presented water and resource conservation exhibit at Genentech in Vacaville;
- met with several University of California Cooperative Extension;
- attended the Sacramento Valley Exposition Trade Show;
- participated in various California Urban Water Conservation Council committees, Steering Committee and Plenary Meetings, League of California Cities meeting, the Association of California Water Agencies Spring and Fall conferences; and
- participated in California Energy Commission workshops on water-energy efficiency; and
- conducted nine Urban Water Management Plan (UWMP) workshops around the state.

Water Conservation News continues to be the primary water conservation outreach newsletter. The quarterly publication

reaches more than 8,000 California subscribers.

Agricultural Drainage Program

The Agricultural Drainage Program mission is to seek in-valley solutions to the surface and subsurface agricultural drainage water problems in the State and, in particular, the San Joaquin Valley, and improve water quality in the San Joaquin River by promoting measures to reduce salinity and discharge of harmful elements.

Even though the San Joaquin Valley Drainage Implementation Program (SJVDIP) has been idle since 2003, DWR continues to implement many of its recommendations through its Agricultural Drainage Program. DWR works in partnership with California universities, CALFED, Reclamation, resource conservation districts, watershed groups, water and drainage districts and many other local, State and federal entities. DWR works with these organizations to develop, educate, and promote the use of Integrated On-Farm and Regional Drainage Management Systems (IFDM) in the San Joaquin Valley;

- provide technical assistance and collaborate with water and drainage districts, and local entities to reduce and control surface and subsurface agricultural drainage water;
- maintain research and demonstration projects to develop drainage reuse systems, including the development of cost-effective salt tolerant crops (including energy crops), drainage treatment, disposal technologies, and salt separation and utilization;
- monitor the quality and distribution of shallow groundwater water levels in drainage-impaired areas of the San Joaquin Valley;
- promote agricultural water and energy use efficiency programs in drainage-impaired lands to reduce the volume of surface and subsurface drainage water and expand regional water supplies;
- maintain programs to help improve water quality on the San Joaquin River; and
- provide grants for control of agricultural drainage water and the reduction of its toxic elements, using Propositions 13, 50, 204, and DWR project fund monies.

The Agricultural Drainage Program was divided into two major activities: management of Proposition 204 (Drainage Subaccount) and the San Joaquin Valley Agricultural Drainage Program.

Proposition 204 (Drainage Management Subaccount)

In 1996, Proposition 204, The Safe, Clean, Reliable Water Supply Act, authorized the transfer of approximately $6.1 million from the State Water Resources Control Board (SWRCB) to the California Department of Food and Agriculture (CDFA). In 1997, CDFA, SWRCB, and DWR signed an MOU that established a process for utilizing the funds designated for agricultural drainage activities. In 1999, CDFA and DWR signed an interagency agreement to transfer the funds to DWR for developing and implementing programs consistent with Water Code Section 78645, as outlined in the MOU. The funds are distributed throughout the duration of the six-year Proposition 204 program. The goal of the program is to develop methods of using

and concentrating salts and reducing contaminants in the California's subsurface agricultural drainage water.

Each year, DWR solicits proposals from public entities seeking funding for research activities. A technical review committee reviews and screens the proposals. DWR then submits the proposal packages to an oversight committee, comprised of representatives from DWR, CDFA, and SWRCB for final approval. Ultimately, DWR is responsible for preparing and managing contracts for the approved proposals.

In 2005, the Proposition 204 program funded the following projects:

- characterization of forages growing in saline drainage water reuse systems: influence of management practices on forage productivity and nutritional value, California State University Fresno (CSUF);
- wetland drainage management technology development in support of San Joaquin River real-time water quality management, University of California, at Merced;
- concentration of mineral salts from membrane desalting of agricultural drainage in the San Joaquin Valley, University of California, at Los Angeles;
- predicting water use, crop growth, and quality of Bermuda grass under saline irrigation, University of California, at Davis; and
- the production of biofuel and selenium-enriched feed from canola irrigated with agricultural drainage water on the west side of California's San Joaquin Valley, U.S. Department of Agriculture, and CSUF, partial funding.

San Joaquin Valley Agricultural Drainage Program

This program consists of several activities, including drainage monitoring and evaluation, drainage treatment, integrated on-farm drainage management, drainage reduction and reuse, environmental services activities and the San Joaquin River Water Quality Improvement Program.

Drainage Monitoring and Evaluation

Drainage monitoring and evaluation involves collecting and evaluating information on the quality, quantity, and movement of drainage water. The following activities were conducted:

- monitoring and collecting shallow groundwater levels, flows, and water quality data for drainage water from Westside San Joaquin Valley tile drain sumps;
- publishing an annual drainage report in December 2005, The San Joaquin Valley Drainage Monitoring Program 2002 Report;
- preparing shallow groundwater and irrigation methods maps of drainage-impaired areas, using drainage monitoring data in conjunction with land use and irrigation methods data;
- providing assistance for the collecting of groundwater, soil, and operational data for the integrated on-farm drainage management project, at Red Rock Ranch in western Fresno County; and
- maintaining a website that includes information on drainage programs and activities, salinity and shallow groundwater maps, Proposition 204 grants, and links related to other agricultural drainage programs: (www.dpla.water.ca.gov/sjd/waterquality/index.html).

Drainage Treatment

Development of Membrane Treatment of Agricultural Drainage Water. DWR continues to fund research under a contract with University of California, Los Angeles, (Department of Chemical Engineering) to explore the use of membrane treatment desalting agricultural drainage water. Under this multi-year contract, UCLA is performing fundamental work to: (1) evaluate the relationships between anti-scalant dose and membrane mineral salt scale prevention; (2) evaluate the potential for enhanced crystallization of membrane concentrate by crystal seeding and pH control; and (3) reducing membrane fouling due to scale formation. A final progress report entitled "Recovery Enhancement and Brine Minimization" for tasks nine through 18 in the contract were submitted in September 2005.

Grasslands Area Farmers: In-Valley Drainage Reuse Plan. DWR continues to participate in a multi-agency cooperative effort with Grasslands Area farmers to comply with the objectives of the California Regional Water Quality Control Board's (CRWQCB) Water Quality Control Plan (Basin Plan) for the Sacramento River Basin and the San Joaquin River (SJR). DWR developed an economic model to evaluate all possible options, costs for subsurface drainage water treatment, and active land management alternatives.

Agricultural Subsurface

Drainage: Salt Recovery, Purification, and Utilization. DWR continues to support investigations of processes for concentrating and purifying drainage salts for marketing purposes. These activities are performed on two fronts. The first, with University of California Davis, involves recovering sodium sulfate from farm drainage water and using it in the reactive dye process of cotton. It also involves separating and purifying agricultural salts and brines to produce value-added salt products, while mitigating environmental impacts of salt accumulation. The university developed a pilot salt separation unit for field testing. The second area of investigation involves pilot scale research at Red Rock Ranch using a solar still to demonstrate various ways of using solar energy to recover potable water from drainage water.

Selenium Removal from Agricultural Subsurface Water. Southern Illinois University completed a report under contract with DWR. The report evaluated methods of removing selenium from agricultural subsurface drainage water using absorbent materials. One of the most prominent results indicated that nano-sized zerovalent Ni-Fe and Fe particles can rapidly reduce and immobilize selenate from the drainage water, despite the presence of sulfates. Nearly 100 percent removal was obtained in five hours under most conditions. The report is available at the DWR/DPLA San Joaquin District website.

DWR continues to participate in cooperative research with the University of California Salinity/Drainage Program (http://www.waterresources.ucr.edu). Activities include a multi-year study for mitigating selenium ecotoxic risk in agricultural drainage systems.

Integrated On-Farm Drainage Management. The Integrated Drainage Management Section, created in 2001, provides technical assistance on Integrated On-Farm Drainage Management (IFDM) systems through advisory, technical, and

oversight committees. IFDM is a drainage management system based on sequential reuse of saline drainage water to irrigate crops of progressively increasing salt tolerance. Each sequential reuse reduces the volume of drainage water and increases the salt concentration. Drainage water too saline for irrigation can be applied to a variety of discharge points. The IFDM program funds, administers, and monitors contracts with State, federal, university, and local entities to learn more about IFDM systems. Findings indicate that IFDM systems have less significant environmental impacts than other options and reduce the volume of drainage water. Staff working on activities investigate the use of accelerated evaporation systems (solar evaporators) for zero discharge systems and evaluate the feasibility of using salt-gradient solar pond systems as a way of removing salt and generating heat or electricity for agricultural use.

IFDM Program staff also:

- coordinate IFDM research activities and data collection with other agencies;
- assist growers and local agencies in planning and developing IFDM system;
- worked with the Westside Resources Conservation District and SWRCB to improve the design, management, and operation of IFDM systems;
- investigate new techniques for zero discharge, including enhanced evaporation techniques and extraction of salts from reused drainage water at a solar still facility at Red Rock Ranch;
- participate in joint investigations with Reclamation to determine the feasibility of nanofiltration as a pretreatment for desalination of subsurface drainage water, using reverse osmosis technology and the feasibility of using a patent biotreatment process to remove selenium from agricultural subsurface drainage water;
- provide assistance to research projects for the development of crops, including research being performed at Red Rock Ranch by CSUF to assess the suitability of various salt-tolerant forages and halophytes for the sequential reuse of drainage water, forage quality, productivity, and water use; and
- cooperate with U.S. Department of Agriculture in an investigation to determine crop production using an active drainage management system that employs insitu use of shallow groundwater and subsurface drainage water.

DWR continues to work cooperatively with Reclamation to investigate the long-term interaction of irrigation, rainfall, and local and regional groundwater with the movement of salts and selenium in the soils of Red Rock Ranch. The project will use a three-dimensional numerical model for fully-integrated subsurface and surface flow and solute transport. DWR continues to monitor a series of observation wells at Red Rock Ranch and surrounding areas collect water quality samples, and measure groundwater levels to provide data for the model. Other activities include the following:

- assisting growers, water and drainage districts, and regional entities, by providing information on salt-tolerant grasses and IFDM design specifications;
- assisting SWRCB to develop policies for the management of drainage water, salt, and selenium;
- constructing a pilot solar evaporator to collect data on evaporation rates of subsurface drainage water, using

nozzles, screens, and other devices and materials. The purpose is to develop design specifications for evaporating and recovering salts from drainage water in the solar evaporator, to determine optimum weather parameters to operate it, and to study methods to minimize and control potential salt drift. The results and conclusions from the pilot model will be used to scale a solar evaporator for the 640-acre IFDM system at Red Rock Ranch and future IFDM systems in the Central Valley.

IFDM Manual. DWR contributed to the publication of a *Technical Advisor's Manual, a Guide for Designing IFDM systems*. Published in 2005, it serves as a companion to the landowner's manual, *A Landowner's Manual Managing Agricultural Irrigation Drainage Water: A Guide for Developing Integrated On-Farm Drainage Management Systems.* DWR held two seminars in Five Points and Bakersfield to educate growers and professionals. The seminars included field trips to farms that have implemented IFDM systems. Participants toured Red Rock Ranch in Fresno County and AndrewsAg in Kern County. AndrewsAg is unique in that the owner closed evaporation basins and converted the system to include a solar evaporator.

DWR staff continues to assist Reclamation on performing project tasks for the HydroGeoSphere project at Red Rock Ranch. To facilitate development of the conceptual model, DWR staff collected topographic survey data of Red Rock Ranch and surrounding area to determine elevation points and to locate fixed works, such as sumps, pumps, and wells. The model results from this case study will be useful for the formulation of optimal design and management guidelines for IFDM systems.

Researchers at California State University Fresno (CSU, Fresno) and Center for Irrigation Technology studied the particle emissions produced by the operation of a pilot module solar evaporator at Red Rock Ranch. Information is needed to determine if the salt emissions from the solar evaporator are significant or of a threshold subject to air quality regulations. The principal air quality concerns arising from particle emissions produced by the operation of the solar evaporator are those related to particulate matter (PM) standards, PM10 or PM2.5. Field sampling involved collecting data during nine sampling periods of various weather and water quality conditions to determine the salt deposition patterns. From this data, researchers measured salt deposition and used characteristic equations to model the deposition pattern. The study concluded that the particles small enough to be regulated are a very small fraction of the total emissions. Among the findings, to prevent significant salt deposition from occurring on salt sensitive crops, 200 meters appears to be the maximum amount of buffer zone needed downwind of the solar evaporator (or 100 meters if crop is salt tolerant). Information from this study offers a framework to solar evaporator designers and operators for adhering to air quality and emission standards.

DWR staff used GIS technology to map more than 100 locations of salt-tolerant tree plantations and plant materials and link to information on growth, salinity tolerances, and survival. These plantings began in the mid 1980s,

with the origination of the agriforestry concept, while new plantings continue as components of the IFDM system. Salt-tolerant trees and plant materials are used to lower shallow groundwater, intercept regional groundwater, and in agricultural subsurface drainage reuse. The GIS database will be used to disseminate geographic locations of these plantings and will serve as the central information system for anyone seeking site-specific information on performance of salt-tolerant plantings in the San Joaquin Valley.

DWR is continuing research on *Prosopis alba* in cooperation the Forestry Research Station, at Catholic University of Santiago del Estero (CUSE) in Argentina. Prosopis alba is a highly salt-tolerant tree species and holds promise of ameliorating subsurface drainage problems in the soils of the western San Joaquin Valley. There is good potential for investment of the agriforestry component in an IFDM system. The lumber is coveted by the furniture industry and has a value of $1,000 ton-1 of sawn lumber. Research and development is needed to perfect the process for the reliability of massive production of elite Prosopis alba for large-scale reforestation. The CUSE provided approximately 2,000 scarified Prosopis alba seeds to initiate plantation trials in the San Joaquin Valley. After inspection and quarantine in a USDA facility, the seeds were taken to a plant nursery to produce plants needed for trials at five locations within drainage-impaired lands.

Feasibility Analysis of Solar Evaporation and Recovery of Dissolved Salts from Agricultural Drainage Water in the San Joaquin Valley:

1) The evaluation of the data from the pilot test at Red Rock Ranch demonstrates that accumulated salt can be leached from soil and that future buildup of salt in the soil can be prevented.
2) Proposed control of the brine chemistry during evaporation includes remedial removal of scale, equipment replacement, or to prevent scale deposition. Separation of boric acid, magnesium oxide, sodium chloride, and potassium nitrate may be useful in dealing with scaling and provide for the potential of salable quality products.
3) The brine recovered from agricultural drainage water is well-suited for use in a salt gradient solar pond for electric power generation, refrigeration, or any other use for low-grade heat.
4) Onsite storage of mixed agricultural salts will be necessary until all the detailed design data is developed for a large-scale plant design. Researches and engineers initiated the process of developing the fundamental solubility data for specific salt mixtures present in drainage waters in the San Joaquin Valley.

DWR staff continues to collect operational data from IFDM projects at Red Rock Ranch and AndrewsAg for analysis of performance. DWR staff provided technical information and assistance on an agriforestry planting program in Kern County on farms with salinity and shallow groundwater problems.

Drainage Reduction and Reuse Program. DWR's Drainage Reduction and Reuse Program, managed by Office of Water Use Efficiency (OWUE), offers technical assistance, information, and other resources to growers and irrigators for

applying irrigation water efficiently to reduce both excessive deep percolation and drainage water from the immediate on-farm source, while maintaining salt balance in the root zone.

The program objective is being achieved through on-farm demonstration projects, studies, research, training, and workshops on scheduling irrigation, management, advances in irrigation technologies, evaluating irrigation systems, reusing drainage water, and managing salinity.

Several on-farm demonstrations and other studies for salinity and irrigation management are ongoing. They help improve and advance irrigation management, fine-tune the performance of irrigation hardware, and increase grower and irrigator knowledge.

Staff is presently involved in managing in-progress contracts and preparing technical reports on the on-farm demonstrations projects and studies. Staff is also preparing semi-technical summary reports of findings and results of completed projects.

Management of Contracts

In-progress contracts for research and demonstration projects and contracts for workshops are designed to disseminate state-of-the-art irrigation technologies and management practices to reduce and manage drainage water. The following contracts were developed from a Request for Proposals process, which was targeted for State water contract areas. The contracts include the following:

- *Integrated Management of Irrigation and Shallow Groundwater*—field demonstration at Westlake Farms of irrigation management techniques to optimize crop use of shallow groundwater.
- *Using Forage Grasses and Livestock to Manage Subsurface Drainage Water in the San Joaquin Valley*—field demonstration at Westlake Farms to evaluate the feasibility of growing Bermuda, Elephant, and other salt-tolerant grasses with subsurface drainage water as livestock forage.
- *Center for Irrigation Technology Irrigation/ Drainage Management Workshops*—training and educational workshops on recent advances in irrigation and drainage management at CSU, Fresno.
- *Irrigation Management Education and Training Workshop Through the Use of Demonstration Farms*—workshops that provide practical methods of irrigation management at on- farm demonstration sites, effectiveness of various practices will be determined through the use of a mobile irrigation lab.
- *Educational and Training Workshops for all Prevalent Irrigation Systems in California*—workshops designed for staff from irrigation/water districts, farming communities, consultants, and the public.
- *Irrigation System Evaluation short courses conducted by Cal Poly.* These two workshops, each two-half day, are designed to provide hands–on training and education for irrigators, and those that are involved in irrigation decision process.

Environmental Services

The Environmental Services Section investigates and reports on short- and long-term use and operation of evaporation ponds, IFDM, and other systems used for disposal and/or management of drainage water. During 2005, the section continued to assist CVRWQCB in assessing the biological implications of proposed and implemented modifications to evaporation basins. Environmental investigations include the following:

- Red Rock Ranch research projects that involve required biological monitoring activities in accordance with Waste Discharge Requirements;
- IFDM wildlife monitoring and development of BMP. DWR continues to monitor avian wildlife at the existing Red Rock Ranch IFDM terminal reuse areas, which include a solar evaporator, halophyte plots, and salt tolerant grasses. DWR biological staff, in cooperation with the United States Fish and Wildlife Service (USFWS) completed a study to determine adequate long-term wildlife impact and avoidance assessment and BMP for current and future IFDM projects. This information is crucial because IFDM systems that are not managed can result in selenium-induced avian teratogenesis (developmental defects). IFDM appears to be a viable drainage management tool, when managed in a way that avoids or minimizes wildlife impacts posed by other drainage water management techniques, such as evaporation ponds assisting in evaporation pond studies. DWR continues to provide assistance with invertebrate collection and species identification at San Joaquin Valley evaporation ponds. This information is being used by several UC studies that are evaluating food chain transfer of selenium and insitu volatilization.
- Assisting landowners in locating information for preparing California Environmental Quality Act (CEQA) documentation necessary for obtaining permits and authorization for implementing, monitoring, and operating drainage reduction, treatment, and disposal projects;
- Mapping agriforestry and herbaceous plots in drainage-impacted areas, using Global Positioning System technology. Information was then imported into a Geographic Information System format linked to a database created to track key information associated with development of the vegetation plots;
- Responding to information requests from landowners wanting a better understanding of the CEQA and National Environmental Policy Act (NEPA) public review process, so they would be able to more meaningfully comment on upcoming State and federal drainage related projects; and
- Reviewing quarterly and annual environmental monitoring reports related to evaporation pond operation and investigation.

San Joaquin River Water Quality Improvement Program

DWR Agricultural Drainage Program, in collaboration with other agencies, continues to make significant efforts to improve water quality in the San Joaquin River to benefit the State and DWR water contractors. These efforts are aimed to control salinity and selenium discharges upstream of Vernalis. They include promoting on-farm and regional

water management activities to reduce subsurface drainage, real-time water quality management to maximize the assimilative capacity of the San Joaquin River, and efforts to time wetlands discharges when there is assimilative capacity in the San Joaquin River.

On-Farm and Regional Drainage Management Activities

Drainage management activities involving source control and drainage reuse have proven to be effective in reducing salt loads in the San Joaquin River.

This is demonstrated by the efforts of the Grasslands Area farmers on the Grasslands Bypass Project (GBP). Since the implementation of the GBP, drainage discharges have decreased from 58,000 af to about 30,000 af, and salt loads have been reduced from 210,000 tons to 117,000 tons. The reductions are possible because DWR funded through Proposition 13, an important component of the GBP, the San Joaquin River Improvement Project. It consists of about 4,000 acres of lands dedicated for reuse of subsurface drainage water, generated by Grasslands Area Farmers to grow salt-tolerant crops. DWR continues to provide technical assistance to continue improving and developing this important part of the GBP project.

DWR continues to collaborate with many entities in efforts proposed to control, reduce, or eliminate drainage water discharges into the San Joaquin River, such as the West Side Regional Plan, Reclamation's San Luis Drainage Feature Reevaluation to provide drainage service to the San Luis Unit of the Central Valley Project and by promoting Integrated On-Farm Drainage Management Program that DWR and collaborating agencies maintain.

DWR collaborated with the San Joaquin River Water Quality Management Group to develop a paper with ideas, information, and concepts to assist policy makers in deciding what actions will be implemented, strategies to meet water quality objectives in the San Joaquin River, specifically salinity at Vernalis and dissolved oxygen in the Stockton Deep Water Channel.

Real-Time Water Quality Monitoring Program

The Real-time Water Quality Monitoring Program (RTWQMP) provides information on existing water quality conditions and forecasts flow and water quality conditions to San Joaquin River water managers and stakeholders. The information provided is important for improving the management and coordination of reservoir releases, agricultural and wetland drainage flows, and eastside tributary releases to achieve water quality objectives at the San Joaquin River compliance points. In the early stages, the RTWQMP was funded by Reclamation and then by CALFED. Currently, DWR has assumed responsibility for funding most of the RTWQMP for the San Joaquin River.

One important activity of this program is forecasting flow and salinity conditions on the San Joaquin River, so decision makers can take advantage of assimilative capacity of the river when available. For this purpose, DWR collects data from the network of stations and inputs it into the San Joaquin River Input-Output Day (SJRIODAY) model. The model forecasts salinity and flow conditions on the River

near Vernalis, and other upstream stations on a biweekly basis. DWR publishes the information on its website on a weekly basis. Figure 5-1 shows an example of the information displayed.

Efforts to Improve Wetlands Discharges

As per Central Valley Regional Water Quality Control Board (CVRWQCB) data, wetlands discharges contributed about nine percent of the total salt load in the San Joaquin River at Vernalis. The contribution is likely to be higher today, as additional water supply and land are acquired for wetlands wildlife refuges, through Central Valley Project Improvement Act (CVPIA), Environmental Water Account (EWA), and other programs. The timing of wetland releases with assimilative capacity of the San Joaquin River could result in significant water quality improvements. However, little has been done in this regard, due to concerns over disrupting existing, proven wetland management practices.

Research is undergoing to determine if improved wetlands management practices can be achieved for the benefit of both wildlife and San Joaquin River water quality. Current research has focused on real-time water quality monitoring and adaptive management. Research goals are to coordinate the timing of wetland discharges, when assimilative capacity is available. In addition to funds provided

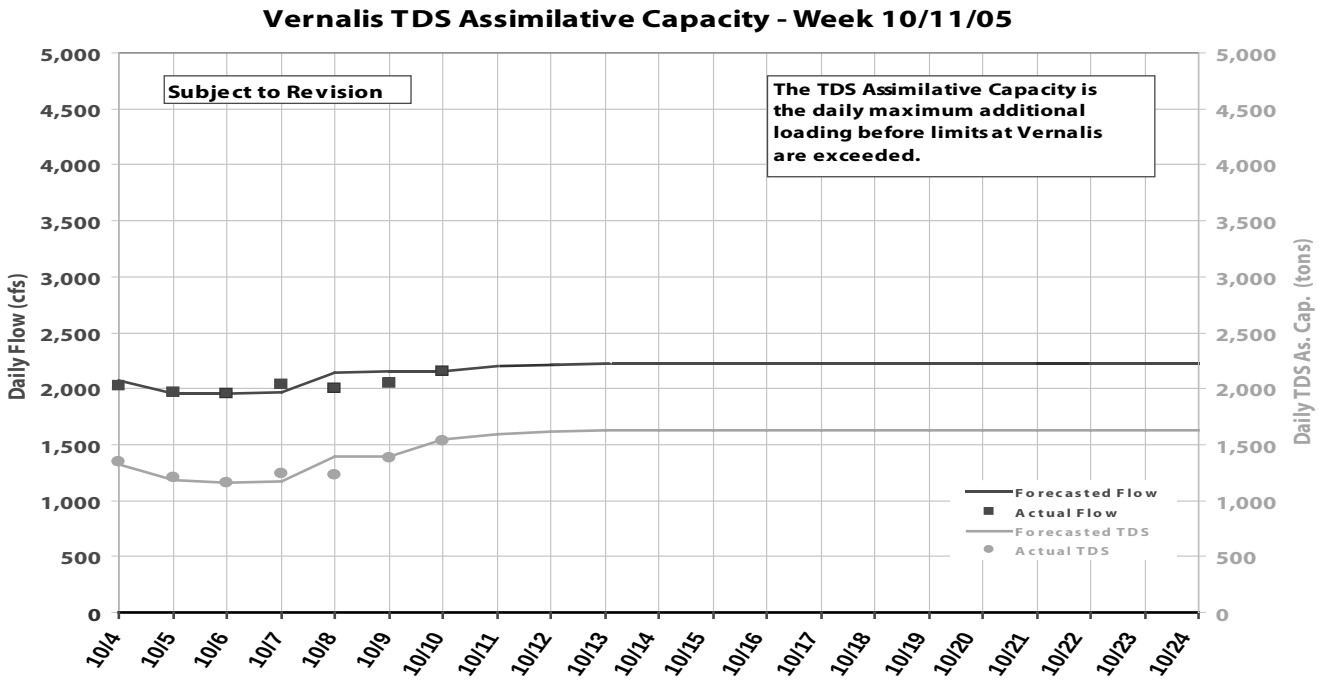


Figure 5-1. San Joaquin River Input-Output Day Modeling Forecasts Example

by CALFED for the study of the *Effect of Delayed Wetland Drawdown on Moist Soil Plants*, staff from DWR is collaborating with the Department of Fish and Game (DFG) and private wetlands, in a study to assess other aspects of delayed wetland drawdown. The studies on delayed wetland drawdown will be complemented by a study funded by DWR, under Proposition 204 (drainage subaccount). Real-time Water Quality Monitoring Program staff manages the contract.

The ADP prepared information for DWR to submit, as part of its testimony for the hearing on the cease and desist order issued by the SWRCB in 2005 against DWR. The referred testimony describes Decision 1641 actions that DWR has been implementing to improve salinity conditions in the San Joaquin River upstream Vernalis.

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 DWR's four districts, as well as DPLA, Division of Operations and Maintenance, and the Division of Engineering. In addition, other divisions and offices are notified of activities and are asked to comment when their expertise is required.

Some environmental impact documents handled by the State Clearinghouse concern proposed activities that would affect the SWP. State Clearinghouse documents are regularly reviewed to identify any public safety or liability issues arising from the proposed activities.

From January through December, about 4,714 documents were screened by the Environmental Review Section; 1,056 were referred for detailed review. Of these referrals, 794 were made when the projects were at the Notice of Preparation or Early Consultation stage and 262 assignments were for negative declarations, environmental impact reports, and NEPA environmental assessments. O&M received 136 formal referrals and two for information. The State Water Project Analysis Office (SWPAO) received 11 formal referrals and 20 for information. In addition to the information referrals made to O&M and SWPAO, 749 other information referrals were made to other DWR staff.

Comments submitted to the lead agencies addressed a number of issues, including runoff from proposed developments, safety and water supply, encroachment on physical facilities, and water quality. During 2005, several requests for additional data were made to lead agencies when the environmental document did not contain enough information. Additional departmental actions, involving such items as encroachment permit submittals and informal comments took place, but are not tracked by the Environmental Review Section. During 2005,12 documents involving tribal gaming issues were assigned to the districts for review. These projects are of special concern to the State and require a specific review process. While none of these projects affected the SWP in 2005, they have a potential for causing future concerns.

During 2005, the Environmental Review Section tracked documents related to development along the California

Aqueduct, levee encroachment, water transfers and other water supply issues, wastewater treatment, quarry development, and electrical transmission lines near SWP facilities.

While the additional emphasis on preliminary screening started in 2004 was continued in 2005, several factors contributed to a higher number of referrals in 2005. These factors included an increase in overall documents circulated through the State Clearinghouse and a continued increase in development near State Water Project facilities, including the East, West and Coastal Branches of the California Aqueduct.

Water Conservation Bond Laws

To assist local agencies in obtaining financing for their water management programs, California voters approved six bond laws between 1984 and 2002, authorizing DWR to provide low-interest loans and grants 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.
- The Water Conservation Bond Law of 1988 (Proposition 82) authorized $60 million for water conservation, groundwater recharge, and new local water supply improvements.
- The Safe, Clean, Reliable Water Supply Act of 1996 (Proposition 204) authorized $55 million for water conservation, groundwater recharge, and local water supply projects.
- The Safe Drinking Water, Clean Water, Watershed Protection and Flood Protection Act of 2000 (Proposition 13) authorized $535 million for agricultural and urban water conservation, groundwater recharge, infrastructure rehabilitation, groundwater storage, and interim reliable water supply projects and studies.
- The Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Proposition 50, Chapter 8) authorized $500 million for the Integrated Regional Water Management Grant Program to be implemented jointly by DWR and SWRCB.

Under these programs, grants are available and construction loans are also available with repayment of up to 20 years, at reduced interest rates for most programs.

Propositions 25, 44, and 204

Funding is fully obligated.

Proposition 82

Water supply loan funding is still available.

Proposition 13

Agricultural water conservation loan funding is still available.

All loan and grant funds for the Groundwater Recharge, Infrastructure Rehabilitation, Urban Water Conservation, Groundwater Storage and Interim Reliable Water Supply programs has been obligated.

Proposition 50

DWR, in collaboration with the SWRCB, conducted the first funding cycle for the Integrated Regional Water Management program. Proposal Solicitation Packages were prepared and issued for Planning Grants and the Implementation Grants. Program staff conducted regional workshops to assist potential applicants in completion of the applications. Planning grant applications were reviewed and evaluated and preliminary funding recommendations were developed and released for public comment. Step 1 Implementation grant proposals were reviewed. Also funded from Proposition 50 funds, the Local Groundwater Assistance program reviewed and evaluated applications, held a Technical Advisory Panel and public meeting, developed recommendations, and awarded $6.4 million in grants to 30 local public agencies for groundwater data collection, modeling, monitoring and management studies; monitoring programs and installation of equipment; basin management; and development of information systems.

Among other approval criteria for most of the Water Conservation Bond Law programs, applicants must demonstrate that project benefits equal or exceed project costs. Typical projects fall under the following categories:

Agricultural Water Conservation

- improvements to, or replacement of, distribution and storage systems;
- lining and piping ditches;
- lining or covering reservoirs; and
- capital outlay features of agricultural water conservation programs

Local Water Supply

- new conveyance and/or storage facilities groundwater extraction facilities, well-field development
- groundwater extraction facilities, well-field development
- desalination (ocean or brackish groundwater recovery)

Integrated Regional Water Management

- projects to protect communities from drought, protect and improve water quality, and improve water security by reducing dependence on imported water. Table 5-1 summarizes the number of projects and funds committed for each of the six bond laws through December 2005.

Table 5-1. Water Conservation Bond Laws - Projects and Funding

Bond Law	Type of Project	Number of Projects [a]	Funding [a] (millions of dollars)
Clean Water Bond Law of 1984	Water Conservation	7	9.74
Water Conservation and Water Quality Bond Law of 1986	Water Conservation	24	41.60
	Groundwater Recharge	10	28.04
	Subtotal	*34*	*69.64*
Water Conservation Bond Law of 1988	Water Conservation	7	17.44
	Groundwater Recharge	8	24.30
	Local Water Supply	4	9.00
	Subtotal	*19*	*50.74*
Safe, Clean, Reliable Water Supply Act of 1996	Water Conservation	2	7.00
	Groundwater Recharge	5	22.10
	Local Water Supply	23	23.48
	Subtotal	*30*	*52.58*
Safe Drinking Water, Clean Water, Watershed Protection and Flood Protection Act of 2000	Agricultural Water Conservation	13	1.18
	Urban Water Conservation	54	28.00
	Groundwater Recharge	24	28.30
	Infrastructure Rehabilitation	42	56.40
	Groundwater Storage	41	180.00
	Interim Reliable Water Supply	13	169.31
	Subtotal	*187*	*463.19*
Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002	Local Groundwater Assistance	84	18.40
	Integrated Regional Water Management	1	6.89
	Subtotal	*85*	*25.29*
	All Water Conservation	107	104.96
	All Groundwater Recharge	47	102.74
	All Local Water Supply	27	32.48
	All Infrastructure Rehabilitation	42	56.40
	All Groundwater Storage	41	180.00
	All Interim Reliable Water Supply	13	169.31
	All Local Groundwater Assistance	84	18.40
	All Integrated Regional Water Management	1	6.89
	Total of All Projects	**362**	**671.18**

[a] Construction and feasibility study loan and grant commitments as of December 31, 2005

Chapter 6
Legislation and Litigation

The California State Capitol, located in Sacramento, California.

Significant Events in 2005

AB 1200 requires DWR to prepare a report evaluating the impacts on Sacramento-San Joaquin Delta water supplies of various possible future events, including levee subsidence, earthquakes, floods, and climate change no later than January 1, 2008.

On April 29, 2005, 14 of the 29 State Water Contractors brought suit against DWR. These contractors claimed the method used by DWR to allocate costs and revenue of its Hyatt and Thermalito Power Plants (Hyatt-Thermalito) at Lake Oroville violated the terms of long-term water supply contracts. (Alameda County Flood Control & Water Conservation District, Zone 7 et al. v. State of California Department of Water Resources (Sacramento County Superior Court, Case No. 05ASO1775).) In December 2005, entities representing 13 other contractors intervened in the lawsuit in opposition to the claims of the plaintiffs and in support of DWR's method of allocating costs and revenue. If the water contractors who filed the lawsuit are ultimately successful, this could result in contractors requiring the most pumping for delivery of their State Water Project water to pay more to DWR, while those contractors requiring less pumping would pay less.

Information for this chapter was provided by the Assistant Director, Legislative Affairs Office, and the Office of the Chief Counsel.

The Department of Water Resources (DWR) monitors State and federal legislation that affects the management of the State Water Project (SWP). Legislative bill tracking involves reviewing legislation at its introduction, evaluating amendments in State Assembly and Senate committee hearings, and monitoring its enactment into law. The DWR Assistant Director for Legislation monitors proposed legislation. The Office of the Chief Counsel tracks State and federal litigation that impacts management of the SWP. The DWR Chief Counsel also manages legal cases that involve SWP operations.

Legislation

State Legislation

AB 1200 (Laird) Sacramento-San Joaquin Delta (Chapter 573, Statutes of 2005).

AB 1200 requires DWR to prepare a report evaluating the impacts on Sacramento-San Joaquin Delta water supplies of various possible future events, including levee subsidence, earthquakes, floods, and climate change no later than January 1, 2008. The report also requires DWR, in cooperation with the Department of Fish and Game (DFG), to comparatively rate the options available to prevent disruption of Delta water supplies, improve Delta drinking water quality, reduce the salts in Delta water, maintain Delta water quality, preserve Delta lands, protect area of origin water rights, protect infrastructure located in the Delta, and restore salmon and other fisheries in the Delta.

AB 1328 (Wolk) Wild and Scenic Rivers: Cache Creek (Chapter 576, Statutes of 2005).

AB 1328 includes various sections of Cache Creek, which is located in Lake and Yolo counties, within the California Wild and Scenic Rivers system. This bill protects existing and future water rights for various public water agencies within the Cache Creek watershed; provides that the wild and scenic designation would not hinder efforts to remove invasive plant species or toxic substances from the river; and prohibits the State from petitioning for a federal wild and scenic designation of the river.

SB 264 (Machado) Delta Flood Protection Fund (Chapter 583, Statutes of 2005).

SB 264 extends the Delta Flood Protection Fund until July 1, 2008, to help implement the Delta Levee Maintenance Subventions Program.

SB 543 (Margett) State Water Project (Chapter 263, Statutes of 2005).

SB 543 requires individuals and entities to obtain a permit before construction, improvement, excavation, work, or other use is conducted within SWP right of way. This bill requires DWR to issue a general encroachment permit for routine operation and maintenance activities to public agencies that have a water delivery contract with DWR. The general encroachment permit would be issued for a period not to exceed 10 years. This bill provides that any person or entity responsible for an unauthorized encroachment would be guilty of a misdemeanor and liable for a $1,000 per day penalty.

Federal Legislation

The Energy Policy Act of 2005 was signed into law on August 8, 2005, by the president. One major element of the act includes the development of energy corridors. The U.S. Secretary of Energy was ordered to conduct a study of electric transmission congestion. This study must be completed within a year and be updated every three years after the original study's implementation.

The act designates the construction of National Interest Electric Transmission Corridors to meet the criteria of: (1) economic vitality; (2) economic growth; (3) energy independence; (4) interest of national energy policy; and (5) enhanced national defense and homeland security.

Another major element of the act was the creation of an Electric Reliability Organization by the Federal Energy Regulatory Commission (FERC). In addition, FERC is directed by the act to conduct investigations on transmission rate reform and demand response.

The act further requires FERC to establish, within one year, an incentive-based rate treatment for transmission. The purpose of this rate treatment is for consumers to receive the reduction of the cost of delivered power and the benefits of reliable transmission. These savings are due to the reduction of transmission congestion. The changes are anticipated to provide additional economic incentives for the construction of transmission. Higher transmission rates are anticipated to be partially offset by lower energy rates, which will be made available to the typical customer.

FERC is required by the act to prepare an annual report, by region, to assess electricity demand response resources. This report will include resources available from all consumer classes. FERC will determine the potential for demand response, as a resource for planning purposes, and to ensure that demand resources are provided equitable treatment.

Litigation

As of December 31, 2005, DWR was involved in, or closely monitored, a number of court cases and other actions related to the management of the SWP.

Sacramento-San Joaquin Delta

Delta Smelt

A coalition of environmental groups challenged the Biological Opinion issued by the U.S. Fish and Wildlife Service (USFWS). This opinion finds that SWP and Central Valley Project (CVP) operations will not jeopardize the continued existence of the delta smelt. (*Natural Resources Defense Council, et al. v. Gale A. Norton, et al.* (U.S. District Court for the Eastern District of California, 2005, Case No. 05 CV 01207 OWW (LJO)).) The plaintiffs claim the opinion fails to adequately consider or address the effects of the U.S. Bureau of Reclamation's (Reclamation's) delivery of water on delta smelt. This water delivery will be provided in soon-to-be renewed long-term water service contracts. The plaintiffs seek to have the U.S. Department of the Interior and USFWS withdraw the opinion and not take any action in reliance upon it. DWR filed a motion to intervene to protect its interests in the biological opinion, relevant to the operations of the SWP. The court granted this motion on December 12, 2005.

State Water Resources Control Board Hearing

In February 2005, DWR and Reclamation petitioned the State Water Resources Control Board (SWRCB). This petition called for a temporary change and delay of the effective date to implement the southern Delta agricultural objective in Decision 1641 (D-1641). This objective was scheduled to begin on April 1, 2005. A second petition was submitted to request a change of the implementation date to April 1, 2008. (This date matches the date when the South Delta permanent gates are scheduled for operation.) SWRCB denied the first petition. No action was taken on the second petition.

On May 3, 2005, SWRCB notified DWR and Reclamation of its intention to issue a cease and desist order. This order regarded a threatened violation of the southern Delta agricultural water quality objective of 0.7 electrical conductivity. This water quality objective was scheduled to be in effect annually, from April 1 through August 31, beginning in 2005. SWRCB D-1641 conditioned the operation of the SWP and CVP with implementation of this agricultural objective. DWR and Reclamation requested a hearing on the cease and desist order. In October and November 2005, DWR and Reclamation presented evidence and argued that the cease and desist order should not be issued.

On December 30, 2005, SWRCB issued a proposed draft cease and desist order. The draft order requires DWR and Reclamation to construct permanent gates in the southern Delta—or take alternative measures for achieving water quality objectives—by 2009. In addition, the draft order requires DWR and Reclamation to report to SWRCB if they violate or threaten to violate the water quality requirements and to report the reasons for the violation. SWRCB would then determine if enforcement actions are necessary. SWRCB set a hearing date to consider adoption of this proposed order in January 2006.

Decision 1641

The SWRCB implemented D-1641, which created certain long-term water quality objectives. These objectives were published in the May 1995 Water Quality Control Plan (1995 Plan) for the Sacramento-San Joaquin Bay-Delta Estuary. Eleven different lawsuits were filed and coordinated in this action, which challenged D-1641 on three grounds: (1) whether D-1641 complied with the California Environmental Quality Act (CEQA); (2) whether the changes in D-1641 injured certain Delta water users; and (3) whether D-1641 was consistent with area of origin laws. (Coordinated Special Proceedings, State Water Resources Control Board Cases, Court of Appeals, Third District, Case No. C044714 (Sacramento County Superior Court; Case No. JC 4118).) The Sacramento County Superior Court upheld D-1641. The Superior Court found that D-1641 improperly limited the place of use for Westlands Water District, and it improperly implemented the San Joaquin River flow objectives under the San Joaquin River Agreement. This matter is on appeal.

Delta Wetlands

A private initiative to develop two Delta islands into water storage facilities was challenged. (*Central Delta Water Agency, et al., v. State Water Resources Control Board, et al.* (2004) 124 Cal. App.4th 245.) This proposal stated that once the project was built, purchasers of the stored water

would be identified, and likely purchasers would be users within CVP or SWP service areas. The appellate court found that the SWRCB issued an invalid Delta wetlands water right permit. The court held that the State Constitution and Water Code require SWRCB to determine the actual intended beneficial use of the impounded water before issuing a permit. The court found it insufficient for SWRCB to issue a general statement of potential beneficial use with limiting conditions. On March 16, 2005, the California Supreme Court denied review of this case, and the decision of the Third District Court of Appeals is now law.

CALFED Litigation

The CALFED Record of Decision (ROD) issued on August 28, 2000, was challenged by environmental groups and agricultural interests in both State and federal courts. The ROD established program measures to help resolve conflicts over the use of water in the Delta. Initially, three complaints were filed in State courts: *Laub v. Davis, et al.* (California Farm Bureau Federation (Farm Bureau) and three individuals); *Regional Council of Rural Counties v. State, et al.* (RCRC and South and Central Delta); and *Municipal Water District of Orange County v. Resources Agency*. Subsequently, these cases were coordinated in the Sacramento County Superior Court. The parties to the third suit settled, based on an agreement that emphasizes the importance of the CALFED Science Program. This agreement also provides notice to the water district about the CALFED stakeholders' opportunity to participate in offering information about these issues.

The remaining parties claimed the CALFED programmatic Environmental Impact Statement/Environmental Impact Report (EIS/EIR) violates CEQA, National Environmental Policy Act (NEPA), and the federal Administrative Procedure Act. The Superior Court found in favor of the plaintiffs. The State agencies appealed, and oral argument was held on August 30, 2005. The two cases were consolidated on appeal, and the Appellate Court reversed the lower court (*In Re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings*, Court of Appeals, Third District, Consolidated Case Nos. C044267 and C044577).

The court rejected the vast majority of arguments by the Farm Bureau, Regional Council of Rural Counties, and the South and Central Delta water agencies. However, the court reversed the trial court's judgment in favor of the State CALFED agencies. The court found programmatic EIR/EIS was required to identify the sources of water for the CALFED program. Specifically, programmatic EIR/EIS should have considered whether reducing current exports would restrict projected growth and the subsequent need for that water. The court found that programmatic EIR/EIS should have provided more information on the entire CALFED program. The court emphasized that programmatic EIR/EIS should have provided more information on the Environmental Water Account (EWA) component of the CALFED program.

The California Supreme Court filed a Petition for Review on November 16, 2005. The issue of whether federal agencies violated NEPA is pending in federal district court.

Environmental Water Account

On April 16, 2004, the Farm Bureau challenged the adoption of a final EIS/EIR. The Farm Bureau filed a CEQA claim against DWR (*California Farm Bureau Federation v. Mike Chrisman, et al.* (Sacramento County Superior Court, Case No. 04CS00490)). The EIS/EIR covered the operation of the EWA through 2007—the end of the first stage of implementation of the CALFED Program. The Farm Bureau contends that the EIS/EIR does not adequately address "agricultural resources" when analyzing impacts, alternatives, mitigation, and other issues regarding EWA operations. The parties have reached a settlement in this matter and have filed a request for dismissal with prejudice.

Term 91

Two lawsuits were filed in 2004 that challenged SWRCB Decision 2001-22. This decision approved an application by El Dorado Irrigation District to divert water for urban purposes. (*El Dorado Irrigation District v. State Water Resources Control Board*); California Court of Appeal, Third District, Case No. C046211. See also (*El Dorado Irrigation District v. State Water Resources Control Board*); Sacramento County Superior Court, Case No. 01CS01319 and consolidated cases, filed June 18, 2002. El Dorado Irrigation District and El Dorado County Water Agency challenged the imposition of Term 91, which protects SWP stored water, as part of the decision. Another lawsuit was filed by an environmental group, the League to Save Sierra Lakes, which alleged CEQA violations. The court issued its final decision in December 2003, finding that Term 91 was improperly applied to the El Dorado Irrigation District. SWRCB appealed the decision, and the cases are pending on appeal.

Hydropower

Hyatt-Thermalito

On April 29, 2005, 14 of the 29 State Water Contractors brought suit against DWR. These contractors claimed the method used by DWR to allocate costs and revenue of its Hyatt and Thermalito Power Plants (Hyatt-Thermalito) at Lake Oroville violated the terms of long-term water supply contracts. (Alameda County Flood Control & Water Conservation District, Zone 7 et al. v. State of California Department of Water Resources (Sacramento County Superior Court, Case No. 05ASO1775).) In December 2005, entities representing 13 other contractors intervened in the lawsuit in opposition to the claims of the plaintiffs and in support of DWR's method of allocating costs and revenue. If the water contractors who filed the lawsuit are ultimately successful, this could result in contractors requiring the most pumping for delivery of their State Water Project water to pay more to DWR, while those contractors requiring less pumping would pay less.

Refunds on Power Sales

In 2000, FERC initiated an investigation in response to a complaint filed by San Diego Gas & Electric (SDG&E). This complaint claimed that the California Independent System Operator (CAISO) and California Power Exchange electric energy markets were producing unjust and unreasonable prices. As a result, FERC ordered public entities to provide refunds for the sales of ancillary services to the CAISO markets in 2000 and 2001. This order was challenged by large numbers of participants, including DWR and State Water Contractors. In September 2005, the 9th Circuit Court of Appeals ruled that FERC lacked jurisdiction under the Federal Power Act to order governmental agencies, such as DWR,

to provide refunds. (*Bonneville Power Administration, et al. v. Federal Energy Regulatory Commission et al.*, (9th.Cir. 2005) 422 F.3d 908.) Any party wishing to challenge this decision must request an "en banc" hearing before the full 9th Circuit Court by January 2007. DWR should have no refund obligation, unless the 9th Circuit Court order is reversed.

In December 2005, a group of California entities filed separate claims with the Victim Compensation and Government Claims Board. These claims were filed as a result of the 9th Circuit Court ruling. The organizations filing these suits included the Pacific Gas & Electric Company (PG&E), Southern California Edison (SCE), SDG&E, and the California Oversight Board. The suits are against a number of California government entities, including DWR. These claims seek partial refunds from the sellers of energy and related services in the years 2000 and 2001. The suits contained similar allegations regarding partial refunds as those made in the original complaint to FERC.

Other Cases

Several cases pending resolution may affect SWP operations and costs. The first case involves a FERC ruling that the cost of certain PG&E transmission facilities should be integrated into grid-wide charges to CAISO customers, including DWR. The department has appealed these charges on the basis that the facilities primarily benefit PG&E—not the grid as a whole—and the cost allocation mechanism should reflect this fact. (*California Department of Water Resources v. Federal Energy Regulatory Commission*, U.S. Court of Appeals for the Ninth Circuit (No. 04-76131).)

The *California Department of Water Resources v. Federal Energy Regulatory Commission* (U.S. Court of Appeals for the Ninth Circuit (No. 04-73577)) case involves a challenge to the manner in which the costs for the transfer of transmission facilities are allocated. FERC approved the transfer of transmission facilities at Anaheim and Riverside to CAISO. As part of this transfer, costs for the facilities were spread to the users of the grid, including DWR. The department is contesting the cost allocation mechanism in a current FERC proceeding. This appeal preserves the ability of DWR to contest costs in the administrative cost allocation proceeding.

The *California Department of Water Resources v. Federal Energy Regulatory Commission* (U.S. Court of Appeals for the Ninth Circuit (No. 05-74488)) case involves a challenge to the FERC decision concerning transmission access charge methodology. This charge is imposed on users of the CAISO grid to recover the embedded costs of the grid. DWR has appealed these charges, primarily on the basis that FERC failed to use time-of-use methodology.

The *California Department of Water Resources v. Federal Energy Regulatory Commission* (U.S. Court of Appeals for the District of Columbia, Case No. 04-7290) case involves a DWR challenge to a FERC order that gives CAISO the ability to dispatch (request to turn off or on) SWP generation and pumps based on economic criteria and without regard to water management needs.

DWR intervened in *Sacramento Municipal Utility District (SMUD) v. Federal Energy Regulatory Commission*, (D.C. Cir.) No. 04-1171, to support the SMUD claim

that SMUD has renewal rights to its extra-high voltage contract with PG&E. This high voltage contract terminated in 2005. DWR contended that its similar contract with PG&E provided renewal rights. The court ruled in favor of FERC, finding that SMUD did not have a right to an automatic renewal of the contract under federal energy law. This case is now final.

Colorado River

Two lawsuits related to the Colorado River have potential implications for California water supply. The first lawsuit is *Imperial Irrigation District v. All Interested Persons* and eight related cases (Judicial Council Coordination Proceeding No. 4353, Sacramento County Superior Court). This lawsuit is a series of nine claims, which have been coordinated into a single proceeding, before the Sacramento County Superior Court. These lawsuits challenge the Quantification Settlement Agreement (QSA) and associated actions taken to implement the QSA. The QSA is a collection of 38 agreements that resolve disputes among water users in Southern California, regarding their rights to California's shrinking share of Colorado River water. The QSA facilitates California's plan to reduce its use by settling disputes regarding priority and use. For example: (1) transferring of conserved agricultural water from the Imperial Irrigation District (IID) to San Diego County Water Agency (SDCWA) for urban uses; (2) establishing water budgets for the parties; and (3) providing for the mitigation of environmental impacts and the restoration of the Salton Sea. Proceedings in the superior court have been stayed, pending oral argument before the Third District Court of Appeal, on Imperial County's petition for writ of mandate.

Consejo de Desarrollo Economico de Mexicali, A.C. et al. v. Norton, et al. (U.S. District Court, District of Nevada, Las Vegas, Case No. CV-S-05-0870-KJD-PAL), is a challenge to Reclamation lining the All American Canal. The All American Canal lining is a water conservation project that is an integral part of the QSA. The State, through DWR, is contributing $220 million to the canal lining project. Mexican business leaders and California environmental groups filed a lawsuit that challenges the Secretary of the Interior and the Commissioner of the Bureau of Reclamation actions to authorize the All American Canal improvement project. This complaint seeks declaratory and injunctive relief. The plaintiffs assert a deprivation of water rights, including claims based on prior appropriation, estoppel, constitutional violations, Mexican federal law, and international and equitable concepts of apportionment and comity. The plaintiffs also challenge the action based on violations of NEPA, the Administrative Procedure Act, the Endangered Species Act, the Migratory Bird Treaty Act, and environmental mitigation obligations under the authorizing legislation (San Luis Rey Act (P.L. 100-675)) for the conservation project.

In November, the State of California filed a brief to: (1) request the court to grant a special appearance without submitting to the court's jurisdiction; and (2) move to dismiss the lawsuit, based on the fact that California is a necessary and indispensable party with 11th Amendment immunity from suit in federal court. This brief argues that California is an indispensable party because the plaintiffs are attempting to stake a claim to a portion of California's Colorado River apportionment. Opposition and response briefs were filed on the

California motion, and the parties are awaiting a ruling from the court.

Castaic Lake Water Agency

California Water Impact Network (CWIN) and the Friends of the Santa Clara River, both nonprofit environmental organizations, filed a Petition for Writ of Mandate against Castaic Lake Water Agency (Castaic Lake). This Petition for Writ of Mandate challenged Castaic Lake approval of a project to store up to 24,000 af of allocated 2002 Table A water, in the Semitropical Groundwater Storage Program, before the end of 2004. The plaintiffs alleged the approval of the project violated CEQA, the Urban Water Management Planning Act, and the Public Trust Doctrine. The CEQA process followed by DWR was upheld by the lower court. This matter is on appeal. The Friends of the Santa Clara River also filed a Reverse Validation Action in Sacramento County, which seeks to set aside the agreement. This case is stayed, pending the resolution of the CEQA case.

CWIN and the Planning and Conservation League (PCL) are also challenging the new EIR. This EIR is certified by Castaic Lake for the permanent transfer of 41,000 af of SWP Table A water to Castaic Lake, from Kern County Water Agency (Kern) member unit, Wheeler Ridge-Maricopa Water District. These lawsuits were filed on January 24 and 26, 2005. The original EIR, which was certified by Castaic Lake for this transaction, was successfully challenged in *Friends of the Santa Clara River v. Castaic Lake*. This EIR was challenged on the grounds that it tiered off the decertified Monterey Agreement EIR. In response to the Los Angeles Superior Court's Order on remand in that case, Castaic Lake decertified its original EIR on December 27, 2002, and issued a Notice of Preparation for a new EIR on January 22, 2003. The new EIR, which does not tier off any EIR for the Monterey Agreement, was certified on December 23, 2004. DWR entered into contract amendments with both Castaic Lake and Kern, which implemented this transfer in 1999. DWR has been basing its SWP allocations to Castaic Lake on the increased Table A amount reflecting the transfer.

DWR is primarily concerned with the CWIN and PCL arguments that: (1) DWR, and not Castaic Lake, should be the lead agency under CEQA for this transaction; and (2) the EIR should tier off of the not-yet-complete DWR Monterey Plus EIR. Other issues raised by CWIN and PCL are that the EIR is inadequate under CEQA for a number of reasons, including that it violates the Urban Water Management Planning Act and the Public Trust Doctrine, and that it represents a prejudicial abuse of discretion.

These two cases were consolidated in May. No further action has occurred.

Water Code Section 1810–1811

1810. Notwithstanding any other provision of law, neither the state, nor any regional or local public agency may deny a bona fide transferor of water the use of a water conveyance facility which has unused capacity, for the period of time for which that capacity is available, if fair compensation is paid for that use, subject to the following:

(a) Any person or public agency that has a long-term water service contract with or the right to receive water from the owner of the conveyance facility shall have the right to use any unused capacity prior to any bona fide transferor.

(b) The commingling of transferred water does not result in a diminution of the beneficial uses or quality of the water in the facility, except that the transferor may, at the transferor's own expense, provide for treatment to prevent the diminution, and the transferred water is of substantially the same quality as the water in the facility.

(c) Any person or public agency that has a water service contract with or the right to receive water from the owner of the conveyance facility who has an emergency need may utilize the unused capacity that was made available pursuant to this section for the duration of the emergency.

(d) This use of a water conveyance facility is to be made without injuring any legal user of water and without unreasonably affecting fish, wildlife, or other instream beneficial uses and without unreasonably affecting the overall economy or the environment of the county from which the water is being transferred.

1811. As used in this article, the following terms shall have the following meanings:

(a) "Bona fide transferor" means a person or public agency as defined in Section 20009 of the Government Code with a contract for sale of water which may be conditioned upon the acquisition of conveyance facility capacity to convey the water that is the subject of the contract.

(b) "Emergency" means a sudden occurrence such as a storm, flood, fire, or an unexpected equipment outage impairing the ability of a person or public agency to make water deliveries.

(c) "Fair compensation" means the reasonable charge incurred by the owner of the conveyance system, including capital, operation, maintenance, and replacement costs, increased costs from any necessitated purchase of supplemental power, and including reasonable credit for any offsetting benefits for the use of the conveyance system.

(d) "Replacement costs" means the reasonable portion of costs associated with material acquisition for the correction of unrepairable wear or other deterioration of conveyance facility parts which have an anticipated life which is less than the conveyance facility repayment period and which costs are attributable to the proposed use.

(e) "Unused capacity" means space that is available within the operational limits of the conveyance system and which the owner is not using during the period for which the transfer is proposed and which space is sufficient to convey the quantity of water proposed to be transferred.

Water Code Section 1812–1814

1812. The state, regional, or local public agency owning the water conveyance facility shall in a timely manner determine the following:

(a) The amount and availability of unused capacity.

(b) The terms and conditions, including operation and maintenance requirements and scheduling, quality requirements, term or use, priorities, and fair compensation.

1813. In making the determinations required by this article, the respective public agency shall act in a reasonable manner consistent with the requirements of law to facilitate the voluntary sale, lease, or exchange of water and shall support its determinations by written findings. In any judicial action challenging any determination made under this article the court shall consider all relevant evidence, and the court shall give due consideration to the purposes and policies of this article. In any such case the court shall sustain the determination of the public agency if it finds that the determination is supported by substantial evidence.

1814. This article shall apply to only 70 percent of the unused capacity.

Environmental Review Acts

The National Environmental Policy Act (NEPA) (Title 42 United States Code sections 4321-4370 [1970]) and the California Environmental Quality Act (CEQA) (California Public Resources Code sections 21000-21177 [1970]) require 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.

CEQA 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 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 Environmental Impact Statement, 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 responsible agencies and/or the public;
- prepare and distribute a draft EIS or EIR;
- respond to comments received on the draft;
- prepare the final EIS or EIR;

Environmental Review Acts, Continued

- make findings and adopt feasible alternatives or mitigation measures to avoid significant effects, if applicable;
- adopt a monitoring plan to ensure compliance with mitigation measures; and
- prepare a list of 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.

Chapter 7
Water Supply Development and Reliability

The Delta is the critical link between water supplies and water deliveries.

Significant Events in 2005

During 2005, the Department of Water Resources (DWR), the U.S. Bureau of Reclamation (Reclamation), Sacramento Valley upstream water users, and certain downstream water users continued work to implement the Sacramento Valley Water Management Agreement (SVWMA) settlement.

To assist local agencies assessing their overall water supplies, DWR provided current data on the SWP's ability to deliver water under 2005 conditions and for projected conditions through a report entitled *The State Water Project Delivery Reliability Report–2005*.

In 2005, DWR and Reclamation continued with the feasibility study and NEPA/CEQA process for the North of the Delta Off-Stream Storage Investigation.

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

The Department of Water Resources (DWR) is working to improve the reliability of State Water Project (SWP) supplies and the annual Table A water allocations delivered to SWP contractors. Staff is engaged in planning activities to develop additional water supplies and storage capacity.

Developing new water supply and storage projects that are economically, environmentally, and technically sound, while satisfying institutional requirements and political concerns, presents significant challenges. Many concerns center on the possible adverse effects that additional storage and delivery facilities may have locally and on the Sacramento-San Joaquin Delta. In the SWP conveyance system, the Delta is the critical link between water supplies in the Sacramento Valley and deliveries to the Central Valley and Southern California.

The CALFED Bay-Delta Program is a component of a process defined in the State-federal Framework Agreement, signed in June 1994, which calls for a cooperative and coordinated process to solve long-term water quality and ecosystem problems in the Bay-Delta Estuary. The signatories of the agreement, known collectively as CALFED, became responsible for developing long-term solutions for fish and wildlife, water supply reliability, flood control, and water quality problems in the estuary. On August 28, 2000, CALFED released its Record of Decision, formalizing State and federal agreement on the CALFED Bay-Delta Program plan to address major Delta water issues, including establishment of the Environmental Water Account (EWA).

As a CALFED agency, DWR is working with the federal government, local agencies, and public interest stakeholder groups to ensure water supply reliability now and in the future. To meet SWP contractors' needs for reliable, sufficient water supplies, DWR is engaged in planning, development, and local assistance to augment future SWP water supplies.

Supply Development and Reliability

Some of these activities that DWR is engaged in, include the following:

- implementing programs to transfer water, such as the Dry Year Water Purchase Program, EWA, and facilitating transfers between SWP long-term contractors and other agencies, including Central Valley Project (CVP) contractors;
- assisting in the development and implementation of local and regional conjunctive use programs in the Sacramento Valley;
- using SWP funds to assist in monitoring and developing local water supplies;
- managing the Feather River watershed above Lake Oroville to reduce sedimentation in the lake to preserve storage capacity; and
- investigating and evaluating storage projects (see CALFED Bay-Delta Program section below).

Water Conveyance Through the SWP

DWR encourages and arranges for temporary transfers of water using SWP

conveyance facilities for long-term SWP contractors and various agencies to help meet local, State, and environmental water supply needs. As a practical matter, SWP facilities are often needed to convey transfer water to the place of use of the transferee. State law requires DWR to make unused SWP capacity available for transfers upon payment of fair compensation, provided that: (1) no legal user of water would be injured; (2) there would be no unreasonable effect on fish, wildlife, or other instream beneficial uses; and (3) there would be no unreasonable effect on the overall economy or the environment of the county from which the water is being transferred. Water transfers can occur in three different ways:

1) water exchanges among the SWP long-term contractors or between contractors and non-SWP contracting entities;
2) water transfers among long-term SWP contractors; and
3) transfers of non–SWP water to the non-SWP and SWP agencies.

The transferability of water depends on the source of the water right being transferred. For example, provisions in the California Water Code authorize "temporary transfers" (Sections 1725-1732), "transfers by water suppliers" (Sections 1745-1745.11), "irrigation districts" (Section 22228), and California Water Districts (Section 34525). Before allowing the use of SWP conveyance facilities by other agencies, DWR makes determinations regarding the use of surplus conveyance capacity (Section 1810). (For information regarding specific transfers or exchanges, please see Chapter 9.)

Transfer and Exchange Evaluations

An important element of any water transfer is determining what quantity, if any, is transferable. Some provisions of the Water Code (e.g., CWC Sections 1702, 1706, and 1725), are intended to protect other legal users of water and fish and wildlife from possible adverse effects of a water transfer. Such protections reflect the "no injury" rule, which originates in the common law. Basically, the rationale for the no injury rule in state water law is to protect senior water users (those with the oldest water rights) from junior diverters, while protecting junior water right holders from the expansion of senior water rights. Hence, under the no injury rule, only "new water" is transferable; i.e., water that is added to the downstream water supply as a result of the transfer. Further, a transfer would not be authorized to the extent that it reduced the availability of water for downstream users, regardless of the water priority of those users.

Water Code Section 1810(d) requires DWR to consider all three types of third-party impacts (i.e., to legal users, to instream uses, and to the economy of the area from which the water would be transferred). DWR must determine whether to allow use of its surplus water conveyance capacity for a water transfer. Other provisions in the law specify the requirements that must be met for DWR to allow use of its conveyance facilities.

Generally, transfer water is developed through four methods: (1) surplus water released from storage facilities; (2) substituting groundwater for transferred surface water; (3) idling agricultural land to make water available for transfer; and (4) undertaking conservation activities that develop surplus water (e.g., under

CWC Section 1011). Transfers that involve groundwater substitution or fallowing may cause third party impacts; so provisions of state law limits their extent. For example, Water Code Sections 1745.10 and 1745.11 generally require a water supplier that increases groundwater use to replace transferred surface water so that the groundwater use: (1) would be consistent with a groundwater management plan adopted pursuant to State law for the affected area; or (2) would not create or contribute to conditions of long-term overdraft in the affected groundwater basin.

Groundwater substitution transfers have the potential to cause injury to other local groundwater users due to the additional pumping needed to allow the surface water transfer to take place. Injury can also occur due to stream depletion induced by pumping wells near the stream. The amount of water credit given such a transfer is the amount of the increased pumping that takes place to support the transfer, which assumes there is no stream depletion by the additional pumping. If there is pumping-induced stream depletion, then the groundwater pumped is not truly an alternative source to the surface water supply, and the net surface water flows will not increase as assumed. Consequently, in order to evaluate possible impacts to SWP supplies by groundwater substitution transfers that propose using SWP conveyances, DWR requires information necessary to support the assumption that the additional groundwater pumping does not affect the surface water system.

Water transfers are subject to compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA).

The State Water Project Analysis Office, Division of Operations and Maintenance, and the Office of the Chief Counsel perform evaluations of the effects of proposed non-SWP water transfers on the SWP. This team develops formal responses to specific issues, projects, or programs. The Office of Water Transfers evaluates possible impacts to the SWP by proposed water transfers (with technical assistance from the Division of Planning and Local Assistance.) The team also identifies and evaluates water transfer proposals and water acquisitions by Reclamation and other water agencies, and proposes settlement agreements for potential impacts on the SWP.

Emphasis on early intervention allows DWR to tailor proposals to maximize benefits or minimize adverse effects to the SWP, other legal water users, and the environment. The team monitors Reclamation contract renewal processes to evaluate potential impact. These activities help DWR understand the potential cumulative impact of other agencies' actions on the SWP and to proactively address those actions.

This team also explores potential transfer options available to the SWP and individual contractors. Analysis of contractor profiles helps DWR facilitate transfers and exchanges between individual contractors.

SWP Delivery Reliability Report

To assist local agencies assessing their overall water supplies, DWR provided current data on the SWP's ability to

deliver water under 2005 conditions and for projected conditions through a report entitled *The State Water Project Delivery Reliability Report–2005*. A draft report underwent a 30-day public review during November and December 2005. The information contained in this report was recommended by DWR in May 2005 for use by SWP water supply contractors in developing their 2005 Urban Water Management plans. The 2005 report will be finalized in 2006, and the next report in this biennial series is expected in 2007.

Water delivery reliability depends on three factors: the availability of water at the source; the ability to convey water from the source to the desired point of delivery, and the level of demand. Information in The State Water Project Delivery Reliability Report–2005 is based on the assumption that future weather patterns will be similar to those in the past. As more information becomes available on the impact of global warming upon SWP water supply, it will be analyzed in future editions of this report. In addition, the analysis of the ability to convey water from the source to the point of delivery assumes only SWP facilities and permits existing in 2005 would be used. No planned facility improvements to the SWP are assumed to provide a conservative estimate of water delivery reliability. Lastly, the level of demand for SWP water, the amount and pattern of demand, were derived from historical data and information received from SWP contractors.

The probability that a given level of SWP Annual Table A amount will be delivered from the Delta for conditions projected to exist in year 2025 is shown in Figure 7-1. The following can be deduced:

- In 75 percent of the years, annual SWP water delivery is estimated to be at or above 2.7 million af per year (65 percent of 4.13 million af);
- In 50 percent of the years, it is estimated to be at or above 3.5 million af per year (85 percent of 4.13 million af); and
- In 25 percent of the years, it is at 4.13 million af per year.

Detailed information on the assumptions, data, and results of additional studies, as well as the other scenarios for annual Table A amounts can be found in the reliability report, published on the Internet at http://baydeltaoffice.water.ca.gov/swpreliability/index.cfm.

Conjunctive Use and Groundwater Substitution

Conjunctive use refers to the planned and coordinated management of surface water and groundwater to improve water supply reliability. A typical conjunctive use project recharges a groundwater basin with surface water in years when excess surface water is available. That project will then extract the stored water for use by pumping additional groundwater in years when additional water supply is needed. By using a groundwater basin as a reservoir in this manner, surface water that would otherwise be lost can be added to the available water supply.

In the 1990s, groundwater substitution water transfers, a form of conjunctive use, became increasingly controversial in some regions of the State. Some counties, particularly in the Sacramento Valley, adopted ordinances designed to regulate water transfers that involve groundwater

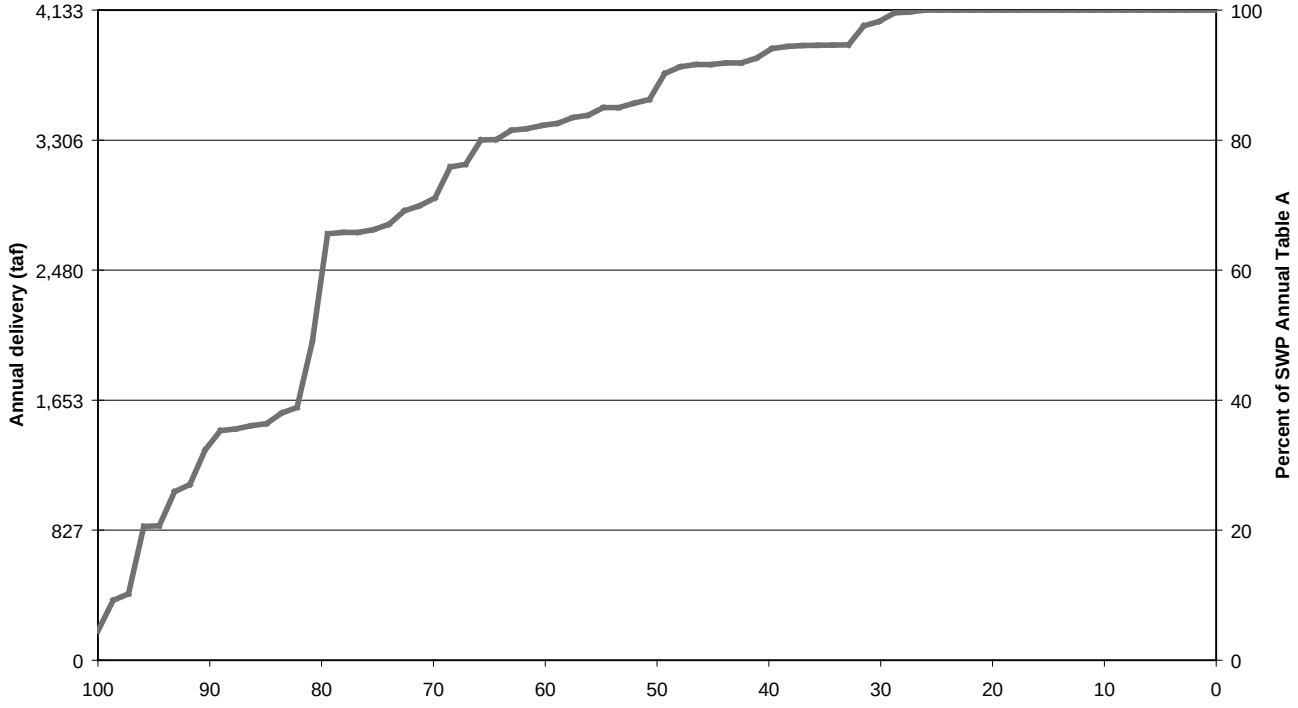


Figure 7-1. Projected SWP System Delivery Capability (Scenario 2025, Annual Table A)

substitution. Groundwater substitution refers to the practice of increasing groundwater pumping to replace an available surface water supply. The surface water becomes available to be used elsewhere. One possibility is to sell that newly-available surface water to willing buyers downstream.

Conjunctive use projects can be operated with negligible impacts to the environment and third parties. However, the effects of implementing conjunctive use projects varies as the pre-existing condition of groundwater basins vary. For instance, Sacramento Valley groundwater basins tend to refill completely after an average winter season. Therefore, additional groundwater withdrawals associated with groundwater substitution water transfers, typically during the irrigation season, result in additional loss to streamflow during the following wet season, or even later. A successful conjunctive use operation in the Sacramento Valley operates so that the aquifer refills by depleting streamflow during wet winter months, when streamflow reductions have no detrimental effect on water supply.

Due to the potential for conjunctive use projects and groundwater substitution water transfers to deplete streamflow and impact State Water Project operations, DWR's Sacramento Valley Groundwater Program evaluates water transfers, conjunctive use, and other water management proposals in the Sacramento Valley.

Sacramento Valley Groundwater Program

Local agencies are increasingly active in developing groundwater management programs and asserting control over water supply development and management activities. DWR works with local agencies and interested parties by providing technical and other assistance to improve groundwater monitoring and management to study and develop water management alternatives, help alleviate local anxieties, and build consensus for local and regional conjunctive use.

The Sacramento Valley Groundwater Program, a component of the SWP Future Supply Program, originally identified and implemented individual conjunctive use projects to augment SWP supplies. Now this program focuses on implementing the Sacramento Valley Water Management Agreement (often referred to as Phase 8) and evaluating water transfers. It also supports EWA Program components and implementation of the Yuba Accord Conjunctive Use component. It coordinates these efforts with DWR's Conjunctive Water Management Program in the geographic areas in which they overlap.

In 2005, Sacramento Valley Groundwater Program activities involving local agencies included the following:

Yuba County. DWR, in cooperation with the Yuba County Water Agency (Yuba) operated an adaptive long-term groundwater monitoring and measurement program. Specific activities focused on evaluating the interaction between the Yuba River, the Bear River, and its local groundwater basin, and impacts to other groundwater users. With the development of the Yuba Accord, the operations of the Yuba River system are becoming intertwined with those of the SWP. Monitoring activities are focused on incorporating conjunctive use into Yuba operations to meet the agency's Phase 8 and Yuba Accord objectives.

Lower Colusa Basin. DWR assisted Reclamation District 108 and River Garden Farms with groundwater monitoring that will be used to determine the effects of implementing conjunctive use projects for the Sacramento Valley Water Management Program. These projects are expected to provide up to 25,000 af of capacity to the program.

Butte Basin. DWR's efforts in Butte County improved the technical understanding of the Butte Basin groundwater system, especially as it relates to groundwater resources in adjacent Glenn and Tehama Counties. Additionally, DWR assisted the Butte County in collecting and evaluating groundwater monitoring data.

Glenn County. DWR provided technical assistance to Glenn County and its local irrigation districts. This included assisting in developing groundwater level, groundwater quality, and subsidence monitoring networks in the county to facilitate future water transfers and the development of Sacramento Valley Water Management Program (SVWMP) conjunctive-use projects that will benefit the SWP. These activities are coordinated with related investigations by DWR's storage program. Recently, SVWMP participants have expressed interest in building wells that develop deep groundwater aquifers as a means of avoiding groundwater level impacts to other groundwater users. DWR is assisting local participants determine the feasibility

of this groundwater management technique.

Watershed Management

This continuing effort evaluates the state of the Feather River watershed above Lake Oroville, and it identifies actions that can be taken within the watershed to increase base-flow runoff and reduce sedimentation. The initial effort explored ways to improve local water supplies without adversely affecting SWP supply or operations. Early activities included installing monitoring equipment and gathering pertinent data on stream flows, water quality, erosion, and land use. This data will be used to formulate reports and studies for future actions. The work continues to receive strong local support.

SWP Water Rights Activities

Water Rights Permits

Operations of the SWP are governed by the terms and conditions contained in DWR's water rights permits and licenses along with other state and federal regulatory restrictions including biological opinions for the protection of endangered species. DWR currently holds 15 water rights for the operation of the State Water Project and upper Feather facilities, five of which specifically authorize SWP operations at the Oroville/Thermalito and Delta facilities, including the North Bay Aqueduct, for water supply purposes. Each permit specifies the authorized quantities of direct diversion and diversion to storage, place of use and time within which the permitted quantities must be put to beneficial use. A change in any of the terms and conditions contained in the water rights permits and licenses requires the approval of the SWRCB.

Diversion and use of SWP water throughout the SWP service area has steadily increased since initial operations in the 1960s. However due to a number of factors including operational and regulatory constraints, the beneficial use of water has not yet reached the maximum quantities anticipated for full development of the SWP. When the full permitted quantity of water authorized under the water rights permits has not been utilized by the date specified in the permit, a petition for time extension must be submitted to the SWRCB. In 2005, DWR submitted a Petition for Extension of Time to the SWRCB for permit 16483 (Application 17514A) authorizing diversions at the North Bay Aqueduct in order to allow additional time to fully develop the diversion and use of water within the NBA service area.

In addition, in 2005, DWR submitted to the SWRCB a Petition for Change in Place of Use in four permits authorizing diversions at the Banks pumping plant. The Petition requests the SWRCB to correct an error in the DWR water rights to include Oak Flat Water District within the authorized SWP place of use. Since the 1960s, Oak Flat has received SWP water under its long-term water supply contract with DWR. In the 1990s during review of DWR's water rights, it became apparent that the Oak Flat service area was inadvertently omitted from the authorized SWP place of use. The petition explains that correcting the error and adding Oak Flat to the SWP place of use will not result in any changes to SWP operations or deliveries.

SWP Bay-Delta Proceedings—2005 Activities

DWR has worked intensely for more than 40 years to develop the appropriate water quality standards for the San Francisco Bay and Sacramento–San Joaquin Delta Estuary and identify which water sources are required to meet those standards. SWRCB has received and reviewed numerous testimony and evidence to establish water quality objectives for the Bay-Delta Estuary to protect urban, agricultural, and fish and wildlife uses.

Cease and Desist Order Hearings

In February 2005, DWR and Reclamation petitioned SWRCB to temporarily change, and delay, the effective date for implementation of the southern Delta agricultural objective in Decision 1641, scheduled to begin in April 1, 2005. A second petition was submitted requesting a long-term change of the date to April 1, 2008, the date when the South Delta permanent gates were scheduled to be operating. The SWRCB denied the temporary change petition, and no action was taken on the long-term change petition.

On May 3, 2005, SWRCB notified DWR and Reclamation of the its intention to issue a cease and desist order because of a threatened violation of the southern Delta agricultural water quality objective of 0.7 electrical conductivity (EC), scheduled to be in effect annually between April 1 and August 31, beginning 2005. The SWRCB D-1641 conditions the operation of the SWP and the CVP, with implementation of the agricultural objective. DWR and Reclamation requested a hearing on the cease and desist order. In October and November, DWR and Reclamation presented evidence and argued that the cease and desist order should not be issued.

On December 30, 2005, SWRCB issued a proposed draft cease and desist order requiring DWR and Reclamation to construct permanent gates in the southern Delta or take alternative measures for achieving the water quality objective by 2009. Additionally, the draft order would require DWR and Reclamation to report to SWRCB if there is a threat of non-compliance of the water quality requirements, and to report the reasons for the non-compliance. The Board will then determine if enforcement actions are necessary. SWRCB has set a hearing date to consider adoption of the proposed order in January 2006. The 0.7 millimhos/cm objective was not exceeded in 2005.

Sacramento Valley Water Management Agreement

During 2005, DWR, Reclamation, Sacramento Valley upstream water users, and certain downstream water users continued work to implement the Sacramento Valley Water Management Agreement (SVWMA) settlement, in lieu of continuing with SWRCB Phase 8 hearings. SVWMA avoided the adversarial issues of Phase 8 and was developed to promote better management of California's water resources.

SVWMA provides that DWR and Reclamation will continue to be responsible for meeting the flow-related water quality objectives of D-1641, and a series of local projects, owned and operated by Sacramento Valley water users, will be developed to provide up to

185,000 af of water supplies for use by the sponsoring local agencies as well as water to the SWP and CVP for Delta water quality and supply. A key element in developing the agreement was the preparation of a short-term workplan for investigating short-term projects to meet the goals of SVWMA. The short-term workplan was adopted with approximately 45 projects falling into the following general categories:

- water management—conjunctive use;
- reservoir reoperation;
- system improvements;
- surface water and groundwater planning; and
- regulatory/institutional arrangements.

It is anticipated that short-term projects will operate for 10 years. Consultants were hired to work on the Environmental Impact Report/Environmental Impact Statement (EIR/EIS). DWR and Reclamation, in cooperation with the Sacramento Valley water users and downstream water users, are preparing environmental analysis and documentation for the projects, as required prior to implementation.

SVWMA establishes a Technical Measurement and Monitoring Committee responsible for developing monitoring programs for the projects being developed, assessing their accomplishments and impacts, and recommending remediation activities if needed. The local agencies, DWR, and Reclamation will enter into specific implementation agreements for each project.

SVWMA also provides for the possible development of a long-term workplan and settlement agreement, that could continue certain short-term projects and other projects, which could meet the goals of the Phase 8 settlement.

Periodic Review of the 1995 San Francisco Bay / Sacramento-San Joaquin Delta Estuary Water Quality Control Plan

SWRCB previously received comments from agencies and members of the public regarding any elements of the 1995 Bay-Delta Water Quality Control Plan that SWRCB should consider amending. DWR presented its comments to the Board regarding the scope of issues, supporting the Board's review and urged them to consider the issues in context with recently proposed Delta actions and progress that could provide useful information to help evaluate whether modifications to existing water quality objectives were needed. SWRCB extended the comment period and encouraged the participants to provide the Board with their remarks.

The SWRCB staff prepared a report summarizing comments received from agencies. This report, adopted on September 20, 2004, recommended the following issues be considered during the upcoming workshops:

- Delta outflow;
- river flows: Sacramento River at Rio Vista;
- river flows: San Joaquin River at Airport Way Bridge, Vernalis: February to April 14, and May 16 to June;
- export limits;
- flow objectives in the San Joaquin River at Airport Way Bridge, Vernalis: 31-day pulse flow April 15 through May 15;

CALFED Bay-Delta Program

The San Francisco Bay/Sacramento-San Joaquin Delta (Bay/Delta) Estuary is the largest estuary on the West Coast. It is a maze of tributaries, sloughs, and islands, and a haven for over 750 plants and wildlife species. It is also the hub of California's two largest water distribution systems—the Central Valley Project, operated by the U.S. Bureau of Reclamation, and the State Water Project, operated by the Department of Water Resources. Together, these water development projects divert approximately 20 to 70 percent of the natural flow in the system, depending on the amount of runoff available in a given year. This, along with other issues, such as population growth and pollution, have had a serious impact on water supply and quality, and on the fish and wildlife resources in the estuary. Although there was consensus that the Bay-Delta estuary is important as both a reliable source of water and as a fish and wildlife habitat, there was none for solving conflicts regarding methods of management, conservation, increasing capacity of the system, and protecting the ecology of the region.

In June 1994, in the quest for solutions to the resource problems in the Bay-Delta, State and federal agencies signed an agreement to (1) coordinate their actions to meet water quality standards to protect the Bay-Delta estuary; (2) coordinate the operation of the State Water Project and the Central Valley Project more closely with recent environmental mandates; and (3) develop a process to establish a long-term Bay-Delta solution to address four categories of problems—ecosystem quality, water quality, water supply reliability, and levee system vulnerability. This agreement laid the foundation for the Principles of Agreement signed in December 1994 by the State and federal governments, detailing interim measures for both environmental protection and regulatory stability. This Accord led to the CALFED Bay-Delta Program, which began in May 1995, and the Record of Decision, which was signed on August 28, 2000.

The California Bay-Delta Act of 2003 established the California Bay-Delta Authority as the new governance structure and charged it with providing accountability, ensuring balanced implementation, tracking and assessing the CALFED Bay-Delta Program progress, using sound science, assuring public involvement and outreach, and coordinating and integrating related government programs.

The Program is designed to address the complex issues that surround the Bay-Delta and is a cooperative interagency effort involving 18 State and federal agencies with management or regulatory responsibilities for the Bay-Delta. It is an unprecedented effort to build a framework for managing California's most precious natural resource—water. The establishment of the CALFED Bay-Delta Program represents State and federal government in partnership, launching the largest, most comprehensive water management program in the world.

- southern Delta electrical conductivity;
- chloride objectives, compliance location at Contra Costa Canal at Pumping Plant No. 1, and potential new objectives;
- salmon protection;
- Delta Cross Channel gates closure;
- changes to the water quality compliance and baseline monitoring program; and
- recommended changes to the program of implementation.

On August 31, 2005, SWRCB convened a workshop to receive additional evidence on the Delta outflow objectives. A panel consisting of federal and State agencies presented its comments on issues revolving causes and effects of the pelagic organism decline (POD). The scientists were still at early stages of understanding the causes of such decline. The State Water Contractors and California Urban Water Agencies suggested performing operational flexibility for both SWP and CVP. Bay-Delta Institute and Central Delta Water Agencies were against such actions. SWRCB recommended that one of the Board staff, working under the division chief, be directly involved in the above process and report future progress to the Board.

CALFED Bay-Delta Program

The California Bay-Delta Authority (CBDA) oversees the implementation of the CALFED Bay-Delta Program for the 25 State and federal agencies working cooperatively to improve the quality and reliability of California's water supplies, while restoring the Bay-Delta ecosystem.

The California Bay-Delta Act of 2003 established the CBDA as the new governance structure and charged it with providing accountability, ensuring balanced implementation, tracking and assessing the CALFED Bay-Delta Program progress, using sound science, assuring public involvement and outreach, and coordinating and integrating related government programs.

The mission of the CALFED Bay-Delta Program is to develop and implement a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta. DWR has vigorously supported this effort, seeing it as a means to develop and manage the State's water resources to meet the water delivery commitments of the SWP, and to benefit both the public and the environment.

The CALFED Bay-Delta Program was envisioned as a 30-year plan and is implemented through 11 major program elements. The first 7-year phase of implementation, Stage 1, includes planning for proposed large facilities and implementation of lesser facilities. DWR is the State lead agency for the storage program element, which consists of surface storage studies and groundwater programs and projects.

Storage Program

This is a comprehensive program with potential benefit for the SWP, consisting of actions related to surface and groundwater storage. The Division of Planning and Local Assistance has been working with the CALFED agencies to enhance storage as well as conjunctive-use programs that support local project development via

loans and grants. The Storage Program is part of an ongoing evaluation of the appropriate role of storage, both groundwater conjunctive use and surface storage.

Surface Storage Investigations

The Surface Storage Investigations are developing environmental documentation and feasibility studies for four of the five surface storage projects identified for further study in the CALFED Record of Decision (ROD.)

In-Delta Storage Program. In 2001, DWR, in coordination with the CBDA and Reclamation, began a planning study to evaluate the Delta Wetlands Project and other In-Delta storage options. This study, completed in May 2002, concluded that the project concepts proposed by Delta Wetlands were generally well planned. However, design modifications and further evaluations were needed before considering public ownership of the project.

The In-Delta Storage Project would provide capacity to store approximately 217,000 af of water in the South Delta for a wide array of water supply, water quality, and ecosystem benefits. The project would include two storage islands (Webb Tract and Bacon Island) and two habitat islands (Holland Tract and Bouldin Island), similar to that proposed by Delta Wetlands, over a decade.

DWR, in coordination with CBDA and with technical assistance from Reclamation, completed the Draft In-Delta Storage Program State Feasibility Study in 2004. The State Draft Feasibility Report addresses the technical feasibility of the proposed In-Delta Storage Project. In response to public comments on the report, new studies were conducted in 2005 on a broad array of issues, including water supply and quality, project design, risk analysis, environmental evaluations, and construction costs. New information gathered during the response to the June 2004 Middle River levee breach and flooding of Jones Tract was also incorporated in these studies.

Los Vaqueros Reservoir Expansion. Contra Costa Water District owns and operates the 100,000 af Los Vaqueros Reservoir just northwest of the Sacramento-San Joaquin Delta. The Los Vaqueros Reservoir Expansion would increase the reservoir storage up to 400,000 af, for a potential storage capability of 500,000 af.

The objectives of the Los Vaqueros Reservoir Expansion are: (1) improve Bay Area water supply reliability; (2) provide an environmental water supply to the long-term EWA or similar program; and (3) improve water quality for Bay Area water users.

Contra Costa Water District ratepayers voted to support further studies of the Los Vaqueros Reservoir Expansion in the March 2004 advisory vote. In 2005, Reclamation, in coordination with DWR and Contra Costa Water District, completed the Initial Alternatives Information Report. Also in 2005, Reclamation filed a Notice of Intent under NEPA for preparation of an EIS. Contra Costa County Water District is the lead agency under CEQA and, in conjunction with Reclamation and DWR, will continue with the feasibility study and environmental documentation.

Shasta Lake Enlargement. Reclamation, in coordination with DWR and other agencies, is conducting a feasibility study of expanding Shasta Dam and Reservoir, primarily to promote increased survival of anadromous fish populations in the upper Sacramento River and to increase water supply reliability. An enlargement of Shasta Dam would inundate additional lands around the existing reservoir and affect a portion of the McCloud River. California Public Resources Code Section 5093.542(c), the Wild and Scenic Rivers Act, states that, "except for participation by the Department of Water Resources in studies involving the technical and economic feasibility of enlargement of Shasta Dam, no department or agency of the state shall assist or cooperate with, whether by loan, grant, license, or otherwise, any agency of the federal, state, or local government in the planning or construction of any dam, reservoir, diversion, or impoundment facility that could have an adverse effect on the free-flowing condition of the McCloud River, or on its wild trout fishery."

The State's fiscal year 2005-2006, budget did not include funding for DWR to continue to participate in this study. However, Reclamation continues to work on this project. In 2005, Reclamation filed a Notice of Intent to prepare the EIS consistent with requirements of NEPA for the Shasta Lake Water Resources Investigation. Six public scoping meetings were held to solicit public input on topics to be addressed in the EIS, including resources to be evaluated, alternatives to be considered, and significant concerns and issues.

North-of-the-Delta Offstream Storage. DWR and Reclamation are working in partnership with local and other State and federal agencies to further study north-of-the-Delta offstream storage opportunities. The North-of-the-Delta Offstream Storage (NODOS) Investigation focuses on potential projects on the west side of the Sacramento Valley, including Sites Reservoir.

Storing water in offstream reservoirs during excess flow periods provides opportunities to increase water storage in an environmentally-sensitive manner. The stored water could then be made available for beneficial uses, including enhancing water management flexibility in the Sacramento Valley and the Bay-Delta, reducing water diversions on the Sacramento River during critical fish migration periods, increasing the reliability of supplies for the Sacramento Valley and statewide, and providing storage and operational benefits for other CALFED programs, including Delta water quality and EWA.

In 2005, DWR and Reclamation continued with the feasibility study and NEPA/CEQA process for the NODOS Investigation. Accomplishments for NODOS in 2005 included completion of engineering feasibility studies on dams and appurtenant structures, conveyance facilities, and road relocations, and on reverse flow facilities, for releasing water back to the river.

Upper San Joaquin River Basin Storage Investigation. DWR and Reclamation, in coordination with other State and federal agencies, are evaluating increased storage in the upper San Joaquin River watershed. This additional storage could be added by

expanding Millerton Lake by raising Friant Dam, or a functionally-equivalent storage program. Potential benefits of the Upper San Joaquin River Basin Investigation are: (1) contribute to restoration of the San Joaquin River; (2) improve water quality of the San Joaquin River; and (3) facilitate additional conjunctive management and water exchanges that improve the quality of water deliveries for urban communities. Other benefits could include hydropower, flood control, and recreation.

In 2005, DWR and Reclamation continued with the feasibility study and the NEPA/CEQA process for the Upper San Joaquin River Basin Storage Investigation. Accomplishments for the Upper San Joaquin River Basin Storage Investigation in 2005 included completion of the Federal Initial Alternatives Information Report.

Conjunctive-Use Programs

The CALFED Storage Program component, like DWR's Conjunctive Water Management Program, emphasizes the importance of forming partnerships with local agencies and stakeholders to assist in planning and developing conjunctive water management projects. Six principles guide the implementation of this component:

- local planning process;
- local control of proposed projects;
- voluntary implementation of projects;
- priority for in-basin water needs;
- compensation for out-of-basin transfers; and
- basin-wide planning and monitoring the Water Transfer Program.

DWR actively participated in the formulation of CALFED's Water Transfer Program through the Bay-Delta Advisory Council Water Transfer Work Group and the Transfers Agency Group. The program proposed a framework of actions, policies, and processes to facilitate water transfers and further develop a statewide water transfer market. The program document describes the relationship of water transfers to other water management actions and programs, discusses existing laws and statutes, and identifies issues and problems related to transfers. It also makes recommendations to resolve these issues and suggests strategies to implement them.

As part of the Water Transfer Work Group, DWR staff, along with other agencies, assisted SWRCB in the formulation and publication of A Guide to Water Transfers (July 1999 draft) in order to provide a resource for information.

In 2002, DWR drafted transfer white papers based on SWRCB's Guide and discussions with Sacramento Valley water agencies. The white papers are updated as information becomes available.

Conveyance Program

The Conveyance Program consists of projects proposed in the North and South Delta. The North Delta Program is comprised of studies related to the Delta Cross Channel, a potential through-Delta facility, and a project to improve flood management and the ecosystem along the Mokelumne River and Franks Tract.

North Delta. Three North Delta conveyance facilities improvements are being evaluated. One is to improve operational procedures for the Delta Cross Channel to address fishery and water quality concerns, the second is a screened through-Delta

facility on the Sacramento River, and the third is the Franks Tract Project, which involves installation of operable gates either on Three Mile Slough or West False River to improve water quality and benefit fisheries. DWR is leading all three studies in cooperation with other agencies. DWR is in the process of initiating the preparation of an EIR/EIS for the Franks Tract Project.

With the North Delta Flood Control and Ecosystem Restoration Project, solutions to improve flood management and the ecosystem are being considered, including setback levees, detention basins, dredging, and levee degradation for floodplain expansion.

South Delta. Actions in the South Delta include the South Delta Improvement Program, implementing flood/ecosystem improvements in the lower San Joaquin River, and potential interties between the SWP and CVP.

SDIP is a key component of the CALFED Bay-Delta Program. The purpose of SDIP is to do the following:

- improve the reliability of existing SWP facilities;
- ensure that water of adequate quantity and quality is available for diversion to the South Delta Water Agency's service area for beneficial use; and
- reduce the effects of SWP exports on both aquatic resources and direct losses of fish in the South Delta.

The proposed project is likely to consist of the following:

- three flow-control structures to improve local water levels and circulation in South Delta channels;
- a fish-control structure to improve fish migration in the San Joaquin River;
- some dredging in West Canal to improve conveyance capacity to Clifton Court Forebay;
- extensive dredging in the South Delta to improve channel capacity for local agricultural users;
- modifications to existing agricultural diversion intakes; and
- planning to build a new intake to Clifton Court Forebay and increase the export limit to 8,500 cfs.

For more information on the North and South Delta, see Chapter 2, *Delta Resources.*

Environmental Water Account

EWA is a cooperatively managed program intended to provide protection to the fish of the Bay-Delta Estuary through environmentally beneficial changes and increased flexibility in the operations of the SWP and CVP, while maintaining water supply reliability to the projects' water users. Responsibility for implementing EWA rests with National Marine Fisheries Service (NOAA Fisheries), U.S. Fish and Wildlife Service (USFWS), and Department of Fish and Game (DFG) (management agencies), as well as with Reclamation and DWR (project agencies).

The management agencies are responsible for managing EWA assets and recommending SWP/CVP operational changes beneficial to the Bay-Delta ecosystem and the long-term survival of fish species. The project agencies are responsible for acquiring EWA assets and cooperating with the management agencies in administering EWA and

implementing operational changes proposed by the management agencies, as appropriate.

Under EWA, fish protection is achieved by periodic curtailment of project water delivery from the Bay-Delta to project water users south of the Delta and replacing it at a later date within the same calendar year. This necessitates the acquisition of EWA assets, which are used to replace the project water supply. EWA assets consist of variable assets, which are acquired through changes in operations; fixed assets, which are acquired through water purchases from willing water sellers; source shifting, which involves deferral of scheduled delivery of water by willing participants; and other nonwater assets, such as 500 cfs dedicated pumping capacity at Banks Pumping Plant. EWA is considered operational for any year when these assets are in place and Endangered Species Act commitments are provided by the management agencies. EWA was operational starting in 2001.

In 2001, DWR and Reclamation initiated work on a joint EIS/EIR document for EWA, which takes into consideration the environmental impacts associated with use of EWA, on both SWP and CVP operations through December 2007, and will allow for multiyear EWA contracts with willing water sellers.

The EWA Project and Management Agencies completed and approved a joint EIS/EIR for the short-term EWA pertaining to the acquisition and management of EWA assets between 2004 and 2007. In July 2004, the Agencies began the process of developing a long-term EWA EIS/EIR.

For more details on EWA deliveries, see Chapter 9, *Water Contracts and Deliveries*.

Chapter 8
Water Supply

Snowpack in the Sierras

Significant Events in 2005

California experienced higher than average rainfall and mountain snowpack during water year 2004–2005. The State received precipitation at 140 percent of average in 2004–2005, as compared to 85 percent of average in 2003–2004.

Statewide river runoff totaled 105 percent of average in the 2004–2005 water year. Runoff in the Sacramento River and San Joaquin River regions was 95 percent and 150 percent of average, respectively. Feather River unimpaired inflow to Lake Oroville was 4.3 maf (90 percent of average) for the water year, compared to 3.8 maf (80 percent of average) the previous year.

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

The Department of Water Resources (DWR) monitors precipitation, calculates runoff, and operates storage facilities during each water year. The official California water year runs from October 1 through September 30. DWR works during the water year to fulfill its key contractual obligations to the State Water Project (SWP) long-term water supply contractors.

Water Year 2004–2005

Precipitation and Snowpack

California experienced higher than average rainfall and mountain snowpack during water year 2004–2005. The State received precipitation at 140 percent of average in 2004–2005, as compared to 85 percent of average in 2003–2004. During the second week of April 2005, the statewide average snowpack peaked at 40 inches of snow water content. This amount of mountain snowpack is 146 percent of normal. These snowpack conditions are in stark contrast to snowpack levels in 2003–2004. During that time, the statewide snow water content peaked at 30 inches in the first week of March. The Northern Sierra Eight Station Index finished the 2004–2005 water year with 57.5 inches of precipitation, which was 115 percent of average.

The water year kicked off October 1, 2004, with a wet start for most of the State. Heavy precipitation fell throughout the month, which resulted in significant snowpack accumulation in the Sierras. The Northern Sierra Eight Station Index registered 7.1 inches of precipitation for the month of October, which was 237 percent of average. Some locations in the San Joaquin River Basin received monthly precipitation totals exceeding 500 percent of average. By November 1, the statewide snowpack stood at 5 inches of snow water content. This amount represented approximately 16 percent of the statewide historical average for April 1 testing of the State snow water content.

Wet conditions in October were offset by a dry November. Consequently, by the end of November, the snowpack had grown only slightly beyond the value achieved at the beginning of the month. The average snow water content increased statewide from 5 inches on November 1, to 6 inches on December 1. By the end of November, the State snowpack measured 133 percent of normal.

Significant precipitation returned in December, with a major event taking place in Southern California, as the calendar year drew to a close. A series of storms occurred from December 26 to January 5, producing nearly 20 inches of cumulative rainfall at some locations. Most of the heavy precipitation fell from Point Conception south; however, the entire California coast experienced above-average precipitation for the month. By the end of the month, the Northern Sierra Eight Station Index stood at 10.9 inches, 130 percent of average, and precipitation totaling 155 percent of average fell in the San Joaquin River Basin. As a result of these widespread wet conditions, the State snowpack increased to 16 inches of snow water content by the end of the month, 57 percent of the April 1 snow water

content and 159 percent of the year-to-date average.

Precipitation during the month of January varied widely throughout the State. Southern California experienced another extreme storm from Point Conception south to the San Gabriel and San Bernardino mountains. From January 7 to January 11, some locations in this area received 30 inches of cumulative rainfall. In contrast, most of Northern California received slightly below average precipitation for the month. This resulted in a Northern Sierra Eight Station Index value of 8.3 inches, 92 percent of average, while the American River Basin received precipitation at 95 percent of average. Precipitation falling in the San Joaquin River Basin was significantly above average, with several locations recording total values exceeding 200 percent of average. The statewide snowpack remained well above average by the end of the month: 28 inches, 101 percent of April 1 snow water content and 163 percent of normal. Corresponding with the north-to-south precipitation gradient, the Northern Sierra snowpack totaled 142 percent of average, and the Southern Sierra snowpack equaled 200 percent of average.

The wet conditions experienced in Southern California during December and January continued into February, while Northern California experienced precipitation totals falling well below historical monthly averages. Between February 17 and February 23, a very cold storm passed through the State from Point Conception south. The southern coast received 4 to 8 inches of rainfall during this period, while the adjacent mountain regions received 8 to 18 inches. Due to the cold temperatures associated with this storm, snowfall ranging from 8 to 10 feet was received in the mountains above Los Angeles. Northern California, on the other hand, received well below average precipitation for the month. The Klamath Basin, for example, received precipitation totaling 20 percent of average, while the Northern Sierra Eight Station Index totaled 4.4 inches, which is only 55 percent of average. As an exception to the dry conditions experienced in the northern half of the State, parts of the San Joaquin River Basin continued to receive above average precipitation. The end of February statewide snowpack remained well above average with 32 inches of snow water content, which is 115 percent of the April 1 average and 131 percent of the water year-to-date average.

By contrast, Northern California experienced more significant precipitation during March. The month began with warm and dry conditions, which resulted in some melt of the Sierra snowpack. However, the final two weeks of March ushered in a cold, wet weather pattern, which resulted in considerable precipitation. All of the major water supply basins in Northern California experienced above-average precipitation for the month. The Northern Sierra Eight Station Index was 9.3 inches, which is 135 percent of average. Above-average precipitation was experienced at all locations within the San Joaquin region. By the end of the month, average snow water content stood at 39 inches, which is 138 percent of normal. Snowpack totals in the North Sierra, Central Sierra, and South Sierra were 124 percent, 135 percent, and 158 percent of average, respectively. These increasing percentages reflect the fact that Southern California received more

precipitation throughout the winter months than Northern California.

The month of April brought average precipitation for most of the State. Rainfall along the North Coast was generally above average, with some locations receiving total precipitation exceeding 200 percent. The Northern Sierra Eight Station Index was 3.5 inches, or 90 percent of average. Statewide snowpack peaked at 40 inches on April 9, about a week later than usual. As the month progressed, cool weather prevented major snowmelt at higher elevations, although lower elevations experienced some pronounced melt. By the end of the month, 34 inches of snow water remained statewide.

In May, an atypically large, late-season storm occurred in Northern California. From May 17 through May 19, much of California north of Interstate 80 received 72 hour totals that allowed historical records for the month to be broken at many locations. While storm totals throughout the northern portion of the State were generally between 2 and 5 inches, the Feather River Basin was particularly impacted, with totals between 5 and 10 inches. The Eight Station Index reached a May record of 8.3 inches, or 395 percent of average. Throughout the month, the average statewide snowpack decreased from 34 inches on May 1 to only 13 inches on June 1. The May storm was a major factor in the elevated rate of snowmelt. (See Figure 8-1 for 2004–2005 statewide precipitation percentages by hydrologic region.)

Runoff and Storage

Statewide river runoff totaled 105 percent of average in the 2004–2005 water year. Runoff in the Sacramento River and San Joaquin River regions was 95 percent and 150 percent of average, respectively. Feather River unimpaired inflow to Lake Oroville was 4.3 maf (90 percent of average) for the water year, compared to 3.8 maf (80 percent of average) the previous year.

The Sacramento River Index for water year 2004–2005 was 18.5 maf (95 percent of average). The Sacramento Valley Water Year Hydrologic Classification (40-30-30 Index) was above normal, based on observed data for water year 2005.

The San Joaquin River system unimpaired runoff from the Stanislaus, Tuolumne, Merced, and San Joaquin rivers was 9.2 maf (155 percent of average). The San Joaquin Valley Water Year Hydrologic Classification (60-20-20 Index) was wet, based on observed data for water year 2005.

The water year began with statewide runoff about 110 percent of average in October. Below normal runoff during November, especially in the Sacramento River region, lowered the statewide runoff to 65 percent of average for the first 2 months of the water year. Season-to-date statewide runoff totals rose to 70 percent of average by the end of December, with statewide storage increasing by 1.4 maf to 19.9 maf.

The variation in precipitation amounts during January was reflected in runoff totals. The Sacramento River region experienced about 65 percent of average January runoff, while the San Joaquin and Tulare Lake regions had flows near 155 percent of average. This pattern, observed in January, continued through February. The Sacramento, San Joaquin,

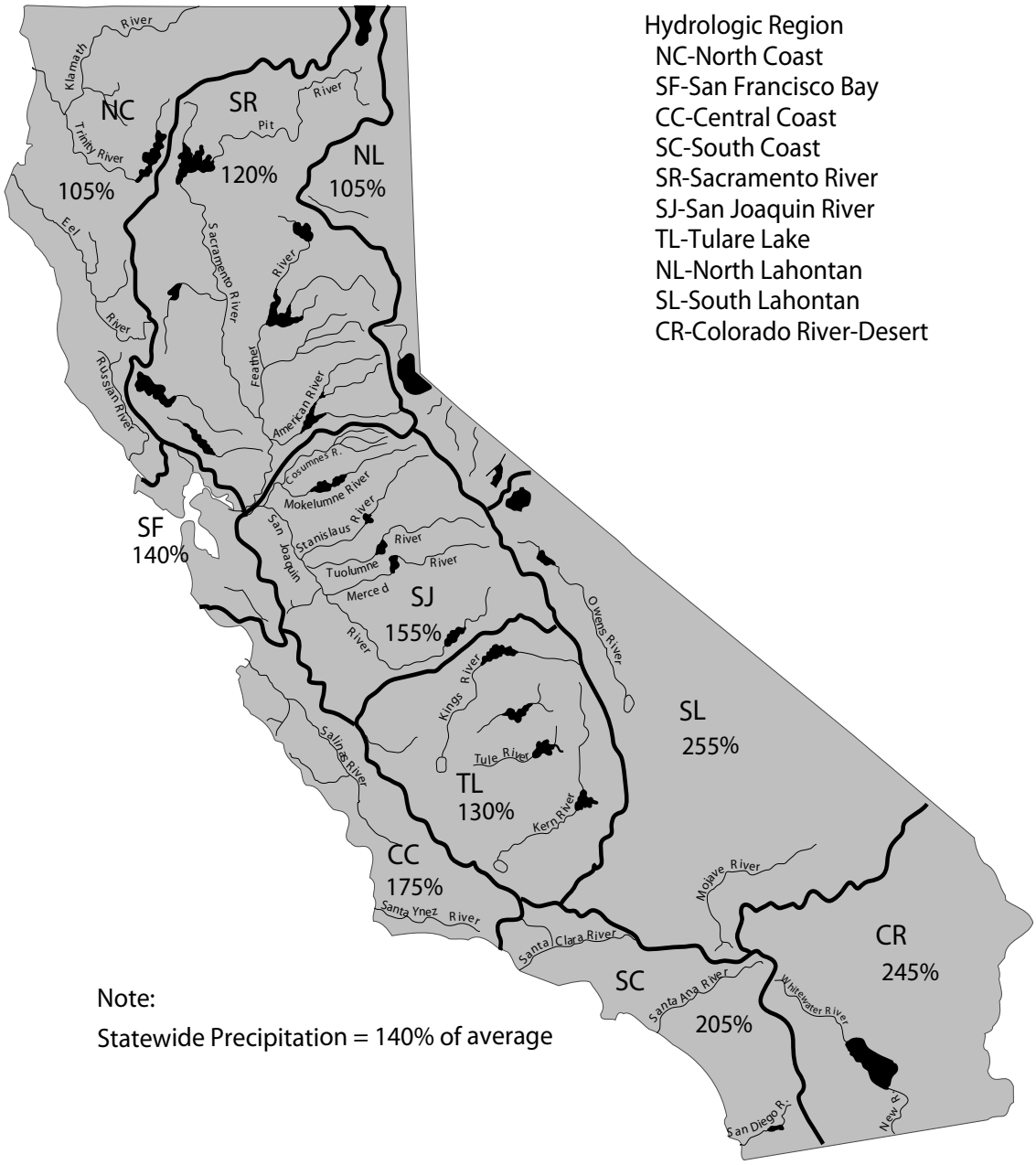


Figure 8-1. Statewide Precipitation by Hydrologic Region, 2004–2005 Water Year, Percentage Average

and Tulare Lake regions received average flows of 55 percent, 110 percent, and 90 percent, respectively. The storm track and water supply patterns changed slightly during March. The Sacramento region received near normal runoff for the month, while well above average runoff persisted in the Central and Southern Sierra.

From a water supply perspective, the most closely monitored period is April through July. The month of April concluded with near normal runoff over most of the Sierra. The month of May was very wet, and it ended with statewide runoff volumes at nearly 190 percent of average for the month. During May, the statewide reservoir storage rose from about 105 percent of average to almost 115 percent of average.

By the end of July, the water year runoff volumes were 95 percent, 150 percent, and 145 percent of average for the Sacramento, San Joaquin, and Tulare Lake regions, respectively.

Water Year 2005–2006 October–December Water Conditions

The last three months of calendar year 2005 mark the beginning of the new 2005–2006 water year. By the end of October, the runoff was near 80 percent of average in the Northern Sierra and closer to average in the central and southern regions of the Sierra. November provided lower percentages of average runoff. By the end of November, statewide runoff since October 1 had fallen to near 70 percent of average. December, however, received nearly 200 percent of normal precipitation statewide and, in addition, the statewide water year-to-date runoff rose to nearly 200 percent of average.

SWP Storage

The SWP operates a complex system of 29 dams and reservoirs to collect and store water for future deliveries. Lake Oroville is the first of two primary SWP conservation facilities. Inflow into Lake Oroville comes from the Feather River.

The San Luis Reservoir is the second primary SWP conservation facility. This Central California facility derives its inflow from pumping at the Gianelli Pumping-Generating Plant. San Luis is an off-stream reservoir. Most of the water is pumped into the reservoir from late fall to early spring. This water is temporarily stored, then released to the California Aqueduct to meet water contractor peaking demands in the summer months. The remaining 27 dams and reservoirs regulate the stored water supply in water delivery patterns that are designed to fit local needs.

Water Year 2004–2005 Storage Totals

At the end of the 2004–2005 water year, water storage in all SWP reservoirs was 4.52 maf or 83 percent of average, compared to 2.99 maf or 76 percent of average at the end of water year 2003–2004. The average end-of-month total storage for the 2004–2005 water year in major SWP reservoirs was 4.19 maf. End-of-water-year storage on September 30, 2005, at Lake Oroville was 2.88 maf, which was about 1.13 maf more than the previous water year. The State's share of San Luis Reservoir storage at the end of the 2004–2005 water year was 925,701 af, as compared to 513,406 af in the previous

water year. The combined storage in southern reservoirs was 620,933 af on September 30, 2005, as compared to 646,828 af at the end of the 2003–2004 water year.

Calendar Year 2005 Storage Totals

The total storage in major SWP reservoirs was about 4.64 maf at the end of calendar year 2005, as compared with 3.07 maf in 2004. The State's share of San Luis Reservoir storage was 1,167,613 af on December 31, 2005, as compared to about 672,181 af at the same time in 2004. The combined storage in the southern reservoirs was 566,207 af on December 31, 2005, as compared to 642,042 af at the same time in 2004.

Lake Oroville

Lake Oroville is the keystone of SWP. It has a maximum water storage capacity of 3,537,580 af. Runoff from Feather River drainage is collected and stored in this reservoir. This water is released to the Sacramento-San Joaquin Delta through Oroville Dam, Thermalito Diversion Dam, and Thermalito Afterbay.

Water Year 2004–2005 Inflow

Lake Oroville inflow for the 2004–2005 water year totaled about 3.87 maf, which was 91 percent of the 30-year average (4.24 maf). Maximum daily inflow occurred on May 19, 2005, at 105,055 af. Minimum daily inflow occurred on October 11, 2004, at 1,640 af. The maximum total in 30 years was in water year 1982–1983 at 8,853,572 af. The minimum total in 30 years was in water year 1991–1992 at 1,555,774 af. (See Figures 8-2 and 8-3 for monthly and cumulative inflows, respectively, into Lake Oroville.)

Calendar Year 2005 Inflow and Storage

Total inflow into Lake Oroville during the calendar year was 4,762,959 af. Minimum storage on January 1, 2005, was 1,654,440 af, which was 47 percent of its capacity. Maximum storage on June 15, 2005, was 3,529,207 af. End-of-year Lake Oroville storage was 2,924,684 af. (Figure 8-4 compares end-of-month storage in Lake Oroville Reservoir for the 2004 and 2005 calendar years.)

2004–2005 Water Year San Luis Reservoir Operations

San Luis Reservoir is operated jointly by DWR and the U.S. Bureau of Reclamation (Reclamation), per operating procedures that were adopted in June 1981. San Luis Reservoir has a normal operating capacity of 2,027,840 af. The SWP share of this capacity is 1,062,183 af.

San Luis Reservoir reached its maximum water year total storage on March 25, 2005, at 2,031,395 af, 100 percent of its normal maximum operating capacity. At the beginning of the water year, San Luis Reservoir contained 670,634 af, 33 percent of its capacity. SWP storage share in the beginning of the water year was 522,041 af. On February 28, 2005, the highest end-of-month SWP share of water storage was 1,099,886 af for the 2004–2005 water year (Figure 8-5).

2004–2005 Water Year Lake Del Valle Operations

Lake del Valle, which is situated off the South Bay Aqueduct, functions primarily as a storage facility for later water delivery in Santa Clara and Alameda counties. At the beginning of the water year, Lake del Valle

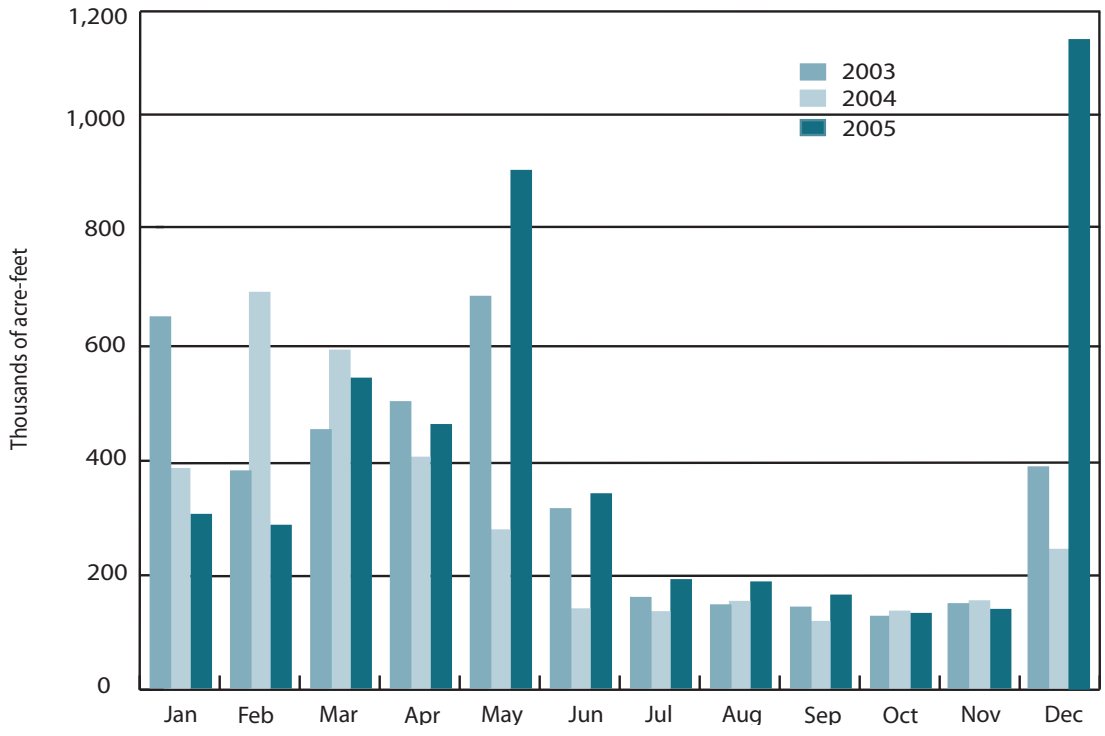


Figure 8-2. Monthly Lake Oroville Inflow, 2003-2005

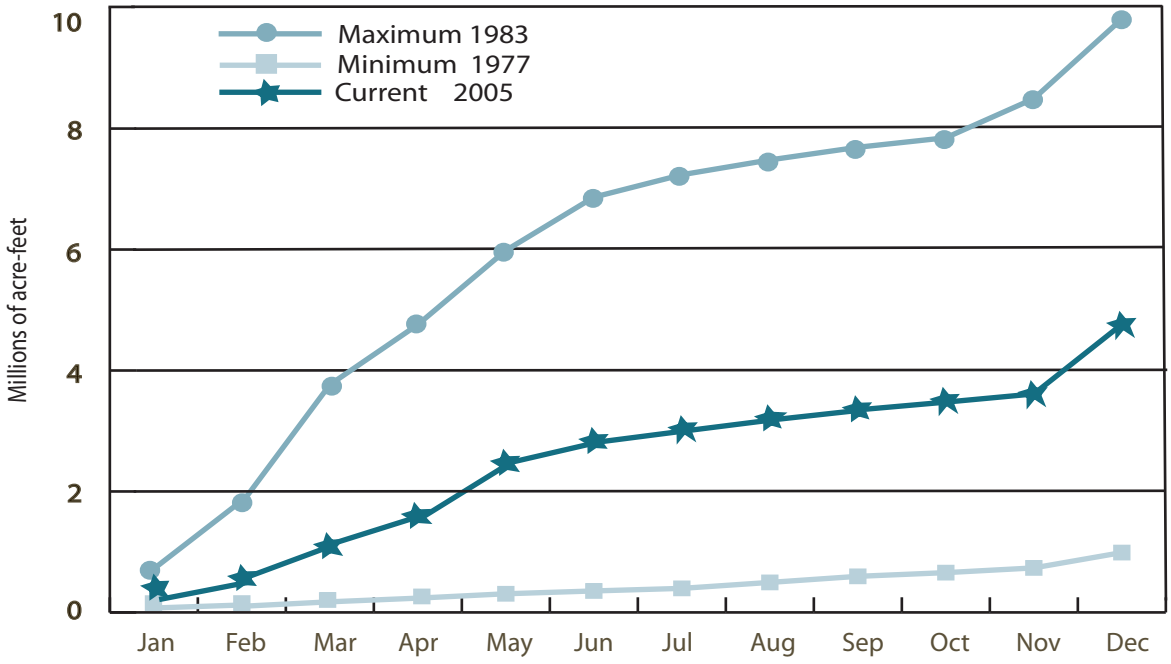


Figure 8-3. Cumulative Maximum, Minimum, and Current Lake Oroville Inflow

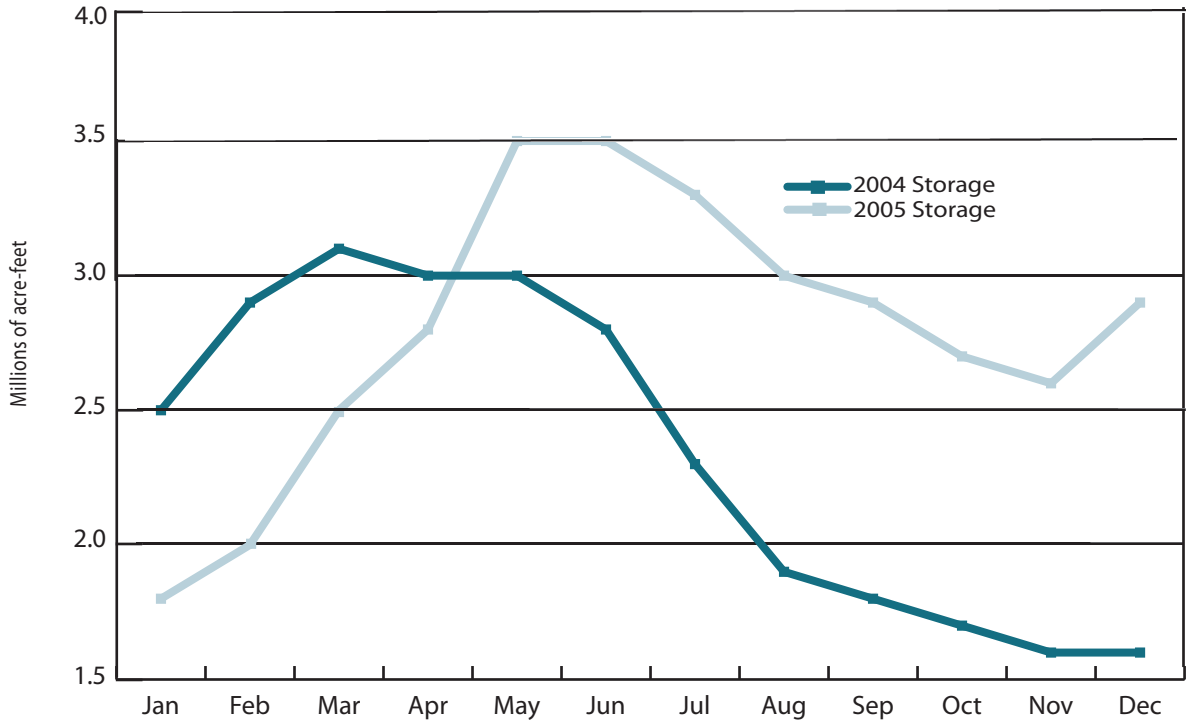


Figure 8-4. End-of-Month Storage in Lake Oroville, 2004 and 2005 Calendar Years

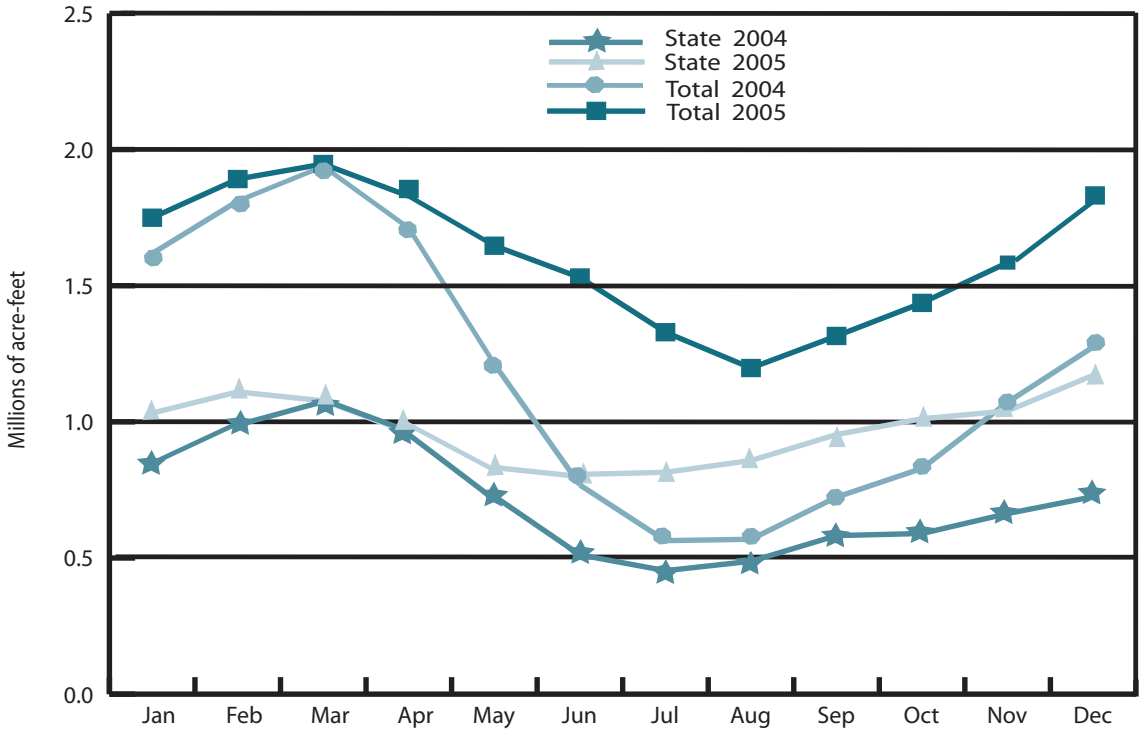


Figure 8-5. End-of-Month Storage in San Luis Reservoir, 2004 and 2005 Calendar Years

held 29,770 af, which was about 39 percent of its maximum capacity of 77,106 af. Its highest storage occurred during the 2004–2005 water year on February 21, 2005, with 41,367 af. Its lowest storage occurred on December 26, 2004, with 25,569 af.

By the end of the water year, on September 30, 2005, storage in Lake del Valle was 33,716 af, 44 percent of maximum capacity. Water year releases to Arroyo Valle and South Bay Aqueduct from Lake Del Valle totaled 27,948 af.

2004–2005 Water Year Southern Reservoir Operations

During normal operating conditions, DWR maintains its four southern reservoirs—Pyramid, Castaic, Silverwood, and Perris—at or near full operating capacity to ensure uninterrupted delivery of water to Southern California contractors.

At the beginning of the water year, these reservoirs held 646,828 af, with 93.9 percent of their combined normal maximum operating capacity of 689,021 af. At the end of the water year, the reservoirs held 620,933 af, 90.1 percent of combined normal maximum operating capacity.

Diversions from the Delta

SWP diverts water from the Sacramento-San Joaquin Delta, through Banks and Barker Slough pumping plants, for delivery to SWP contractors' storage facilities. In 2005, the SWP diverted 4,042,013 af at Banks Pumping Plant, including a combined total of 5,091 af of Central Valley Project (CVP) and Cross Valley Canal water, which was wheeled by DWR. In 2005, CVP diverted 2,705,849 af at the Tracy Pumping Plant and 123,477 af at the Contra Costa Pumping Plant. The combined Delta exports include all of these plants. (Figure 8-6 shows the amounts of water pumped each month in 2005 at the Banks Pumping Plant. Figure 8-7 shows the monthly amounts of water diverted from the Delta in 2005 by the SWP and CVP. CVP diverts water to similar areas from the Delta through Tracy Pumping Plant and Contra Costa Pumping Plant.)

Water is delivered from Banks Pumping Plant to the South Bay area through the South Bay Aqueduct and to the San Joaquin Valley, Central Coastal, and Southern California areas through the California Aqueduct. The SWP diverts water from Barker Slough Pumping Plant to the North Bay Aqueduct. In 2005, a total of 46,424 af were diverted.

Dos Amigos Pumping Plant diverts water from O'Neill Forebay to the California Aqueduct. (Figure 8-8 shows monthly total amounts pumped at Dos Amigos Pumping Plant for the calendar year 2005.) Pumping peaked in July 2005, at 642,712 af.

Maximum daily Delta exports occurred on December 30, 2005, at 25,960 af. Combined SWP and CVP monthly Delta exports in 2005 varied from a low of 203,773 af in May, to a high of 744,362 af in January. In 2005, Delta exports totaled approximately 6.87 million af.

In 2005, water pumped through the Edmonston Pumping Plant for delivery to Southern California totaled 1,561,036 af. (Figure 8-9 shows the amount of water pumped each month in 2005.)

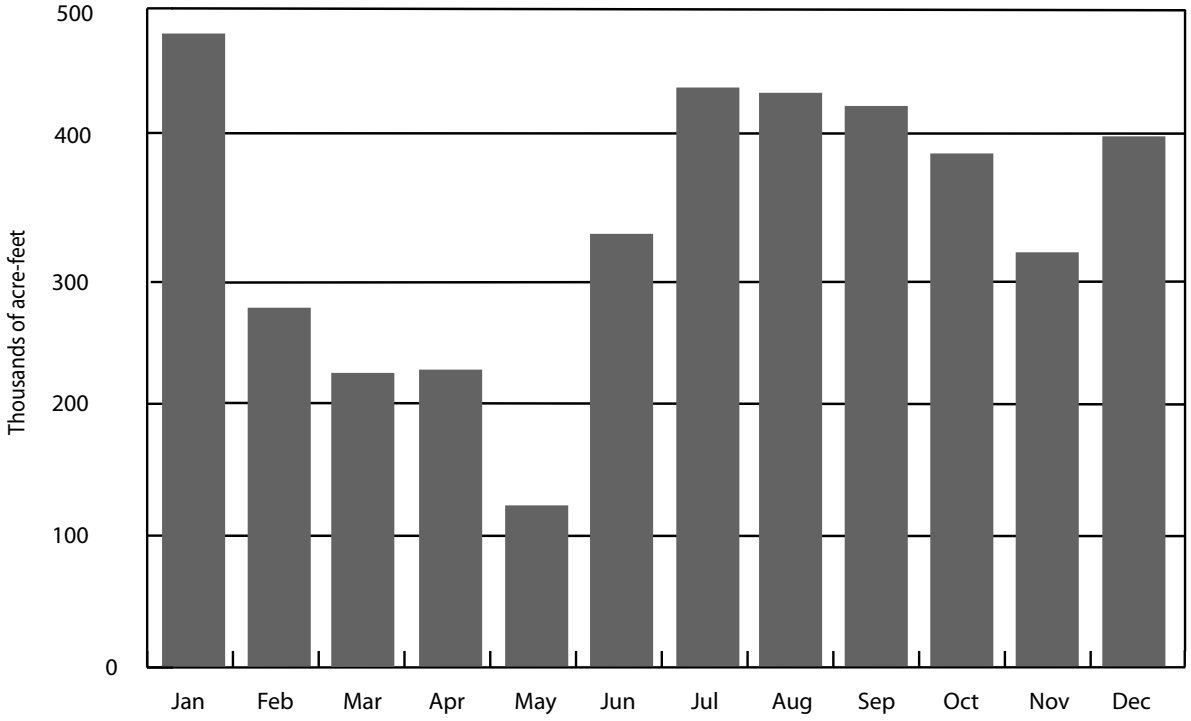


Figure 8-6. Water Pumped at Banks Pumping Plant, 2005 by Month

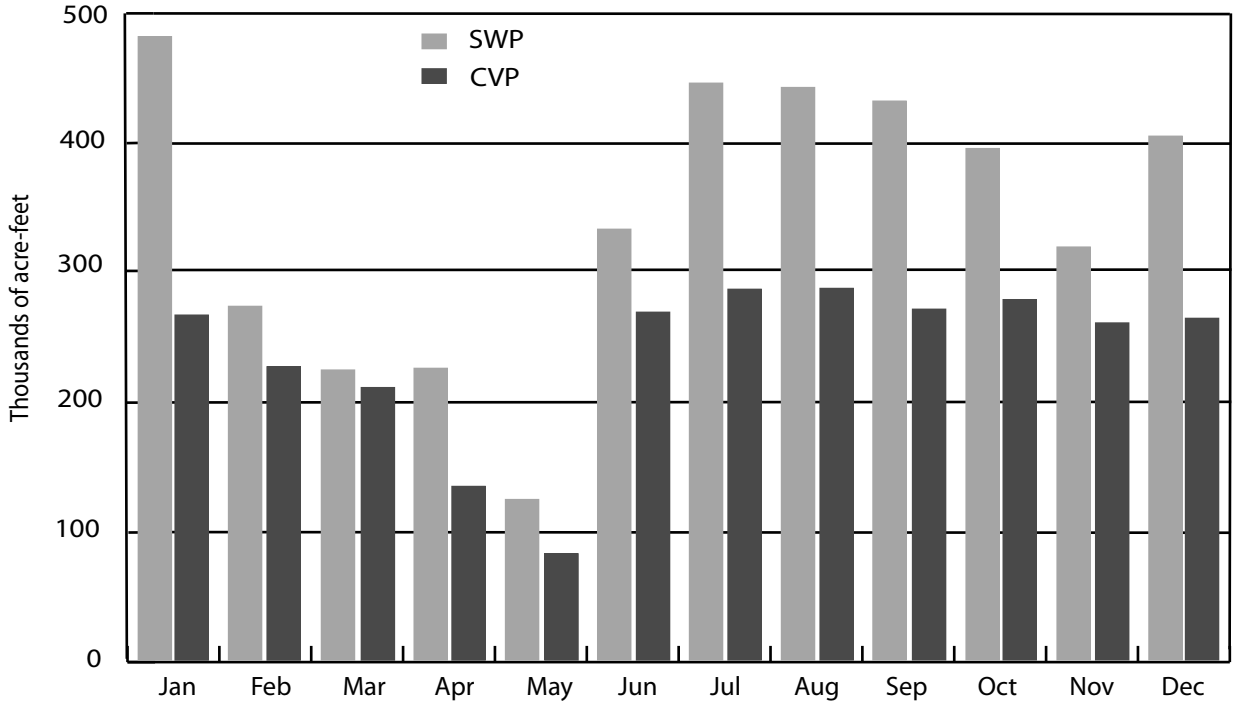


Figure 8-7. Sacramento-San Joaquin Delta Exports by State Water Project and Central Valley Project, 2005

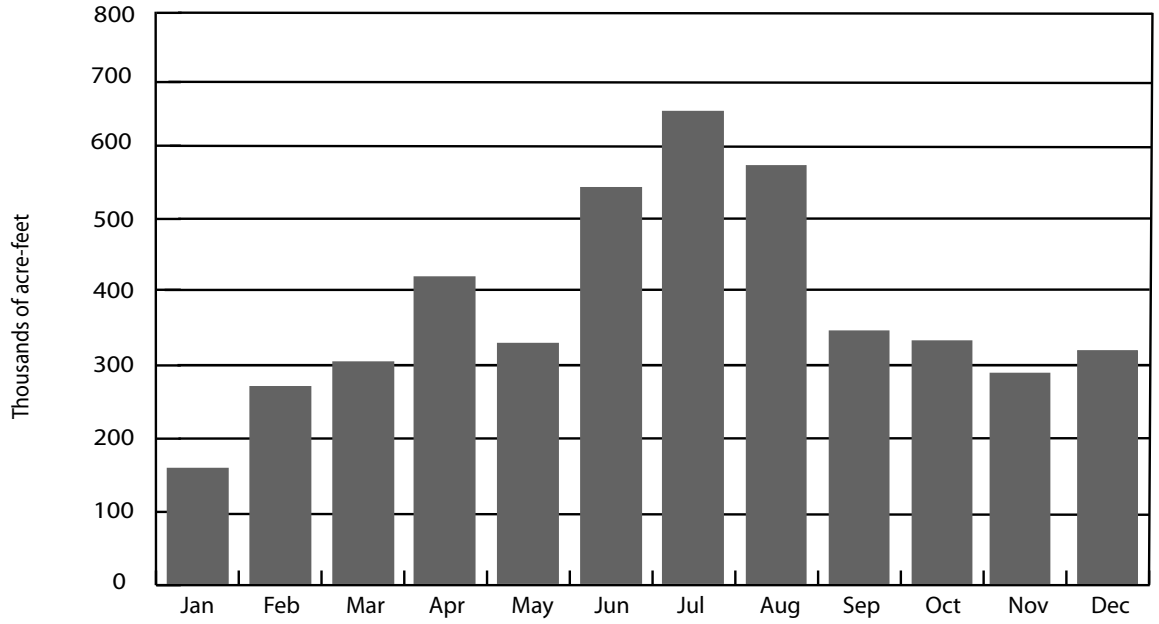


Figure 8-8. Water Pumped At Dos Amigos Pumping Plant, 2005 by Month

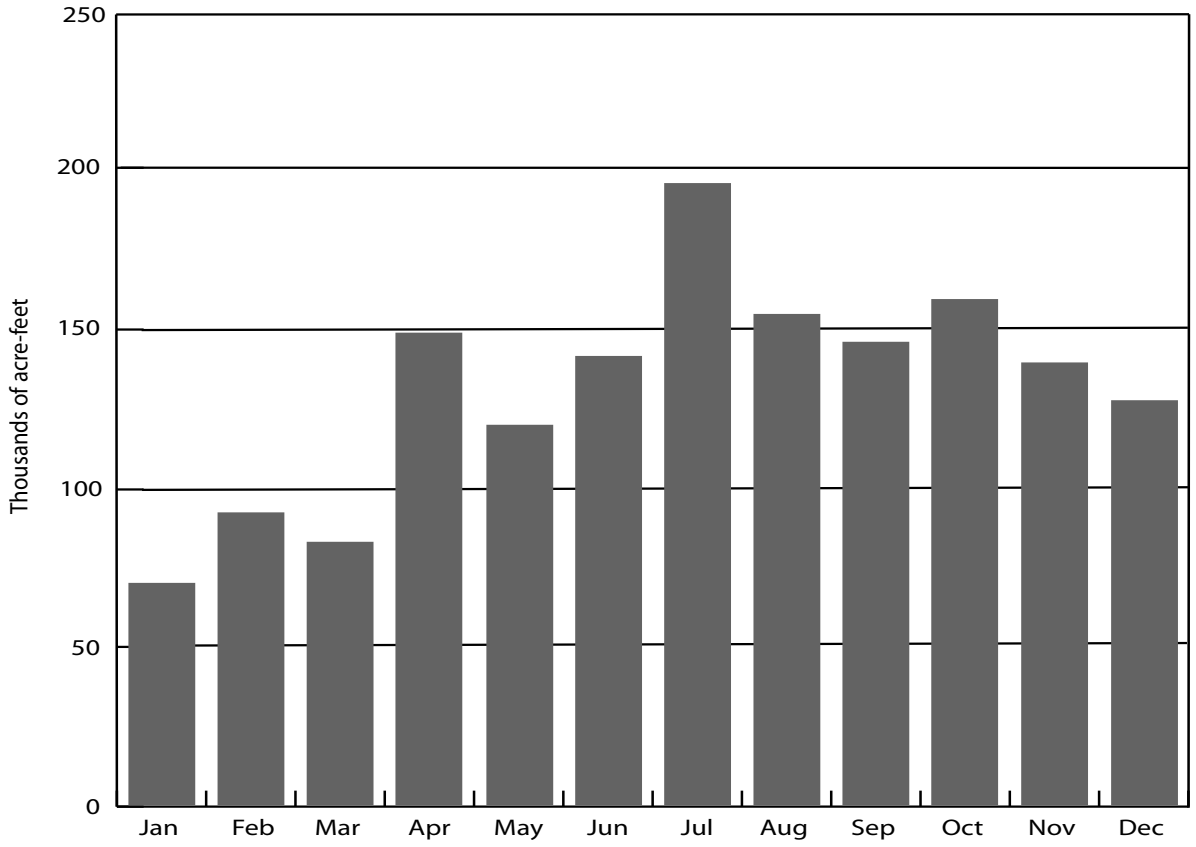


Figure 8-9. Water Pumped at Edmonston Pumping Plant, 2005 by Month

Chapter 9
Water Contracts and Deliveries

Clifton Court Forebay

Significant Events in 2005

During 2005,the Department of Water Resources (DWR) executed seven water conveyance and exchange agreements, 27 Turn-Back Water Pool Program agreements,14 Article 21 Water Program agreements with SWP contractors.

DWR also delivered water pursuant to seven conveyance and exchange agreements and eight storage agreements pending execution, and six conveyance and exchange agreements and three storage agreements executed prior to 2005.

In 2005, 4,732,633 af of water were conveyed to 27 long-term contractors and 26 other agencies.

The Environmental Water Account curtailed pumping at SWP and CVP by 681 af and 11,400 af, respectively. All EWA debt was paid back to the projects by the end of 2005.

Information for this chapter was provided by the State Water Project Analysis Office.

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

DWR delivers water to SWP contractors in accordance with their long-term water supply contracts. These contracts set forth Table A amounts, which determine how much water a contractor may request each year from DWR. Table A amounts also are used as a factor for apportioning available supply to each contractor. Contracts can be found at http:// www.swpao.water.ca.gov/wsc/index.cfm.

"Approved Table A or approved Table A water" represents a portion or all of the annual Table A requested by the contractors and approved for delivery by DWR, based on hydrologic conditions, current reservoir storage, and combined requests from the SWP water contractors. DWR is not always able to deliver the quantity of water requested by contractors. In these cases, and under certain conditions, a lesser amount is allocated and delivered according to the long-term water supply contracts and the process noted above.

Approved Table A amounts may also be referred to in this chapter as "approved amounts" or "approved water".

The Water Supply Contracts are amended as needed. During 2005, two amendments were executed.

DWR 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 to approve the construction, operation, and maintenance of turnouts along SWP facilities. During 2005, DWR executed seven water conveyance and exchange agreements, 27 Turn-back Water Pool Program agreements,14 Article 21 Water Program agreements with SWP contractors. DWR also delivered water pursuant to seven conveyance and exchange agreements and eight storage agreements pending execution, and six conveyance and exchange agreements and three storage agreements executed prior to 2005.

The State Water Project Analysis Office has developed a numbering system for contracts, amendments, and agreements executed by DWR. These numbers, called SWPAO numbers and designated in text as "SWPAO #XXXXX," are located in parentheses after each contract, amendment, or agreement. These numbers can be used as an identifier for anyone who contacts DWR staff for more detailed information on a particular document.

Amendments to Long-Term SWP Water Supply Contracts

All the original contracts signed by DWR and local agencies have been previously amended to incorporate mutually desired

Long-Term SWP Water Supply Contracts

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

The Metropolitan 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 Table A amount was transferred to Metropolitan through an amendment to the district's long-term contract with DWR. Long-term contracts with Hacienda Water District and Devil's Den Water District were also terminated when those districts transferred their Table A amounts, 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 periodically to incorporate mutually agreed upon 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 Table A amounts). That amount was designed to increase gradually until the maximum amount of annual Table A was reached. The total combined maximum annual Table A amount 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 Table A amount 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.

changes. Most amendments fall under the following five general categories:

1) revision of annual Table A amounts in the water supply contracts;
2) allocation of costs and benefits for the enlargement or extension of the East Branch and extension of the Coastal Branch of the California Aqueduct;
3) purchase of excess capacity in the California Aqueduct;
4) provisions to allow contractors, under certain conditions, to carry over undelivered SWP approved Table A

water from one year for delivery in the next year; and

5) implementation of Monterey Agreement principles.

2005 Amendments to Long-Term Water Supply Contracts

The following Water Supply Contracts were amended during 2005.

County of Kings

DWR executed Amendment No. 17 to the Water Supply Contract between County of Kings and DWR on September 23, 2005. The amendment provided for the permanent transfer of 305 af of SWP Table A water from Tulare Lake Basin Water Storage District to County of Kings, and set forth the conditions of the transfer. The transfer becomes effective January 1, 2006. (SWPAO #05014)

Tulare Lake Basin Water Storage District

DWR executed Amendment No. 32 to the Water Supply Contract between Tulare and DWR on September 23, 2005. The amendment provided for the permanent transfer of 305 af of Table A water from Tulare to County of Kings, and set forth the conditions of the transfer. The transfer becomes effective January 1, 2006. (SWPAO #05013)

The following long-term Water Supply Contract amendments (part of the 2003 Colorado River Quantification Settlement Agreement) were executed in 2003, and became effective in 2005. The amendments are a result of the 2003 Exchange Agreement that became effective on November 9, 2004, among Coachella Valley Water District, Metropolitan Water District of Southern California, and Desert Water Agency. The exchange agreement provides for the transfer of 88,100 af of Metropolitan's Table A amounts to Coachella and 11,900 af of Metropolitan's Table A amounts to Desert. The transfers are consistent with the implementation of the 2003 Colorado River Quantification Settlement Agreement.

Coachella Valley Water District

DWR executed Amendment No. 18 to the Water Supply Contract between Coachella and DWR on October 10, 2003. The amendment provided for the permanent transfer of 88,100 af of Table A amounts from Metropolitan to Coachella and set forth conditions for the transfer. The transfer became effective January 1, 2005. (SWPAO #04009)

Desert Water Agency

DWR executed Amendment No. 18 to the Water Supply Contract between Desert and DWR on November 3, 2003. The amendment provided for the permanent transfer of 11,900 af of Table A amounts from Metropolitan to Desert and set forth conditions for the transfer. The transfer became effective on January 1, 2005. (SWPAO #04011)

Metropolitan Water District of Southern California

DWR executed Amendment No. 27 to the Water Supply Contract between Metropolitan and DWR on October 24, 2003. The amendment provided for the permanent transfer of 88,100 af of Table A amounts from Metropolitan to Coachella, and set forth conditions for the transfer. The transfer became effective January 1, 2005. (SWPAO #04008)

DWR executed Amendment No. 28 to the Water Supply Contract between

Metropolitan and DWR on October 24, 2003. The amendment provided for the permanent transfer of 11,900 af of Table A amounts from Metropolitan to Desert, and set forth conditions for the transfer. The transfer became effective January 1, 2005. (SWPAO #04010)

Monterey Amendments

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 for local water agencies to maximize use of existing facilities.

The Monterey Amendments include changes in allocation of approved Table A water, the transfer of Table A amounts and land, financial restructuring, and increased operational flexibility. The Monterey Amendments are discussed in detail in Chapter 1, "Summary of Significant Events", of Bulletin 132-95 (available online at http://www.swpao.water.ca.gov/publications/index.cfm).

Plumas and Empire remain the only long-term SWP contractors who have not signed the Monterey Amendment.

In accordance with the terms of the May 5, 2003, Monterey Settlement Agreement, the SWP continues to operate pursuant to the Monterey Amendments, while the new Environmental Impact Report (EIR) is being prepared. The draft EIR is expected to be released in 2007. The settlement agreement is discussed in detail in Chapter 9, "Water Contracts and Deliveries," of Bulletin 132-04, (available online at http://www.swpao.water.ca.gov/publications/index.cfm.)

Miscellaneous Agreements with Long-Term SWP Contractors

2005 Water Conveyance and Exchange Agreements

During 2005, water conveyance and exchange agreements were executed or pending execution with long-term SWP contractors as described below.

Dudley Ridge Water District

A letter agreement dated June 20, 2005 and executed July 5, 2005, between DWR and Dudley Ridge approved the conveyance of Central Valley Project (CVP) Section 215 water to Dudley Ridge from March 1, 2005 through May 31, 2010. The CVP section 215 water will be made available at O'Neill Forebay. Dudley Ridge requested this water to be delivered to Dudley Ridge through SWP facilities pursuant to Article 55 of its long-term Water Supply Contract. During 2005, a total of 576 af of CVP Section 215 water was delivered to Dudley Ridge from Reach 8D of the California Aqueduct. (SWPAO #05005)

A letter agreement, pending execution among DWR, Dudley Ridge, and Kern County Water Agency, will provide for the delivery of up to 12,000 af of Dudley Ridge's 2005 Table A water to Kern for delivery to Berrenda Mesa Water District. In exchange, Kern will return a portion of its Table A water, equal to two-thirds (66.7 per cent) of Dudley Ridge's 2005 Table A water delivery to Kern. All return water is to be delivered to Dudley Ridge by December 31, 2018. During 2005, a total of 4,684 af was delivered to Kern from Reach 31A of the Coastal Branch. (SWPAO #05015)

A letter agreement, pending execution among DWR, Dudley Ridge, and San Gabriel Valley Municipal Water District, will provide for the delivery of a portion of Dudley Ridge's 2005 and 2006 approved SWP water supplies to San Gabriel's service area. In exchange, San Gabriel will return a like amount of its future SWP water supplies to Dudley Ridge by December 31, 2016. During 2005, a total of 3,484 af of Dudley Ridge's approved SWP water was delivered to San Gabriel at Reach 1 of the East Branch Extension, of which 2,988 af were 2005 Table A water, and 496 af were 2004 extended carryover water. (SWPAO #05017)

Empire West Side Irrigation District

An agreement executed December 13, 2005, between DWR and Empire, provided for the delivery of unscheduled water (Article 21) to Empire in 2005, at times when SWP water was not needed for fulfilling approved Table A deliveries, or for meeting project operational commitments. A total of 1,799 af of unscheduled water was delivered to Empire in 2005 at Reach 8C. (SWPAO #05002)

Kern County Water Agency

A letter agreement pending execution between DWR and Kern, will provide for the delivery of up to 27,000 af of Kern's approved 2005 Table A water to Westlands Water District. In return, Kern will receive a like amount of Kern River water from CVP contractors. This is to facilitate a sale of CVP water from an "eastside" Friant–Kern CVP contractor to Westlands, a "westside" CVP contractor. DWR petitioned the State Water Resources Control Board on May 25, 2005, and received approval on July 20, 2005, for a temporary change of place of use for the delivery of SWP water to Westlands. During 2005, a total of 7,000 af was delivered to Westlands at Reach 4. (SWPAO #05012)

A letter agreement dated August 9, 2005, and executed August 22, 2005, between DWR and Kern, approved the delivery of up to 20,000 af of Kern's 2005 Table A water to the U.S. Bureau of Reclamation (Reclamation) in O'Neill Forebay during 2005. This is to facilitate the delivery of up to 20,000 af of Kern–Tulare Water District's Friant–Kern water to Reclamation by in-lieu exchange, with a portion of Kern's approved Table A water. A portion of the 20,000 af was delivered to Kern National Wildlife Refuge located within Kern's service area. Reclamation was responsible for delivering the remaining portion to wildlife refuges in the San Joaquin Valley via the CVP Delta-Mendota Canal, or CVP side of the joint use facilities of the California Aqueduct. DWR petitioned SWRCB on April 21, 2005, and received approval on August 11, 2005 for such temporary change of place of use. During 2005, a total of 20,000 af was delivered to Reclamation in O'Neill Forebay. (SWPAO #05004)

A letter agreement, pending execution between DWR and Kern, will provide for the delivery of up to 25,000 af of Westlands' 2005 CVP water to Kern for storage in the Semitropic Groundwater Banking and Exchange Program. In exchange, Kern will return a like amount to Westlands in a future year. Westlands' approved CVP water will be made available at O'Neill Forebay for delivery to Kern. During 2005, a total of 11,284 af was delivered to Kern at Reach 10A. (SWPAO #05020)

A letter agreement dated September 14, 2005, and executed October 28, 2005,

between DWR and Kern, approved the delivery of up to 53,300 af of 2004 CVP water to Kern. Kern acquired this water from two CVP/Cross Valley Canal contractors (Kern–Tulare and Rag Gulch Water Districts) and requested the water to be delivered pursuant to Article 55 of Kern's Water Supply Contract. A portion of Kern–Tulare and Rag Gulch Water Districts' service area is within Kern County. During 2005, a total of 7,932 af was delivered to Kern. (SWPAO #04025)

A long-term agreement executed February 23, 2005, among DWR, Kern, and West Kern Water District, approved the introduction of local water from the West Kern Turn-in into Reach 13B of the California Aqueduct. The local water will be delivered concurrently by exchange with SWP water supplies to West Kern Turnout in Reach 12D of the California Aqueduct for use by La Paloma Power Plant. No water was moved under this agreement in 2005. (SWPAO #04015)

Mojave Water Agency

A letter agreement, pending execution among DWR, Mojave, and Solano County Water Agency will provide for the delivery of up to 2,000 af of Solano's approved 2005 SWP water supplies to Mojave, in exchange for up to 1,000 af of Mojave's future SWP water supplies during a dry year. All return water is to be delivered to Solano by December 31, 2015. Similar agreements were approved by DWR in 1998, 1999, 2000, and 2004. During 2005, a total of 2,000 af of Solano's Table A water was delivered to Mojave at Reach 22B. (SWPAO #05019)

Santa Clara Valley Water District

A letter agreement, pending execution among DWR, Santa Clara, and Kern, will provide for the delivery of up to 20,000 af of Santa Clara's 2005 CVP water to Semitropic Water Storage District, a member unit of Kern, in exchange for Kern's Table A water in the future. The water will be delivered to Kern in accordance to Article 55 of Kern's long–term Water Supply Contract. During 2005, a total of 20,000 af of Santa Clara's CVP water was delivered to Semitropic at Reach 10A. (SWPAO #06012)

A letter agreement dated January 31, 2005, and executed March 7, 2005, between DWR and Santa Clara, approved the delivery of up to 3,100 af of Brown's Valley Irrigation District's non-SWP water to Santa Clara in 2004. This water, which is under Brown's Valley pre-1914 water rights, was made available at Banks Pumping Plant and conveyed to Santa Clara at Reach 9 of the South Bay Aqueduct. Santa Clara requested this water be delivered pursuant to Article 55 of its Water Supply Contract. During 2004, a total of 3,100 af of non-SWP water was delivered to Santa Clara. (SWPAO #04026)

Tulare Lake Basin Water Storage District

A letter agreement dated June 20, 2005, and executed June 29, 2005, between DWR and Tulare, approved the transfer of up to 5,500 af of Tulare's 2005 Table A water to Westlands at Reaches 5, 6, and 7 of the California Aqueduct. The transfer was made on behalf of two land owners, Hansen Ranches (called Vista Verde Farms in Westlands) for up to 3,500 af, and Newton Farms for up to 2,000 af, both of which operate in Tulare's and Westlands' service areas. DWR petitioned the SWRCB on April 19, 2005, and received approval on June 29, 2005, for a temporary change of place of use. During 2005, a total of

3,000 af were delivered to Westlands at Reaches 5 and 7. (SWPAO #05001)

A letter agreement dated June 29, 2005, and executed August 15, 2005, among DWR, Tulare, and Westlands, approved the delivery and re-regulation of up to 500 af of CVP water from Westlands to Tulare in March 2005. In exchange, Tulare would return a like amount of its 2005 approved SWP Table A water to Westlands at Reaches 5, 6, and 7 of the California Aqueduct by December 31, 2005. The point of delivery for the exchange was at O'Neill Forebay. DWR petitioned SWRCB on April 19, 2005, and received approval on June 29, 2005, for a temporary change of place of use for the delivery of return water. During 2005, a total of 277 af was delivered to Tulare at O'Neill Forebay and a total of 277 af of Tulare's 2005 Table A water was returned from O'Neill Forebay to Westlands. (SWPAO #05003)

A letter agreement, pending execution between DWR and Tulare, will provide for the delivery of up to 2,000 af of Tulare's 2005 Table A water to Westlands at Reach 7 of the California Aqueduct, on behalf of Westlake Farms Inc. operates in both contractors' service areas. The water is to be delivered to Westlands for use on lands within the Kings County portion of Westlands' service area. During 2005, a total of 2,000 af was delivered to Westlands at Reach 7. (SWPAO #05011)

Water Conveyance and Exchange Agreements Prior to 2005

During 2005, water was delivered pursuant to agreements with SWP contractors that were executed prior to 2005. These water conveyance and exchange agreements are described below.

Kern County Water Agency

An agreement executed on June 8, 2000, among DWR, Kern, and Western Hills Water District approved delivery of 8,000 af of pre-1914 Lower Kern River rights water banked in Kern's share of the Pioneer Groundwater Banking Project. A portion of Kern's approved Table A water will be delivered annually to Western Hills from Reach 2A of the California Aqueduct. In exchange, Kern will take a like amount of banked local water from the Pioneer Groundwater Bank. DWR petitioned SWRCB and by an SWRCB order dated April 21, 2000, Western Hills' service area was included within the authorized SWP place of use. During 2005, a total of 1,046 af of Kern's Table A water was delivered to Western Hills at Reach 2A. (SWPAO #01001)

A letter agreement executed October 11, 2002, between DWR and Kern approved the delivery to Kern in 2000, of up to 30,000 af of non-SWP water from four CVP contractors, members of the San Luis and Delta Mendota Water Authority. In exchange, Kern would return a like amount of its approved Table A water to the Water Authority by December 31, 2003. A total of 23,941 af of CVP water was delivered to Kern in 2000. Kern requested an extension of the return period in 2003, and a total of 2,000 af was returned to the Water Authority by the end of 2004, leaving a balance of 21,941 af to be returned to the CVP contractors. The Water Authority, Kern and Santa Clara entered into an exchange agreement dated June 28, 2005, to facilitate the return of the remaining 21,941 af to the Water Authority. Pursuant to the exchange agreement, Santa Clara, a contractor who has both SWP and CVP water supplies, will deliver 21,941 af of its CVP water supplies to the Water Authority. In return, a like amount of Kern's approved

SWP water supplies will be delivered to Santa Clara's account in the Semitropic Water Banking Program for later recovery. During 2005, a total of 21,941 af of Kern's Table A water was delivered to Semitropic from Reach 10A, thereby completing the exchange. (SWPAO #00032)

Mojave Water Agency

An agreement executed November 13, 1997, among AVEK, Mojave, and DWR, approved a change in point of delivery through 2019 of up to 2,250 af annually of Mojave's approved Table A amount to AVEK's Fairmont Turnout in Reach 19 of the California Aqueduct. Mojave does not have conveyance facilities to provide service to a solar energy generating station located within its service area. AVEK has conveyance capability and has agreed to provide service. During 2005, DWR delivered 973 af of Mojave's 2005 Table A water and 43 af of Mojave's 2004 extended carryover water through AVEK's turnout at Reach 19. (SWPAO #97003)

Napa County Flood Control and Water Conservation District

A change in point of delivery agreement executed December 26, 2001, among DWR, Napa County Flood Control and Water Conservation District and Solano County Water Agency, approved the delivery of up to 628 af of Napa's annual Table A water to the City of Vallejo Water Treatment Plant at Reach 3A of the North Bay Aqueduct, in Solano's service area. This water is further conveyed to the City of American Canyon, a member agency of Napa. During 2005, a total of 160 af of Napa's Table A water was delivered to Solano from Reach 3A. (SWPAO #00029)

Solano County Water Agency

A settlement agreement was executed May 19, 2003, among DWR, Solano, and the cities of Fairfield, Vacaville, and Benicia. Concurrently, a conveyance agreement was executed between DWR and Solano. Together, these agreements approved the delivery of up to 31,620 af annually of settlement water to Solano for delivery to the three cities to help meet their current and future municipal and industrial water needs through the North Bay Aqueduct. During 2005, a total of 1,132 af of settlement water was delivered to the three cities through Reach 1 of the North Bay Aqueduct. (SWPAO #03017)

San Bernardino Valley Municipal Water District

San Bernardino and Metropolitan entered into a coordinated use agreement for conveyance facilities and SWP water supplies on May 14, 2001. DWR responded on February 27, 2002, concurring with the agreement and acknowledging the coordinated use of local facilities currently existing within San Bernardino's jurisdictional boundaries. This coordinated use involves delivery of San Bernardino's SWP water to Metropolitan's facilities within San Bernardino's service area, as permitted under Article 10 of the Water Supply Contract. During 2005, a total of 20,000 af of San Bernardino's approved Table A water was delivered to Metropolitan, of which 15,834 af was delivered to Reach 26A and 4,166 af was delivered to Reach 1 of the East Branch Extension. (SWPAO #02035)

Turnout Agreements

Antelope Valley–East Kern Water Agency.

An agreement dated March 28, 2000, between DWR and Antelope Valley–

East Kern Water Agency, allowed the construction, operation, and maintenance of the Rancho Vista Turnout at Milepost 339.68, Reach 20B of the California Aqueduct. The turnout has a design capacity of 5 cfs. Construction was completed in March 2000, but was not formally accepted in 2005.

New Point of Delivery for Ventura County Watershed Protection District

United Water Conservation District (United) currently contracts for 5,000 af per year of SWP water from Ventura County Watershed Protection District. Of the 5,000 af, 1,850 af are allocated to the Port Hueneme Water Agency and delivered through Castaic Lake. In February 2002, United released an Initial Study and Negative Declaration for the delivery of its SWP water from Pyramid Lake via Piru Creek. The proposal to deliver Ventura's SWP water for United via Piru Creek was included as an objective in the EIR for the revised operations guidelines for Pyramid Lake. The new guidelines, consistent with the final EIR, allow for the delivery of up to 3,150 af of SWP water to United between November 1 and the end of February each year.

Agreements and Activities Related to the Monterey Amendments

Turn-Back Water Pool Program

Pursuant to Article 56(d) of the Monterey Amendments, the tenth year of the Turn-Back Water Pool Program was initiated through Notice to State Water Project Contractors No. 05-04, dated February 2, 2005. All SWP contractors who signed Monterey Amendments were permitted to participate in the program. The program allowed SWP contractors to offer a portion of their approved 2005 Table A water for sale in a Turn-back pool for use by interested SWP contractors. Based on Table A supply and demand, the Turn-back water was allocated among the selling and purchasing contractors. In 2005, 38,275 af of water were purchased under the Turn-Back Water Pool Program.

Transactions for Pool A and Pool B of the Turn-Back Water Pool Program occurred in February and March 2005, respectively. In 2005, the program was extended to June 1 to allow for changes in the percentage of Table A allocations between April 1 and June 1. Only SWP contractors who were already committed to purchase water through Pool B were allowed to continue with the program until June. Turn-back water sold for $12.24 per acre-foot—50 percent of the Delta Water Rate—through Pool A, and for $6.12 per acre-foot—25 percent of the Delta Water Rate—through Pool B. All money collected through the Turn-Back Water Pool Program was paid to the selling contractors. The 2005 Turn-Back Water Pool Program closed on June 1, 2005. Notices to State Water Project Contractors describing the Turn-Back Water Pool Program are available online at http://www.swpao.water.ca.gov/notices/index.cfm.

Table 9–1 lists contractors who participated in Pool A and Pool B of the Turn-Back Water Pool Program.

Storage of Water Outside Service Area

Pursuant to Article 56 of the Monterey Amendments, seven SWP contractors have agreements with DWR to deliver or store SWP water outside their service area for later use within their service area. The following agreements include provisions concerning the conveyance and points of delivery of such water.

Table 9-1. 2005 Turn-Back Water Pool Program (Acre-feet)

Contractor	Sold	Purchased
	Pool A	
City of Yuba City	2,160	
Littlerock	880	
Ventura County	9,000	
Alameda County		144
Coachella		414
Desert		171
Dudley Ridge		196
Kern		3,412
Kings		31
Metropolitan		6,530
Oak Flat		19
San Gorgonio		22
Santa Barbara		155
Santa Clara		342
Tulare		329
Zone 7		275
Total	**12,040**	**12,040**
	Pool B	
City of Yuba City	3,480	
San Gabriel	15,420	
Ventura	7,335	
Alameda County		799
Coachella		2,302
Desert		951
Dudley Ridge		1,090
Kern		18,985
Kings		171
Oak Flat		108
Tulare		1,829
Total	**26,235**	**26,235**

Alameda County Flood Control and Water Conservation District, Zone 7. A long-term change in point of delivery agreement pending execution, among DWR, Alameda-Zone 7, and Kern, will provide for the delivery of a portion of Alameda-Zone 7's approved 2004 through 2020 SWP water supplies, for storage in Semitropic, and for the return of such water by future exchange of a like amount of Kern's Table A water, in accordance with the Alameda-Zone 7 and Semitropic Water Banking and Exchange Program Agreement. All return water is to be delivered to Alameda-Zone 7 by December 31, 2035. During 2005, DWR delivered a total of 5,740 af of Alameda-Zone 7's 2004 extended carryover water to Semitropic. (SWPAO #04017)

Alameda County Water District. A change in point of delivery agreement pending execution, among DWR, Alameda, and Kern, will provide for the delivery of a portion of Alameda's 2005 approved SWP water supplies for storage in and later recovery from Semitropic, in accordance with the Alameda County and Semitropic Water Banking and Exchange Program Agreement. During 2005, DWR delivered 25,700 af of Alameda's 2005 Table A water and 4,600 af of Alameda's 2004 extended carryover water to Semitropic. (SWPAO #07005)

Castaic Lake Water Agency. A long-term change in point of delivery agreement, pending execution, among DWR, Castaic, and Kern, will provide for the delivery of a portion of Castaic's approved 2005 and future SWP water supplies for storage in and later recovery from the groundwater basin underlying Rosedale–Rio Bravo Water Storage District, a member unit of Kern. This is in accordance with the Castaic and Rosedale–Rio Bravo Water Banking and Exchange Program Agreement. During 2005, DWR delivered 20,000 af of Castaic's approved 2005 Table A water to Reach 12E for subsequent delivery to Rosedale–Rio. (SWPAO #05016)

County of Kings. A change in point of delivery agreement, executed March 24, 2004, among DWR, Kings, and Westlands,

provides for the delivery of up to 5,000 af of County of Kings' Table A water through Westlands' turnouts at Reach 6 and Reach 7. Water will be conveyed through Westlands and into Kings County for use at LeMoore Naval Air Station. The agreement became effective January 1, 2004, and remains in effect until December 31, 2035. During 2005, DWR delivered a total of 2,439 af of Kings' Table A water to Westlands at Reach 6. (SWPAO #04005)

A change in point of delivery agreement, pending execution, among DWR, County of Kings, and Westlands, will provide for the delivery of a portion of Kings' approved 2005 and 2006 SWP water supplies through Westlands' turnouts at Reaches 6 and 7 of the California Aqueduct. County of Kings requested the SWP water supplies be delivered to Westlands' agricultural lands within King's county. During 2005, DWR delivered a total of 170 af of County of Kings' 2005 Table A water and 11,248 af of Article 21 water to Reaches 6 and 7. (SWPAO #05026)

A long-term agreement, pending execution, among DWR, County of Kings, Tulare, and Westlands, will provide for a change in point of delivery of up to 200 af of Kings annual approved Table A water and other SWP water supplies to Westlands' turnouts at Reaches 6 and 7 of the California Aqueduct. The water is conveyed to GWF Energy, LLP, for use within Kings' service area; however, GWF Energy relies on CVP water supplies before SWP water supplies. During 2005, one af was delivered to Reach 6. (SWPAO #02031)

Dudley Ridge Water District. A change in point of delivery agreement, pending execution, among DWR, Dudley Ridge, and Kern, will provide for the delivery of a portion of Dudley Ridge's approved SWP water supplies for storage in and later recovery from the Kern Water Bank (KWB). During 2005, DWR delivered a total of 15,694 af of Dudley Ridge's approved SWP water supplies for storage in KWB, of which 2,500 af were 2005 Table A water, 48 af were 2004 extended carryover water, and 13,146 af were Article 21 water. (SWPAO #07001)

Metropolitan Water District of Southern California. A long-term change in point of delivery agreement executed August 30, 2004, among DWR, Metropolitan, and Kern, approved the delivery of a portion of Metropolitan's approved SWP supplies for storage in and later recovery from the groundwater basin underlying Kern Delta Water District, a member unit of Kern, in accordance with the Metropolitan and Kern Delta Water Management Program Agreement. During 2005, a total of 15,576 af of Metropolitan's Table A water was delivered to Reaches 12E and 13B. (SWPAO #03019)

A change in point of delivery agreement pending execution, among DWR, Metropolitan, and Mojave, will provide for the delivery of up to 75,000 af of Metropolitans' 2003, 2004, and 2005 approved SWP water supplies for storage in the Mojave River Basin within Mojave, in accordance with the Metropolitan and Mojave Water Banking Demonstration Agreement. The water is to be returned to Metropolitan, by exchange of Mojave's Table A water, by January 15, 2010. During 2005, DWR delivered a total of 20,000 af of Metropolitan's 2005 Table A water to Mojave at Reaches 22B and 24. (SWPAO #03057)

A long-term agreement, executed on August 21, 1995, among DWR, Metropolitan, and Kern, approved the annual delivery of a portion of Metropolitan's annual approved Table A and other water supplies for storage in and later recovery from Semitropic, in accordance with the Metropolitan and Semitropic Water Banking Program Agreement. The long-term agreement remains in effect until November 4, 2035. During 2005, a total of 31,210 af of Metropolitan's Table A water was delivered to Semitropic from Reach 10A. (SWPAO #95010)

Santa Clara Valley Water District. A change in point of delivery agreement, pending execution among DWR, Santa Clara and Kern, will provide for the delivery of a portion of Santa Clara's approved 2005 SWP water supplies for storage in and later recovery from Semitropic, in accordance to the Santa Clara and Semitropic Water Banking and Exchange Program Agreement. During 2005, DWR delivered a total of 47,081 af of Santa Clara's approved SWP water supplies to Semitropic, of which 32,333 af were 2005 Table A water, 11,633 af were 2004 extended carryover water, and 3,115 af were Article 21 water. (SWPAO #05008)

Article 21 Water Program

Pursuant to Monterey Amendments, the Article 21 water replaces unscheduled, surplus, wet weather, and Article 12(d) water. The Article 21 water program allows a contractor to take delivery of water over the approved and scheduled Table A amounts for the current year. Article 21 water is available for delivery on a short-term basis as determined by DWR when water is still available after operational requirements for SWP water deliveries, water quality, and Delta requirements are met.

The conditions for the Article 21 Water Program for 2005 were described in the January 12, 2005, Notice to State Water Project Contractors No. 05-01. Thirteen participants signed the notice, which indicated their acceptance of the criteria, procedures, and charges for the program. They collectively received a total of 729,284 af of Article 21 water. (Table 9-2)

During the Article 21 water program period, unscheduled water was also made available to Empire pursuant to its long-term water supply contract. Empire received 1,799 af of unscheduled water in 2005 for agricultural purposes.

Table 9-2. Article 21 Water Deliveries (Acre-feet)

Contractor	Amount
Alameda County WD	846
Castaic Lake	2,451
Kings	11,504
Dudley Ridge	28,197
Kern	453,078
Napa	606
San Bernardino	56
San Gorgonio	15
San Luis Obispo	245
Santa Clara	6,298
Solano	10,421
Metropolitan	168,300
Tulare	47,267
Subtotal	729,284
Empire [a]	1,799
Total	**731,083**

a) Unscheduled agricultural water

Flexible Storage Program

No SWP contractor participated in the Flexible Storage Program in 2005.

Extended Carryover Program

Pursuant to Article 56 of the Monterey Amendments, contractors can elect to store project water outside of their service area for later use within their service area. Qualified contractors can request Table A water carried over for delivery in the following year to the extent that such deliveries do not adversely affect current or future project operations. Factors that influence how much extended carryover water can be delivered include operational constraints of project facilities, filling of SWP conservation storage facilities, flood control releases, and water quality restrictions. If storage requests exceed the available storage capacity, the amount available is allocated among the contractors requesting storage in proportion to their annual Table A water for that year. Fifteen SWP contractors took delivery of 169,171 af of approved 2004 Table A water carried over into 2005, as extended carryover.

Dry Year Water Purchase Program

Due to the wet hydrology of 2005, there was no need for a dry year water purchase program this year.

Environmental Water Account

EWA is a cooperatively managed program intended to provide (1) protection to fish of the Bay-Delta Estuary through environmentally beneficial changes and (2) water supply reliability to SWP and CVP water users through increased flexibility in operations (SWP and CVP). Responsibility for implementing EWA rests with the NOAA Fisheries, U.S.. Fish and Wildlife Service, and the Department of Fish and Game (management agencies), and Reclamation and DWR (project agencies).

Under EWA, fish protection is achieved by periodically curtailing project water delivery from the Bay-Delta to project water users south of the Delta and replacing it at a later date within the same calendar year. EWA operates on a water year basis, which begins October 1 and ends September 30 of the following year. However, EWA has the entire water year, plus the three remaining months of the calendar year, to replace curtailed water. This necessitates the acquisition of alternative sources of water, which are used to replace the project water supply (i.e., the undelivered water). EWA assets consist of "operational assets", which are acquired through changes in operations as defined in the August 28, 2000 CALFED ROD; "purchase assets," which are acquired water through purchases from willing water sellers; "source shifting," which involves deferral of scheduled delivery of water by willing participants; and other non-water assets including dedicated pumping capacity at Banks Pumping Plant during the summer. EWA is considered operational for any year when these assets are in place and Endangered Species Act commitments are provided by the management agencies.

In 2005, EWA's fifth operational year, exports were periodically curtailed at the SWP and CVP export facilities between December 15, 2004 and June 8, 2005. These actions resulted in an EWA debt of about 328,681 af at the SWP (December—4,163 af; February—33,967 af; April—121,888 af; May—133,997 af; June—34,666 af) and 11,400 af at the CVP in February.

During water year 2005, DWR and Reclamation acquired 171,917 af and 28,568 af, respectively, in operational assets and 154,560 af of purchase assets through contract agreements. All purchase asset acquisitions in 2005 were made by DWR and were covered under the EWA EIS/EIR in compliance with NEPA and CEQA. A source shift was not implemented because there was no risk of a low-point problem at San Luis Reservoir.

In fall 2004, EWA carried a debt of 14,927 af to water year 2005. EWA ended with no debt at the end of December 2005.

Purchase Assets

The following SWP contractors and non-SWP contractors participated in the EWA Program in 2005. The purchase asset water amounts below represent the total amounts of water acquired for EWA from various sources. These amounts have not been adjusted to reflect conveyance losses.

Kern County Water Agency

DWR and Kern County Water Agency executed an amendment, on May 20, 2005, to a 2003 agreement for selling previously stored groundwater to EWA and exchanging it for Kern's approved 2005 Table A water. The amendment approved the purchase of 29,712 af of groundwater to be exchanged in June 2005 (SWPAO #04-715). The purchased groundwater consisted of 5,432 af of previously stored Kern River Flood water and 24,280 af of previously stored Table A water (11,584 af stored in 1993; 8,631 af stored in 1995; 2,664 af stored in 1997; 532 af stored in 1998; and 869 af stored in 2000).

A multi-year groundwater purchase agreement was also executed on September 23, 2005, which expires December 31, 2007. In 2005, 60,000 af of water was purchased and exchanged for Kern's approved 2005 Table A water: 30,000 af of water in August and 30,000 af of water in September (SWPAO #05-705). A total of 89,712 af of Kern's groundwater was purchased in 2005. The purchased groundwater consisted of 8,879 af of previously stored Kern River Flood water and 51,121 af of previously stored Table A water (1,064 af stored in 1993, 15,075 af stored in 1995; 3,685 af stored in 1996; 3,802 stored in 1998; and 27,495 af stored in 2000).

Yuba County Water Agency. An agreement executed on April 7, 2005, between DWR and Yuba County Water Agency approved the transfer of up to 125,000 af of water from storage in New Bullards Bar Reservoir and groundwater substitution for support of EWA. Due to the wet hydrology of 2005, only 6,044 af of Yuba's water was purchased (SWPAO #04-716).

Placer County Water Agency. An agreement executed on October 26, 2004, between DWR and Placer County Water Agency approved the transfer of up to 20,000 af of water. DWR purchased a total of 18,700 af water from Placer for EWA in 2004. Since EWA was not able to use the Placer water in 2004, EWA applied 15,372 af of Placer's water for lower American River in stream temperature improvement benefits for fisheries in January 2005, and the remaining 3,328 af of Placer water spilled from Folsom Dam during flood control operations in February, 2005 (SWPAO #04-705).

South Feather Water and Power Agency

DWR and South Feather Water and Power Agency executed an agreement on December 15, 2004, for South Feather to transfer up to 10,000 af of water to DWR for EWA. South Feather released a total of 6,200 af water into Lake Oroville in December 2004 for use by EWA in 2005. This water later spilled out of Lake Oroville in June 2005, resulting in no purchase of water for EWA from South Feather (SWPAO #04-709).

Santa Clara Valley Water District

An amendment to a 2003 agreement was executed on May 4, 2005, among DWR, Santa Clara Valley Water District, and Kern. The amendment facilitated the purchase of up to 10,800 af of water stored in Santa Clara's portion of Semitropic Groundwater Bank that could then be exchange for Santa Clara's approved 2005 Table A water for support of EWA. Under the amendment, a portion or all of the purchased water could be Santa Clara's CVP water. A total of 8,804 af of Santa Clara's CVP water was purchased and exchanged for Santa Clara's 2005 Table A water for EWA (SWPAO #04-714).

The exchange of CVP water for Table A water was covered under a separate letter agreement dated July 26, 2005 (SWPAO #05-706). In compliance with CEQA, DWR approved an Addendum to an Initial Study and Negative Declaration, State Clearinghouse Number 2003042104, in July 2005.

Metropolitan Water District of Southern California

An agreement executed on September 16, 2005, between DWR and Metropolitan Water District of Southern California, approved up to 50,000 af of water for a wet-dry exchange. EWA receives water from Metropolitan in a wet year in exchange for returning water to Metropolitan in a drier year, where Metropolitan pays half of the returned water costs. Metropolitan delivered to EWA 20,000 af of water in August, 20,000 af of water in September, and 10,000 af of water in October (SWPAO #05-701).

Operational Assets

Project Pumping of excess flows in the Delta was don to reduce EWA Debt. In 2005, DWR pumped at total of 171,917 af of water to reduce EWA debt (February–34,477 af; July–29,649 af; August–28,493 af; September–27,898 af; and December–51,400 af.) Reclamation pumped 28,568 af of water to reduce EWA debt in March. The combined total project pumping to reduce EWA debt was 200,485 af in 2005. EWA had 500 cfs dedicated pumping capacity available at Banks Pumping Plant during July, August, and September. No other operational assets were available to EWA in 2005.

Miscellaneous Agreements with Other Agencies

In addition to negotiating agreements with SWP contractors to provide for specified water deliveries, DWR also entered into several agreements with other agencies for water conveyance, or exchange, between January 1, 2005, and December 31, 2005.

Water Conveyance Agreements—CVP Water

DWR regularly enters into agreements to convey CVP water such as agreements with contractors receiving water from Reclamation through the Cross Valley

Canal, a water conveyance facility that connects with the Aqueduct near Tupman in Kern County. Other agencies or corporations receive CVP water through agreements between DWR and Reclamation, including the U.S. Department of Veterans Affairs, USFWS, and Musco Family Olive Company. Occasionally, DWR also enters into agreements with Reclamation to convey CVP or SWP water from the Delta to O'Neill Forebay through CVP or SWP facilities. Some of these agreements allow Reclamation to make up for curtailed water exports from Tracy Pumping Plant associated with improving conditions for fish in the Delta. Other agreements allow replacing water exports foregone during maintenance and repair of Tracy and Banks Pumping Plants and CVP and SWP conveyance facilities between the Delta and O'Neill Forebay.

Cross Valley Canal

Eight CVP water contractors use CVC to obtain water from the California Aqueduct either by exchange with other agencies or by direct delivery. The eight water contractors are: County of Fresno, County of Tulare, Hills Valley Irrigation District, Kern–Tulare Water District, Lower Tule River Irrigation District, Pixley Irrigation District, Rag Gulch Water District, and Tri–Valley Water District. These agencies have had water conveyance service by DWR since 1976 through

- long-term 3-party contracts with DWR and Reclamation, executed in 1976, and amendments extending the contracts through February 29, 1996; and
- interim renewal contracts: (1) March 1, 1996, through February 28, 1998; (2) March 1, 1998, through February 28, 2000; (3) March 1, 2000, through November 30, 2000; (4) December 1, 2000, through February 28, 2001; (5) March 1, 2001, through February 28, 2002; (6) March 1, 2002 through February 28, 2003; and (7) March 1, 2003 through February 29, 2004, and (8) March 1, 2005 through February 28, 2005, and (9) March 1, 2005 through February 28, 2006.

Between January 1, 2005, and December 31, 2005, DWR delivered CVP water to the CVC contractors as follows:

On June 13, 2005, Lower Tule River Irrigation District requested that DWR and Reclamation approve a change in the point of delivery for up to 5,000 af of their 2005 approved CVP water from the CVC turnout in Reach 12E to Reach 3 of the California Aqueduct (O'Neill Forebay) for delivery to Reclamation's Level 4 Refuge Program. Under this agreement, which was executed on November 9, 2005, DWR conveyed 2,469 af of water in October of 2005. (SWPAO #05312)

On June 13, 2005, Pixley Irrigation District requested that DWR and Reclamation approve a change in the point of delivery for up to 5,000 af of their 2005 approved CVP water from the CVC turnout in Reach 12E to Reach 3 of the California Aqueduct (O'Neill Forebay) for delivery to Reclamation's Level 4 Refuge Program. Under this agreement, which was executed on November 9, 2005, DWR conveyed 2,469 af of water in October of 2005. (SWPAO #05313)

Musco Family Olive Company

A pending agreement among Musco Family Olive Company, Plain View Water District, DWR, and Reclamation provides for the conveyance of up to 800 af of

Plain View's CVP water to Reach 2A of the California Aqueduct for use by Musco Family Olive Company. A total of 569 af was delivered in 2005 under this pending agreement (SWPAO #04300). Construction of a permanent turnout is currently being pursued.

U.S. Department of Veterans Affairs

A pending letter agreement among the U.S. Department of Veterans Affairs, DWR, and Reclamation, provides for the conveyance of up to 450 af of CVP-approved water to Reach 2B of the California Aqueduct to the U.S. Department of Veterans Affairs' San Joaquin Valley National Cemetery. A total of 52 af was delivered to the National Cemetery in Reach 2B of the California Aqueduct in 2005 under this pending agreement. (SWPAO #02322)

U.S. Fish and Wildlife Service Cooperative Agreement

Reclamation initiated a cooperative agreement with DWR to deliver CVP water to the Kern National Wildlife Refuge for USFWS. Under the terms of this cooperative agreement, dated September 28, 2004, up to 30,500 af 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 May 1, 2002, to May 31, 2009. DWR conveyed 22,947 af of CVP water to Kern National Wildlife Refuge in 2005.

Water Deliveries

Approved Table A Deliveries

Each year, by October 1, the SWP long-term water contractors submit initial requests for approved Table A deliveries allocated to contractors for use in the subsequent calendar year. Initial approved Table A amounts for the coming year are made by DWR in December. They are based on operations studies that assume 90 per cent exceedence of historic water supply (where exceedence refers to the possibility that water supply in the coming year will be exceeded by the historic water supply), current reservoir storage, and total requests by the SWP water contractors. Forecasts for the year are updated as hydrological conditions change. Approved Table A amounts are increased or decreased depending on both actual and projected hydrologic conditions.

On October 1, 2004, SWP long-term contractors submitted initial requests for 2005.

DWR approved deliveries of 1.65 million af on November 30, 2004, resulting in initial approved Table A amounts of 40 percent of most SWP contractor requests. DWR increased the 2005 approved Table A amounts to 2.48 million af, or 60 percent on January 14, 2005. As water conditions improved, approved Table A amounts were increased to 2.89 million af (70 percent) on April 01, 2005, 3.30 million af (80 percent) on April 21, 2005 and 3.30 million af (90 percent) on May 27, 2005.

Notices to State Water Project Contractors informing them of increases or decreases in approved Table A amounts are online at http:// www.swpao.water.ca.gov/notices/index.cfm.

SWP Deliveries

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

- conveys water to 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 2005, 4,732,633 af of water were conveyed to 27 long-term contractors and 26 other agencies. That amount includes

- 2,828,406 af of approved Table A water;
- 731,083 af of Article 21 water;
- 1,506 af of SWP water for recreation and fish and wildlife; and
- 1,101,429 af of water delivered to satisfy water rights settlement agreements and agreements with SWP contractors for local water supplies.
- 70,209 af of water delivered to satisfy agreements between the SWP and CVP

Figure 9-1, shows amounts of water delivered to various locations during 2005.

Specific information about water deliveries made to long-term contractors and other agencies during 2005 and historical deliveries from 1962 through 2005 are presented in the following three sections, each with a corresponding table, located at the end of the chapter:

- Water Delivered to Long-term Water Supply Contractors in 2005, by Service Area (Table 9-3);
- Water Delivered in 2005, by Month (Table 9-4); and
- Total Amounts of Annual Table A Water and Water Conveyed, by Type, 1962-2005 (Table 9-5).

Water Deliveries to Long-Term SWP Contractors

Table 9-3 shows amounts of water delivered in 2005. The following information is arranged by column number.

2005 Approved Table A Water Delivered

Columns 1 through 6 show a detailed breakdown of approved Table A water delivered for long-term water supply contractors in 2005.

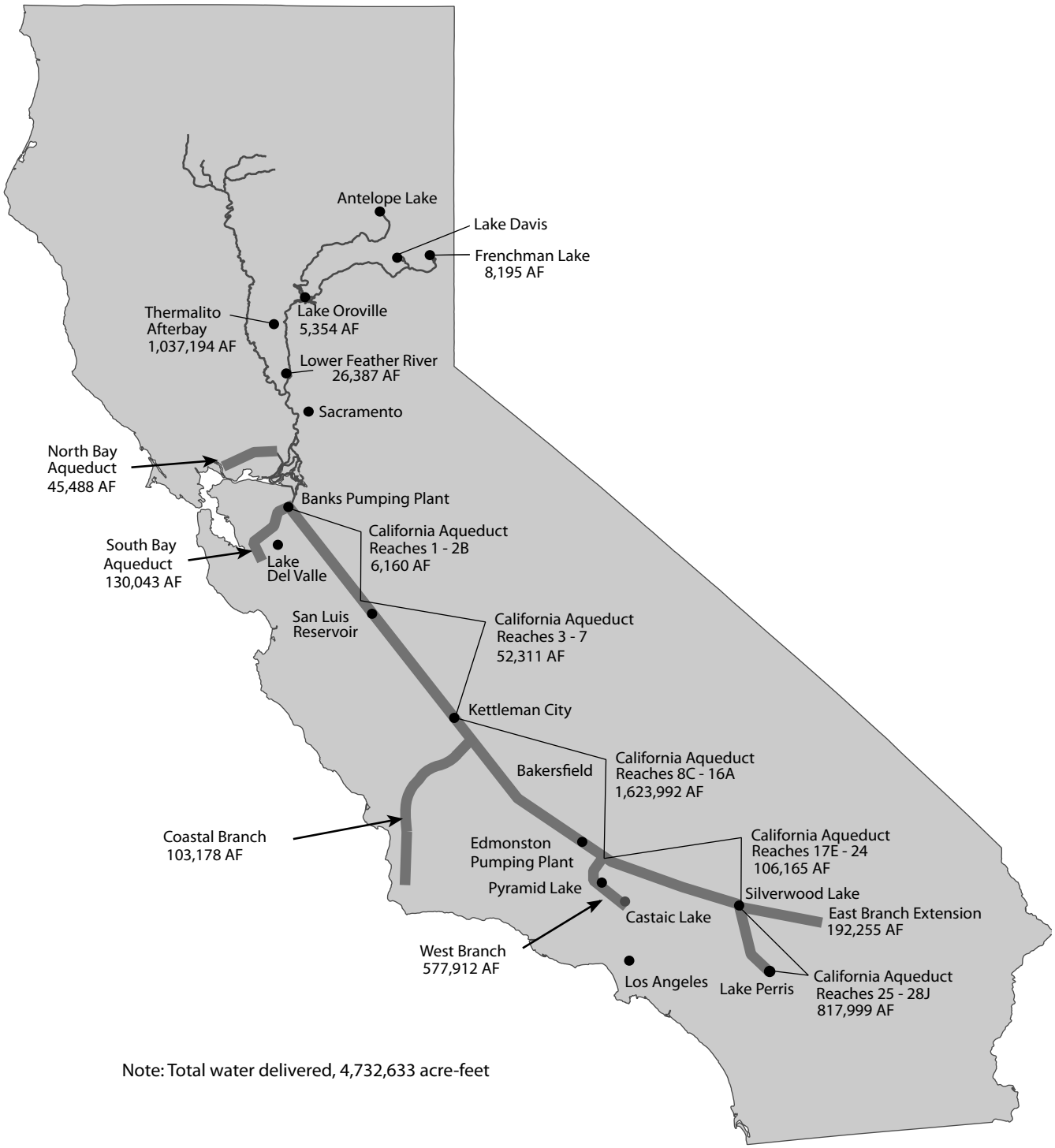
Turn-Back Pool Water

Column 4 shows 38,275 af of Turn-Back pool water was delivered to long-term water supply contractors in 2005.

2004 Carryover Approved Table A Water Delivered During 2005

Column 6 shows 185,587 af of water was carried over from 2004 for delivery in 2005. For several years, DWR has offered contractors the opportunity to carry over a portion of their approved Table A water for delivery in the current year to be delivered 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 for carrying over approved Table A water from one year to the next.



Note: Total water delivered, 4,732,633 acre-feet

Figure 9-1. Water Delivered in 2005 and Delivery Locations of Long-Term Water Supply Contractors and Feather River Area Districts with Water Right Agreements with DWR

Total Table A Water Delivered
Column 6 shows all approved Table A water delivered in 2005—a total of 2,828,406 af.

2005 Article 21 and Unscheduled Water
Column 8 shows 731,083 af of 2005 Article 21 water delivered to long-term water supply contractors (includes 729,284 af of Article 21 and 1,799 af of unscheduled water to Empire Westside ID). Long-term water supply contractors who have not signed the Monterey Amendment receive unscheduled water.

Total SWP Water Delivered
Column 9 shows 3,559,489 af of total SWP water delivered in 2005. This includes total approved Table A water, water bank recoveries, flexible storage withdrawal, and Article 21 and unscheduled water.

Non-SWP Water Deliveries
Column 10 includes deliveries of non-SWP water to long-term water contractors. Non-SWP water is generally local, settlement, and permit water that a SWP contractor has a water right to, or water purchased from, exchanged with, or transferred from non-SWP agencies. In 2005, non-SWP water deliveries totaled 67,792 af.

Total Deliveries
Column 11 shows total amounts of water delivered to long-term contractors. In 2005, the SWP delivered 3,627,281 af to 27 long-term contractors.

Water Delivered in 2005 by Month

During 2005, the SWP provided water service to 53 agencies, including 27 SWP long-term water contractors. Those agencies and the amounts of water delivered to them by month are listed in Table 9-4, and are summarized below as SWP water and non-SWP water.

SWP Water
SWP water as defined in the long-term water supply contracts, includes Article 21 water, carryover approved Table A water, current year approved Table A amounts, flexible storage water, transfer and exchange of approved Table A water, and Turn-back pools A and B. Detailed information concerning those conveyances is found under the Miscellaneous Agreements with Long-Term SWP Contractors section in this chapter.

Non-SWP Water

In 2005, DWR used SWP facilities to convey non-SWP water for various agencies according to the terms of water rights and water transfer and exchange agreements. Detailed information concerning those conveyances is found under the Miscellaneous Agreements with Other Agencies section in this chapter.

Floodwater
Occasionally, during wet years, DWR accepts floodwater from the Kern River into the California Aqueduct through the Kern River-California Aqueduct Intertie under an agreement entitled Agreement among the State of California, Kern County Water Agency, and the Kern River Interests for Diversions of Floodwaters through the Kern River-California Aqueduct Intertie, dated November 18, 1975. In 2005, DWR did not accept any floodwater into the California Aqueduct.

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 later. In 2005, 1,101,429 af of water in this category were delivered to the Feather River, South Bay, North Bay, and Southern California, and are summarized below.

Feather River Area. Ten non-SWP agencies in the Feather River area received 1,074,706 af. Those agencies are

- Last Chance Creek Water District, 8,195 af
- Thermalito Irrigation District, 2,355 af
- South Feather Water and Power Agency, formerly Oroville-Wyandotte Irrigation District, 5,354 af
- Western Canal Water District, 283,181 af
- Joint Water Districts Board, 751,128 af
- Oswald Water District, 560 af
- Tudor Mutual Water Company, 3,497 af
- Garden Highway Mutual Water Company, 13,987 af
- Plumas Mutual Water Company, 6,449 af

North Bay Area. In the North Bay Area, 3,668 af of Vallejo permit and 1,132 af of water pursuant to the May 19, 2003 Settlement Agreement among DWR, Solano County Water Agency (Solano), and the Cities of Fairfield Vacaville, and Benicia, were delivered.

South Bay Area. In the South Bay Area, a total of 21,753 af of local water was delivered to Alameda-Zone 7 and Alameda County. These two South Bay Aqueduct contractors hold water rights to runoff from Lake Del Valle watershed.

Southern California. In Southern California, 170 af of local runoff from the Houston Creek watershed were stored and delivered to Crestline under water rights held by DWR on Houston Creek. The authorized place of use is limited to Crestline.

Annual Table A Water and Water Delivered Since 1962

Information about annual Table A water and water conveyed for the past 40 years is contained in Table 9-5. The following discussion of conveyed Table A water is arranged according to column numbers.

Annual Table A

Columns 1 through 7 of Table 9-5 show the amount of long-term contractors' annual Table A water by area for years 1962 through 2005 as specified in the Table A schedules of the long-term water supply contracts.

In some instances Table A schedules—projections of each contractor's need for water to 2035—have been amended to meet the needs of individual contractors. The amounts of annual Table A water each contractor may request for years 1962 through 2035 can be found in Table B-4 in Appendix B.

Water Delivered

Columns 8 through 16 show water delivered or conveyed, including initial

fill water and operational losses and storage changes.

Approved Table A Water
Column 8 shows amounts of approved Table A water delivered each year from 1962 through 2005.

Article 21 and Unscheduled Water
Column 9 shows amounts of Article 21 water, as defined under SWP Deliveries, and unscheduled water delivered from 1962 through 2005.

Article 21 and unscheduled water is water in excess of that required to meet all demands for the year's approved Table A water and water to be stored in SWP reservoirs.

Other Water
Column 10 includes amounts of water classified as other water delivered in 2005, including non-SWP water conveyed through SWP facilities and regulated delivery of local supply.

In 2005, a total of 96,932 af 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 2005, a total of 1,074,706 af 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 to improve water quality for fish and wildlife. In 2005, a total of 1,604 af 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 af. In 1996 and 1997, the Coastal Aqueduct was initially filled.

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.

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.

Table 9-3. Water Delivered to Long-Term Contractors through 2005 (Acre-Feet)

SWP Contractor	Table A Water Deliveries							2005 Article 21 (8)	Total SWP Water (9)	Non-SWP Water (10)	Total (11)
	2005 Table A not Transfered, Exchanged,or Stored (1)	2005 Table A Transfered or Exchanged (2)	2005 Table A Stored (3)	2005 Turnback Pool (4)	Total 2005 Table A (5)	2004 Carryover (6)	Total Table A (7)				
Feather River											
County of Butte	527				527		527		527		527
Plumas County FC&WCD											
City of Yuba City	1,894				1,894		1,894		1,894		1,894
North Bay											
Napa County FC&WCD	5,322				5,322	1,741	7,063	606	7,669		7,669
Solano County WA	22,515	2,000			24,515	83	24,598	10,421	35,019	4,800	39,819
South Bay											
Alameda County FC&WCD, Zone 7	38,388			275	38,663	7,849	46,512		46,512	11,901	58,413
Alameda County WD	10,769		25,700	943	37,412	6,341	43,753	846	44,599	10,852	55,451
Santa Clara Valley WD	48,339		32,333	342	81,014	12,133	93,147	6,298	99,445	20,000	119,445
San Joaquin Valley											
Castaic Lake WA	258		20,000		20,258		20,258	2,451	22,709		22,709
County of Kings	8,100			202	8,302		8,302	11,504	19,806		19,806
Dudley Ridge WD	41,437	7,672	2,500	1,286	52,895	821	53,716	28,197	81,913	576	82,489
Empire West Side ID	1,448				1,448	587	2,035	1,799	3,834		3,834
Kern County WA	754,786	48,941		22,397	826,124	9,851	835,975	453,078	1,289,053	19,216	1,308,269
Oak Flat WD	4,067			127	4,194		4,194		4,194		4,194
Tulare Lake Basin WSD	81,327	5,277		2,158	88,762	3,973	92,735	47,267	140,002	277	140,279
Central Coastal											
San Luis Obispo County FC&WCD	4,006				4,006		4,006	245	4,251		4,251
Santa Barbara County FC&WCD	22,981			155	23,136	208	23,344		23,344		23,344
Southern California											
Antelope Valley-East Kern WA	57,205				57,205	2,626	59,831		59,831		59,831
Castaic Lake WA	34,045				34,045	2,702	36,747		36,747		36,747
Coachella Valley WD	26,984			2,716	29,700	12,819	42,519		42,519		42,519
Crestline-Lake Arrowhead WA	807				807		807		807	170	977
Desert WA	33,168			1,122	34,290	14,799	49,089		49,089		49,089
Littlerock Creek ID											
Metropolitan WDSC	1,130,397	20,000	46,786	6,530	1,203,713	106,032	1,309,745	168,300	1,478,045		1,478,045
Mojave WA	10,360				10,360	1,201	11,561		11,561		11,561
Palmdale WD	10,174				10,174	1,538	11,712		11,712		11,712
San Bernardino Valley MWD	11,211	20,000			31,211	283	31,494	56	31,550		31,550
San Gabriel Valley MWD	10,500				10,500		10,500		10,500		10,500
San Gorgonio Pass WA	655			22	677		677	15	692		692
Ventura County FCD	1,665				1,665		1,665		1,665		1,665
Totals	**2,373,335**	**103,890**	**127,319**	**38,275**	**2,642,819**	**185,587**	**2,828,406**	**731,083**	**3,559,489**	**67,792**	**3,627,281**

Table 9-4. Total Amounts of Water Delivered in 2005, by Month

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2005 Deliveries	2005 Table A
FEATHER RIVER AREA														
City of Yuba City														
Approved Table A water	0	0	0	0	0	0	939	955	0	0	0	0	1,894	9,600
Pool A water sale*	2,160	0	0	0	0	0	0	0	0	0	0	0	2,160	
Pool B water sale*	0	3,480	0	0	0	0	0	0	0	0	0	0	3,480	
Agency Total (* excluded water)	0	0	0	0	0	0	939	955	0	0	0	0	1,894	
County of Butte														
Approved Table A water	83	6	9	119	36	5	20	105	29	4	2	109	527	1,200
Agency Total	83	6	9	119	36	5	20	105	29	4	2	109	527	
Plumas County Flood Control and Water Conservation District														
Approved Table A water	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Fish and Wildlife (SWP)														
Recreation/fish and wildlife water	0	0	0	0	1	0	1	1	0	0	0	0	3	
Last Chance Creek Water District														
Regulated delivery of local supply	0	0	0	0	1,164	1,880	2,091	2,142	603	196	119	0	8,195	
Thermalito Irrigation District														
Regulated delivery of local supply	91	66	88	126	202	275	405	421	316	219	118	28	2,355	
South Feather Water & Power Agency														
Regulated delivery of local supply	0	0	0	78	511	783	924	1,050	1,010	701	176	121	5,354	
Western Canal Water District														
Regulated delivery of local supply	1,560	0	0	4,170	41,467	40,431	62,104	49,426	12,079	26,760	30,630	14,554	283,181	
Joint Water Districts Board														
Regulated delivery of local supply	45,810	0	0	9,770	104,058	104,886	129,418	114,896	53,920	45,470	77,020	65,880	751,128	
Oswald WD														
Regulated delivery of local supply	0	0	0	1	78	158	246	32	45	0	0	0	560	
Tudor Mutual Water Company														
Regulated delivery of local supply	0	0	0	189	290	953	1,115	505	443	2	0	0	3,497	
Garden Highway Water Company														
Regulated delivery of local supply	0	0	0	883	1,748	1,220	6,505	1,882	865	884	0	0	13,987	
Plumas Mutual Water Company														
Regulated delivery of local supply	0	0	0	0	866	1,295	1,633	1,430	1,225	0	0	0	6,449	
SWP	83	6	9	119	37	5	960	1,061	29	4	2	109	2,424	
Non-SWP	47,461	66	88	15,217	150,384	151,881	204,441	171,784	70,506	74,232	108,063	80,583	1,074,706	
Feather River Area Total	***47,544***	***72***	***97***	***15,336***	***150,421***	***151,886***	***205,401***	***172,845***	***70,535***	***74,236***	***108,065***	***80,692***	***1,077,130***	***10,800***
NORTH BAY AREA														
Napa County Flood Control and Water Conservation District (NCFCWCD)														
Approved Table A water	0	0	4	236	371	577	628	607	556	409	883	891	5,162	22,225

Table 9-4. Total Amounts of Water Delivered in 2005, by Month

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2005 Deliveries	2005 Table A
Approved Table A water delivered from Solano's service area*	3	2	3	3	4	23	33	18	30	25	3	13	160	
Article 21 water	0	0	606	0	0	0	0	0	0	0	0	0	606	
Article 56C extended carryover	900	841	0	0	0	0	0	0	0	0	0	0	1,741	
Vallejo Permit water from Solano	0	0	0	0	0	0	200	200	100	0	0	0	500	
Agency Total (* excluded water)	900	841	610	236	371	577	828	807	656	409	883	891	8,009	
Solano County Water Agency														
Approved Table A water	0	0	18	73	326	3,873	4,323	4,437	2,631	3,427	2,391	1,016	22,515	47,256
Napa's approved Table A water delivered through Solano's service area	3	2	3	3	4	23	33	18	30	25	3	13	160	
Article 21 water	791	403	289	705	1,406	0	1,162	1,846	2,644	1,175	0	0	10,421	
Article 56C extended carryover	47	36	0	0	0	0	0	0	0	0	0	0	83	
Approved Table A water exchange to Mojave*	0	0	0	0	0	0	0	0	0	0	0	2000	2,000	
Settlement water	0	0	0	0	0	0	0	0	0	349	783	0	1,132	
Vallejo Permit water	0	0	0	0	0	502	198	0	1025	223	686	534	3,168	
Vallejo Permit water delivered to Napa*	0	0	0	0	0	0	200	200	100	0	0	0	500	
Agency Total (* excluded water)	841	441	310	781	1,736	4,398	5,716	6,301	6,330	5,199	3,863	1,563	37,479	
SWP	1,741	1,282	920	1,017	2,107	4,473	6,146	6,908	5,861	5,036	3,277	1,920	40,688	
Non-SWP	0	0	0	0	0	502	398	200	1,125	572	1,469	534	4,800	
North Bay Area Total	***1,741***	***1,282***	***920***	***1,017***	***2,107***	***4,975***	***6,544***	***7,108***	***6,986***	***5,608***	***4,746***	***2,454***	***45,488***	***69,481***
SOUTH BAY AREA														
Alameda County Flood Control and Water Conservation District, Zone 7														
Approved Table A water	0	0	1,093	1,231	1,950	6,283	3385	6,208	6,260	5,307	4,087	2,584	38,388	80,619
Article 56C extended carryover	1,654	455	0	0	0	0	0	0	0	0	0	0	2,109	
Article 56C extended carryover to Semitropic*	845	4,895	0	0	0	0	0	0	0	0	0	0	5,740	
Pool A water	0	0	0	0	0	0	275	0	0	0	0	0	275	
Local water	186	1,144	1,006	1,389	2,059	141	3,890	370	176	287	85	168	10,901	
Transfer water from BBID	0	0	0	0	0	0	0	1,000	0	0	0	0	1,000	
Agency Total (* excluded water)	1,840	1,599	2,099	2,620	4,009	6,424	7,550	7,578	6,436	5,594	4,172	2,752	52,673	
Alameda County Water District														
Approved Table A water	0	844	0	0	0	1,188	83	690	2,273	2,400	1,724	1,567	10,769	42,000
Approved Table A water to Semitropic*	0	0	0	0	0	0	10,100	15,600	0	0	0	0	25,700	
Article 21 water	0	0	0	0	0	846	0	0	0	0	0	0	846	
Article 56C extended carryover	1,400	341	0	0	0	0	0	0	0	0	0	0	1,741	
Article 56C extended carryover to Semitropic*	1,952	2,648	0	0	0	0	0	0	0	0	0	0	4,600	
Local water	0	0	1,341	1,503	1,831	1,372	1,936	2,248	621	0	0	0	10,852	

Table 9-4. Total Amounts of Water Delivered in 2005, by Month

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2005 Deliveries	2005 Table A
Pool A water	0	0	0	0	0	0	0	144	0	0	0	0	144	
Pool B water	0	0	0	0	0	0	799	0	0	0	0	0	799	
Agency Total (* excluded water)	1,400	1,185	1,341	1,503	1,831	3,406	2,818	3,082	2,894	2,400	1,724	1,567	25,151	
Santa Clara Valley Water District														
Approved Table A water	67	1,105	588	4,195	6,130	7,432	6,876	3,981	3,526	3,990	7,068	3,381	48,339	100,000
Approved Table A water to Semitropic*	0	0	0	0	0	0	23,041	7,792	0	0	0	1,500	32,333	
Approved Table A water to EWA*	0	0	0	0	0	0	0	8,804	0	0	0	0	8,804	
Article 21 water	0	873	2,310	0	0	0	0	0	0	0	0	0	3,183	
Article 21 water to Semitropic*	0	0	0	0	764	2,351	0	0	0	0	0	0	3,115	
Article 56C extended carryover	500	0	0	0	0	0	0	0	0	0	0	0	500	
Article 56C extended carryover to Semitropic*	4,554	7,079	0	0	0	0	0	0	0	0	0	0	11,633	
CVP water to Semitropic*	0	0	0	0	0	0	0	0	0	19,000	1,000	0	20,000	
Pool A water	0	0	0	0	0	0	0	0	342	0	0	0	342	
Approved Table A water transfer from KCWA to Semitropic*	0	0	0	0	0	0	0	0	21,941	0	0	0	21,941	
Agency Total (* excluded water)	567	1,978	2,898	4,195	6,130	7,432	6,876	3,981	3,868	3,990	7,068	3,381	52,364	
Recreation/Fish And Wildlife (SWP)														
Recreation/fish and Wildlife water, Lake Del Valle	5	4	7	8	12	16	20	20	20	18	16	8	154	
SWP	3,626	3,622	3,998	5,434	8,092	15,765	11,438	11,043	12,421	11,715	12,895	7,540	107,589	
Non-SWP	186	1,144	2,347	2,892	3,890	1,513	5,826	3,618	797	287	85	168	22,753	
South Bay Area Total	***3,812***	***4,766***	***6,345***	***8,326***	***11,982***	***17,278***	***17,264***	***14,661***	***13,218***	***12,002***	***12,980***	***7,708***	***130,342***	***222,619***
SAN JOAQUIN VALLEY AREA														
Castaic Lake Water Agency														
Approved Table A water	0	0	0	0	0	0	0	0	0	0	64	194	258	
Approved Table A water to Rosedale Rio Bravo*	0	0	0	0	0	0	0	0	0	0	12,869	7,131	20,000	
Article 21 water	0	916	533	0	0	0	0	0	0	0	0	1,002	2,451	
Agency Total (* excluded water)	0	916	533	0	0	0	0	0	0	0	64	1196	2709	
County of Kings														
Approved Table A water	0	0	0	0	0	0	278	849	630	1,161	502	2,070	5,490	9,000
Approved Table A water to WWD for Kings County*	0	1	0	0	433	391	378	517	376	236	174	104	2,610	
Article 21 water	256	0	0	0	0	0	0	0	0	0	0	0	256	
Article 21 water to WWD for Kings County*	319	1298	150	172	2,309	7,000	0	0	0	0	0	0	11,248	
Pool A water	0	0	0	0	0	0	0	31	0	0	0	0	31	
Pool B water	0	0	0	0	0	0	0	171	0	0	0	0	171	
Agency Total (* excluded water)	256	0	0	0	0	0	278	1,051	630	1,161	502	2,070	5,948	
Dudley Ridge Water District														

Table 9-4. Total Amounts of Water Delivered in 2005, by Month

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2005 Deliveries	2005 Table A
Approved Table A water	0	0	100	2,205	3,014	6,576	10,109	8,341	5,292	2,791	212	2,797	41,437	57,343
Approved Table A water to Kern Water Bank*	0	0	0	0	0	0	0	0	0	1,500	1,000	0	2,500	
Article 21 water	1765	4,941	2811	0	0	0	0	0	0	0	0	5,534	15,051	
Article 21 water to Kern Water Bank*	845	2323	3377	2954	649	1064	0	0	0	0	0	1934	13,146	
Article 56C extended carryover	177	100	0	0	0	0	0	0	0	0	0	0	277	
Article 56C extended carryover to Kern Water Bank*	48	0	0	0	0	0	0	0	0	0	0	0	48	
Approved Table A water exchange to San Gabriel WA*	0	0	0	0	0	0	0	0	0	0	1,271	1,717	2,988	
Exchange approved Art 56C extended carryover water to San Gabriel WA*	316	180	0	0	0	0	0	0	0	0	0	0	496	
Approved Table A water exchange to KCWA*	0	0	0	0	0	0	0	0	0	4,684	0	0	4,684	
Pool A water	0	0	0	0	0	0	0	196	0	0	0	0	196	
Pool B water	0	0	0	0	0	0	0	1,090	0	0	0	0	1,090	
Transfer of Bureau water to DRWD from USBR	0	0	0	576	0	0	0	0	0	0	0	0	576	
Agency Total (* excluded water)	1,942	5,041	2,911	2,781	3,014	6,576	10,109	9,627	5,292	2,791	212	8,331	58,627	
Empire West Side Irrigation District														
Approved Table A water	0	0	0	37	0	0	0	0	0	140	214	1,057	1,448	3,000
Article 12E carryover	353	234	0	0	0	0	0	0	0	0	0	0	587	
Article 21 unscheduled water	0	0	568	1,231	0	0	0	0	0	0	0	0	1,799	
Agency Total	353	234	568	1,268	0	0	0	0	0	140	214	1,057	3,834	
Kern County Water Agency														
Approved Table A water	0	5,931	15,961	34,192	40,474	123,770	113,387	162,910	92,113	80,049	59,177	25,776	753,740	998,730
Approved Table A water for Western Hills	5	15	14	53	76	131	158	194	121	119	132	28	1,046	
Approved Table A water to EWA*	0	0	0	0	0	29,712	0	30,000	30,000	0	0	0	89,712	
Article 21 water	29101	85,722	120,563	122,343	15,517	34,659	0	0	0	0	0	45,173	453,078	
Article 55 carryover from Kern-Tulare WD (to San Luis in Oct 2004)	7,932	0	0	0	0	0	0	0	0	0	0	0	7,932	
Article 56C extended carryover	7045	2,806	0	0	0	0	0	0	0	0	0	0	9,851	
Exchange Table A to USBR*	0	0	0	0	0	0	0	0	20,000	0	0	0	20,000	
Exchange water from Westlands	0	0	0	0	0	0	0	0	0	0	10,717	567	11,284	
Approved Table A water exchange from DRWD	0	0	0	0	0	0	0	0	0	4,684	0	0	4,684	
Pool A water	0	0	0	0	0	0	3,412	0	0	0	0	0	3,412	
Pool B water	0	0	0	0	0	0	18,985	0	0	0	0	0	18,985	
Approved Table A transfer to SCVWD in Semitropic*	0	0	0	0	0	0	0	0	21,941	0	0	0	21,941	
Transfer Table A to Westlands*	0	0	0	0	0	0	0	7,000	0	0	0	0	7,000	
Water Bank Deliveries														
Article 56C extended carryover from ACFC&WCD to Semitropic	845	4,895	0	0	0	0	0	0	0	0	0	0	5,740	
Approved Table A water from ACWD to Semitropic	0	0	0	0	0	0	10,100	15,600	0	0	0	0	25,700	

Table 9-4. Total Amounts of Water Delivered in 2005, by Month

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2005 Deliveries	2005 Table A
Article 56C extended carryover from ACWD to Semitropic	1952	2,648	0	0	0	0	0	0	0	0	0	0	4,600	
Approved Table A water from SCVWD to Semitropic	0	0	0	0	0	0	23,041	7,792	0	0	0	1,500	32,333	
Article 21 water from SCVWD to Semitropic	0	0	0	0	764	2,351	0	0	0	0	0	0	3,115	
Article 56C extended carryover from SCVWD to Semitropic	4554	7,079	0	0	0	0	0	0	0	0	0	0	11,633	
Conveyance of SCVWD water to Semitropic	0	0	0	0	0	0	0	0	0	19,000	1,000	0	20,000	
Transfer of Table A water from KCWA to SCVWD	0	0	0	0	0	0	0	0	21,941	0	0	0	21,941	
Approved Table A water from CLWA to Semitropic	0	0	0	0	0	0	0	0	0	0	12,869	7,131	20,000	
Approved Table A water from DRWD to Kern Water Bank	0	0	0	0	0	0	0	0	0	1,500	1,000	0	2,500	
Article 21 water from DRWD to Kern Water Bank	845	2323	3377	2954	649	1064	0	0	0	0	0	1934	13,146	
Article 56C extended carryover from DRWD to Kern Water Bank	48	0	0	0	0	0	0	0	0	0	0	0	48	
Approved Table A water from MWDSC to Semitropic	0	0	0	0	25,036	0	6,174	0	0	0	0	0	31,210	
Approved Table A water from MWDSC to Arvin Edison	0	0	0	0	1,138	1,324	9,808	2,538	0	576	0	0	15,384	
Approved Table A water from MWDSC Kern Delta	0	0	0	0	0	0	192	0	0	0	0	0	192	
Water Bank Delivery Subtotal	8,244	16,945	3,377	2,954	27,587	4,739	49,315	25,930	21,941	21,076	14,869	10,565	207,542	
Agency Total (* excluded water)	52,327	111,419	139,915	159,542	83,654	163,299	185,257	189,034	114,175	105,928	84,895	82,109	1,471,554	
Oak Flat Water District														
Approved Table A water	0	10	31	156	536	716	867	923	389	302	122	15	4,067	5,700
Pool A water	0	0	0	0	0	0	19	0	0	0	0	0	19	
Pool B water	0	0	0	0	0	0	108	0	0	0	0	0	108	
Agency Total	0	10	31	156	536	716	994	923	389	302	122	15	4,194	
Tulare Lake Basin Water Storage District														
Approved Table A water	0	0	0	0	377	181	2,299	18,186	11,419	3,701	16,523	28,641	81,327	96,227
Article 21 water	3646	3,564	5,817	18,706	1,111	2,837	0	0	0	0	0	11,586	47,267	
Article 12E carryover	158	3,815	0	0	0	0	0	0	0	0	0	0	3,973	
Exchange Table A water to Westlands Water District*	0	0	0	0	0	0	0	277	0	0	0	0	277	
Exchange water from Westlands Water District	0	0	177	100	0	0	0	0	0	0	0	0	277	
Pool A water	0	0	0	0	0	0	0	329	0	0	0	0	329	
Pool B water	0	0	0	0	0	0	0	1,829	0	0	0	0	1,829	
Transfer approved Table A water to Westlands Water District *	0	0	0	0	0	100	2,400	1,200	750	550	0	0	5,000	
Agency Total (* excluded water)	3,804	7,379	5,994	18,806	1,488	3,018	2,299	20,344	11,419	3,701	16,523	40,227	135,002	
Westlands Water District														
Approved Table A water from County of Kings to Kings County	0	1	0	0	433	391	378	517	376	236	174	104	2,610	
Article 21 water from County of Kings to Kings County	319	1298	150	172	2,309	7,000	0	0	0	0	0	0	11,248	
Approved Table A transfer from KCWA	0	0	0	0	0	0	0	7,000	0	0	0	0	7,000	

Table 9-4. Total Amounts of Water Delivered in 2005, by Month

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2005 Deliveries	2005 Table A
Exchange water to KCWA*	0	0	0	0	0	0	0	0	0	0	10,717	567	11,284	
Approved Table A water exchange from TLBWSD	0	0	0	0	0	0	0	277	0	0	0	0	277	
Exchange water to TLBWSD*	0	0	177	100	0	0	0	0	0	0	0	0	277	
Approved Table A water transfer from TLBWSD	0	0	0	0	0	100	2,400	1,200	750	550	0	0	5,000	
Agency Total (* excluded water)	319	1,299	150	172	2,742	7,491	2,778	8,994	1,126	786	174	104	26,135	
Recreation/Fish and Wildlife (SWP)														
Department of Fish & Game, O'Neill/Lateral 4	71	38	5	44	95	27	40	52	45	44	47	52	560	
Parks and Recreation, O'Neill/San Luis/Cattle	1	1	1	1	5	12	10	12	5	1	2	2	53	
RF&W Total	72	39	6	45	100	39	50	64	50	45	49	54	613	
Environmental Water Account Program														
Approved Table A water from Kern County WD	0	0	0	0	0	29,712	0	0	0	0	0	0	29,712	
Approved Table A water from Kern County WD	0	0	0	0	0	0	0	30,000	30,000	0	0	0	60,000	
Approved Table A water from MWDSC	0	0	0	0	0	0	0	20,000	20,000	10,000	0	0	50,000	
Approved Table A water from SCVWD	0	0	0	0	0	0	0	8,804	0	0	0	0	8,804	
Yuba County Water Agency	0	0	0	0	0	0	0	0	0	4,549	1,495	0	6,044	
EWA program Total *	0	0	0	0	0	29,712	0	58,804	50,000	14,549	1,495	0	154,560	
US Bureau of Reclamation (CVP Water Conveyed)														
Plain View WD/Musco Olive Products, Inc (Annual Contract)	46	39	47	47	40	38	48	65	65	77	55	2	569	
US Dept of Veterans Affairs, SJV National Cemetery (Annual Contract)	1	1	1	1	5	10	12	9	6	3	2	1	52	
Transfer water to DRWD*	0	0	0	576	0	0	0	0	0	0	0	0	576	
Exchange Table A water from KCWA	0	0	0	0	0	0	0	0	20,000	0	0	0	20,000	
Kern National Wildlife Refuge	411	0	620	849	506	0	0	1,602	5,130	5,367	5,222	3,240	22,947	
Recreation water	0	1	1	1	5	9	7	10	4	1	0	4	43	
Fish and wildlife water	64	31	5	36	77	22	33	42	37	36	39	160	582	
USBR Total (* excluded water)	522	72	674	934	633	79	100	1,728	25,242	5,484	5,318	3,407	44,193	
Cross Valley Canal Contracts														
Lower Tule River CVP water to the USBR	0	0	0	0	0	0	0	0	0	2,469	0	0	2,469	
Pixley Irrigation District CVP water to the USBR	0	0	0	0	0	0	0	0	0	2,469	0	0	2,469	
CVC Total	0	0	0	0	0	0	0	0	0	4,938	0	0	4,938	
SWP	51,141	126,337	149,931	182,094	91,534	181,139	201,765	230,037	153,081	95,854	91,038	134,596	1,688,547	
Non-SWP	8,454	72	851	1,610	633	79	100	1,728	5,242	29,422	17,035	3,974	69,200	
San Joaquin Valley Area Total	***59,595***	***126,409***	***150,782***	***183,704***	***92,167***	***181,218***	***201,865***	***231,765***	***158,323***	***125,276***	***108,073***	***138,570***	***1,757,747***	***1,170,000***
CENTRAL COASTAL AREA														
San Luis Obispo County Flood Control and Water Conservation District														
Approved Table A water	157	321	347	257	370	402	410	431	423	419	177	292	4,006	25,000

Table 9-4. Total Amounts of Water Delivered in 2005, by Month

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2005 Deliveries	2005 Table A
Article 21 water	0	0	0	145	42	34	0	0	0	0	0	24	245	
Agency Total	157	321	347	402	412	436	410	431	423	419	177	316	4,251	
Santa Barbara County Flood Control and Water Conservation District														
Approved Table A water	839	972	1,253	1,803	2,258	2,689	3,009	2,753	2,654	2,179	999	1,573	22,981	45,486
Carryover 14B	208	0	0	0	0	0	0	0	0	0	0	0	208	
Pool A water	0	0	0	0	0	0	0	155	0	0	0	0	155	
Agency Total	1,047	972	1,253	1,803	2,258	2,689	3,009	2,908	2,654	2,179	999	1,573	23,344	
SWP	1,204	1,293	1,600	2,205	2,670	3,125	3,419	3,339	3,077	2,598	1,176	1,889	27,595	
Non-SWP	0	0	0	0	0	0	0	0	0	0	0	0	0	
Central Coastal Area Total	***1,204***	***1,293***	***1,600***	***2,205***	***2,670***	***3,125***	***3,419***	***3,339***	***3,077***	***2,598***	***1,176***	***1,889***	***27,595***	***70,486***
SOUTHERN CALIFORNIA AREA														
Antelope Valley-East Kern Water Agency														
Approved Table A water	0	0	2,075	3,583	4,883	6,625	8,993	9,674	7,287	5,294	4,439	4,352	57,205	141,400
Article 12E carryover	1,450	1,176	0	0	0	0	0	0	0	0	0	0	2,626	
MWA's Approved Table A water delivered through AVEK's service area	0	0	53	111	118	148	181	136	123	82	0	21	973	
MWA's Article 56C carryover water delivered through AVEK's service area	19	24	0	0	0	0	0	0	0	0	0	0	43	
Agency Total	1,469	1,200	2,128	3,694	5,001	6,773	9,174	9,810	7,410	5,376	4,439	4,373	60,847	
Castaic Lake Water Agency														
Approved Table A water	0	0	1,250	2,018	2,952	4,324	5,512	5,204	4,815	2,989	2,762	2,219	34,045	95,200
Article 56C extended carryover	1,557	1,145	0	0	0	0	0	0	0	0	0	0	2,702	
Agency Total	1,557	1,145	1,250	2,018	2,952	4,324	5,512	5,204	4,815	2,989	2,762	2,219	36,747	
Coachella Valley Water District														
Approved Table A water	0	0	3,300	3,300	3,300	3,300	3,300	3,300	3,300	3,300	584	0	26,984	121,000
Article 12E carryover	3,932	0	0	0	0	0	0	0	0	0	0	0	3,932	
Article 56C extended carryover	8,887	0	0	0	0	0	0	0	0	0	0	0	8,887	
Pool A water	0	0	0	0	0	0	414	0	0	0	0	0	414	
Pool B water	0	0	0	0	0	0	2,302	0	0	0	0	0	2,302	
Agency Total	12,819	0	3,300	3,300	3,300	3,300	6,016	3,300	3,300	3,300	584	0	42,519	
Crestline-Lake Arrowhead Water Agency														
Approved Table A water	0	0	18	28	73	85	136	146	116	85	75	45	807	5,800
Local water	103	47	20	0	0	0	0	0	0	0	0	0	170	
Agency Total	103	47	38	28	73	85	136	146	116	85	75	45	977	
Desert Water Agency														

Table 9-4. Total Amounts of Water Delivered in 2005, by Month

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2005 Deliveries	2005 Table A
Approved Table A water	0	0	3,810	3,810	3,810	3,810	3,810	3,810	3,810	3,810	2,688	0	33,168	
Article 12E carryover	7,716	0	0	0	0	0	0	0	0	0	0	0	7,716	
Article 56C extended carryover	7,083	0	0	0	0	0	0	0	0	0	0	0	7,083	
Pool A water	0	0	0	0	0	0	0	171	0	0	0	0	171	
Pool B water	0	0	0	0	0	0	0	951	0	0	0	0	951	
Agency Total (* excluded water)	14,799	0	3,810	3,810	3,810	3,810	3,810	4,932	3,810	3,810	2,688	0	49,089	
Littlerock Creek Irrigation District														
Approved Table A water	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pool A water sale*	880	0	0	0	0	0	0	0	0	0	0	0	880	
Agency Total (* excluded water)	0	0	0	0	0	0	0	0	0	0	0	0	0	2,300
Metropolitan Water District of Southern California														
Approved Table A water	0	0	0	101,572	104,118	120,176	135,913	143,652	144,053	132,988	115,572	132,353	1,130,397	1,911,500
Approved Table A water to Semitropic*	0	0	0	0	25,036	0	6,174	0	0	0	0	0	31,210	
Approved Table A water to Kern Delta*	0	0	0	0	1,138	1,324	10,000	2,538	0	576	0	0	15,576	
Approved Table A water transfer from SBVMWD	0	0	0	0	0	0	0	0	0	0	10,000	10,000	20,000	
Approved Table A water to EWA *	0	0	0	0	0	0	0	20,000	20,000	10,000	0	0	50,000	
Article 21 water	18,664	66,664	82,972	0	0	0	0	0	0	0	0	0	168,300	
Article 56C extended carryover	73,283	32,749	0	0	0	0	0	0	0	0	0	0	106,032	
Approved Table A water exchange to Mojave*	0	0	0	0	0	0	0	0	0	0	9,725	10,275	20,000	
Pool A water	0	0	0	0	0	0	6,530	0	0	0	0	0	6,530	
Agency Total (* excluded water)	91,947	99,413	82,972	101,572	104,118	120,176	142,443	143,652	144,053	132,988	125,572	142,353	1,431,259	
Mojave Water Agency														
Approved Table A water	0	0	297	585	669	1,166	1,791	2,139	1,191	761	376	412	9,387	75,800
Approved Table A water through AVEK's service area*	0	0	53	111	118	148	181	136	123	82	0	21	973	
Article 56C extended carryover	345	813	0	0	0	0	0	0	0	0	0	0	1,158	
Article 56C carryover water delivered through AVEK's service area*	19	24	0	0	0	0	0	0	0	0	0	0	43	
Approved Table A water exchange from MWD	0	0	0	0	0	0	0	0	0	0	9,725	10,275	20,000	
Approved Table A water exchange from Solano	0	0	0	0	0	0	0	0	0	0	0	2000	2,000	
Agency Total (* excluded water)	345	813	297	585	669	1,166	1,791	2,139	1,191	761	10,101	12,687	32,545	
Palmdale Water District														
Approved Table A water	0	0	339	1,045	1,063	1,018	1,380	1,392	1,067	1,296	899	675	10,174	21,300
Article 56C extended carryover	1,459	79	0	0	0	0	0	0	0	0	0	0	1,538	
Agency Total	1,459	79	339	1,045	1,063	1,018	1,380	1,392	1,067	1,296	899	675	11,712	
San Bernardino Valley Municipal Water District														
Approved Table A water	0	0	0	127	300	772	1,902	1,508	693	1,437	1,668	2,804	11,211	102,600
Article 21 water	0	0	56	0	0	0	0	0	0	0	0	0	56	
Article 56C extended carryover	22	261	0	0	0	0	0	0	0	0	0	0	283	

Table 9-4. Total Amounts of Water Delivered in 2005, by Month

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2005 Deliveries	2005 Table A
Approved Table A water transfer to MWD *	0	0	0	0	0	0	0	0	0	0	10,000	10,000	20,000	
Agency Total (* excluded water)	22	261	56	127	300	772	1,902	1,508	693	1,437	1,668	2,804	11,550	
San Gabriel Valley Municipal Water District														
Approved Table A water	0	0	0	12	0	2,407	961	0	2,384	3,111	1,625	0	10,500	28,800
Approved Table A water from DRWD	0	0	0	0	0	0	0	0	0	0	1,271	1,717	2,988	
Exchange approved Art 56C extended carryover water from DRWD	316	180	0	0	0	0	0	0	0	0	0	0	496	
Pool B water sale*	0	15,420	0	0	0	0	0	0	0	0	0	0	15,420	
Agency Total	316	180	0	12	0	2,407	961	0	2,384	3,111	2,896	1,717	13,984	
San Gorgonio Pass Water Agency														
Approved Table A water	0	16	0	53	46	57	28	42	95	116	108	94	655	6,500
Article 21 water	0	0	15	0	0	0	0	0	0	0	0	0	15	
Pool A water	0	0	0	0	0	0	0	22	0	0	0	0	22	
Agency Total (* excluded water)	0	16	15	53	46	57	28	64	95	116	108	94	692	
Ventura County Flood Control District														
Approved Table A water	0	0	0	0	231	231	231	231	231	231	231	48	1,665	20,000
Pool A water sale*	9,000	0	0	0	0	0	0	0	0	0	0	0	9,000	
Pool B water sale*	0	7,335	0	0	0	0	0	0	0	0	0	0	7,335	
Agency Total (* excluded water)	0	0	0	0	231	231	231	231	231	231	231	48	1,665	
Recreation/Fish And Wildlife (SWP)														
Castaic Lake	28	27	30	33	32	10	72	90	54	42	18	36	472	
Castaic Lake to Lagoon	0	0	0	0	0	0	0	112	68	0	0	0	180	
Silverwood Lake	4	4	4	4	6	14	13	14	7	5	4	5	84	
Agency Total	32	31	34	37	38	24	85	216	129	47	22	41	736	
Recreation/Fish And Wildlife (CVP)														
USFS Recreation/Fish and Wildlife water (Pyramid Lake)	0	0	0	0	0	0	5	1	1	1	0	1	9	
SWP	124,765	103,138	94,219	116,281	121,601	144,143	173,469	172,594	169,294	155,547	152,045	167,056	1,694,152	
Non-SWP	103	47	20	0	0	0	5	1	1	1	0	1	179	
Southern California Area Total	***124,868***	***103,185***	***94,239***	***116,281***	***121,601***	***144,143***	***173,474***	***172,595***	***169,295***	***155,548***	***152,045***	***167,057***	***1,694,331***	***2,582,300***
SWP Water														
SWP Approved Table A water														
Agriculture and M&I approved water	1,154	9,223	30,563	160,804	204,092	299,680	360,635	409,269	297,887	264,235	239,350	223,762	2,500,654	
Agriculture and M&I approved water for EWA*	0	0	0	0	0	29,712	0	58,804	50,000	10,000	0	0	148,516	
Article 21 water	55,387	166,704	219,499	145,025	21,798	48,791	1,162	1,846	2,644	1,175	0	65,253	729,284	
Article 12E carryover	12,159	4,049	0	0	0	0	0	0	0	0	0	0	16,208	
Article 14B carryover	208	0	0	0	0	0	0	0	0	0	0	0	208	
Article 56C extended carryover	113,227	55,448	0	0	0	0	0	0	0	0	0	0	168,675	

Table 9-4. Total Amounts of Water Delivered in 2005, by Month

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2005 Deliveries	2005 Table A
Article 56C extended carryover exchange	316	180	0	0	0	0	0	0	0	0	0	0	496	
Article 21 unscheduled water	0	0	568	1,231	0	0	0	0	0	0	0	0	1,799	
Transfer approved water	0	0	0	0	0	100	2,400	8,200	22,691	550	10,000	10,000	53,941	
Exchange approved water	0	0	0	0	0	0	0	0	20,000	4,684	10,996	13,992	49,672	
Pool A water	0	0	0	0	0	0	10,650	1,048	342	0	0	0	12,040	
Pool B water	0	0	0	0	0	0	22,194	4,041	0	0	0	0	26,235	
Pool A water sale*	12,040	0	0	0	0	0	0	0	0	0	0	0	12,040	
Pool B water sale*	0	26,235	0	0	0	0	0	0	0	0	0	0	26,235	
Supply approved water	0	0	0	0	0	0	0	277	0	0	0	0	277	
Agency Total (* excluded water)	182,451	235,604	250,630	307,060	225,890	348,571	397,041	424,681	343,564	270,644	260,346	313,007	3,559,489	
SWP Table A-related water														
Recreation/Fish and Wildlife water	109	74	47	90	151	79	156	301	199	110	87	103	1,506	
SWP Total	***182,560***	***235,678***	***250,677***	***307,150***	***226,041***	***348,650***	***397,197***	***424,982***	***343,763***	***270,754***	***260,433***	***313,110***	***3,560,995***	
NON-SWP WATER														
Other water														
Local	47,750	1,257	2,455	18,109	154,274	153,394	210,267	174,402	71,303	74,519	108,148	80,751	1,096,629	
Solano Settlement water	0	0	0	0	0	0	0	0	0	349	783	0	1,132	
Vallejo Permit water	0	0	0	0	0	502	398	200	1,125	223	686	534	3,668	
Subtotal (Other water)	47,750	1,257	2,455	18,109	154,274	153,896	210,665	174,602	72,428	75,091	109,617	81,285	1,101,429	
CVP/USBR water														
Water to DWR	0	0	0	0	0	0	0	0	0	4,938	0	0	4,938	
Annual Contract water	47	40	48	48	45	48	60	74	71	80	57	3	621	
Kern National Wildlife Refuge water	411	0	620	849	506	0	0	1,602	5,130	5,367	5,222	3,240	22,947	
Recreation/Fish& Wildlife water	64	32	6	37	82	31	45	53	42	38	39	165	634	
Water exchange to SWP contractor	7,932	0	177	100	0	0	0	0	0	0	0	0	8,209	
Water transfer to SWP contractor	0	0	0	576	0	0	0	1,000	0	0	0	0	1,576	
General Conveyance	0	0	0	0	0	0	0	0	0	19,000	11,717	567	31,284	
Subtotal (CVP water)	8,454	72	851	1,610	633	79	105	2,729	5,243	24,485	17,035	3,975	70,209	
Non-SWP Total	***56,204***	***1,329***	***3,306***	***19,719***	***154,907***	***153,975***	***210,770***	***177,331***	***77,671***	***99,576***	***126,652***	***85,260***	***1,171,638***	
Grand total	**238,764**	**237,007**	**253,983**	**326,869**	**380,948**	**502,625**	**607,967**	**602,313**	**421,434**	**370,330**	**387,085**	**398,370**	**4,732,633**	**4,125,686**

Table 9-5. Total Amounts of Annual Table A Water and Water Conveyed, by Type, 1962-2005 (Acre-Feet)

Year	Annual Table Amounts According to Long-Term Water Supply Contracts							Water Conveyed								Total
								Deliveries								
	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)	Table A Water (8)	Article 21, Surplus, and Unscheduled Water (a (9)	Other Water (b (10)	Feather River Diversions (c (11)	Wildlife/ Recreation Water (12)	Subtotal (13)	Initial Fill Water (14)	Losses and Storage Changes (d (15)	(16)
1962	0	0	0	0	0	0	0	0	0	18,289	0	0	18,289	9	272	18,570
1963	0	0	0	0	0	0	0	0	0	22,456	0	0	22,456	71	185	22,712
1964	0	0	0	0	0	0	0	0	0	32,507	0	0	32,507	171	152	32,830
1965	0	0	0	0	0	0	0	0	0	44,105	0	0	44,105	93	729	44,927
1966	0	0	0	0	0	0	0	0	0	67,928	0	0	67,928	0	1,746	69,674
1967	0	0	11,538	0	0	0	11,538	11,538	0	53,605	0	0	65,143	8,328	4,212	77,683
1968	550	0	109,900	77,350	0	3,700	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	163,075	0	5,000	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	202,000	0	5,700	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	251,800	0	6,700	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	413,066	0	209,423	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	383,652	0	481,100	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	460,650	0	597,920	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	545,809	0	714,950	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	543,417	0	836,480	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	581,400	0	954,901	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	635,900	0	1,049,584	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	702,685	0	1,190,573	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	758,100	1,946	1,317,614	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	818,000	2,813	1,432,065	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	876,500	5,626	1,550,449	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	867,118	8,439	1,681,257	2,701,164	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	979,211	12,698	1,744,098	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	1,019,049	21,138	1,864,849	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	1,091,946	28,210	1,983,890	3,257,736	1,995,636	36,620	193,606	791,737	3,865	3,021,464	0	284,380	3,305,844
1987	4,620	1,550	150,300	1,188,500	35,204	2,103,941	3,484,115	2,130,086	114,907	377,592	831,947	7,672	3,462,204	0	(390,413)	3,071,791
1988	5,060	15,471	152,500	1,246,100	43,722	2,225,482	3,688,335	2,385,122	0	507,076	794,834	4,889	3,691,921	0	(92,850)	3,599,071
1989	5,500	24,615	156,700	1,290,400	56,342	2,424,633	3,958,190	2,853,747	0	474,559	830,500	8,135	4,166,941	0	447,917	4,614,858
1990	6,040	28,190	160,900	1,313,450	70,486	2,500,600	4,079,666	2,582,151	90	424,697	875,099	9,262	3,891,299	0	(528,869)	3,362,430
1991	11,880	29,590	166,400	1,338,011	70,486	2,510,200	4,126,567	549,113	3,521	551,051	565,395	4,879	1,673,959	0	167,435	1,841,394

Table 9-5. Total Amounts of Annual Table A Water and Water Conveyed, by Type, 1962-2005 (Acre-Feet)

Year	Annual Table Amounts According to Long-Term Water Supply Contracts							Water Conveyed								
								Deliveries								
	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)	Table A Water (8)	Article 21, Surplus, and Unscheduled Water (a (9)	Other Water (b (10)	Feather River Diversions (c (11)	Wildlife/ Recreation Water (12)	Subtotal (13)	Initial Fill Water (14)	Losses and Storage Changes (d (15)	Total (16)
1992	11,920	32,010	171,900	1,342,300	70,486	2,510,200	4,138,816	1,471,454	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	1,749,351	112,625	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	1,967,093	64,330	78,425	860,077	2,575	2,972,500	0	69,536	3,042,036
1996	12,100	48,225	186,000	1,301,630	70,486	2,492,900	4,111,341	2,514,825	28,647	251,391	934,997	3,907	3,733,767	86	491,550	4,225,403
1997	12,150	49,315	188,000	1,297,300	45,201	2,492,900	4,084,866	2,325,775	21,432	322,000	993,211	4,146	3,666,564	527	(11,806)	3,655,285
1998	12,200	50,420	188,000	1,272,300	45,201	2,517,900	4,086,021	1,725,519	20,288	134,682	872,738	2,108	2,755,335	0	(132,491)	2,622,844
1999	12,250	51,500	188,000	1,272,300	70,486	2,519,900	4,114,436	2,738,891	158,070	85,312	1,108,672	4,324	4,095,269	0	(189,525)	3,905,744
2000	14,000	55,945	210,000	1,205,300	70,486	2,565,900	4,121,631	3,200,677	308,785	332,654	1,085,886	4,030	4,932,032	0	(20,103)	4,911,929
2001	14,670	66,561	220,000	1,185,519	70,486	2,566,900	4,124,136	1,690,926	43,435	477,835	1,078,656	2,929	3,293,781	0	159,983	3,453,764
2002	14,730	67,396	220,000	1,195,219	70,486	2,557,200	4,125,031	2,573,030	37,165	307,162	1,132,938	3,694	4,053,989	0	80,709	4,134,698
2003	14,790	68,231	220,400	1,194,819	70,486	2,558,200	4,126,926	2,901,041	59,828	251,447	1,008,093	2,846	4,223,255	0	459,377	4,682,632
2004	13,100	69,056	222,619	1,182,700	70,486	2,569,100	4,127,061	2,599,536	218,496	385,088	1,174,672	2,865	4,380,657	0	108,840	4,489,497
2005	10,800	69,481	222,619	1,170,000	70,486	2,582,300	4,125,686	2,828,406	731,083	96,932	1,074,706	1,506	4,732,633	0	529,347	5,261,980
Total	**236,380**	**780,590**	**5,789,657**	**34,223,476**	**1,222,858**	**62,276,809**	**104,529,770**	**64,487,498**	**7,702,289**	**8,722,710**	**32,908,813**	**136,893**	**113,958,203**	**1,834,310**	**1,364,103**	**117,156,616**

a) Values include amounts of deliveries to short-term contractors (Mustang Water District, 1970-1972; Tracy Golf and Country Club 1974, 1979, and 1980; Green Valley Water District, 1974,1975, 1978, 1979, 1980, and 1985; Granite Construction Company, 1980).
b) Includes amounts of SWP and non-SWP water conveyed for SWP and non-SWP water 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 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.

Chapter 10
Power Resources

Delivery of a new runner for Oroville's Hyatt Power Plant refurbishment project.

Significant Events in 2005

On January 26, 2005, the Department of Water Resources (DWR) submitted its Application for New License for the Oroville Facilities with the Federal Energy Regulatory Commission (FERC).

In August 2005, the federal Energy Policy Act of 2005 was signed into law. The law authorized an Electric Reliability Organization with the statutory authority to enforce compliance with mandatory reliability standards applicable to all market participants throughout the United States' bulk electric system.

On September 12, 2005, following DWR's successful compliance with FERC's May 2005 Additional Information Request, FERC accepted DWR's Application for a New License for operating the Oroville Facilities. FERC's acceptance of DWR's license application marked the conclusion of the multiyear collaborative Alternative Licensing Process (ALP) involving federal and State agencies, Indian tribes, local agencies, environmental organizations, and other interested parties that worked to assist DWR in completing a comprehensive license application and accompanying Preliminary Draft Environmental Assessment. While this procedurally completed the ALP phase of FERC relicensing, settlement negotiations and completion of all federal/State environmental documentation was still ongoing at the end of 2005 in pursuit of a new FERC license at the Oroville Facilities.

Information for this chapter was provided by the State Water Project Analysis Office.

Long-term State Water Project (SWP) contractors depend on the SWP to provide economical sources of power to deliver affordable water. In response to that need, the Department of Water Resources (DWR) developed and administers a comprehensive power resources program. Key elements of the program include the strategic timing of generation and pumping schedules, purchase of power resources and transmission services, short-term sales of power surpluses, and 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 resources and transmission services sufficient to operate the SWP;
- develop and manage power resources to minimize the cost of water deliveries to SWP contractors;
- meet responsibilities and criteria of the Western Electricity Coordinating Council (WECC); and
- conform to regulations of the Federal Energy Regulatory Commission (FERC).

To achieve these goals, DWR constructed its own generating, pumping, and pumped-storage facilities; and enters into long-term and short-term contracts with other electric utilities for transmission access and power purchases, sales, and exchanges.

In addition, DWR participates in the California Independent System Operator (CAISO) supplemental energy market to help CAISO maintain its control area demand and supply balance. DWR generators and pumps also participate in CAISO ancillary services markets by providing spinning and non-spinning reserves to the CAISO controlled grid. In the case of system emergencies or contingencies, DWR can drop its pump load to help CAISO maintain reliable system operation.

The power resources program takes advantage of SWP water storage and conveyance capacities that allow DWR to operate the SWP in a cost-effective manner. This control of pumping loads and generation allows DWR to enter into advantageous agreements with other electric utilities that complement the use of SWP generation to meet SWP power requirements.

Major Electric Utility Industry Developments

In August 2005, the federal Energy Policy Act of 2005 was signed into law. The law authorized an Electric Reliability Organization with the statutory authority to enforce compliance with mandatory reliability standards applicable to all market participants throughout the United States' bulk electric system.

During 2005, CAISO continued work on proposals for major redesign of its

markets that became necessary as a result of the California energy crisis in 2000 and 2001. Initially termed Market Design 2002 (MD02), the proposal was renamed Market Redesign and Technology Upgrade (MRTU).

During 2005, the California Public Utilities Commission (CPUC) issued Decision 05-10-042, which reaffirmed and clarified the policy framework CPUC established under its *Order Instituting Rulemaking to Promote Policy and Program Coordination and Integration in Electric Utility Planning* (OIR.04-04-003). Key program determinants included monthly system obligations based on coincident peaks, supply contracts with specific resources for qualifying capacity, deferred local capacity requirements, noncompliance penalties of three times the cost for new capacity, and retention of the FERC Must Offer Obligation and waiver process until 2007.

In late 2005, CPUC issued its *Ruling Regarding Next Steps in Procurement Proceeding*. It also initiated two successor rulemakings to consider future resource adequacy issues such as the implementation of existing and multiyear requirements and mandates in local areas; and the biennial long-term procurement planning cycle and other procurement issues.

In September 2005, California Assembly Bill (AB) 380 was passed by the Legislature and signed by the Governor. AB 380 contains two sections that address resource adequacy requirements for entities subject to CPUC jurisdiction and publicly owned utilities. SWP is specifically exempted from AB 380 requirements.

DWR Participation in Electric Utility Industry Activities

In 2005, DWR participated in CAISO's MRTU stakeholder processes and litigation before FERC (ER02-1656) to help ensure that MRTU was fully functional and cost allocations were appropriately structured. DWR's participation focused on the following primary elements:

- congestion revenue rights allocations;
- generation and import deliverability;
- hour-ahead scheduling process, day-ahead schedules;
- integrated forward market;
- residual unit commitment;
- real-time market;
- local area reliability contracts;
- local regulatory authority resource adequacy criteria for the SWP;
- locational marginal pricing;
- management of use-limited resources;
- market power mitigation;
- must-offer obligation for curtailable loads and resource adequacy requirements;
- participating load nodal settlement and functionality;
- perfect hedge for existing transmission contracts;
- pricing ancillary services in HASP and RT;
- trading hubs and load aggregation points; and
- marginal losses.

In 2005, DWR participated in a number of CAISO and non-CAISO electric utility stakeholder processes and FERC proceedings to help ensure that various market requirements or cost allocation mechanisms were appropriately

structured. The major processes and litigations included the following (with FERC docket number given in parenthesis):

- FERC assessment of demand response resources (AD06-2);
- FERC Opinion 478: transmission access charges/time-of-use rates (ER00-2019);
- FERC Opinion 479: transmission entitlements costs not under CAISO operational control included in jurisdictional rates (EL00-105, ER00-2019);
- FERC Order 2003: CAISO large generator interconnection agreements and procedures (ER04-445);
- FERC voltage support from non-reliability must run resources (AD05-1-000);
- CAISO Tariff Amendment 60: minimum load reliability cost allocation (ER02-1656-024, ER04-835, EL04-103);
- CAISO Tariff Amendment 66: interim solution for import and export bids under MRTU Phase 1B (ER05-718);
- CAISO Tariff Amendment 67: revisions to revise the deadline for submitting supplemental energy bids and provide for a deadline of 62 minutes prior to the operating hour (ER05-796);
- CAISO Tariff Amendment 68: station power protocol (ER05-849);
- CAISO Tariff Amendment 72: 95% DA scheduling requirement (ER05-1502);
- CAISO Tariff Amendment 73: bid caps (ER06-354);
- CAISO grid management charge (ER05-346, ER05-367);
- CAISO and Independent Energy Producer's Association joint motion on capacity generation charged for must-offer obligations energy (EL05-146);
- City of Pasadena transmission control agreement (ER05-381, EL05-18);
- southern cities transmission owner tariffs (EL03-15 and EL03-20);
- CPUC order instituting rulemaking to promote policy and program coordination and integration in electric utility resource planning: Phase IIB workshops (R.04-04-003);
- CPUC order instituting rulemaking to consider refinements to and further development of the resource adequacy requirements program (R.05-12-013);
- CPUC transmission infrastructure to access renewable energy resources (OII.05-09-005);
- Pacific Gas & Electric (PG&E) 8th transmission owner tariff (ER05-1284);
- PG&E reliability service tariff (ER06-34);
- PG&E transmission revenue balancing account adjustment, reliability services rates and transmission access charge balancing account adjustment (ER04-337, ER05-82, ER05-378);
- PG&E agreement with the City and County of San Francisco and PG&E's wholesale distribution tariff (ER05-1190);
- Southern California Edison (SCE) 3rd transmission owner tariff (ER06-186);
- SCE reliability service tariff: cost allocation-coincident peak methodology (ER05-410);
- SCE reliability service tariff: 2005 summer true-up using ER05-410 methodology (ER05-1154);
- SCE petition for declaratory order concerning transmission projects to interconnect potential wind generation in the Antelope Valley/Tehachapi Region (EL05-80);
- SCE reliability services costs associated with CAISO M-438 operating procedure (ER05-763, ER05-1154);

- SCE contracts to secure additional capacity for system reliability in SP-15 (A.05-06-003);
- San Diego Gas & Electric (SDG&E) revision to transmission owner tariff: transmission congestion costs (ER05-853); and
- U.S. Department of Energy demand response in CAISO/regional transmission organizations systems.

DWR also participated in litigation before the DC Circuit Court on several electric utility matters, including FERC Opinion No. 466, 466-A, and 466-B: approval of rolled-in rate compensation for PG&E generation plants connecting to the transmission grid (Case 04-76131); termination of extra high voltage agreements (Case 04-1171); and FERC Order 478: time differentiated rates (Case 06-74506).

Oroville Facilities Relicensing

The existing 50-year term FERC hydropower license, Project Number 2100 for operation of the Oroville Facilities, will expire January 31, 2007. FERC offers three relicensing procedures—traditional, hybrid, and alternative—that allow applicants to accommodate their unique interests and operations while seeking license renewal. The traditional procedures require minimal FERC involvement, while the alternative procedures allow for more FERC involvement and encourage collaborative stakeholder interaction throughout the multiyear relicensing process. DWR selected the alternative licensing procedures. Participants in the relicensing activities indicated support for the collaborative approach, and on November 16, 2000, DWR submitted a request to FERC to use the alternative procedures. On January 11, 2001, FERC approved DWR's request. On January 26, 2005, DWR submitted its Application for New License for the Oroville Facilities with FERC.

On September 12, 2005, following DWR's successful compliance with FERC's May 2005 Additional Information Request, FERC accepted DWR's Application for a New License for operating the Oroville Facilities. FERC's acceptance of DWR's license application marked the conclusion of the multiyear collaborative Alternative Licensing Process (ALP) involving federal and State agencies, Indian tribes, local agencies, environmental organizations, and other interested parties that worked to assist DWR in completing a comprehensive license application and accompanying Preliminary Draft Environmental Assessment. While this procedurally completed the ALP phase of FERC relicensing, settlement negotiations and completion of all federal/State environmental documentation was still ongoing at the end of 2005 in pursuit of a new FERC license at the Oroville Facilities.

During 2005, primary achievements included

- completing all 165 technical reports resulting from the 72 collaboratively developed and approved study plans. These roughly 40,000 pages of supporting documentation were submitted to FERC in support of DWR's application for license;
- completing a package of responses addressing deficiencies, clarifications, additional information requests, and revisions to the January 2005 license application;

- receiving notification that the Oroville Facilities New License Application was accepted for filing by FERC;
- submitting the application for water quality certification to the State Water Resources Control Board;
- continuing settlement agreement negotiations meetings with Indian tribes, Butte County, local governmental agencies, State and federal agencies, and other interested stakeholders; and
- continuing to prepare and update the recreation management plan submitted with the Application for License to reflect additional enhancements derived from the Settlement Agreement negotiations.

As an interim settlement activity, DWR obtained approval to provide $3 million to the Feather River Recreation and Park District to fund recreation improvements at Riverbend Park in Oroville through calendar year 2007.

The following SWP facilities will be subject to new license terms and conditions:

- Oroville Dam and Reservoir;
- Hyatt Pumping-Generating Plant;
- Thermalito Pumping-Generating Plant;
- Thermalito Diversion Dam Power Plant;
- Thermalito Diversion Dam;
- Fish Barrier Dam;
- Feather River Fish Hatchery;
- Thermalito Power Canal;
- Thermalito Forebay; and
- Thermalito Afterbay.

Existing SWP Power Facilities

Figure 10-1 shows the names, locations, and nominal capacities of DWR's primary power facilities.

Hydroelectric

Economic hydroelectric generation provides the largest share of SWP power resources. The combined Hyatt Pumping-Generating Plant and Thermalito Pumping-Generating Plant (Hyatt-Thermalito) generate about 2.2 billion kWh of energy in a median water year, while the 3 MW from Thermalito Diversion Dam Power Plant adds another 24 million kWh of energy a year.

Generation at California Aqueduct recovery plants—Alamo, Devil Canyon, Gianelli, Mojave Siphon, and Warne—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, under the "Participation Agreement Reid Gardner Unit No. 4" between DWR and Nevada Power Company (NPC), DWR has received energy from Reid Gardner Power Plant, a coal-fired facility near Las Vegas, Nevada. Reid Gardner consists of four units. DWR owns 67.8 percent of Unit 4, while NPC owns the remainder of Unit 4, as well as all of Units 1, 2, and 3. Under the agreement, DWR receives up to 235 MW from Unit 4, subject to NPC's limited right to interrupt DWR's energy deliveries. Whenever NPC interrupts DWR's scheduled energy, DWR receives payment based on NPC's combustion turbine costs.

In June 1990, DWR began receiving an additional 15 MW of power from Reid

Figure 10-1. Names, Locations, and Nameplate Capacities of Primary Power Facilities

Gardner Unit 4 due to plant capacity upgrades. However, beginning in August 2004, new environmental restrictions in Nevada were imposed which reduced Reid Gardner Unit 4 production back to its original capacity of 260 MW. Consequently, DWR is currently not receiving the energy associated with this upgraded capacity.

Future SWP Power Facilities

To meet future SWP power requirements, DWR evaluates new power resources. Factors considered include

- the anticipated power requirements for pumping;
- transmission access;
- anticipated water deliveries to contractors;
- cost of the resource;
- availability and cost of financing;
- environmental impacts and costs of mitigation; and
- operating characteristics.

In addition, DWR continues to consider several potential power resources at existing plants, including a second unit at Alamo Power Plant and a third unit at Warne Power Plant.

Contractual Resource Arrangements

Through joint development, exchanges, and purchases, DWR obtains a significant amount of capacity and energy for SWP operations from other utilities throughout California, the Northwest, and the Southwest. Under these agreements, DWR can sell, buy, or exchange energy.

Some agreements allow DWR to sell, buy, and exchange energy on an hourly, daily, weekly, or monthly basis. Those agreements permit more economical use of DWR's generating resources and more efficient scheduling of energy deliveries.

Joint Developments

In 1966, DWR entered into a contract with the Los Angeles Department of Water and Power (LADWP) for joint development of the West Branch of the California Aqueduct. LADWP constructed and operates Castaic Power Plant, which is connected to the LADWP transmission system at the Sylmar Substation. DWR 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 (Reclamation) (202 MW) facility.

Purchases

DWR obtains a significant amount of energy through long-term and short-term purchase agreements.

Long-Term Purchase Agreements. DWR purchases hydroelectric energy generated by other utilities. The output of the 165 MW Pine Flat Power Plant, owned and operated by Kings River Conservation District, supplies the SWP with about 400 million kWh of energy in median water years.

DWR contracts for the energy output of five hydroelectric plants owned and operated by Metropolitan Water District of Southern California (Metropolitan). The total capacity of these plants is 30 MW.

Short-Term Purchase Agreements. Through the Western Systems Power Pool Agreement, DWR transacts with member utilities and energy marketers on a short-term basis. Additionally, according to the terms of the 1988 Coordination Agreement between DWR and Metropolitan, DWR may purchase surplus energy from Metropolitan's Colorado River Aqueduct system. The Coordination Agreement provides for coordinated operation between the SWP and Metropolitan's Colorado River Aqueduct system. It also provides for monthly surplus firm energy sales to Metropolitan, economy energy sales to Metropolitan, surplus energy purchases from the Colorado River Aqueduct system, and energy exchanges between DWR and Metropolitan.

Contractual Transmission Agreements

Although able to acquire transmission independently, DWR depends on other sources for transmission services. PG&E and SCE are the primary providers of transmission service between SWP power resources and pumping loads and also with interconnected utilities for purchases, sales, and exchanges of power.

Under the Comprehensive Agreement with PG&E, DWR receives 1,300 MW of firm transmission service over the PG&E transmission system between SWP pump loads and power resources in Northern and Central California.

Previously, under the power contract with SCE, DWR received transmission service over SCE's transmission system to interconnect the SWP loads and resources in Southern California. Upon termination of the power contract at the end of 2004, DWR began receiving transmission service for these loads and resources through CAISO. Additionally, DWR has interconnection and wholesale distribution service agreements with SCE for service over its distribution facilities from the CAISO interchange points to SWP loads and resources.

Under the Participation Agreement with NPC, DWR receives 235 MW of firm transmission service over NPC's transmission system between Reid Gardner Unit 4 and the El Dorado Substation. Under the Firm Transmission Service Agreement between SCE and DWR, DWR receives 235 MW of firm transmission service over SCE's transmission system between the El Dorado Substation and the Vincent Substation.

Load Management

The SWP controls the timing of its pumping load through an extensive computerized network. This control system allows DWR to minimize the cost of power it purchases by maximizing pumping during off-peak periods when power costs are lower—usually at night—and selling power to other utilities and energy marketers during on-peak periods when power costs are higher. Taking advantage of this flexibility in scheduling, SWP pumping load and generation reduces the net cost of power needed for SWP water deliveries.

Sales of Excess Power

When generation from SWP power resources exceeds requirements, DWR sells or exchanges the excess power through contracts with utilities and marketers.

SWP Power Operation in 2005

Tables 10-1 through 10-4, at the end of this chapter, present historical information about SWP power operation for calendar year 2005, including energy consumed, generated, exchanged, purchased, and sold.

Energy Consumed

In 2005, energy used at the 29 SWP pumping and generating plants totaled 8.29 million MWh. According to the terms and conditions of various water conveyance contracts and exchange agreements, some water belonging to the Central Valley Project is pumped through Banks and Dos Amigos Pumping Plants and Gianelli Pumping-Generating Plant. Reclamation furnishes additional energy for this purpose.

Table 10-1 shows the amount of energy used each month at SWP pumping and generating plants to operate the SWP in 2005, excluding transmission losses.

Energy Generated

Table 10-2 shows the amounts of energy generated at SWP facilities in 2005, as well as energy purchased for SWP operations.

Hydroelectric and Coal

The Hyatt-Thermalito power complex in Oroville generated 1.83 million MWh of energy in 2005.

Energy generated at SWP aqueduct recovery plants—Gianelli, Alamo, Devil Canyon, Mojave Siphon, and Warne—totaled 1.74 million MWh.

The SWP share of energy generated at the coal-fired Reid Gardner Unit 4 in Nevada totaled 1.58 million MWh of energy.

Contractual Resource Arrangements

SWP power operations rely on contractual arrangements as well as SWP facilities. These contractual arrangements include joint development projects, energy exchanges, and energy purchases.

Joint Development

Through the West Branch Cooperative Development Agreement with LADWP, DWR receives energy based on the amount of water scheduled through the West Branch. In 2005, LADWP provided 510,093 MWh of energy for DWR's share of energy generated at Castaic Power Plant.

DWR's share of Gianelli Pumping-Generating Plant used 363,023 MWh and generated 125,080 MWh of energy.

Energy Exchanges

DWR has an energy exchange agreement with Sacramento Municipal Utility District (SMUD). Under this agreement, DWR provides SMUD with energy during peak periods from May through September. In return, SMUD provides DWR with energy during off-peak periods from January through March and from September through December. The exchange ratio of off-peak energy to on-peak energy is 1.8.

Purchases and Costs

Table 10-3 shows amounts of power, transmission, and other services purchased in 2005 and the costs of purchases, by area. Amounts shown include short-term and long-term purchases. It also reflects

the restructuring of the electric industry through transactions with CAISO and through new charges (grid management and ancillary services charges).

DWR purchased 4.74 million MWh of energy at a cost of $232.07 million. Other SWP power costs, including transmission, operation, maintenance, and CAISO ancillary services totaled $123.83 million. This amount includes $4.95 million for debt service and $3.81 million for operations and maintenance costs at Pine Flat Power Plant. It also includes $3.42 million for transmission at Reid Gardner Unit 4 and $59.33 million for costs associated with operations and maintenance, fuel, insurance, and property taxes at Reid Gardner Unit 4.

Long-Term Purchase Agreements. According to the terms of the Kings River Conservation District contract, DWR receives the total output of the 165 MW Pine Flat Power Plant. In 2005, the power plant provided 594,002 MWh of energy to the SWP at a total cost of $4.57 million.

Under the Metropolitan Small Hydro Contract, DWR purchased 174,225 MWh of energy in 2005 from five small hydroelectric power plants on the Metropolitan system at a cost of $9.24 million.

DWR purchased 686 MWh of energy at a cost of $2,313, under the Reid Gardner Unit 4 Participation Agreement, associated with plant capacity upgrade.

Short-Term Purchase Agreements. Existing resources and long-term power and transmission contracts ensure that the SWP has enough power to meet long-term needs. When SWP power requirements exceed resources during daily operations, short-term purchases meet the difference. In 2005, the SWP purchased short-term energy from 20 marketers. The short-term energy purchases totaled 2.84 million MWh at a cost of $158.82 million. Also, DWR purchased additional amounts of short-term energy from electric utilities.

Sales of Excess Power

DWR sold 2.15 million MWh of energy to 20 utilities and 22 power marketers, for total revenues of $148.62 million in 2005. DWR also received $33.50 million in revenues for capacity, including $21.03 million for transactions made through CAISO. See Table 10-4 for information about energy and other services sold and revenue received, including those sold to CAISO.

Forecasting Power Operations

Each year, after reviewing the water contractors' water delivery requests and the construction schedule for future facilities, DWR forecasts SWP power requirements through 2035.

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 could not be made, less power would be used. Power requirements could also decrease during a wet year because of the availability of local 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 unexpectedly dry year, then more power would be used.

Criteria

DWR bases its forecast of power operations primarily on the amount of energy necessary to deliver approved Table A water requested by water contractors. The forecast includes losses in reservoirs and aqueducts, recreation water, and water to replace storage in reservoirs south of the Delta.

Short-term power requirements, based on 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.

Table 10-1. Energy Used at Pumping Plants and Power Plants in 2005, by Month (Millions of Kilowatt-Hours)

Pumping Plants and Power Plants	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Hyatt-Thermalito Pumping-Generating Plant (pumpback and station service)	0.150	0.002	0.112	0.005	0.066	0.145	0.480	0.111	1.526	0.731	0.206	0.665	4.200
North Bay Interim Pumping Plant	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cordelia Pumping Plant	0.646	0.576	0.414	0.343	0.701	0.847	1.127	1.258	1.231	0.907	0.983	0.840	9.872
Barker Slough Pumping Plant	0.312	0.231	0.174	0.185	0.379	0.985	1.428	1.641	1.611	1.175	0.953	0.451	9.524
South Bay Pumping Plant	2.825	1.794	2.749	5.949	8.866	13.209	14.449	12.435	7.679	5.221	8.760	6.343	90.279
Del Valle Pumping Plant	0.005	0.005	0.007	0.015	0.021	0.019	0.014	0.006	0.013	0.015	0.013	0.019	0.153
Banks Pumping Plant	136.880	77.667	62.675	62.658	34.219	91.648	122.175	121.274	118.172	106.698	87.682	111.943	1,133.692
Gianelli Pumping-Generating Plant (SWP share)	118.886	41.923	4.300	0.434	1.110	7.867	18.021	26.375	35.942	25.421	21.609	61.135	363.023
Dos Amigos Pumping Plant (SWP share)	17.297	25.660	34.671	45.790	32.765	46.677	55.389	48.170	40.386	40.656	35.414	31.148	454.022
Buena Vista Pumping Plant	16.773	22.610	22.002	37.980	31.963	40.000	53.237	43.392	38.293	39.872	34.434	31.572	412.128
Teerink Pumping Plant	18.859	25.010	22.946	40.812	33.761	41.168	54.922	43.908	40.571	43.543	37.950	34.951	438.400
Chrisman Pumping Plant	42.314	56.067	50.685	90.118	73.512	88.990	119.723	95.710	89.338	96.737	84.740	78.312	966.247
Edmonston Pumping Plant	155.984	206.947	185.009	331.643	268.423	322.962	436.404	345.398	325.500	355.350	313.355	287.135	3,534.110
Alamo Power Plant (station service)	0.016	0.013	0.003	0.001	0.002	0.000	0.001	0.002	0.004	0.004	0.032	0.017	0.095
Pearblossom Pumping Plant	36.178	42.053	51.564	49.450	50.961	59.305	72.433	60.841	52.529	57.205	55.539	57.579	645.638
Pine Flat Power Plant (station service)	0.234	0.209	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.240	0.767
Mojave Siphon Power Plant (station service)	0.017	0.007	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.004	0.030
Devil Canyon Power Plant (station Service)	0.001	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.000	0.002	0.000	0.033	0.039
Oso Pumping Plant	3.109	7.206	0.358	17.907	9.015	11.367	18.686	12.905	14.730	16.769	12.819	9.577	134.449
Warne Power Plant (station service)	0.140	0.078	0.172	0.025	0.141	0.272	0.135	0.123	0.037	0.014	0.112	0.290	1.541
Las Perillas Pumping Plants	0.160	0.277	0.284	0.559	0.865	1.225	1.403	1.312	0.834	0.581	0.168	0.360	8.028
Badger Hill Pumping Plant	0.406	0.735	0.752	1.461	2.258	3.224	3.579	3.395	2.171	1.511	0.427	0.952	20.871
Devil's Den Pumping Plant	0.875	0.925	1.113	1.556	1.846	2.209	2.458	2.371	2.183	1.851	0.850	1.313	19.549
Bluestone Pumping Plant	0.812	0.864	1.043	1.474	1.752	2.133	2.372	2.290	2.097	1.753	0.794	1.238	18.622
Polonio Pass Pumping Plant	0.888	0.940	1.137	1.581	1.857	2.212	2.468	2.359	2.165	1.847	0.858	1.342	19.653
Greenspot Pumping Station	0.217	0.021	0.039	0.098	0.093	0.194	0.255	0.367	0.241	0.448	0.218	0.159	2.350
Crafton Hills Pumping Station	0.143	0.022	0.040	0.107	0.101	0.181	0.155	0.155	0.214	0.337	0.187	0.143	1.786
Cherry Valley Pumping Station	0.000	0.002	0.002	0.008	0.006	0.008	0.004	0.008	0.013	0.003	0.016	0.013	0.081
Subtotal	*554.128*	*511.844*	*442.318*	*690.160*	*554.686*	*736.846*	*981.319*	*825.804*	*777.480*	*798.653*	*698.138*	*717.773*	*8,289.149*
High Voltage Transmission Line Losses and Deviation	14.747	(4.122)	(15.095)	(10.544)	(3.467)	12.846	11.080	16.087	6.937	(5.407)	(10.509)	6.196	18.750
Total Energy Required for SWP	**568.875**	**507.722**	**427.223**	**679.616**	**551.219**	**749.692**	**992.400**	**841.891**	**784.417**	**793.246**	**687.629**	**723.969**	**8,307.899**

Table 10-2. Energy Generated and Purchased in 2005, by Month (Millions of Kilowatt-Hours)

Sources of Energy	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
SWP Energy Sources													
Hyatt-Thermalito Power Plant	67.247	37.043	54.212	39.800	152.664	224.191	258.224	253.026	192.072	158.690	155.752	240.636	1,833.559
Gianelli Pumping-Generating Plant (SWP share)	0.000	2.436	0.335	35.384	35.324	15.072	15.248	11.071	0.602	1.428	5.980	2.200	125.080
Alamo Power Plant	6.242	6.824	8.750	8.788	9.073	10.628	11.744	10.447	9.295	9.741	5.263	8.209	105.003
Mojave Siphon Power Plant	4.029	4.675	5.813	5.372	5.683	6.863	8.360	6.832	5.837	6.451	6.181	6.427	72.525
Devil Canyon Power Plant	72.550	83.338	86.439	90.760	93.486	106.885	127.857	109.858	95.478	103.834	92.552	89.716	1,152.752
Reid Gardner Unit 4 [a]	119.108	124.479	141.980	105.768	51.690	159.798	156.880	128.767	134.719	159.927	144.844	149.945	1,577.905
Warne Power Plant	5.875	16.102	(0.170)	37.519	22.076	23.235	38.000	28.086	32.096	35.863	26.742	18.838	284.261
Subtotal	*275.051*	*274.896*	*297.359*	*323.391*	*369.996*	*546.673*	*616.314*	*548.088*	*470.099*	*475.934*	*437.314*	*515.971*	*5,151.085*
Energy Sources from Long-Term Agreements													
Castaic Power Plant	28.122	42.059	0.000	68.219	34.882	38.031	61.801	47.034	50.510	59.924	51.699	27.810	510.093
Metropolitan Small Hydro Generation	10.598	9.671	9.263	14.398	15.235	17.027	18.254	17.771	16.071	14.843	15.830	15.265	174.227
Pine Flat Power Plant KRCD	0.000	0.000	6.222	35.182	106.963	143.526	144.437	95.771	38.801	21.588	1.512	0.000	594.002
Power Exchange Delivered to other entities [b]	0.000	(0.336)	0.000	0.000	(31.000)	(30.000)	(33.000)	(33.160)	(32.000)	0.000	0.000	0.000	(159.496)
Power Exchange Received from other entities [b]	43.400	39.200	43.400	0.000	0.000	0.000	3.000	3.240	27.000	43.575	42.000	43.400	288.215
Power Exchange Delivered to SCE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Power Exchange Received from SCE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Energy to MWD for CRA Pumping	0.000	0.000	0.000	0.000	0.000	0.000	(20.160)	(15.775)	(26.505)	0.000	0.000	0.000	(62.440)
Energy from Metropolitan for CRA	30.600	8.800	0.000	0.000	0.000	0.000	0.000	6.930	4.950	0.000	0.000	2.880	54.160
Power System Imbalances	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Purchases													
Purchases (Power Contracts)	303.622	253.498	229.904	348.832	283.696	290.518	404.261	412.864	424.998	380.633	312.615	322.814	3,968.255
Subtotal	*416.342*	*352.892*	*288.789*	*466.630*	*409.776*	*459.103*	*578.592*	*534.675*	*503.826*	*520.563*	*423.657*	*412.170*	*5,367.016*
Total Resources	691.393	627.789	586.148	790.021	779.772	1,005.775	1,194.906	1082.763	973.925	996.497	860.971	928.141	10,518.101
Less Energy Sales	(122.518)	(120.067)	(158.925)	(110.405)	(228.553)	(256.083)	(202.506)	(240.872)	(189.508)	(203.251)	(173.342)	(204.172)	(2,210.202)
Total Energy Provided to the SWP	**568.875**	**507.722**	**427.223**	**679.616**	**551.219**	**749.692**	**992.400**	**841.891**	**784.417**	**793.246**	**687.629**	**723.969**	**8,307.899**

[a] The upgraded energy of 686 MWh from Reid Gardner Unit 4 is included.
[b] Amounts show actual energy available for SWP use and include transmission losses.

Table 10-3. Power, Transmission, and Other Services Purchased in 2005 and Costs of Purchases, by Area

Name of Supplier	Type of Service Purchased	Power (MWH)	Power Cost (Dollars)	Total Cost (Dollars)
Power Purchases				
Northwest Area				
Bonneville Power Administration		147	8,967.00	8,967.00
Northern California Area				
Kings River Conservation District		594,002	4,574,843.88	4,574,843.88
Sacramento Municipal Utility District		5,550	315,286.75	315,286.75
City and County of San Francisco		505	24,970.00	24,970.00
Northern California Power Agency		5,066	381,260.00	381,260.00
Pacific Gas & Electric Company		118,733	4,537,095.00	4,537,095.00
Southern California Area				
Metropolitan Water District of Southern California		197,308	11,296,121.85	11,296,121.85
Southern California Edison		321,415	19,660,218.00	19,660,218.00
City of Azusa		107	5,273.00	5,273.00
City of Riverside		1,412	91,098.00	91,098.00
City of Vernon		1,805	121,180.00	121,180.00
San Diego Gas and Electric		165,506	10,003,148.50	10,003,148.50
Arizona Public Services		419,600	19,324,600.00	19,324,600.00
Public Service of New Mexico		61,058	2,895,759.97	2,895,759.97
Nevada Power (Upgrade Energy)		686	2,313.33	2,313.33
Energy Marketers (20) AEP,AVST,BPEC,CALP,CECO,CNCO,CORP,CPSC, DETM,ECH1,MSCG,OPSI,PAC1,PWRX,PW,SEES,SETC,TEMU,UBSW,WESC		2,844,268	158,823,615.67	158,823,615.67
Subtotal		*4,737,168*	*232,065,750.95*	*232,065,750.95*
Transmission and Other Purchases				
California Independent System Operator	Ancillary and other services			36,604,391.82
	FERC charges			374,796.65
California Power Exchange	Wind up fees			140,357.78
Kings River Conservation District	Pine Flat operation and maintenance			3,805,268.00
	Pine Flat debt service and refinance fees (bonds)			4,951,058.21
Los Angeles Department of Water and Power	Hydro Power plant scheduling for Greg Ave.			1,150.00
	Sylmar transmission service			73,907.61
Nevada Power Company [a]	Reid Gardner Unit 4 transmission service			1,672,932.00
	Operations and maintenance			26,600,913.78
	Coal and diesel fuel			31,248,696.51
	Insurance			561,048.94
	Property taxes			919,716.80
Pacific Gas and Electric Company	Midway-Wheeler Ridge, transmission operation and maintenance			98,066.40
	Cost of ownership for Pine Flat			12,076.00
	Transmission			10,619,652.86
	Cost of ownership, special facilities			76,076.00
	Castle Rock Junction—Lakeville ownership charges			102,594.00
	Costal Branch: ownership charges			156,463.00
Southern California Edison Company	East Branch Extension Plants—transmission			576,013.68
	East Branch Extension Plants—interconnection charges			39,817.70
	Additional facilities charges (D.C. and Mojave)			1,259,927.04
	Mojave Siphon and Devil Canyon firm transmission			369,120.00
	East Branch Extension reliability charges			2,189.48
	Reliability services (Edmonston, Oso, Pearblossom)			1,401,258.80
	Firm transmission El Dorado-Vincent			1,551,000.00
	Interconnection charge (WW,AL,ED,OSO,PB)			525,585.74
FERC Charges for Government Lands				86,541.62
Miscellaneous Fees				**3,755.31**
Subtotal				*123,834,375.73*
Total		**4,737,168**	**73,242,135.28**	**355,900,126.68**

[a] NPC amounts are subject to adjustments

Table 10-4. Energy Sold in 2005 and Revenue from Sales, by Area

Name of Supplier	Energy Sold (MWH)	Revenue from Energy Sales (Dollars)	Revenue from Exchanges, Capacity, and other Energy Services (Dollars)	Total Power Sales (Dollars)
Pacific Northwest Area				
Bonneville Power Administration	3,150	106,800.00		106,800.00
Northern California Area				
CAISO—ancillary and other services			21,025,418.29	21,025,418.29
California Power Authority	15,200	1,216,000.00	7,700,000.00	8,916,000.00
City of Redding	175	9,000.00		9,000.00
City of Santa Clara			19,275.23	19,275.23
Northern California Power Agency	3,273	222,027.50	14,922.76	236,950.26
Pacific Gas and Electric Company	156,224	10,761,416.00		10,761,416.00
Sacramento Municipal Utility District	46,931	3,654,158.00	1,284,000.00	4,938,158.00
Southern California Area				
City of Azusa	7,860	484,767.35		484,767.35
City of Banning	8,640	656,640.00		656,640.00
City of Riverside	152,453	6,474,583.76	1,976,820.00	8,451,403.76
City of Vernon	5,148	274,735.00		274,735.00
Los Angeles Department of Water and Power	240	17,760.00	587,100.00	604,860.00
San Diego Gas and Electric	201,928	15,077,255.25		15,077,255.25
Southern California Edison	78,797	5,817,660.00		5,817,660.00
Metropolitan Water District of Southern California	400	3,570.00		3,570.00
Southwest Area				
Arizona Public Service	39,571	2,912,386.00		2,912,386.00
Nevada Power Company	185,162	20,400,398.87	889,338.60	21,289,737.47
Public Service Company of New Mexico	5,850	324,696.00		324,696.00
Salt River Project	2,200	73,808.00		73,808.00
Energy Marketers				
American Electric Power	2,800	160,600.00		160,600.00
Avista Energy	800	38,360.00		38,360.00
BP Energy Company	146,200	8,588,026.00		8,588,026.00
Calpine Energy Services	39,213	1,668,778.50		1,668,778.50
Conoco Phillips	29,053	1,443,919.10		1,443,919.10
Constellation Power Source	58,157	4,788,302.57		4,788,302.57
Coral Power	342,337	23,033,926.50		23,033,926.50
Duke Energy	86,725	4,315,562.20		4,315,562.20
Dynegy Power Marketing	7,200	351,052.00		351,052.00
J. Aron & Company	30,800	2,556,400.00		2,556,400.00
Mirant Americas Energy Marketing	800	46,560.00		46,560.00
Morgan Stanley Capital Group	32,250	1,436,250.00		1,436,250.00
Occidental Power Services	7,200	409,152.00		409,152.00
PacifiCorp	400	11,800.00		11,800.00
Pinacle West	3,800	234,594.00		234,594.00
PPM Energy	45,186	3,015,429.10		3,015,429.10
Powerex	35,321	1,868,021.00		1,868,021.00
Sempra Energy Solutions	800	40,504.00		40,504.00
Sempra Energy Trading	133,678	6,931,442.00		6,931,442.00
Transalta Energy Marketers	180,016	14,670,002.40		14,670,002.40
UBS Energy	35,376	3,492,764.00		3,492,764.00
Williams Energy Marketers	18,725	1,028,176.00		1,028,176.00
Total	**2,150,039[a]**	**148,617,283.10**	**33,496,874.88**	**182,114,157.98**

Chapter 11
Facilities Maintenance

Crafton Hills Reservoir

Significant Events in 2005

The Part 12D Safety Inspection and Potential Failure Mode Analysis (PFMA) for Cedar Springs Dam, Devil Canyon Second Afterbay, Peace Valley Intake Embankment (Quail Dam), and Pyramid Dam were performed in January.

Part 12D Safety Inspection, PFMA and Supporting Technical Information Document (STID) reports for FERC Project #2100, the Oroville-Thermalito Complex, were completed in March.

Part 12D Safety Inspection, PFMA and STID reports for FERC Project #2426 the Castaic-Devil Canyon Power Complex were completed in July 2005.

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

The Department of Water Resources (DWR), through the Division of Operations and Maintenance (O&M), monitors all State Water Project (SWP) facilities to ensure safety and reliability. DWR is required, under federal and State law, to contract periodically with independent consultants to review the safety of SWP dams and power facilities.

Inspecting and Maintaining Project Dams

DWR conducts several types of inspections of SWP facilities to ensure that each dam is safe for continued operation. O&M staff collect and evaluate data about the performance of each facility. Engineers from the Division of Safety of Dams (DSOD) review instrumentation data and inspect jurisdictional SWP dams, either semi-annually or annually. They evaluate proposed modifications to existing dams, as well as the design and construction of new jurisdictional dams. The Federal Energy Regulatory Commission (FERC) inspects all licensed SWP facilities annually. These inspections include a review of significant events, instrumentation data, and the visual appearance of each dam, penstock, or power plant. In addition, under FERC and California Water Code requirements, consulting engineers and geologists are retained to evaluate SWP dam facilities every five years.

DWR contracts periodically with independent consultants to review the safety of SWP dams and power facilities, except Pearblossom Spill Basin. The four dams in the San Luis Field Division (San Luis, O'Neill Forebay, Los Banos Detention, and Little Panoche Detention) are used jointly with the U.S. Bureau of Reclamation (Reclamation), and are not under the jurisdiction of DSOD. Pearblossom Spill Basin Dam was originally designed to be used during misoperation at the Pearblossom Pumping Plant; the spill basin was never fully completed and has never been used.

Routine Inspections

During 2005, DSOD, along with O&M staff, inspected Frenchman, Antelope, and Grizzly Valley dams in the Upper Feather River area; Oroville, Bidwell Bar, Parish Camp, and Thermalito Afterbay dams in the Oroville Field Division; Clifton Court Forebay, Bethany, Patterson, and Del Valle dams in the Delta Field Division; and Pyramid, Castaic, Cedar Springs, Devil Canyon Power Plant Second Afterbay, Perris, and Crafton Hills dams in the Southern Field Division.

Joint-Use Facility Inspection

Every six years, Reclamation conducts a comprehensive facility review of the four joint-use facility dams in the San Luis Field Division. The last comprehensive facility review was conducted from April 28 through May 2, 2003.

Underwater Inspection

In May 2005, U.S. Environmental Protection Agency divers inspected the left abutment for Pyramid Dam. The inspection was to ensure clean-up efforts were satisfactory after Pacific Pipeline

No. 63 broke in April 2005, releasing oil into Pyramid Lake, and depositing oil on the left abutment and the upstream rip-rap of Pyramid Dam. In September 2005, DWR divers inspected stoplog slots and sacrificial anodes on Pyramid Dam's radial gate.

Independent Reviews

California Water Code Reviews

To comply with the California Water Code and the California Code of Regulations, DWR is required to retain a consulting board to review

1) the adequacy of the design of any dam or reservoir DWR proposes to construct, and
2) the safety of the completed construction, including the terms and conditions for the Certificate of Approval.

These provisions require DWR to retain a board of three consultants to meet at least once every five years to review the operational performance of DWR-owned dams and more often when consulting on new dams. The board of consultants independently reviews and assesses safety conditions of SWP dams.

Consultants are selected based on their knowledge of geotechnical, structural, and civil engineering, including their experience in evaluating dam performance. Their independent assessments include the review of dam performance during earthquakes, evaluation of instrumentation data, inspection of each dam, and evaluation of studies performed by DWR. The consultants then prepare reports on each dam, approving dams safe for continued operation and making recommendations. Based on these recommendations, DWR prepares action plans.

In June 2003, DSOD and O&M agreed to allow the substitution of FERC Part 12 independent review board reports, in lieu of independent review board reports required by the California Water Code and California Code of Regulations for the following dams, Oroville, Feather River Fish Hatchery, Thermalito Diversion, Thermalito Forebay, Thermalito Afterbay, Cedar Springs, Devil Canyon Second Afterbay, and Pyramid. However, DSOD reserved the right to impose additional requirements not presented by the FERC independent review board.

An independent consulting board met several times in 2004 and again in July 2005, to review the proposed Dyer Dam, located on the East Bay Aqueduct in Alameda County. On September 2005, a construction application for Dyer Dam was filed with DSOD. An independent consulting board also reviewed the safety of Perris Dam in October 2005.

FERC Reviews

Theses reviews and the FERC Part 12D safety inspections, which may be conducted by one or more consultants, are scheduled every five years. As a supplement to FERC Part 12D safety inspection, FERC's Dam Safety Performance Monitoring Program requires that a Potential Failure Mode Analysis (PFMA) be performed for FERC-licensed dams. The PFMA involves document review and site visits to develop a comprehensive list of potential failure modes at each dam. From this review process, three documents are generated, the FERC Part 12D safety inspection report;

PFMA report; and Supporting Technical Information Document (STID), which summarizes the project elements and details that do not change significantly over time.

The Part 12D Safety Inspection, PFMA and STID reports for FERC Project #2100, the Oroville-Thermalito Complex, were completed in March 2005. The Part 12D Safety Inspection and PFMA for Cedar Springs Dam, Devil Canyon Second Afterbay, Peace Valley Intake Embankment (Quail Dam), and Pyramid Dam were performed in January 2005. The Part 12D Safety Inspection, PFMA and STID reports for FERC Project #2426 , the Castaic-Devil Canyon Power Complex were completed in July 2005.

Arroyo Pasajero Program

The Arroyo Pasajero and its tributaries drain approximately 530 square miles of the Diablo Range of the coastal mountains, west of the California Aqueduct in Fresno County. Its downstream juncture with the San Luis Canal segment of the California Aqueduct, between Highway 198 and Avenal Cutoff Road, poses a particularly difficult operational and maintenance problem for the SWP. Reclamation designed and constructed the San Luis Canal segment of the California Aqueduct, while DWR operates and maintains it, with all costs shared 45 percent and 55 percent, respectively.

During periods of heavy rainfall, high flows in the Arroyo Pasajero and its tributaries transport heavy sediment loads eroded from the Diablo range of the coastal mountains. Over 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, designed to accommodate Arroyo Pasajero floodwaters, include the West Side Detention Basin (designed to store floodwaters and sediment west of the Aqueduct), an evacuation culvert to release floodwater east of the Aqueduct, and drain inlets to release floodwater into the Aqueduct. The volume of runoff and sediment transported by the Arroyo Pasajero is roughly 400 percent greater than was originally estimated during the design of the detention basin in the mid-1960s.

Since the floods of 1969, when nearly all of the detention basin's planned 50-year sediment storage capacity was filled by deposition, DWR and Reclamation have worked to mitigate the effects of heavy flooding and the diminished storage capacity of the detention basin. In 1980, asbestos discovered in the Metropolitan Water District of Southern California's water supply was traced to runoff from the Arroyo Pasajero and other Diablo range streams. This discovery, in conjunction with the high cost of removing sediment from the aqueduct, led DWR to adjust operating procedures to minimize runoff entering the Aqueduct.

DWR and DWR/Reclamation Alternative Long-term Solution

Since the demise of the two candidate plans that were presented in the March 1999 draft Feasibility Report, the investigation has focused on a new alternative, made possible by the availability of relatively low-productivity

farmland in the western Tulare Lakebed. This plan would rely on some increased storage in the existing West Side Detention Basin, used in conjunction with a flood control reservoir that would be constructed in the western Tulare Lakebed, east of the aqueduct near Kettleman City. It would fully utilize the design philosophy of the San Luis Canal by taking excess floodwaters from detention basins along the San Luis Canal, designed to accommodate cross drainage, into the canal southward, and finally diverting them from Pool 21 into a western Tulare Lakebed reservoir. This plan has the added benefit of accommodating the largely unregulated inflows to the canal upstream of the Arroyo Pasajero.

DWR and Reclamation's version of the western Tulare Lakebed plan provides sufficient and acceptable levels of flood protection to the aqueduct at considerably lower cost. This effort was in response to the State Water Contractors' proposal that DWR develop the least costly alternative that would provide a 100-year level of flood protection to the aqueduct. To be consistent with other SWP flood protection facilities, this level of protection would be based on a single four-day flood, as opposed to the larger flood volume that would be expected from a series of six floods over 30 days, that is used by the Corps.

By applying the lower and more traditional four-day flood volume to the flood control improvements needed at the Arroyo Pasajero, a 100-year level of flood protection can be achieved, at an estimated cost of $51 million. Of this amount, about $13 million is estimated for specific improvements to the existing West Side Detention Basin, such as raised embankments, drain inlet modifications, and facilities to protect adjacent non-SWP infrastructure and private properties. The remaining $38 million is the estimated cost of a 45,000 af reservoir located in the western Tulare Lakebed, as well as an aqueduct floodwater turnout structure and chute, connecting the Aqueduct to the proposed western Tulare Lakebed reservoir. By the end of 2003, DWR had almost finished its feasibility investigation into this cost-effective plan and was planning to proceed with the final design, environmental documentation, and other procedural steps leading to construction. The project will be implemented in two phases, Phase 1 will be the construction of the planned improvements within the West Side Detention Basin; and Phase 2 will be the construction of the reservoir at the western Tulare Lakebed.

DWR is exploring alternative locations for the western Tulare Lakebed reservoir that may lead to a less expensive project.

DWR's feasibility investigation on West Side Detention Basin improvements and the western Tulare Lake reservoir plan is intended to work in conjunction with the interim flood control measures constructed at the Cantua and Salt Creek Detention basins in 1999. In addition to these measures, DWR purchased flood easement on approximately 700 acres of land west of the aqueduct near the Cantua and Salt Creek inlets. This easement purchase provides additional land for detention basins at the newly constructed Salt Creek and Cantua Creek inlet weirs. The detention basins allow sediment-laden floodwaters to decant before entering the aqueduct, thus reducing the amount of suspended solids entering the aqueduct.

In 2004, DWR finalized its plan to restore the storage capacity of the West Side Detention Basin. Construction started in August 2004, to implement the designed improvements and was partially completed in 2005. These improvements will restore the storage capacity to the detention basin and add control over releases of flood water into the aqueduct and onto private farmland. DWR is also negotiating with local landowners to acquire the necessary easements and fee property interests required for the project. Arroyo Pasajero West Side Detention Basin improvements provide a 50-year level of protection to the aqueduct from Arroyo Pasajero flooding. This protection is achieved by raising levees, adding a control structure equipped with a rubber dam, armoring the railroad embankment, installing flood gates, and acquiring flood easements.

Related Activities

DWR, with the support of the State Water Contractors, continued during 2005 to provide funds and staff support to a Coordinated Resource Management Plan group, called the Stewards of the Arroyo Pasajero Watershed. The mission of this group is "to improve the Arroyo Pasajero watershed through erosion and sediment control, by implementing improved land management practices that will sustain and promote the aesthetics, environmental quality, and economic viability of the watershed." It is believed that this watershed management plan will increase watershed infiltration and decrease erosion, complementing any structural flood control improvements, and reducing the threat Arroyo Pasajero poses to the California Aqueduct and surrounding communities.

Repairs and Modifications

DWR continually monitors all SWP facilities and performs repairs and modifications as necessary to ensure safe, reliable, water delivery.

Table 11-1 presents information, arranged chronologically, about significant scheduled and unscheduled outages at SWP pumping and power plants in 2005. The table includes information about incidents resulting in outages exceeding 14 days.

Table 11-1. Outages for Maintenance and Repair of Facilities in 2005, by Month

Month	Facility	Units Out of Service
January	Hyatt Power Plant	Unit 2 from January 4 to January 20 to perform weld repair on scroll case access door
	Banks Pumping Plant	Unit 1 from January 6 to January 25 for annual maintenance and to replace discharge valve o-ring Unit 4 from January 26 to March 4 for annual maintenance, to replace automatic voltage regulator, and remove hot water bypass line
	Buena Vista Pumping Plant	Unit 8 from January 31 to May 12 to overhaul unit, repair and upgrade cooling water system, and repair oil tub leak and pump case
	Mojave Siphon Power Plant	Unit 2 from January 31 to February 24 for annual maintenance and to repair trashrack
	Warne Power Plant	Unit 1 from January 2 to April 7 for annual maintenance, to rewind motor, and clean and modify cooling water sump Unit 2 from January 11 to January 28 to adjust needle timing, calibrate needle limit switches, and clean cooling water sump
February	Gianelli Pumping-Generating Plant	Unit 8 from February 23 to March 28 to adjust loose fasteners on pump/turbine guide bearing and replace brake packing
	Dos Amigos Pumping Plant	Unit 3 from February 22 to April 6 for biennial maintenance
March	Banks Pumping Plant	Unit 4 from March 19 to May 7 to replace unit breakers, station service feeder breaker, and discharge valve o-rings, and repair discharge valve hydraulic system and discharge line Unit 5 from March 19 to May 12 for annual maintenance, to replace unit breakers and station service feeder breaker, repair discharge valve hydraulic system and discharge line, and remove hot water bypass line
	Gianelli Pumping-Generating Plant	Unit 3 from March 13 to May 9 for biennial maintenance, to install automatic voltage regulator, and recoat scrollcase Unit 4 from March 13 to May 12 for biennial maintenance, to install automatic voltage regulator, refurbish pump/turbine, adjust bearings, and recoat scrollcase Unit 6 from March 16 to April 13 to adjust loose fasteners on pump/turbine guide bearing and repair bearing
	Edmonston Pumping Plant	Unit 4 from March 28 to June 30 to repair pump first stage impeller and rewedge motor
	Pearblossom Pumping Plant	Unit 7 from March 7 to March 22 to replace pump mechanical seal and discharge valve o-rings
April	Banks Pumping Plant	Unit 6 from April 29 to May 31 for annual maintenance, to replace unit breakers, and remove hot water bypass line Unit 7 from April 29 to June 16 for annual maintenance, to replace automatic

Table 11-1. Outages for Maintenance and Repair of Facilities in 2005, by Month

Month	Facility	Units Out of Service
		voltage regulator, overhaul exciter, machine pump guide bearing, and remove hot water bypass line
	Dos Amigos Pumping Plant	Unit 2 from April 18 to May 24 for biennial maintenance
	Pearblossom Pumping Plant	Unit 7 from April 7 to April 25 to replace failed pump mechanical seal
	Reid Gardner Power Plant	Unit 4 from April 22 to May 15 for annual maintenance
May	Hyatt Power Plant	Unit 5 from May 9 to June 25 for annual maintenance and to repair damaged impeller wear rings
	Gianelli Pumping-Generating Plant	Units 7 and 8 from May 16 to June 18 for biennial maintenance, to repair penstock, and recoat stay vanes
June	Banks Pumping Plant	Unit 3 from June 20 to July 22 for annual maintenance, to replace automatic voltage regulator, and repair amortisseur straps
July	Badger Hill Pumping Plant	Unit 5 from July 12 to July 28 to repair damaged motor
	Edmonston Pumping Plant	Unit 3 from July 9 to August 4 to replace damaged thrust bearing
	Oso Pumping Plant	Unit 7 from July 25 to expected completion date in 2006 to rewind damaged motor and replace cooling water piping
August	Banks Pumping Plant	Unit 10 from August 23 to December 27 to repair damaged amortisseur winding
	Del Valle Pumping Plant	Unit 2 from August 22 to expected completion date in 2006 to overhaul motor and pump
	Gianelli Pumping-Generating Plant	Unit 7 from August 28 to October 5 for biennial maintenance, to install automatic voltage regulator, and recoat pump/turbine
	Chrisman Pumping Plant	Unit 8 from August 4 to August 18 to resurface damaged pump shaft and refurbish damaged pump guide bearing
	Edmonston Pumping Plant	Unit 11 from August 8 to expected completion date in 2006 to overhaul motor and pump and replace lower pump labyrinth seal
September	Banks Pumping Plant	Unit 2 from September 18 to expected completion date in 2006 to rewind motor, refurbish pump, replace discharge valve and station service feeder breakers, remove hot water bypass line, and modify CO2 system
	Dos Amigos Pumping Plant	Unit 1 from September 12 to October 25 for biennial maintenance, to replace CO2 system, and recoat pump

Table 11-1. Outages for Maintenance and Repair of Facilities in 2005, by Month

Month	Facility	Units Out of Service
	Buena Vista Pumping Plant	Unit 7 from September 6 to expected completion date in 2006 to overhaul motor, pump, and discharge valve
	Teerink Pumping Plant	Unit 4 from September 11 to September 26 to repair oil leak from thrust bearing oil pump and damaged amortisseur winding
	Devil Canyon Power Plant	Unit 2 from September 19 to October 26 for annual maintenance, to replace cooling water strainer and piping, and perform weld repair on turbine shutoff valve piping
October	Hyatt Power Plant	Unit 2 from October 2 to expected completion date in 2006 to refurbish unit and replace turbine runner
	South Bay Pumping Plant	Unit 7 from October 25 to November 23 to replace motor and pump with previously refurbished components
	Del Valle Pumping Plant	Units 1, 3, and 4 from October 22 to November 22 for work on Unit 2
	Gianelli Pumping-Generating Plant	Unit 5 from October 3 to expected completion date in 2006 to work on automatic voltage regulator, penstock, and transformer K6A, and install new CO2 system Unit 6 from October 3 to expected completion date in 2006 for biennial maintenance, to work on automatic voltage regulator, penstock, and transformer K6A, and install new CO2 system
	Chrisman Pumping Plant	Unit 6 from October 24 to expected completion date in 2006 to overhaul motor and pump, replace corroded and damaged piping, perform weld repair on pump case and discharge line, and recoat pump
	Devil Canyon Power Plant	Unit 4 from October 31 to November 18 for annual maintenance, to rebuild needles, and install new cooling water strainer
	Warne Power Plant	Unit 2 from October 11 to October 28 for biennial maintenance and to replace station service breakers
November	Hyatt Power Plant	Unit 4 from November 28 to December 22 to recoat waterway
	Badger Hill Pumping Plant	Unit 5 from November 3 to November 22 to replace bad DTU card and adjust motor breaker linkage
	Polonio Pass Pumping Plant	Unit 2 from November 7 to November 22 to fix starting sequence problems and work in switchyard
	Chrisman Pumping Plant	Units 1 and 2 from November 28 to December 17 for annual maintenance, to repair discharge valve seats, replace discharge line mandoor gasket, and work on transformer KYA

Table 11-1. Outages for Maintenance and Repair of Facilities in 2005, by Month

Month	Facility	Units Out of Service
		Unit 3 from November 28 to December 17 for annual maintenance, to replace discharge line mandoor gasket, and work on transformer KYA
	Alamo Power Plant2221	Unit 1 from November 17 to December 8 to replace shaft mechanical seal and seal water filtration system and repair cooling water return line
	Pearblossom Pumping Plant	Units 1 and 3 from November 28 to expected completion date in 2006 to repair discharge line, replace discharge valve o-rings, and work on transformer KYA Unit 2 from November 21 to expected completion date in 2006 for annual maintenance, to repair rotor poles and discharge line, replace discharge valve o-rings, and work on transformer KYA
	Pine Flat Power Plant	Unit 1 from November 7 to expected completion date in 2006 for annual maintenance, to work in switchyard, and repair concrete encasing penstock Unit 2 from November 7 to December 13 for annual maintenance and to work in switchyard Unit 3 from November 7 to December 19 for annual maintenance and to work in switchyard

Chapter 12
Engineering and Right of Way

Construction at East Branch Extension Reach 5.

Significant Events in 2005

In 2005, work to enhance, expand, and repair water delivery in the State Water Project (SWP) continued. Increased water deliveries were more efficient within the confines of legal constraints, environmental restraints, and power availability. Significant projects included South Bay Aqueduct Enlargement, Tehachapi East Afterbay construction, and East Branch Enlargement.

The Department of Water Resources (DWR) has spent a net total of $251 million to acquire rights of way, recreation, and mitigation land for the SWP, from its inception to December 31, 2005.

Information for this chapter was provided by the Division of Engineering.

Initial construction of the State Water Project (SWP) facilities began in 1957 with the relocation of the Western Pacific Railroad facilities and Highway 70 near the City of Oroville to accommodate the SWP Oroville facilities. Oroville Dam was constructed between 1961 and 1967. Construction of the South Bay Aqueduct (SBA) facilities was started in 1960, and the first SWP water was delivered through the SBA in 1965 to serve Alameda and Santa Clara counties.

In 1963, work began on the California Aqueduct, and by 1968, SWP was delivering water to long-term contractors in the San Joaquin Valley to the foot of the Tehachapi Mountains. By 1973, with the completion of Edmonston Pumping Plant at the foot of the Tehachapi Mountains and other East Branch conveyance facilities, SWP was delivering water to Lake Perris at the southernmost point in Los Angeles County.

In 1974, SWP water was delivered to Los Angeles County through the West Branch Facilities. SWP water was delivered to Napa County in 1968, through the first phase facilities of the North Bay Aqueduct, and to Solano County in 1988 by the second phase facilities. The first SWP water delivery through the Coastal Branch (Phase I) was made in 1968 to Kings and Kern counties.

Prior to the completion of the initial facilities in 1973, work began on the Upper Feather River facilities to supply local water, recreation, and fish enhancement. Power plants, additional pumping units, and turbine-generators that had been deferred from the initial construction of the SWP were built to ensure water quality and fish enhancement in the Delta.

From the 1980s through 2004, design and construction activities shifted to repairing concrete lining failures or potential failures of the canal system and concrete pipeline sections; replacing equipment components of existing facilities; enlarging or extending aqueduct reaches; adding pumps and motors to existing facilities; constructing the Devil Canyon Second Afterbay; constructing Phase II of the Coastal Branch to deliver water to San Luis Obispo and Santa Barbara counties in August 1997; and extending the SWP through the East Branch Extension to San Gorgonio Pass service area in San Bernardino and Riverside counties. The East Branch Extension became operational in local/manual mode in 2003, while the remote control system is still being completed.

Design Activities

In 2005, work to enhance, expand, and repair water delivery in the SWP continued. Increased water deliveries were more efficient within the confines of legal constraints, environmental restraints, and power availability. Significant projects included South Bay Aqueduct Enlargement, Tehachapi East Afterbay construction, and East Branch Enlargement. (Table 12-1 provides a list of completed and ongoing design work that was undertaken in 2005.) (Table 12-2 provides a list of projects that were constructed to replace turbines and pumps, repair pipelines, upgrade trashracks at fish hatcheries, and improve recreational and maintenance facilities at dam and reservoir sites.)

The Department of Water Resources (DWR) designed projects for development into construction contracts. Division of Engineering (DOE) staff worked with the Division of Operations and Maintenance (O&M), Division of Flood Management, Division of Environmental Services, Department of Fish and Game (DFG), Department of Boating and Waterways (DBW), Department of Transportation (Caltrans), SWP contractors, California water districts, Sacramento/San Joaquin River and Delta Levee Maintenance Districts, CALFED, U.S. Army Corps of Engineers (Corps), Bureau of Reclamation (Reclamation), Federal Energy Regulatory Commission (FERC), U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NOAA Fisheries), and other entities concerned with water resources activities. DOE staff prepared preliminary designs and estimates, as well as conducted special studies of dams, canal embankments, and other SWP facilities. The studies, reports, and activities continued from previous reporting periods, or initiated in 2005, include the following:

- stability analysis for Oroville, Parish Camp Saddle, Bidwell Canyon Saddle, and Thermalito Dams;
- North Bay Aqueduct reliability study;
- geologic faulting and seismicity re-evaluation of the Clifton Court Intake Structure;
- South Bay Aqueduct reliability study;
- Gianelli Pumping-Generating Plant power transformer second containment basin;
- Gianelli pump/turbine runner replacement feasibility study;
- Devil's Den Pumping Plant trashrack/ traveling screen modification;
- evaluate capacity of cross-drainage structure between Buena Vista and Teerink Pumping Plants;
- evaluate hydrology and capacity of cross-drainage facilities Buena Vista and Teerink Pumping Plants;
- develop pump refurbishing pilot program for Edmonston Pumping Plant;
- Warne Power Plant Penstock cooling water transient study;
- Castaic, Pyramid, and Perris dams—Emergency Release Facilities;
- Castaic Dam and Perris Dam Breach Inundation study;
- Castaic Dam Low Intake Tower Analysis;
- Pearblossom Disposal Area assessment study, Phase II;
- Devil Canyon Second Afterbay Outlet Structure modification;
- Hesperia Master Drainage Plan for Antelope Wash and adjacent area;
- East Branch Enlargement, Phase II study activities;
- East Branch Extension, Phase II—Citrus Reservoir pre-feasibility study; and
- Seismic Safety Retrofit Program—seismic analysis of 24 SWP bridges.

DOE staff completed the following studies and activities:

- Thermalito Afterbay Temperature Control and Palermo Canal Diversion to Feather River Fish Hatchery, as part of the Oroville Facilities Relicensing Program;
- North Bay Aqueduct capacity enlargement reports;
- Delta seismicity study program;
- Clifton Court Forebay and Dam re-evaluation report prepared for O&M;
- Clifton Court Forebay radial gates rehabilitation;

- Skinner Fish Protection Facility—evaluation of wing gate system;
- Gianelli Pumping-Generating Plant runner replacement feasibility study;
- San Luis Dam trashrack access bridge vehicle load study;
- Vista del Lago landslide study; and
- Perris Dam foundation study.

Environmental Activities

Environmental issues have concerned DWR since the inception of the SWP. These issues have increased in magnitude with the enactment of numerous federal and State laws. DWR has complied with these laws by incorporating environmental requirements and conditions into the design and construction phases of projects. A section dealing with environmental requirements and the protection of listed species has become an integral part of contract specifications for construction contracts. Contracts are reviewed to ensure compliance with requirements outlined in environmental permits. In 2005, two contracts required continuing environmental review.

Excavation, Inspection, and Repair–Phase III, Santa Ana Pipeline–State Water Facilities California Aqueduct, Southern Field Division, San Bernardino and Riverside Counties, California

In 2005, the Santa Ana Pipeline, which conveys water from the Devil Canyon Power Plant to Lake Perris via buried pipeline, was repaired at locations known by DWR to contain anomalies. Pipe sections 2034, 327, 590, and 144 required repairs. These repairs were located in San Bernardino and Riverside counties. Without repairs, the Santa Ana Pipeline had the potential to fail, causing potentially catastrophic impacts to human life and property, as well as water outage to millions of people.

Several actions were taken during these repairs to mitigate potential environmental impacts:

The contractor was required to submit an Air Quality Plan, a Water Quality Control Plan, a Fire Prevention and Control Plan, and a Storm Water Pollution Prevention Plan to DWR prior to the Notice to Begin Work.

The contractor and the contractor's employees were required to attend an environmental training meeting, prior to the start of construction, which addressed potential cultural resources and sensitive species that could be found in areas, exclusion zones, and environmental permit conditions relevant to the project.

Sensitive species known or suspected to occur on or very near portions of the project route included one federally listed species and eight non-federal/State listed species. These project areas were environmentally cleared of any sensitive species by qualified biologists prior to the start of construction.

Tehachapi East Afterbay–Completion–Phase II, Antelope Valley–State Water Facilities, California Aqueduct, East Branch, Mojave Division, Kern County, California

This project was located at the newly constructed Tehachapi East Afterbay, north of the Alamo Power Plant. Thousands of cubic yards of material were excavated

in the existing natural drainage channel for construction of the bypass to the Cottonwood Canal Tie-In. The construction activities had the potential to impact several known special status species such as the Coast horned lizard, the Burrowing owl, and the Pallid bat; as well as flora, fauna, and vegetation communities in the area, including the Round-leaved Filaree and Southern Cottonwood Willow riparian forest. Exclusion zones were installed to protect sensitive sites from any contractor activity. In addition, environmental training meetings were conducted on a regular basis by biologists familiar with the biological resources of the area, keeping the contractor's employees and DWR personnel briefed on the biological resources at the work site.

Construction Activities

DOE worked on 43 construction contracts in 2005. Table 12-2 shows contract title, specification number, date the contractor received the Notice to Begin Work, the expected or actual acceptance date (physical completion date is discussed in narratives below), and the actual or estimated contract cost (including change orders for added work). Resolution of contract claims may extend the actual contract closeout beyond the completion or acceptance date.

Oroville Division

Hyatt Power Plant

The refurbishment of turbine Units 1, 3, and 5, which started in February 1999 (Specification No. 98-22), continued throughout the year, with approximately 99 percent of the work completed by the end of 2005. Due to warranty issues, completion of this project is projected for July 2007. The refurbishment of pump-turbine Units 2, 4, and 6, which started in November 2001 (Specification No. 01-11), continued with approximately 40 percent of the work completed by the end of 2005. The estimated completion date is September 2007.

Oroville Operations and Maintenance Center

Work on a contract to replace the roofs at the Oroville Operations and Maintenance Center planner scheduler and mobile equipment buildings, the Feather River Fish Hatchery, and the Beckworth Subcenter (Specification No. 05-09) began in August 2005 and was completed in November 2005. Work included removal of existing roofing, installation of new roofing, removal and replacement or reinstallation of existing equipment, and painting.

Delta Facilities

Temporary Rock Barriers

Work on a multiyear, 2004 through 2006, contract (Specification No. 03-07) to install and remove seasonal temporary rock barriers in designated South Delta waterways (Middle River, Old River, and Grant Line Canal) continued throughout the year with approximately 64 percent of the work completed by the end of December 2005. The temporary barriers were installed to enhance water levels and circulation in the South Delta for local agricultural diversion, to assist fish migration, and to gather hydraulic data for the design of future permanent barriers. Contract change order work included the following:

- constructing two divider walls in the intake channel at Skinner Fish Facility;
- providing South Bay Aqueduct testing and security;

- removing pond weed at Clifton Court Forebay;
- purchasing and installing piles, support beams, and catwalk for the new Water Quality Monitoring Station at Vernalis;
- purchasing equipment for the new Water Quality Monitoring Station at Vernalis;
- removing and replacing flashboards at Montezuma;
- dredging; and
- providing geologic exploration.

North San Joaquin Division

Skinner Fish Facility

Replacement of the trash rake and trashrack systems (Specification No. 04-02) began in March 2004. Although these systems were installed and provisionally operational by November 2004, work added at the request of the Delta Field Division delayed acceptance until September 2005. Contract work included furnishing and installing the trashrack; an automatic monorail traveling trash rake system; and metal catwalks and handrails.

Added work included the following:

- fabricating and installing a cover plate system and manual control system;
- installing additional differential sensors;
- disposing of the existing trashracks and trash rake mechanical system;
- modifying the trash rake hydraulic system; and
- purchasing and delivering spare parts for the automated trash rake system.

South Bay Aqueduct

A contract to repair the pipeline at Milepost 39 (Specification No. 04-07) began in July 2004. This contract was completed in January 2005 and accepted in April 2005.

South Bay Aqueduct Enlargement/ Improvement

The South Bay Aqueduct Enlargement Project will enlarge the South Bay Pumping Plant to accommodate four additional units, construct a third discharge line, construct Dyer Reservoir, enlarge the canal, and modify associated structures.

A contract (Specification No. 04-05) to furnish 45 cfs pump and motor units for Unit Nos. 10 through 13 and one spare pump and motor for the South Bay Pumping Plant began in November 2004 and is expected to be completed in February 2008.

A contract to furnish power transformers (Specification No. 04-19) began in April 2005 and is expected to be completed in April 2008. In December, the contractor was directed to suspend all contract work for an estimated 150 days, due to a pending feasibility study and environmental permits.

Work on a contract to furnish valves, actuators, and hydraulic power units (Specification No. 04-20) that began in May 2005, is in the submittal stage with completion expected in December 2007.

A contract to furnish switchyard equipment (Specification No. 05-10) began in September 2005, and a contract to furnish 5 kV switchgear (Specification No. 05-05) began in October 2005. In December, both the contractors were directed to suspend all contract work for an estimated 150 days due to a pending

feasibility study and environmental permits. Completion of these two contracts is expected in January 2008.

San Luis Division

Gianelli Pumping-Generating Plant and Dos Amigos Pumping Plant

In July 2004, work began on a contract (Specification No. 04-08) to refurbish the existing carbon dioxide (CO_2) fire suppression system for Motor-Generator Unit Nos. 1 through 8 and the Oil Purifier Room at Gianelli, as well as Motor Unit Nos. 1 through 6 and the Oil Purifier Room at Dos Amigos. This project was approximately 96 percent complete by December 2005. The work included removing the existing devices and CO_2 cylinders, inspecting piping and nozzles, providing required welding and coating, furnishing, and installing the following:

- a fire alarm system, including a fire alarm control panel to provide fully integrated automatic and remote monitoring;
- new motor air housing smoke and temperature detectors;
- audible and visual alarms;
- new fully charged CO_2 cylinders;
- LCD annunciators and new manual pull stations; and
- new discharge heads, manual release station, lockout valves with enclosure, relief vents, bleeder valves, equipment nameplates, CO_2 flexible hoses, and router valves.

Contract change orders included replacing and refurbishing fire extinguishers at the San Luis Field Division, installing an escape platform at Dos Amigos, and installing safety platforms at Gianelli.

The approximate completion date is December 2007 due to a one-year CO_2 service maintenance contract.

San Luis Canal. Work on a contract to restore the West Side Detention Basin (Specification No. 04-03) began in August 2004. This contract work was essentially completed by December 2005, except for punch list items. Subsequently, the contractor was directed to fabricate and install a protective cover over the rubber dam, which will delay acceptance until 2007. Work included the following:

- earthwork;
- concrete and steel reinforcement;
- gravel surfacing on the embankment road;
- chip sealing on the operations and maintenance road;
- erosion protection;
- construction of a concrete weir with inflatable rubber dam, control system, and appurtenances; and
- rehabilitation of the existing drain inlets and evacuation culverts.

Contract change order work included the following:

- repairing MP 166R and MP 122R canal embankment;
- sealing and paving roads at Reaches 6 and 7;
- cleaning the toe drain at O'Neill Dam;
- installing gates at San Joaquin Field Division;
- installing gates at Lost Hills; and
- installing a protective cover over the rubber dam.

Tehachapi Division

Tehachapi East Afterbay

The Tehachapi East Afterbay Project is located near the bifurcation of the East and West Branches of the California Aqueduct, in southern Kern County. The project will provide additional storage to the existing Tehachapi Afterbay. The principal features of this project include: an inlet channel, isolation weir, reservoir, flow barrier, spoil embankment, outlet channel, bypass, drainage culvert, control building, improvements to the existing canal, and site work.

The contract to furnish roller gates (Specification No. 04-18) began in February 2005, and it was approximately 80 percent complete in December 2005. Work included furnishing two roller gates with hydraulic actuators and one hydraulic power unit, metalwork, coatings, and electrical work.

The initial afterbay contract (Specification No. 04-17) began in February 2005, and it was 95 percent completed by December 2005. Features include the following:

- drainage culvert facilities, including a reinforced box culvert;
- inlet channel facilities, including a reinforced concrete weir;
- concrete canal lining and a new inlet tie-in to the existing aqueduct;
- a reservoir;
- an outlet channel with a cofferdam;
- a bypass turnout construction area, access road, and drainage culverts; and
- a cofferdam and water level measurement system.

The last phase of the Tehachapi East Afterbay Project began in May 2005, with the afterbay completion contract (Specification No. 05-03). Work included the following:

- constructing bypass facilities;
- constructing the control building;
- furnishing a propane tank;
- constructing a flow barrier in the reservoir;
- constructing an aqueduct plug, which included a rockfill plug, waterproof membrane, and fabric-formed concrete canal lining;
- constructing an outlet channel; and
- removing the cofferdam at the outlet channel.

This completion contract was terminated due to default, and the remaining work was divided into three contracts—Specification Nos. 05-17, 05-16, and 06-14.

Work began on Specification No. 05-17 (Completion Phase IA) in December 2005, with acceptance anticipated in March 2006. This work included constructing the Cottonwood Canal tie-in and installing Cofferdam No. 2.

Work on Specification No. 05-16 (Completion Phase II) is anticipated to begin in January 2006, and it will include the bypass facilities, control building, flow barrier, removal of Cofferdam No. 2, and miscellaneous roadwork.

The scope of work in Specification No. 06-14 (Completion Phase III), which will be awarded later in 2006, includes the outlet channel completion, aqueduct plug, Cofferdam No. 1 removal, and site work.

Edmonston Pumping Plant

A contract to replace pump Units W2, W4, W6, and W8 (Specification No. 02-10) began in June 2003, and continued throughout 2005, with completion scheduled for March 2011. This work consists of the following:

- designing, fabricating, and testing a four-stage pump model and a single-stage pump model; as well as furnishing a pump model test program report;
- designing, manufacturing, delivering, storing, and installing four pumps to replace existing pumps;
- furnishing spare parts, auxiliary equipment, tools, and templates;
- modifying existing pump foundations, if required, for the new pumps;
- applying coatings; and
- providing liaison services.

A contract to furnish spare impellers and diffusers (Specification No. 04-09) was awarded in June 2004, and was approximately 65 percent completed by December 2005. Work consists of the manufacture and delivery of the following:

- two complete sets of pump impellers and two additional impellers;
- one complete set of diffusers;
- two complete sets of stationary and rotating wearing rings;
- one complete set of upper and lower wear plates; and
- one complete set of interstage bushings and templates.

Work on a contract to refurbish the adit for the Edmonston Pumping Plant discharge lines (Specification No. 05-02) began in March 2005. This project was completed in June 2005. The work consisted of the following:

- blasting metal surfaces, concrete footings, and rock surfaces;
- removing and disposing of corroded steel and rockfall;
- installing chain link fabric;
- providing and placing shotcrete and additional rock bolt anchorage;
- providing hazardous waste removal;
- coatings;
- installing an adit entrance gate; and
- replacing ducts, ventilation, and electrical systems.

West Branch

Castaic Dam

A contract to repair the spillway wall (Specification No. 05-12) began in August 2005, and is expected to be completed in January 2006. Work consists of the following:

- removing and replacing five concrete panels;
- removing and reconstructing damaged V-ditches;
- excavating, backfilling, and regrading;
- placing drain rock; and
- replacing topsoil and seeding disturbed areas.

Oso Pumping Plant

Work on a contract to furnish automatic voltage regulators began in May 2000 (Specification No. 00-06). Although this work was originally scheduled for completion in June 2002, a contract change order to furnish and deliver six additional automatic voltage regulators for Pearblossom Pumping Plant extended the completion date. The contract was

accepted in May 2005, after DWR installed the automatic voltage regulators, and the contractor provided erecting engineer services.

Santa Ana Division

Santa Ana Pipeline

A contract to excavate, inspect, and repair pipe sections of the Santa Ana Pipeline (Specification No. 05-14) began in October 2005, and is scheduled for completion in January 2006.

A contract to widen the concrete encasement under State Route 60 (Specification No. 05-15) began in November 2005, and was completed in December 2005, 30 days prior to the original contract completion date.

East Branch Extension

Construction of the East Branch Extension began with the issuance of a Notice to Begin Work on February 26, 1999, for pipeline Reaches 1 and 2. Phase I of this project will convey 8,650 af of SWP water annually to the San Gorgonio Pass Water Agency service area, with provisions to provide San Bernardino deliveries to the Yucaipa Valley. Located in San Bernardino and Riverside counties, the project facilities will consist of existing pipelines, three new pipeline reaches, three new pump stations, and a new reservoir. The official groundbreaking ceremony for site work took place in Yucaipa on August 23, 1999. Below are brief descriptions of the remaining construction contracts.

Pump Stations

Work began in October 1999, on a contract to design, manufacture, test, and deliver 5 kV switchgear for Greenspot and Crafton Hills Pump Stations. This contract includes work that will design, manufacture, test, and deliver programmable logic controllers for the Cherry Valley Pump Station (Specification No. 99-15). Site acceptance testing was completed in June 2004, and the contract was accepted in July 2005, after the contractor submitted final programming and a global database.

In November 1999, work began on a contract to design, manufacture, shop test, and deliver three 4,500-gpm and one 9,000-gpm vertical turbine pumps for Greenspot Pump Station; two 4,500-gpm and one 9,000-gpm vertical turbine pumps for Crafton Hills Pump Station; and two 3,600-gpm vertical turbine pumps for Cherry Valley Pump Station (Specification No. 99-17). The contract calls for electric motors, variable frequency drives, appurtenant equipment, and associated training programs. Completion of this contract was scheduled for December 2003; however, it was extended to 2007 due to a change order for additional pump units for Greenspot and Crafton Hills Pump Stations.

A contract to construct Greenspot, Crafton Hills, and Cherry Valley Pump Stations (Specification No. 99-27) was awarded in May 2000, and it was accepted in July 2005.

An October 2001 contract to furnish and install the control and communications systems for Greenspot, Crafton Hills, and Cherry Valley Pump Stations (Specification No. 01-05) was 99 percent completed by December 2005. Extensive punch list items and training will delay completion and acceptance, which is projected for December 2007.

Valves

Three separate contracts were awarded to furnish East Branch Extension valves. In October 1999, work began on contracts to furnish ANSI ball valves (Specification No. 99-20) and AWWA butterfly valves (Specification No. 99-22). A contract to furnish ANSI butterfly valves began in November 1999 (Specification No. 99-23). Work on the three contracts was 99 percent completed by December 2005. Acceptance will be delayed until corrective work is finished.

Construction Activities in Multiple Divisions

A May 2003 contract to design, manufacture, deliver, and install automatic digital voltage regulators for Banks Pumping Plant and Gianelli Pumping-Generating Plant (Specification No. 02-12) continued, with approximately 95 percent of the work completed by the end of December 2005.

In July 2005, work began on a contract to monitor, test, and repair copper communications cable and voice and data equipment along 440 miles of the California Aqueduct (Specification No. 05-07). Work on this three-year contract consists of the following:

- troubleshooting, repairing, and testing pressurized underground copper cable;
- interfacing copper cable technology to other technologies of radio, microwave, and multiplexers;
- furnishing and installing, or refurbishing and repairing compressor equipment used to pressurize the communications cable; and
- performing biannual electronic work to voice and data equipment.

Completion of this work is scheduled for April 2007.

Work on a contract that fulfills FERC permit requirements for revegetation of disturbed areas at Mojave Siphon Power Plant and Devil Canyon Second Afterbay (Specification No. 99-21) began in November 1999, and was completed in December 2005. Due to the extensive fires in late 2003, erosion control at the areas surrounding Silverwood Lake, Devil Canyon Second Afterbay, and Mojave Siphon Power Plant was added by change order. Other change order work included revegetation at Crafton Hills.

In September 2005, work began on a contract to apply asphalt seal coat and asphalt concrete to paved areas in the Oroville and Southern Field Divisions (Specification No. 05-11). Approximately 66 percent of this contract work was completed by December 2005. Work added by change order included the following:

- repairing storm damage on North Adit Road;
- furnishing and installing a modular office;
- removing the Devil Canyon Creek culvert bridge; and
- furnishing, installing, and repairing an irrigation system at Lake Perris.

A contract to repair pipeline at Pearblossom Pumping Plant and modify the weir at Devil Canyon Power Plant Afterbay (Specification No. 05-13) began in September 2005, and is expected to be completed in February 2006. This work includes the following:

- repairing 315 interior pipe joints in 108-inch inside diameter prestressed

concrete cylinder pipe;
- repairing damaged coating of a 6-foot long steel pipe section;
- removing and disposing of old joint material;
- fabricating a reinforced concrete cap for the existing weir; and
- setting weir segments in place, installing dowels, and placing shotcrete.

In August 2004, work began on a contract to apply asphalt seal coat and asphalt concrete to paved areas in the San Luis and Southern Field Divisions (Specification No. 04-10). Approximately 99 percent of the contract work was completed by December 2005. Work added by change order included the following:

- providing a temporary construction field office and soils and concrete testing laboratory;
- placing rocks along Piru Creek Road, Osito Adit Channel, Devil Canyon Headquarters Road, Smokey Bear Road, and the South Adit Access Road to stop continuing erosion from high storm flows;
- restoring corrosion test stations; and
- installing an anode bed in the vicinity of Pearblossom Pumping Plant.

A contract to furnish spare coils for Warne Power Plant and Devil Canyon Power Plant (Specification No. 01-13) started in October 2001. By the end of 2005, approximately 99 percent of the original contract work was completed. The anticipated change order for a set of stator bars for Warne Unit 2 will delay completion of all contract work until February 2006.

Miscellaneous Construction Activities

The following non-SWP construction activities are categorized as miscellaneous:

A contract with the DWR Bay-Delta Office to install a demonstration aeration facility on Dock 20 at Rough and Ready Island in the Port of Stockton (Specification No. 05-06) began in December 2005. It is scheduled for completion in September 2006. Work includes installing the following equipment:

- two 30-inch diameter steel U-tube casings and two 20-inch diameter U-tubes to a depth 205 feet below ground surface;
- 24-inch steel piping and 30-inch HDPE diffuser piping;
- two vertical turbine pump-motor units;
- four fish screens with two air burst systems; and
- electrical items, including a programmable logic controller, water flow meter, instrumentation, and a distribution panel and meter.

Upper Jones Tract Levee Breach

Due to a breach in the levee at the Upper Jones Tract, the Governor officially declared a State of Emergency on June 4, 2004, for flooding at Upper and Lower Jones Tracts. In response, the following four emergency contracts were awarded in June 2004 and completed in 2005:

Specification No. 04-13 to close a levee breach at Upper Jones Tract. The breach was closed in October 2004, but work continued until May 2005.

Specification No. 04-14 to provide levee protection support activities and other emergency work at Lower Jones Tract. Work was completed in February 2005.

Specification No. 04-15 to provide levee slope protection by placing riprap on the interior levee slopes of Lower Jones Tract. Work was completed in February 2005. Work was also performed at Trapper Slough levee to mitigate potential impacts from dredge spoil fill material.

Specification No. 04-16 to dewater Upper and Lower Jones Tracts. Work began in July 2004 and was completed in December 2004, with acceptance in October 2005. This work consisted of installing, operating, and maintaining two temporary pump stations, 24 hours a day, 7 days a week, until the flood water was pumped to an elevation established by the engineer.

Real Estate Branch Activities

DWR has spent a net total of $251 million to acquire rights of way, recreation, and mitigation land for the SWP from its inception to December 31, 2005. DWR conducted the following real estate activities from January 1 through December 31, 2005:

- Acquired one parcel (665.93 acres in fee and 1.74 acres in permanent easement) for a cost of $885,700 for Suisun Marsh Mitigation, Meins Landing.
- Acquired one parcel (340.6 in fee) for a cost of $220,000, California Aqueduct, East Branch, Tehachapi East Afterbay.
- Renewed 11 leases on SWP properties.
- SWP income produced $448,882.
- Processed 37 Encroachment Permit applications; issued 29.
- Collected fees of $151,642 for review and inspection costs related to Encroachment Permit applications.
- Received six encroachment reviews where applicant had prior property rights; completed five.
- Received five Encroachment Permit amendments; completed five.
- Coordinated review of 20 tentative tract map developments within one mile of the California Aqueduct.
- Completed four appraisals and ten appraisal reviews.

In addition, DWR obtained 59 temporary permits:

- twenty for Calaveras River Fish Passage Study;
- eight for South Bay Aqueduct Improvement and Enlargement, Bethany Reservoir;
- five each for the East Branch Extension Phase II and Santa Ana Pipeline Repair;
- two each for the Calaveras River Migration Barrier Assessment Study and the South Delta Improvement Program; and
- one for each of the following: American River Watershed, Berryessa Creek Landslide Repair, Cache Creek Erosion Damage Repair, CIMIS Weather Station, Delta Peripheral Canal, Former Cruise 'N Tarry Marina, Gauging Station at Orestimbra Creek, Milepost 62.26 to 64.46 Oil Pipeline Relocation, Old River at the Head of San Joaquin River, South Delta Barriers—Old River Project, South Delta Temporary Barriers, Suisun Marsh Monitoring, Montezuma Harbor, Tehachapi East Afterbay, Tejon Ranch Corp., and York Creek Dam.

Table 12-1. Design Activities, January 1, 2005, through December 31, 2005, by Division

Construction Division and Facility	Design Activity	Date Design Began	Design Actual/ Estimated Completion Date
Oroville Division			
Oroville O&M Center, Feather River Fish Hatchery and Beckworth Subcenter	Roof replacement	April 2004	May 2005
Oroville Recreation Facilities	Brad B. Freeman bike trail realignment	December 2004	September 2005
Delta Field Division			
North Bay Rehabilitation/Seismic Retrofit	NBA rehabilitation/seismic retrofit—pipeline	March 2004	September 2005
Skinner Fish Facility	Trashrake and trashrack replacement	August 2003	April 2005
South Bay Aqueduct Enlargement (subcomponents below)			
South Bay Pumping Plant	Initial plant structure	April 2003	May 2006
	Furnish valves and actuators	July 2003	April 2005
	Furnish power transformers (re-bid)	December 2003	February 2007
	Furnish switchyard equipment	December 2003	July 2005
	Furnish switchgear	December 2003	August 2005
	Furnish and install SCADA equipment	February 2004	June 2007
	Completion contract	January 2005	June 2007
Discharge Line and Pipelines	Plant discharge line and Brushy Creek Pipeline No. 3	May 2003	October 2006
Surge Tank No. 3	New surge tank	July 2004	July 2007
Canal	Canal modification	July 2003	July 2007
Dyer Reservoir	New 425 af reservoir	September 2003	June 2007
San Joaquin Field Division			
Lost Hills Domestic and Fire Water Supply	Domestic and fire water supply	September 2004	September 2007
Tehachapi Division			
Edmonston Pumping Plant	Adit refurbishment	August 2004	March 2005
Tehachapi East Afterbay	Completion contract[a]	June 2004	February 2005
	Completion Phase IA contract	December 2005	December 2005
	Completion Phase II contract	December 2005	January 2006
Mojave Division			
Pearblossom Pumping Plant	Repair 315 interior pipe joints in 108 inch diameter PCCP—Discharge No. 1	June 2005	August 2005
Santa Ana Division			
Devil Canyon Power Plant	Weir modifications	June 2005	July 2005
Santa Ana Valley Pipeline	Repair of sections with broken wires	May 2005	October 2005
	Concrete encasement of sections under Hwy. 60 expansion	June 2005	October 2005
West Branch			
Castaic Dam	Remove and replace damaged spillway wall	March 2005	June 2005
Multiple Divisions			
Oso Pumping Plant and Cedar Springs Dam Maintenance Station	Civil maintenance and mobile equipment buildings	May 2005	March 2007
Delta and San Luis Field Divisions	Roof replacement and recoating at Banks PP, Dos Amigos PP, and Coalinga O&M subcenter structures	April 2005	January 2006
Miscellaneous			
Yolo Bypass and Fremont Weir	Floodway sediment removal	November 2004	March 2005
Stockton Deep Water Channel	Demonstration aeration facility	December 2004	September 2005
Permanent South Delta Control	Old River control structure	September 2003	December 2005
	Old River flow control structure	September 2003	December 2005
	Grant Line Canal flow control structure	September 2003	December 2005
	Middle River flow control structure	September 2003	December 2005

[a]Contract terminated.

Table 12-2. Construction Activities, January 1, 2005, through December 31, 2005, by Division

Construction Division and Facility	Construction Contract (Specification Number)	Starting Date (NTBW[a])	Acceptance Date (Expected or Actual)	Contract Costs (In Thousands of Dollars)
Oroville Division				
Hyatt Power Plant	Refurbish turbine Units 1, 3, and 5 (98-22)	February 1999	September 2007	10,825
	Refurbish pump-turbine Units 2, 4, and 6 (01-11)	November 2001	November 2007	14,966
Oroville Operations and Maintenance Center	Replace roof (05-09)	August 2005	June 2006	602
Delta Facilities				
Temporary Rock Barriers	Construct temporary rock barriers: Middle River, Old River, and Grant Line Canal (03-07)	November 2003	April 2007	17,378
North San Joaquin Division				
Skinner Fish Facility	Replace trashrack and trashrake systems (04-02)	March 2004	September 2005	1,643
South Bay Aqueduct				
	Repair pipeline, Milepost 39 (04-07)	July 2004	April 2005	2,176
South Bay Aqueduct Enlargement	Furnish 45 cfs pump and motor units (04-05)	November 2004	April 2008	7,150
	Furnish power transformers (04-19)	April 2005	June 2008	1,287
	Furnish valves, actuators, and hydraulic power units (04-20)	May 2005	February 2008	2,178
	Furnish switchyard equipment (05-10)	September 2005	March 2008	847
	Furnish 5 kV switchgear (05-05)	October 2005	March 2008	2,971
San Luis Division				
Gianelli Pumping-Generating Plant and Dos Amigos Pumping Plant	Refurbish CO_2 system (04-08)	July 2004	February 2008	1,176
San Luis Canal	Restore West Side Detention Basin (04-03)	August 2004	April 2007	7,162
Tehachapi Division				
Tehachapi East Afterbay	Furnish roller gates (04-18)	February 2005	April 2006	640
	Construct afterbay, initial (04-17)	February 2005	April 2006	20,626
	Complete afterbay (05-03)	May 2005	terminated	4,639
	Complete afterbay phase IA (05-17)	December 2005	March 2006	2,179
Edmonston Pumping Plant	Replace pumps (02-10)	June 2003	May 2011	32,900
	Furnish spare impellers and diffusers (04-09)	July 2004	June 2007	3,900
	Refurbish adit and discharge lines (05-02)	March 2005	August 2005	1,216
West Branch				
Castaic Dam	Repair spillway wall (05-12)	August 2005	February 2006	432
Oso Pumping Plant	Furnish automatic voltage regulators (00-06)	May 2000	May 2005	1,177
Santa Ana Division				
Santa Ana Pipeline	Excavate, inspect, and repair pipeline (05-14)	October 2005	January 2006	3,264
	Widen concrete encasement under State Route 60 (05-15)	November 2005	March 2006	1,183
East Branch Extension				
Pump Stations				
Greenspot, Crafton Hills, and Cherry Valley	Furnish 5kV switchgear, Greenspot and Crafton Hills Pump Stations, and furnish PLC cubicle, Cherry Valley Pump Station (99-15)	October 1999	July 2005	641
	Furnish pumps, motors, and variable frequency drives (99-17)	November 1999	August 2007	4,748
	Construct pump stations (99-27)	June 2000	July 2005	24,300
	Furnish and install supervisory control and communications systems (01-05)	October 2001	December 2007	5,500

Table 12-2. Construction Activities, January 1, 2005, through December 31, 2005, by Division

Construction Division and Facility	Construction Contract (Specification Number)	Starting Date (NTBW[a])	Acceptance Date (Expected or Actual)	Contract Costs (In Thousands of Dollars)
Valve Facilities				
Carter Street and Morton Canyon	Furnish ANSI ball valves (99-20)	October 1999	August 2007	1,145
	Furnish AWWA butterfly valves (99-22)	October 1999	August 2007	862
	Furnish ANSI butterfly valves (99-23)	November 1999	August 2007	1,417
Multiple Divisions				
Banks Pumping Plant and Gianelli Pumping-Generating Plant	Design, manufacture, deliver and install digital voltage regulators (02-12)	May 2003	June 2007	2,284
California Aqueduct	Monitor, test and repair copper communications equipment (05-07)	July 2005	June 2008	1,804
Mojave Siphon Power Plant and Devil Canyon Second Afterbay	Revegetation (99-21)	November 1999	February 2006	761
Oroville and Southern Field Divisions	Seal and pave roads 2005 (05-11)	September 2005	June 2007	2,318
Pearblossom Pumping Plant and Devil Canyon Powerplant Afterbay	Repair discharge line and modify weir (05-13)	September 2005	February 2006	1,443
San Luis and Southern Field Divisions	Seal and pave roads (04-10)	August 2004	June 2005	6,109
Warne and Devil Canyon Power Plants	Furnish spare coils and materials (01-13)	October 2001	May 2006	2,009
Miscellaneous Activities				
Rough and Ready Island Dock 20	Install demonstration aeration facility, Port of Stockton (05-06)	December 2005	November 2006	3,541
Upper and Lower Jones Tracts	Close levee breach at Upper Jones Tract (04-13)	June 2004	July 2005	10,947
	Support levee protection activities at Lower Jones Tract (04-14)	June 2004	April 2005	509
	Protect levee slope at Lower Jones Tract (04-15)	June 2004	April 2005	1,543
	Dewater Upper and Lower Jones Tract (14-16)	July 2004	October 2005	4,803

[a]Notice to Begin Work.

Chapter 13
Recreation

With its many reservoirs and hundreds of miles of aqueducts, the State Water Project offers a variety of recreational activities.

Significant Events in 2005

The Department of Fish and Game (DFG) continued its fish-planting activities at 10 of the 12 SWP facilities. Total plantings of trout was 522.3 thousand compared to the 531.6 thousand planted in 2004.

SWP facilities recorded 4.79 million recreation days of use a 12 percent increase from the 4.27 million recreation days recorded in 2004.

At Lake Oroville, the North Forebay Aquatic Center was completed and opened in July.

Information for this chapter was provided by the Division of Planning and Local Assistance, Central District, Public Affairs Office, and the State Water Project Analysis Office.

The State Water Project (SWP) is a multipurpose project that benefits millions of Californians. In addition to providing water supply, flood control, and habitat for fish and wildlife, the State Water Project offers extensive and varied recreational opportunities—tours, sightseeing, fishing, hunting, camping, boating, water skiing, bicycling, and swimming. These recreational opportunities, as well as fish and wildlife enhancement, are financed by appropriations from several legislative provisions and other funding sources.

Recreation Areas

The SWP has 37 developed recreation areas, or sites, throughout California, including 18 developed fishing access sites. Figure 13-1 shows the names and locations of each area.

Recreation Days

In 2005, SWP facilities recorded 4.79 million recreation days of use (Table 13-1), a 12 percent increase from the 4.27 million recreation days recorded in 2004. Recreational use at the fishing access sites and along the California Aqueduct Bikeway nearly equaled that of 2004. A recreation day is defined as one individual user visiting a recreation site along the SWP during a 1-day period.

Most SWP recreation use is concentrated at the major reservoirs with 41 percent occurring at the Lakes in Oroville Field Division and an equal 41 percent of the total SWP recreational use in 2005 occurring at the four major reservoirs in Southern California: Pyramid Lake, Castaic Lake, Silverwood Lake, and Lake Perris. Since the SWP began delivering water in 1962, more than 185 million recreation days have been recorded at SWP recreational facilities. In addition to the recreation use, visitation totaled 211,00 at the three following DWR visitors centers:

- Kelly Ridge, Lake Oroville, 87,100
- Romero Overlook, San Luis Reservoir, 112,100
- Vista Del Lago, Pyramid Lake, 11,800 (Usage recorded from January 1 through February 22. Facility closed February 23, 2005 through October 31, 2006 due to rain caused landslides.)

Facilities

Planning

During 2005, the Department of Boating and Waterways began plans for the following projects:

- Lake Davis: Honker Cove Ramp Extension.
- Lake Oroville: Boat launching facility at Feather River Outlet Wilbur Road Boat launching facility.
- Lake Perris: Alessudro Island rehabilitation.

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. Access 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 accessible 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. Access 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

Figure 13-1. Names and Locations of SWP Recreation Areas

Table 13-1. Recreation-Days Recorded in 2005, by Field Division and Facility

Field Division and Facility	Number of Recreation Days
Oroville Field Division	
Frenchman Lake	240,000
Antelope Lake	70,000
Lake Davis	138,000
Lake Oroville and Thermalito Forebays	1,072,000
Thermalito Afterbay and Oroville Wildlife Area	353,500
Lake Oroville Visitor Center	88,500
Subtotal	*1,962,000*
Delta Field Division	
Lake Del Valle	268,100
Bethany Reservoir	28,000
Fishing Access Sites:	
Neils Hansen	100
California Aqueduct:	
Walk-in fishing	600
Bikeway	100
White Slough Wildlife Area	12,000
Subtotal	*308,800*
San Luis Field Division	
San Luis Reservoir SRA, includes San Luis Reservoir, O'Neill Forebay, and Los Banos Reservoir	532,000
California Aqueduct:	
Walk-in fishing	12,000
Wildlife Areas	11,000
Subtotal	*555,000*
San Joaquin Field Division	
Fishing Access Sites:	
Kettleman City	1,000
Lost Hills	1,000
Buttonwillow	1,000
California Aqueduct:	
Walk-in fishing	9,500
Subtotal	*12,500*
Southern Field Division	
Silverwood Lake	245,700
Lake Perris	1, 020,700
Pyramid Lake	100,000
Castaic Lake	581,000
Fishing Access Sites:	
Quail Lake	1,300
77th Street East	400
Longview Road	100
California Aqueduct:	
Walk-In fishing	2,500
Bikeway	400
Subtotal	*1,952,100*
Total	**4,790,300**

New Facilities

Lake Oroville

The North Forebay Aquatic Center was completed and opened in July 2005. Bidwell Canyon restroom facility was completed.

Silverwood Lake

Vault toilets at Boat-in Sites Sycamore, Chamise and Live Oak.

Lake Perris

New restroom facilities at ramps 6 and 7.

Lake Del Valle

A new recycling project was initiated by installing six recycling bins on concrete pads. New trail marker discs were installed on major trails. A new check valve, clear well, chlorine generation system, and SCADA system was installed and operating at water treatment plant.

Improvements to Facilities

Improvements were made at the following facilities:

Lake Del Valle

Water faucets were replaced with new metal ones. A second metering pump and a second chlorine analyzer were installed at the water treatment plant. Two group picnic area BBQ pits were replaced with upgraded concrete ones. Major culvert on Deer Jaw Trail was replaced.

Silverwood Lake

Boat-in site renovation project was bid and awarded with construction scheduled for completion in 2005.

Pyramid Lake

Emigrant Landing eroded slopes were repaired. Emergency repairs of docks at boat-in sites were completed.

Oroville Recreation Plan

The Federal Energy Regulatory Commission (FERC) Order 2100-052, issued on October 1, 1992, required DWR to prepare a revised recreation plan for Lake Oroville, replacing the original *Oroville Reservoir, Thermalito Forebay, and Thermalito Afterbay: Water Resources Recreation Report* (Bulletin 117-06). Another plan, FERC Order 2100-054, submitted June 1, 1993, and approved September 22, 1994, included additional recreation facilities and addressed concerns raised by local residents regarding recreation and fishery-related issues.

In 1995, the Lake Oroville Recreation Advisory Committee was established. This committee, comprised of local government, citizens' groups, and State agencies, was formed to advise DWR on recreation plan implementation, which included the following projects:

- ten floating campsites constructed and moored at various locations on the lake;
- an en route RV camping area added at the North Thermalito Forebay area;
- construction completed on a duck brood pond and restroom and picnic facilities at Thermalito Afterbay;
- buoys deployed around the water-ski slalom course;
- construction completed on the 41-mile bike trail main loop;
- construction completed on the Lime Saddle Boat Ramp improvements, an equestrian campground at Loafer Creek Recreation Area, and lighting on Oroville Dam; and
- fishery and fishing improvements completed, including development of a fish management and stocking plan, stocking Chinook salmon, and development of fish shelters.

Most recreation and fish facilities have been completed; however, certain elements of the plan may require time extensions to complete.

Fish Plantings

In 2005, the Department of Fish and Game continued its fish-planting activities at 10 of the 12 SWP facilities. Total plantings of trout was 522.3 thousand compared to the 531.6 thousand planted in 2004 (see Table 13–2).

Recreation Financing

Previously, DWR reported capital costs allocated to fish and wildlife enhancement and recreation in Appendix D to Bulletin 132, *Costs of Recreation and Fish and Wildlife Enhancement*. This report is no longer mandated by the Legislature, and these capital costs, starting with fiscal year 2000-2001, are reported in this bulletin.

The financing of recreation and fish and wildlife enhancement in connection with the SWP was provided for by the Davis-Dolwig Act, Assembly Bill 12, and the Environmental Water Act, Assembly Bills 1441 and 1442. The Davis-Dolwig Act declared the Legislature's intent to provide DWR with General Fund appropriations for SWP fish and wildlife enhancement

Table 13-2. Fish Planted in 2005 (Thousands)

Location and Size	Eagle Lake Trout	Brook Trout	Rainbow Trout	Brown Trout	Coho Salmon	Total
Antelope Lake		Yearling	Yearling			
Adv. Fingerlings	25.1	6.0	10.7			41.8
Lake Davis						
Catchables	47.2					47.2
Frenchman Reservoir						
Adv. Fingerlings	143.1					
Catchables	54.1					197.2
Lake Oroville						
Fingerlings	---	---	No Fish Planted		---	---
Thermalito Forebay						
Catchables			17.9			17.9
Lake Del Valle						
Catchables	---	---	No Fish Planted		---	---
Los Banos Reservoir						
Catchables	2.0		7.2			9.2
Pyramid Lake						
Catchables	1.8		26.1			27.9
Castaic Lake						
Catchables			57.2			57.2
Castaic Lagoon						
Catchables			38.8			38.8
Silverwood Lake						
Catchables			33.0			33.0
Lake Perris						
Catchables	3.4		48.7			52.1
Lake Skinner [a]						
Catchables	---	---	No Fish Planted		---	---
California Aqueduct	---	---	No Fish Planted		---	---
TOTAL	**276.7**	**6.0**	**239.6**			**522.3**

[a] Included in the SWP fish planting program, but not an SWP facility.

and recreation. For fiscal years 1983-1984 through 2004-2005, no funds were appropriated for these purposes.

AB 12 provided for a $5 million annual appropriation from tideland oil and gas revenues to be used for recreation, enhancement of fish and wildlife, and purchases of land for recreational uses. DWR received $90 million from these revenues; there have been no appropriations since 1985.

Legislation enacted in 1989 (AB 1441 and AB 1442) offset a portion of the amount owed by the State for fish and wildlife enhancement and recreational costs against the amount the SWP owed to the California Water Fund (see Chapter 14, *Financial Analysis,* for more details).

Capital Cost Allocations

Table 13-3 shows capital costs allocated to fish and wildlife enhancement and recreation and overall costs of lands acquired for recreation development through 2005. Costs have increased by $814,225 since last reported. These costs are budgeted by DWR from funds available for financing project construction costs. Recreation and enhancement costs not reported in this table are budgeted by several State departments and are financed by appropriations from a variety of funds.

Accrued Interest Charges

Table 13-4 details accrued interest charges included in the costs shown in Table 13-3, and reimbursements through December 2005. These interest accruals are calculated through December 31, 2005, on the portion of annual disbursements financed by the California Water Resources Development Bond Fund, and based on the weighted average interest costs of Burns-Porter and Water System Revenue bonds sold to date. The reimbursements were included in DWR's budget as appropriations from the General Fund and are used by DWR to pay for operations, maintenance, power, and replacement costs associated with operating the SWP for fish and wildlife enhancement and recreation.

For a more detailed discussion of these legislative provisions, and DWR's procedures for reporting and tabulating recreation and enhancement costs, please see the last Appendix D (to Bulletins 132-98, 132-99, 132-00, and 132-01). This report can be found on the Web at http://www.swpao.water.ca.gov/publications/index.cfm.

Table 13-3. Recreation and Enhancement Costs of the State Water Project

Facility	1952-2004 Updated	2005	Subtotal	Interest	Total	B132-05 Costs	Increase/ Decrease
	Joint Costs Allocated to Recreation and Enhancement						
Frenchman Dam and Lake (78.5%)							
California Water Resources Development Bond Fund	102,997	0	102,997	2,097	105,094	105,094	0
All Other Funds	2,839,227	(16,485)	2,822,742	0	2,822,742	2,736,262	86,480
Antelope Dam and Lake (100%)							
California Water Resources Development Bond Fund	1,033,261	0	1,033,261	113,788	1,147,049	1,147,049	0
All Other Funds	4,625,735	0	4,625,735	0	4,625,735	4,413,790	211,945
Grizzly Valley Dam and Lake Davis (99.0%)							
California Water Resources Development Bond Fund	4,003,092	0	4,003,092	486,754	4,489,846	4,489,846	0
All Other Funds	2,602,805	0	2,602,805	0	2,602,805	2,602,436	369
San Luis Dam and Reservoir , O'Neill Forebay and Los Banos Reservoir (3.4%)							
California Water Resources Development Bond Fund	988,910	0	988,910	169,085	1,157,995	1,157,995	0
All Other Funds	3,502,492	536	3,503,028	0	3,503,028	3,501,256	1,772
California Aqueduct Delta to Dos Amigos P.P. (3.4%)							
California Water Resources Development Bond Fund	4,467,667	0	4,467,667	897,406	5,365,073	5,365,073	0
All Other Funds	4,549,626	16,074	4,565,700	0	4,565,700	4,546,926	18,774
Oroville Division (2.9%)							
California Water Resources Development Bond Fund	5,725,216	0	5,725,216	1,790,491	7,515,707	7,515,707	0
All Other Funds	4,823,279	3,096	4,826,375	0	4,826,375	4,822,640	3,735
Del Valle Dam and Lake Del Valle (48.0%)							
California Water Resources Development Bond Fund	10,546,762	0	10,546,762	6,813,560	17,360,322	17,360,322	0
All Other Funds	4,184,406	(2,716)	4,181,690	0	4,181,690	4,184,520	(2,830)
California Aqueduct Dos Amigos P.P. to Termini (5.7%)							
California Water Resources Development Bond Fund	48,382,162	0	48,382,162	75,353,773	123,735,935	123,735,935	0
All Other Funds	58,996,454	492,208	59,488,662	0	59,488,662	58,994,736	493,926
Subtotal	*161,374,091*	*492,713*	*161,866,804*	*85,626,954*	*247,493,758*	*246,679,587*	*814,171*
	Specific Costs of Acquiring Land for Recreation Development						
Frenchman Dam and Lake							
California Water Resources Development Bond Fund	3,379	0	3,379	160	3,539	3,539	0
All Other Funds	49,947	0	49,947	0	49,947	49,947	0
Grizzly Valley Dam and Lake Davis							
California Water Resources Development Bond Fund	204,475	0	204,475	17,573	222,048	222,048	0
All Other Funds	554,260	0	554,260	0	554,260	554,260	0
Abbey Bridge Dam and Reservoir							
California Water Resources Development Bond Fund	9	0	9	0	9	9	0
All Other Funds	9,921	0	9,921	0	9,921	9,921	0
San Luis Dam and Reservoir, O'Neill Forebay and Los Banos Reservoir							
California Water Resources Development Bond Fund	395,284	0	395,284	33,467	428,751	428,751	0
All Other Funds	415,610	0	415,610	0	415,610	415,610	0
California Aqueduct Delta to Dos Amigos P.P.							
California Water Resources Development Bond Fund	461,086	0	461,086	158,456	619,542	619,542	0
All Other Funds	(137,494)	0	(137,494)	0	(137,494)	(137,494)	0
Oroville Division							
California Water Resources Development Bond Fund	7,809,509	0	7,809,509	3,673,041	11,482,550	11,482,550	0
All Other Funds	3,100,347	0	3,100,347	0	3,100,347	3,100,347	0
Del Valle Dam and Lake Del Valle							
California Water Resources Development Bond Fund	519,425	0	519,425	448,292	967,717	967,717	0
All Other Funds	(32,200)	0	(32,200)	0	(32,200)	(32,200)	0
California Aqueduct Dos Amigos P.P. to Termini							
California Water Resources Development Bond Fund	478,971	0	478,971	915,217	1,394,188	1,394,188	0
All Other Funds	398,349	0	398,349	0	398,349	398,349	0
Castaic Dam and Lake							
California Water Resources Development Bond Fund	1,954,297	0	1,954,297	3,856,203	5,810,500	5,810,500	0
All Other Funds	952,352	0	952,352	0	952,352	952,325	27
Cedar Springs Dam and Silverwood Lake							
California Water Resources Development Bond Fund	424,966	0	424,966	817,173	1,242,139	1,242,139	0
All Other Funds	370,164	0	370,164	0	370,164	370,137	27
Perris Dam and Lake Perris							
California Water Resources Development Bond Fund	1,022,313	0	1,022,313	2,033,799	3,056,112	3,056,112	0
All Other Funds	4,939,979	0	4,939,979	0	4,939,979	4,939,979	0
Subtotal	*23,894,949*	*0*	*23,894,949*	*11,953,381*	*35,848,330*	*35,848,276*	*54*
Total Recreation and Enhancement Costs							
California Water Resources Development Bond Fund	88,523,781	0	88,523,781	97,580,335	186,104,116	186,104,116	0
All Other Funds	96,745,259	492,713	97,237,972	0	97,237,972	96,423,747	814,225
Total	**185,269,040**	**492,713**	**185,761,753**	**97,580,335**	**283,342,088**	**282,527,863**	**814,225**

Table 13-4. Calculation of Interest Accruals on California Water Resources Development Bond Fund Disbursements (in dollars at 4.608% per annum)

	1952-2004					2005					2006 Beginning of Year Balance to be Reimbursed				
	Disbursements		Reimbursements			Disbursements		Reimbursements			Disbursements		Reimbursements		
Facility	WRD Bond Funds	All Other Funds	WRD Bond Funds	All Other Funds	**Interest Accrual**	WRD Bond Funds	All Other Funds	WRD Bond Funds	All Other Funds	**Interest Accrual**	WRD Bond Funds	All Other Funds	WRD Bond Funds	All Other Funds	**Interest Accrual**
	t					**Joint Costs Allocated to Recreation and Enhancement**									
Frenchman Dam and Lake	102,997	2,839,227	104,900	2,719,468	2,097	0	(16,485)	0	0	0	102,997	2,822,742	104,900	2,719,468	2,097
Antelope Dam and Lake	1,033,261	4,625,735	1,140,322	4,478,932	113,788	0	0	0	0	0	1,033,261	4,625,735	1,140,322	4,478,932	113,788
Grizzly Valley Dam and Lake Davis	4,003,092	2,602,805	4,444,594	2,568,667	486,754	0	0	0	0	0	4,003,092	2,602,805	4,444,594	2,568,667	486,754
Sisk Dam, San Luis Res., O'Neill Forebay, & Los Banos Reservoir	988,910	3,502,492	1,938,244	2,725,578	169,085	0	536	0	0	0	988,910	3,503,028	1,938,244	2,725,578	169,085
California Aqueduct Delta to Dos Amigos P.P.	4,467,667	4,549,626	5,267,351	4,092,435	897,406	0	16,074	0	0	0	4,467,667	4,565,700	5,267,351	4,092,435	897,406
Oroville Division	5,725,216	4,823,279	7,324,529	4,570,269	1,790,491	0	3,096	0	0	0	5,725,216	4,826,375	7,324,529	4,570,269	1,790,491
Del Valle Dam and Lake Del Valle	10,546,762	4,184,406	16,463,934	3,130,016	6,813,560	0	(2,716)	0	0	0	10,546,762	4,181,690	16,463,934	3,130,016	6,813,560
California Aqueduct Dos Amigos P.P. to Termini	48,382,162	58,996,454	113,035,518	49,410,851	75,353,773	0	492,208	0	0	0	48,382,162	59,488,662	113,035,518	49,410,851	75,353,773
Subtotal	*75,250,067*	*86,124,024*	*149,719,392*	*73,696,216*	*85,626,954*	*0*	*492,713*	*0*	*0*	*0*	*75,250,067*	*86,616,737*	*149,719,392*	*73,696,216*	*85,626,954*
						Specific Costs of Acquiring Land for Recreation Development									
Frenchman Dam and Lake	3,379	49,947	3,520	49,947	160	0	0	0	0	0	3,379	49,947	3,520	49,947	160
Grizzly Valley Dam and Lake Davis	204,475	554,260	220,423	554,244	17,573	0	0	0	0	0	204,475	554,260	220,423	554,244	17,573
Abbey Bridge Dam and Reservoir	9	9,921	9	9,921	0	0	0	0	0	0	9	9,921	9	9,921	0
Sisk Dam, San Luis Res., O'Neill Forebay, & Los Banos Reservoir	395,284	415,610	425,700	415,610	33,467	0	0	0	0	0	395,284	415,610	425,700	415,610	33,467
California Aqueduct Delta to Dos Amigos P.P.	461,086	(137,494)	603,887	(137,494)	158,456	0	0	0	0	0	461,086	(137,494)	603,887	(137,494)	158,456
Oroville Division	7,809,509	3,100,347	11,028,039	649,733	3,673,041	0	0	0	0	0	7,809,509	3,100,347	11,028,039	649,733	3,673,041
Del Valle Dam and Lake Del Valle	519,425	(32,200)	917,078	(32,200)	448,292	0	0	0	0	0	519,425	(32,200)	917,078	(32,200)	448,292
California Aqueduct Dos Amigos P.P. to Termini	478,971	398,349	1,271,912	398,349	915,217	0	0	0	0	0	478,971	398,349	1,271,912	398,349	915,217
Castaic Dam and Lake	1,954,297	952,352	5,291,258	951,070	3,856,203	0	0	0	0	0	1,954,297	952,352	5,291,258	951,070	3,856,203
Cedar Springs Dam and Silverwood Lake	424,966	370,164	1,132,207	370,137	817,173	0	0	0	0	0	424,966	370,164	1,132,207	370,137	817,173
Perris Dam and Lake Perris	1,022,313	4,939,979	2,780,487	4,867,247	2,033,799	0	0	0	0	0	1,022,313	4,939,979	2,780,487	4,867,247	2,033,799
Subtotal	*13,273,714*	*10,621,235*	*23,674,520*	*8,096,564*	*11,953,381*	*0*	*0*	*0*	*0*	*0*	*13,273,714*	*10,621,235*	*23,674,520*	*8,096,564*	*11,953,381*
Total	**88,523,781**	**96,745,259**	**173,393,912**	**81,792,780**	**97,580,335**	**0**	**492,713**	**0**	**0**	**0**	**88,523,781**	**97,237,972**	**173,393,912**	**81,792,780**	**97,580,335**

Chapter 14
Financial Analysis

The California Aqueduct delivers water for irrigation and urban use, benefiting more than 24 million Californians.

Significant Events in 2005

On July 7, the Department of Water Resources issued $112.390 million of Water System Revenue bonds, Series AD. The proceeds were pre-sold on June 14 to refinance $104.750 million of previously issued bonds, finance long-term construction expenditures, and pay bond financing costs.

Information for this chapter was provided by the State Water Project Analysis Office in conjunction with the Division of Fiscal Services.

This chapter presents both a summary and a detailed explanation of State Water Project (SWP) current financial analysis, capital costs and requirements, revenues and expenses, and bond activities for years 2006 through 2020.

The Department of Water Resources (DWR) performs 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; and debt service payments for bonds expended for construction. The results of the current financial analysis, dated December 31, 2005, are presented in Tables 14-1 and 14-2 located at the end of this chapter.

Future contingencies may change the financial analysis, some of which include:

- alterations in schedules of currently planned construction for future facilities;
- changes in economic conditions, including changes in interest rates and in SWP contractor Table A amounts 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;
- increases in capital costs related to additional conservation facilities; and
- outcome of lawsuits now pending before the courts.

Capital Requirements and Financing

In conducting the current analysis, DWR projected that future construction costs through the year 2020 plus reimbursement of $65 million interim financing for prior expenditures will total $1.12 billion. Special capital requirements for revenue bond financing of these construction costs are projected at $124 million for a total capital requirement of $1.31 billion. This projection includes construction and financing costs for the following significant SWP facilities planned for completion by 2020:

- Interim South Delta facilities;
- extension of the East Branch of the California Aqueduct;
- Phase II enlargement of the East Branch;
- enlargement of the South Bay Aqueduct; and
- a new intake at Clifton Court Forebay.

Most of these capital requirements will be financed from the projected sale of $1.24 billion of revenue bonds. The remaining $67 million will be financed from capital resources revenues and the transfer of excess revenues not needed for operation costs or debt service.

The analysis of capital requirements and financing presented in Table 14-1

does not include the costs and financing of all facilities needed to develop the remaining yield necessary to meet the total 4.2 million af contractual commitment to long-term SWP water contractors. Table 14-1 also does not include the costs of associated work essential for realizing full benefits from the SWP, but financed and constructed by local interests or State agencies other than DWR. Those facilities include on-shore recreational developments at SWP facilities and local distribution facilities.

The allocation of capital expenditures for various SWP purposes is detailed in Table 14-3.

Capital Requirements

Lines 1 through 20 in Table 14-1 show actual and projected SWP capital requirements through 2020. Estimates of future capital expenditures include allowances for construction cost escalation of 3 percent per year from 2006 through 2020. Right-of-way costs are escalated at 4 percent per year from 2006 through 2020. 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 16) and special capital requirements under revenue bond financing (Line 17). DWR will decide whether 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, consists of the estimated costs for improvements and the historical costs for Phase II. Phase II, which became operational in May 1988, connected with the Phase I facilities, which were completed in 1968 (Phase I costs are included in the initial project facilities discussed in Line 1). Phase II included costs for pipelines, pumping plants, and a small reservoir necessary to divert water from the western Delta to Napa and Solano counties for urban use. The improvements consist of replacing the existing tank with two five million gallon tanks. Construction is anticipated to begin in 2007 and to be completed in May 2009.

Line 3, Delta and Suisun Marsh Facilities, shows historical costs in Column 1 that include planning for general Delta facilities and 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.

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.

Line 5, Coastal Branch Aqueduct, includes all costs for the planning, design, and construction of Phase II of the Coastal Branch of the California Aqueduct. Phase II construction began in October 1993 and

Table 14-3. Allocation of Capital Expenditures (Thousands of Dollars)

Facilities and Construction Divisions	Expenditures Incurred Through 2005	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	18,275	1	18,276	1,411	0	16,865	0
Oroville Division	591,016	2,771	593,787	500,240	71,792	21,755	0
Delta Facilities Division	400,457	41,760	442,217	395,366	0	46,851	0
North Bay Aqueduct	94,579	10,866	105,445	105,445	0	0	0
South Bay Aqueduct	118,986	124,400	243,386	219,970	8,189	15,227	0
California Aqueduct							
North San Joaquin Division	217,969	13,729	231,698	223,526	0	8,172	0
San Luis Division	266,185	4,247	270,431	258,018	0	12,413	0
South San Joaquin Division	288,752	4,421	293,173	275,558	0	17,614	0
Tehachapi Division	324,817	12,995	337,812	318,744	0	19,068	0
Mojave Division	290,180	15,678	305,858	267,026	0	38,832	0
Santa Ana Division	259,116	49,589	308,705	273,930	0	34,775	0
West Branch	470,591	5,883	476,474	444,727	0	31,747	0
Coastal Branch	490,694	4,213	494,907	494,907	0	0	0
Subtotal, California Aqueduct	*2,608,304*	*110,754*	*2,719,058*	*2,556,437*	*0*	*162,621*	*0*
Other Project Facilities							
Small Hydroelectric Power Generating Facilities	97,368	0	97,368	97,368	0	0	0
Off-Aqueduct Power Generating Facilities	455,369	30,544	485,913	485,913	0	0	0
East Branch Enlargement	453,459	455,771	909,230	909,230	0	0	0
East Branch Extension	128,473	177,930	306,403	306,403	0	0	0
Coastal Power Allocation	30,708	0	30,708	30,708	0	0	0
Agricultural Drainage Facilities	66,440	50,880	117,320	0	0	0	117,320
Planning and Preoperations	145,886	61,615	207,501	207,501	0	0	0
Unassigned/Miscellaneous	101,448	50,891	152,339	0	0	0	152,339
Subtotal, Project Construction Expenditures	*5,310,768*	*1,118,183*	*6,428,951*	*5,815,992*	*79,981*	*263,319*	*269,659*
Other Capital Requirements							
Davis-Grunsky Act Program	130,000	0	130,000	0	0	0	130,000
Total Capital Expenditures	**5,440,768**	**1,118,183**	**6,558,951**	**5,815,992**	**79,981**	**263,319**	**399,659**

[a]Reflects DWR'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, and costs assigned to the Davis-Grunsky Act Program.

was completed in 1997. Water deliveries from Phase II facilities began in July 1997.

Line 6, West Branch Aqueduct, shows costs for all facilities on the West Branch except Warne Power Plant, whose costs are included in Line 11.

Line 7, East Branch Enlargement, includes expenditures for Phases I and II of the East Branch Enlargement. Phase I included the enlargement share of power plant costs at Mojave Siphon and Devil Canyon. (The remaining power plant costs are included in Line 11.) East Branch Enlargement costs for Phase I, by facility, are presented in Table 14-4. Costs for Alamo Power Plant consist of expenditures for Unit 1 facilities allocated to enlargement. Construction of Unit 2 was deferred.

Construction of Phase II of the enlargement is anticipated to begin in March 2007. Project costs include raising the canal embankment and concrete lining, constructing additional siphon barrels, adding bays to check structures, constructing Unit 2 at Alamo Power Plant, and adding two pump/motor units and a discharge line at Pearblossom Pumping Plant.

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, the reconstruction of the San Bernardino Tunnel Intake, and the construction of the Tehachapi East Afterbay. Costs for power plant construction at Alamo, Mojave Siphon, and Devil Canyon are not included in this line.

Line 9, East Branch Extension, shows expenditures for Phase I of the extension of the East Branch of the California Aqueduct. The East Branch Extension extends the California Aqueduct east from the Devil Canyon Power Plant to a terminus at Noble Creek near Beaumont in Riverside County. The extension provides water service to the San Gorgonio Pass Water Agency and the San Bernardino Valley Municipal Water District. Construction began in February 1999 and was completed in 2003. Construction of Phase II is anticipated to commence in 2008. All costs in Line 9 will be allocated to and repaid by the two participating contractors.

Line 10, South Bay Aqueduct Enlargement, shows expenditures for providing additional capacity required to meet increases in water demands for the service area of Alameda County Flood Control and Water Conservation District, Zone 7, and increasing the existing capacity of the South Bay Aqueduct to its original design capacity. Construction includes creating a third discharge line, creating a 500 af Dyer Reservoir, modifying the canal, and enlarging the South Bay Pumping Plant. Construction is expected to be completed in 2009.

Line 11, Power Generation and Transmission Facilities, does not include the East Branch Enlargement share of costs for Alamo, Mojave Siphon, and Devil Canyon power plants shown in Line 7 of Table 14-1. The capital costs for facilities included in Line 11 are shown in Table 14-5.

Line 12, Additional Conservation Facilities, shows projected costs to plan and study additional conservation facilities. Specific planning activities and projected spending amounts for 2006 through 2020 are shown in Table 14-6. Expenditures for these items are being reviewed. Construction costs of additional conservation facilities are not included in the financial analysis.

Line 12 does not include CALFED program costs. CALFED expenditures for preliminary planning and environmental impact report preparation are currently financed by appropriations from the General Fund. DWR assumes that future costs of the CALFED program will continue to be financed from the General Fund.

Line 13, Agricultural Drainage Facilities, includes projected costs of the Agricultural Drainage Program. The activities in this program are monitoring, evaluating, reducing, and treating drainage, as well as investigating treatment and reuse of drainage water.

DWR assumes that future costs of the drainage program will be financed by revenue transfers (Line 35).

Line 14, 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 California Aqueduct units described in the preceding paragraphs.

Line 15, Subtotal Project Construction Expenditures, is the total of Lines 1 through 14.

Line 16, 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, 2005, DWR had disbursed $130 million (including $8.5 million for administration) in grants and loans to local agencies throughout the State.

Line 17, 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 14-7.

Line 18, Total Capital Requirements, is the total of Lines 15, 16, and 17.

Line 19, Power Facilities Capital Requirements, shows the total capital requirements for power facilities included in Line 18.

Line 20, Water Facilities Capital Requirements, shows the total capital requirements for water facilities included in Line 18.

Table 14-4. East Branch Enlargement Capital Costs by Facility

Facility	Amount (Millions of Dollars)
Aqueduct and Siphons	128.1
Pearblossom Pumping Plant	70.1
Alamo Power Plant	5.0
Mojave Siphon Power Plant	47.3
Devil Canyon Power Plant and Second Afterbay	202.9
Total	**453.4**

Table 14-5. Estimated Capital Costs for Power Generation and Transmission Facilities

Facility	Amount (Millions of Dollars)
Power Plants	
Reid Gardner, Unit 4	308.5
Bottle Rock	120.9
South Geyers	49.6
Devil Canyon	36.8
Warne	84.5
Alamo	44.9
Mojave Siphon	38.4
Thermalito Diversion Dam	14.1
Subtotal	*697.7*
Transmission Lines	
Midway-Wheeler Ridge	10.7
Geysers-Lakeville	6.9
Total	**715.3**

Table 14-6. Estimated Future Costs for Planning Additional Conservation Facilities

Activity	Amount (Millions of Dollars)
SWP Future Water Supply	41.8
Other Planning Costs	19.8
Total	**61.6**

Capital Financing

The SWP was constructed with three general types of financing: Burns-Porter Act, revenue bonds, and capital resources. Lines 21 through 36 of Table 14-1 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 (California Water Code Sections 12930-12944), approved by voters in November 1960. The Burns-Porter Act authorized an issuance of $1.75 billion of general obligation State bonds, which are repaid by revenues received according to the water supply contracts. Of that authorization, $130 million were reserved specifically for the Davis-Grunsky Act Program.

Proceeds from the sale of general obligation bonds were deposited in the California Water Resources Development Bond Fund–Bond Proceeds Account, from which monies were expended only for the construction of SWP facilities and for the Davis-Grunsky Act Program. Approximately 29 percent of the expenditures through 2005 for construction and the Davis-Grunsky Act Program were financed with general obligation bonds.

Monies deposited in the California Water Fund were appropriated for purposes outlined in the Burns-Porter Act. Such deposits were derived from a portion of the State Tideland Oil Revenues, according to a continuing authorization. The California Water Fund was used to finance $508 million, or approximately 8 percent, of the construction expenditures through 2005.

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). DWR'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 December 31, 2005, DWR had sold $7.0 billion of revenue bonds. That amount includes $3.6 billion of refunded bonds, leaving a total principal obligation of $3.4 billion.

Capital Resources

Capital resources financing is derived from payments and appropriations (including a portion of the State 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

Table 14-7. Application of Revenue Bond Proceeds (Millions of Dollars)

Bond Series[a]	Construction Expenditures	Other Capital Requirements					Total Principal Amount of Bonds
		Reimbursement of General Fund	*Capitalized Interest*	*Capitalized Operating Costs*	*Bond Financing and Refunding Costs*[b]	*Subtotal*	
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	237.9	239.5
Power Facilities Series H	22.2	0.0	0.0	0.0	184.5	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	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	8.6	9.0
Water System Facilities Series F	0.0	0.0	0.0	0.0	160.0	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	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	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	0.0	170.1	178.5	335.0
Water System Facilities Series P	141.6	0.0	5.2	0.0	13.2	18.4	160.0
Water System Facilities Series Q	135.0	0.0	8.0	0.0	123.6	131.6	266.6
Water System Facilities Series R	0.0	0.0	0.0	0.0	20.7	20.7	20.7
Water System Facilities Series S	78.2	0.0	5.8	0.0	116.2	122.0	200.2
Water System Facilities Series T	0.0	0.0	0.0	0.0	135.7	135.7	135.7
Water System Facilities Series U	98.7	0.0	5.3	0.0	103.2	108.5	207.2
Water System Facilities Series V	0.0	0.0	0.0	0.0	20.6	20.6	20.6
Water System Facilities Series W	41.0	0.0	1.3	0.0	218.7	220.0	261.0
Water System Facilities Series X	0.0	0.0	0.0	0.0	160.2	160.2	160.2
Water System Facilities Series Y	0.0	0.0	0.0	0.0	329.9	329.9	329.9
Water System Facilities Series Z	0.0	0.0	0.0	0.0	170.7	170.7	170.7
Water System Facilities Series AA	0.0	0.0	0.0	0.0	108.7	108.7	108.7
Water System Facilities Series AB	92.2	0.0	3.9	0.0	93.6	97.5	189.7
Water System Facilities Series AC	13.7	0.0	0.6	0.0	257.7	258.3	272.0
Water System Facilities Series AD	12.4	0.0	0.9	0.0	99.1	100.0	112.4
Subtotal	*2,680.4*	*2.6*	*255.0*	*14.8*	*4,043.6*	*4,316.0*	*6,996.4*[c]
Future East Branch Extension Bonds	180.0	0.0	9.0	0.0	11.0	20.0	200.0
Future So. Bay AB. Enlargement Bonds	126.9	0.0	6.3	0.0	7.7	14.0	140.9
Future Water System Facilities Bonds	808.5	0.0	40.4	0.0	49.4	89.8	898.3
Total	**3,795.8**	**2.6**	**310.7**	**14.8**	**4,111.7**	**4,439.8**	**8,235.6**

[a]Actual bond issue for all except Future Water System facilities and Future East Branch Extension bonds.
[b]Bond financing and refunding costs include funds applied to debt service reserve requirements.
[c]Includes $3,581.9 million of refunded principal, leaving a net principal obligation of $3,414.5 million.

for interest on general obligation bonds and costs of constructing SWP facilities.

According to DWR'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, East Branch Extension bonds, South Bay Aqueduct Enlargement bonds, water system facilities bonds, initial project facilities bonds, bond proceeds from the Davis-Grunsky Act Program, California Water Fund monies, and capital resources revenues.

Line 21, Power Revenue Bonds through Series H, includes the proceeds applied from power revenue bonds for 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 this financial analysis.

Line 22, East Branch Enlargement, Current Bonds, shows that $474 million of Water System Revenue Bond proceeds have been applied to the East Branch Enlargement project through December 31, 2005. Of this total amount, $417 million was used for construction expenditures and $57 million for bond discounts, interest costs, and debt service reserves.

No future East Branch Enlargement revenue bond sales are projected for the financial analysis.

Line 23, East Branch Extension, Current Bonds, shows that $140 million of Water System Revenue Bond proceeds had been spent through December 31, 2005.

Line 24, East Branch Extension, Future Bonds, shows DWR's estimate of $200 million of additional bonds required to complete construction of the East Branch Extension and to pay for bond discounts, capitalized interest, and debt service reserve requirements.

Line 25, South Bay Aqueduct Enlargement, Current Bonds, shows that $17 million of Water System Revenue Bond proceeds had been spent through December 31, 2005.

Line 26, South Bay Aqueduct Enlargement, Future Bonds, shows DWR's estimate of $141 million of bonds required to complete construction of the South Bay Aqueduct Enlargement and to pay for bond discounts, capitalized interest, and debt service reserve requirements.

Line 27, Water System Facilities, Current Bonds, shows that through December 31, 2005, $1.5 billion of proceeds from Water System Revenue Bonds, Series A through Series AD, were applied to SWP projects other than the East Branch Enlargement, the East Branch Extension, and the South Bay Aqueduct Enlargement. Of this total amount, $1.3 billion was used to pay for construction expenditures, and $0.2 billion was used to pay for bond discounts, capitalized interest, and debt service reserve requirements.

Line 28, Water System Facilities, Future Bonds, shows that $898 million of future water revenue bonds are needed to provide $809 million for construction

of SWP water system facilities and $89 million for bond discounts, interest costs, and debt service reserve requirements.

Line 29, Subtotal, Water Revenue Bonds, is the total of Lines 22 through 28.

Line 30, Initial Project Facilities Bond Proceeds, shows the amount of general obligation bonds sold to provide financing costs for initial 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 monies 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 monies 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 31, 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 was used for the program in lieu of bond proceeds prior to 1969.

Line 32, Application of California Water Fund Monies, shows the amount of SWP costs financed under the Burns-Porter Act. The act 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, 2005, was used to finance a total of $508 million of SWP costs.

Line 33, Interim Financing, shows the net annual amounts of funds flowing into and out of the Water Revenue Commercial Paper Notes program. This 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. DWR has authority to issue up to $94.4 million of Water Revenue

Commercial Paper Notes. A positive number indicates money borrowed from the program to finance construction costs. A negative number indicates money repaid to the program. The financial analysis assumes that all funds borrowed from the program will be repaid before the end of the analysis period.

Line 34, Application of Capital Resources Revenues to Construction, presents the Capital Resources Revenues applied for capital expenditures.

Line 35, Revenue Transfers Applied, shows monies assumed to be transferred to the California Water Fund, according to provisions of the Burns-Porter Act, and subsequently reappropriated to construction (see Line 40 of Table 14-2). Projected amounts for 2006 through 2020 include funds to finance expenditures for agricultural drainage facilities, as indicated in Line 13 of Table 14-1, and expenditures for additional conservation facilities, as indicated in Line 12.

Line 36, Subtotal, Other Capital Financing, is the total of Lines 30 through 35.

Line 37, Total Financing of Capital Requirements, totals Lines 21, 29, and 36.

Annual Revenues and Expenditures

After financial analysis of SWP operations, DWR 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 2006 through 2020. Data on annual revenues and expenditures are presented in Table 14-2. A detailed discussion of each line item is presented below.

SWP 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 deposited to a reserve for future SWP construction, since the California Water Fund has been repaid (see Line 39).

Line 1, Capital Resources Revenues, includes the following:

- 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 work;
- 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 have been appropriated by the California Legislature from the State Tideland Oil Revenues. There have been no appropriations since 1985, and no appropriations are indicated in the financial analysis for the period 2006-2020. Legislation enacted in 1989 offset a portion of the amount owed to the SWP by the State for costs allocated to recreation and fish and wildlife enhancement against the amount the SWP owed to the California Water Fund (see Line 39).

Lines 2 through 12, 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 12.

Operations, maintenance, power, and replacement (OMP&R) 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 certain securities issued and loans obtained to finance SWP facilities, as described below.

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 interest cost of a revenue bond issue) are included in the calculation (see Table 14-8).

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 14-9 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 DWR's determination of 2007 water charges to be billed on July 1, 2006. However, information about significant differences between the sum of future charges included in Lines 2 through 12 of Table 14-2 and the substantiation of 2007

Table 14-8. Revenue Bond Proceeds Affecting Project Interest Rate (in Millions of Dollars)

Project	Proceeds Included in Project Interest Rate				Total Principal Amount of Bonds	Percentage of Total Amount Included in Calculating Project Interest Rate
	Applied to Construction Costs	*Less Portion of Proceeds Derived from Interest Earnings Prior to Delivery of Bonds*	*Plus Bond Financing and Refunding Costs*	*Subtotal, Proceeds Included in Calculating Project Interest Rate*		
Devil Canyon-Castaic Project Revenue Bonds	125.3	1.5	1.4	125.2	139.2	90%
Pyramid Project Revenue Bonds (Series A)	71.2	0.5	1.1	71.8	95.8	75%
Alamo Project Bond Anticipation Note	16.8	0.1	0.3	17.0	24.4	70%
Small Hyrdo Project I Revenue Bonds (Series D)	25.4	0.2	1.5	26.7	37.5	71%
Alamo Project Revenue Bonds (Series F)	38.9	0.3	0.7	39.3	50.0	79%
Power Facilities Revenue Bonds (Series H)						
Pyramid Project	5.0	0.0	0.1	5.1	5.1	100%
Alamo Project	1.7	0.0	0.0	1.7	1.7	100%
Small Hydro Project I	25.2[a]	0.2	0.4	25.4	35.6	71%
Water System Revenue Bonds (Series J)						
Pyramid Project	0.0	0.0	75.9[b]	75.9	99.2[b]	77%
Alamo Project	0.0	0.0	45.6[b]	45.6	57.1[b]	80%
Small Hydro Project I	0.0	0.0	27.8[b]	27.8	38.8[b]	72%
Water System Revenue Bonds (Series L)						
Small Hydro Project I	0.0	0.0	1.5[b]	1.5	2.1[b]	71%
Water System Revenue Bonds (Series Q)						
Pyramid Project	0.0	0.0	3.0[b]	3.0	3.9[b]	77%
Alamo Project	0.0	0.0	4.8[b]	4.8	6.0[b]	80%
Water System Revenue Bonds (Series S)						
Pyramid Project	0.0	0.0	8.0[b]	8.0	10.4[b]	77%
Alamo Project	0.0	0.0	7.6[b]	7.6	9.5[b]	80%
Water System Revenue Bonds (Series U)						
Pyramid Project	0.0	0.0	2.4[b]	2.4	3.2[b]	75%
Alamo Project	0.0	0.0	3.2[b]	3.2	4.0[b]	80%
Water System Revenue Bonds (Series W)						
Pyramid Project	0.0	0.0	27.7[b]	27.7	36.0[b]	77%
Alamo Project	0.0	0.0	11.8[b]	11.8	14.7[b]	80%
Small Hydro Project (construction)	3.4	0.0	0.0	3.4	3.7	92%
Small Hydro Project (refunding)	0.0	0.0	16.3[b]	16.3	22.7[b]	72%
Water System Revenue Bonds (Series X)						
Pyramid Project	0.0	0.0	8.5[b]	8.5	11.0[b]	77%
Alamo Project (Series H refunding)	0.0	0.0	0.3[b]	0.3	0.3[b]	100%
Alamo Project (Series F refunding)	0.0	0.0	3.9[b]	3.9	4.9[b]	79%
Small Hydro Project	0.0	0.0	4.6[b]	4.6	6.4[b]	72%
Water System Revenue Bonds (Series AC)						
Pyramid Project	0.0	0.0	3.8[b]	3.8	5.0[b]	76%
Alamo Project	0.0	0.0	2.8[b]	2.8	3.6[b]	80%
Small Hydro Project	0.0	0.0	1.2[b]	1.2	1.6[b]	72%
Water System Revenue Bonds (Series AD)						
Pyramid Project	0.0	0.0	3.2[b]	3.2	4.2[b]	76%
Alamo Project	0.0	0.0	2.6[b]	2.6	3.3[b]	80%
Small Hydro Project	0.0	0.0	0.7[b]	0.7	1.0[b]	72%

[a]Amount consists of 71 percent of proceeds deposited in escrow to refund portion of Series D 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 14-9. 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	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	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	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	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	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	

[a]A unit equivalent to one dollar of principal amount outstanding for one year.
[b]The total interest cost (without regard to discounts paid or 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 Division bonds and revenue bonds for Off-Aqueduct Power Facilities, the East Branch Enlargement Facilities, East Branch Extension Facilities, Water System Facilities as defined in the Water Revenue Bond Amendment, Coastal Extension Facilities, or South Bay Enlargement Facilities.

Table 14-9. 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)
$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	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	
Water System Revenue Bonds					
$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	5/19/93	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	12/19/93	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	
$200,205,000 Series S Water System Revenue Bonds	8/04/97	4,093,110	203,755	4.978	
$135,665,000 Series T Water System Revenue Bonds	8/04/97	1,310,620	66,942	5.108	
$207,180,000 Series U Water System Revenue Bonds	12/01/98	4,032,075	200,758	4.979	
$ 20,580,000 Series V Water System Revenue Bonds	12/01/98	525,100	32,819	6.250	
$260,995,000 Series W Water System Revenue Bonds	5/01/01	3,659,312	195,822	5.351	4.613
$160,225,000 Series X Water System Revenue Bonds	5/01/02	2,732,785	139,109	5.090	4.610
$329,885,000 Series Y Water System Revenue Bonds	7/05/02	4,422,973	222,654	5.034	
$170,655,000 Series Z Water System Revenue Bonds	10/02/02	1,706,132	75,696	4.437	
$108,705,000 Series AA Water System Revenue Bonds	10/04/02	2,114,341	104,220	4.929	
$189,625,000 Series AB Water System Revenue Bonds	3/09/04	4,344,942	173,788	4.000	
$272,070,000 Series AC Water System Revenue Bonds	12/15/04	4,479,436	209,150	4.669	
$272,070,000 Series AD Water System Revenue Bonds	6/14/05	1,827,449	90,461	4.950	
Total		**199,322,344**	**11,499,096**		
Portion allocated to Project Interest Rate		**63,912,154**	**2,945,036**	**4.608**	**4.608**

[a]A unit equivalent to one dollar of principal amount outstanding for one year.
[b]The total interest cost (without regard to discounts paid or 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 Division bonds and revenue bonds for Off-Aqueduct Power Facilities, the East Branch Enlargement Facilities, East Branch Extension Facilities, Water System Facilities as defined in the Water Revenue Bond Amendment, Coastal Extension Facilities, or South Bay Enlargement Facilities.

charges included in Appendix B are as described below.

- Future capital costs in Appendix B are based on the prevailing prices as of December 31, 2005. Those costs presented in the financial analysis include allowances for price escalation.
- Pre-2006 charges in Appendix B represent charges as they should have been, according to currently known conditions. Pre-2006 charges included in Table 14-2 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 14-2 for 2006 and thereafter have been adjusted for any apparent overpayments or underpayments of pre-2006 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 AD bonds. Charges in Table 14-2 apply to Series A through Series AD bonds and also include amounts of the debt service and cover for assumed future bonds.
- The water revenue bond surcharge in Appendix B applies only to the Series B through Series AD bonds. Surcharge values included in Table 14-2 apply to Series B through Series AD bonds and to assumed future issues required to finance SWP construction costs included in Table 14-1.

Line 13, Subtotal, Water Contractor Payments, is the total of Lines 2 through 12.

Line 14, Revenue Bond Cover Adjustments, represents the credit to contractors resulting from the cover of 25 percent of one 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. If not needed to meet annual bond service, the cover is credited to the contractors in the following year. The annual charges for the following cost components include an amount for bond cover:

- minimum OMP&R component of the Transportation Charge for Off-Aqueduct Power Facilities;
- Water System Revenue Bond Surcharge;
- capital cost component of the Transportation Charge for East Branch Enlargement Facilities;
- capital cost component of the Transportation Charge for Coastal Branch Extension Facilities;
- capital cost component of the Transportation Charge for East Branch Extension Facilities;
- capital cost component of the Transportation Charge for Tehachapi Afterbay; and
- capital cost component of the Transportation Charge for South Bay Aqueduct Enlargement.

Line 15, Rate Management Adjustments, shows the projected amount of revenue reductions allocated to SWP contractors after repayment of the California Water Fund (see Line 39). Under provisions of the Monterey Amendment, 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 16, 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 DWR to operate and maintain the San Luis Joint-Use Facilities. According to the January 12, 1972, supplement to the agreement, the Bureau of Reclamation (Reclamation) initially paid 45 percent of operations, maintenance, and replacement (OM&R) costs for those activities. (The percentage does not apply to power costs; Reclamation and DWR each provide their own power to pump water through the joint facilities.)

The percentage paid by Reclamation is periodically reviewed by Reclamation and DWR. The most recent review of the percentage paid by Reclamation was completed in 1987 and resulted in a federal share of 44.09 percent. The amounts in Line 13 are based on the assumption that the federal share will continue at this level for calendar years 2006 through 2020.

Line 17, 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), DWR's budget will include appropriations of monies 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 to be paid by annual appropriations from the General Fund. Through fiscal year 1982–1983, these appropriations totaled $16.657 million. There have been no additional appropriations since the 1982–1983 fiscal year, and none are indicated for 2006 through 2020.

Legislation enacted in 1989 offset a portion of the amount owed to the SWP by the State for costs allocated to recreation and to fish and wildlife enhancement against the amount the SWP owed to the California Water Fund (see line 36).

Line 18, Davis-Grunsky Loan Repayments, shows the repayments by local agencies of $54.2 million of loans disbursed as of December 31, 2005. Repayment on any future loans was assumed to be beyond the period covered by the financial analysis.

Line 19, Revenue Bond Proceeds, includes bond proceeds classified as special reserves according to the description of revenue bond financing in Line 17 of Table 14-1. Those proceeds, used for capitalized OMP&R costs, revenue bond debt service, and debt service reserves, are not classified as revenue but are included in this line to simplify the financial presentation.

Line 20, 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 21, Oroville-Thermalito Payments, shows payments from Pacific Gas and Electric Company, Southern California Edison, and San Diego Gas and Electric Company for power generation at the

Oroville facilities. 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 1952–2005 entry includes the amounts of final settlement of payments made according to the contract.

Line 22, Miscellaneous Revenues, includes all other operating revenues not included in Lines 2 through 21.

Line 23, Subtotal, Other Revenues, is the total of Lines 16 through 22.

Line 24, Total Operating Revenues, is the total of Lines 13, 14, 15, and 23.

Line 25, Total Operating Revenues and Capital Resources Revenues, is the total of Lines 1 and 24.

Project Expenses

Project expenses include the following:

- 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 operating costs and debt service attributable to projects financed by revenue bonds are deposited in the Central Valley Water Project Revenue Fund for appropriate disbursement. All other operating revenues are deposited in the California Water Resources Development Bond Fund-Systems Revenue Account and 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 26 through 36 of Table 14-2.

Line 26, Project Operations, Maintenance, Power, and Replacement Costs, shows the OMP&R portion of the historical and projected costs presented in Table 14-10 at the end of the chapter.

Table 14-10 and Line 26 of Table 14-2 also include the amounts of the operations and maintenance costs for the federal share of joint facilities and those OMP&R costs allocated to recreation, which are intended to be offset by revenues listed in Lines 16 and 17.

Allowances for cost escalations are included in OMP&R costs through 2008. Allowances for additional long-term price escalations in the future are not included in these estimates, because changes in OMP&R costs do not substantially affect

the overall results of the financial analysis. (For the most part, changes in OMP&R costs cause direct offsetting changes in operating revenues.)

Power costs make up the major item of annual operating expenses for the SWP. Assumptions about future power sources and costs are discussed in Chapter 10. Line 26 also includes costs associated with power transactions that result in the sale of power not required for the delivery of water.

Line 27, Deposits to Replacement Reserves, shows funds set aside as required by contract for replacing existing SWP facilities. By December 31, 2005, $93.7 million had been spent for replacement costs; the balance of the replacement reserve as of that date was $17.1 million.

Line 28, 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 1952–2005 column also includes advances to DWR'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 interest 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 25 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 29, Capital Resources Expenditures, includes the amount of capital resources revenues applied to construction that is shown in Line 34 of Table 14-1. In Table 14-2, these expenditures are funded out of withdrawals from the reserves in Line 28 and do not affect net revenues shown in Line 38.

Lines 30 and 31, Payment of Debt Service on Bonds Sold through December 31, 2005, show the total principal and interest payments on bonds sold to date. Table 14-11, at the end of this chapter, summarizes payments on general obligation bonds (Series A through Y water bonds), power revenue bonds by project, and water system revenue bonds (Series A through AD).

Lines 32 and 33, Payments on Projected Future Water Bonds, include the projected annual debt service amounts for future water revenue bonds included on Lines 24, 26, and 28 of Table 14-1 for the East Branch Extension, South Bay Aqueduct Enlargement, and other water system facilities. Assumptions about the service on these future bonds are that interest costs for the water revenue bonds average 5.5 percent; and that bonds are to be repaid by the end of the project repayment period (2035) or sooner with maturities commencing in the year following the date of sale and with equal annual bond service for the principal repayment period.

Lines 34 and 35, Total Payments of Bond Debt Service, show the total of principal payments indicated on Lines 30 and 32, and the total of interest repayments indicated on Lines 31 and 33.

Line 36, Subtotal, Debt Service, is the total of Lines 34 and 35.

Line 37, Total Operating Expenses and Debt Service, is the total of Lines 26, 27, 28, 29, and 36.

Line 38, Net System Revenues, shows the annual amounts of revenues remaining after the payment of operating costs and bond debt service costs.

Line 39, California Water Fund Repayment, shows the total amount of repayments made to the California Water Fund to reimburse the fund for monies expended for construction of the State Water Resources Development System.

Repayment of the California Water Fund was completed in 1998 after reimbursements totaling $508 million. In addition to the $296 million of repayments shown in Line 39, $211 million of reimbursement were credited to the SWP as offsets for recreation and fish and wildlife enhancement expenditures.

Line 40, Revenues Used for Capital Expenditures, includes the amounts required annually for financing scheduled capital expenditures. Revenues not needed for operating costs or debt services are available for financing SWP capital expenditures.

Future Costs of Water Service

Estimates of future water costs are useful to SWP contractors for short-range and long-range planning of water needs, operations, and budgets. Unit water charges shown in Table 14-12 represent both unescalated and escalated costs of water according to service areas for years 2007 and 2012. The unit rates include costs of existing and future SWP facilities accounted for in Table 14-1 and Table 14-7. The unit charges are based on the assumption that in 2007 and 2012, the SWP will be able to deliver the entire amounts of water requested by contractors. The unit water charges included in Table 14-12 are listed both as

unescalated 2005 dollars and as escalated rates reflecting assumed future inflation.

DWR's estimates of future capital expenditures include allowances for escalation of construction costs at 3 percent per year for 2006 through 2020. The escalation rates for future power sources vary, depending on the source of energy.

Table 14-12. Estimated Unit Water Charges for 2007 and 2012, by Service Area (Dollars per Acre-Foot)

	2007		2012	
Service Area and Charge	*Unescalated*	*Escalated*	*Unescalated*	*Escalated*
Feather River Area				
Capital; Operations, Maintenance, and Replacement (OM&R)	36	36	28	29
North Bay Area				
Capital; OM&R	204	204	154	154
Power	41	41	25	26
Total	**245**	**245**	**179**	**180**
South Bay Area				
Capital; OM&R	113	113	105	105
Power	52	52	53	55
Total	**165**	**165**	**158**	**160**
Coastal Area				
Capital; OM&R	719	719	494	494
Power	151	153	146	153
Total	**870**	**872**	**640**	**647**
San Joaquin Area				
Capital; OM&R	55	55	53	53
Power	25	25	24	25
Total	**80**	**80**	**77**	**78**
Southern California Area				
Capital; OM&R	160	160	126	126
Power	184	184	166	173
Total	**344**	**344**	**292**	**299**

Table 14-1. Capital Requirements and Financing, December 31, 2005 (Thousands of Dollars)

Line Number/Item	Calendar Year																	
	1952-2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2006-2020	1952-2020
Capital Requirements																		
1. Initial Project Facilities	2,202,316	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,202,316
2. North Bay Aqueduct	90,363	620	5,123	5,123	0	0	0	0	0	0	0	0	0	0	0	0	10,866	101,229
3. Delta and Suisun Marsh Facilities	249,571	10,260	10,260	10,260	3,660	3,660	3,660	0	0	0	0	0	0	0	0	0	41,760	291,331
4. Final 4 Units at Banks Pumping Plant	43,673	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43,673
5. Coastal Branch Aqueduct	507,048	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	507,048
6. West Branch Aqueduct	193,498	11	45	600	332	4,195	480	220	0	0	0	0	0	0	0	0	5,883	199,381
7. East Branch Enlargement	453,459	603	4,381	6,921	23,618	23,807	60,302	67,620	70,792	70,796	70,723	52,132	4,076	0	0	0	455,771	909,230
8. East Branch Improvements	270,420	33,705	4,451	3,120	4,320	2,300	0	0	0	0	0	0	0	0	0	0	47,896	318,316
9. East Branch Extension	128,473	2,710	4,855	44,685	77,270	36,740	11,670	0	0	0	0	0	0	0	0	0	177,930	306,403
10. South Bay Aqueduct	18,102	25,910	62,647	25,843	10,000	0	0	0	0	0	0	0	0	0	0	0	124,400	142,502
11. Power Generation and Transmission Facilities	684,678	5,544	10,000	2,500	2,500	2,500	2,500	2,500	2,500	0	0	0	0	0	0	0	30,544	715,222
12. Additional Conservation Facilities	145,886	3,849	3,894	4,144	4,144	4,144	4,144	4,144	4,144	4,144	4,144	4,144	4,144	4,144	4,144	4,144	61,615	207,501
13. Agricultural Drainage Facilities	66,440	2,934	3,063	3,198	3,339	3,486	3,486	3,486	3,486	3,486	3,486	3,486	3,486	3,486	3,486	3,486	50,880	117,320
14. Other Costs	256,841	18,527	24,480	15,681	19,275	20,775	8,275	3,625	0	0	0	0	0	0	0	0	110,638	367,479
15. Total Project Construction Expenditures	**5,310,768**	**104,673**	**133,199**	**122,075**	**148,458**	**101,607**	**94,517**	**81,595**	**80,922**	**78,426**	**78,353**	**59,762**	**11,706**	**7,630**	**7,630**	**7,630**	**1,118,183**	**6,428,951**
16. Davis-Grunsky Act Program Costs	130,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	130,000.0
17. Special Capital Requirements Under Revenue Bond Financing	597,040	18,191	7,498	19,928	9,730	17,105	1,330	17,258	0	16,752	0	16,189	0	0	0	0	123,981	721,021.0
18. Total Capital Requirements	**6,037,808**	**122,864**	**140,697**	**142,003**	**158,188**	**118,712**	**95,847**	**98,853**	**80,922**	**95,178**	**78,353**	**75,951**	**11,706**	**7,630**	**7,630**	**7,630**	**1,242,164**	**7,279,972**
19. Power Facilities Capital Requirements	684,678	5,544	10,000	2,500	2,500	2,500	2,500	2,500	2,500	0	0	0	0	0	0	0	30,544	715,222
20. Water Facilities Capital Requirements	5,353,130	117,320	130,697	139,503	155,688	116,212	93,347	96,353	78,422	95,178	78,353	75,951	11,706	7,630	7,630	7,630	1,211,620	6,564,750
Financing Of Capital Requirements																		
Power Revenue Bond Proceeds																		
21. Power Revenue Bonds through Series H	1,162,458	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,162,458
Water Revenue Bond Proceeds																		
22. East Branch Enlargement, Current Bonds	473,606	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	473,606
23. East Branch Extension, Current Bonds	139,520	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	139,520
24. East Branch Extension, Future Bonds		5,200	5,400	49,700	85,900	40,800	13,000	0	0	0	0	0	0	0	0	0	200,000	200,000
25. South Bay Aqueduct Improvement and Enlargement, Current Bonds	16,938	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16,938
26. South Bay Aqueduct Improvement and Enlargement, Future Bonds		31,500	69,600	28,700	11,100	0	0	0	0	0	0	0	0	0	0	0	140,900	140,900
27. Water System Facilities, Current Bonds	1,455,083	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,455,083
28. Water System Facilities, Future Bonds	0	146,200	0	120,300	0	130,100	0	172,700	0	167,100	0	161,900	0	0	0	0	898,300	898,300
29. Subtotal, Water Revenue Bonds	*2,085,147*	*182,900*	*75,000*	*198,700*	*97,000*	*170,900*	*13,000*	*172,700*	*0*	*167,100*	*0*	*161,900*	*0*	*0*	*0*	*0*	*1,239,200*	*3,324,347*
Other Capital Financing																		
30. Initial Project Facilities Bond Proceeds	1,452,452	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,452,452
31. Davis-Grunsky Act Program Bond Proceeds	130,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	130,000
32. Application of California Water Fund Monies (Tideland Oil Revenues)	508,056	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	508,056
33. Interim Financing	64,536	(64,536)	61,197	(61,197)	56,688	(56,688)	78,347	(78,347)	76,422	(76,422)	73,853	(90,449)	7,206	3,130	3,130	3,130	(64,536)	0
34. Application of Capital Resources Revenues to Construction	566,269	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	566,269
35. Revenue Transfers Applied	68,890	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	67,500	136,390
36. Subtotal, Other Capital Financing	*2,790,203*	*(60,036)*	*65,697*	*(56,697)*	*61,188*	*(52,188)*	*82,847*	*(73,847)*	*80,922*	*(71,922)*	*78,353*	*(85,949)*	*11,706*	*7,630*	*7,630*	*7,630*	*2,964*	*2,793,167*
37. Total Financing Of Capital Requirements	**6,037,808**	**122,864**	**140,697**	**142,003**	**158,188**	**118,712**	**95,847**	**98,853**	**80,922**	**95,178**	**78,353**	**75,951**	**11,706**	**7,630**	**7,630**	**7,630**	**1,242,164**	**7,279,972**

Table 14-2. State Water Project Revenues and Expenditures, December 31, 2005 (Thousands of Dollars)

	Calendar Year																	
Line Number/Item	**1952-2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2006-2020**	**1952-2020**
PROJECT REVENUES																		
1. Capital resources revenues	814,701	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	814,701
Water Contractor Payments																		
2. Transportation capital	3,504,827	136,238	137,991	141,014	145,609	146,080	146,319	146,546	145,092	144,003	142,218	139,700	134,528	125,852	116,235	107,043	2,054,468	5,559,295
3. Transportation minimum	2,712,564	146,684	134,773	157,919	131,165	130,946	131,628	131,350	131,259	132,323	130,891	132,823	132,138	132,030	133,744	131,777	2,021,450	4,734,014
4. Transportation variable	3,314,516	238,873	312,665	349,613	300,014	327,478	323,698	348,515	398,092	429,383	441,875	470,301	443,417	474,352	495,864	460,855	5,814,995	9,129,511
5. Off-Aqueduct power facilities	2,200,965	106,859	124,268	135,600	135,835	136,657	133,497	133,707	78,185	20,080	11,901	10,195	9,909	4,210	4,175	4,498	1,049,576	3,250,541
6. Delta water charge	2,015,022	111,009	108,112	108,622	108,848	109,078	109,312	109,552	109,563	109,576	109,599	109,619	109,635	109,651	109,668	109,683	1,641,527	3,656,549
7. East Branch Enlargement	582,138	44,623	44,961	42,664	43,602	43,331	44,417	44,479	44,004	44,194	45,233	45,341	46,335	45,362	46,520	44,764	669,830	1,251,968
8. East Branch Extension	39,018	10,376	10,793	8,418	14,429	22,363	26,080	27,318	28,858	28,119	28,286	28,810	29,583	29,082	29,138	29,291	350,944	389,962
9. Coastal Extension	21,790	3,094	4,051	2,935	2,931	6,174	4,090	4,093	4,383	4,966	5,026	4,961	4,700	3,686	2,903	3,902	61,895	83,685
10. South Bay Aqueduct Enlargement	310	706	3,646	9,830	12,406	13,420	13,420	13,420	13,425	13,423	13,422	13,427	13,423	13,422	13,420	13,426	174,236	174,546
11. Tehachapi East Afterbay	185	259	260	260	260	260	260	260	260	260	260	260	260	260	260	260	3,899	4,084
12. Water revenue bond surcharge	392,609	62,374	62,400	58,712	59,603	57,031	61,565	61,630	64,960	67,362	70,842	71,562	70,510	62,181	67,055	61,746	959,533	1,352,142
13. Subtotal, water contractor payments	*14,783,944*	*861,095*	*943,920*	*1,015,587*	*954,702*	*992,818*	*994,286*	*1,020,870*	*1,018,081*	*993,689*	*999,553*	*1,026,999*	*994,438*	*1,000,088*	*1,018,982*	*967,245*	*14,802,353*	*29,586,297*
14. Revenue bond cover adjustments	(500,958)	(41,599)	(42,565)	(44,159)	(46,461)	(47,928)	(49,835)	(50,170)	(45,357)	(45,132)	(45,086)	(45,009)	(44,860)	(40,332)	(42,427)	(40,136)	(671,056)	(1,172,014)
15. Rate management adjustments	(259,514)	(24,746)	0	(40,470)	(40,470)	(40,470)	(40,470)	(40,470)	(40,470)	(40,470)	(40,470)	(40,470)	(40,470)	(40,470)	(40,470)	(40,470)	(550,856)	(810,370)
Other Revenues																		
16. Federal payments for project operating costs	236,681	11,827	11,827	11,827	11,827	11,827	11,839	11,839	11,839	11,839	11,839	11,839	11,839	11,839	11,839	11,839	177,525	414,206
17. Appropriations for operating costs allocated to recreation	16,657	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16,657
18. Davis-Grunsky loan repayments	54,187	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	1,400	1,400	21,000	75,187
19. Revenue bond proceeds	652,977	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	652,977
20. Interest earnings on operating revenues	572,493	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	60,000	632,493
21. Oroville-Thermalito payments	249,279	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	249,279
22. Miscellaneous revenues	184,264	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	184,264
23. Subtotal, other revenues	*1,966,538*	*17,227*	*17,227*	*17,227*	*17,227*	*17,227*	*17,239*	*17,239*	*17,239*	*17,239*	*17,239*	*17,239*	*17,239*	*17,239*	*17,239*	*17,239*	*258,525*	*2,225,063*
24. Total operating revenues	**15,990,010**	**811,977**	**918,582**	**948,185**	**884,998**	**921,647**	**921,220**	**947,469**	**949,493**	**925,326**	**931,236**	**958,759**	**926,347**	**936,525**	**953,324**	**903,878**	**13,838,966**	**29,828,976**
25. Total operating revenues and capital resources revenues	**16,804,711**	**811,977**	**918,582**	**948,185**	**884,998**	**921,647**	**921,220**	**947,469**	**949,493**	**925,326**	**931,236**	**958,759**	**926,347**	**936,525**	**953,324**	**903,878**	**13,838,966**	**30,643,677**
PROJECT EXPENSES																		
26. Project operations, maintenance, power, and replacement costs	7,887,020	522,292	638,078	666,096	572,871	599,314	595,205	618,274	645,606	623,789	632,905	666,879	638,506	669,763	691,873	652,490	9,433,941	17,320,961
27. Deposits to replacement reserves	132,950	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	132,950
28. Deposits to special reserves	755,953	16,696	(6,603)	(15,601)	(9,104)	(12,025)	(25,482)	(23,388)	(45,434)	(42,914)	(53,152)	(49,870)	(57,906)	(44,685)	(47,590)	(47,877)	(464,935)	291,018
29. Capital resources expenditures	686,932	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	686,932
Payments of Debt Service																		
30. Principal repayments on bonds sold through December 31, 2005 (current bonds)	1,936,270	119,134	125,298	131,475	141,339	147,005	155,434	162,364	153,940	156,265	157,070	154,917	152,547	125,862	129,773	126,600	2,139,023	4,075,293
31. Interest on bonds sold through December 31, 2005 (current bonds)	5,035,909	149,355	143,601	137,386	131,125	124,388	117,315	109,495	101,242	94,048	86,662	79,081	71,500	63,886	57,569	50,965	1,517,618	6,553,527
32. Future water bond principal repayments	0	0	3,825	6,369	11,377	15,489	20,436	22,061	27,143	28,586	34,528	36,373	43,360	45,685	48,136	50,719	394,087	394,087
33. Future water bond interest payments	0	0	9,883	17,960	32,890	42,976	53,812	54,163	62,496	61,052	68,723	66,879	73,840	71,514	69,063	66,481	751,732	751,732
34. Total principal	**1,936,270**	**119,134**	**129,123**	**137,844**	**152,716**	**162,494**	**175,870**	**184,425**	**181,083**	**184,851**	**191,598**	**191,290**	**195,907**	**171,547**	**177,909**	**177,319**	**2,533,110**	**4,469,380**
35. Total interest	**5,035,909**	**149,355**	**153,484**	**155,346**	**164,015**	**167,364**	**171,127**	**163,658**	**163,738**	**155,100**	**155,385**	**145,960**	**145,340**	**135,400**	**126,632**	**117,446**	**2,269,350**	**7,305,259**
36. Subtotal, debt service	*6,972,179*	*268,489*	*282,607*	*293,190*	*316,731*	*329,858*	*346,997*	*348,083*	*344,821*	*339,951*	*346,983*	*337,250*	*341,247*	*306,947*	*304,541*	*294,765*	*4,802,460*	*11,774,639*
NET REVENUES																		
37. Total Operating Expenses and Debt Service	**16,435,034**	**807,477**	**914,082**	**943,685**	**880,498**	**917,147**	**916,720**	**942,969**	**944,993**	**920,826**	**926,736**	**954,259**	**921,847**	**932,025**	**948,824**	**899,378**	**13,771,466**	**30,206,500**
38. Net system revenues	369,677	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	67,500	437,177
Application of Net System Revenues																		
39. California Water Fund repayment	296,287	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	296,287
40. Revenues used for capital expenditures	73,390	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	67,500	140,890

Table 14-10. Operations, Maintenance, Power, and Replacement Costs, by Facility, Composition, and Purpose (Thousands of Dollars)

	Calendar year												
Feature	**1962-2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016-2035**	**TOTAL**
Project Facility													
Feather River facilities	748,383	28,943	28,551	32,398	26,251	26,098	26,416	26,442	26,438	26,374	26,228	592,560	1,615,083
North Bay Aqueduct	41,849	3,179	3,963	4,355	3,580	3,628	3,674	3,736	3,881	3,998	4,032	86,453	166,329
Delta facilities	576	0	0	0	0	0	0	0	0	0	0	0	576
Suisun Marsh	24,854	2,387	2,988	3,390	2,747	2,731	2,223	2,225	2,224	2,217	2,205	49,817	100,009
South Bay Aqueduct	134,825	12,335	15,309	16,605	13,663	13,867	13,999	14,233	14,871	15,357	15,395	315,965	596,424
California Aqueduct													
Delta to Edmonston	2,875,008	179,806	222,540	240,389	196,159	211,063	208,477	213,122	239,695	246,660	253,379	5,449,361	10,535,658
Edmonston to Perris	2,509,685	206,730	258,374	265,635	228,045	238,926	239,939	255,926	281,567	304,523	306,696	6,440,233	11,536,278
West Branch	(69,791)	(8,162)	(12,495)	(13,706)	(11,639)	(11,338)	(10,921)	(9,098)	(10,365)	(10,550)	(10,304)	(316,757)	(495,125)
Coastal Branch	189,185	12,877	15,845	17,014	14,048	14,321	14,450	14,741	15,548	16,173	16,236	334,847	675,285
East Branch Enlargement	38,491	4,830	5,025	4,968	4,968	4,968	4,968	4,968	4,968	4,968	4,968	99,369	187,461
Off-Aqueduct power-generating facilities	1,090,115	62,815	80,983	78,053	78,053	78,053	78,013	78,013	52,813	103	103	515	1,677,632
Recreation, planning, and CVP negotiations	3,298	683	683	683	683	683	683	683	683	683	683	13,669	23,797
Water quality monitoring	349,887	15,270	15,712	15,712	15,712	15,712	12,683	12,683	12,683	12,683	12,683	227,572	718,992
Davis-Grunsky Act Program	10,505	600	600	600	600	600	600	600	600	600	600	12,000	28,505
Subtotal	*7,946,868*	*522,292*	*638,078*	*666,096*	*572,871*	*599,314*	*595,205*	*618,274*	*645,606*	*623,789*	*632,905*	*13,305,605*	*27,366,903*
Payments to/credits from PG&E under Comprehensive Agreement	(59,848)	0	0	0	0	0	0	0	0	0	0	0	(59,848)
Total OMP&R Costs	**7,887,020**	**522,292**	**638,078**	**666,096**	**572,871**	**599,314**	**595,205**	**618,274**	**645,606**	**623,789**	**632,905**	**13,305,605**	**27,307,055**
Composition													
Salaries and expenses of headquarters personnel	2,223,395	72,503	112,779	139,101	90,759	89,819	87,532	93,774	92,912	92,375	90,153	1,629,495	4,814,598
Salaries and expenses of field personnel	3,283,348	77,213	135,939	170,330	115,756	114,955	112,046	120,534	119,323	120,575	117,604	2,853,538	7,341,161
Pumping power													
Used by pumping plants	1,846,651	363,373	362,682	355,476	357,343	386,374	389,475	396,786	453,346	485,061	499,835	10,401,133	16,297,536
Produced by generation plants	(387,188)	(53,890)	(54,581)	(77,141)	(69,317)	(70,165)	(72,138)	(71,110)	(73,065)	(74,602)	(75,067)	(1,585,028)	(2,663,294)
Payments to\credits from PG&E under Comprehensive Agreement	(59,848)	0	0	0	0	0	0	0	0	0	0	0	(59,848)
Off-Aqueduct power generating facilities requirement	1,090,117	62,815	80,983	78,053	78,053	78,053	78,013	78,013	52,813	103	103	927	1,678,046
Oroville-Thermalito insurance premiums	11,597	277	277	277	277	277	277	277	277	277	277	5,540	19,907
Less: Portion of costs incurred during construction	(121,051)	0	0	0	0	0	0	0	0	0	0	0	(121,051)
Total OMP&R Costs	**7,887,020**	**522,292**	**638,078**	**666,096**	**572,871**	**599,314**	**595,205**	**618,274**	**645,606**	**623,789**	**632,905**	**13,305,605**	**27,307,055**
Project Purpose													
Water supply and power generation	7,571,002	499,369	615,155	643,172	549,947	576,391	572,281	595,349	622,680	600,860	609,976	12,847,025	26,303,207
Payments to\credits from PG&E under Comprehensive Agreement	(59,848)	0	0	0	0	0	0	0	0	0	0	0	(59,848)
Recreation and fish and wildlife enhancement	151,839	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	200,000	451,839
Flood control	4,714	323	323	324	324	323	324	325	326	329	329	6,580	14,544
Miscellaneous purposes													
Federal share, San Luis, and Delta facilities	208,808	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	240,000	568,808
Other (Davis-Grunsky, drainage, City of Los Angeles)	10,505	600	600	600	600	600	600	600	600	600	600	12,000	28,505
Total OMP&R Costs	**7,887,020**	**522,292**	**638,078**	**666,096**	**572,871**	**599,314**	**595,205**	**618,274**	**645,606**	**623,789**	**632,905**	**13,305,605**	**27,307,055**

Table 14-11. Annual Debt Service on Bonds Sold through December 31, 2005 (Thousands of Dollars)

Calendar Year	Series A through Y Water Bonds		Oroville Revenue Bonds[a]		Pyramid Project Revenue Bonds[b]		Alamo Project Revenue Bonds[b]		Small Hydro Project Revenue Bonds[b]		Water System Facilities Water System Revenue Bonds[c]		*Subtotal*		Devil Canyon-Castaic Project Revenue Bonds		Reid Gardner Project Revenue Bonds[b,c]		South Geysers Project Revenue Bonds[b]		Bottle Rock Project Revenue Bonds[b]		East Branch Enlargement Project Water System Revenue Bonds[c]		Coastal Extension Facilities Water System Revenue Bonds		East Branch Extension Facilities Water System Revenue Bonds[c]		South Bay Enlargement Facilities Water System Revenue Bonds[c]		Tehachapi 2nd Afterbay Facilities Water System Revenue Bonds[c]		Grand Total	
	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*	*Principal*	*Interest*	*Principal*	*Interest*	*Principal*	*Interest*	*Principal*	*Interest*
1964	0	3,333	0	0	0	0	0	0	0	0	0	0	*0*	*3,333*	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*	*11,114*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11,114
1966	0	18,764	0	0	0	0	0	0	0	0	0	0	*0*	*18,764*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18,764
1967	0	26,911	0	0	0	0	0	0	0	0	0	0	*0*	*26,911*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26,911
1968	0	37,761	0	3,876	0	0	0	0	0	0	0	0	*0*	*41,637*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41,637
1969	0	47,460	0	10,448	0	0	0	0	0	0	0	0	*0*	*57,908*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	57,908
1970	0	53,290	0	13,145	0	0	0	0	0	0	0	0	*0*	*66,435*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66,435
1971	0	63,035	0	13,145	0	0	0	0	0	0	0	0	*0*	*76,180*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76,180
1972	0	69,149	1,260	13,112	0	0	0	0	0	0	0	0	*1,260*	*82,261*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,260	82,261
1973	1,200	69,347	1,330	13,042	0	0	0	0	0	0	0	0	*2,530*	*82,389*	0	7,708	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,530	90,097
1974	3,000	69,533	1,400	12,969	0	0	0	0	0	0	0	0	*4,400*	*82,502*	0	7,708	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	0	0	0	0	0	0	0	*6,475*	*82,259*	0	7,708	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,475	89,967
1976	7,000	69,657	1,555	12,811	0	0	0	0	0	0	0	0	*8,555*	*82,468*	0	7,708	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8,555	90,176
1977	10,200	69,298	1,635	12,727	0	0	0	0	0	0	0	0	*11,835*	*82,025*	0	7,708	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11,835	89,733
1978	12,700	69,286	5,775	12,537	0	0	0	0	0	0	0	0	*18,475*	*81,823*	0	7,708	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18,475	89,531
1979	13,650	68,660	11,585	12,275	0	0	0	0	0	0	0	0	*25,235*	*80,935*	0	7,708	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25,235	88,643
1980	16,050	67,941	3,265	11,739	0	7,900	0	0	0	0	0	0	*19,315*	*87,580*	0	7,708	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19,315	95,288
1981	18,050	67,078	4,885	11,444	0	7,292	0	0	0	0	0	0	*22,935*	*85,814*	0	7,708	0	5,312	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22,935	98,834
1982	19,250	66,130	17,920	10,968	0	7,292	0	0	0	0	0	0	*37,170*	*84,390*	0	7,708	0	14,347	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37,170	106,445
1983	20,520	65,111	21,110	10,147	0	7,292	0	2,449	0	3,727	0	0	*41,630*	*88,726*	900	7,708	0	35,719	0	4,777	0	6,017	0	0	0	0	0	0	0	0	0	0	42,530	142,947
1984	21,785	64,036	10,005	9,013	640	7,292	0	4,198	0	3,727	0	0	*32,430*	*88,266*	955	7,647	0	35,719	0	5,647	0	10,315	0	0	0	0	0	0	0	0	0	0	33,385	147,594
1985	22,555	62,892	12,700	8,628	675	7,238	0	4,198	0	3,727	0	0	*35,930*	*86,683*	1,010	7,583	9,425	27,209	0	5,647	0	10,315	0	0	0	0	0	0	0	0	0	0	46,365	137,437
1986	23,830	61,705	11,435	7,859	715	7,377	0	4,263	0	3,537	0	0	*35,980*	*84,741*	1,070	7,515	3,805	32,882	0	5,516	1,240	10,315	0	4,021	0	0	0	0	0	0	0	0	42,095	144,990
1987	25,495	60,452	11,715	7,188	790	7,513	265	4,329	0	3,348	0	4,952	*38,265*	*87,782*	1,135	7,442	4,860	32,605	0	5,386	1,305	10,253	0	9,651	0	0	0	0	0	0	0	0	45,565	153,119
1988	26,770	59,120	6,685	6,664	830	7,447	280	4,314	345	3,348	710	11,037	*35,620*	*91,930*	1,205	7,366	5,065	32,295	580	5,521	1,390	10,849	995	9,875	0	0	0	0	0	0	0	0	44,855	157,836
1989	28,145	57,790	33,705	5,513	875	7,378	295	4,298	365	3,328	1,148	14,373	*64,533*	*92,680*	1,275	7,284	7,820	27,557	709	5,646	1,565	11,592	1,078	10,104	0	0	0	0	0	0	0	0	76,980	154,863
1990	29,385	56,436	10,385	4,301	930	7,305	320	4,279	405	3,304	1,227	19,555	*42,652*	*95,180*	1,355	7,198	6,675	29,781	761	5,596	1,678	11,491	1,134	10,048	0	0	0	0	0	0	0	0	54,255	159,294
1991	30,365	55,034	12,055	3,922	980	7,227	335	4,257	430	3,276	2,129	27,569	*46,294*	*101,285*	1,435	7,107	7,170	29,302	818	5,535	1,791	11,376	1,197	16,856	0	0	0	0	0	0	0	0	58,705	171,461
1992	31,745	54,193	14,135	2,985	2,395	5,308	1,260	3,086	960	2,553	5,108	28,411	*55,603*	*96,536*	1,520	7,010	8,950	27,188	1,934	4,136	4,575	7,942	2,583	22,241	0	0	0	0	0	0	0	0	75,165	165,053
1993	33,390	52,670	13,755	2,237	1,525	5,688	755	3,300	445	2,640	4,577	29,965	*54,447*	*96,500*	1,610	6,907	8,820	26,953	901	4,256	3,264	8,385	3,040	21,428	0	0	0	0	0	0	0	0	72,082	164,429
1994	35,075	51,231	35,225	934	1,580	5,634	780	3,274	695	2,569	5,910	38,223	*79,265*	*101,865*	1,705	6,799	77,105	26,273	1,588	4,072	3,374	8,270	4,567	20,752	0	0	0	0	0	0	0	0	167,604	168,031
1995	36,280	49,703	0	0	1,635	5,570	805	3,242	745	2,536	8,064	37,879	*47,529*	*98,930*	1,810	6,684	5,420	19,230	1,695	4,004	3,521	8,133	4,979	20,499	0	0	0	0	0	0	0	0	64,954	157,480
1996	37,520	48,024	0	0	2,320	5,486	1,055	3,203	3,135	2,464	10,459	58,170	*54,489*	*117,347*	1,920	6,561	49,465	18,130	3,043	3,908	3,682	7,974	4,771	23,240	0	0	0	0	0	0	0	0	117,370	177,160
1997	37,215	46,365	0	0	1,695	5,274	875	3,073	585	2,283	14,375	67,910	*54,745*	*124,905*	2,035	6,432	7,515	15,255	1,825	3,696	3,861	7,741	6,300	23,702	0	1,981	0	76	0	0	0	0	76,281	183,788
1998	37,295	44,736	0	0	1,770	5,237	910	3,059	625	2,258	16,754	68,585	*57,354*	*123,875*	2,155	6,295	5,045	16,144	1,935	3,637	4,030	7,508	6,760	23,966	0	1,829	0	229	0	0	0	0	77,279	183,483
1999	38,220	43,132	0	0	1,845	5,141	960	3,005	680	2,229	18,701	68,085	*60,406*	*121,592*	2,285	6,160	9,310	11,659	2,081	3,549	4,240	7,318	7,518	25,033	0	1,808	65	2,931	0	0	0	0	85,905	180,050
2000	39,510	41,469	0	0	1,925	5,045	1,010	2,955	610	2,197	19,536	66,901	*62,591*	*118,567*	2,420	6,040	9,870	11,194	1,950	3,448	4,470	7,096	8,974	24,652	0	1,808	915	2,928	0	0	0	0	91,190	175,733
2001	40,600	39,751	0	0	2,250	4,949	1,155	2,901	780	2,272	20,944	66,418	*65,729*	*116,291*	2,565	5,912	10,365	10,757	2,045	3,344	4,720	6,855	9,425	24,187	0	2,131	950	2,889	0	0	0	0	95,799	172,366
2002	41,740	37,984	0	0	2,460	4,619	1,280	2,758	950	2,192	23,918	63,128	*70,348*	*110,681*	2,720	5,773	11,185	10,011	2,225	3,075	5,265	6,323	9,817	23,098	335	2,311	1,245	3,481	0	0	0	0	103,140	164,753
2003	43,590	36,159	0	0	2,500	4,429	1,315	2,672	940	2,110	23,442	60,439	*71,787*	*105,809*	2,885	5,626	2,135	9,314	2,335	2,890	5,445	5,939	9,988	18,444	245	2,310	1,105	4,277	0	0	0	0	95,925	154,609
2004	45,730	34,244	0	0	2,500	4,291	1,330	2,598	970	2,059	26,396	60,952	*76,926*	*104,144*	3,055	5,470	2,210	9,228	2,425	2,758	5,610	5,634	9,883	20,820	220	2,298	2,045	5,538	0	232	0	139	102,374	156,261
2005	46,985	32,242	0	0	2,727	3,992	1,461	2,406	1,327	1,963	23,064	57,886	*75,564*	*98,489*	3,240	5,305	8,825	9,127	2,759	2,563	5,959	5,237	3,669	20,105	305	2,155	2,124	5,968	0	559	0	197	102,445	149,705
2006	48,275	30,186	0	0	2,868	3,986	1,527	2,437	1,371	1,924	28,901	60,190	*82,942*	*98,723*	3,435	5,130	9,340	8,624	2,920	2,453	6,326	4,958	11,627	20,469	240	2,235	2,222	6,105	82	734	0	209	119,134	149,640
2007	49,765	28,060	0	0	3,023	3,817	1,622	2,346	1,451	1,846	30,342	58,856	*86,203*	*94,925*	3,640	4,945	9,835	8,083	3,101	2,278	6,731	4,578	12,229	19,899	1,015	2,225	2,305	6,028	239	734	0	210	125,298	143,905
2008	51,755	25,871	0	0	2,794	3,639	1,618	2,251	1,161	1,763	26,432	57,337	*83,760*	*90,861*	3,860	4,749	23,839	7,507	2,765	2,092	5,637	4,176	11,062	19,274	179	2,169	126	5,925	247	727	0	210	131,475	137,690
2009	54,095	23,583	0	0	2,945	3,481	1,740	2,155	1,168	1,699	28,949	56,225	*88,897*	*87,143*	4,090	4,540	25,334	6,198	2,906	1,938	5,975	3,853	12,339	18,749	185	2,159	1,364	5,919	249	720	0	210	141,339	131,429
2010	55,785	21,206	0	0	3,525	3,315	2,078	2,051	1,399	1,635	25,958	54,892	*88,745*	*83,099*	4,335	4,319	26,851	4,894	3,221	1,776	6,611	3,512	12,718	18,153	2,790	2,149	1,478	5,867	256	713	0	210	147,005	124,692
2011	57,275	18,749	0	0	2,599	3,121	1,465	1,933	1,045	1,561	35,151	53,644	*97,535*	*79,008*	4,595	4,085	26,835	3,511	2,917	1,598	6,366	3,138	14,212	17,527	1,237	2,034	1,473	5,803	264	705	0	210	155,434	117,619
2012	58,615	16,199	0	0	2,761	2,941	1,574	1,831	1,060	1,491	36,995	51,929	*101,005*	*74,391*	4,875	3,837	28,461	2,023	3,116	1,396	6,845	2,695	14,957	16,831	1,294	1,980	1,539	5,740	272	696	0	210	162,364	109,799
2013	60,455	13,650	0	0	4,223	2,748	2,615	1,720	2,191	1,419	42,770	50,070	*112,254*	*69,607*	5,165	3,574	515	413	4,831	1,177	11,125	2,215	15,339	16,071	1,587	1,920	2,839	5,671	285	688	0	210	153,940	101,546
2014	57,985	11,222	0	0	4,859	2,522	3,137	1,583	2,404	1,299	48,292	47,943	*116,677*	*64,569*	5,475	3,303	215	387	4,177	913	8,643	1,624	16,276	15,285	2,130	1,842	2,377	5,543	295	676	0	210	156,265	94,352
2015	53,775	8,806	0	0	5,274	2,265	3,123	1,419	2,745	1,169	56,012	45,567	*120,929*	*59,226*	5,805	3,015	810	376	3,833	689	2,553	1,155	17,936	14,456	2,281	1,740	2,618	5,435	305	664	0	210	157,070	86,966
2016	46,215	6,588	0	0	5,712	1,980	3,228	1,251	3,110	1,019	59,898	42,683	*118,163*	*53,521*	6,150	2,710	1,020	332	2,237	482	2,964	1,019	18,954	13,526	2,344	1,625	2,764	5,308	321	652	0	210	154,917	79,385
2017	38,145	4,652	0	0	6,414	1,672	3,586	1,080	3,299	849	61,112	39,597	*112,556*	*47,850*	6,520	2,388	1,185	277	1,452	361	3,598	858	20,732	12,541	2,255	1,506	3,917	5,174	332	639	0	210	152,547	71,804
2018	25,435	3,011	0	0	4,928	1,329	2,882	889	2,563	669	52,739	36,419	*88,547*	*42,317*	6,910	2,045	50	212	705	284	1,242	666	22,793	11,464	1,559	1,389	3,708	4,981	348	622	0	210	125,862	64,190
2019	16,975	1,804	0	0	4,639	1,081	2,812	744	2,256	540	63,464	33,745	*90,146*	*37,914*	7,325	1,682	50	209	754	249	1,277	603	24,908	10,294	1,013	1,309	3,936	4,798	364	605	0	210	129,773	57,873
2020	17,405	956	0	0	5,651	838	3,403	599	2,863	420	57,749	30,530	*87,071*	*33,343*	7,765	1,298	55	207	887	212	1,488	539	22,828	9,016	1,865	1,257	4,255	4,601	386	586	0	210	126,600	51,269
2021	8,595	318	0	0	2,789	548	1,741	425	1,317	271	64,232	27,692	*78,674*	*29,254*	8,230	890	1,010	204	972	167	2,457	463	24,690	7,887	2,260	1,162	4,667	4,389	403	567	0	210	123,363	45,193
2022	1,885	60	0	0	5,556	408	5,218	338	1,378	205	61,749	24,545	*75,786*	*25,556*	8,725	458	1,060	154	909	118	2,420	341	25,624	6,665	3,070	1,048	4,866	4,155	425	547	0	210	122,885	39,252
2023	85	7	0	0	1,122	128	594	75	764	134	68,724	21,501	*71,289*	*21,845*	0	0	550	99	589	71	2,006	217	21,529	5,394	2,303	890	4,885	3,909	443	526	0	210	103,594	33,161
2024	35	3	0	0	716	70	404	45	534	95	68,843	18,045	*70,532*	*18,258*	0	0	310	71	460	40	1,567	104	23,518	4,329	2,420	771	5,092	3,662	466	506	0	210	104,365	27,951
2025	0	0	0	0	144	35	102	25	247	68	63,906	14,589	*64,399*	*14,717*	0	0	65	55	60	15	59	14	28,618	3,166	2,007	647	5,192	3,408	485	485	0	210	100,885	22,717
2026	0	0	0	0	151	28	108	20	259	55	58,784	11,496	*59,302*	*11,599*	0	0	185	52	63	12	61	11	10,180	1,754	2,115	542	11,385	3,148	1,569	460	630	210	85,490	17,788
2027	0	0	0	0	405	20	289	14	353	42	69,425	8,742	*70,472*	*8,818*	0	0	255	45	170	8	165	8	10,862	1,268	2,085	432	15,333	2,638	2,223	393	1,005	185	102,570	13,795
2028	0	0	0	0	0	0	0	0	230	24	51,907	5,512	*52,137*	*5,536*	0	0	370	34	0	0	0	0	7,106	755	3,160	327	21,093	1,966	3,273	298	1,615	145	88,754	9,061
2029	0	0	0	0	0	0	0	0	245	13	60,491	3,117	*60,736*	*3,130*	0	0	380	18	0	0	0	0	7,774	412	3,340	168	21,987	1,063	3,404	162	1,685	80	99,306	5,033
Total	**1,582,400**	**2,386,523**	**244,995**	**246,522**	**108,660**	**199,188**	**61,312**	**103,348**	**50,405**	**83,857**	**1,449,287**	**1,705,299**	*3,497,059*	*4,724,737*	**139,165**	**283,872**	**419,620**	**567,184**	**74,654**	**116,936**	**157,101**	**229,625**	**505,489**	**637,902**	**45,839**	**52,157**	**139,870**	**139,558**	**16,936**	**14,892**	**4,935**	**5,155**	**5,000,668**	**6,772,019**

[a] Principal and interest schedule adjusted to reflect early redemption of bonds.
[b] Allocated portions of Power Facilities Revenue Bonds and Water System Revenue Bonds.
[c] Interest includes a minimum fee for Water System Revenue Bonds Series AB.

Chapter 15
SWP Education and Information

Vista del Lago Visitors Center

Significant Events in 2005

The Department of Water Resources (DWR) welcomed 27 foreign tours with 362 visitors to State Water Project (SWP) and other facilities; there also were a number of domestic and school tours to the SWP Delta Facilities. Tour groups came from all over the United States and nine foreign countries.

The Public Affairs Office (PAO) began coverage of the historic process to renew the federal license to operate Oroville facilities, the heart of the SWP. Director Snow signed the application, which was the culmination of five years of collaboration between stakeholders.

During May, DWR observed Water Awareness Month for the eighteenth consecutive year, highlighting activities at DWR facilities and answering media inquiries regarding water awareness.

DWR NEWS/People initiated the State Water Contractors Profile feature.

Brochures for Lake Oroville Recreation, Lake Oroville Recreation Sports Version, and the California State Water Project were revised and reprinted.

Information for this chapter was provided by the Public Affairs Office

The Public Affairs Office (PAO) serves as liaison between the Department of Water Resources (DWR), the news media and the public. One role of the PAO is to provide education to those from the outside about DWR's mission and programs. Sophisticated graphics, video, and photography units play an important role in the outreach process, as do publications, websites, visitors centers, tours, exhibits, and special events.

Media Outreach

Relicensing Oroville Facilities

PAO began coverage of the historic process to renew its federal license to operate the Oroville Facilities, the heart of the State Water Project (SWP). Director Snow signed the application, which was the culmination of five years of collaboration between stakeholders.

Snow Surveys

PAO continued to provide media outreach for the Division of Flood Management Snow Surveys Section.

California Bay-Delta Authority

PAO assisted the California Bay-Delta Authority (CBDA) in media and outreach activities. This included providing public address system support for public hearings, meetings, and conferences.

News Events

- In January, DWR increased the 2005 allocation to 60 percent for water delivery to the SWP contractors. The initial allocation was 40 percent of requested water delivery amounts.
- In February, DWR accepted 168 of 174 proposals seeking grants through the 2004 Water Use Efficiency Proposal Solicitation Package.
- In March, DWR was forced to delay the re-opening of Vista del Lago Visitors Center at Pyramid Lake because of a landslide. It had been closed temporarily to repair damage due to previous mudslides.
- In April, DWR announced the results of the final snow survey for 2005. Snow depth and water content ranged from 168 percent to 190 percent of average.
- In May, DWR closely monitored river conditions throughout Northern California. Heavy rainfall and snowmelt pushed many rivers to near or above flood stage.
- In June, DWR and the Oroville Area Chamber of Commerce held a ribbon-cutting ceremony for the Oroville Forebay Aquatic Center grand opening. The Aquatic Center offers aquatic programs for the public, including boat rentals and camps for kids.
- In July, DWR provided emergency response assistance at Wheeler Island, in the Suisun Marsh, following a levee break. The marshy area is under the jurisdiction of Reclamation District 2127, and there were no residences or other significant structures affected during the incident.
- In August, DWR launched the Salton Sea Ecosystem Restoration website to document the development of a restoration plan for the Salton Sea ecosystem, and accompanying Environmental Impact Report (EIR).
- In early September, DWR co-sponsored the Sacramento Flood Conference.

Officials from California, Nevada, and Hawaii gathered to discuss structural and non-structural solutions to flood challenges.

- In October, DWR and the Department of Fish and Game (DFG) released the Delta Smelt Action Plan, prepared to identify causes and find solutions for pelagic organism decline in the Delta. DWR also announced it would move forward with plans to repair seismic instability found in Perris Dam. This decision was made after an independent panel concurred with DWR's findings.
- In November, DWR launched the South Delta Improvements Program (SDIP) website to provide information and a means for the public to provide feedback on hearings held through January 2006.
- On December 27, DWR announced a flood alert. By New Year's Eve, major storms forced evacuations on Twitchell Island.

Community Relations

Oroville

PAO staff continued to provide media outreach for Oroville community meetings related to DWR's application for a new federal license to operate Oroville facilities. PAO maintained the Lake Oroville recreation website, http://www.lakeoroville.water.ca.gov, which provides information about the lake's recreational opportunities and other area facilities and attractions. In addition, PAO provided photography for the City of Oroville and the Oroville Area Chamber of Commerce for various community events.

The PAO design group produced promotional materials for Oroville area activities including the Fourth of July community celebration, Feather River Fiesta Days, and September Salmon Festival. Products included posters, interactive educational displays, promotional displays, and informative handouts. The photography unit captured event activities for use in various publications, including DWR NEWS/People. Audio-visual staff assisted the public in using a fishing simulator (an interactive device complete with fishing pole and video screen that provided participants with a virtual reality fishing experience). The video group created public service announcements about events and distributed them to radio and television stations in the Oroville and Chico areas.

California Lakes and Reservoirs Appreciation Week

DWR collaborated with the Department of Boating and Waterways (DBW) to share expenses in publicizing California Lakes and Reservoirs Appreciation Week. DWR distributed promotional flyers and wristbands designed to highlight the week and educate water users at California state parks and reservoirs operated by DWR, U.S. Army Corps of Engineers (the Corps), and U.S. Bureau of Reclamation (Reclamation). The message for 2005 focused on clean water.

SWP Publications

In 2005, brochures for Lake Oroville Recreation, Lake Oroville Recreation Sports Version, and the California State Water Project were revised and reprinted.

E-News

PAO continued to distribute "clips" of newspaper articles on California water

issues, via e-mail. These clips were e-mailed to DWR employees under the heading of California Water News. DWR answered a wide range of questions from the public and government agencies through its web-based "comment line." PAO administered Recent News at http://www.dwr.water.ca.gov; posted news releases; news advisories; and new web sites.

DWR NEWS/People

DWR's quarterly magazine, *DWR NEWS/People,* spotlighted DWR programs, projects, individual and team accomplishments, skills, awards, promotions, retirements, and other news items. In addition to initiating the State Water Contractors Profile feature, articles featured in 2005 included the Eureka Flood Center, Federal Energy Regulatory Commission (FERC) Seventh Part 12 Dam Safety Inspection Report, Oroville Relicensing Application Signing, New Runner at Oroville's Hyatt Power Plant, Skinner Fish Facility Trash Racks, Mudslides and Oil Spill in Southern California, South Bay Enlargement Project, Colorado River Basin Drought, Lower Yuba River Accord, McCune Station Open House, Global Warming's Possible Impacts, Lake Kaweah Project, and Oroville's Aquatic Boathouse Opening. In summer 2005, staff began story selection and photo research for DWR's 50th Anniversary edition, to be printed in 2006.

DWR NEWS/People is circulated to all elements of the California water community, including SWP contractors and current and retired employees of DWR. All 2005 issues of *DWR NEWS/People* magazine were placed on DWR's website at http://www.publicaffairs.water.ca.gov/dwrnewsletter/.

Video

The video group released *Water for Tomorrow*, a companion video to California Water Plan Update 2005, and *Rough Water Ahead* to complement the 2005 Flood White Paper, Flood Warnings: Responding to California's Flood Crisis. *The Power of Water* was produced for the Division of SWP Planning and Management. In addition, a 30-second public service announcement (PSA) was produced for the annual salmon festival in Oroville, as well as an educational piece on the Oroville Fish Hatchery, which ran eight minutes. The video group worked with DWR's webmaster to place video clips on DWR's "Aquanet" website, including a promotional video for the "Catch A Special Thrill for Kids" (C.A.S.T.) program. The Aquatic Adventure Camps at San Luis, Oroville, and Lake Perris were also documented on film. In and ongoing effort, the video group continued transitioning the video tape library to DVD.

Photography

Photographs were taken throughout the State to supplement articles for *DWR NEWS/People*. Photos were taken of the Salton Sea and Colorado River for use in departmental reports and presentations. In addition, photographs were taken to document the December 2005 New Year's Eve flood event.

Also continuing in 2005 were digital imaging and photographic support for Oroville facilities relicensing.

Audio-Visual

PAO's audio-visual unit provided public address system support for numerous meetings.

Community Outreach

As one of the agencies supporting the C.A.S.T. program, DWR employees continued to promote and volunteer at events throughout the state.

SWP Tours

During 2005, DWR welcomed 27 foreign tours with 362 visitors to the SWP and other facilities; there also were a number of domestic and school tours to the SWP Delta Facilities. Tour groups came from all over the United States and nine foreign countries: Afghanistan, Argentina, Australia, Brazil, China, Germany, Iraq, Japan, and South Korea. The Delta Tour program for DWR employees, part of the DWR Training Program, was suspended for 2005 because of the lack of 15 passenger vans in the General Services Garage. Figure 15-1 shows SWP visitors centers.

Displays and Exhibits

Oroville Field Division

In 2005, new aluminum based interpretive display panels were installed at the fish hatchery. These panels replaced the previous ones damaged through material failure. Displays offer the hatchery visitor a self-guided tour of the facility and facility operations.

Bidwell Toll House was converted into a small museum with artifacts, and low-tech and static displays on the history of the toll house and bridge. The work was done for the Department of Parks and Recreation (DPR) under the FERC relicensing agreement.

Delta Field Division

In 2005, PAO staff installed Phase 1 exhibits for the Delta Field Division Administration. The exhibit features the history of the Sacramento-San Joaquin Delta, SWP, Banks Pumping Plant, hydropower, environmental programs, Skinner Fish Facility, and salinity control. Phase 2 is expected to be completed in 2006, and will include a new map of the Delta.

San Luis Field Division

In 2005, PAO staff installed Phase 1 exhibits for DPR at Romero Visitors Center. Display panels and cabinetry featured artifacts of local California Native Americans in and around the San Luis area and recreation and wildlife in the San Luis Recreation Area. Phase 2 is expected to be completed in 2006. Replicated Native American artifacts and a diorama for wildlife display will be included.

Oral History Program

Retired annuitants Art Winslow and Ernie James have traveled hundreds of miles to compile oral histories of persons significant in DWR's development and history. PAO staff continues work on this project by writing biographies and completing a catalog from 150 interviews.

School Education Program

The School Education Program's goal is to provide students and educators with a statewide perspective on water issues such as conservation, conveyance systems, and the water cycle. PAO staff develops and promotes high quality materials, and provides them free of charge to schools, educators, and water districts.

Figure 15-1. Visitors Centers on the SWP

Program achievements for 2005 include providing a display of DWR's Interactive Children's Exhibits at the Urban Creeks Council's Creek Week event held at the Sacramento Discovery Center (April); assisting at DWR's Oroville Fourth of July booth; State Fair booth (August/ September); and Salmon Festival (September); conducting water safety activities for children at Preparedness Day Event at Office of Emergency Services (September); staffing exhibit for the California Native American Days event at the Sacramento Convention Center (September); and exhibiting DWR's educational materials and videos at the California Science Teachers Association Conference in Palm Springs (October).

Additional program achievements for 2005 include providing curriculum materials and children's videos to California teachers and water agencies through the Water Facts and Fun online ordering catalog and promotional events; revising and reprinting the *Water Facts and Fun* catalog of materials for teachers and students; purchasing 12,000 Captain Hydro Water Conservation books and 10,000 Water Fun books for students; reprinting 10,000 *California Water Works and Why It Does…* books for students; providing Project WET books to teachers who participate in Project WET training workshops.

In 2005, the School Education Program was actively involved in presenting DWR's School Education Program to the California Regional Environmental Education Community (CREEC) Conference in Santa Barbara (January); participating on the Water Awareness Education Subcommittee and providing the printing of Unit #4 on Water Use Efficiency for elementary students; participating and assisting at Water Education Committee meeting, hosted by the Contra Costa Water District in April, and the Marina Coast Water District in October; and participating on the Project Water Education for Teachers (WET) Advisory Committee, the Creek Week Planning Committee, and CEEIN Committee.

In 2005, PAO staff worked on producing brochures for the California Environmental Education Interagency Network (CEEIN) and providing artwork for a poster, brochures, and a bookmark for the Creek Week Event.

The School Education Program also co-sponsored and provided support for the following:

- the development of the Discover Storm Water booklet for students in cooperation with Project WET and others;
- the Environmentality Campaign for fifth grade students, in conjunction with the State of California and the Walt Disney Corporation;
- the California Department of Education's Regional Environmental Education Coordinators Network; and
- the Delta Studies Institute for teachers, co-sponsored with the San Joaquin County Office of Education.

Water Awareness Month Activities

During May 2005, DWR observed Water Awareness Month for the eighteenth consecutive year. PAO news releases highlighted activities at DWR facilities, and public information officers answered media inquiries regarding water awareness.

Appendix B
Data and Computations
Used to
Determine 2007 Water Charges

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Tables (continued)

Tables (continued)

Appendix B
Data and Computations
Used to
Determine 2007 Water Charges

Appendix B
Data and Computations
Used to
Determine 2007 Water Charges

The Department of Water Resources (DWR) annually furnishes Statements of Charges to the 29 long-term State Water Project (SWP) 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), DWR 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 supply 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 2007. The information is based on established data about the SWP, both known and projected, as of June 30, 2006.

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

- Frenchman Dam and Lake
- Grizzly Valley Dam and Lake Davis
- 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 Power Plant, and South Geysers Power Plant)

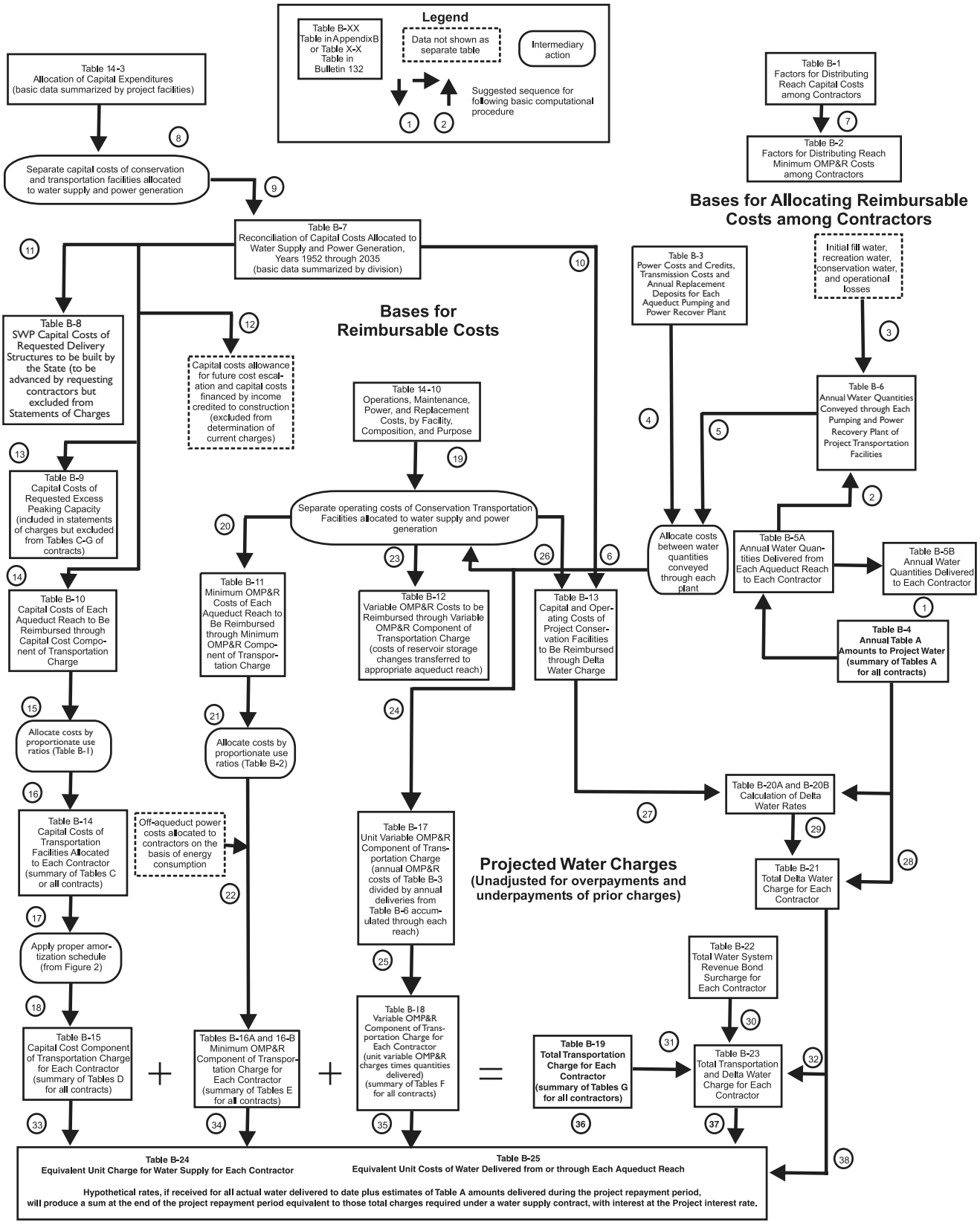


Figure B-1. Relationships of Data Used to Substantiate Statements of Charges

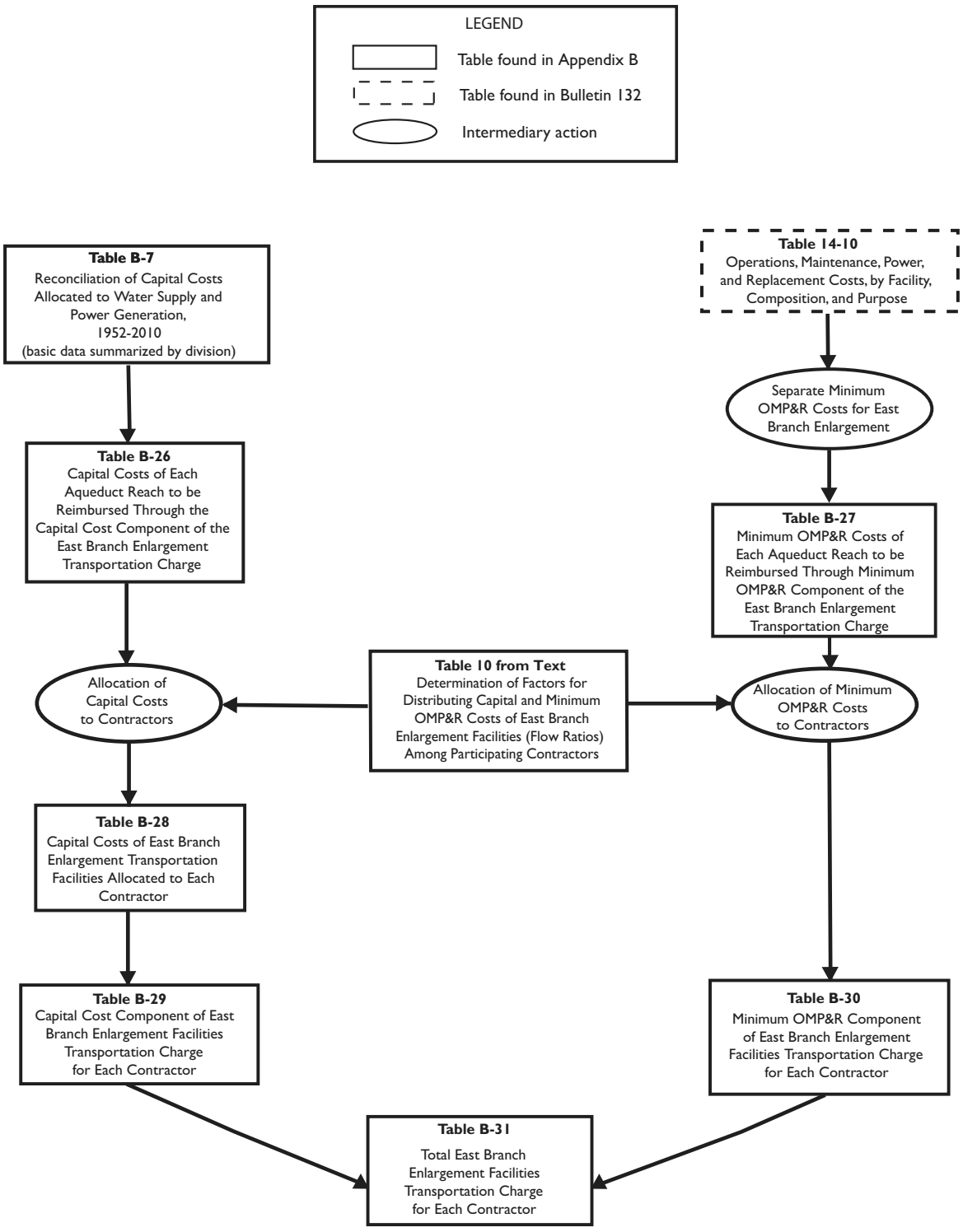


Figure B-2. Relationships of Data Used to Substantiate East Branch Enlargement Charges

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 allocations for the remainder of the project repayment period, is calculated to result in repayment of all outstanding reimbursable costs of the Project Conservation 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 costs of the East Branch Enlargement.

Transportation charges for the Coastal Branch Extension, East Branch Extension, and South Bay Enlargement are being repaid by contractors in their respective service areas.

Transportation charges for the Tehachapi Afterbay is repaid by those contractors using electrical power for delivery of their Table A water.

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:

(1) Conservation and Transportation capital cost components, which will return to the State all reimbursable capital costs;

(2) 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

(3) 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 allocations, such adjustments are amortized during the remainder of the project repayment period. This appendix includes a redetermination of the Delta Water Rate for 2007.

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 2005 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

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 operation
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.

Figure B-3. Composition of Delta Water Charge and Transportation Charge

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:

(1) Advances of funds pursuant to Article 24(d) of the standard provisions for excess capacity constructed by the State at the request of contractors.

(2) 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 various times and are not part of the annual statements.

(3) 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.

(4) 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:

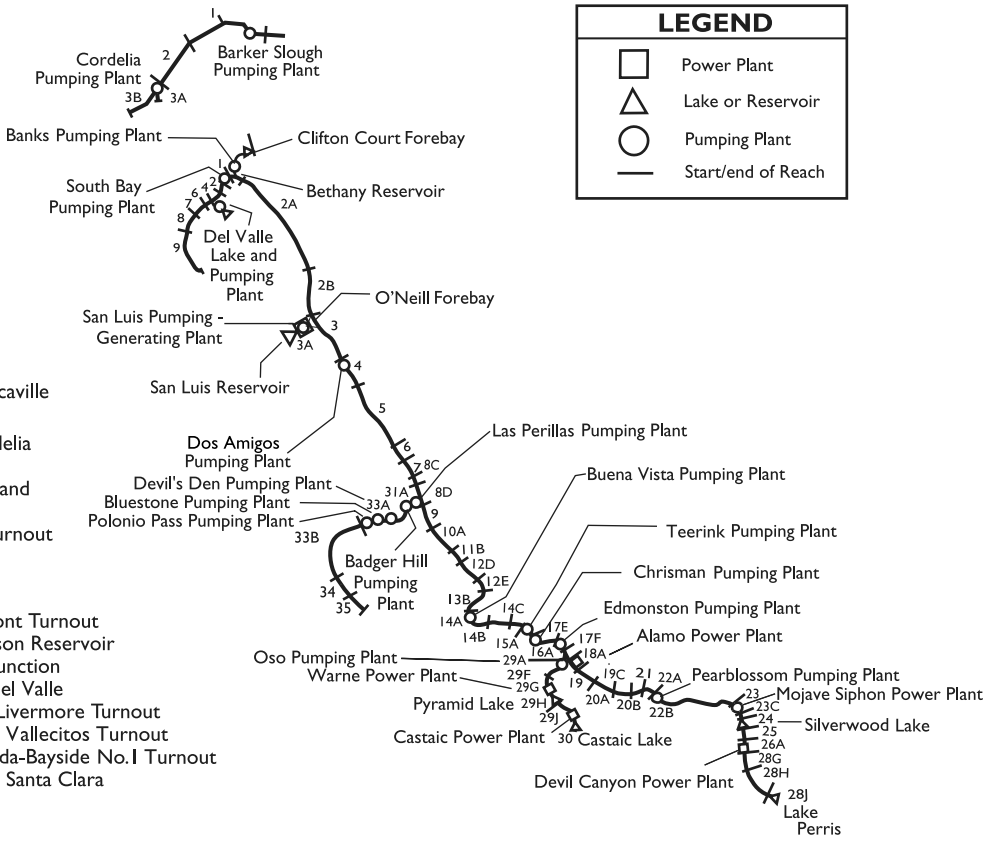
(1) The capital cost components of the Delta Water Charge and the Transportation Charge are paid in two semiannual installments, due January 1 and July 1 of each year, based on statements furnished by the State on or before July 1 of the preceding year.

(2) 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.

(3) 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. The charges are projected based on a unit charge per acre-foot established on or before July 1 of the preceding year. Those unit charges may be revised during the year to reflect current power costs and revenues. The unit charges are applied to actual monthly delivery quantities as determined by the State on or before the 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."



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 Napa Turnout 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 No. 1 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	Sisk Dam, San Luis Reservoir, Gianelli 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 Teerink Pumping Plant
15A	Teerink Pumping Plant to Chrisman Pumping Plant
16A	Chrisman Pumping Plant to Edmonston Pumping Plant

Tehachapi Division

17E	Edmonston Pumping Plant to Porter Tunnel
17F	Porter Tunnel to Junction, West Branch

Mojave Division

18A	Junction, West Branch through Alamo Power Plant
19	Alamo Power Plant 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
23C	Mojave Siphon Power Plant
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 Power Plant
28G	Devil Canyon Power Plant to Barton Road
28H	Barton Road to Lake Perris
28J	Perris Dam and Lake Perris

West Branch, California Aqueduct

29A	Junction, California Aqueduct through Oso Pumping Plant
29F	Oso Pumping Plant through Quail Embankment
29G	Quail Embankment through Warne Power Plant
29H	Pyramid Dam and Lake
29J	Pyramid Lake through Castaic Power Plant
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
33B	Tank 1 through Chorro Valley Turnout
34	Chorro Valley Turnout through Lopez Turnout
35	Lopez Turnout through Guadalupe Turnout

Figure B-4. Repayment Reaches and Descriptions

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. Under Article 53 of the Monterey Amendment, Agricultural contractors may sell up to 130,000 acre-feet of aqueduct capacity to Municipal and Industrial contractors. The first permanent transfer occurred in 1998. Currently, 114,000 acre-feet of the allowable capacity has been transferred. Table 1 shows the permanent capacity transfers that have taken place since 1995.

Table B-1 presents the reach ratios currently applicable to reimbursable capital costs.

Table B-2 presents corresponding ratios for allocating 2007 and after 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 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, credits, and transmission costs 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 that are not, depend and vary with power usage classified as minimum OMP&R costs);
- Credits for capacity and energy produced at aqueduct power recovery plants (treated as negative costs);
- Payments for replacement of major plant machinery components having economic lives shorter than the project repayment period. In 1997, DWR discontinued charging for a sinking fund for replacements. Replacement costs for 1999 and thereafter are to be paid on an annual basis as the costs are incurred; and
- Starting in 2005, a portion of transmission expenditures will depend and vary with water and power usage; these costs will be included as part of the variable component.

Table 1. Summary of Permanent Aqueduct Capacity Transfers

Contractor		Capacity Transfer		
Seller	*Buyer*	*Amount (acre-feet)*	*Effective Year*	**Transfer Description**
Transfers under Monterey Amendment				
Kern	Mojave	25,000	1998	Purchased capacity upstream of Reach 31A
Kern	Castaic Lake	41,000	2000	Purchased capacity upstream of Reach 16A
Kern	Palmdale	4,000	2000	Purchased capacity upstream of Reach 11B
Kern	Alameda Zone-7	7,000	2000	Purchased capacity upstream of Reach 10A
Kern	Alameda Zone-7	15,000	2000	Purchased capacity upstream of Reach 10A
Kern	Alameda Zone-7	10,000	2001	Purchased capacity upstream of Reach 11B
Kern	Solano	5,756	2001	Purchased capacity upstream of Reach 11B and Reach 31A
Kern	Napa	4,025	2001	Purchased capacity upstream of Reach 11B and Reach 31A
Kern	Alameda Zone-7	2,219	2004	Purchased capacity upstream of Reach 11B
Subtotal Under Article 53		114,000		
Transfers outside of Monterey Amendment				
Tulare	Dudley Ridge	3,973	2002	Purchased capacity upstream of Reach 8D
Tulare	AVEK	3,000	2002	Purchased capacity upstream of Reach 8D
Tulare	Alameda Zone-7	400	2003	Purchased capacity upstream of Reach 8D
Tulare	Kings	5,000	2004	Purchased capacity upstream of Reach 8D
Tulare	Coachella	9,900	2004	Purchased capacity upstream of Reach 8D
MWDSC	Coachella	88,100	2005	Purchased capacity upstream of Reach 28J
MWDSC	Desert	11,900	2005	Purchased capacity upstream of Reach 28J
Tulare	Kings	305	2006	Purchased capacity upstream of Reach 31A
Subtotal Outside of Article 53		122,578		

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 allocated 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.

An interruptible water program was established in 1994. 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 allocations as set forth in Table A and Article 6(a) of each water supply contract.

Table B-5A shows amounts of actual and projected allocated water quantities delivered from each aqueduct reach to each contractor. Projected deliveries for years 2006 through 2035 are based on contractors' requests for future water deliveries. The quantities included in Table B-5A also include nonproject 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 allocated water quantities delivered or to be delivered to each contractor. The quantities also include amounts of nonproject 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 allocated 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 the exception of Banks Pumping Plant, "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). At Banks Pumping Plant, 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):

(1) net annual water amounts stored and projected to be stored in San Luis Reservoir; and

(2) 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

Table 2. Project Purpose 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
Dos Amigos 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 Hyatt and Thermalito power plants 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.

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 2. 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, 2005; 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 DWR.

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 which 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 Metropolitan Water District of Southern California, San Gabriel Valley Municipal Water District, and AVEK 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 Metropolitan's contract, 809 cfs of excess capacity was originally constructed in reaches of the West Branch at Metropolitan's request. That capacity was reclassified as basic capacity of SWP Transportation Facilities under Amendment 7. Metropolitan 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 Metropolitan's contract requires that additional costs for modifications to the Santa Ana Pipeline (required for enlargement of Lake Perris) will be allocated to Metropolitan and returned to the State through payments of the Transportation Charge. The additional costs to be repaid through Metropolitan's capital cost component for the aqueduct reach from Devil Canyon Power Plant 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:

(1) all direct labor charges for field operation and maintenance personnel, including associated indirect costs;

(2) a distributed share of general operating costs that cannot be identified solely with one facility or aqueduct reach;

(3) all of electric power transmission and station service costs up to 2004, and electric power transmission and station service costs for 2005 and after that do not vary with power usage allocable to aqueduct pumping and recovery plants;

(4) all costs for equipment, materials, and supplies;

(5) portions of the power and replacement costs of all up-aqueduct pumping plants 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);

(6) credits, which offset those costs in (5) above, for deliveries drawn from reservoir storage; and

(7) escalation of projected operating costs at 5 percent per year for 2006, 2007, and 2008.

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 reimbursed through payments of the variable OMP&R component of the Transportation Charge.

The following five adjustments are made to Table B-3 costs to derive Table B-12 costs:

(1) 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.

(2) 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.

(3) 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. 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. The unit rate is equal to the variable OMP&R unit rate for the year the water is taken from storage.

(4) 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 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 allocated 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 B-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 Metropolitan's Amendment 7, are included as negative capital costs in Table B-14 and Table C of Metropolitan's Statement of Charges. Solano, Empire-West Side Irrigation District, and Crestline also prepaid capital costs (see Table B-14 footnotes). Table B-14 includes 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 contractors for project water service below Devil Canyon Power Plant and Castaic Power Plant 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. By the year 2035, the capital cost components shown in Table B-15 will recover the costs shown in Table B-14, with interest at the Project Interest Rate of 4.608 percent per annum and based on the amortization schedules included in Table 3.

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 Power Plant and Castaic Power Plant 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 3. 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
Metropolitan Water District of Southern California	1963
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
Tulare Lake Basin Water Storage 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, Empire, Kern (agricultural use), Oak Flat, and Tulare, 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 allocations (Table B-4) through the project repayment period.

[f] For San Luis Obispo and Santa Barbara County, all principal and interest payments for costs of the Coastal Stub were deferred until 1976.

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 include the operating costs payable under the Devil Canyon-Castaic contract for the six

contractors down aqueduct from Devil Canyon Power Plant and Castaic Power Plant.

Table 4. Minimum OMP&R Costs of Reach 31A Assigned Directly to Kern County Water Agency (in dollars)

Year	Direct Charges
1969	46,511
1970	46,302
1971	140,074
1972	95,017
1973	72,454
1974	100,692
1975	127,456
1976	138,504
1977	120,753
1978	157,652
1979	121,231
1980	150,728
1981	75,866
1982	82,805
1983	90,007
1984	107,468
1985	159,406
1986	137,241
1987	127,073
1988	130,924
1989	128,468
1990	138,234
1991	139,527
1992	185,370
1993	219,344
1994	364,196
1995	272,341
1996	322,123
Total	**3,997,767**

As part of operating agreements with DWR, Kern was billed from 1963 through 1987 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 Kern, as shown in Table 4, with the remaining reach costs allocated by application of the proportionate-use ratios. DWR purchased the last unit, Unit No. 6, at Las Perillas and Badger Hill Pumping Plants in early 1997 to provide pumping capacity for deliveries to Coastal Area contractors, which began in 1997. As a result of the Monterey Amendment Litigation, the costs related to this settlement are to be allocated among all SWP contractors in proportion to their maximum Table A. As costs are incurred, related charges will be included in the contractors' annual Statements of Charges as part of the minimum. It is estimated that between 2002 and 2010, the total Monterey Amendment Litigation costs will be just under $16 million.

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 5 summarizes Off-aqueduct Power Facility charges and credits related to deliveries for 2005.

Table 5. Summary of Off-Aqueduct Power Facility Charges and Credits (in dollars)

Charges by Item	
Reid Gardner Power Plant	83,573,694
Bottle Rock Power Plant	14,147,680
South Geysers Power Plant	6,662,758
Subtotal	*104,384,132*
Credits by Item	
Power sales	21,323,935
Miscellaneous water (wheeling)	0
Subtotal	21,323,935
Net Total Charge	**83,060,197**

Table 6 shows projected charges for Off-Aqueduct Power Facilities and an amount equal to 25 percent of annual bond service for 2006 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 allocated water for the year. The initial allocation for the Statements of Charges is based on estimates of energy to pump requested allocated water deliveries.

Table 6. Projected Charges for Off-Aqueduct Power Facilities (in dollars)

Year	Total Annual Cost	25% Bond Cover
2006	110,217,000	8,629,583
2007	124,268,132	8,677,943
2008	135,600,482	11,530,413
2009	135,835,148	11,577,346
2010	136,657,372	11,741,790
2011	133,497,475	11,117,811
2012	133,706,645	11,159,645
2013	78,184,633	5,095,243
2014	20,080,442	4,016,404
2015	11,900,893	2,380,495
2016	10,195,501	2,039,416
2017	9,909,157	2,074,413
2018	4,210,068	947,183
2019	4,175,070	927,936
2020	4,498,201	1,007,352
2021	6,696,392	1,318,209
2022	6,354,573	1,249,845
2023	4,520,053	882,941
2024	3,292,943	637,519
2025	244,343	48,399
2026	390,273	77,585
2027	596,893	118,909
2028	504,350	100,400
2029	497,350	99,000

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. An additional adjustment is made the following year based on actual water deliveries and actual costs for the year.

The energy required to pump each contractor's water is calculated using the kilowatt-hour per acre-foot factors (shown in Table 7) 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

Table 7. 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
Banks	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
Edmonston	2,236	3,846
Pearblossom	703	4,549
Greenspot	871	5,420
Crafton Hills	1,087	6,507
Cherry Valley	224	6,731
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

procedures 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 Tables 8 and 9 on pages B-18 and B-19.

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.

Both Table B-19 and Table G for the six contractors down-aqueduct from Devil Canyon Power Plant and Castaic Power Plant include amounts of debt service and operating cost payments due according to provisions of the Devil Canyon-Castaic contract.

Delta Water Charges

Table B-20A presents the calculation of the Delta Water Rate for the initial Conservation Facilities applicable in 2007 according to the amended Article 22(e) and 22(g) of all 29 contracts. The Delta Water Rate was calculated at a Project Interest Rate of 4.608 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 two contractors who have not executed the Monterey Amendment (Plumas County and Empire).

Table B-20B shows each component of the 2007 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 allocated 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 AD. This surcharge is levied according to an amendment to the water supply contracts for repaying WSRB Surcharge 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.

Table 8. Extra Peaking Charges for Additional Power, by Pumping Plant (Dollars)

Year	Cordelia Napa	Cordelia Solano	Barker Slough	South Bay	Banks	Dos Amigos	Las Perillas and Badger Hill	Buena Vista	Teerink	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	7,594	3,534	152	0	0	0	0	0	0	11,315
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	1,864	863	0	291	354	766	2,683	0	0	6,821
1987	0	0	0	604	17,129	7,838	835	2,295	1,806	3,460	11,058	0	0	45,025
1988	639	39	287	894	43,475	20,082	2,213	5,792	4,367	8,272	25,886	0	0	111,946
1989	2,491	566	1,483	70	40,251	18,642	1,935	3,401	1,531	2,058	3,793	0	0	76,221
1990	45	0	18	343	19,524	9,044	0	150	145	314	643	0	0	30,226
1991	903	0	281	0	21	8	0	15	17	39	139	41	0	1,464
1992	208	117	203	0	7,070	2,502	0	182	190	435	0	0	0	10,907
1993	0	681	889	4,483	123,080	54,741	0	8,898	5,458	10,900	35,068	11,139	0	255,337
1994	0	366	393	679	6,566	2,795	454	1,083	155	357	1,121	0	132	14,101
1995	0	0	0	1,717	24,464	9,422	27	1,865	3,475	782	1,104	400	0	43,256
1996	4	0	1	1,983	10,031	4,976	0	391	432	1,015	3,404	1,160	0	23,397
1997	0	1,780	2,152	3,107	337,357	165,774	1,753	34,604	12,296	15,910	21,028	0	0	595,761
1998	0	0	0	20,966	235,693	106,251	2,354	697	848	1,836	6,426	0	0	375,071
1999	0	0	0	0	63,196	26,235	0	3,394	4,136	8,959	31,350	7,740	0	145,010
2000	0	0	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	0	0
2002	0	0	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	0	0
2004	0	0	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	0	0
Total	**4,290**	**3,549**	**5,707**	**38,457**	**1,041,323**	**637,838**	**70,909**	**78,719**	**43,445**	**67,625**	**172,056**	**20,480**	**132**	**2,184,530**

Table 9. Extra Peaking Charges for Additional Power, by Contractor (Dollars)

Year	Napa	Solano	Alameda Zone 7	Alameda County	Santa Clara	Dudley Ridge	Empire	Kern County	Kings	Oak Flat	Tulare	AVEK	Castaic Lake	Coachella	Desert	Littlerock	Palmdale	San Gabriel	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	48,825
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	9,511	0	0	1,365	0	0	0	391	0	0	0	0	0	11,315
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	2,194	4,614	0	0	0	0	0	0	6,821
1987	0	0	229	0	599	313	84	24,141	0	95	0	18,207	545	0	0	812	0	0	45,025
1988	892	73	665	561	0	1,853	1,404	58,905	0	72	2,368	44,526	627	0	0	0	0	0	111,946
1989	3,478	1,062	96	0	0	13	403	55,085	0	239	8,278	0	1,043	0	0	1,035	5,489	0	76,221
1990	63	0	470	0	0	0	0	28,587	0	0	0	0	0	0	0	81	1,025	0	30,226
1991	1,184	0	0	0	0	0	0	0	0	0	0	0	0	0	0	280	0	0	1,464
1992	271	257	0	0	0	0	49	10,109	221	0	0	0	0	0	0	0	0	0	10,907
1993	0	1,570	6,122	0	0	0	3,757	97,812	504	0	74,577	0	0	24,983	41,156	0	4,856	0	255,337
1994	0	759	896	0	0	0	7	9,933	0	0	0	0	2,450	0	0	56	0	0	14,101
1995	0	0	2,353	0	0	10,197	0	28,085	310	0	0	0	27	0	0	0	2,284	0	43,256
1996	5	0	81	2,612	0	334	205	4,552	969	0	7,809	0	0	0	0	0	3,598	3,232	23,397
1997	0	3,932	3,999	0	0	6,190	0	546,733	0	40	0	0	0	0	0	0	34,867	0	595,761
1998	0	0	19,666	8,442	0	22,631	1	312,626	0	651	0	0	0	0	0	0	11,054	0	375,071
1999	0	0	0	0	0	0	0	76,425	0	0	6,922	0	0	0	0	0	11,576	50,087	145,010
2000	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0
Total	**5,893**	**7,653**	**34,577**	**13,644**	**3,521**	**55,250**	**5,974**	**1,620,176**	**3,692**	**2,017**	**102,158**	**123,049**	**9,858**	**24,983**	**41,156**	**2,439**	**74,749**	**53,741**	**2,184,530**

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 allocated 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 allocated water delivered to date; all surplus water delivered prior to May 1, 1973; all interruptible water deliveries in 1994 and after; and all allocated 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 allocated 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 allocated water 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 allocations 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 allocations are conveyed through a given reach. Table B-25 also includes surplus water delivered prior to May 1, 1973, and interruptible water deliveries in 1994 and after.

East Branch Enlargement Facility Charges

Table B-26 reflects DWR'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 Power Plant 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 10).

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 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 developed by DWR in consultation with the affected contractors.

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 10. 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 Power Plant
19	Alamo Power Plant 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 Power Plant facilities)
23C	Mojave Siphon Power Plant 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 Power Plant
26B	Devil Canyon Power Plant Bypass

Share of Enlargement 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		1,200	1,506
19		151	13	136	6		1,200	1,506
20A	35	151	13	136	6		1,200	1,541
20B	35	151	13	136	6		1,200	1,541
21	35	151	13	136			1,200	1,535
22A	35	151	13	136			1,200	1,535
22B		151	13	136			1,200	1,500
23B		184	67	212			1,200	1,663
23C		184	67				1,200	1,451
24		190	78				1,200	1,468
25		193	83			63	1,200	1,539
26A		193	83			63	1,200	1,539
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

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 sum of the corresponding amounts included in Tables B-29 and B-30).

Short-Term Agreements

The long-term water supply contractors and DWR have executed short-term agreements that affects the contractors' charges. A 5-year agreement was executed in late 1997 between DWR and 16 Municipal and Industrial contractors, who agreed to pay their allocated shares of Municipal Water Quality Investigations costs. In 2002 and 2006, additional amendments were executed extending the program. The MWQI charges under this agreement are included in the Transportation minimum OMP&R components shown in Table B-16A.

Nine contractors executed a short-term agreement (1997 and 1998) to participate in the feasibility study for the American Basin conjunctive-use program. Costs of the feasibility study are included in Table B-16A.

Contractors have agreed to participate in the Delta Vision Improvement programs, which will initially incur costs for the next two to four years. Associated cost will be charged as part of Conservation.

Tables B-1 through B-6 Follow

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 WA	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			0.00954737	0.00872917	0.02080118	0.00342507	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	0.00533010	0.00983337	0.02939084	0.01285827	0.00528315	0.00133612	0.00871300
2A	Bethany Reservoir to Orestimba Creek	0.00557213	0.01027988	0.03072531	0.01343201	0.00552068	0.00139620	0.00910474
2B	Orestimba Creek to O'Neill Forebay	0.00557824	0.01029119	0.03075915	0.01345351	0.00552831	0.00139814	0.00911733
3	O'Neill Forebay to Dos Amigos Pumping Plant	0.00557719	0.01028923	0.03075332	0.01345294	0.00552772	0.00139798	0.00911637
4	Dos Amigos Pumping Plant to Panoche Creek	0.00557607	0.01028717	0.03074719	0.01345233	0.00552710	0.00139784	0.00911536
5	Panoche Creek to Five Points	0.00557467	0.01028462	0.03073954	0.01345157	0.00552633	0.00139763	0.00911409
6	Five Points to Arroyo Pasajero	0.00557257	0.01028074	0.03072799	0.01345042	0.00552517	0.00139733	0.00911216
7	Arroyo Pasajero to Kettleman City	0.00557189	0.01027949	0.03072428	0.01345006	0.00552480	0.00139723	0.00911154
8C	Kettleman City thru Milham Avenue	0.00557103	0.01027792	0.03071961	0.01344960	0.00552432	0.00139712	0.00911076
8D	Milham Avenue thru Avenal Gap	0.00568611	0.01049020	0.03135418	0.01373353	0.00563986	0.00142632	0.00930130
9	Avenal Gap thru Twisselman Road			0.03426625	0.01356094	0.00616886	0.00156011	0.01017373
10A	Twisselman Road thru Lost Hills			0.03481391	0.01377767	0.00626946	0.00158556	0.01033963
11B	Lost Hills to 7th Standard Road			0.03835043	0.01517717	0.00691699	0.00174933	0.01140749
12D	7th Standard Road thru Elk Hills Road			0.04031661	0.01595523	0.00727790	0.00184059	0.01200265
12E	Elk Hills Road thru Tupman Road			0.04037074	0.01597665	0.00728878	0.00184332	0.01202059
13B	Tupman Road to Buena Vista Pumping Plant			0.04379882	0.01733322	0.00791595	0.00200194	0.01305492
14A	Buena Vista Pumping Plant thru Santiago Creek			0.04599268	0.01820137	0.00831952	0.00210399	0.01372049
14B	Santiago Creek thru Old River Road			0.04682530	0.01853084	0.00847388	0.00214303	0.01397505
14C	Old River Road to Wheeler Ridge Pumping Plant			0.04825217	0.01909545	0.00873768	0.00220973	0.01441013
15A	Wheeler Ridge Pumping Plant to Chrisman Pumping Plant			0.04905609	0.01941356	0.00888679	0.00224744	0.01465600
16A	Chrisman Pumping Plant to Edmonston Pumping Plant			0.05089794	0.02014241	0.00922722	0.00233351	0.01521742
17E	Edmonston Pumping Plant to Porter Tunnel			0.05329388	0.02109050	0.00967107	0.00244575	0.01594937
17F	Porter Tunnel to Junction, West Branch, Calif. Aqueduct			0.05340725	0.02113537	0.00969176	0.00245098	0.01598349
18A	Junction, West Branch, Calif. Aqueduct thru Alamo Pwp.			0.13238112		0.02399391	0.00606795	0.03957043
19	Alamo Powerplant to Fairmont			0.13237766		0.02399451	0.00606811	0.03957141
19C	Buttes Junction thru Buttes Reservoir			1.00000000				
20A	Fairmont thru 70th Street West			0.06847931		0.02576425	0.00651573	0.04249001
20B	70th Street West to Palmdale			0.02276024		0.02702917	0.00683555	0.04457607
21	Palmdale to Littlerock Creek			0.02318952		0.02754716	0.00696651	0.04543034
22A	Littlerock Creek to Pearblossom Pumping Plant			0.01181870		0.02794143	0.00706621	0.04608043
22B	Pearblossom Pumping Plant to West Fork Mojave River					0.02827552	0.00715074	0.04663153
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 through Tank 1	0.10101221	0.89898779					
33B	Tank 1 through Chorro Valley Turnout	0.09912818	0.90087182					
34	Chorro Valley Turnout through Lopez Turnout	0.05479573	0.94520427					
35	Lopez Turnout through Guadalupe Turnout		1.00000000					

Note: Proportionate use factors **do not** reflect permanent water transfer as a result of the Monterey Amendment.

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	0.01707770	0.00088678	0.00254693	0.02741768	0.30629913	0.00090695	0.00167121	0.03504975
2A	0.01781031	0.00092482	0.00266258	0.02864263	0.31945188	0.00094747	0.00174288	0.03655331
2B	0.01785838	0.00092731	0.00266550	0.02868743	0.32030556	0.00094896		0.03665201
3	0.01786337	0.00092757	0.00266499	0.02868589	0.32039254	0.00094892		0.03666225
4	0.01786863	0.00092785	0.00266446	0.02868428	0.32048398	0.00094886		0.03667303
5	0.01787517	0.00092819	0.00266380	0.02868227	0.32059816	0.00094879		0.03668649
6	0.01788508	0.00092870	0.00266279	0.02867923	0.32077093	0.00094868		0.03670685
7	0.01788826	0.00092887	0.00266246	0.02867825	0.32082633	0.00094864		0.03671338
8C	0.01789228	0.00092909	0.00266205	0.02867702	0.32089625	0.00094859		0.03672162
8D	0.01828779		0.00271703	0.02928147	0.32798200			0.01820857
9				0.03204523	0.32739538			
10A				0.03257442	0.31658608			
11B				0.03597398	0.24684668			
12D				0.03787171	0.20804762			
12E				0.03793198	0.20695175			
13B				0.01458796	0.16600071			
14A				0.00620338	0.13319181			
14B				0.00632023	0.11741558			
14C				0.00651962	0.09039633			
15A				0.00663252	0.07516317			
16A				0.00688973	0.04028829			
17E				0.00212516				
31A			0.05046240		0.57546190			

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	The Metropolitan Water District of Southern California	Ventura County Flood Control District	
1	0.00049180	0.01101147	0.00369131	0.02362857	0.00650354	0.00398392	0.43929350	0.00429212	1.00000000
2A	0.00051413	0.01151136	0.00385891	0.02469101	0.00679699	0.00416304	0.45921072	0.00448701	1.00000000
2B	0.00051469	0.01152409	0.00386317	0.02472511	0.00680570	0.00416880	0.45973548	0.00449194	1.00000000
3	0.00051461	0.01152193	0.00386244	0.02472246	0.00680478	0.00416835	0.45965407	0.00449108	1.00000000
4	0.00051451	0.01151965	0.00386167	0.02471968	0.00680380	0.00416787	0.45956848	0.00449019	1.00000000
5	0.00051440	0.01151681	0.00386070	0.02471620	0.00680259	0.00416730	0.45946161	0.00448907	1.00000000
6	0.00051419	0.01151251	0.00385926	0.02471095	0.00680076	0.00416640	0.45929991	0.00448738	1.00000000
7	0.00051413	0.01151113	0.00385879	0.02470927	0.00680016	0.00416612	0.45924807	0.00448685	1.00000000
8C	0.00051405	0.01150938	0.00385821	0.02470716	0.00679941	0.00416576	0.45918261	0.00448616	1.00000000
8D	0.00052466	0.01174718	0.00393793	0.02522383	0.00694100	0.00425288	0.46868533	0.00457883	1.00000000
9	0.00057339	0.01283841	0.00430367	0.02758959	0.00758975	0.00465175	0.51227887	0.00500407	1.00000000
10A	0.00058254	0.01304366	0.00437246	0.02803943	0.00771262	0.00472760	0.52049091	0.00508405	1.00000000
11B	0.00064171	0.01436906	0.00481665	0.03093503	0.00850448	0.00521581	0.57349473	0.00560046	1.00000000
12D	0.00067463	0.01510596	0.00506361	0.03254889	0.00894541	0.00548790	0.60297374	0.00588755	1.00000000
12E	0.00067553	0.01512626	0.00507040	0.03259749	0.00895830	0.00549608	0.60379667	0.00589546	1.00000000
13B	0.00073290	0.01641098	0.00550099	0.03540212	0.00972547	0.00596896	0.65516902	0.00639604	1.00000000
14A	0.00076961	0.01723325	0.00577656	0.03720681	0.01021819	0.00627322	0.68807273	0.00671639	1.00000000
14B	0.00078354	0.01754538	0.00588113	0.03789703	0.01040613	0.00638960	0.70057530	0.00683798	1.00000000
14C	0.00080743	0.01808019	0.00606036	0.03907670	0.01072763	0.00658850	0.72199174	0.00704634	1.00000000
15A	0.00082089	0.01838154	0.00616135	0.03974336	0.01090913	0.00670088	0.73406357	0.00716371	1.00000000
16A	0.00085171	0.01907194	0.00639271	0.04126559	0.01132404	0.00695754	0.76170731	0.00743264	1.00000000
17E	0.00089182	0.01997003	0.00669365	0.04325018	0.01186455	0.00729213	0.79767940	0.00778251	1.00000000
17F	0.00089372	0.02001251	0.00670788	0.04334270	0.01188988	0.00730773	0.79937767	0.00779906	1.00000000
18A	0.00221525	0.04960424	0.01662680	0.10730448	0.02944860	0.01809192	0.57469530		1.00000000
19	0.00221522	0.04960300	0.01662640	0.10730707	0.02944876	0.01809230	0.57469556		1.00000000
19C									1.00000000
20A	0.00237800	0.05324853	0.01784830	0.11522152	0.03161798	0.01942666	0.61700971		1.00000000
20B	0.00249470	0.05586076	0.01872390	0.12087843	0.03316986	0.02038045	0.64729087		1.00000000
21	0.00254199	0.05692053		0.12319480	0.03380324	0.02077093	0.65963498		1.00000000
22A		0.05773082		0.12495766	0.03428605	0.02106816	0.66905054		1.00000000
22B		0.05842136		0.12645207	0.03469614	0.02132008	0.67705256		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									1.00000000
33A									1.00000000
									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 WA	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	0.29251728	0.70748272					1.00000000
2	Fairfield/Vacaville Turnout to Cordelia Forebay	0.42000793	0.57999207					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			0.33980110	0.19515838	0.46504052		1.00000000
2	Altamont Turnout thru Patterson Reservoir			0.33978741	0.19516252	0.46505007		1.00000000
4	Patterson Reservoir to Del Valle Junction			0.31610985	0.20216089	0.48172926		1.00000000
5	Del Valle Junction thru Lake Del Valle			0.53312173	0.12972254	0.33715573		1.00000000
6	Del Valle Junction thru South Livermore Turnout			0.32478705	0.19906896	0.47614399		1.00000000
7	South Livermore Turnout thru Vallecitos Turnout			0.14604872	0.25176680	0.60218448		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				0.00870649	0.02074717		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	0.00531803	0.00981112	0.03024584	0.02544226	0.02816849	0.00133276	0.01137611
2A	Bethany Reservoir to Orestimba Creek	0.00557057	0.01027704	0.03167950	0.02660598	0.02949522	0.00139543	0.01191224
2B	Orestimba Creek to O'Neill Forebay	0.00557667	0.01028833	0.03171597	0.02666336	0.02953453	0.00139736	0.01192791
3	O'Neill Forebay to Dos Amigos Pumping Plant	0.00557562	0.01028637	0.03171043	0.02666656	0.02953095	0.00139720	0.01192641
4	Dos Amigos Pumping Plant to Panoche Creek	0.00557450	0.01028431	0.03170463	0.02666994	0.02952719	0.00139705	0.01192482
5	Panoche Creek to Five Points	0.00557309	0.01028175	0.03169736	0.02667416	0.02952249	0.00139687	0.01192284
6	Five Points to Arroyo Pasajero	0.00557099	0.01027787	0.03168637	0.02668054	0.02951539	0.00139656	0.01191985
7	Arroyo Pasajero to Kettleman City	0.00557031	0.01027662	0.03168285	0.02668259	0.02951311	0.00139646	0.01191888
8C	Kettleman City thru Milham Avenue	0.00551445	0.01017357	0.03136136	0.02635185	0.02920164	0.00138158	0.01179354
8D	Milham Avenue thru Avenal Gap	0.00562665	0.01038055	0.03200083	0.02691146	0.02980153	0.00141001	0.01203564
9	Avenal Gap thru Twisselman Road			0.03436980	0.02785985	0.03125286	0.00153069	0.01306310
10A	Twisselman Road thru Lost Hills			0.03490578	0.02831966	0.03174218	0.00155504	0.01326985
11B	Lost Hills to 7th Standard Road			0.03824176	0.03115437	0.03478569	0.00170600	0.01455350
12D	7th Standard Road thru Elk Hills Road			0.04009312	0.03274031	0.03647572	0.00179001	0.01526741
12E	Elk Hills Road thru Tupman Road			0.04014397	0.03279589	0.03652306	0.00179253	0.01528847
13B	Tupman Road to Buena Vista Pumping Plant			0.04343323	0.03558110	0.03952321	0.00194122	0.01655295
14A	Buena Vista Pumping Plant thru Santiago Creek			0.04552298	0.03718058	0.04143137	0.00203618	0.01735961
14B	Santiago Creek thru Old River Road			0.04617191	0.03342424	0.04202703	0.00206642	0.01761493
14C	Old River Road to Wheeler Ridge Pumping Plant			0.04735241	0.03220394	0.04310736	0.00212063	0.01807432
15A	Wheeler Ridge Pumping Plant to Chrisman Pumping Plant			0.04804398	0.03267426	0.04374004	0.00215235	0.01834317
16A	Chrisman Pumping Plant to Edmonston Pumping Plant			0.04964403	0.03376234	0.04520241	0.00222537	0.01896287
17E	Edmonston Pumping Plant to Porter Tunnel			0.05163545	0.03511660	0.04702307	0.00231640	0.01973513
17F	Porter Tunnel to Junction, West Branch, Calif. Aqueduct			0.05173926	0.03518719	0.04711769	0.00232108	0.01977493
18A	Junction, West Branch, Calif. Aqueduct thru Alamo Pwp.			0.13485569		0.11344457	0.00605083	0.05154915
19	Alamo Powerplant to Fairmont			0.13485222		0.11344290	0.00605098	0.05154980
19C	Buttes Junction thru Buttes Reservoir			1.00000000				
20A	Fairmont thru 70th Street West			0.06847930		0.12213523	0.00651583	0.05550703
20B	70th Street West to Palmdale			0.02276024		0.12812785	0.00683566	0.05823170
21	Palmdale to Littlerock Creek			0.02318952		0.13056387	0.00696663	0.05934507
22A	Littlerock Creek to Pearblossom Pumping Plant			0.01181870		0.13242454	0.00706632	0.06019328
22B	Pearblossom Pumping Plant to West Fork Mojave River					0.13400843	0.00715085	0.06091324
23	West Fork Mojave River to Silverwood Lake					0.12416451	0.00818135	0.02168414
24	Cedar Springs Dam and Silverwood Lake					0.02651510	0.01251569	0.01910229
25	Silverwood Lake to South Portal San Bernardino Tunnel					0.09751351		0.01317145
26A	South Portal, San Bernardino Tunnel thru Devil Canyon Pwp.					0.12013473		0.01622697
28G	Devil Canyon Powerplant to Barton Road					0.30672992		0.04143095
28H	Barton Road to Lake Perris					0.32330286		0.04366951
28J	Perris Dam and Lake Perris					0.32330202		0.04366970
29A	Junction, West Branch, Calif. Aqueduct thru Oso P. P.			0.00296720	0.05726734			
29F	Oso Pumping Plant thru Quail Embankment			0.00296796	0.05726649			
29G	Quail Embankment thru Warne Powerplant				0.05742327			
29H	Pyramid Dam and Lake				0.03349572			
29J	Pyramid Lake thru Castaic Powerplant				0.05740996			
30	Castaic Dam and Lake				0.03248607			
31A	Avenal Gap to Devil's Den Pumping Plant	0.10542164	0.19449108		0.07351496			
33A	Devil's Den Pumping Plant thru Tank 1	0.10101221	0.89898779					
33B	Tank 1 thru Chorro Valley Turnout	0.10101221	0.89898779					
34	Chorro Valley Turnout through Lopez Turnout	0.05271277	0.94728723					
35	Lopez Turnout throu Guadalupe Turnout		1.00000000					

Note: Proportionate use factors reflect permanent capacity water transfer that have been signed as of February 1, 2006.

TABLE B-2. Factors for Distributing Reach Minimum OMP&R Costs Among Contractors

Reach No.	SAN JOAQUIN VALLEY AREA										
							Kern County Water Agency				
	Napa County FC&WCD	Solano County WA	Alameda County FC&WCD, Zone 7	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	0.00101503	0.00145926	0.02320270	0.01822142	0.00088480	0.00254117	0.02735295	0.27469072	0.00247193	0.00166749	0.02830375
2A	0.00106167	0.00152624	0.00868437	0.01903859	0.00092448	0.00266184	0.02863089	0.28700500	0.00258450	0.00174223	0.02957310
2B	0.00106383	0.00152939	0.00870009	0.01908995	0.00092696	0.00266476	0.02867562	0.28778222	0.00259040		0.02965288
3	0.00106393	0.00152954	0.00870024	0.01909529	0.00092722	0.00266425	0.02867409	0.28786344	0.00259080		0.02966116
4	0.00106401	0.00152968	0.00870041	0.01910089	0.00092749	0.00266370	0.02867248	0.28794882	0.00259124		0.02966986
5	0.00106413	0.00152986	0.00870062	0.01910789	0.00092783	0.00266303	0.02867046	0.28805544	0.00259177		0.02968073
6	0.00106431	0.00153014	0.00870096	0.01911848	0.00092835	0.00266203	0.02866740	0.28821677	0.00259258		0.02969716
7	0.00106438	0.00153022	0.00870107	0.01912188	0.00092852	0.00266169	0.02866642	0.28826851	0.00259284		0.02970244
8C	0.00105148	0.00151159	0.00859994	0.01886176	0.00091590	0.00263501	0.02834912	0.28434072	0.00255999		0.02929844
8D	0.00107370	0.00154358	0.00878005	0.01927090		0.00268862	0.02893698	0.29051094	0.00165734		0.01089124
9	0.00079826	0.00110157	0.00786471				0.03143148	0.29263291			
10A	0.00081139	0.00111953	0.00799211				0.03193731	0.28144288			
11B	0.00065052	0.00095254	0.00354792				0.03506894	0.21771722			
12D							0.03681479	0.18486151			
12E							0.03687019	0.18374304			
13B							0.01413733	0.14208658			
14A							0.00599913	0.10936622			
14B							0.00609042	0.10066378			
14C							0.00625275	0.07940837			
15A							0.00634765	0.06578229			
16A							0.00656553	0.03434119			
17E							0.00201100				
31A	0.00628695	0.00977801	0.02617705			0.05037550		0.43917148	0.00176551		

Reach No.	SOUTHERN CALIFORNIA AREA (continued)								
	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	The Metropolitan Water District of Southern California	Ventura County Flood Control District	Total
1	0.00049056	0.01818303	0.00458550	0.02356891	0.00648711	0.00397380	0.41547239	0.00427921	1.00000000
2A	0.00051386	0.01902951	0.00480271	0.02467716	0.00679322	0.00416065	0.43517158	0.00448242	1.00000000
2B	0.00051442	0.01906116	0.00480833	0.02471121	0.00680191	0.00416639	0.43566900	0.00448735	1.00000000
3	0.00051433	0.01906070	0.00480752	0.02470855	0.00680098	0.00416594	0.43559198	0.00448650	1.00000000
4	0.00051424	0.01906023	0.00480668	0.02470576	0.00680000	0.00416546	0.43551100	0.00448561	1.00000000
5	0.00051412	0.01905962	0.00480562	0.02470229	0.00679878	0.00416487	0.43540988	0.00448450	1.00000000
6	0.00051392	0.01905870	0.00480402	0.02469702	0.00679694	0.00416399	0.43525686	0.00448280	1.00000000
7	0.00051385	0.01905842	0.00480349	0.02469533	0.00679634	0.00416372	0.43520780	0.00448226	1.00000000
8C	0.00050870	0.01884315	0.00475451	0.02443210	0.00672541	0.00411933	0.44227753	0.00443733	1.00000000
8D	0.00051904	0.01923550	0.00485156	0.02493497	0.00686329	0.00420412	0.45134389	0.00452761	1.00000000
9	0.00056296	0.01845645	0.00526337	0.02706903	0.00744835	0.00456392	0.48981993	0.00491076	1.00000000
10A	0.00057175	0.01874332	0.00534585	0.02749934	0.00756597	0.00463648	0.49755423	0.00498733	1.00000000
11B	0.00062640	0.02052979	0.00585888	0.03016888	0.00829640	0.00508658	0.54559067	0.00546394	1.00000000
12D	0.00065673	0.02152073	0.00605960	0.03165452	0.00870248	0.00533707	0.57229756	0.00572844	1.00000000
12E	0.00065758	0.02154749	0.00606732	0.03169920	0.00871431	0.00534461	0.57307663	0.00573571	1.00000000
13B	0.00071145	0.02330931	0.00656455	0.03432822	0.00943394	0.00578787	0.62040339	0.00620565	1.00000000
14A	0.00074569	0.02442760	0.00688049	0.03600736	0.00989269	0.00607098	0.65057491	0.00650421	1.00000000
14B	0.00075633	0.02477336	0.00697864	0.03654173	0.01003745	0.00616108	0.66009578	0.00659690	1.00000000
14C	0.00077566	0.02540391	0.00715715	0.03750028	0.01029837	0.00632270	0.67725661	0.00676554	1.00000000
15A	0.00078697	0.02577340	0.00726173	0.03806102	0.01045107	0.00641723	0.68730050	0.00686434	1.00000000
16A	0.00081317	0.02662897	0.00750366	0.03935225	0.01080332	0.00663493	0.71046704	0.00709292	1.00000000
17E	0.00084580	0.02769354	0.00780477	0.04096189	0.01124220	0.00690630	0.73933042	0.00737743	1.00000000
17F	0.00084750	0.02774917	0.00782046	0.04104458	0.01126486	0.00692025	0.74082077	0.00739226	1.00000000
18A	0.00220895	0.04946256	0.01657935	0.10699871	0.02936451	0.01804030	0.47144538		1.00000000
19	0.00220892	0.04946131	0.01657891	0.10700135	0.02936470	0.01804074	0.47144817		1.00000000
19C									1.00000000
20A	0.00237800	0.05324853	0.01784830	0.11522152	0.03161788	0.01942666	0.50762172		1.00000000
20B	0.00249470	0.05586076	0.01872390	0.12087843	0.03316974	0.02038045	0.53253657		1.00000000
21	0.00254199	0.05692053		0.12319479	0.03380312	0.02077093	0.54270355		1.00000000
22A		0.05773082		0.12495766	0.03428593	0.02106816	0.55045459		1.00000000
22B		0.05842136		0.12645207	0.03469602	0.02132008	0.55703795		1.00000000
23				0.14467451	0.03969010	0.02439237	0.63721302		1.00000000
24				0.22243002	0.04339445	0.02843498	0.64760747		1.00000000
25				0.11825184	0.03722720	0.01993915	0.71389685		1.00000000
26A				0.14947726	0.03997501	0.02520426	0.64898177		1.00000000
28G				0.05126136			0.60057777		1.00000000
28H							0.63302763		1.00000000
28J							0.63302828		1.00000000
29A							0.92702291	0.01274255	1.00000000
29F							0.92702302	0.01274253	1.00000000
29G							0.92979606	0.01278067	1.00000000
29H							0.95753173	0.00897255	1.00000000
29J							0.92980918	0.01278086	1.00000000
30							0.95895422	0.00855971	1.00000000
31A		0.09301782							1.00000000
33A									1.00000000
33B									1.00000000
34									1.00000000
35									1.00000000

TABLE B-3. Power Costs and Credits, Transmission Costs, and Annual Replacement Deposits for Each Aqueduct Pumping and Power Recovery Plant [a]

(in dollars)

	NORTH BAY AQUEDUCT			SOUTH BAY AQUEDUCT	CALIFORNIA AQUEDUCT					
	Reach 1	Reach 3A	Reach 3B	Reach 1 [c]	Reach 1	Reach 4	Reach 14A	Reach 15A	Reach 16A	Reach 17E
Calendar Year	Barker Slough Pumping P.	Cordelia Pumping P. Solano	Cordelia Pumping P. Napa [b]	South Bay & Del Valle Pumping P.	Banks Pumping P.	Dos Amigos Pumping P.	Buena Vista Pumping P.	Teerink Pumping P.	Chrisman Pumping P.	Edmonston Pumping P.
	[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	37,731	0	0	0	0	0	0
1963	0	0	0	56,414	0	0	0	0	0	0
1964	0	0	0	71,745	0	0	0	0	0	0
1965	0	0	0	138,653	0	0	0	0	0	0
1966	0	0	0	189,402	0	0	0	0	0	0
1967	0	0	0	220,327	28,554	0	0	0	0	0
1968	0	0	7,128	339,261	1,286,777	227,505	0	0	0	0
1969	0	0	8,557	274,851	817,304	119,303	0	0	0	0
1970	0	0	13,666	439,983	330,508	193,720	2,940	0	0	0
1971	0	0	10,626	413,657	559,946	205,206	134,340	7,921	0	0
1972	0	0	14,430	615,164	1,072,833	541,628	305,868	159,125	348,235	1,179,787
1973	0	0	14,453	477,134	880,234	469,676	469,104	472,187	829,325	2,961,697
1974	0	0	17,508	502,473	959,269	536,361	514,168	553,285	993,796	3,522,973
1975	0	0	14,801	373,706	1,315,916	536,495	607,981	664,738	1,340,518	4,675,938
1976	0	0	20,867	580,607	878,728	572,326	658,261	645,377	1,360,502	4,740,176
1977	0	0	22,640	534,087	631,578	178,904	139,856	138,714	291,196	977,258
1978	0	0	21,670	559,981	3,833,011	653,606	966,756	926,444	1,728,268	6,104,186
1979	0	0	16,240	614,117	3,394,344	994,921	805,839	788,539	1,612,105	5,564,009
1980	0	0	19,936	523,445	1,981,918	818,368	857,033	846,757	1,808,192	6,269,482
1981	0	0	23,863	639,976	1,975,220	1,640,814	1,197,553	1,189,437	2,731,775	9,388,367
1982	0	0	12,078	484,808	3,405,761	1,148,258	1,159,605	1,212,973	2,557,070	9,355,533
1983	0	0	2,339	77,394	1,264,426	140,742	276,289	264,076	545,887	1,827,188
1984	0	0	4,797	289,827	1,390,432	555,409	551,468	508,111	1,044,264	3,507,659
1985	0	0	10,220	456,051	2,830,593	1,283,981	1,336,378	1,378,587	2,994,227	10,459,919
1986	0	0	15,484	827,079	7,180,656	2,282,364	2,290,023	2,343,903	5,062,706	17,643,403
1987	0	0	27,223	901,077	3,924,603	1,996,638	1,851,663	1,885,638	4,119,308	14,361,151
1988	18,112	19,927	23,868	932,456	5,377,272	2,072,091	2,100,427	2,142,121	4,724,696	16,562,202
1989	30,783	45,783	26,501	1,211,118	10,887,880	3,334,006	3,427,675	3,553,496	7,936,397	27,756,045
1990	53,484	67,109	40,793	1,881,178	9,523,541	4,754,649	5,990,489	6,327,687	14,254,357	50,152,078
1991	11,254	10,442	5,983	365,808	3,463,154	723,518	1,263,736	1,445,729	3,363,863	12,019,190
1992	14,484	13,070	9,398	327,309	2,700,240	808,067	1,071,702	1,121,273	2,503,167	8,677,102
1993	(12,340)	(8,753)	(5,393)	(159,836)	(333,548)	(609,139)	(461,719)	(459,965)	(1,018,142)	(3,558,718)
1994	54,407	39,608	29,189	823,317	4,438,900	1,938,280	2,325,005	2,375,321	5,337,101	18,723,854
1995	20,699	20,620	11,791	253,482	4,009,296	1,076,372	924,147	887,105	1,948,905	6,847,537
1996	59,545	47,288	23,483	645,189	9,531,541	3,449,781	2,444,752	2,341,848	5,156,434	18,332,558
1997	69,837	52,935	21,955	963,877	7,625,930	3,064,281	2,847,907	2,788,387	6,217,434	22,057,503
1998	(11,058)	(9,488)	(4,554)	(124,695)	296,016	(362,362)	(316,705)	(304,065)	(673,122)	(2,350,976)
1999	30,114	25,288	10,024	516,703	4,988,797	2,287,161	1,553,244	1,241,104	3,232,010	12,564,772
2000	58,591	42,543	15,078	860,785	8,018,823	3,043,577	2,963,119	3,035,444	6,985,916	25,206,823
2001	358,726	248,919	213,001	4,045,747	24,049,006	9,826,265	14,784,423	15,166,621	34,168,448	126,253,823
2002	186,186	102,222	60,093	2,190,992	16,807,227	6,740,615	8,238,545	8,538,761	19,287,643	70,880,768
2003	175,952	115,069	95,023	2,487,701	20,922,559	8,769,499	10,363,118	10,792,509	24,604,453	90,561,341
2004	242,315	134,187	103,360	2,412,375	21,053,063	9,018,396	11,887,828	12,476,791	28,497,369	104,778,231
2005	278,132	143,598	145,812	2,734,374	28,939,713	12,758,363	12,347,806	12,701,242	28,859,501	102,413,846
2006	434,350	542,507	505,614	4,307,767	33,549,833	14,706,333	16,350,132	19,169,010	40,671,891	144,330,419
2007	590,980	738,139	687,942	5,027,189	38,871,852	17,446,618	22,077,197	25,851,676	54,939,980	195,095,796
2008	690,253	862,132	803,503	5,847,863	45,999,986	19,268,723	24,159,113	28,321,071	60,145,210	213,516,519
2009	471,915	374,214	388,904	6,372,608	37,179,973	17,754,325	21,507,786	21,347,482	49,937,709	187,149,290
2010	493,421	391,422	416,605	6,650,471	46,873,631	18,790,901	22,865,042	22,693,320	53,122,285	199,115,814
2011	496,491	391,567	424,332	6,652,823	43,287,706	19,052,728	23,317,369	23,158,954	54,239,007	203,345,555
2012	514,195	404,948	448,548	6,869,338	40,874,428	19,615,395	23,942,931	23,762,637	55,653,070	208,626,569
2013	560,407	444,221	504,428	7,504,849	53,285,819	21,971,197	27,002,796	26,794,891	62,827,735	235,583,646
2014	600,883	476,875	556,466	8,033,282	48,006,529	23,899,101	29,494,794	29,262,346	68,663,917	257,507,932
2015	616,026	484,040	586,096	8,149,207	53,829,633	24,362,286	30,108,161	29,872,480	70,109,581	262,944,031
2016	628,039	488,983	611,913	8,229,208	61,030,991	24,867,340	30,858,377	30,630,396	71,914,894	269,754,725
2017	626,188	481,926	621,252	8,114,990	55,012,291	24,555,395	30,503,508	30,286,455	71,107,577	266,736,485
2018	648,839	495,855	661,961	8,340,400	53,261,487	25,033,184	30,965,041	30,719,149	72,110,589	270,457,478
2019	669,869	508,101	701,793	8,538,566	63,216,351	26,673,162	33,496,642	33,290,481	78,247,055	293,634,371
2020	642,697	480,276	679,785	8,088,278	55,552,002	24,870,075	31,095,807	30,901,927	72,588,036	272,353,992
2021	642,959	479,487	681,858	8,075,528	54,611,697	24,931,695	31,222,790	31,035,297	72,909,894	273,577,740
2022	624,138	463,956	657,583	7,824,210	50,456,450	24,097,177	30,183,194	30,011,662	70,493,638	264,512,334
2023	627,484	466,716	661,896	7,868,867	54,262,566	24,264,404	30,400,110	30,226,692	71,002,595	266,424,794
2024	649,302	484,720	690,036	8,160,210	59,907,056	25,270,792	31,673,659	31,483,793	73,972,371	277,572,996
2025	646,528	482,429	686,457	8,123,162	50,025,808	25,035,573	31,325,609	31,132,100	73,134,690	274,412,906
2026	650,736	485,903	691,887	8,179,360	62,589,049	25,404,461	31,874,475	31,686,968	74,456,792	279,401,955
2027	641,415	478,212	679,865	8,054,893	55,603,610	24,907,148	31,213,982	31,030,218	72,900,791	273,550,492
2028	645,640	481,697	685,313	8,111,316	55,081,163	27,017,012	31,407,606	31,218,882	73,344,757	275,212,510
2029	637,836	475,259	675,250	8,007,124	54,176,019	24,732,992	30,989,057	30,807,296	72,373,724	271,570,563
2030	642,716	479,286	681,543	8,072,261	56,833,870	24,952,106	31,264,952	31,079,264	73,015,818	273,980,140
2031	634,372	472,401	670,781	7,960,854	50,070,394	24,041,101	29,859,163	29,651,745	69,609,093	261,113,474
2032	646,360	482,292	686,244	8,120,937	56,884,724	25,379,100	31,928,310	31,753,716	74,626,050	280,062,751
2033	677,228	507,762	726,051	8,533,081	57,859,184	26,115,385	32,533,252	32,298,632	75,868,894	284,627,172
2034	653,549	488,224	695,514	8,216,921	56,349,428	25,704,409	32,338,344	32,158,092	75,580,908	283,646,528
2035	640,870	477,760	679,160	8,047,612	55,222,480	24,950,395	31,300,312	31,120,579	73,118,589	274,378,059
TOTAL	19,984,909	15,881,677	19,972,511	261,090,005	1,782,008,031	787,460,158	965,140,135	972,914,432	2,257,440,944	8,404,613,741

a) Starting with 2005 transmission costs that vary and depend on Power usage are included, therefore recovered through the variable component.

b) Power costs for the period 1968 through 1987 are for an interim facility.

c) 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, Transmission Costs, and Annual Replacement Deposits for Each Aqueduct Pumping and Power Recovery Plant

(in dollars)

Calendar Year	CALIFORNIA AQUEDUCT (continued)									GRAND TOTAL
	Reach 18A Alamo Powerplant	Reach 22B Pearblossom Pumping Plant	Reach 23 Mojave Siphon Powerplant	Reach 26A Devil Canyon Powerplant	Reach 29A Oso Pumping Plant	Reach 29G Warne Powerplant	Reach 29J Castaic Powerplant	Reach 31A Las Perillas and Badger Hill Pumping Plants	Reach 33A Devil's Den, Bluestone and Polonio Pass Pumping Plants	
	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	37.731
1963	0	0	0	0	0	0	0	0	0	56.414
1964	0	0	0	0	0	0	0	0	0	71.745
1965	0	0	0	0	0	0	0	0	0	138.653
1966	0	0	0	0	0	0	0	0	0	189.402
1967	0	0	0	0	0	0	0	0	0	248.881
1968	0	0	0	0	0	0	0	118.578	0	1,979.249
1969	0	0	0	0	0	0	0	76.920	0	1,296.935
1970	0	0	0	0	0	0	0	134.749	0	1,115.566
1971	0	0	0	0	0	0	0	168.689	0	1,500.385
1972	0	81,484	0	(3,112)	157,005	0	(385,696)	213,251	0	4,300,002
1973	0	586.209	0	(956,197)	238.650	0	(1,193,216)	120,014	0	5,369.270
1974	0	566.546	0	(963,572)	286,640	0	(1,823,397)	119.505	0	5,785.555
1975	0	587.227	0	(1,125,945)	421.687	0	(2,835,302)	92,012	0	6,669.772
1976	0	871,540	0	(1,567,312)	278,869	0	(2,512,021)	146,530	0	6,674,450
1977	0	275.980	0	(1,262.960)	17,319	0	(1,701,284)	84,225	0	327,513
1978	0	1,758.473	0	(3,345.147)	215,573	0	(2,361.377)	190,745	0	11,252.189
1979	0	1,770,844	0	(3,381,969)	122,134	0	(2,752,003)	203,143	0	9,752,263
1980	0	1,769.468	0	(3.508.195)	86,893	0	(2,728,494)	182.996	0	8.927.799
1981	0	2,049.947	0	(3,743,153)	382,330	0	(2,854,192)	189,573	0	14,811.510
1982	0	1,614,895	0	(3,149,352)	444,009	(973,898)	(3,476,126)	182,427	0	13,978,041
1983	0	301.180	0	(5,905.161)	59,561	(1.314.237)	(3,904,690)	18,936	0	(6,346,070)
1984	0	633.223	0	(7,865.341)	135,658	(2.285.362)	844.120	117.585	0	(568.150)
1985	0	1,140.057	0	(10,664,136)	739.708	(8,476,552)	(19,162,735)	155,931	0	(15.517,771)
1986	(1,080,970)	2,482,042	0	(12,235,312)	1,037,512	(6,269,528)	(11,462,662)	317,622	0	10,434,322
1987	(1,062,392)	1,822,523	0	(10,871,342)	914,642	(6,757,040)	(11,630,562)	266,825	0	1,749,955
1988	(810,907)	2,373.442	0	(14,772,519)	951,580	(7,448,747)	(12,677,211)	237,272	0	1,826,082
1989	(822,973)	4,130.250	0	(19,098,882)	1,543,985	(8,790,866)	(14,657,167)	309,851	0	20,823,882
1990	(845,641)	6,810,694	0	(21,336,948)	3,032,334	(11,692,826)	(19,863,014)	466,262	0	49,616,226
1991	(351,262)	1,306,263	0	(5,781,948)	778,874	(5,250,121)	(8,731,129)	17,608	0	4,660,962
1992	(997,736)	1,116,809	0	(9,903,370)	541,093	(5,955,563)	(9,599,392)	111,742	0	(7,440,605)
1993	(84,856)	(370,935)	0	(7,956.659)	(244,261)	(4.607.075)	(9,740.511)	(122.190)	0	(29,754,040)
1994	(93,031)	2,529.462	0	(12,122,861)	1,039.474	(6,228.273)	(10,867,596)	226,378	(1,127)	10,567.408
1995	(1,297,179)	951,513	0	(10,256,635)	342,312	(3,827,718)	(7,403,219)	261,423	0	(5,229,549)
1996	(2,959,744)	2,725,712	(941,959)	(13,155,960)	908,180	(5,026,221)	(8,969,945)	321,137	0	14,933.619
1997	(2,876,697)	3,431,693	(1,932,337)	(13,519,660)	990,932	(5,184,788)	(9,027,058)	322,753	208,816	18,123,700
1998	(2,244,105)	(439,496)	(1,385,473)	(10,955,475)	(66,088)	(1,888,975)	(4,963,075)	(56,675)	(87,016)	(25,947,387)
1999	(2,811,928)	1,779,376	(2,482,354)	(14,772,635)	666,901	(5,526,541)	(9,954,674)	156,194	234,077	(6,262,367)
2000	(5,129,549)	3,965,245	(4,429,149)	(25,857,029)	1,215,093	(9,464,490)	(17,958,033)	231,108	380,555	(6,815,550)
2001	(3,298,048)	18,936,837	(3,649,034)	(19,510,279)	6,409,025	(7,987,833)	(13,981,232)	1,080,182	2,152,324	209,266,921
2002	(4,926,146)	10,444,621	(5,255,302)	(24,676,762)	3,719,061	(10,286,902)	(18,455,024)	529,085	1,320,943	85,446,626
2003	(3,431,664)	14,432,726	(6,760,773)	(28,047,969)	4,378,568	(10,281,922)	(17,307,974)	621,149	1,482,405	123,971,770
2004	(6,227,543)	16,376,616	(7,691,607)	(31,246,141)	5,297,989	(12,033,953)	(20,022,179)	651,104	1,718,113	137,426,314
2005	(6,140,331)	18,183,010	(6,778,759)	(30,599,808)	4,111,678	(8,251,156)	(13,698,272)	826,136	1,669,939	160,644,824
2006	(3,764,700)	23,462,935	(7,175,900)	(26,680,000)	7,428,524	(11,210,000)	(19,709,600)	1,163,771	2,964,936	241,047,822
2007	(4,373,715)	30,115,761	(6,756,637)	(25,406,557)	10,742,147	(11,778,965)	(20,915,620)	1,615,020	4,711,056	339,279,859
2008	(6,189,900)	33,639,787	(9,073,900)	(34,110,000)	11,452,528	(15,487,500)	(26,930,000)	1,714,091	4,269,285	358,898,764
2009	(5,582,798)	28,046,158	(6,526,500)	(31,566,025)	10,798,203	(15,056,975)	(25,235,050)	2,060,870	5,630,664	305,052,753
2010	(5,630,503)	30,037,151	(6,596,625)	(31,860,925)	11,368,480	(15,179,275)	(25,547,250)	2,147,558	5,889,638	336,041,161
2011	(5,676,281)	30,367,489	(6,650,250)	(32,188,175)	11,735,942	(15,783,600)	(26,489,900)	2,148,291	5,891,827	337,721,875
2012	(5,769,388)	31,832,503	(6,829,725)	(32,405,200)	11,743,121	(15,166,000)	(25,589,750)	2,215,693	6,093,187	346,836,500
2013	(5,758,155)	35,872,660	(6,846,000)	(32,831,750)	13,191,807	(15,745,900)	(26,533,450)	2,413,537	6,684,231	406,926,969
2014	(5,782,172)	38,710,496	(6,862,800)	(32,782,050)	14,533,787	(16,350,900)	(27,474,150)	2,578,042	7,175,687	440,248,065
2015	(5,871,801)	40,142,387	(7,063,725)	(33,390,200)	14,599,172	(16,195,075)	(27,196,050)	2,614,131	7,283,496	455,983,876
2016	(5,934,499)	41,397,662	(7,156,875)	(34,005,575)	14,899,964	(16,378,000)	(27,521,050)	2,639,035	7,357,905	474,313,433
2017	(5,889,990)	40,650,842	(7,174,350)	(33,978,600)	14,859,536	(16,553,625)	(27,844,950)	2,603,479	7,251,675	461,970,084
2018	(5,952,829)	42,026,567	(7,497,975)	(34,012,075)	14,716,265	(15,866,450)	(26,739,700)	2,673,652	7,461,317	469,502,755
2019	(5,999,923)	44,031,274	(7,434,300)	(34,727,425)	16,605,791	(17,564,050)	(29,744,150)	2,735,345	7,645,616	514,524,569
2020	(5,968,950)	41,544,900	(7,439,925)	(34,666,150)	15,186,007	(16,962,875)	(28,605,000)	2,595,164	7,226,835	470,162,881
2021	(5,995,458)	41,657,103	(7,505,625)	(34,811,350)	15,289,894	(17,103,250)	(28,864,150)	2,591,196	7,214,975	470,642,280
2022	(6,023,188)	40,097,764	(7,496,625)	(34,809,700)	14,887,951	(17,179,400)	(28,996,400)	2,512,957	6,981,242	449,298,943
2023	(6,038,651)	40,457,982	(7,534,575)	(34,804,325)	14,963,422	(17,170,050)	(28,980,700)	2,526,859	7,022,777	456,648,863
2024	(6,012,989)	42,254,501	(7,548,000)	(34,803,550)	15,507,613	(17,174,325)	(28,988,450)	2,617,557	7,293,730	483,011,022
2025	(5,984,836)	41,481,835	(7,450,050)	(34,514,225)	15,438,958	(17,174,375)	(28,988,500)	2,606,023	7,259,276	467,679,368
2026	(6,048,709)	42,714,696	(7,632,075)	(35,124,800)	15,543,198	(17,174,325)	(28,988,450)	2,623,519	7,311,547	488,646,187
2027	(6,006,644)	41,537,726	(7,471,275)	(34,768,475)	15,336,903	(17,206,350)	(29,039,650)	2,584,773	7,195,788	471,223,422
2028	(5,985,400)	41,864,710	(7,494,675)	(34,815,075)	15,392,376	(17,146,300)	(28,938,450)	2,602,335	7,248,262	475,933,679
2029	(5,995,317)	41,260,171	(7,507,125)	(34,810,950)	15,223,639	(17,174,300)	(28,988,500)	2,569,899	7,151,359	466,173,996
2030	(5,985,494)	41,638,163	(7,494,825)	(34,815,050)	15,344,555	(17,174,350)	(28,988,550)	2,590,178	7,211,943	473,328,526
2031	(5,989,113)	40,640,717	(7,813,125)	(34,452,000)	14,252,885	(16,066,325)	(27,113,650)	2,555,496	7,108,328	447,206,591
2032	(6,059,237)	41,989,327	(7,908,300)	(34,774,175)	15,906,565	(17,670,050)	(29,942,350)	2,605,331	7,257,209	481,974,804
2033	(6,024,927)	44,226,118	(7,942,800)	(34,611,900)	15,488,615	(16,256,200)	(27,577,100)	2,733,636	7,640,513	497,422,596
2034	(6,054,396)	42,483,681	(7,981,350)	(34,688,400)	16,111,895	(17,689,125)	(29,983,550)	2,635,212	7,346,477	488,012,361
2035	(6,056,370)	41,725,361	(7,716,375)	(35,001,675)	15,365,079	(17,192,050)	(29,116,400)	2,582,504	7,189,011	471,714,901
TOTAL	(221,899,035)	1,284,903,903	(262,889,034)	(1,390,336,103)	465,069,742	(643,640,552)	(1,123,386,862)	82,145,929	211,048,821	13,887,523,352

TABLE B-4. Annual Table A Amounts to Project Water

(in acre-feet)

Calendar Year	NORTH BAY AREA			SOUTH BAY AREA [a]				CENTRAL COASTAL AREA		
	Napa [b] 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]
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	6,215	38,986	45,201
1998	11,710	38,710	50,420	46,000	42,000	100,000	188,000	6,215	38,986	45,201
1999	15,850	39,170	55,020	46,000	42,000	100,000	188,000	25,000	45,486	70,486
2000	16,325	39,620	55,945	68,000	42,000	100,000	210,000	25,000	45,486	70,486
2001	20,725	45,836	66,561	78,000	42,000	100,000	220,000	25,000	45,486	70,486
2002	21,100	46,296	67,396	78,000	42,000	100,000	220,000	25,000	45,486	70,486
2003	21,475	46,756	68,231	78,400	42,000	100,000	220,400	25,000	45,486	70,486
2004	21,850	47,206	69,056	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2005	22,225	47,256	69,481	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2006	22,550	47,306	69,856	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2007	22,875	47,356	70,231	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2008	23,200	47,406	70,606	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2009	23,525	47,456	70,981	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2010	23,850	47,506	71,356	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2011	24,175	47,556	71,731	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2012	24,500	47,606	72,106	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2013	24,775	47,656	72,431	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2014	25,150	47,706	72,856	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2015	25,825	47,756	73,581	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2016	26,450	47,756	74,206	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2017	27,075	47,756	74,831	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2018	27,700	47,756	75,456	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2019	28,325	47,756	76,081	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2020	28,925	47,756	76,681	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2021	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2022	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2023	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2024	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2025	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2026	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2027	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2028	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2029	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2030	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2031	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2032	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2033	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2034	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2035	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
TOTAL	1,048,440	2,049,856	3,098,296	3,720,815	2,459,248	6,510,783	12,690,846	1,189,430	2,218,494	3,407,924

a) Table A amounts for the South Bay area were supplied by non-Project water from June 1962 through November 1967. Actual delivery quantities of Project water are shown for 1967.

b) District's Table A amounts exclude the amounts supplied by non-Project water from 1968 through 1987.

TABLE B-4. Annual Table A Amounts to Project Water

(in acre-feet)

Calendar Year	SAN JOAQUIN VALLEY AREA								
		Empire	Kern County Water Agency					Tulare Lake	
	Dudley Ridge Water District	West Side Irrigation District	Municipal and Industrial	Agricultural	Total	County of Kings	Oak Flat Water District	Basin Water Storage District	Total
	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[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	886,130	1,020,730	4,000	5,700	118,500	1,205,300
2001	53,370	3,000	134,600	866,349	1,000,949	4,000	5,700	118,500	1,185,519
2002	57,343	3,000	134,600	866,349	1,000,949	4,000	5,700	111,527	1,182,519
2003	57,343	3,000	134,600	866,349	1,000,949	4,000	5,700	111,127	1,182,119
2004	57,343	3,000	134,600	864,130	998,730	9,000	5,700	96,227	1,170,000
2005	57,343	3,000	134,600	864,130	998,730	9,000	5,700	96,227	1,170,000
2006	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2007	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2008	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2009	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2010	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2011	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2012	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2013	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2014	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2015	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2016	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2017	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2018	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2019	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2020	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2021	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2022	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2023	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2024	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2025	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2026	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2027	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2028	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2029	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2030	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2031	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2032	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2033	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2034	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2035	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
TOTAL	3,361,478	199,000	7,693,900	52,271,303	59,965,203	403,050	352,822	6,173,823	70,455,376

TABLE B-4. Annual Table A Amounts to Project Water

(in acre-feet)

Calendar Year	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	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District
	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[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	95,200	23,100	5,800	38,100	2,300	75,800	21,300	102,600	28,800
2001	138,400	95,200	23,100	5,800	38,100	2,300	75,800	21,300	102,600	28,800
2002	141,400	95,200	23,100	5,800	38,100	2,300	75,800	21,300	102,600	28,800
2003	141,400	95,200	23,100	5,800	38,100	2,300	75,800	21,300	102,600	28,800
2004	141,400	95,200	33,000	5,800	38,100	2,300	75,800	21,300	102,600	28,800
2005	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2006	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2007	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2008	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2009	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2010	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2011	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2012	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2013	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2014	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2015	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2016	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2017	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2018	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2019	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2020	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2021	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2022	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2023	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2024	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2025	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2026	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2027	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2028	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2029	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2030	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2031	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2032	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2033	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2034	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2035	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
TOTAL	7,432,000	4,545,098	4,334,011	321,556	2,476,500	127,210	3,760,043	1,127,720	5,909,177	1,641,322

TABLE B-4. Annual Table A Amounts to Project Water

(in acre-feet)

Calendar Year	SOUTHERN CALIFORNIA AREA				FEATHER RIVER AREA					
	San Gorgonio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC&WCD	Total	South Bay Area Future Contractor	GRAND TOTAL
	[30]	[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]
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	4,084,866
1998	0	2,011,500	20,000	2,517,900	9,600	1,200	1,400	12,200	0	4,086,021
1999	2,000	2,011,500	20,000	2,519,900	9,600	2,890	1,450	13,940	0	4,119,646
2000	3,000	2,011,500	20,000	2,565,900	9,600	2,890	1,510	14,000	0	4,121,631
2001	4,000	2,011,500	20,000	2,566,900	9,600	3,500	1,570	14,670	0	4,124,136
2002	4,000	2,011,500	20,000	2,569,900	9,600	3,500	1,630	14,730	0	4,125,031
2003	5,000	2,011,500	20,000	2,570,900	9,600	3,500	1,690	14,790	0	4,126,926
2004	6,000	2,011,500	20,000	2,581,800	9,600	3,500	0	13,100	0	4,127,061
2005	6,500	1,911,500	20,000	2,582,300	9,600	1,200	0	10,800	0	4,125,686
2006	7,000	1,911,500	20,000	2,582,800	9,600	1,200	324	11,124	0	4,126,885
2007	7,500	1,911,500	20,000	2,583,300	9,600	27,500	720	37,820	0	4,154,456
2008	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,020	39,120	0	4,165,931
2009	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,090	39,190	0	4,166,376
2010	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,160	39,260	0	4,166,821
2011	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,240	39,340	0	4,167,276
2012	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,320	39,420	0	4,167,731
2013	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,410	39,510	0	4,168,146
2014	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,500	39,600	0	4,168,661
2015	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,600	39,700	0	4,169,486
2016	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,170,211
2017	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,170,836
2018	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,171,461
2019	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,086
2020	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,686
2021	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2022	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2023	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2024	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2025	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2026	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2027	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2028	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2029	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2030	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2031	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2032	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2033	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2034	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2035	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
TOTAL	747,200	109,260,272	988,000	142,670,109	449,900	852,580	106,474	1,408,954	0	233,731,505

TABLE B-5A. Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(in acre-feet)

Calendar Year	Grizzly Valley Pipeline PC FC&WCD	NORTH BAY AQUEDUCT Reach 1 SCWA	Reach 3A SCWA	Reach 3B NC [a] FC&WCD	Total	SOUTH BAY AQUEDUCT Reach 1 ACWD	Reach 1 AC FC&WCD	Reach 2 AC FC&WCD	Reach 4 AC FC&WCD	Reach 5 ACWD	Reach 5 AC FC&WCD
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
1962	0	0	0	0	0	8,412	141	353	0	0	0
1963	0	0	0	0	0	10,914	814	917	0	0	0
1964	0	0	0	0	0	19,238	248	1,425	0	0	0
1965	0	0	0	0	0	15,280	637	1,830	138	0	0
1966	0	0	0	0	0	0	2,475	2,537	499	0	0
1967	0	0	0	0	0	0	1,527	2,391	862	0	0
1968	0	0	0	1,214	1,214	0	1,608	3,799	721	0	5
1969	0	0	0	2,687	2,687	0	1,165	3,459	1,851	0	160
1970	70	0	0	3,618	3,618	0	1,345	4,558	3,182	0	164
1971	64	0	0	2,521	2,521	0	546	1,908	2,403	0	160
1972	505	0	0	3,647	3,647	0	1,066	4,605	2,041	1,489	2,777
1973	679	0	0	3,792	3,792	0	430	1,123	1,193	0	229
1974	648	0	0	4,870	4,870	0	177	0	975	0	162
1975	405	0	0	6,840	6,840	0	137	1,783	1,864	0	120
1976	382	0	0	7,122	7,122	0	265	7,204	3,384	0	817
1977	303	0	0	8,226	8,226	0	210	4,491	2,213	0	524
1978	278	0	0	6,034	6,034	0	422	2,426	3,754	0	2,034
1979	329	0	0	6,561	6,561	0	197	4,283	5,567	0	3,937
1980	295	0	0	6,707	6,707	0	77	3,883	6,686	1,508	0
1981	355	0	0	9,001	9,001	0	1,250	4,648	5,273	5,752	1,157
1982	305	0	0	1,213	1,213	0	473	3,043	4,406	0	630
1983	262	0	0	2,287	2,287	0	179	2,712	1,714	0	50
1984	272	0	0	2,923	2,923	0	165	4,219	2,219	0	55
1985	254	0	0	4,039	4,039	0	213	5,199	2,060	0	63
1986	317	1,400	0	3,519	4,919	0	200	6,052	2,062	0	212
1987	452	1,550	0	7,693	9,243	0	218	7,538	2,372	0	285
1988	523	1	9,725	5,392	15,118	0	222	8,302	4,681	0	189
1989	486	10	17,246	6,195	23,451	0	222	8,051	6,562	0	418
1990	548	3,275	15,856	6,940	26,071	0	256	8,160	8,347	0	593
1991	420	3,117	3,855	1,380	8,352	0	162	3,676	3,269	0	359
1992	485	5,553	9,220	4,001	18,774	0	217	5,177	2,188	0	154
1993	444	14,709	14,471	5,286	34,466	0	190	5,843	8,430	1,650	5,964
1994	492	10,343	14,913	6,792	32,048	0	132	4,482	5,427	0	822
1995	308	5,452	15,893	5,182	26,527	0	278	6,236	7,195	0	955
1996	360	12,930	17,069	4,893	34,892	0	277	6,151	5,119	0	388
1997	231	16,029	17,501	4,341	37,871	0	138	6,647	6,501	1,323	1,582
1998	0	11,562	18,204	5,359	35,125	0	106	3,748	2,493	0	1,277
1999	0	15,191	19,562	5,304	40,057	0	148	3,048	8,227	0	1,444
2000	0	15,490	21,525	4,958	41,973	0	110	7,464	9,761	0	946
2001	0	14,849	19,737	9,345	43,931	0	105	7,822	4,879	0	3,010
2002	0	18,841	19,719	6,875	45,435	0	93	7,758	11,619	0	2,446
2003	0	17,260	16,691	7,646	41,597	0	108	7,916	11,348	0	2,887
2004	0	20,951	22,051	8,134	51,136	0	72	11,754	9,737	0	3,763
2005	0	18,290	19,529	7,669	45,488	0	1,430	11,520	10,100	0	1,826
2006	270	18,904	29,212	15,708	63,824	0	605	11,163	12,327	0	4,245
2007	600	19,870	20,975	17,000	57,845	0	112	12,960	17,492	0	4,327
2008	630	43,548	20,975	24,975	89,498	0	11,395	9,798	26,204	0	4,327
2009	2,090	40,831	6,625	23,525	70,981	0	11,395	9,798	26,204	0	4,327
2010	2,160	40,881	6,625	23,850	71,356	0	15,362	9,048	25,255	0	4,327
2011	2,240	29,406	18,150	24,175	71,731	0	2,994	15,717	33,132	0	2,552
2012	2,320	29,456	18,150	24,500	72,106	0	2,994	15,717	33,132	0	2,552
2013	2,410	29,506	18,150	24,775	72,431	0	2,994	15,717	33,132	0	2,552
2014	2,500	29,556	18,150	25,150	72,856	0	2,994	15,717	33,132	0	2,552
2015	2,600	29,606	18,150	25,825	73,581	0	2,994	15,717	33,132	0	2,552
2016	2,700	29,606	18,150	26,450	74,206	0	2,994	15,717	33,132	0	2,552
2017	2,700	29,606	18,150	27,075	74,831	0	2,994	15,717	33,132	0	2,552
2018	2,700	29,606	18,150	27,700	75,456	0	2,994	15,717	33,132	0	2,552
2019	2,700	29,606	18,150	28,325	76,081	0	2,994	15,717	33,132	0	2,552
2020	2,700	29,606	18,150	28,925	76,681	0	2,994	15,717	33,132	0	2,552
2021	2,700	29,606	18,150	29,025	76,781	0	2,994	15,717	33,132	0	2,552
2022	2,700	29,606	18,150	29,025	76,781	0	2,994	15,717	33,132	0	2,552
2023	2,700	29,606	18,150	29,025	76,781	0	2,994	15,717	33,132	0	2,552
2024	2,700	29,606	18,150	29,025	76,781	0	2,994	15,717	33,132	0	2,552
2025	2,700	29,606	18,150	29,025	76,781	0	2,994	15,717	33,132	0	2,552
2026	2,700	29,606	18,150	29,025	76,781	0	2,994	15,717	33,132	0	2,552
2027	2,700	29,606	18,150	29,025	76,781	0	2,994	15,717	33,132	0	2,552
2028	2,700	29,606	18,150	29,025	76,781	0	2,994	15,717	33,132	0	2,552
2029	2,700	29,606	18,150	29,025	76,781	0	2,994	15,717	33,132	0	2,552
2030	2,700	29,606	18,150	29,025	76,781	0	2,994	15,717	33,132	0	2,552
2031	2,700	29,606	18,150	29,025	76,781	0	2,994	15,717	33,132	0	2,552
2032	2,700	29,606	18,150	29,025	76,781	0	2,994	15,717	33,132	0	2,552
2033	2,700	29,606	18,150	29,025	76,781	0	2,994	15,717	33,132	0	2,552
2034	2,700	29,606	18,150	29,025	76,781	0	2,994	15,717	33,132	0	2,552
2035	2,700	29,606	18,150	29,025	76,781	0	2,994	15,717	33,132	0	2,552
TOTAL	82,292	1,110,487	830,929	1,003,539	2,944,955	53,844	134,170	655,833	1,119,104	11,722	127,917

a) Non-Project water deliveries were pumped from an interim facility from 1968 through 1987.

TABLE B-5A. Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(in acre-feet)

Calendar Year	SOUTH BAY AQUEDUCT[b] (Continued)						CALIFORNIA AQUEDUCT NORTH SAN JOAQUIN DIVISION				
	Reach 6	Reach 7		Reach 8	Reach 9	Total	Reach 1	Reach 2A			
	AC FC&WCD	ACWD	AC FC&WCD	ACWD	SCVWD		AC FC&WCD	OFWD[c]	KCWA (M&I)	KCWA (AG)	AC FC&WCD
	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
1962	0	0	0	0	0	8,906	0	0	0	0	0
1963	0	0	0	0	0	12,645	0	0	0	0	0
1964	0	0	0	0	0	20,911	0	0	0	0	0
1965	0	1,127	0	0	15,014	34,026	0	0	0	0	0
1966	0	14,864	0	0	34,538	54,913	0	0	0	0	0
1967	0	12,882	0	0	39,101	56,763	0	0	0	0	0
1968	0	24,817	0	0	70,105	101,055	0	3,084	0	0	0
1969	0	813	0	0	62,264	69,712	0	3,016	0	0	0
1970	0	0	0	0	80,311	89,560	0	5,911	0	0	0
1971	0	5,961	0	0	87,606	98,584	0	7,212	0	0	0
1972	0	26,182	0	0	100,266	138,426	0	8,166	0	0	0
1973	0	2,521	0	0	88,582	94,078	0	3,214	0	0	0
1974	0	0	0	4	88,000	89,318	0	3,471	0	0	0
1975	714	393	0	593	88,000	93,604	0	3,576	0	0	0
1976	5,461	13,774	0	7,526	88,000	126,431	0	4,112	0	0	0
1977	5,206	11,284	0	7,556	76,220	107,704	0	1,472	0	0	0
1978	2,348	854	0	5,009	95,727	112,574	0	3,906	0	0	0
1979	5,341	3,430	0	7,444	91,991	122,190	0	6,149	0	0	0
1980	6,144	2,824	0	6,702	88,000	115,824	0	5,700	0	0	0
1981	7,262	7,595	0	8,570	88,000	129,507	0	4,300	0	0	0
1982	4,571	1,776	0	4,540	88,000	107,439	0	3,838	0	0	0
1983	111	0	0	3,157	86,733	94,656	0	3,822	0	0	0
1984	126	0	0	3,338	88,000	98,122	0	5,700	0	0	0
1985	7,537	11,203	0	7,813	88,000	122,088	0	5,433	0	0	0
1986	2,083	5,311	0	7,068	88,000	110,988	0	5,107	0	0	0
1987	12,993	15,488	0	9,902	88,000	136,796	0	5,625	0	0	0
1988	12,436	24,259	0	9,205	87,961	147,255	0	4,412	0	0	0
1989	10,974	17,340	0	8,702	90,000	142,269	0	6,091	0	0	0
1990	15,678	22,149	0	9,554	91,800	156,537	0	2,922	0	0	0
1991	1,945	9,155	0	3,493	28,200	50,259	0	141	0	0	0
1992	6,933	12,621	0	6,532	42,839	76,661	0	2,239	0	0	0
1993	13,208	1,792	0	6,829	62,065	105,971	0	2,858	0	0	0
1994	9,679	3,379	0	19,532	57,115	100,568	0	3,071	0	0	0
1995	15,427	21	0	17,772	28,756	76,640	0	5,169	0	0	0
1996	6,968	1,871	0	11,591	44,850	77,215	0	4,904	0	0	0
1997	12,654	1,876	0	10,864	60,601	102,186	0	5,238	0	0	0
1998	8,347	3,817	0	11,478	39,610	70,876	0	4,401	0	0	0
1999	13,133	5,326	0	16,226	52,945	100,497	0	4,871	0	0	0
2000	16,396	4,498	0	18,100	78,258	135,533	0	4,508	0	0	0
2001	13,593	0	0	18,004	47,922	95,335	0	3,592	638	0	0
2002	17,058	5,112	0	20,616	58,875	123,577	0	4,885	773	0	0
2003	16,684	5,037	0	12,753	75,981	132,714	0	4,266	917	0	7
2004	21,260	4,968	0	14,916	59,458	125,928	0	4,629	786	0	38
2005	16,597	4,139	0	10,160	52,364	108,136	0	4,194	1,046	0	299
2006	18,505	7,309	0	21,502	60,608	136,264	0	4,928	72	2,760	53
2007	19,315	6,889	0	20,711	51,500	133,306	0	5,700	0	4,800	53
2008	13,102	7,118	0	23,482	59,500	154,926	0	5,700	0	4,800	53
2009	13,102	6,943	0	24,457	59,500	155,726	0	5,700	0	4,800	53
2010	10,834	6,943	0	24,457	59,500	155,726	0	5,700	0	4,800	53
2011	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2012	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2013	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2014	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2015	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2016	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2017	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2018	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2019	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2020	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2021	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2022	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2023	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2024	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2025	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2026	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2027	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2028	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2029	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2030	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2031	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2032	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2033	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2034	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
2035	19,706	4,000	0	30,500	100,000	208,601	50	5,700	0	4,800	0
TOTAL	856,375	425,661	-	1,182,658	5,658,666	10,225,950	1,250	335,433	4,232	141,960	609

b) Deliveries were supplied by non-Project water from June 1962 through November 1967.

c) Includes 425 AF of 1988 advance allocation and 141 AF of 1992 advance allocation.

TABLE B-5A. Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)									
	NORTH SAN JOAQUIN DIVISION (contd.)		SAN LUIS DIVISION							
	Reach 2A		Reach 3							
	TLBWSD	SCVWD	MWDSC	DRWD	SCVWD	TLBWSD	AC FC&WCD	ACWD	KCWA (M&I)	KCWA (AG)
	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]	[32]
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	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	0	0	0	0	0	0	0	0	0	0
1989	300	0	0	602	0	0	0	0	0	0
1990	0	200	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0	0
1997	0	0	11,100	0	0	0	0	0	0	0
1998	0	0	(11,100)	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0		0	3,320	57,825
2001	0	0	0	0	30,000	0	0	0	8,790	131,452
2002	0	0	0	0	0	0	0	0	21,050	50,346
2003	0	0	29,596	0	0	0	0	0	0	151,044
2004	0	0	0	0	0	0	0	0	0	44,877
2005	0	0	50,000	0	8,804	0	0	0	0	109,712
2006	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	30,000	0	0	0	0	0
2008	0	0	0	0	30,000	0	0	0	0	0
2009	0	0	0	0	30,000	0	0	0	0	0
2010	0	0	0	0	30,000	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0	0	0
2021	0	0	0	0	0	0	0	0	0	0
2022	0	0	0	0	0	0	0	0	0	0
2023	0	0	0	0	0	0	0	0	0	0
2024	0	0	0	0	0	0	0	0	0	0
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	300	200	79,596	602	158,804	0	0	0	33,160	545,256

TABLE B-5A. Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)										
	SAN LUIS DIVISION (continued)										
	Reach 4				Reach 5						
	KCWA					KCWA					
	(M&I)	(AG)	DRWD	TLBWSD	DRWD	(M&I)	(AG)	MWDSC	CLWA	TLBWSD	OFWD
	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]
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	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	1,550	0
1989	0	12,647	1,898	0	0	0	18,831	0	0	0	0
1990	0	0	0	1,500	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	10,823	0	0	0	0	0	0
1993	0	0	0	0	27,200	0	28,200	0	5,095	1,624	2,000
1994	0	0	0	0	0	0	0	0	0	0	0
1995	0	3,500	14,446	0	0	0	21,776	0	0	0	0
1996	1,125	4,162	0	0	0	1,125	81,507	0	0	4,000	0
1997	0	0	0	0	0	9,080	154,940	0	0	3,500	0
1998	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	1,300	0	0	0	21,500	0	8,000	0
2000	1,517	(11,928)	0	0	0	8,130	57,647	0	0	0	0
2001	0	0	0	0	0	0	0	0	0	2,457	0
2002	0	0	0	0	0	0	0	0	0	3,000	0
2003	0	1,351	0	0	0	0	0	0	0	3,900	0
2004	0	0	0	0	0	0	0	0	0	3,850	0
2005	0	7,000	0	0	0	0	0	0	0	1,000	0
2006	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0	0	0	0
2021	0	0	0	0	0	0	0	0	0	0	0
2022	0	0	0	0	0	0	0	0	0	0	0
2023	0	0	0	0	0	0	0	0	0	0	0
2024	0	0	0	0	0	0	0	0	0	0	0
2025	0	0	0	0	0	0	0	0	0	0	0
2026	0	0	0	0	0	0	0	0	0	0	0
2027	0	0	0	0	0	0	0	0	0	0	0
2028	0	0	0	0	0	0	0	0	0	0	0
2029	0	0	0	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0	0	0	0
2035	0	0	0	0	0	0	0	0	0	0	0
TOTAL	2,642	16,732	16,344	2,800	38,023	18,335	362,901	21,500	5,095	32,881	2,000

TABLE B-5A. Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)										
	SAN LUIS DIVISION (continued)										
	Reach 6					Reach 7					
		KCWA				KCWA					
	CK	(M&I)	(AG)	MWDSC	TLBWSD	(M&I)	(AG)	CLWA	DRWD	TLBWSD	MWDSC
	[44]	[45]	[46]	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]
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	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0
1989	0	0	8,260	0	0	0	5,262	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	31,200	0	0	18,157	10,043	0	0	0	0
1994	0	0	0	0	0	0	0	2,100	0	0	0
1995	0	0	3,932	0	0	10,875	20,595	0	0	0	0
1996	0	0	0	0	0	3,424	69,704	0	0	0	0
1997	0	0	0	0	0	27,079	32,463	0	0	0	0
1998	0	20,400	33,340	0	3,000	3,998	62,081	0	200	0	0
1999	0	0	33,776	11,000	23,000	7,923	19,500	0	0	4,470	500
2000	0	1,457	35,847	0	3,000	0	20,970	1,200	0	17,519	20,000
2001	0	0	0	0	600	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0	12,067	0
2003	0	0	0	0	0	0	0	0	0	15,103	0
2004	0	0	0	0	0	0	0	0	0	0	0
2005	6,954	0	0	0	0	0	0	0	0	4,000	0
2006	0	0	0	0	0	0	0	0	0	9,600	0
2007	0	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0	0	0	0
2021	0	0	0	0	0	0	0	0	0	0	0
2022	0	0	0	0	0	0	0	0	0	0	0
2023	0	0	0	0	0	0	0	0	0	0	0
2024	0	0	0	0	0	0	0	0	0	0	0
2025	0	0	0	0	0	0	0	0	0	0	0
2026	0	0	0	0	0	0	0	0	0	0	0
2027	0	0	0	0	0	0	0	0	0	0	0
2028	0	0	0	0	0	0	0	0	0	0	0
2029	0	0	0	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0	0	0	0
2035	0	0	0	0	0	0	0	0	0	0	0
TOTAL	6,954	21,857	146,355	11,000	29,600	71,456	240,618	3,300	200	62,759	20,500

TABLE B-5A. Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)										
	SOUTH SAN JOAQUIN DIVISION										
	Reach 7	Reach 8C						Reach 8D			
		KCWA						KCWA			
	CK	(M&I)	(AG)	DRWD	TLBWSD	EWSID	CK	(M&I)	(AG)	DRWD	CK
	[55]	[56]	[57]	[58]	[59]	[60]	[61]	[62]	[63]	[64]	[65]
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	25,100	1,978	900	0	0	26,360	0
1969	0	0	0	0	7,081	56	100	0	0	31,375	0
1970	0	0	0	0	0	3,942	0	0	0	40,407	0
1971	0	0	0	0	80,906	5,990	3,700	0	0	41,053	0
1972	0	0	0	0	144,843	5,795	1,400	0	0	42,443	0
1973	0	0	0	0	26,317	3,000	1,500	0	1,500	22,057	0
1974	0	0	0	0	32,603	3,000	1,500	0	0	33,390	0
1975	0	0	0	0	41,536	3,000	1,600	0	0	40,555	0
1976	0	0	0	0	26,595	3,000	1,600	0	0	41,421	0
1977	0	0	0	0	12,984	738	1,530	0	0	11,153	0
1978	0	0	0	0	3,934	454	2,070	0	0	51,747	0
1979	0	0	0	0	74,758	1,739	2,000	0	0	38,544	0
1980	0	0	0	0	35,140	894	2,200	0	0	41,000	0
1981	0	0	0	0	50,888	5,859	2,300	0	0	41,000	0
1982	0	0	0	0	4,405	361	1,536	0	0	41,000	214
1983	0	0	0	0	1,001	0	3,550	0	0	42,900	0
1984	0	0	0	0	3,677	0	3,100	0	0	45,100	0
1985	0	0	0	0	68,638	5,197	3,400	0	0	46,251	0
1986	0	0	0	0	40,017	1,170	3,700	0	0	50,249	0
1987	0	0	0	0	30,359	2,525	4,000	0	0	46,288	0
1988	0	0	0	0	46,281	3,475	4,000	0	0	47,994	0
1989	0	0	0	2,391	63,703	3,000	4,000	0	0	52,158	0
1990	0	0	0	0	23,504	1,279	2,000	0	161	36,296	0
1991	0	0	0	0	1,697	221	0	0	0	927	0
1992	0	0	0	280	15,982	1,354	1,806	0	0	12,667	0
1993	0	0	0	0	57,112	2,741	4,000	0	0	23,221	0
1994	0	0	0	0	21,510	1,666	2,116	0	1,726	28,793	0
1995	0	989	10,527	0	40,934	1,631	4,000	2,959	27,270	45,240	0
1996	0	0	1,500	95	84,130	1,868	4,000	0	1,455	52,722	0
1997	0	0	1,500	0	9,467	0	0	0	0	57,496	0
1998	0	0	1,000	90	8,956	542	15	0	20,000	49,435	0
1999	0	0	400	86	90,334	3,176	4,000	0	9,000	58,290	0
2000	0	0	400	166	63,842	1,799	3,600	0	0	57,920	0
2001	0	0	0	14	23,300	1,360	1,560	0	6,089	39,801	0
2002	0	0	0	0	34,009	1,405	2,854	0	7,522	47,434	0
2003	0	0	0	0	25,317	1,436	3,692	0	8,350	45,732	0
2004	0	0	0	0	30,546	3,562	5,803	0	4,979	45,823	3,250
2005	6,904	0	0	0	42,450	3,834	4,057	0	0	58,627	1,891
2006	0	0	0	0	39,051	4,236	9,445	0	0	55,098	0
2007	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2008	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2009	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2010	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2011	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2012	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2013	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2014	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2015	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2016	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2017	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2018	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2019	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2020	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2021	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2022	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2023	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2024	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2025	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2026	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2027	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2028	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2029	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2030	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2031	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2032	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2033	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2034	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
2035	0	0	0	0	38,369	3,000	9,000	0	0	57,343	0
TOTAL	6,904	989	15,327	3,122	2,545,608	174,283	363,634	2,959	88,052	3,252,914	5,355

TABLE B-5A. Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)									
	SOUTH SAN JOAQUIN DIVISION (continued)									
	Reach 8D				Reach 9				Reach 10A	
	SBC		SLOC			KCWA			KCWA	
	FC&WCD	SGVMWD	FC&WCD	TLBWSD	DRWD	(M&I)	(AG)	TLBWSD	(M&I)	(AG)
	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]
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	30,951	0	0	0
1969	0	0	0	0	0	0	24,489	0	0	0
1970	0	0	0	3,408	0	0	46,114	1,855	0	158
1971	0	0	0	41,579	0	0	58,356	0	0	9,973
1972	0	0	0	113,550	0	0	75,464	0	0	5,876
1973	0	0	0	24,147	0	0	54,583	0	0	22,948
1974	0	0	0	39,686	0	0	63,814	0	10,019	22,719
1975	0	0	0	44,722	0	0	50,021	0	2,791	72,121
1976	0	0	0	32,216	0	0	53,465	0	74	50,444
1977	0	0	0	5,097	0	0	24,668	0	201	34,451
1978	0	0	0	8,119	0	0	72,231	0	0	161,889
1979	0	0	0	80,363	0	0	74,524	0	285	153,245
1980	0	0	0	40,304	0	0	79,946	0	3,780	131,836
1981	0	0	0	32,550	0	0	76,508	0	341	133,500
1982	0	0	0	14,146	0	0	76,877	0	4,700	164,832
1983	0	0	0	5	0	2,217	84,573	0	0	146,493
1984	0	0	0	2,066	0	4,100	85,732	0	6,910	150,302
1985	0	0	0	41,153	0	0	67,696	0	6,495	153,473
1986	0	0	0	39,338	0	0	79,943	0	5,065	198,099
1987	0	0	0	62,725	0	0	97,732	0	900	226,521
1988	0	0	0	48,035	0	1,100	83,858	0	9,529	212,495
1989	0	0	0	63,947	0	0	91,134	0	21,038	251,979
1990	0	0	0	32,066	0	0	83,108	0	25,189	47,472
1991	0	0	0	483	0	13,683	601	0	1,142	6,820
1992	0	0	0	30,746	0	28	40,183	0	3,685	89,390
1993	0	0	0	65,732	197	5,945	53,597	0	775	233,862
1994	0	0	0	40,852	0	0	44,994	0	5,227	126,792
1995	0	0	0	57,435	0	0	64,076	0	366	229,448
1996	0	0	100	148,745	0	2,236	89,291	0	6,666	199,854
1997	0	0	100	9,402	4,900	0	72,013	0	3,577	157,385
1998	0	0	0	8,721	0	0	57,530	0	2,603	163,587
1999	0	0	0	162,631	0	0	72,734	0	1,657	190,787
2000	0	0	0	113,952	0	2,000	71,562	0	16,880	274,000
2001	0	0	0	58,369	0	0	54,198	0	160	97,623
2002	745	0	0	47,426	0	0	60,957	0	7,645	163,998
2003	0	0	0	61,521	0	0	54,724	0	2,648	172,243
2004	0	0	0	55,625	0	0	54,330	0	65,743	122,099
2005	0	0	0	92,552	0	0	53,206	0	22,087	210,657
2006	0	0	0	50,120	0	0	70,365	0	0	272,186
2007	0	0	0	57,553	0	0	97,971	0	0	210,478
2008	0	0	0	57,553	0	0	104,771	0	0	211,678
2009	0	0	0	57,553	0	0	104,771	0	0	211,678
2010	0	0	0	57,553	0	0	104,771	0	0	211,678
2011	0	0	0	57,553	0	0	104,771	0	0	213,678
2012	0	0	0	57,553	0	0	104,771	0	0	213,678
2013	0	0	0	57,553	0	0	104,771	0	0	213,678
2014	0	0	0	57,553	0	0	104,771	0	0	213,678
2015	0	0	0	57,553	0	0	104,771	0	0	213,678
2016	0	0	0	57,553	0	0	104,771	0	0	213,678
2017	0	0	0	57,553	0	0	104,771	0	0	213,678
2018	0	0	0	57,553	0	0	104,771	0	0	213,678
2019	0	0	0	57,553	0	0	104,771	0	0	213,678
2020	0	0	0	57,553	0	0	104,771	0	0	213,678
2021	0	0	0	57,553	0	0	104,771	0	0	213,678
2022	0	0	0	57,553	0	0	104,771	0	0	213,678
2023	0	0	0	57,553	0	0	104,771	0	0	213,678
2024	0	0	0	57,553	0	0	104,771	0	0	213,678
2025	0	0	0	57,553	0	0	104,771	0	0	213,678
2026	0	0	0	57,553	0	0	104,771	0	0	213,678
2027	0	0	0	57,553	0	0	104,771	0	0	213,678
2028	0	0	0	57,553	0	0	104,771	0	0	213,678
2029	0	0	0	57,553	0	0	104,771	0	0	213,678
2030	0	0	0	57,553	0	0	104,771	0	0	213,678
2031	0	0	0	57,553	0	0	104,771	0	0	213,678
2032	0	0	0	57,553	0	0	104,771	0	0	213,678
2033	0	0	0	57,553	0	0	104,771	0	0	213,678
2034	0	0	0	57,553	0	0	104,771	0	0	213,678
2035	0	0	0	57,553	0	0	104,771	0	0	213,678
TOTAL	745	0	200	3,442,571	5,097	31,309	5,481,707	1,855	238,178	11,249,019

TABLE B-5A. Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)										
	SOUTH SAN JOAQUIN DIVISION (continued)										
	Reach 10A								Reach 11B		
									KCWA		
	DRWD	AC FC&WCD	CLWA	SCVWD	ACWD	MWDSC	AVEKWA	TLBWSD	(M&I)	(AG)	DRWD
	[76]	[77]	[78]	[79]	[80]	[81]	[82]	[83]	[84]	[85]	[86]
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	24,776	0
1969	0	0	0	0	0	0	0	2,842	0	64,682	0
1970	0	0	0	0	0	0	0	4,315	0	72,279	0
1971	0	0	0	0	0	0	0	0	0	63,773	0
1972	0	0	0	0	0	0	0	0	0	72,358	0
1973	0	0	0	0	0	0	0	0	0	67,544	0
1974	0	0	0	0	0	0	0	0	0	87,476	0
1975	0	0	0	0	0	0	0	0	0	85,675	0
1976	0	0	0	0	0	0	0	0	0	85,067	0
1977	0	0	0	0	0	0	0	0	3,981	29,603	0
1978	0	0	0	0	0	0	0	0	0	88,753	0
1979	0	0	0	0	0	0	0	0	484	108,379	0
1980	0	0	0	0	0	0	0	0	3,112	103,207	0
1981	0	0	0	0	0	0	0	0	494	104,395	0
1982	0	0	0	0	0	0	0	0	798	99,081	0
1983	0	0	0	0	0	0	0	0	2,069	94,117	0
1984	0	0	0	0	0	0	0	0	2,349	124,819	0
1985	0	0	0	0	0	0	0	0	10,666	118,646	0
1986	0	0	0	0	0	0	0	0	8,673	124,836	0
1987	0	0	0	0	0	0	0	0	13,074	111,877	0
1988	0	0	0	0	0	0	0	0	13,509	114,031	0
1989	0	0	0	0	0	0	0	0	9,986	127,058	0
1990	0	0	0	0	0	0	0	0	9,319	104,107	0
1991	0	0	0	0	0	0	0	0	6,099	118	0
1992	0	0	0	0	0	0	0	0	7,419	35,093	0
1993	0	0	0	0	0	44,496	0	0	2,696	72,645	0
1994	0	0	0	0	0	0	0	0	3,506	71,202	0
1995	0	0	0	0	0	50,000	0	0	1,154	97,072	0
1996	0	0	0	45,000	6,200	95,000	0	0	1,185	96,250	0
1997	900	0	0	35,000	10,000	125,000	0	0	1,111	104,823	0
1998	0	1,970	0	23,800	3,780	39,500	0	0	1,311	72,646	0
1999	0	22,910	0	30,000	16,100	75,850	0	0	2,127	92,262	0
2000	0	23,940	0	23,730	13,380	9,208	0	0	3,793	89,623	1,500
2001	0	5,000	0	0	0	0	0	0	636	73,105	0
2002	0	14,287	24,000	3,311	2,083	0	0	0	1,457	91,123	0
2003	0	6,500	0	33,000	18,800	70,940	0	0	1,379	87,174	0
2004	0	5,740	32,522	0	8,000	0	0	0	1,299	97,722	0
2005	0	0	0	55,448	28,422	31,210	0	0	824	93,554	0
2006	0	197	0	10,500	13,853	115,434	0	0	94	100,696	0
2007	0	0	0	10,500	14,400	0	1,000	0	1,390	101,500	0
2008	0	5,740	0	10,500	11,400	0	1,000	0	1,390	101,500	0
2009	0	5,740	0	10,500	10,600	0	1,000	0	1,390	101,500	0
2010	0	5,740	0	10,500	10,600	0	1,000	0	1,390	101,500	0
2011	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2012	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2013	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2014	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2015	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2016	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2017	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2018	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2019	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2020	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2021	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2022	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2023	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2024	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2025	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2026	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2027	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2028	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2029	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2030	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2031	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2032	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2033	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2034	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
2035	0	6,468	0	0	7,500	0	0	0	1,390	101,500	0
TOTAL	900	259,464	56,522	301,789	355,118	656,638	4,000	7,157	154,914	6,295,147	1,500

TABLE B-5A. Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)									
	SOUTH SAN JOAQUIN DIVISION (continued)									
	Reach 12D		Reach 12E							
	KCWA		KCWA			AC				
	(M&I)	(AG)	(M&I)	(AG)	ACWD	FC&WCD	CLWA	SCVWD	DRWD	MWDSC
	[87]	[88]	[89]	[90]	[91]	[92]	[93]	[94]	[95]	[96]
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	9,279	0	0	0	0	0	0
1971	0	0	0	28,056	0	0	0	0	0	0
1972	0	0	0	62,342	0	0	0	0	0	0
1973	0	0	0	13,082	0	0	0	0	0	0
1974	0	0	2,651	4,248	0	0	0	0	0	0
1975	0	0	0	10,787	0	0	0	0	0	0
1976	0	0	37,519	20,555	0	0	0	0	0	0
1977	0	0	20,280	1,737	0	0	0	0	0	0
1978	0	0	47,133	15,011	0	0	0	0	0	0
1979	0	0	50,740	61,567	0	0	0	0	0	0
1980	0	0	32,039	22,252	0	0	0	0	0	0
1981	0	0	59,917	58,470	0	0	0	0	0	0
1982	0	0	36,139	75,587	0	0	0	0	0	0
1983	0	0	0	10,950	0	0	0	0	0	0
1984	0	0	63,941	39,929	0	0	0	0	0	0
1985	0	0	69,839	84,117	0	0	0	0	0	0
1986	0	0	62,109	51,540	0	0	0	0	0	0
1987	0	0	95,297	86,223	0	0	0	0	0	0
1988	0	0	86,390	123,249	0	0	0	0	0	0
1989	0	0	83,965	146,544	0	0	0	0	0	0
1990	0	0	82,164	38,973	0	0	0	0	0	0
1991	0	0	8,842	303	0	0	0	0	0	0
1992	0	0	47,181	57,048	0	0	0	0	0	0
1993	0	0	84,822	285,554	0	0	0	0	0	5,504
1994	0	0	66,188	77,839	0	0	0	0	0	0
1995	0	0	107,130	181,097	0	0	0	0	1,000	0
1996	0	0	89,257	134,138	0	0	0	0	4,131	0
1997	0	0	32,061	128,329	0	0	0	0	8,012	1,486
1998	0	0	28,258	88,998	0	0	0	0	5,925	24,234
1999	0	0	110,161	255,343	0	0	0	0	1,321	62,162
2000	21	0	78,285	89,702	0	0	0	0	953	159,731
2001	41	0	5,256	46,205	0	0	0	0	0	0
2002	760	6	39,104	96,231	0	0	0	0	0	0
2003	2,431	152	64,196	87,339	0	0	0	0	0	45,989
2004	3,419	768	52,303	95,893	0	0	0	0	1,600	0
2005	2,841	644	43,835	340,281	1,878	3,419	20,000	2,619	1,154	15,384
2006	5,647	544	65,200	249,906	0	10,000	10,550	0	0	115,435
2007	6,500	0	90,390	148,412	0	10,000	0	0	0	0
2008	6,500	0	90,390	148,412	0	10,000	20,000	0	0	0
2009	6,500	0	104,600	134,202	0	10,000	20,000	0	0	0
2010	6,500	0	104,600	134,202	0	10,000	20,000	0	0	0
2011	6,500	0	104,600	134,202	0	0	0	0	0	0
2012	6,500	0	104,600	134,202	0	0	0	0	0	0
2013	6,500	0	104,600	134,202	0	0	0	0	0	0
2014	6,500	0	104,600	134,202	0	0	0	0	0	0
2015	6,500	0	104,600	134,202	0	0	0	0	0	0
2016	6,500	0	104,600	134,202	0	0	0	0	0	0
2017	6,500	0	104,600	134,202	0	0	0	0	0	0
2018	6,500	0	104,600	134,202	0	0	0	0	0	0
2019	6,500	0	104,600	134,202	0	0	0	0	0	0
2020	6,500	0	104,600	134,202	0	0	0	0	0	0
2021	6,500	0	104,600	134,202	0	0	0	0	0	0
2022	6,500	0	104,600	134,202	0	0	0	0	0	0
2023	6,500	0	104,600	134,202	0	0	0	0	0	0
2024	6,500	0	104,600	134,202	0	0	0	0	0	0
2025	6,500	0	104,600	134,202	0	0	0	0	0	0
2026	6,500	0	104,600	134,202	0	0	0	0	0	0
2027	6,500	0	104,600	134,202	0	0	0	0	0	0
2028	6,500	0	104,600	134,202	0	0	0	0	0	0
2029	6,500	0	104,600	134,202	0	0	0	0	0	0
2030	6,500	0	104,600	134,202	0	0	0	0	0	0
2031	6,500	0	104,600	134,202	0	0	0	0	0	0
2032	6,500	0	104,600	134,202	0	0	0	0	0	0
2033	6,500	0	104,600	134,202	0	0	0	0	0	0
2034	6,500	0	104,600	134,202	0	0	0	0	0	0
2035	6,500	0	104,600	134,202	0	0	0	0	0	0
TOTAL	203,660	2,114	4,757,182	7,098,982	1,878	53,419	90,550	2,619	24,096	429,925

TABLE B-5A. Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)										
	SOUTH SAN JOAQUIN DIVISION (continued)										
	Reach 13B							Reach 14A		Reach 14B	
	KCWA		AC					KCWA		KCWA	
	(M&I)	(AG)	FC&WCD	SCVWD	MWDSC	DRWD	TLBWSD	(M&I)	(AG)	(M&I)	(AG)
	[97]	[98]	[99]	[100]	[101]	[102]	[103]	[104]	[105]	[106]	[107]
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	4,891	0	0	0	0	0	0	0	0	3
1971	0	0	0	0	0	0	0	0	23,844	0	49,929
1972	0	17,388	0	0	0	0	0	0	26,621	0	77,034
1973	0	9,297	0	0	0	0	0	0	15,328	0	47,040
1974	8,038	4,246	0	0	0	0	0	0	7,794	0	32,356
1975	8,538	7,059	0	0	0	0	0	0	10,306	0	27,736
1976	5,626	8,855	0	0	0	0	0	0	268	0	35,296
1977	0	5,024	0	0	0	0	0	0	8,299	0	13,539
1978	21,773	7,601	0	0	0	0	0	0	34,029	0	72,351
1979	5,663	17,766	0	0	0	0	0	3,012	27,356	0	59,413
1980	0	22,515	0	0	0	0	0	4,312	16,876	0	40,513
1981	7,844	14,037	0	0	0	0	0	4,511	13,007	8	42,753
1982	0	25,553	0	0	0	0	0	3,735	24,240	184	57,739
1983	0	3,491	0	0	0	0	0	1,168	20,302	0	57,922
1984	12,117	26,178	0	0	0	0	0	137	35,369	10	79,179
1985	0	67,711	0	0	0	0	0	206	33,103	0	72,855
1986	0	66,551	0	0	0	0	0	180	26,384	0	70,864
1987	5,609	40,374	0	0	0	0	0	610	30,098	9	67,710
1988	9,298	47,167	0	0	0	0	0	622	32,778	19	75,968
1989	5,504	57,114	0	0	0	0	0	721	29,292	7	82,201
1990	7,645	20,423	0	0	0	0	0	673	26,800	13	81,076
1991	0	0	0	0	0	0	0	768	0	0	0
1992	789	17,449	0	0	0	0	0	673	16,238	464	41,143
1993	12,798	88,157	0	0	0	0	0	629	17,832	0	62,493
1994	2,494	33,148	0	0	0	0	0	2,513	16,760	3,000	54,011
1995	8,751	110,685	0	0	0	0	3,500	3	21,234	0	67,391
1996	28,063	64,849	0	0	0	0	0	0	26,978	0	85,936
1997	43,803	49,312	0	0	0	0	0	0	23,035	0	79,790
1998	29,444	40,085	0	0	5,500	0	0	0	15,706	0	58,132
1999	12,969	92,998	0	0	0	0	0	0	21,153	0	67,576
2000	4,066	98,136	0	0	0	0	0	0	19,264	0	70,585
2001	4,044	29,881	0	0	0	1,733	0	1	12,451	0	49,602
2002	15,951	55,493	0	0	0	736	0	0	11,161	0	52,762
2003	35,239	91,739	0	0	1,865	350	0	0	13,685	0	44,576
2004	1,922	73,801	0	0	0	1,657	0	0	13,030	0	52,012
2005	21,781	269,631	2,321	9,014	192	14,540	0	0	15,663	0	56,739
2006	30,297	142,006	0	0	10,500	3,554	0	0	10,352	0	48,570
2007	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2008	18,500	48,050	0	0	0	0	0	0	16,820	0	56,200
2009	18,500	48,050	0	0	0	0	0	0	16,820	0	56,200
2010	18,500	48,050	0	0	0	0	0	0	16,820	0	56,200
2011	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2012	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2013	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2014	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2015	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2016	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2017	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2018	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2019	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2020	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2021	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2022	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2023	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2024	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2025	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2026	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2027	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2028	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2029	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2030	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2031	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2032	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2033	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2034	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
2035	18,500	48,050	0	0	0	0	0	0	16,400	0	55,500
TOTAL	886,566	3,124,061	2,321	9,014	18,057	22,570	3,500	24,474	1,173,496	3,714	3,646,395

TABLE B-5A. Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)										
	SOUTH SAN JOAQUIN DIVISION								MOJAVE DIVISION		
	Reach 14C			Reach 15A		Reach 16A			Reach 18A	Reach 19	
	KCWA			KCWA		KCWA					
	(M&I)	(AG)	MWDSC	(M&I)	(AG)	(M&I)	(AG)	AVEKWA	AVEKWA	MWA	AVEKWA
	[108]	[109]	[110]	[111]	[112]	[113]	[114]	[115]	[116]	[117]	[118]
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	0	0	0	0	0	0	0	0	0	0
1971	0	24,187	0	0	3,552	0	0	0	0	0	0
1972	0	35,016	0	0	6,064	0	4,768	0	0	0	0
1973	0	19,043	0	0	19,916	0	1,961	0	0	0	0
1974	0	12,601	0	0	18,000	3,000	1,564	0	0	0	1,223
1975	0	12,783	0	0	35,420	3,200	9,867	0	0	0	7,622
1976	0	9,005	0	0	39,551	3,500	11,667	0	3,808	0	23,063
1977	0	3,757	0	0	6,158	3,420	685	0	1,231	0	8,927
1978	0	24,542	0	0	31,148	7,989	1,655	0	1,321	0	36,333
1979	0	22,372	0	0	38,602	2,813	15,808	0	2,098	0	49,910
1980	0	19,953	0	0	37,817	2,700	16,145	0	2,610	0	61,534
1981	7	18,729	0	0	39,033	2,636	18,156	0	2,340	0	65,690
1982	0	26,479	0	0	47,782	1,921	16,577	0	1,669	0	41,127
1983	0	26,613	0	0	37,426	1,400	17,907	0	43	0	26,377
1984	2	34,996	0	0	49,848	1,338	24,246	0	90	0	22,462
1985	0	31,758	0	0	44,078	1,309	16,820	0	8	0	23,440
1986	0	34,566	0	0	42,461	1,213	15,559	0	8	0	16,898
1987	10	31,019	0	0	34,748	1,665	10,170	0	0	0	15,958
1988	1	37,165	0	16	41,978	1,925	8,987	0	0	0	13,471
1989	5	37,800	0	2	43,239	2,668	8,649	0	0	0	18,007
1990	9	34,174	0	6	36,347	2,819	8,608	0	0	0	17,281
1991	0	0	0	0	0	2,588	343	2,000	0	0	728
1992	0	18,084	0	0	24,243	2,087	8,275	0	0	0	7,238
1993	0	28,103	0	0	27,997	2,494	9,167	0	0	0	13,340
1994	1,000	22,624	0	0	29,511	3,011	13,877	0	0	0	19,122
1995	0	31,285	0	0	26,134	3,188	15,042	0	0	0	20,222
1996	0	38,879	0	0	36,186	2,573	18,142	0	0	0	23,919
1997	0	33,512	0	0	36,281	3,997	17,048	0	0	64	28,834
1998	0	23,097	0	0	28,712	3,751	17,032	0	0	1,345	22,466
1999	0	31,489	0	0	36,801	3,316	24,071	0	0	1,439	30,944
2000	0	33,716	0	0	40,063	3,015	20,919	0	0	1,361	34,786
2001	0	23,557	0	0	31,192	1,894	13,476	0	0	1,385	24,370
2002	0	27,138	0	0	41,552	4,227	14,520	0	0	1,370	14,297
2003	0	24,783	12,911	0	36,602	1,168	16,799	0	0	1,285	12,145
2004	0	30,313	0	0	40,184	2,239	19,714	0	0	1,223	11,201
2005	27	21,952	0	0	39,870	167	18,353	0	11	1,051	11,804
2006	0	23,313	0	0	46,555	2,825	17,808	0	45	1,346	26,517
2007	0	26,800	0	0	48,300	3,610	19,500	0	0	1,235	10,646
2008	0	27,680	0	0	48,300	3,610	19,500	0	0	1,500	81,666
2009	0	27,680	0	0	48,300	3,610	19,500	0	0	1,657	95,048
2010	0	27,680	0	0	48,300	3,610	19,500	0	0	1,235	93,688
2011	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2012	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2013	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2014	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2015	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2016	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2017	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2018	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2019	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2020	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2021	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2022	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2023	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2024	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2025	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2026	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2027	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2028	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2029	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2030	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2031	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2032	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2033	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2034	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
2035	0	26,800	0	0	48,300	3,610	19,500	0	0	1,500	38,329
TOTAL	1,061	1,688,243	12,911	24	2,575,751	192,746	1,019,885	2,000	15,282	54,996	1,990,529

TABLE B-5A. Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)										
	MOJAVE DIVISION (continued)										
	Reach 20A			Reach 20B		Reach 21			Reach 22A		Reach 22B
	PWD	MWA	AVEKWA	PWD	AVEKWA	LCID	PWD	AVEKWA	AVEKWA	LCID	MWDSC(d
	[119]	[120]	[121]	[122]	[123]	[124]	[125]	[126]	[127]	[128]	[129]
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	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	338	0	0	0	0	0
1973	0	0	0	0	0	290	0	0	0	0	(14.800)
1974	0	0	0	0	0	400	0	0	0	0	(16.400)
1975	0	0	420	0	0	520	0	0	0	0	(18.000)
1976	0	0	471	0	416	589	0	0	0	0	(19.600)
1977	0	0	773	0	271	111	0	0	0	0	0
1978	0	0	5,549	0	934	208	0	0	0	0	(25,384)
1979	0	0	7,555	0	930	133	0	0	0	0	(25,063)
1980	0	0	7,605	0	655	191	0	0	3	0	(27,884)
1981	0	0	10,333	0	966	1,270	0	0	46	0	(31,105)
1982	0	0	7,313	0	8	0	0	0	174	0	(34,326)
1983	0	0	6,253	0	20	38	0	0	268	0	(37,547)
1984	0	0	9,558	0	2	1	0	0	550	0	(40,768)
1985	1,510	0	11,613	32	217	0	16	0	1,786	0	(43,989)
1986	3,041	0	13,808	45	0	163	10	0	1,735	0	(47,210)
1987	2,389	0	15,493	1,624	151	1,080	1,366	0	2,273	5	(50,931)
1988	366	0	17,117	1,261	281	419	143	0	3,210	0	(54,652)
1989	381	0	23,481	7,848	112	971	780	0	3,591	0	(58,373)
1990	282	0	25,843	8,292	84	1,747	34	0	3,988	0	(61,200)
1991	84	1,391	4,282	3,830	131	522	0	0	2,427	0	(18,360)
1992	185	1,310	18,518	3,850	650	251	0	0	3,859	0	(27,624)
1993	164	1,514	23,662	7,597	996	734	0	0	5,098	0	0
1994	299	1.399	25.250	8.119	124	1.098	0	0	4.657	0	0
1995	328	1.227	22.385	6.633	0	480	0	0	4.679	0	0
1996	354	1.316	26.979	11.080	0	494	0	0	5.458	0	0
1997	313	1.272	27.999	11.548	0	444	0	0	5.549	0	0
1998	195	0	25,985	8.557	0	404	0	0	4.468	0	0
1999	377	0	32,409	12.901	36	342	0	0	5,684	0	0
2000	0	0	37,819	9,060	80	0	0	5,002	5.890	0	0
2001	0	0	33,216	10.427	282	0	0	0	4,989	0	0
2002	0	0	36,311	18.496	1.662	0	0	0	5.404	0	0
2003	0	0	39.532	11,547	2,289	0	0	0	6,063	0	0
2004	0	0	40,408	12,139	1,774	0	23	0	6,095	0	0
2005	0	0	41,496	11,678	1,336	0	34	0	5,184	0	5,942
2006	222	0	41,674	18,062	1,608	800	0	0	4,617	0	0
2007	0	0	36,805	21,300	1,454	2,300	0	0	4,491	0	0
2008	0	0	37,906	21,300	1,498	2,300	0	0	4,625	0	0
2009	0	0	39,043	21,300	1,544	2,300	0	0	4,765	0	0
2010	0	0	40,216	21,300	1,588	2,300	0	0	4,908	0	0
2011	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2012	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2013	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2014	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2015	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2016	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2017	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2018	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2019	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2020	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2021	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2022	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2023	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2024	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2025	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2026	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2027	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2028	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2029	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2030	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2031	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2032	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2033	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2034	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
2035	0	0	88,822	21,300	1,569	2,300	0	0	12,680	0	0
TOTAL	10,490	9,429	3,015,630	802,326	61,324	80,738	2,406	5,002	433,534	5	(647,274)

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

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)										
	MOJAVE DIVISION (continued)									SANTA ANA DIV	
	Reach 22B					Reach 23	Reach 24			Reach 26A	
	SCWA	MWA	CVWD(e	DWA(e	AVEKWA(f	MWA	CLAWA	MWA	MWDSC(e	MWDSC(e	SBVMWD(g
	[130]	[131]	[132]	[133]	[134]	[135]	[136]	[137]	[138]	[139]	[140]
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	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	0	0
1972	0	55	0	0	0	0	464	0	0	0	1,275
1973	0	0	5,800	9,000	0	0	389	0	0	444	32,426
1974	0	0	6,400	10,000	0	14	627	0	0	84,981	16,605
1975	0	0	7,000	11,000	0	0	825	0	0	169,960	13,865
1976	0	0	7,600	12,000	0	0	1,002	0	0	215,312	12,273
1977	0	22	0	0	0	58	1,109	0	0	64,823	24,833
1978	0	0	10,084	15,300	0	0	1,209	0	0	297,708	4,055
1979	0	4,000	10,063	15,000	0	0	1,260	0	0	260,903	18
1980	0	4,000	10,884	17,000	0	0	1,239	0	0	300,345	0
1981	0	4,000	12,105	19,000	0	0	1,485	0	0	395,678	16,021
1982	0	10,500	13,326	21,000	0	0	1,238	0	0	214,566	8,409
1983	0	0	14,547	23,000	0	0	911	0	0	175,288	5,994
1984	0	0	15,768	25,000	0	0	1,128	0	0	122,311	5,556
1985	0	0	16,989	27,000	0	0	1,422	0	0	147,599	7,390
1986	0	0	18,210	29,000	0	0	1,506	0	0	215,265	6,421
1987	0	17	19,431	31,500	214	0	1,849	0	0	175,012	18,751
1988	0	9	20,652	34,000	0	0	2,006	0	0	247,101	21,386
1989	0	0	21,873	36,500	89	200	2,170	0	0	326,217	20,782
1990	0	0	23,100	38,100	10	0	1,827	0	0	399,387	18,831
1991	0	0	6,930	11,430	0	0	849	2,032	0	107,182	3,661
1992	0	42	10,427	17,197	0	0	519	9,334	0	219,524	3,358
1993	0	0	0	0	0	0	439	10,000	0	98,291	4,361
1994	0	14,634	0	0	0	0	785	819	0	192,979	9,135
1995	0	7,495	0	0	0	0	409	0	0	107,299	696
1996	0	6,111	0	0	0	0	485	0	0	73,438	6,064
1997	0	9,038	0	0	0	0	651	0	0	157,215	9,654
1998	0	2,580	0	0	0	0	187	0	0	36,770	1,878
1999	0	6,705	0	0	0	0	1,132	0	0	139,752	12,874
2000	0	10,019	0	0	0	0	1,194	0	0	326,647	18,399
2001	0	3,048	0	0	0	0	1,057	0	0	284,007	26,488
2002	0	2,976	0	0	497	0	2,189	0	0	303,127	63,468
2003	0	13,150	0	0	0	0	1,563	0	17,249	532,198	27,415
2004	0	11,953	0	0	253	0	2,006	0	0	548,654	56,150
2005	0	12,169	0	0	0	0	205	341	14,058	361,976	18,835
2006	0	38,072	0	0	0	0	2,900	0	0	509,933	75,002
2007	0	17,220	0	0	0	0	3,340	0	0	535,737	72,600
2008	0	64,985	0	0	0	0	5,920	0	0	21,593	102,600
2009	0	74,143	0	0	0	0	5,800	0	0	21,593	102,600
2010	0	74,565	0	0	0	0	5,800	0	0	21,593	102,600
2011	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2012	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2013	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2014	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2015	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2016	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2017	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2018	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2019	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2020	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2021	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2022	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2023	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2024	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2025	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2026	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2027	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2028	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2029	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2030	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2031	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2032	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2033	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2034	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
2035	0	74,300	0	0	0	0	5,800	0	0	535,737	102,600
TOTAL	0	2,249,008	251,189	402,027	1,063	272	206,096	22,526	31,307	21,805,833	3,517,729

e) 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.

f) 1988 advance allocation.

g) Includes 1,650 AF recaptured from ground water storage in 1982, 10,000 AF in 1987, and 8,749 AF in 1988. This water was stored under DWR's Ground Water Demonstration Program.

TABLE B-5A. Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)										
	SANTA ANA DIVISION (continued)										
	Reach 26A				Reach 28G	Reach 28H			Reach 28J		
	SGVMWD	SGPWA	CVWD(e	DWA(e	MWDSC	CVWD	DWA	MWDSC	CVWD	DWA	MWDSC
	[141]	[142]	[143]	[144]	[145]	[146]	[147]	[148]	[149]	[150]	[151]
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	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	18,942	0	0	0	0	0	0
1974	612	0	0	0	0	0	0	0	0	0	0
1975	5,450	0	0	0	0	0	0	0	0	0	251
1976	6,071	0	0	0	0	0	0	55	0	0	2,000
1977	8,996	0	0	0	0	0	0	43	0	0	2,442
1978	7,771	0	0	0	0	0	0	48	0	0	64,054
1979	290	0	0	0	0	0	0	1,290	0	0	94,353
1980	1,085	0	0	0	0	0	0	3,013	0	0	91,532
1981	3,619	0	0	0	0	0	0	4,365	0	0	149,405
1982	12,599	0	0	0	0	0	0	3,961	0	0	155,629
1983	734	0	0	0	0	0	0	6,645	0	0	41,616
1984	7,656	0	0	0	0	0	0	109,743	0	0	5,672
1985	5,028	0	0	0	0	0	0	182,781	0	0	6,538
1986	9,454	0	0	0	0	0	0	131,439	0	0	30,071
1987	10,630	0	0	0	0	0	0	144,743	0	0	26,315
1988	8,948	0	0	0	0	0	0	199,641	0	0	22,209
1989	12,839	0	0	0	0	0	0	247,430	0	0	51,462
1990	16,649	0	0	0	0	0	0	257,796	0	0	36,060
1991	5,399	0	0	0	0	0	0	38,832	0	0	5,958
1992	7,908	0	0	0	0	0	0	85,341	0	0	12,223
1993	14,397	0	23,100	38,100	0	0	0	61,841	0	0	4,588
1994	15,230	0	14,102	23,257	0	0	0	134,262	0	0	4,725
1995	12,922	0	23,100	38,100	0	0	0	117,762	0	0	21,099
1996	15,989	0	62,219	102,622	0	0	0	144,906	0	0	12,418
1997	18,175	0	58,100	53,100	0	0	0	107,853	0	0	47,777
1998	9,310	0	78,100	58,100	0	6,582	7,708	77,473	1,027	4,839	50,411
1999	21,729	0	50,480	58,100	0	0	0	206,689	0	0	8,163
2000	15,140	0	42,323	58,234	0	0	0	379,713	0	0	7,864
2001	2,360	0	9,100	15,010	0	0	0	260,984	0	0	33,414
2002	24,851	0	16,755	27,640	0	0	0	340,635	0	0	41,552
2003	21,934	116	14,443	23,819	0	0	0	246,485	0	0	50,776
2004	12,541	841	15,465	21,190	0	0	0	357,995	0	0	20,437
2005	13,984	692	34,356	49,089	0	0	0	242,245	0	0	114,499
2006	15,160	2,690	60,550	25,000	0	0	0	154,125	0	0	323,562
2007	12,000	7,500	104,600	30,950	0	0	0	124,048	0	0	224,480
2008	28,800	17,300	121,100	50,000	0	0	0	136,378	0	0	279,350
2009	28,800	17,300	121,100	50,000	0	0	0	136,378	0	0	279,350
2010	28,800	17,300	121,100	50,000	0	0	0	136,378	0	0	279,350
2011	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2012	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2013	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2014	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2015	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2016	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2017	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2018	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2019	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2020	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2021	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2022	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2023	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2024	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2025	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2026	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2027	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2028	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2029	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2030	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2031	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2032	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2033	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2034	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
2035	28,800	17,300	121,100	50,000	0	0	0	124,048	0	0	224,480
TOTAL	1,163,860	496,239	3,997,593	2,022,311	18,942	6,582	7,708	7,884,516	1,027	4,839	8,213,605

TABLE B-5A. Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)										
	WEST BRANCH									COASTAL BRANCH	
	Reach 29F	Reach 29H	Reach 30							Reach 31A	
	AVEKWA	VCFCD	CVWD	DWA	MWDSC(h	VCFCD	SBVMWD(g	CLWA	SBCFC&WCD	DRWD	CK
	[152]	[153]	[154]	[155]	[156]	[157]	[158]	[159]	[160]	[161]	[162]
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	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	0	0
1972	53	0	0	0	71,938	0	0	0	0	0	0
1973	20	0	0	0	155,297	0	0	0	0	0	0
1974	36	0	0	0	209,136	0	0	0	0	0	0
1975	26	0	0	0	374,280	0	0	0	0	0	0
1976	24	0	0	0	420,684	0	0	0	0	0	0
1977	0	0	0	0	122,447	0	0	0	0	0	0
1978	0	0	0	0	171,139	0	0	0	0	0	0
1979	0	0	0	0	145,591	0	0	7	0	0	0
1980	0	0	0	0	164,721	0	0	1,210	0	0	0
1981	0	0	0	0	277,503	0	0	5,761	0	0	0
1982	0	0	0	0	351,362	0	0	9,516	0	0	0
1983	0	0	0	0	157,519	0	0	9,476	0	0	0
1984	0	0	0	0	260,624	0	0	11,477	0	0	0
1985	0	0	0	0	390,696	0	0	12,401	0	0	0
1986	0	0	0	0	379,275	0	0	13,928	0	0	0
1987	0	0	0	0	417,285	0	0	16,167	0	0	0
1988	0	0	0	0	488,265	0	0	18,904	0	0	0
1989	0	0	0	0	589,962	0	0	21,719	0	0	0
1990	0	4,836	0	0	764,380	0	0	22,139	0	0	0
1991	0	988	0	0	257,835	0	0	3,846	1,240	0	0
1992	0	0	0	0	420,849	0	0	14,812	0	0	0
1993	6	0	0	0	437,470	0	0	13,787	0	0	0
1994	0	0	0	0	475,900	0	0	14,919	0	0	0
1995	0	0	0	0	139,882	0	0	17,747	0	0	0
1996	0	0	0	0	267,618	0	0	18,448	0	0	0
1997	11	0	10,240	16,890	271,379	1,850	0	22,842	0	0	0
1998	7	0	0	0	187,277	1,850	0	19,782	0	0	0
1999	0	0	0	0	327,001	1,850	0	28,813	0	0	0
2000	0	2,200	0	0	632,991	1,850	0	31,085	0	0	0
2001	0	0	0	0	444,764	1,850	0	30,701	0	0	0
2002	0	3,148	0	0	723,605	1,850	8,601	42,080	0	0	0
2003	0	3,150	0	0	678,964	1,850	0	51,735	0	0	0
2004	0	4,047	0	0	797,294	1,203	0	47,463	0	0	0
2005	0	0	0	0	538,839	1,665	0	36,747	0	4,684	0
2006	0	0	0	0	755,908	5,000	0	42,877	0	0	305
2007	0	3,150	0	0	827,235	16,850	0	50,000	0	0	305
2008	0	3,150	0	0	926,068	16,850	0	69,200	0	0	305
2009	0	3,150	0	0	926,068	16,850	0	69,200	0	0	305
2010	0	3,150	0	0	926,068	16,850	0	69,200	0	0	305
2011	0	3,150	0	0	1,027,235	16,850	0	89,177	0	0	305
2012	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2013	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2014	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2015	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2016	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2017	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2018	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2019	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2020	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2021	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2022	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2023	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2024	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2025	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2026	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2027	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2028	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2029	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2030	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2031	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2032	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2033	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2034	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
2035	0	3,150	0	0	1,027,235	16,850	0	95,200	0	0	305
TOTAL	183	109,719	10,240	16,890	42,555,994	509,468	8,601	3,211,966	1,240	4,684	9,150

h) Deliveries exclude 6,171 AF of 1982 exchange water.

TABLE B-5A. Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)								GRAND TOTAL
	COASTAL BRANCH							TOTAL	
	Reach 31A				Reach 34	Reach 35			
	KCWA (M&I)	KCWA (AG)	CLWA	MWDSC	SLOCFC&WCD	SLOCFC&WCD	SBCFC&WCD		
	[163]	[164]	[165]	[166]	[167]	[168]	[169]	[170]	[171]
1962	0	0	0	0	0	0	0	0	8,906
1963	0	0	0	0	0	0	0	0	12,645
1964	0	0	0	0	0	0	0	0	20,911
1965	0	0	0	0	0	0	0	0	34,026
1966	0	0	0	0	0	0	0	0	54,913
1967	0	0	0	0	0	0	0	0	56,763
1968	0	71,657	7,382	0	0	0	0	192,188	294,457
1969	0	52,094	9,970	0	0	0	0	195,705	268,104
1970	0	71,910	11,739	0	0	0	0	276,211	369,459
1971	0	98,481	12,490	0	0	0	0	553,081	654,250
1972	0	107,850	13,905	0	0	0	0	895,006	1,037,584
1973	0	69,227	9,418	0	0	0	0	638,930	737,479
1974	0	68,474	9,700	0	0	0	0	783,984	878,820
1975	0	74,516	10,700	0	0	0	0	1,129,728	1,230,577
1976	0	78,358	11,700	0	0	0	0	1,245,662	1,379,597
1977	0	35,504	5,075	0	0	0	0	465,442	581,675
1978	0	81,242	11,362	0	0	0	0	1,339,268	1,458,154
1979	0	104,017	19,138	0	0	0	0	1,537,075	1,666,155
1980	0	97,497	13,882	0	0	0	0	1,413,363	1,536,189
1981	0	97,054	12,700	0	0	0	0	1,779,479	1,918,342
1982	0	83,076	12,700	0	0	0	0	1,641,571	1,750,528
1983	0	87,859	12,659	0	0	0	0	1,089,626	1,186,831
1984	0	119,098	12,741	0	0	0	0	1,489,814	1,591,131
1985	0	110,124	12,099	0	0	0	0	1,863,544	1,989,925
1986	0	118,298	13,301	0	0	0	0	1,882,290	1,998,514
1987	0	116,259	11,821	0	0	0	0	1,984,570	2,131,061
1988	0	109,435	11,534	0	0	0	0	2,221,538	2,384,434
1989	0	102,156	14,645	0	0	0	0	2,686,838	2,853,044
1990	0	103,362	6,440	0	0	0	0	2,398,121	2,581,277
1991	0	780	716	0	0	0	0	489,489	548,520
1992	0	73,748	5,887	0	0	0	0	1,374,775	1,470,695
1993	0	90,764	4,157	0	0	0	0	2,173,352	2,314,233
1994	200	77,536	9,422	0	0	0	0	1,727,504	1,860,612
1995	0	85,050	9,486	0	0	0	0	1,926,835	2,030,310
		1,996							
1996	0	100,578	14,052	0	0	0	0	2,429,928	2,542,395
1997	0	97,020	4,870	0	1,099	0	7,439	2,263,966	2,404,254
1998	0	86,879	311	0	3,592	0	18,618	1,657,381	1,763,382
1999	0	92,095	4,086	0	0	3,743	20,137	2,755,025	2,895,579
2000	0	87,554	8,395	5,662	0	3,962	22,741	3,360,734	3,538,240
2001	0	63,448	1,238	0	0	4,283	18,946	2,033,444	2,172,710
2002	0	65,055	2,737	0	0	4,355	27,636	2,742,315	2,911,327
2003	0	65,691	4,001	0	0	4,453	26,968	3,138,285	3,312,596
2004	0	66,498	3,776	0	4,165	0	29,705	3,054,577	3,231,641
2005	0	68,190	2,709	0	0	4,251	23,344	3,422,451	3,576,075
2006	0	78,771	5,089	0	0	25,528	34,664	3,801,777	4,002,135
2007	0	90,629	6,000	0	0	4,824	45,486	3,390,204	3,581,955
2008	0	90,629	6,000	0	0	25,000	45,486	3,329,268	3,574,322
2009	0	90,629	6,000	0	0	25,000	45,486	3,352,368	3,581,165
2010	0	90,629	6,000	0	0	25,000	45,486	3,352,368	3,581,610
2011	0	90,629	6,023	0	0	25,000	45,486	3,847,604	4,130,176
2012	0	90,629	0	0	0	25,000	45,486	3,847,604	4,130,631
2013	0	90,629	0	0	0	25,000	45,486	3,847,604	4,131,046
2014	0	90,629	0	0	0	25,000	45,486	3,847,604	4,131,561
2015	0	90,629	0	0	0	25,000	45,486	3,847,604	4,132,386
2016	0	90,629	0	0	0	25,000	45,486	3,847,604	4,133,111
2017	0	90,629	0	0	0	25,000	45,486	3,847,604	4,133,736
2018	0	90,629	0	0	0	25,000	45,486	3,847,604	4,134,361
2019	0	90,629	0	0	0	25,000	45,486	3,847,604	4,134,986
2020	0	90,629	0	0	0	25,000	45,486	3,847,604	4,135,586
2021	0	90,629	0	0	0	25,000	45,486	3,847,604	4,135,686
2022	0	90,629	0	0	0	25,000	45,486	3,847,604	4,135,686
2023	0	90,629	0	0	0	25,000	45,486	3,847,604	4,135,686
2024	0	90,629	0	0	0	25,000	45,486	3,847,604	4,135,686
2025	0	90,629	0	0	0	25,000	45,486	3,847,604	4,135,686
2026	0	90,629	0	0	0	25,000	45,486	3,847,604	4,135,686
2027	0	90,629	0	0	0	25,000	45,486	3,847,604	4,135,686
2028	0	90,629	0	0	0	25,000	45,486	3,847,604	4,135,686
2029	0	90,629	0	0	0	25,000	45,486	3,847,604	4,135,686
2030	0	90,629	0	0	0	25,000	45,486	3,847,604	4,135,686
2031	0	90,629	0	0	0	25,000	45,486	3,847,604	4,135,686
2032	0	90,629	0	0	0	25,000	45,486	3,847,604	4,135,686
2033	0	90,629	0	0	0	25,000	45,486	3,847,604	4,135,686
2034	0	90,629	0	0	0	25,000	45,486	3,847,604	4,135,686
2035	0	90,629	0	0	0	25,000	45,486	3,847,604	4,135,686
TOTAL	200	5,887,442	378,056	5662	8,856	755,399	1,549,292	177,669,180	190,922,377

TABLE B-5B. Annual Water Quantities Delivered to Each Contractor

(in acre-feet)

Calendar Year	NORTH BAY AREA			SOUTH BAY AREA [b]				CENTRAL COASTAL AREA		
	Napa [a] 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]
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	88,000	107,439	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	9,726	15,118	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	25,256	32,048	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	29,999	34,892	18,903	19,662	89,850	128,415	100	0	100
1997	4,341	33,530	37,871	27,522	24,063	95,601	147,186	1,199	7,439	8,638
1998	5,359	29,766	35,125	17,941	19,075	63,410	100,426	3,592	18,618	22,210
1999	5,304	34,753	40,057	48,910	37,652	82,945	169,507	3,743	20,137	23,880
2000	4,958	37,015	41,973	58,617	35,978	101,988	196,583	3,962	22,741	26,703
2001	9,345	34,586	43,931	34,409	18,004	77,922	130,335	4,283	18,946	23,229
2002	6,875	38,560	45,435	53,261	27,811	62,186	143,258	4,355	28,381	32,736
2003	7,646	33,951	41,597	45,450	36,590	108,981	191,021	4,453	26,968	31,421
2004	8,134	43,002	51,136	52,364	27,884	59,458	139,706	4,165	29,705	33,870
2005	7,669	37,819	45,488	47,512	44,599	128,249	220,360	4,251	23,344	27,595
2006	15,708	48,116	63,824	57,095	42,664	71,108	170,867	25,528	34,664	60,192
2007	17,000	40,845	57,845	64,259	42,000	92,000	198,259	4,824	45,486	50,310
2008	24,975	64,523	89,498	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2009	23,525	47,456	70,981	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2010	23,850	47,506	71,356	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2011	24,175	47,556	71,731	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2012	24,500	47,606	72,106	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2013	24,775	47,656	72,431	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2014	25,150	47,706	72,856	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2015	25,825	47,756	73,581	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2016	26,450	47,756	74,206	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2017	27,075	47,756	74,831	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2018	27,700	47,756	75,456	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2019	28,325	47,756	76,081	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2020	28,925	47,756	76,681	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2021	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2022	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2023	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2024	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2025	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2026	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2027	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2028	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2029	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2030	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2031	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2032	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2033	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2034	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2035	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
TOTAL	1,003,539	1,941,416	2,944,955	3,210,462	2,030,881	6,131,092	11,372,435	764,455	1,551,277	2,315,732

a) Non-Project water deliveries were pumped through an interim facility from 1968 through 1987.

b) Non-Porject water deliveries were supplied from June 1962 through November 1967.

TABLE B-5B. Annual Water Quantities Delivered to Each Contractor

(in acre-feet)

Calendar Year	SAN JOAQUIN VALLEY AREA								
	Dudley Ridge Water District	Empire West Side Irrigation District	Kern County Water Agency			County of Kings	Oak Flat Water District	Tulare Lake Basin Water Storage District	Total
			Municipal and Industrial	Agricultural	Total				
	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[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	75,444	759,738
1981	41,000	5,859	75,758	615,642	691,400	2,300	4,300	83,438	828,297
1982	41,000	361	47,477	697,823	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	769,696	860,600	3,100	5,700	5,743	920,243
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	117,174	852,731	969,905	4,000	5,625	93,084	1,121,427
1988	47,994	3,475	122,409	887,111	1,009,520	4,000	4,412	95,866	1,165,267
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	128,316	1,039,614	1,167,930	4,000	4,858	124,468	1,354,615
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	135,654	1,049,409	1,185,063	4,000	4,904	236,875	1,489,658
1997	71,308	0	120,708	987,451	1,108,159	0	5,238	22,369	1,207,074
1998	55,650	542	89,765	768,825	858,590	15	4,401	20,677	939,875
1999	59,697	3,176	138,153	1,039,985	1,178,138	4,000	4,871	289,735	1,539,617
2000	60,539	1,799	122,484	1,055,885	1,178,369	3,600	4,508	198,313	1,447,128
2001	41,548	1,360	21,460	632,279	653,739	1,560	3,592	84,726	786,525
2002	48,170	1,405	90,967	737,864	828,831	2,854	4,885	96,502	982,647
2003	46,082	1,436	107,978	856,252	964,230	3,692	4,266	105,841	1,125,547
2004	49,080	3,562	127,711	716,220	843,931	9,053	4,629	90,021	1,000,276
2005	79,005	3,834	92,608	1,305,452	1,398,060	19,806	4,194	140,002	1,644,901
2006	58,652	4,236	104,135	1,063,832	1,167,967	9,750	4,928	98,771	1,344,304
2007	57,343	3,000	120,390	868,340	988,730	9,305	5,700	95,922	1,160,000
2008	57,343	3,000	120,390	878,340	998,730	9,305	5,700	95,922	1,170,000
2009	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2010	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2011	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2012	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2013	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2014	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2015	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2016	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2017	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2018	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2019	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2020	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2021	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2022	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2023	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2024	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2025	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2026	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2027	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2028	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2029	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2030	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2031	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2032	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2033	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2034	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
2035	57,343	3,000	134,600	864,130	998,730	9,305	5,700	95,922	1,170,000
TOTAL	3,370,052	174,283	6,649,658	50,797,447	57,447,105	391,997	337,433	6,129,031	67,849,901

TABLE B-5B. Annual Water Quantities Delivered to Each Contractor

(in acre-feet)

Calendar Year	SOUTHERN CALIFORNIA AREA									
	Antelope Valley-East Kern Water Agency	Castaic Lake Water Agency [c]	Coachella Valley Water District	Crestline-Lake Arrowhead Water Agency	Desert Water Agency	Littlerock Creek Irrigation District	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District
	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[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	34,089	27,988	19,431	1,849	31,500	1,085	17	5,379	18,751	10,630
1988	34,079	30,438	20,652	2,006	34,000	419	9	1,770	21,386	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	56,356	32,500	62,219	485	102,622	494	7,427	11,434	6,064	15,989
1997	62,393	27,712	68,340	651	69,990	444	10,374	11,861	9,654	18,175
1998	52,926	20,093	85,709	187	70,647	404	3,925	8,752	1,878	9,310
1999	69,073	32,899	50,480	1,132	58,100	342	8,144	13,278	12,874	21,729
2000	83,577	40,680	42,323	1,194	58,234	0	11,380	9,060	18,399	15,140
2001	62,857	31,939	9,100	1,057	15,010	0	4,433	10,427	26,488	2,360
2002	58,171	68,817	16,755	2,189	27,640	0	4,346	18,496	72,069	24,851
2003	60,029	55,736	14,443	1,563	23,819	0	14,435	11,547	27,415	21,934
2004	59,731	83,761	15,465	2,006	21,190	0	13,176	12,162	56,150	12,541
2005	59,831	59,456	34,356	205	49,089	0	13,561	11,712	18,835	13,984
2006	74,461	58,516	60,550	2,900	25,000	800	39,418	18,284	75,002	15,160
2007	54,396	56,000	104,600	3,340	30,950	2,300	18,455	21,300	72,600	12,000
2008	126,695	95,200	121,100	5,920	50,000	2,300	66,485	21,300	102,600	28,800
2009	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2010	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2011	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2012	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2013	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2014	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2015	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2016	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2017	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2018	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2019	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2020	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2021	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2022	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2023	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2024	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2025	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2026	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2027	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2028	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2029	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2030	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2031	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2032	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2033	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2034	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
2035	141,400	95,200	121,100	5,800	50,000	2,300	75,800	21,300	102,600	28,800
TOTAL	5,528,547	3,745,489	4,266,631	206,096	2,453,775	80,743	2,336,231	815,222	3,526,330	1,163,860

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

(in acre-feet)

Calendar Year	SOUTHERN CALIFORNIA AREA (contd.)				FEATHER RIVER AREA				South Bay Area Future Contractor	GRAND TOTAL
	San Gorgonio Pass Water Agency	The 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]
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	0	64	64	0	654,250
1972	0	71,938	0	88,028	0	0	505	505	0	1,037,584
1973	0	159,883	0	217,226	0	0	679	679	0	737,479
1974	0	277,717	0	323,334	0	0	648	648	0	878,820
1975	0	526,491	0	583,919	0	0	405	405	0	1,230,577
1976	0	618,451	0	697,468	0	0	382	382	0	1,379,597
1977	0	189,755	0	241,161	0	0	303	303	0	581,675
1978	0	507,565	0	601,691	0	0	278	278	0	1,458,154
1979	0	477,074	0	587,476	0	0	329	329	0	1,666,155
1980	0	531,727	0	653,625	0	0	295	295	0	1,536,189
1981	0	795,846	0	951,182	0	0	355	355	0	1,918,342
1982	0	691,192	0	830,771	0	0	305	305	0	1,750,528
1983	0	343,521	0	443,841	0	0	262	262	0	1,186,831
1984	0	457,582	0	569,571	0	0	272	272	0	1,591,131
1985	0	683,625	0	804,576	0	0	254	254	0	1,989,925
1986	0	708,840	0	836,368	0	0	317	317	0	1,998,514
1987	0	712,424	0	863,143	0	0	452	452	0	2,131,061
1988	0	902,564	0	1,056,271	0	0	523	523	0	2,384,434
1989	0	1,156,698	0	1,342,686	0	0	486	486	0	2,853,044
1990	0	1,396,423	4,836	1,585,906	0	0	548	548	0	2,581,277
1991	0	391,447	988	442,693	0	0	420	420	0	548,520
1992	0	710,313	0	815,658	0	0	485	485	0	1,470,695
1993	0	652,190	0	818,737	0	0	444	444	0	2,314,233
1994	0	807,866	0	972,337	0	0	492	492	0	1,860,612
1995	0	436,042	0	601,951	0	0	308	308	0	2,030,310
1996	0	593,380	0	888,970	0	0	360	360	0	2,542,395
1997	0	721,810	1,850	1,003,254	0	0	231	231	0	2,404,254
1998	0	410,065	1,850	665,746	0	0	0	0	0	1,763,382
1999	0	852,617	1,850	1,122,518	1,096	286	0	1,382	0	2,896,961
2000	0	1,541,816	4,050	1,825,853	901	586	0	1,487	0	3,539,727
2001	0	1,023,169	1,850	1,188,690	1,065	513	0	1,578	0	2,174,288
2002	0	1,408,919	4,998	1,707,251	1,181	419	0	1,600	0	2,912,927
2003	116	1,686,973	5,000	1,923,010	1,324	551	0	1,875	0	3,314,471
2004	841	1,724,380	5,250	2,006,653	1,434	1,440	0	2,874	0	3,234,515
2005	692	1,374,345	1,665	1,637,731	1,894	527	0	2,421	0	3,578,496
2006	2,690	1,984,897	5,000	2,362,678	5,480	1,200	270	6,950	0	4,008,815
2007	7,500	1,711,500	20,000	2,114,941	9,600	1,183	600	11,383	0	3,592,738
2008	17,300	1,363,389	20,000	2,021,089	9,600	1,200	630	11,430	0	3,585,122
2009	17,300	1,363,389	20,000	2,044,989	9,600	27,500	2,090	39,190	0	3,618,265
2010	17,300	1,363,389	20,000	2,044,989	9,600	27,500	2,160	39,260	0	3,618,710
2011	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,240	39,340	0	4,167,276
2012	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,320	39,420	0	4,167,731
2013	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,410	39,510	0	4,168,146
2014	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,500	39,600	0	4,168,661
2015	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,600	39,700	0	4,169,486
2016	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,170,211
2017	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,170,836
2018	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,171,461
2019	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,086
2020	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,686
2021	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2022	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2023	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2024	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2025	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2026	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2027	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2028	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2029	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2030	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2031	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2032	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2033	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2034	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
2035	17,300	1,911,500	20,000	2,593,100	9,600	27,500	2,700	39,800	0	4,172,786
TOTAL	496,239	81,118,712	619,187	106,357,062	292,775	750,405	82,292	1,125,472	0	191,965,557

TABLE B-6. Annual Water Quantities Conveyed Through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(in acre-feet)

Calendar Year	NORTH BAY AQUEDUCT											
	Barker Slough Pumping Plant				Cordelia Pumping Plant Solano County WA				Cordelia Pumping Plant Napa County FC&WCD			
	Initial Fill Water	Operational Losses	Water Supply Delivery	Total	Initial Fill Water	Operational Losses	Water Supply Delivery	Total	Initial Fill Water	Operational Losses	Water Supply Delivery [a]	Total
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[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	1	283	15,118	15,402	0	0	9,725	9,725	1	(1)	5,392	5,392
1989	0	758	23,451	24,209	0	0	17,246	17,246	0	(4)	6,195	6,191
1990	0	3	26,071	26,074	0	(634)	15,856	15,222	0	3	6,940	6,943
1991	0	667	8,352	9,019	0	124	3,855	3,979	0	198	1,380	1,578
1992	0	1,643	18,774	20,417	0	0	9,220	9,220	0	0	4,001	4,001
1993	0	1,153	34,466	35,619	0	0	14,471	14,471	0	0	5,286	5,286
1994	0	780	32,048	32,828	0	(6)	14,913	14,907	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	34,892	36,246	0	0	17,069	17,069	0	0	4,893	4,893
1997	0	1,422	37,871	39,293	0	0	17,501	17,501	0	0	4,341	4,341
1998	0	1,343	35,125	36,468	0	0	18,204	18,204	0	0	5,359	5,359
1999	0	2,522	40,057	42,579	0	0	19,562	19,562	0	0	5,304	5,304
2000	0	1,853	41,973	43,826	0	4	21,525	21,529	0	180	4,958	5,138
2001	0	1,760	43,931	45,691	0	0	19,737	19,737	0	0	9,345	9,345
2002	0	496	45,435	45,931	0	0	19,719	19,719	0	0	6,875	6,875
2003	0	3,991	41,597	45,588	0	0	16,691	16,691	0	0	7,646	7,646
2004	0	2,181	51,136	53,317	0	0	22,051	22,051	0	0	8,134	8,134
2005	0	935	45,488	46,423	0	0	19,189	19,189	0	0	8,009	8,009
2006	0	51	63,824	63,875	0	0	29,212	29,212	0	5	15,708	15,713
2007	0	51	57,845	57,896	0	0	20,975	20,975	0	5	17,000	17,005
2008	0	51	89,498	89,549	0	0	20,975	20,975	0	5	24,975	24,980
2009	0	51	70,981	71,032	0	0	6,625	6,625	0	5	23,525	23,530
2010	0	51	71,356	71,407	0	0	6,625	6,625	0	5	23,850	23,855
2011	0	51	71,731	71,782	0	0	18,150	18,150	0	5	24,175	24,180
2012	0	51	72,106	72,157	0	0	18,150	18,150	0	5	24,500	24,505
2013	0	51	72,431	72,482	0	0	18,150	18,150	0	5	24,775	24,780
2014	0	51	72,856	72,907	0	0	18,150	18,150	0	5	25,150	25,155
2015	0	51	73,581	73,632	0	0	18,150	18,150	0	5	25,825	25,830
2016	0	51	74,206	74,257	0	0	18,150	18,150	0	5	26,450	26,455
2017	0	51	74,831	74,882	0	0	18,150	18,150	0	5	27,075	27,080
2018	0	51	75,456	75,507	0	0	18,150	18,150	0	5	27,700	27,705
2019	0	51	76,081	76,132	0	0	18,150	18,150	0	5	28,325	28,330
2020	0	51	76,681	76,732	0	0	18,150	18,150	0	5	28,925	28,930
2021	0	51	76,781	76,832	0	0	18,150	18,150	0	5	29,025	29,030
2022	0	51	76,781	76,832	0	0	18,150	18,150	0	5	29,025	29,030
2023	0	51	76,781	76,832	0	0	18,150	18,150	0	5	29,025	29,030
2024	0	51	76,781	76,832	0	0	18,150	18,150	0	5	29,025	29,030
2025	0	51	76,781	76,832	0	0	18,150	18,150	0	5	29,025	29,030
2026	0	51	76,781	76,832	0	0	18,150	18,150	0	5	29,025	29,030
2027	0	51	76,781	76,832	0	0	18,150	18,150	0	5	29,025	29,030
2028	0	51	76,781	76,832	0	0	18,150	18,150	0	5	29,025	29,030
2029	0	51	76,781	76,832	0	0	18,150	18,150	0	5	29,025	29,030
2030	0	51	76,781	76,832	0	0	18,150	18,150	0	5	29,025	29,030
2031	0	51	76,781	76,832	0	0	18,150	18,150	0	5	29,025	29,030
2032	0	51	76,781	76,832	0	0	18,150	18,150	0	5	29,025	29,030
2033	0	51	76,781	76,832	0	0	18,150	18,150	0	5	29,025	29,030
2034	0	51	76,781	76,832	0	0	18,150	18,150	0	5	29,025	29,030
2035	0	51	76,781	76,832	0	0	18,150	18,150	0	5	29,025	29,030

a) Non-Project water deliveries were pumped through an interim facility from 1968 through 1987.

TABLE B-6. Annual Water Quantities Conveyed Through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(in acre-feet)

Calendar Year	SOUTH BAY AQUEDUCT						CALIFORNIA AQUEDUCT							
	South Bay Pumping Plant						North San Joaquin Division Banks Pumping Plant Transportation Water							
	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries: Water Supply [b]	Deliveries: Recreation	Total	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries: Water Supply	Deliveries: Recreation	Total	Conservation Water	Total
	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[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	91,427	(23,116)	2,121,366	7,672	2,197,349	(458,725)	1,738,624
1988	0	2,884	(698)	147,255	142	149,583	0	107,249	(35,484)	2,368,793	4,889	2,445,447	(303,583)	2,141,864
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	894	1,982	156,537	168	159,581	0	99,059	(290,965)	2,554,658	9,262	2,372,014	(374,027)	1,997,987
1991	0	2,637	(4,532)	50,259	150	48,514	0	80,106	(79,038)	539,748	4,879	545,695	554,904	1,100,599
1992	0	2,881	756	76,661	147	80,445	0	91,391	(218,170)	1,451,436	2,605	1,327,262	61,343	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	148,712	(120,985)	1,828,072	3,803	1,859,602	(324,640)	1,534,962
1995	0	1,188	(12,333)	76,640	146	65,641	0	173,074	(397,605)	2,003,475	2,575	1,781,519	293,159	2,074,678
1996	0	981	(1,990)	77,215	150	76,356	0	123,502	78,123	2,507,143	3,902	2,712,670	288,576	3,001,246
1997	0	1,575	5,016	102,186	155	108,932	527	135,106	(98,334)	2,366,152	2,594	2,406,045	(50,000)	2,356,045
1998	0	1,551	3,595	70,876	114	76,136	0	91,319	(346,039)	1,728,257	2,107	1,475,644	120,886	1,596,530
1999	0	2,166	12,313	100,497	139	115,115	0	135,809	(17,569)	2,855,522	4,301	2,978,063	(307,839)	2,670,224
2000	0	2,346	(20,958)	135,533	145	117,066	0	115,895	(13,232)	3,471,397	5,182	3,579,242	(15,487)	3,563,755
2001	0	2,784	1,301	95,335	196	99,616	0	222,144	(17,529)	1,903,190	1,978	2,109,783	86,928	2,196,711
2002	0	2,534	(13,938)	123,577	146	112,319	0	225,032	36,404	2,807,771	4,672	3,073,879	(151,719)	2,922,160
2003	0	2,920	(1,399)	132,714	131	134,366	0	226,713	(49,580)	3,198,537	11,362	3,387,032	328,334	3,715,366
2004	0	2,982	(7,240)	125,928	150	121,820	0	40,711	(4,079)	2,979,181	1,337	3,017,150	146,888	3,164,038
2005	0	2,823	(3,565)	108,136	154	107,548	0	120,419	(163,243)	3,667,793	1,270	3,626,239	571,155	4,197,394
2006	0	3,301	(2,807)	136,264	400	137,158	0	136,198	(63,771)	3,938,041	8,660	4,019,128	0	4,019,128
2007	0	3,298	193	133,306	400	137,197	0	132,919	80,228	3,523,510	8,660	3,745,317	0	3,745,317
2008	0	3,298	193	154,926	400	158,817	0	125,910	190	3,484,194	8,660	3,618,954	30,977	3,649,931
2009	0	3,351	0	155,726	400	159,477	0	129,619	(15,186)	3,508,094	8,660	3,631,187	(140,708)	3,490,479
2010	0	3,351	0	155,726	400	159,477	0	128,523	4,288	3,508,094	8,660	3,649,565	182,970	3,832,535
2011	0	3,351	0	208,601	400	212,352	0	128,364	64,678	4,056,205	8,660	4,257,907	137,242	4,395,149
2012	0	3,351	0	208,601	400	212,352	0	128,100	(67,943)	4,056,205	8,660	4,125,022	(260,827)	3,864,195
2013	0	3,351	0	208,601	400	212,352	0	128,264	9,749	4,056,205	8,660	4,202,878	145,525	4,348,403
2014	0	3,351	0	208,601	400	212,352	0	130,280	16,625	4,056,205	8,660	4,211,770	(186,678)	4,025,092
2015	0	3,351	0	208,601	400	212,352	0	130,445	32,003	4,056,205	8,660	4,227,313	(31,516)	4,195,797
2016	0	3,351	0	208,601	400	212,352	0	128,415	(28,401)	4,056,205	8,660	4,164,879	205,134	4,370,013
2017	0	3,351	0	208,601	400	212,352	0	128,602	61,309	4,056,205	8,660	4,254,776	119,885	4,374,661
2018	0	3,351	0	208,601	400	212,352	0	128,369	(80,817)	4,056,205	8,660	4,112,417	(194,534)	3,917,883
2019	0	3,351	0	208,601	400	212,352	0	128,613	50,179	4,056,205	8,660	4,243,657	77,224	4,320,881
2020	0	3,351	0	208,601	400	212,352	0	128,690	(366)	4,056,205	8,660	4,193,189	(8,687)	4,184,502
2021	0	3,351	0	208,601	400	212,352	0	128,769	10,725	4,056,205	8,660	4,204,359	(1,095)	4,203,264
2022	0	3,351	0	208,601	400	212,352	0	128,846	(3,483)	4,056,205	8,660	4,190,228	(185,907)	4,004,321
2023	0	3,351	0	208,601	400	212,352	0	128,818	(18,971)	4,056,205	8,660	4,174,712	115,791	4,290,503
2024	0	3,351	0	208,601	400	212,352	0	128,625	11,289	4,056,205	8,660	4,204,779	79,858	4,284,637
2025	0	3,351	0	208,601	400	212,352	0	130,380	(12,518)	4,056,205	8,660	4,182,727	(247,205)	3,935,522
2026	0	3,351	0	208,601	400	212,352	0	128,700	24,308	4,056,205	8,660	4,217,873	246,850	4,464,723
2027	0	3,351	0	208,601	400	212,352	0	128,692	(17,799)	4,056,205	8,660	4,175,758	(12,304)	4,163,454
2028	0	3,351	0	208,601	400	212,352	0	128,783	12,291	4,056,205	8,660	4,205,939	15,430	4,221,369
2029	0	3,351	0	208,601	400	212,352	0	128,671	(9,046)	4,056,205	8,660	4,184,490	(10,778)	4,173,712
2030	0	3,351	0	208,601	400	212,352	0	128,777	20,756	4,056,205	8,660	4,214,398	124,586	4,338,984
2031	0	3,351	0	208,601	400	212,352	0	128,134	(97,726)	4,056,205	8,660	4,095,273	(259,831)	3,835,442
2032	0	3,351	0	208,601	400	212,352	0	128,005	84,999	4,056,205	8,660	4,277,869	138,527	4,416,396
2033	0	3,351	0	208,601	400	212,352	0	127,876	(94,652)	4,056,205	8,660	4,098,089	(184,372)	3,913,717
2034	0	3,351	0	208,601	400	212,352	0	127,725	69,593	4,056,205	8,660	4,262,183	120,375	4,382,558
2035	0	3,351	0	208,601	400	212,352	0	127,379	(242,659)	4,056,205	8,660	3,949,585	(587,531)	3,362,054

b) Non-Project water deliveries were supplied from June 1962 through November 1967.

TABLE B-6. Annual Water Quantities Conveyed Through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)											
	San Luis Division						South San Joaquin Division					
	Dos Amigos Pumping Plant						Buena Vista Pumping Plant					
	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries: Water Supply	Deliveries: Recreation	Total	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries: Water Supply	Deliveries: Recreation	Total
	[27]	[28]	[29]	[30]	[31]	[32]	[33]	[34]	[35]	[36]	[37]	[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	38,942	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	64,827	(25,707)	1,978,945	7,121	2,025,186	0	30,495	(25,522)	1,027,361	6,937	1,039,271
1988	0	72,679	(34,592)	2,217,126	4,490	2,259,703	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	115,074	(11,323)	2,394,999	8,922	2,507,672	0	46,865	(15,092)	1,769,991	8,879	1,810,643
1991	0	92,227	9,325	489,348	4,605	595,505	0	39,274	96,506	446,916	4,560	587,256
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	3,098	1,800,988	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	45,591	14,927	2,425,024	2,998	2,488,540	0	31,304	15,438	988,612	2,928	1,038,282
1997	527	107,033	(66,814)	2,247,628	2,090	2,290,464	0	42,670	40,852	1,054,461	2,076	1,140,059
1998	0	95,185	(338,076)	1,664,080	1,589	1,422,778	0	41,910	(106,487)	753,731	1,585	690,739
1999	0	95,262	(2,778)	2,750,154	3,285	2,845,923	0	48,502	(2,807)	1,131,826	3,279	1,180,800
2000	0	134,231	7,726	3,270,211	4,222	3,416,390	0	37,514	7,726	1,809,219	4,216	1,858,675
2001	0	150,830	(18,830)	1,614,870	1,218	1,748,088	0	31,361	(18,830)	1,318,987	1,211	1,332,729
2002	0	92,905	50,342	2,625,006	3,968	2,772,221	0	41,565	50,342	1,831,874	3,961	1,927,742
2003	0	85,360	(48,181)	2,879,993	10,656	2,927,828	0	43,352	(48,181)	1,895,852	10,645	1,901,668
2004	0	25,865	3,161	2,807,789	652	2,837,467	0	41,551	3,161	2,102,335	649	2,147,696
2005	0	62,569	(159,678)	3,425,394	581	3,328,866	0	35,020	(159,678)	1,848,005	559	1,723,906
2006	0	73,012	(60,964)	3,793,964	7,210	3,813,222	0	43,550	(60,964)	2,255,093	7,010	2,244,689
2007	0	72,986	80,035	3,349,651	7,210	3,509,882	0	43,524	80,035	2,278,051	7,010	2,408,620
2008	0	73,635	(3)	3,288,715	7,210	3,369,557	0	44,173	(3)	2,166,199	7,010	2,217,379
2009	0	70,102	(15,186)	3,311,815	7,210	3,373,941	0	40,640	(15,186)	2,190,099	7,010	2,222,563
2010	0	70,198	4,288	3,311,815	7,210	3,393,511	0	40,736	4,288	2,190,099	7,010	2,242,133
2011	0	70,389	64,678	3,837,054	7,210	3,979,331	0	40,927	64,678	2,757,187	7,010	2,869,802
2012	0	70,279	(67,943)	3,837,054	7,210	3,846,600	0	40,817	(67,943)	2,763,210	7,010	2,743,094
2013	0	70,217	9,749	3,837,054	7,210	3,924,230	0	40,755	9,749	2,763,210	7,010	2,820,724
2014	0	70,525	16,625	3,837,054	7,210	3,931,414	0	41,063	16,625	2,763,210	7,010	2,827,908
2015	0	70,654	32,003	3,837,054	7,210	3,946,921	0	41,192	32,003	2,763,210	7,010	2,843,415
2016	0	70,354	(28,401)	3,837,054	7,210	3,886,217	0	40,892	(28,401)	2,763,210	7,010	2,782,711
2017	0	70,586	61,309	3,837,054	7,210	3,976,159	0	41,124	61,309	2,763,210	7,010	2,872,653
2018	0	70,740	(80,817)	3,837,054	7,210	3,834,187	0	41,278	(80,817)	2,763,210	7,010	2,730,681
2019	0	70,564	50,179	3,837,054	7,210	3,965,007	0	41,102	50,179	2,763,210	7,010	2,861,501
2020	0	70,628	(366)	3,837,054	7,210	3,914,526	0	41,166	(366)	2,763,210	7,010	2,811,020
2021	0	70,711	10,725	3,837,054	7,210	3,925,700	0	41,249	10,725	2,763,210	7,010	2,822,194
2022	0	70,705	(3,483)	3,837,054	7,210	3,911,486	0	41,243	(3,483)	2,763,210	7,010	2,807,980
2023	0	70,696	(18,971)	3,837,054	7,210	3,895,989	0	41,234	(18,971)	2,763,210	7,010	2,792,483
2024	0	70,575	11,289	3,837,054	7,210	3,926,128	0	41,113	11,289	2,763,210	7,010	2,822,622
2025	0	70,638	(12,518)	3,837,054	7,210	3,902,384	0	41,176	(12,518)	2,763,210	7,010	2,798,878
2026	0	70,650	24,308	3,837,054	7,210	3,939,222	0	41,188	24,308	2,763,210	7,010	2,835,716
2027	0	70,563	(17,799)	3,837,054	7,210	3,897,028	0	41,101	(17,799)	2,763,210	7,010	2,793,522
2028	0	70,703	12,291	3,837,054	7,210	3,927,258	0	41,241	12,291	2,763,210	7,010	2,823,752
2029	0	70,630	(9,046)	3,837,054	7,210	3,905,848	0	41,168	(9,046)	2,763,210	7,010	2,802,342
2030	0	70,694	20,756	3,837,054	7,210	3,935,714	0	41,232	20,756	2,763,210	7,010	2,832,208
2031	0	70,566	(97,726)	3,837,054	7,210	3,817,104	0	41,104	(97,726)	2,763,210	7,010	2,713,598
2032	0	70,168	84,999	3,837,054	7,210	3,999,431	0	40,706	84,999	2,763,210	7,010	2,895,925
2033	0	70,373	(94,652)	3,837,054	7,210	3,819,985	0	40,911	(94,652)	2,763,210	7,010	2,716,479
2034	0	69,865	69,593	3,837,054	7,210	3,983,722	0	40,403	69,593	2,763,210	7,010	2,880,216
2035	0	69,205	(242,659)	3,837,054	7,210	3,670,810	0	39,743	(242,659)	2,763,210	7,010	2,567,304

TABLE B-6. Annual Water Quantities Conveyed Through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)											
	South San Joaquin Division (continued)											
	Teerink Pumping Plant						Chrisman Pumping Plant					
	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries: Water Supply	Deliveries: Recreation	Total	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries: Water Supply	Deliveries: Recreation	Total
	[39]	[40]	[41]	[42]	[43]	[44]	[45]	[46]	[47]	[48]	[49]	[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)	863,157	6,937	877,767
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	(15,092)	1,627,246	8,879	1,687,901	0	56,663	(15,092)	1,590,893	8,879	1,641,343
1991	0	40,564	105,176	446,148	4,560	596,448	0	34,016	105,176	446,148	4,560	589,900
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)	586,829	1,669	620,772	0	36,309	(16,431)	560,695	1,669	582,242
1996	0	58,437	15,438	836,819	2,928	913,622	0	43,710	15,438	800,633	2,928	862,709
1997	0	73,656	40,852	918,124	2,076	1,034,708	0	62,275	40,852	881,843	2,076	987,046
1998	0	61,137	(106,487)	656,796	1,585	613,031	0	47,523	(106,487)	628,084	1,585	570,705
1999	0	77,334	(2,807)	1,011,608	3,279	1,089,414	0	55,514	(2,807)	974,807	3,279	1,030,793
2000	0	87,084	7,726	1,685,654	4,216	1,784,680	0	49,690	7,726	1,645,591	4,216	1,707,223
2001	0	71,588	(18,830)	1,234,014	1,211	1,287,983	0	54,742	(18,830)	1,202,822	1,211	1,239,945
2002	0	108,309	50,342	1,740,813	3,961	1,903,425	0	69,443	50,342	1,699,261	3,961	1,823,007
2003	0	106,973	(48,181)	1,812,277	10,645	1,881,714	0	57,291	(48,181)	1,775,675	10,645	1,795,430
2004	0	122,559	3,161	2,032,492	649	2,158,861	0	60,847	3,161	1,992,308	649	2,056,965
2005	0	99,523	(159,678)	1,753,624	559	1,694,028	0	53,502	(159,678)	1,713,754	559	1,608,137
2006	0	39,920	(60,964)	2,172,858	7,010	2,158,824	0	39,670	(60,964)	2,126,303	7,010	2,112,019
2007	0	39,894	80,035	2,179,351	7,010	2,306,290	0	39,644	80,035	2,131,051	7,010	2,257,740
2008	0	40,543	(3)	2,065,499	7,010	2,113,049	0	40,293	(3)	2,017,199	7,010	2,064,499
2009	0	37,010	(15,186)	2,089,399	7,010	2,118,233	0	36,760	(15,186)	2,041,099	7,010	2,069,683
2010	0	37,106	4,288	2,089,399	7,010	2,137,803	0	36,856	4,288	2,041,099	7,010	2,089,253
2011	0	37,297	64,678	2,658,487	7,010	2,767,472	0	37,047	64,678	2,610,187	7,010	2,718,922
2012	0	37,187	(67,943)	2,664,510	7,010	2,640,764	0	36,937	(67,943)	2,616,210	7,010	2,592,214
2013	0	37,125	9,749	2,664,510	7,010	2,718,394	0	36,875	9,749	2,616,210	7,010	2,669,844
2014	0	37,433	16,625	2,664,510	7,010	2,725,578	0	37,183	16,625	2,616,210	7,010	2,677,028
2015	0	37,562	32,003	2,664,510	7,010	2,741,085	0	37,312	32,003	2,616,210	7,010	2,692,535
2016	0	37,262	(28,401)	2,664,510	7,010	2,680,381	0	37,012	(28,401)	2,616,210	7,010	2,631,831
2017	0	37,494	61,309	2,664,510	7,010	2,770,323	0	37,244	61,309	2,616,210	7,010	2,721,773
2018	0	37,648	(80,817)	2,664,510	7,010	2,628,351	0	37,398	(80,817)	2,616,210	7,010	2,579,801
2019	0	37,472	50,179	2,664,510	7,010	2,759,171	0	37,222	50,179	2,616,210	7,010	2,710,621
2020	0	37,536	(366)	2,664,510	7,010	2,708,690	0	37,286	(366)	2,616,210	7,010	2,660,140
2021	0	37,619	10,725	2,664,510	7,010	2,719,864	0	37,369	10,725	2,616,210	7,010	2,671,314
2022	0	37,613	(3,483)	2,664,510	7,010	2,705,650	0	37,363	(3,483)	2,616,210	7,010	2,657,100
2023	0	37,604	(18,971)	2,664,510	7,010	2,690,153	0	37,354	(18,971)	2,616,210	7,010	2,641,603
2024	0	37,483	11,289	2,664,510	7,010	2,720,292	0	37,233	11,289	2,616,210	7,010	2,671,742
2025	0	37,546	(12,518)	2,664,510	7,010	2,696,548	0	37,296	(12,518)	2,616,210	7,010	2,647,998
2026	0	37,558	24,308	2,664,510	7,010	2,733,386	0	37,308	24,308	2,616,210	7,010	2,684,836
2027	0	37,471	(17,799)	2,664,510	7,010	2,691,192	0	37,221	(17,799)	2,616,210	7,010	2,642,642
2028	0	37,611	12,291	2,664,510	7,010	2,721,422	0	37,361	12,291	2,616,210	7,010	2,672,872
2029	0	37,538	(9,046)	2,664,510	7,010	2,700,012	0	37,288	(9,046)	2,616,210	7,010	2,651,462
2030	0	37,602	20,756	2,664,510	7,010	2,729,878	0	37,352	20,756	2,616,210	7,010	2,681,328
2031	0	37,474	(97,726)	2,664,510	7,010	2,611,268	0	37,224	(97,726)	2,616,210	7,010	2,562,718
2032	0	37,076	84,999	2,664,510	7,010	2,793,595	0	36,826	84,999	2,616,210	7,010	2,745,045
2033	0	37,281	(94,652)	2,664,510	7,010	2,614,149	0	37,031	(94,652)	2,616,210	7,010	2,565,599
2034	0	36,773	69,593	2,664,510	7,010	2,777,886	0	36,523	69,593	2,616,210	7,010	2,729,336
2035	0	36,113	(242,659)	2,664,510	7,010	2,464,974	0	35,863	(242,659)	2,616,210	7,010	2,416,424

TABLE B-6. Annual Water Quantities Conveyed Through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)											
	Tehachapi Division						Mojave Divsion					
	Edmonston Pumping Plant						Alamo Powerplant					
	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries			Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries		
				Water Supply	Recreation	Total				Water Supply	Recreation	Total
	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	[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)	851,322	6,937	862,317	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	(20,363)	716,360	1,407	702,090
1990	0	42,198	(15,092)	1,579,466	8,879	1,615,451	0	8,898	(5,916)	788,111	1,388	792,481
1991	0	33,999	105,176	441,217	4,560	584,952	0	17,908	34,422	177,308	394	230,032
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	37,357	15,438	779,918	2,928	835,641	0	7,247	(11,410)	493,852	565	490,254
1997	0	51,475	40,852	860,798	2,076	955,201	0	20,725	38,960	537,586	507	597,778
1998	0	48,601	(106,487)	607,301	1,585	551,000	0	21,456	16,361	398,385	363	436,565
1999	0	52,726	(2,807)	947,420	3,279	1,000,618	0	26,644	(8,486)	589,756	396	608,310
2000	0	43,072	7,726	1,621,657	4,216	1,676,671	0	8,983	(10,472)	953,531	449	952,491
2001	0	39,544	(18,830)	1,187,452	1,211	1,209,377	0	14,526	3,478	710,137	452	728,593
2002	0	60,037	50,342	1,680,514	3,961	1,794,854	0	15,190	8,398	901,230	490	925,308
2003	0	53,320	(48,181)	1,757,708	10,645	1,773,492	0	13,676	(20,787)	1,022,009	355	1,015,253
2004	0	57,962	3,161	1,970,355	649	2,032,127	0	15,581	17,207	1,120,348	171	1,153,307
2005	0	40,949	(159,678)	1,695,234	559	1,577,064	0	2,561	(50,014)	1,117,983	84	1,070,614
2006	0	38,120	(60,964)	2,105,670	7,010	2,089,836	0	20,809	2,964	1,301,885	1,630	1,327,288
2007	0	38,094	80,035	2,107,941	7,010	2,233,080	0	20,811	(39)	1,210,706	1,630	1,233,108
2008	0	38,743	(3)	1,994,089	7,010	2,039,839	0	21,350	(73)	978,821	1,630	1,001,728
2009	0	35,210	(15,186)	2,017,989	7,010	2,045,023	0	20,905	(9,404)	1,002,721	1,630	1,015,852
2010	0	35,306	4,288	2,017,989	7,010	2,064,593	0	21,001	3,921	1,002,721	1,630	1,029,273
2011	0	35,497	64,678	2,587,077	7,010	2,694,262	0	20,971	26,001	1,450,665	1,630	1,499,267
2012	0	35,387	(67,943)	2,593,100	7,010	2,567,554	0	20,962	(41,797)	1,450,665	1,630	1,431,460
2013	0	35,325	9,749	2,593,100	7,010	2,645,184	0	20,835	4,742	1,450,665	1,630	1,477,872
2014	0	35,633	16,625	2,593,100	7,010	2,652,368	0	21,002	2,759	1,450,665	1,630	1,476,056
2015	0	35,762	32,003	2,593,100	7,010	2,667,875	0	21,066	22,604	1,450,665	1,630	1,495,965
2016	0	35,462	(28,401)	2,593,100	7,010	2,607,171	0	20,829	(21,084)	1,450,665	1,630	1,452,040
2017	0	35,694	61,309	2,593,100	7,010	2,697,113	0	20,895	33,266	1,450,665	1,630	1,506,456
2018	0	35,848	(80,817)	2,593,100	7,010	2,555,141	0	20,998	(50,078)	1,450,665	1,630	1,423,215
2019	0	35,672	50,179	2,593,100	7,010	2,685,961	0	20,924	31,508	1,450,665	1,630	1,504,727
2020	0	35,736	(366)	2,593,100	7,010	2,635,480	0	20,947	(3,398)	1,450,665	1,630	1,469,844
2021	0	35,819	10,725	2,593,100	7,010	2,646,654	0	20,946	(1,117)	1,450,665	1,630	1,472,124
2022	0	35,813	(3,483)	2,593,100	7,010	2,632,440	0	20,940	(3,434)	1,450,665	1,630	1,469,801
2023	0	35,804	(18,971)	2,593,100	7,010	2,616,943	0	20,939	(18,638)	1,450,665	1,630	1,454,596
2024	0	35,683	11,289	2,593,100	7,010	2,647,082	0	20,881	21,309	1,450,665	1,630	1,494,485
2025	0	35,746	(12,518)	2,593,100	7,010	2,623,338	0	20,965	(11,624)	1,450,665	1,630	1,461,636
2026	0	35,758	24,308	2,593,100	7,010	2,660,176	0	20,930	13,030	1,450,665	1,630	1,486,255
2027	0	35,671	(17,799)	2,593,100	7,010	2,617,982	0	20,861	(6,161)	1,450,665	1,630	1,466,995
2028	0	35,811	12,291	2,593,100	7,010	2,648,212	0	20,961	4,006	1,450,665	1,630	1,477,262
2029	0	35,738	(9,046)	2,593,100	7,010	2,626,802	0	20,955	(913)	1,450,665	1,630	1,472,337
2030	0	35,802	20,756	2,593,100	7,010	2,656,668	0	20,930	8,528	1,450,665	1,630	1,481,753
2031	0	35,674	(97,726)	2,593,100	7,010	2,538,058	0	20,956	(31,057)	1,450,665	1,630	1,442,194
2032	0	35,276	84,999	2,593,100	7,010	2,720,385	0	20,865	43,953	1,450,665	1,630	1,517,113
2033	0	35,481	(94,652)	2,593,100	7,010	2,540,939	0	20,854	(37,929)	1,450,665	1,630	1,435,220
2034	0	34,973	69,593	2,593,100	7,010	2,704,676	0	20,769	28,588	1,450,665	1,630	1,501,652
2035	0	34,313	(242,659)	2,593,100	7,010	2,391,764	0	20,892	(49,219)	1,450,665	1,630	1,423,968

TABLE B-6. Annual Water Quantities Conveyed Through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)											
	Mojave Division (continued)											
	Pearblossom Pumping Plant						Mojave Siphon Powerplant					
	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries: Water Supply	Deliveries: Recreation	Total	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries: Water Supply	Deliveries: Recreation	Total
	[63]	[64]	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[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)	377,531	1,239	391,052	0	0	0	0	0	0
1988	0	32,209	1,101	501,300	971	535,581	0	1,977	1,101	501,291	971	505,340
1989	0	31,500	(20,363)	661,189	1,407	673,733	0	29,110	(20,363)	661,100	1,407	671,254
1990	0	32,672	(5,916)	730,560	1,388	758,704	0	23,692	(5,916)	730,550	1,388	749,714
1991	0	15,209	34,774	163,913	394	214,290	0	(543)	34,774	163,913	394	198,538
1992	0	13,989	(17,451)	338,249	423	335,210	0	(13,193)	(17,451)	338,207	423	307,986
1993	0	9,779	(3,455)	255,117	443	261,884	0	(11,922)	(3,455)	255,117	443	240,183
1994	0	150	3,395	409,928	430	413,903	0	1,601	3,395	395,294	430	400,720
1995	0	6,820	(29,282)	328,882	427	306,847	0	10,458	(29,282)	321,387	427	302,990
1996	0	9,514	(11,410)	424,252	565	422,921	0	(5,577)	(11,410)	418,141	565	401,719
1997	0	(1,124)	38,960	461,563	507	499,906	0	5,171	38,960	452,525	507	497,163
1998	0	(2,087)	16,361	334,965	363	349,602	0	11,496	16,361	332,385	363	360,605
1999	0	(1,154)	(8,486)	505,624	396	496,380	0	11,065	(8,486)	498,919	396	501,894
2000	0	(23,296)	(10,472)	859,533	449	826,214	0	4,896	(10,472)	849,514	449	844,387
2001	0	(9,304)	3,478	635,468	452	630,094	0	7,403	3,478	632,420	452	643,753
2002	0	3,810	8,398	823,690	490	836,388	0	9,300	8,398	820,217	490	838,405
2003	0	2,814	(20,787)	949,148	355	931,530	0	(6,586)	(20,787)	935,998	355	908,980
2004	0	(15,558)	17,207	1,047,485	171	1,049,305	0	5,034	17,207	1,035,279	171	1,057,691
2005	0	(18,967)	(50,014)	1,045,389	84	976,492	0	827	(50,014)	1,027,278	84	978,175
2006	0	15,459	2,964	1,206,994	1,430	1,226,847	0	11,989	2,964	1,168,922	1,430	1,185,305
2007	0	15,461	(39)	1,132,475	1,430	1,149,327	0	11,991	(39)	1,115,255	1,430	1,128,637
2008	0	16,000	(73)	828,026	1,430	845,383	0	12,530	(73)	763,041	1,430	776,928
2009	0	15,555	(9,404)	837,064	1,430	844,645	0	12,085	(9,404)	762,921	1,430	767,032
2010	0	15,651	3,921	837,486	1,430	858,488	0	12,181	3,921	762,921	1,430	780,453
2011	0	15,621	26,001	1,284,165	1,430	1,327,217	0	12,151	26,001	1,209,865	1,430	1,249,447
2012	0	15,612	(41,797)	1,284,165	1,430	1,259,410	0	12,142	(41,797)	1,209,865	1,430	1,181,640
2013	0	15,485	4,742	1,284,165	1,430	1,305,822	0	12,015	4,742	1,209,865	1,430	1,228,052
2014	0	15,652	2,759	1,284,165	1,430	1,304,006	0	12,182	2,759	1,209,865	1,430	1,226,236
2015	0	15,716	22,604	1,284,165	1,430	1,323,915	0	12,246	22,604	1,209,865	1,430	1,246,145
2016	0	15,479	(21,084)	1,284,165	1,430	1,279,990	0	12,009	(21,084)	1,209,865	1,430	1,202,220
2017	0	15,545	33,266	1,284,165	1,430	1,334,406	0	12,075	33,266	1,209,865	1,430	1,256,636
2018	0	15,648	(50,078)	1,284,165	1,430	1,251,165	0	12,178	(50,078)	1,209,865	1,430	1,173,395
2019	0	15,574	31,508	1,284,165	1,430	1,332,677	0	12,104	31,508	1,209,865	1,430	1,254,907
2020	0	15,597	(3,398)	1,284,165	1,430	1,297,794	0	12,127	(3,398)	1,209,865	1,430	1,220,024
2021	0	15,596	(1,117)	1,284,165	1,430	1,300,074	0	12,126	(1,117)	1,209,865	1,430	1,222,304
2022	0	15,590	(3,434)	1,284,165	1,430	1,297,751	0	12,120	(3,434)	1,209,865	1,430	1,219,981
2023	0	15,589	(18,638)	1,284,165	1,430	1,282,546	0	12,119	(18,638)	1,209,865	1,430	1,204,776
2024	0	15,531	21,309	1,284,165	1,430	1,322,435	0	12,061	21,309	1,209,865	1,430	1,244,665
2025	0	15,615	(11,624)	1,284,165	1,430	1,289,586	0	12,145	(11,624)	1,209,865	1,430	1,211,816
2026	0	15,580	13,030	1,284,165	1,430	1,314,205	0	12,110	13,030	1,209,865	1,430	1,236,435
2027	0	15,511	(6,161)	1,284,165	1,430	1,294,945	0	12,041	(6,161)	1,209,865	1,430	1,217,175
2028	0	15,611	4,006	1,284,165	1,430	1,305,212	0	12,141	4,006	1,209,865	1,430	1,227,442
2029	0	15,605	(913)	1,284,165	1,430	1,300,287	0	12,135	(913)	1,209,865	1,430	1,222,517
2030	0	15,580	8,528	1,284,165	1,430	1,309,703	0	12,110	8,528	1,209,865	1,430	1,231,933
2031	0	15,606	(31,057)	1,284,165	1,430	1,270,144	0	12,136	(31,057)	1,209,865	1,430	1,192,374
2032	0	15,515	43,953	1,284,165	1,430	1,345,063	0	12,045	43,953	1,209,865	1,430	1,267,293
2033	0	15,504	(37,929)	1,284,165	1,430	1,263,170	0	12,034	(37,929)	1,209,865	1,430	1,185,400
2034	0	15,419	28,588	1,284,165	1,430	1,329,602	0	11,949	28,588	1,209,865	1,430	1,251,832
2035	0	15,542	(49,219)	1,284,165	1,430	1,251,918	0	12,072	(49,219)	1,209,865	1,430	1,174,148

TABLE B-6. Annual Water Quantities Conveyed Through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)											
	Santa Ana Division						West Branch, California Aqueduct					
	Devil Canyon Powerplant						Oso Pumping Plant					
	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries			Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries		
				Water Supply	Recreation	Total				Water Supply	Recreation	Total
	[75]	[76]	[77]	[78]	[79]	[80]	[81]	[82]	[83]	[84]	[85]	[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	1,995	(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	7,923	(11,335)	375,451	1,118	373,157	0	18,164	(10,252)	433,452	5,698	447,062
1988	0	11,090	2,238	499,285	861	513,474	0	20,461	(30,848)	507,169	3,389	500,171
1989	0	13,116	(5,487)	658,730	1,301	667,660	0	27,914	(40,463)	611,681	6,083	605,215
1990	0	13,439	(4,622)	728,723	1,281	738,821	0	33,666	(9,176)	791,355	7,491	823,336
1991	0	10,836	18,308	161,032	340	190,516	0	16,460	70,754	263,909	4,166	355,289
1992	0	9,157	(9,084)	328,354	371	328,798	0	8,238	(75,008)	435,661	1,572	370,463
1993	0	5,602	5,593	244,678	364	256,237	0	2,674	(124,283)	451,263	1,233	330,887
1994	0	10,915	(11,045)	393,690	357	393,917	0	18,688	(91,606)	490,819	2,488	420,389
1995	0	11,268	2,331	320,978	358	334,935	0	21,775	14,330	157,629	1,242	194,976
1996	0	9,496	13,015	417,656	494	440,661	0	30,121	26,848	286,066	2,363	345,398
1997	0	8,087	(19,685)	451,874	416	440,692	0	30,468	1,892	323,212	1,569	357,141
1998	0	6,700	16,643	332,198	310	355,851	0	26,851	(122,848)	208,916	1,222	114,141
1999	0	9,784	(4,177)	497,787	341	503,735	0	25,690	5,679	357,664	2,883	391,916
2000	0	7,407	(11,040)	848,320	375	845,062	0	33,658	18,198	668,126	3,767	723,749
2001	0	9,324	8,183	631,363	374	649,244	0	24,551	(22,308)	477,315	759	480,317
2002	0	10,315	9,682	818,028	413	838,438	0	44,692	41,944	779,284	3,471	869,391
2003	0	9,198	(18,298)	917,186	260	908,346	0	39,495	(27,394)	735,699	10,290	758,090
2004	0	11,166	15,150	1,033,273	85	1,059,674	0	41,947	(14,046)	850,007	478	878,386
2005	0	4,500	(63,441)	1,012,674	0	953,733	0	37,432	(109,664)	577,251	475	505,494
2006	0	7,806	3,964	1,166,022	1,250	1,179,042	0	17,261	(63,928)	803,785	5,380	762,498
2007	0	7,809	(39)	1,111,915	1,250	1,120,935	0	17,233	80,074	897,235	5,380	999,922
2008	0	8,348	(73)	757,121	1,250	766,646	0	17,343	70	1,015,268	5,380	1,038,061
2009	0	8,508	3,506	757,121	1,250	770,385	0	14,255	(5,782)	1,015,268	5,380	1,029,121
2010	0	8,504	10,523	757,121	1,250	777,398	0	14,255	367	1,015,268	5,380	1,035,270
2011	0	8,519	1,352	1,204,065	1,250	1,215,186	0	14,476	38,677	1,136,412	5,380	1,194,945
2012	0	8,482	(22,894)	1,204,065	1,250	1,190,903	0	14,375	(26,146)	1,142,435	5,380	1,136,044
2013	0	8,499	16,733	1,204,065	1,250	1,230,547	0	14,440	5,007	1,142,435	5,380	1,167,262
2014	0	8,522	(4,585)	1,204,065	1,250	1,209,252	0	14,581	13,866	1,142,435	5,380	1,176,262
2015	0	8,499	2,964	1,204,065	1,250	1,216,778	0	14,646	9,399	1,142,435	5,380	1,171,860
2016	0	8,483	(1,269)	1,204,065	1,250	1,212,529	0	14,583	(7,317)	1,142,435	5,380	1,155,081
2017	0	8,502	9,828	1,204,065	1,250	1,223,645	0	14,749	28,043	1,142,435	5,380	1,190,607
2018	0	8,484	(19,777)	1,204,065	1,250	1,194,022	0	14,800	(30,739)	1,142,435	5,380	1,131,876
2019	0	8,492	17,408	1,204,065	1,250	1,231,215	0	14,698	18,671	1,142,435	5,380	1,181,184
2020	0	8,483	(17,305)	1,204,065	1,250	1,196,493	0	14,739	3,032	1,142,435	5,380	1,165,586
2021	0	8,486	(398)	1,204,065	1,250	1,213,403	0	14,823	11,842	1,142,435	5,380	1,174,480
2022	0	8,486	13,735	1,204,065	1,250	1,227,536	0	14,823	(49)	1,142,435	5,380	1,162,589
2023	0	8,482	(8,417)	1,204,065	1,250	1,205,380	0	14,815	(333)	1,142,435	5,380	1,162,297
2024	0	8,462	689	1,204,065	1,250	1,214,466	0	14,752	(10,020)	1,142,435	5,380	1,152,547
2025	0	8,489	4,591	1,204,065	1,250	1,218,395	0	14,731	(894)	1,142,435	5,380	1,161,652
2026	0	8,475	(3,819)	1,204,065	1,250	1,209,971	0	14,778	11,278	1,142,435	5,380	1,173,871
2027	0	8,479	745	1,204,065	1,250	1,214,539	0	14,760	(11,638)	1,142,435	5,380	1,150,937
2028	0	8,481	(5,355)	1,204,065	1,250	1,208,441	0	14,800	8,285	1,142,435	5,380	1,170,900
2029	0	8,481	2,909	1,204,065	1,250	1,216,705	0	14,733	(8,133)	1,142,435	5,380	1,154,415
2030	0	8,480	296	1,204,065	1,250	1,214,091	0	14,822	12,228	1,142,435	5,380	1,174,865
2031	0	8,475	(1,976)	1,204,065	1,250	1,211,814	0	14,668	(66,669)	1,142,435	5,380	1,095,814
2032	0	8,449	18,821	1,204,065	1,250	1,232,585	0	14,361	41,046	1,142,435	5,380	1,203,222
2033	0	8,449	(23,419)	1,204,065	1,250	1,190,345	0	14,577	(56,723)	1,142,435	5,380	1,105,669
2034	0	8,443	21,651	1,204,065	1,250	1,235,409	0	14,154	41,005	1,142,435	5,380	1,202,974
2035	0	8,451	(31,434)	1,204,065	1,250	1,182,332	0	13,371	(193,440)	1,142,435	5,380	967,746

TABLE B-6. Annual Water Quantities Conveyed Through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (contiued)											
	West Branch, California Aqueduct (continued)											
	Warne Powerplant						Castaic Powerplant					
	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries: Water Supply	Deliveries: Recreation	Total	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries: Water Supply	Deliveries: Recreation	Total
	[87]	[88]	[89]	[90]	[91]	[92]	[93]	[94]	[95]	[96]	[97]	[98]
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)	(15,101)	786,519	3,419	760,825
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	21,191	26,848	286,066	2,363	336,468	0	(5,621)	19,088	286,066	2,362	301,895
1997	0	23,437	1,892	323,201	1,569	350,099	0	11,119	(1,802)	323,201	1,566	334,084
1998	0	26,864	(122,848)	208,909	1,222	114,147	0	24,544	(57,726)	208,909	1,222	176,949
1999	0	21,822	8,120	357,664	2,883	390,489	0	(3,670)	6,280	357,664	2,865	363,139
2000	0	27,237	18,198	668,126	3,767	717,328	0	(19,645)	9,320	665,926	1,556	657,157
2001	0	17,404	(22,308)	477,315	759	473,170	0	(5,949)	(16,588)	477,315	746	455,524
2002	0	35,058	41,944	779,284	3,471	859,757	0	10,071	35,623	776,136	305	822,135
2003	0	28,167	(27,394)	735,699	10,290	746,762	0	9,075	(17,034)	732,549	356	724,946
2004	0	31,034	(14,046)	850,007	478	867,473	0	9,120	(11,440)	845,960	456	844,096
2005	0	29,111	(109,664)	577,251	475	497,173	0	21,155	(61,490)	577,251	472	537,388
2006	0	15,351	(63,928)	803,785	5,380	760,588	0	9,626	(63,928)	803,785	2,330	751,813
2007	0	15,323	80,074	897,235	5,380	998,012	0	9,598	80,074	894,085	2,330	986,087
2008	0	15,433	70	1,015,268	5,380	1,036,151	0	9,708	70	1,012,118	2,330	1,024,226
2009	0	12,345	(5,782)	1,015,268	5,380	1,027,211	0	6,060	(5,782)	1,012,118	2,330	1,014,726
2010	0	12,345	367	1,015,268	5,380	1,033,360	0	6,060	367	1,012,118	2,330	1,020,875
2011	0	12,566	38,677	1,136,412	5,380	1,193,035	0	6,281	38,677	1,133,262	2,330	1,180,550
2012	0	12,465	(26,146)	1,142,435	5,380	1,134,134	0	6,180	(26,146)	1,139,285	2,330	1,121,649
2013	0	12,530	5,007	1,142,435	5,380	1,165,352	0	6,245	5,007	1,139,285	2,330	1,152,867
2014	0	12,671	13,866	1,142,435	5,380	1,174,352	0	6,386	13,866	1,139,285	2,330	1,161,867
2015	0	12,736	9,399	1,142,435	5,380	1,169,950	0	6,451	9,399	1,139,285	2,330	1,157,465
2016	0	12,673	(7,317)	1,142,435	5,380	1,153,171	0	6,388	(7,317)	1,139,285	2,330	1,140,686
2017	0	12,839	28,043	1,142,435	5,380	1,188,697	0	6,554	28,043	1,139,285	2,330	1,176,212
2018	0	12,890	(30,739)	1,142,435	5,380	1,129,966	0	6,605	(30,739)	1,139,285	2,330	1,117,481
2019	0	12,788	18,671	1,142,435	5,380	1,179,274	0	6,503	18,671	1,139,285	2,330	1,166,789
2020	0	12,829	3,032	1,142,435	5,380	1,163,676	0	6,544	3,032	1,139,285	2,330	1,151,191
2021	0	12,913	11,842	1,142,435	5,380	1,172,570	0	6,628	11,842	1,139,285	2,330	1,160,085
2022	0	12,913	(49)	1,142,435	5,380	1,160,679	0	6,628	(49)	1,139,285	2,330	1,148,194
2023	0	12,905	(333)	1,142,435	5,380	1,160,387	0	6,620	(333)	1,139,285	2,330	1,147,902
2024	0	12,842	(10,020)	1,142,435	5,380	1,150,637	0	6,557	(10,020)	1,139,285	2,330	1,138,152
2025	0	12,821	(894)	1,142,435	5,380	1,159,742	0	6,536	(894)	1,139,285	2,330	1,147,257
2026	0	12,868	11,278	1,142,435	5,380	1,171,961	0	6,583	11,278	1,139,285	2,330	1,159,476
2027	0	12,850	(11,638)	1,142,435	5,380	1,149,027	0	6,565	(11,638)	1,139,285	2,330	1,136,542
2028	0	12,890	8,285	1,142,435	5,380	1,168,990	0	6,605	8,285	1,139,285	2,330	1,156,505
2029	0	12,823	(8,133)	1,142,435	5,380	1,152,505	0	6,538	(8,133)	1,139,285	2,330	1,140,020
2030	0	12,912	12,228	1,142,435	5,380	1,172,955	0	6,627	12,228	1,139,285	2,330	1,160,470
2031	0	12,758	(66,669)	1,142,435	5,380	1,093,904	0	6,473	(66,669)	1,139,285	2,330	1,081,419
2032	0	12,451	41,046	1,142,435	5,380	1,201,312	0	6,166	41,046	1,139,285	2,330	1,188,827
2033	0	12,667	(56,723)	1,142,435	5,380	1,103,759	0	6,382	(56,723)	1,139,285	2,330	1,091,274
2034	0	12,244	41,005	1,142,435	5,380	1,201,064	0	5,959	41,005	1,139,285	2,330	1,188,579
2035	0	11,461	(193,440)	1,142,435	5,380	965,836	0	5,176	(193,440)	1,139,285	2,330	953,351

TABLE B-6. Annual Water Quantities Conveyed Through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(in 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	Operational Losses	Water Supply Delivery	Total	Initial Fill Water	Operational Losses	Water Supply Delivery	Total
	[99]	[100]	[101]	[102]	[103]	[104]	[105]	[106]
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	210	873	79,039	80,122	0	0	0	0
1969	0	1,042	62,064	63,106	0	0	0	0
1970	0	638	83,649	84,287	0	0	0	0
1971	0	3,455	110,971	114,426	0	0	0	0
1972	0	1,745	121,755	123,500	0	0	0	0
1973	0	5,479	78,645	84,124	0	0	0	0
1974	0	7,344	78,174	85,518	0	0	0	0
1975	0	5,819	85,216	91,035	0	0	0	0
1976	0	6,562	90,058	96,620	0	0	0	0
1977	0	5,777	40,579	46,356	0	0	0	0
1978	0	9,085	92,604	101,689	0	0	0	0
1979	0	10,896	123,155	134,051	0	0	0	0
1980	0	9,449	111,379	120,828	0	0	0	0
1981	0	13,232	109,754	122,986	0	0	0	0
1982	0	7,984	95,776	103,760	0	0	0	0
1983	0	5,710	100,518	106,228	0	0	0	0
1984	0	5,740	126,387	132,127	0	0	0	0
1985	0	7,563	120,823	128,386	0	0	0	0
1986	0	8,719	131,599	140,318	0	0	0	0
1987	0	11,363	128,080	139,443	0	0	0	0
1988	0	12,831	120,969	133,800	0	0	0	0
1989	0	11,454	116,801	128,255	0	0	0	0
1990	0	13,022	109,802	122,824	0	0	0	0
1991	0	5,802	1,496	7,298	0	0	0	0
1992	0	7,893	79,635	87,528	0	0	0	0
1993	0	9,282	94,921	104,203	0	0	0	0
1994	0	8,515	87,158	95,673	0	0	0	0
1995	0	6,986	94,536	101,522	0	0	0	0
1996	0	9,663	114,630	124,293	0	0	0	0
1997	527	8,343	110,428	119,298	527	0	8,538	9,065
1998	0	8,415	109,400	117,815	0	0	22,210	22,210
1999	0	2,453	120,061	122,514	0	303	23,880	24,183
2000	0	(429)	122,652	122,223	0	0	26,703	26,703
2001	0	(742)	87,915	87,173	0	0	23,229	23,229
2002	0	638	99,783	100,421	0	(151)	31,991	31,840
2003	0	161	101,113	101,274	0	284	31,421	31,705
2004	0	492	104,144	104,636	0	480	33,870	34,350
2005	0	1,484	103,178	104,662	0	573	27,595	28,168
2006	0	802	144,357	145,159	0	212	60,192	60,404
2007	0	802	147,244	148,046	0	212	50,310	50,522
2008	0	802	167,420	168,222	0	212	70,486	70,698
2009	0	802	167,420	168,222	0	212	70,486	70,698
2010	0	802	167,420	168,222	0	212	70,486	70,698
2011	0	802	167,443	168,245	0	212	70,486	70,698
2012	0	802	161,420	162,222	0	212	70,486	70,698
2013	0	802	161,420	162,222	0	212	70,486	70,698
2014	0	802	161,420	162,222	0	212	70,486	70,698
2015	0	802	161,420	162,222	0	212	70,486	70,698
2016	0	802	161,420	162,222	0	212	70,486	70,698
2017	0	802	161,420	162,222	0	212	70,486	70,698
2018	0	802	161,420	162,222	0	212	70,486	70,698
2019	0	802	161,420	162,222	0	212	70,486	70,698
2020	0	802	161,420	162,222	0	212	70,486	70,698
2021	0	802	161,420	162,222	0	212	70,486	70,698
2022	0	802	161,420	162,222	0	212	70,486	70,698
2023	0	802	161,420	162,222	0	212	70,486	70,698
2024	0	802	161,420	162,222	0	212	70,486	70,698
2025	0	802	161,420	162,222	0	212	70,486	70,698
2026	0	802	161,420	162,222	0	212	70,486	70,698
2027	0	802	161,420	162,222	0	212	70,486	70,698
2028	0	802	161,420	162,222	0	212	70,486	70,698
2029	0	802	161,420	162,222	0	212	70,486	70,698
2030	0	802	161,420	162,222	0	212	70,486	70,698
2031	0	802	161,420	162,222	0	212	70,486	70,698
2032	0	802	161,420	162,222	0	212	70,486	70,698
2033	0	802	161,420	162,222	0	212	70,486	70,698
2034	0	802	161,420	162,222	0	212	70,486	70,698
2035	0	802	161,420	162,222	0	212	70,486	70,698

Tables B–7 through B–31 Follow

TABLE B-7. Reconciliation of Capital Costs Allocated to Water Supply and Power Generation

(in thousands of dollars)

Item	Project Costs Allocated to Water Supply and Power Generation							Capital Costs Allocated to Other Purposes	Total State Water Project Capital Cost
	Misc. Income Credited to Construction a	Allowance for Future Price Escalation b	Costs of Construc-tion of Delivery Structures c	Costs of Requested Excess Capacity and Future Enlargement d	Capital Cost Component of Delta Water Charge e	Capital Cost Component of Trans-portation Water Charge f	Water Supply and Power Total		
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
CONSERVATION FACILITIES									
Upper Feather Division									
Frenchman Dam and Lake	180	0	0	0	599	0	779	2,888	3,667
Grizzly Valley Dam and Lake Davis	65	0	0	0	39	0	104	7,378	7,482
Antelope Dam and Lake	1	0	0	0	0	0	1	5,534	5,535
Abbey Bridge Dam and Reservoir	0	0	0	0	0	0	0	519	519
Dixie Refuge Dam and Reservoir	0	0	0	0	0	0	0	236	236
Total, Upper Feather Division	246	0	0	0	638	0	884	16,555	17,439
Oroville Division									
Multipurpose Facilities	3,152	0	0	0	366,418	0	369,570	86,922	456,492
Specific Power Facilities	29,463	0	0	0	101,274	0	130,737	6,558	137,295
Total, Oroville Division	32,615	0	0	0	467,692	0	500,307	93,480	593,787
California Aqueduct									
North San Joaquin Division	1,210	0	0	0	79,995	0	81,205	2,880	84,085
San Luis Division	13,152	0	0	0	104,953	0	118,105	3,827	121,932
Total, California Aqueduct	14,362	0	0	0	184,948	0	199,310	6,707	206,017
Delta Facilities	37,311	0	0	0	286,347	0	323,658	42,268	365,926
Planning and Pre-operation	5,302	0	0	0	72,731	0	78,033	0	78,033
TOTAL, CONSERVATION FACILITIES	89,836	0	0	0	1,012,356	0	1,102,192	159,010	1,261,202
TRANSPORTATION FACILITIES									
Upper Feather Division									
Grizzly Valley Pipeline	305	0	190	0	0	342	837	0	837
North Bay Aqueduct	150	0	676	0	0	104,619	105,445	0	105,445
South Bay Aqueduct	107,766	0	1,768	0	0	112,386	221,920	21,466	243,386
California Aqueduct									
North San Joaquin Division	(46,894)	0	81	0	0	188,009	141,196	6,417	147,613
San Luis Division	8,187	0	0	0	0	133,799	141,986	6,513	148,499
South San Joaquin Division	(23,154)	0	3,733	2,093	0	293,172	275,844	17,329	293,173
Tehachapi Division	(4,955)	0	0	5,230	0	319,247	319,522	18,290	337,812
Mojave Division	(38,754)	0	813	0	0	305,858	267,917	37,941	305,858
Santa Ana Division	(1,966)	0	6,022	5,331	0	267,922	277,309	31,396	308,705
West Branch	(57,451)	0	455	37	0	502,107	445,148	31,326	476,474
Coastal Branch	(182)	0	181	0	0	494,908	494,907	0	494,907
Total, California Aqueduct	(165,169)	0	11,285	12,691	0	2,505,022	2,363,829	149,212	2,513,041
TOTAL, TRANSPORTATION FACILITIES	(56,948)	0	13,919	12,691	0	2,722,369	2,692,031	170,678	2,862,709
EAST BRANCH ENLARGEMENT	0	0	0	0	0	909,230	909,230	0	909,230
EAST BRANCH EXTENSION	0	0	0	0	0	306,403	306,403	0	306,403
COASTAL POWER ALLOCATION	0	0	0	0	0	30,708	30,708	0	30,708
SAN JOAQUIN DRAINAGE FACILITIES	0	0	0	0	0	0	0	117,320	117,320
OFF-AQUEDUCT POWER GENERATION FACILITIES	0	0	0	0	0	485,913	485,913		485,913
SMALL HYDRO POWER GENERATION FACILITIES	0	0	0	0	14,095	83,273	97,368	0	97,368
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	152,339	152,339
DAVIS- GRUNSKY	0	0	0	0	0	0	0	130,000	130,000
Subtotal	0	0	0	0	48,781	1,815,527	1,864,308	399,659	2,263,967
TOTAL THROUGH 2015	32,888	0	13,919	12,691	1,061,137	4,537,896	5,658,531	729,347	6,387,878

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.
c) See Table B-8.
d) See Table B-9.
e) See Table B-13.
f) See Table B-10. Mojave Division total reduced by $83,273,000 for costs included in "Small Hydro Power Generation Facilities" line

TABLE B-8. SWP Capital Costs of Requested Delivery Structures

(in dollars)

Project Service Area and Water Supply Contractor	Calendar Year Capital Costs [a]						
	1952-2003	2004	2005	2006	2007	2008	Total
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
FEATHER RIVER AREA							
County of Butte	136,546	0	0	0	0	0	136,546
Plumas County Flood Control and Water Conservation District	645	0	0	8,000	1,000	0	9,645
Thermalito Irrigation District [b]	43,939	0	0	0	0	0	43,939
Subtotal	181,130	0	0	8,000	1,000	0	190,130
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	378,023	6,142	11,515	34,800	10,000	0	440,480
Alameda County Water District	239,579	0	0	0	0	0	239,579
Santa Clara Valley Water District	21,500	0	0	0	0	0	21,500
San Francisco Water Department [b]	1,066,680	0	0	0	0	0	1,066,680
Subtotal	1,705,782	6,142	11,515	34,800	10,000	0	1,768,239
CENTRAL COASTAL AREA							
San Luis Obispo County Flood Control and Water Conservation District	26,204	0	0	0	0	0	26,204
Santa Barbara County Flood Control and Water Conservation District	67,058	0	0	0	0	0	67,058
Subtotal	93,262	0	0	0	0	0	93,262
SAN JOAQUIN VALLEY AREA							
Castaic Lake Water Agency	82,567	0	0	0	0	0	82,567
Dudley Ridge Water District	304,541	0	0	0	0	0	304,541
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	3,017,846	12,082	30,054	59,950	25,000	0	3,144,932
Oak Flat Water District	46,882	0	0	18,400	5,000	0	70,282
Tracy Golf and Country Club [c]	6,932	0	0	0	0	0	6,932
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	3,751,243	12,082	30,054	78,350	30,000	0	3,901,729
SOUTHERN CALIFORNIA AREA							
Antelope Valley-East Kern Water Agency	402,882	13,029	3,003	30,000	31,000	0	479,914
Castaic Lake Water Agency	354,745	4,830	15,518	500	0	0	375,593
Coachella Valley Water District	14,206	0	0	0	0	0	14,206
Crestline-Lake Arrowhead Water Agency	25,298	0	0	0	0	0	25,298
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	211,765	0	0	0	0	0	211,765
Palmdale Water District	34,173	0	0	0	0	0	34,173
San Bernardino Valley Municipal Water District	960,685	0	0	0	0	0	960,685
San Gabriel Valley Municipal Water District	131,052	0	0	0	0	0	131,052
San Gorgonio Pass Water Agency	66,530	0	0	30,000	20,000	0	116,530
The Metropolitan Water District of Southern California	4,814,078	0	0	0	0	0	4,814,078
Ventura County Flood Control District	79,699	0	0	0	0	0	79,699
Subtotal	7,142,283	17,859	18,521	60,500	51,000	0	7,290,163
TOTAL	13,549,403	36,083	60,090	181,650	92,000	0	13,919,226

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

(in dollars unless otherwise indicated)

Calendar Year	Total Advance Payments and Credits for Excess Capacity	Total Incremental Costs for Excess Capacity	Over payment (+) or Under payment (-) [a]	Annual Surplus Money Investment Fund Interest Rate [b] Jan-Jun	Annual Surplus Money Investment Fund Interest Rate [b] Jul-Dec	Net Over or Underpayment with Interest [c]
	[1]	[2]	[3]	[4]	[5]	[6]
	THE 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

(in dollars)

Reach Number	ANNUAL REQUIRED ADVANCE OF FUNDS Incremental Costs and Advance Payments by Calendar Year 1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1981	Reach Total
	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]
	THE 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]													
28J									(1,532,433)				(10,104,646)	(11,637,079)
	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 Adjustments													
	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												[h]	
			0	184,422	49,052	44,911	61,588	(20,263)	(180,465)				(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 Adjustments													
	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

(in dollars)

Calendar Year	UPPER FEATHER DIVISION	NORTH BAY AQUEDUCT					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]
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	11,873,826	7,214,307	1,628,932	1,670,596	22,387,661	126,377	15,693	27,881	32,931
1988	55	3,287,756	1,648,431	1,015,971	686,821	6,638,979	290,505	36,744	51,786	25,078
1989	44	1,056,583	950,985	224,567	374,886	2,607,021	130,609	16,848	35,518	12,582
1990	63	493,522	537,881	145,694	71,938	1,249,035	275,732	32,387	99,251	40,263
1991	54	76,599	17,130	24,846	70,542	189,117	1,153,109	26,900	53,613	21,889
1992	42	56,492	6,525	18,333	37,778	119,128	401,906	53,036	61,799	51,386
1993	30	104,317	24,579	40,129	82,032	251,057	313,476	55,679	79,149	39,293
1994	14	68,065	13,463	27,107	45,909	154,544	(211,712)	29,017	362,585	36,350
1995	3	26,002	5,920	7,337	20,617	59,876	265,751	42,516	48,189	21,436
1996	0	14,790	3,334	6,614	14,606	39,344	139,573	13,049	25,751	10,677
1997	3	67,264	35,545	38,585	(13,571)	127,823	203,476	31,135	36,986	16,906
1998	7	15,410	6,392	6,797	10,396	38,995	67,974	6,120	14,731	4,616
1999	2	71,817	35,374	33,879	32,533	173,603	162,077	25,320	35,680	24,336
2000	24	29,750	8,069	11,711	4,012	53,542	100,502	15,672	24,079	19,630
2001	20	8,959	2,162	3,892	980	15,993	435,729	4,161	118,393	4,062
2002	14	25,376	17,224	15,254	3,637	61,491	3,067,506	5,536	328,799	64,277
2003	0	11,131	5,411	4,658	44,172	65,372	4,463,309	199,879	198,483	360,063
2004	0	22,864	973	2,387	144,614	170,838	6,088,707	120,308	291,114	99,170
2005	0	89,100	4	9	33,810	122,923	6,791,256	119,278	260,833	(1,426)
2006	209	30,103	15,358	12,976	1,487,637	1,546,074	3,261,067	12,810	29,641	50,685
2007	201	37,620	19,430	16,614	4,278,278	4,351,942	9,688,368	15,705	35,528	63,814
2008	196	35,478	18,299	15,622	5,007,944	5,077,343	6,882,024	14,853	33,646	60,137
2009	190	14,880	7,261	5,782	5,700	33,623	81,529	6,953	16,594	24,485
2010	190	14,880	7,261	5,782	5,700	33,623	81,529	6,953	16,594	24,485
2011	190	14,880	7,261	5,782	5,700	33,623	81,529	6,953	16,594	24,485
2012	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0
TOTAL	342,301	42,107,115	33,118,771	4,673,951	24,719,459	104,619,296	59,911,561	2,296,476	6,653,680	11,985,406

TABLE B-10. Capital Costs of Each Aqueduct Reach to be Reimbursed Through Capital Cost Component of Transportation Charge

(in dollars)

Calendar Year	SOUTH BAY AQUEDUCT (continued)					CALIFORNIA AQUEDUCT NORTH SAN JOAQUIN DIVISION			
	Reach 6	Reach 7	Reach 8	Reach 9	Total	Reach 1	Reach 2A	Reach 2B	Subtotal
	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[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	9,500	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	5,706	6,689	7,603	33,728	457,839	2,898,156	(128,051)	(56,448)	2,713,657
1989	2,641	3,878	4,755	14,489	221,320	6,898,872	346,589	173,993	7,419,454
1990	5,092	19,899	36,584	87,796	597,004	13,483,785	112,002	2,446,232	16,042,019
1991	1,942	5,059	7,357	31,682	1,301,551	13,914,632	133,121	114,981	14,162,734
1992	1,184	2,042	2,250	35,464	609,067	6,260,482	241,456	239,437	6,741,375
1993	3,618	6,028	8,873	42,200	548,316	2,542,869	257,330	200,072	3,000,271
1994	2,897	4,781	5,346	89,991	319,255	1,145,666	148,396	88,357	1,382,419
1995	11,556	3,635	14,769	24,750	432,602	1,462,211	217,940	131,995	1,812,146
1996	3,092	2,271	2,699	12,522	209,634	874,227	74,153	41,215	989,595
1997	1,454	4,141	3,655	20,589	318,342	2,064,446	146,851	84,303	2,295,600
1998	363	1,134	(6,005)	5,776	94,709	729,475	33,695	16,670	779,840
1999	1,530	3,283	12,698	31,555	296,479	2,208,773	88,790	90,527	2,388,090
2000	2,400	4,907	5,279	10,611	183,080	(706,522)	57,209	39,982	(609,331)
2001	91,681	68,598	403,873	1,189,678	2,316,175	371,372	89,809	7,549	468,730
2002	229,369	453,007	1,107,226	2,976,962	8,232,682	388,747	42,554	21,259	452,560
2003	67,127	509,412	477,150	1,407,084	7,682,507	178,078	18,416	10,537	207,031
2004	3,176	2,933	39,088	3,276,225	9,920,721	878,781	7,621	73,527	959,929
2005	5,237	5,239	4,803	731,389	7,916,609	226,629	11,640	84,213	322,482
2006	1,892	3,535	3,179	12,542	3,375,351	535,047	68,719	1,198,638	1,802,404
2007	2,718	4,522	4,035	14,606	9,829,296	1,168,391	80,838	2,872,533	4,121,762
2008	2,527	4,264	3,808	13,900	7,015,159	1,130,011	76,827	1,703,897	2,910,735
2009	433	1,757	1,648	7,976	141,375	259,632	42,324	16,952	318,908
2010	433	1,757	1,648	7,976	141,375	259,632	42,324	16,952	318,908
2011	433	1,757	1,648	7,976	141,375	259,632	42,324	16,952	318,908
2012	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0
TOTAL	970,530	4,942,034	6,970,888	18,655,877	112,386,452	115,601,487	42,998,916	29,408,098	188,008,501

TABLE B-10. Capital Costs of Each Aqueduct Reach to be Reimbursed Through Capital Cost Component of Transportation Charge

(in 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]
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	9,642	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	13,782	11,090
1984	31,748	87,083	26,712	12,754	3,053,662	3,211,959	26,489	9,959	6,268
1985	53,251	56,732	13,685	6,934	582,910	713,512	7,220	9,762	7,688
1986	73,979	201,509	50,668	19,223	1,282,469	1,627,848	8,902	25,011	20,503
1987	(7,829)	116,268	40,009	15,946	518,349	682,743	12,744	18,927	56,042
1988	(149,385)	224,154	(406,398)	(137,353)	923,622	454,640	9,833	(119,741)	(60,639)
1989	39,652	594,894	232,852	80,090	575,855	1,523,343	5,279	91,501	278,061
1990	39,270	259,895	79,589	29,606	461,219	869,579	5,814	41,345	2,016,434
1991	4,916,134	397,959	98,847	35,860	511,519	5,960,319	4,588	43,140	41,348
1992	(757,001)	545,729	211,854	74,544	396,398	471,524	3,546	103,695	109,225
1993	110,233	724,929	186,271	70,815	720,283	1,812,531	15,016	101,634	90,929
1994	1,151,976	288,018	63,862	27,812	710,770	2,242,438	6,770	42,455	40,696
1995	285,776	441,479	130,761	58,640	1,914,186	2,830,842	12,548	49,963	43,251
1996	31,942	(110,471)	34,529	12,219	588,712	556,931	6,444	29,863	27,050
1997	73,224	513,793	(277,781)	42,881	5,016,215	5,368,332	11,497	49,111	43,799
1998	19,692	304,115	34,319	16,542	2,819,556	3,194,224	2,562	11,115	8,955
1999	18,187	158,843	99,981	41,672	1,901,201	2,219,884	5,706	25,138	23,475
2000	101,618	373,593	77,891	36,152	1,138,744	1,727,998	3,922	23,516	29,216
2001	(10,513)	(47,832)	518,046	(3,777)	59,373	515,297	2,279	16,521	20,761
2002	12,237	23,712	6,078,355	3,222	(2,455,712)	3,661,814	3,626	43,500	19,786
2003	8,863	78,058	(5,374,663)	7,414	2,178,907	(3,101,421)	2,127	17,675	15,759
2004	(15,306)	(18,715)	(55,386)	(4,006)	(463,578)	(556,991)	22,527	3,056	2,185
2005	261	(9,056)	110,561	(2,763)	982,735	1,081,738	26,296	0	0
2006	50,316	504,426	63,461	31,691	93,337	743,231	4,116	21,572	21,434
2007	177,611	894,201	86,954	41,652	102,944	1,303,362	5,172	31,382	30,106
2008	183,909	713,879	93,667	44,176	104,627	1,140,258	5,442	34,236	32,595
2009	27,741	190,182	38,070	21,795	75,769	353,557	2,905	11,643	12,384
2010	27,741	190,182	38,070	21,795	75,769	353,557	2,905	11,643	12,384
2011	27,741	190,182	38,070	21,795	75,769	353,557	2,905	11,643	12,384
2012	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0
TOTAL	21,315,077	34,033,332	23,886,258	6,119,861	48,444,623	133,799,151	935,343	13,197,385	11,246,409

TABLE B-10. Capital Costs of Each Aqueduct Reach to be Reimbursed Through Capital Cost Component of Transportation Charge

(in dollars)

Calendar Year	CALIFORNIA AQUEDUCT (continued)								
	SOUTH SAN JOAQUIN DIVISION (continued)								
	Reach 10A	Reach 11B	Reach 12D	Reach 12E	Reach 13B	Reach 14A	Reach 14B	Reach 14C	Reach 15A
	[29]	[30]	[31]	[32]	[33]	[34]	[35]	[36]	[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	778,696
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	14,885	26,473	20,972	25,515	(1,076,221)	27,551	33,674	(1,142,721)
1982	8,237	6,608	7,680	8,346	16,339	(745,914)	9,886	29,393	(804,147)
1983	14,488	9,792	14,174	13,050	35,872	419,650	17,389	24,933	115,983
1984	7,533	27,613	87,907	49,271	22,732	54,590	75,453	63,060	63,537
1985	9,215	6,949	5,263	8,013	8,875	(49,408)	9,523	5,867	54,782
1986	22,335	16,664	16,014	25,031	20,483	140,642	25,960	13,913	154,089
1987	16,704	13,512	12,369	20,023	15,435	101,453	20,411	8,581	227,047
1988	(159,357)	(73,648)	(151,040)	(51,401)	(120,104)	161,077	(75,276)	(75,307)	144,369
1989	70,153	65,216	63,382	120,925	73,037	2,778,880	119,559	36,660	2,952,046
1990	34,841	29,230	27,269	49,082	34,048	715,031	44,187	14,537	440,017
1991	36,888	32,195	30,146	55,119	34,144	423,235	50,345	12,116	353,596
1992	103,321	99,765	98,178	192,455	97,638	991,603	185,311	9,210	387,615
1993	90,291	70,131	63,247	118,440	80,530	687,462	109,792	38,960	942,211
1994	65,737	29,221	26,997	50,234	35,154	400,534	44,481	17,426	324,942
1995	435,909	32,487	25,516	49,885	41,733	524,524	48,740	29,125	450,952
1996	253,433	19,489	15,020	30,202	29,333	403,125	26,945	16,405	253,622
1997	73,458	30,890	25,368	48,767	40,900	451,910	47,815	29,878	809,848
1998	14,618	7,107	5,773	10,697	9,676	288,667	10,799	6,819	119,562
1999	47,323	16,974	13,322	34,382	31,525	260,362	24,603	14,842	264,415
2000	43,393	21,100	32,408	40,128	25,095	168,350	15,186	11,034	151,288
2001	42,281	13,886	21,836	34,646	7,862	68,435	4,153	4,177	65,401
2002	87,355	19,039	6,666	78,249	47,340	272,942	22,247	35,169	163,075
2003	21,957	7,992	7,857	17,345	14,945	129,370	5,827	10,101	107,153
2004	3,575	1,471	1,013	5,388	4,371	45,849	2,510	1,698	47,933
2005	0	0	0	0	0	0	0	0	0
2006	36,461	12,947	7,140	21,229	23,190	196,493	11,021	11,615	160,943
2007	47,943	17,228	9,007	29,956	30,297	266,442	13,657	16,470	217,043
2008	51,096	18,401	9,461	32,484	32,213	285,919	14,246	17,841	232,275
2009	23,708	8,333	5,159	12,059	15,375	122,272	8,329	6,756	102,938
2010	23,708	8,333	5,159	12,059	15,375	122,272	8,329	6,756	102,938
2011	23,708	8,333	5,159	12,059	15,375	122,272	8,329	6,756	102,938
2012	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0
TOTAL	10,613,355	12,647,975	11,265,828	8,484,113	16,268,409	67,274,438	9,158,951	7,250,230	47,841,051

TABLE B-10. Capital Costs of Each Aqueduct Reach to be Reimbursed Through Capital Cost Component of Transportation Charge

(in dollars)

Calendar Year	CALIFORNIA AQUEDUCT (continued)								
	SOUTH SAN JOAQUIN (contd.)		TEHACHAPI DIVISION			MOJAVE DIVISION			
	Reach 16A	Subtotal	Reach 17E	Reach 17F	Subtotal	Reach 18A	Reach 19	Reach 19C	Reach 20A
	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]	[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	626,615	339,536	10,831	37,085
1980	3,772,498	7,372,362	17,433,610	6,046	17,439,656	1,130,429	1,073,430	3,604	308,188
1981	(2,527,211)	(4,566,440)	(3,848,206)	6,908	(3,841,298)	1,218,824	845,702	4,498	48,625
1982	(1,850,736)	(3,296,600)	11,370,112	6,054	11,376,166	6,968,683	746,900	3,920	33,869
1983	166,232	864,390	8,862,914	8,269	8,871,183	10,909,386	64,660	2,596	40,793
1984	119,387	613,799	3,227,937	31,701	3,259,638	8,340,371	309,491	3,124	17,505
1985	82,117	165,866	1,926,289	10,460	1,936,749	5,264,156	227,986	3,885	68,422
1986	186,348	675,895	1,381,955	33,788	1,415,743	2,049,111	2,069,663	4,261	2,331,707
1987	194,936	718,184	671,183	13,807	684,990	1,347,722	(6,453)	4,684	562,540
1988	262,334	(308,900)	1,408,760	(49,734)	1,359,026	847,954	(104,961)	13,409	(159,892)
1989	5,955,356	12,610,055	504,715	64,660	569,375	376,980	207,150	50,953	31,173
1990	640,283	4,092,118	783,219	25,218	808,437	202,065	(402,573)	61,192	(637,062)
1991	774,129	1,890,989	691,578	33,405	724,983	273,021	22,218	81,545	(188,732)
1992	731,512	3,113,074	741,986	24,369	766,355	620,962	384,568	86,644	225,398
1993	857,038	3,265,681	1,223,402	35,370	1,258,772	1,131,166	248,287	72,746	110,869
1994	853,328	1,937,975	806,213	16,681	822,894	998,126	164,096	60,147	51,340
1995	628,941	2,373,574	1,538,497	19,443	1,557,940	390,433	157,481	45,990	92,925
1996	388,064	1,498,995	2,571,039	10,797	2,581,836	91,593	69,281	22,188	35,656
1997	481,458	2,144,699	1,009,249	18,265	1,027,514	135,402	92,607	13,590	65,433
1998	440,746	937,096	925,574	6,843	932,417	47,486	36,170	4,164	29,900
1999	361,308	1,123,375	661,104	12,023	673,127	113,032	49,062	5,329	171,867
2000	372,619	937,255	406,462	14,073	420,535	119,903	89,985	936	83,355
2001	165,140	467,378	254,030	9,132	263,162	63,118	185,890	2,223	342,940
2002	284,187	1,083,181	235,166	7,823	242,989	33,319	(140,419)	1,374	(112,511)
2003	154,356	512,464	160,899	8,472	169,371	79,020	(21,430)	0	(13,203)
2004	311,101	452,677	362,265	2,069	364,334	14,426	12,464	0	12,567
2005	0	26,296	2,264,058	0	2,264,058	10,573	0	0	0
2006	249,519	777,680	3,582,288	10,828	3,593,116	95,272	23,633	0	35,480
2007	331,047	1,045,750	4,200,581	15,205	4,215,786	161,318	29,968	0	43,217
2008	353,513	1,119,722	4,224,879	16,470	4,241,349	181,619	31,545	0	44,996
2009	160,332	492,193	308,861	6,214	315,075	32,088	16,820	0	26,694
2010	160,332	492,193	308,861	6,214	315,075	32,088	16,820	0	26,694
2011	160,332	492,193	308,861	6,214	315,075	32,088	16,820	0	26,694
2012	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0
TOTAL	76,988,503	293,171,990	264,592,766	54,654,453	319,247,219	51,360,531	23,758,596	759,941	18,501,194

TABLE B-10. Capital Costs of Each Aqueduct Reach to be Reimbursed Through Capital Cost Component of Transportation Charge

(in dollars)

Calendar Year	CALIFORNIA AQUEDUCT (continued)								
	MOJAVE DIVISION (continued)							SANTA ANA DIVISION	
	Reach 20B	Reach 21	Reach 22A	Reach 22B	Reach 23	Reach 24	Subtotal	Reach 25	Reach 26A
	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[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	3,788,894	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	68,838	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	1,754,670	29,960	80,482
1980	284,545	133,526	121,171	2,239,224	60,229	559,963	5,914,309	31,462	181,638
1981	32,214	13,223	6,466	(774,614)	138,917	203,941	1,737,796	5,864	69,031
1982	77,988	13,158	14,459	432,274	346,905	79,819	8,717,975	9,224	159,280
1983	58,714	25,900	10,363	451,428	2,029,405	58,989	13,652,234	4,304	528,764
1984	35,378	845,423	6,052	(83,811)	1,290,740	34,764	10,799,037	3,850	270,455
1985	(232,549)	(481,017)	1,945,477	608,583	966,160	51,634	8,422,737	5,555	62,571
1986	(2,046,222)	(1,334,975)	3,260,280	1,097,122	230,510	51,994	7,713,451	9,927	114,561
1987	(344,829)	55,519	64,264	3,631,282	146,850	91,223	5,552,802	4,908	27,208
1988	(147,290)	(70,564)	351,489	552,546	558,557	197,761	2,039,009	7,358	161,957
1989	60,657	30,217	534,658	4,161,037	1,496,776	433,072	7,382,673	8,092	(2,297,399)
1990	(403,413)	(635,623)	(97,841)	8,794,258	1,394,698	344,367	8,620,068	176,854	(1,657,576)
1991	(18,809)	(147,369)	(17,234)	7,985,326	3,624,824	139,105	11,753,895	202,286	(1,316,160)
1992	338,098	(263,897)	75,210	4,849,560	8,364,426	127,829	14,808,798	333,934	(1,878,502)
1993	180,598	133,941	49,144	2,094,764	15,390,366	159,211	19,571,092	1,506,787	3,979,221
1994	114,273	65,260	26,546	933,021	8,082,401	81,869	10,577,079	2,104,588	2,493,097
1995	121,499	66,503	30,918	1,096,953	5,924,175	123,653	8,050,530	3,310,564	500,791
1996	48,699	44,953	17,787	1,736,686	2,181,669	96,339	4,344,851	19,019,751	(100,474)
1997	39,973	55,881	27,865	809,666	(342,563)	102,390	1,000,244	7,645,602	(662,524)
1998	27,626	20,285	12,816	273,139	3,392,776	36,135	3,880,497	993,619	1,613,505
1999	58,327	37,630	18,087	1,007,117	2,208,411	123,902	3,792,764	223,882	843,461
2000	75,113	44,803	20,567	725,557	1,251,238	84,653	2,496,110	128,725	1,285,316
2001	121,114	77,432	57,140	555,712	339,949	32,066	1,777,584	70,116	445,110
2002	(83,458)	(7,737)	(40,809)	275,268	266,115	77,094	268,236	51,893	1,751,376
2003	(9,309)	(4,047)	2,740	392,726	140,027	41,878	608,402	80,322	346,217
2004	7,838	7,871	6,249	254,106	43,526	17,075	376,122	11,503	268,226
2005	0	0	0	0	90,480	143,825	244,878	16,594	90,632
2006	35,613	25,438	7,538	1,312,062	1,107,218	886,767	3,529,021	87,637	230,110
2007	42,004	30,933	11,099	4,259,811	1,135,686	855,785	6,569,821	87,528	314,044
2008	43,514	32,285	12,119	3,422,639	231,707	72,627	4,073,051	86,351	337,965
2009	26,897	18,651	4,078	260,725	81,164	35,159	502,276	77,036	139,078
2010	26,897	18,651	4,078	260,725	81,164	35,159	502,276	77,036	139,078
2011	26,897	18,651	4,078	260,725	81,164	35,159	502,276	77,036	139,078
2012	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0
TOTAL	17,877,439	8,506,505	12,946,477	135,154,958	66,497,864	53,767,780	389,131,285	61,149,894	46,102,682

TABLE B-10. Capital Costs of Each Aqueduct Reach to be Reimbursed Through Capital Cost Component of Transportation Charge

(in dollars)

Calendar Year	CALIFORNIA AQUEDUCT (continued)								
	SANTA ANA DIVISION (continued)				WEST BRANCH				
	Reach 28G (a	Reach 28H	Reach 28J	Subtotal	Reach 29A	Reach 29F	Reach 29G	Reach 29H	Reach 29J
	[56]	[57]	[58]	[59]	[60]	[61]	[62]	[63]	[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	151,493	142,244	25,386	2,126,670	102,366	21,971
1986	31,564	25,037	86,794	267,883	133,914	62,294	274,660	141,894	36,149
1987	17,141	8,005	45,528	102,790	13,936	453,949	711,773	192,511	27,931
1988	41,892	21,113	90,784	323,104	427,544	118,010	1,660,959	203,130	95,930
1989	28,708	12,619	51,556	(2,196,424)	207,067	430,662	584,186	241,811	97,472
1990	27,478	12,817	55,408	(1,385,019)	197,428	355,480	386,882	813,211	54,269
1991	142,139	15,524	62,794	(893,417)	219,321	344,386	453,336	1,132,520	55,176
1992	34,185	13,422	69,479	(1,427,482)	541,026	295,312	464,421	4,402,524	47,182
1993	44,300	27,047	162,854	5,720,209	464,987	320,182	643,189	3,361,457	74,198
1994	16,351	11,673	54,581	4,680,290	203,666	231,527	362,717	306,148	33,758
1995	35,402	28,202	164,254	4,039,213	344,358	392,647	536,253	468,656	34,007
1996	76,723	73,629	344,747	19,414,376	150,901	161,394	427,223	203,201	15,357
1997	50,662	20,720	268,293	7,322,753	298,002	71,310	432,940	276,180	50,095
1998	10,268	8,970	479,138	3,105,500	346,973	21,003	2,028,979	181,951	49,377
1999	84,563	45,203	324,045	1,521,154	296,367	37,791	1,080,369	125,121	50,944
2000	63,878	41,167	113,901	1,632,987	211,896	34,019	238,107	116,129	12,752
2001	18,724	12,527	86,471	632,948	41,401	8,288	100,282	107,743	7,430
2002	52,314	11,508	194,758	2,061,849	169,305	32,612	249,057	57,031	4,565
2003	1,093,434	2,479,743	174,660	4,174,376	46,382	13,185	94,703	50,878	43,728
2004	1,735,372	855,876	23,119	2,894,096	47,098	5,681	22,334	104,380	213,639
2005	2,049,472	409,829	270,555	2,837,082	273,707	0	39,668	0	51,947
2006	1,087,474	2,031,708	380,558	3,817,487	1,419,133	729,392	194,358	162,832	437,982
2007	32,550	1,681,603	11,474,286	13,590,011	1,411,290	733,691	750,501	1,107,857	17,711
2008	33,901	32,041	30,809,223	31,299,481	195,625	27,426	508,894	1,119,740	18,805
2009	20,076	22,233	35,511	293,934	101,394	16,805	4,052,486	76,090	9,112
2010	20,076	22,233	35,511	293,934	101,394	16,805	549,241	76,090	9,112
2011	20,076	22,233	35,511	293,934	101,394	16,805	304,061	76,090	9,112
2012	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0
TOTAL	30,489,448	31,264,679	98,915,694	267,922,397	40,624,107	33,477,128	131,766,425	66,249,738	75,948,971

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

(in dollars)

Calendar Year	CALIFORNIA AQUEDUCT (continued)											GRAND TOTAL
	WEST BRANCH (cont.)		COASTAL BRANCH									
	Reach 30	Subtotal	Reach 31A	Reach 33A	Reach 33B	Reach 34	Reach 35	Reach 37	Reach 38	Subtotal	Total	
	[65]	[66]	[67]	[68]		[69]	[70]	[71]	[72]	[73]	[74]	[75]
1952	1,408	5,655	0	0	0	0	0	0	0	0	98,857	99,353
1953	4,346	17,457	0	0	0	0	0	0	0	0	309,387	311,812
1954	5,743	23,074	0	0	0	0	0	0	0	0	394,688	402,143
1955	1,943	7,809	0	0	0	0	0	0	0	0	159,842	169,342
1956	2,077	8,348	0	0	0	0	0	0	0	0	255,679	351,551
1957	7,684	30,877	0	0	0	0	0	0	0	0	708,753	1,464,452
1958	13,931	55,142	0	0	0	0	0	0	0	0	1,331,616	2,286,623
1959	44,384	134,727	28,046	49,114	0	7,441	8,236	0	0	92,837	2,096,392	2,967,412
1960	84,703	255,409	34,404	70,450	0	8,507	14,265	0	0	127,626	2,937,049	4,660,833
1961	123,330	239,953	13,801	17,868	0	1,501	3,931	0	0	37,101	4,650,264	8,545,244
1962	348,366	671,447	10,121	7,798	0	524	1,689	0	0	20,132	5,827,774	8,875,171
1963	521,491	1,167,566	20,470	14,299	0	880	2,943	0	0	38,592	18,981,487	24,610,278
1964	1,372,464	2,232,275	315,418	26,963	0	1,687	5,639	0	0	349,707	31,550,813	41,736,060
1965	3,383,950	4,943,858	747,023	36,178	0	2,118	7,060	0	0	792,379	57,936,405	62,664,743
1966	9,364,753	14,872,117	2,258,915	35,864	0	1,736	5,764	0	0	2,302,279	124,748,128	129,110,330
1967	17,618,827	53,187,979	6,310,419	38,331	0	1,891	6,213	0	0	6,356,854	187,465,580	194,146,365
1968	15,736,691	57,595,765	2,707,580	30,784	0	1,324	4,369	0	0	2,744,057	192,593,079	197,978,911
1969	16,228,175	34,690,908	423,797	26,549	0	907	2,905	0	0	454,158	182,530,023	184,473,490
1970	22,330,328	50,497,652	269,194	24,368	0	851	2,787	0	0	297,200	206,720,774	207,082,650
1971	16,890,503	40,115,145	164,446	32,230	0	1,315	3,804	0	0	201,795	158,414,033	158,624,739
1972	3,818,001	2,874,264	131,332	17,601	0	522	1,660	0	0	151,115	68,228,670	68,362,291
1973	13,426,222	25,999,878	182,493	16,154	0	542	1,758	0	0	200,947	45,110,823	45,263,853
1974	2,988,318	4,334,592	190,866	18,799	0	463	1,405	0	0	211,533	24,036,199	24,402,166
1975	1,808,235	4,782,778	64,582	36,012	0	2,255	6,656	0	0	109,505	21,065,768	21,318,838
1976	1,253,067	4,931,230	198,266	68,898	0	5,088	14,988	0	0	287,240	17,183,961	17,492,910
1977	345,023	7,238,418	918,473	81,305	0	1,834	5,387	0	0	1,006,999	15,165,801	15,544,382
1978	763,445	11,312,134	52,994	83,300	0	1,302	3,852	0	0	141,448	18,661,117	19,119,151
1979	282,145	24,133,453	38,182	108,951	0	1,505	4,433	0	0	153,071	31,202,118	31,857,362
1980	2,055,206	32,733,044	189,070	376,036	0	1,152	3,449	0	0	569,707	73,891,101	74,986,833
1981	275,460	22,193,909	19,897	(157,537)	0	1,427	4,261	0	0	(131,952)	15,246,649	15,742,773
1982	351,376	18,460,292	(16,381)	(96,449)	0	588	1,787	0	0	(110,455)	38,256,580	39,705,931
1983	566,545	7,843,883	85,496	67,106	0	794	2,398	0	0	155,794	34,705,281	38,044,649
1984	1,118,954	4,483,129	28,568	54,074	0	986	2,959	0	0	86,587	24,454,091	30,382,250
1985	284,243	2,702,880	36,834	54,314	0	2,111	6,263	0	0	99,522	14,914,930	28,537,556
1986	213,353	862,264	82,358	223,134	0	17,458	51,279	0	0	374,229	13,435,351	43,155,828
1987	158,313	1,558,413	53,817	1,061,939	0	92,506	272,968	0	0	1,481,230	11,711,428	34,331,982
1988	222,068	2,727,641	183,853	1,141,272	0	99,456	293,612	0	0	1,718,193	11,026,370	18,123,243
1989	148,674	1,709,872	84,678	893,765	0	77,283	228,038	0	0	1,283,764	30,302,112	33,130,497
1990	119,438	1,926,708	133,868	1,100,167	0	103,785	277,889	0	0	1,615,709	32,589,619	34,435,721
1991	229,315	2,434,054	164,610	1,635,283	0	123,603	363,889	0	0	2,287,385	38,320,942	39,811,664
1992	206,495	5,956,960	183,240	1,220,510	1,495,646	566,230	240,553	102,051	74,162	3,882,392	34,312,996	35,041,233
1993	296,349	5,160,362	344,928	5,274,657	5,052,431	1,345,211	688,935	268,937	358,367	13,333,467	53,122,385	53,921,788
1994	168,426	1,306,242	282,150	15,905,886	21,341,196	8,915,445	2,363,238	678,753	1,315,559	50,802,227	73,751,564	74,225,377
1995	304,983	2,080,904	1,196,326	45,172,271	62,947,362	23,975,738	20,849,939	7,029,108	7,117,197	168,287,940	191,033,089	191,525,570
1996	98,522	1,056,598	948,730	42,987,442	54,300,990	26,475,298	18,790,572	7,213,823	6,616,310	157,333,164	187,776,346	188,025,324
1997	233,956	1,362,483	562,583	11,209,633	13,893,576	10,456,863	4,149,105	545,378	798,606	41,615,744	62,137,369	62,583,537
1998	67,874	2,696,157	248,671	2,355,322	4,159,441	3,368,320	952,615	192,567	280,779	11,557,715	27,083,446	27,217,157
1999	117,470	1,708,062	288,155	2,913,031	4,398,199	2,617,504	357,331	36,680	51,648	10,662,548	24,089,004	24,559,088
2000	186,940	799,843	132,288	241,661	2,964,598	2,747,810	19,670	0	0	6,106,027	13,511,424	13,748,070
2001	17,175	282,319	102,285	79,245	559,917	15,389	11,334	0	0	768,170	5,175,588	7,507,776
2002	55,993	568,563	97,023	234,364	96,896	88,726	25,599	0	0	542,608	8,881,800	17,175,987
2003	19,607	268,483	39,881	233,536	11,802	50,867	33,642	0	0	369,728	3,208,434	10,956,313
2004	9,071	402,203	26,208	80,285	14,941	13,081	12,548	0	0	147,063	5,039,433	15,130,992
2005	580,754	946,076	29,204	(287,866)	37,518	0	0	0	0	(221,144)	7,501,466	15,540,998
2006	347,830	3,291,527	157,641	431,914	0	113,900	45,723	0	0	749,178	18,303,644	23,225,278
2007	4,804,679	8,825,729	196,592	448,845	0	109,735	44,051	0	0	799,223	40,471,444	54,652,883
2008	11,871,602	13,742,092	206,890	448,894	0	106,875	42,903	0	0	805,562	59,332,250	71,424,948
2009	46,715	4,302,602	109,984	365,173	0	103,363	41,493	0	0	620,013	7,198,558	7,373,746
2010	46,715	799,357	109,984	365,173	0	103,363	41,493	0	0	620,013	3,695,313	3,870,501
2011	46,715	554,177	109,984	365,173	0	103,363	41,493	0	0	620,013	1,174,190	1,174,190
2012	0	0	0	0	0	0	0	0	0	0	2,275,943	2,451,131
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
TOTAL	154,040,369	502,106,738	21,500,237	137,240,069	171,274,513	81,842,423	50,370,773	16,067,297	16,612,628	494,907,940	2,588,295,221	2,805,643,270

TABLE B-11. Minimum OMP&R Costs of Each Aqueduct Reach to be Reimbursed Through Minimum OMP&R Component of Transportation Charge

(in dollars)

Calendar Year	UPPER FEATHER DIVISION	NORTH BAY AQUEDUCT					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	73,852	73,852	650,826	76,849	212,826	91,380
1980	416	0	0	0	81,769	81,769	1,128,840	212,974	242,118	110,786
1981	3,847	0	0	0	101,340	101,340	884,763	130,126	167,118	204,772
1982	11,075	0	0	0	191,987	191,987	1,156,605	141,718	249,447	96,020
1983	1,928	0	0	0	80,215	80,215	1,258,144	84,360	373,875	152,255
1984	3,765	0	0	0	139,121	139,121	1,998,984	113,797	340,344	34,461
1985	2,888	0	0	0	259,515	259,515	2,044,121	207,478	427,930	247,308
1986	2,787	0	0	0	229,508	229,508	1,834,838	285,908	305,149	159,054
1987	2,388	0	0	0	310,683	310,683	2,118,974	163,714	400,547	283,067
1988	545	0	(94)	0	330,156	330,062	2,068,655	186,275	299,934	370,212
1989	1,800	473,408	178,069	237,480	373,427	1,262,384	2,164,688	163,481	320,734	497,038
1990	788	556,610	244,897	123,144	427,257	1,351,908	2,233,036	251,434	355,022	571,415
1991	3,654	651,307	302,327	205,516	428,470	1,587,620	1,806,699	152,509	95,745	93,986
1992	647	443,912	189,330	265,462	280,505	1,179,209	2,064,907	405,932	409,435	363,964
1993	3,630	435,240	294,416	213,267	289,206	1,232,129	3,925,050	621,712	480,832	399,558
1994	2,279	430,112	198,322	206,594	365,646	1,200,674	4,673,275	302,115	404,709	408,066
1995	2,906	428,313	282,898	151,703	295,326	1,158,240	3,849,620	316,905	566,447	330,706
1996	8,007	796,526	272,743	240,106	260,001	1,569,376	3,526,989	254,075	664,485	493,300
1997	7,449	504,476	210,763	213,211	315,374	1,243,824	3,010,809	189,269	591,540	230,371
1998	798	405,029	227,562	204,964	251,183	1,088,738	2,965,468	426,872	532,042	303,325
1999	416	668,954	326,989	296,605	288,169	1,580,717	3,701,631	472,798	429,082	414,830
2000	505	920,906	255,241	658,168	414,700	2,249,015	3,817,480	542,905	442,515	552,538
2001	319	1,072,623	229,820	455,870	181,522	1,939,835	2,909,692	272,876	290,330	391,186
2002	3,627	1,588,349	416,749	411,379	399,274	2,815,751	3,865,610	343,132	468,352	543,895
2003	3,393	1,777,686	545,908	567,866	354,483	3,245,943	2,352,996	366,393	576,229	964,901
2004	3,455	1,602,507	635,773	738,104	818,511	3,794,895	3,345,983	511,123	747,800	701,961
2005	3,451	1,059,738	323,279	774,767	414,332	2,572,116	3,330,782	263,543	428,970	813,898
2006	3,100	1,521,394	504,829	709,233	531,591	3,267,047	2,992,891	400,332	616,170	905,468
2007	3,200	1,584,868	530,095	739,756	554,856	3,409,575	3,194,621	430,935	658,467	1,072,722
2008	3,250	1,643,049	551,084	770,722	574,417	3,539,272	3,383,584	455,510	692,695	1,126,744
2009	3,300	926,412	258,366	462,833	390,187	2,037,798	4,099,129	478,799	772,701	667,221
2010	3,300	926,147	258,396	462,691	390,135	2,037,369	4,099,299	478,827	772,712	666,869
2011	3,300	929,708	259,272	464,465	391,454	2,044,899	4,112,664	480,495	775,451	672,068
2012	3,300	929,963	259,311	464,597	391,544	2,045,415	4,113,390	480,578	775,597	672,302
2013	3,300	930,782	259,328	465,023	391,775	2,046,908	4,114,257	480,663	775,808	673,220
2014	3,300	931,443	259,183	465,382	391,870	2,047,878	4,112,906	480,483	775,632	674,205
2015	3,300	932,136	259,387	465,727	392,165	2,049,415	4,116,091	480,855	776,230	674,691
2016	3,300	930,864	259,113	465,084	391,676	2,046,737	4,111,515	480,326	775,348	673,647
2017	3,300	931,398	259,210	465,356	391,871	2,047,835	4,113,197	480,519	775,676	674,112
2018	3,300	932,358	259,229	465,857	392,141	2,049,585	4,114,217	480,620	775,926	675,191
2019	3,300	930,957	258,990	465,142	391,633	2,046,722	4,109,973	480,134	775,091	673,944
2020	3,300	931,721	259,262	465,521	391,989	2,048,493	4,114,125	480,623	775,861	674,407
2021	3,300	932,052	259,463	465,676	392,188	2,049,379	4,116,993	480,968	776,377	674,478
2022	3,300	932,124	259,191	465,737	392,056	2,049,108	4,113,513	480,539	775,788	674,979
2023	3,300	930,912	259,147	465,106	391,710	2,046,875	4,111,990	480,384	775,433	673,648
2024	3,300	931,429	259,145	465,377	391,846	2,047,797	4,112,376	480,417	775,539	674,247
2025	3,300	932,362	259,444	465,839	392,259	2,049,904	4,116,988	480,959	776,399	674,863
2026	3,300	930,683	258,916	465,005	391,520	2,046,124	4,108,800	479,998	774,870	673,741
2027	3,300	933,603	259,817	466,458	392,799	2,052,677	4,122,843	481,646	777,498	675,719
2028	3,300	930,658	258,849	464,998	391,478	2,045,983	4,107,909	479,889	774,715	673,815
2029	3,300	931,724	259,312	465,515	392,016	2,048,567	4,114,779	480,704	775,973	674,331
2030	3,300	930,740	259,116	465,018	391,646	2,046,520	4,111,450	480,319	775,327	673,498
2031	3,300	934,100	259,761	466,721	392,901	2,053,483	4,122,521	481,594	777,482	676,377
2032	3,300	930,149	258,691	464,746	391,253	2,044,839	4,105,445	479,599	774,254	673,474
2033	3,300	931,719	259,421	465,506	392,077	2,048,723	4,116,210	480,878	776,218	674,155
2034	3,300	932,090	259,340	465,706	392,128	2,049,264	4,115,432	480,775	776,112	674,709
2035	3,300	930,268	258,736	464,803	391,309	2,045,116	4,106,118	479,681	774,381	673,542
TOTAL	181,025	43,703,509	13,718,396	20,743,806	20,766,075	98,931,786	195,849,145	22,417,488	34,909,562	31,698,852

TABLE B-11. Minimum OMP&R Costs of Each Aqueduct Reach to be Reimbursed Through Minimum OMP&R Component of Transportation Charge

(in dollars)

Calendar	SOUTH BAY AQUEDUCT (continued)					CALIFORNIA AQUEDUCT NORTH SAN JOAQUIN DIVISION			
Year	Reach 6	Reach 7	Reach 8	Reach 9	Total	Reach 1	Reach 2A	Reach 2B	Subtotal
	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[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	1,176,630	1,848,109	231,339	145,205	2,224,653
1980	3,621	24,270	17,404	110,852	1,850,865	2,365,292	472,660	247,608	3,085,560
1981	4,038	20,109	17,586	98,143	1,526,655	2,649,730	435,226	154,191	3,239,147
1982	2,236	22,870	21,919	202,590	1,893,405	3,192,710	599,793	244,664	4,037,167
1983	(2,047)	48,781	45,573	216,434	2,177,375	4,244,937	802,908	273,081	5,320,926
1984	4,449	44,017	23,563	455,054	3,014,669	4,373,157	808,917	290,728	5,472,802
1985	13,097	74,565	57,920	238,067	3,310,486	4,717,323	629,825	189,199	5,536,347
1986	11,614	31,084	46,864	363,350	3,037,861	5,217,491	929,919	359,365	6,506,775
1987	15,273	25,182	37,949	416,375	3,461,081	5,292,200	958,927	362,065	6,613,192
1988	30,207	41,047	49,156	335,408	3,380,894	5,329,317	822,300	360,336	6,511,953
1989	9,740	54,881	114,203	179,323	3,504,088	5,753,966	851,745	907,609	7,513,320
1990	31,161	69,416	119,309	247,781	3,878,574	6,788,986	1,066,314	883,822	8,739,122
1991	22,434	(18,690)	99,577	262,052	2,514,312	6,796,247	1,067,078	585,008	8,448,333
1992	26,787	332,012	98,670	186,640	3,888,347	9,415,121	1,419,603	673,833	11,508,557
1993	24,845	181,592	94,169	316,045	6,043,803	10,274,070	1,371,074	900,996	12,546,140
1994	28,383	90,791	80,942	416,061	6,404,342	8,451,199	1,325,511	802,217	10,578,927
1995	29,298	64,012	80,278	373,657	5,610,923	10,406,784	2,386,507	959,685	13,752,976
1996	(1,020)	60,610	11,672	312,097	5,322,208	10,246,985	2,604,651	628,177	13,479,813
1997	18,428	95,321	15,691	335,566	4,486,995	10,429,338	1,098,381	2,084,859	13,612,578
1998	26,323	54,255	611,290	658,090	5,577,665	11,410,436	1,449,411	5,364,368	18,224,215
1999	49,762	34,829	426,694	2,030,604	7,560,230	11,446,675	1,365,947	1,301,570	14,114,192
2000	135,909	87,815	185,985	641,445	6,406,592	12,637,999	905,934	648,421	14,192,354
2001	112,970	188,989	197,745	1,048,191	5,411,979	17,559,077	1,375,177	752,734	19,686,988
2002	143,886	171,491	501,630	2,781,431	8,819,427	14,429,951	861,125	622,521	15,913,597
2003	78,084	97,968	248,068	987,782	5,672,421	16,535,948	1,724,007	749,673	19,009,628
2004	156,691	179,277	205,603	454,479	6,302,917	14,177,440	1,308,095	733,356	16,218,891
2005	143,175	202,435	135,636	224,528	5,542,967	12,551,578	1,935,671	873,917	15,361,166
2006	131,191	165,321	204,183	581,861	5,997,417	14,805,852	1,332,319	703,409	16,841,580
2007	136,411	172,607	222,778	630,651	6,519,192	15,666,838	1,434,005	804,192	17,905,035
2008	140,856	178,739	237,550	669,594	6,885,272	16,586,177	1,515,807	882,669	18,984,653
2009	90,837	84,173	102,317	502,075	6,797,252	11,356,421	2,164,030	721,285	14,241,736
2010	90,848	84,184	102,329	502,136	6,797,204	11,355,782	2,163,388	721,092	14,240,262
2011	91,155	84,471	102,675	503,834	6,822,813	11,392,790	2,171,770	723,555	14,288,115
2012	91,169	84,483	102,690	503,909	6,824,118	11,394,497	2,172,253	723,710	14,290,460
2013	91,171	84,488	102,696	503,934	6,826,237	11,398,180	2,174,015	724,252	14,296,447
2014	91,120	84,439	102,636	503,642	6,825,063	11,398,634	2,175,753	724,759	14,299,146
2015	91,190	84,503	102,717	504,036	6,830,313	11,404,761	2,176,876	725,136	14,306,773
2016	91,096	84,416	102,610	503,507	6,822,465	11,395,071	2,174,621	724,401	14,294,093
2017	91,129	84,448	102,646	503,693	6,825,420	11,398,842	2,175,604	724,716	14,299,162
2018	91,135	84,452	102,652	503,721	6,827,914	11,403,168	2,177,675	725,352	14,306,195
2019	91,051	84,374	102,558	503,260	6,820,385	11,393,469	2,175,070	724,519	14,293,058
2020	91,146	84,463	102,668	503,793	6,827,086	11,401,016	2,176,213	724,910	14,302,139
2021	91,218	84,529	102,748	504,185	6,831,496	11,405,600	2,176,536	725,043	14,307,179
2022	91,121	84,439	102,637	503,645	6,826,661	11,401,546	2,177,233	725,213	14,303,992
2023	91,107	84,428	102,622	503,571	6,823,183	11,395,800	2,174,655	724,416	14,294,871
2024	91,105	84,425	102,620	503,563	6,824,292	11,397,931	2,175,800	724,766	14,298,497
2025	91,209	84,522	102,738	504,144	6,831,822	11,406,579	2,177,255	725,260	14,309,094
2026	91,025	84,352	102,530	503,117	6,818,433	11,391,153	2,174,611	724,366	14,290,130
2027	91,342	84,645	102,887	504,872	6,841,452	11,417,750	2,179,250	725,929	14,322,929
2028	91,002	84,330	102,502	502,985	6,817,147	11,389,977	2,174,690	724,378	14,289,045
2029	91,164	84,480	102,688	503,891	6,828,010	11,401,827	2,176,111	724,889	14,302,827
2030	91,097	84,417	102,611	503,512	6,822,231	11,394,591	2,174,340	724,315	14,293,246
2031	91,322	84,626	102,864	504,757	6,841,543	11,418,937	2,180,445	726,284	14,325,666
2032	90,945	84,277	102,440	502,676	6,813,110	11,385,321	2,173,886	724,107	14,283,314
2033	91,203	84,516	102,732	504,109	6,830,021	11,403,573	2,175,884	724,838	14,304,295
2034	91,174	84,489	102,697	503,941	6,829,329	11,403,798	2,176,862	725,124	14,305,784
2035	90,961	84,292	102,458	502,763	6,814,196	11,386,528	2,174,058	724,166	14,284,752
TOTAL	4,056,263	5,214,911	7,112,191	30,137,767	331,396,179	597,563,601	96,855,074	45,973,541	740,392,216

TABLE B-11. Minimum OMP&R Costs of Each Aqueduct Reach to be Reimbursed Through Minimum OMP&R Component of Transportation Charge

(in 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	842,508	144,055	99,670	180,734	1,490,940	69,973	150,679	129,756
1980	243,507	1,176,463	222,942	127,625	281,860	2,052,397	57,726	274,848	185,155
1981	265,766	1,065,358	193,048	90,533	1,612,157	3,226,862	80,121	198,256	144,187
1982	279,250	1,241,285	209,371	114,421	1,433,180	3,277,507	59,424	269,086	233,494
1983	214,468	1,949,017	339,809	131,377	2,143,678	4,778,349	49,448	383,476	223,078
1984	241,273	2,233,969	335,166	163,858	2,111,386	5,085,652	42,062	458,489	300,924
1985	322,068	2,882,583	360,431	176,577	1,603,532	5,345,191	58,820	495,500	213,368
1986	416,027	2,996,792	472,551	252,188	601,250	4,738,808	90,730	478,786	596,800
1987	362,738	3,104,592	424,107	236,349	439,232	4,567,018	113,962	412,042	446,067
1988	365,209	2,954,186	456,864	231,754	639,242	4,647,255	96,728	379,073	417,991
1989	263,171	3,182,472	393,589	332,986	633,419	4,805,637	83,282	389,698	400,853
1990	397,353	4,011,110	579,073	464,639	729,132	6,181,307	111,019	436,849	515,611
1991	256,473	4,388,184	543,760	728,156	765,765	6,682,338	104,414	496,794	465,940
1992	302,021	3,792,401	795,587	363,134	815,590	6,068,733	118,315	511,982	417,871
1993	439,725	4,337,616	1,008,394	551,849	734,796	7,072,380	230,338	745,885	490,159
1994	282,579	4,376,461	816,129	396,768	492,860	6,364,797	125,398	602,404	572,557
1995	107,995	5,026,076	1,066,971	440,006	1,356,668	7,997,716	185,681	657,282	432,072
1996	1,003,229	4,738,221	931,944	683,323	1,034,376	8,391,093	112,062	416,294	472,350
1997	859,665	5,761,996	924,289	254,934	646,209	8,447,093	128,190	449,316	728,436
1998	690,845	5,522,567	1,242,589	534,931	654,538	8,645,470	115,748	457,845	429,433
1999	697,893	5,684,969	1,219,793	531,972	670,006	8,804,633	104,822	396,623	409,411
2000	712,071	5,849,518	1,033,992	528,537	876,030	9,000,148	104,381	467,347	513,824
2001	(558,917)	7,151,253	851,983	373,030	679,856	8,497,205	58,436	553,295	603,147
2002	1,071,739	5,193,633	673,240	255,190	738,467	7,932,269	55,252	729,942	417,109
2003	1,026,535	6,040,701	750,339	304,182	620,749	8,742,506	62,618	674,449	643,946
2004	655,509	7,033,601	725,042	344,853	606,863	9,365,868	37,161	484,074	337,980
2005	543,326	6,052,036	975,929	396,253	792,532	8,760,076	26,876	389,759	285,162
2006	900,505	6,872,937	1,103,796	449,812	801,602	10,128,652	44,509	512,149	416,311
2007	922,828	7,049,871	1,482,975	462,406	826,715	10,744,795	46,041	529,672	430,539
2008	896,429	7,428,878	1,857,947	473,214	848,446	11,504,914	47,371	544,972	442,974
2009	809,554	4,574,988	979,216	461,417	630,100	7,455,275	273,491	1,039,646	852,726
2010	808,748	4,572,037	979,333	461,182	629,812	7,451,112	273,514	1,039,295	852,382
2011	817,259	4,598,204	984,364	463,987	633,594	7,497,408	274,454	1,043,544	855,949
2012	817,614	4,599,964	984,515	464,147	633,802	7,500,042	274,500	1,043,847	856,215
2013	819,431	4,607,370	984,564	464,760	634,579	7,510,704	274,532	1,044,873	857,169
2014	821,880	4,615,848	983,992	465,409	635,372	7,522,501	274,404	1,045,783	858,090
2015	822,253	4,619,118	984,762	465,747	635,834	7,527,714	274,618	1,046,556	858,720
2016	820,960	4,611,545	983,728	465,032	634,882	7,516,147	274,320	1,045,085	857,469
2017	821,615	4,615,016	984,091	465,350	635,301	7,521,373	274,427	1,045,713	858,011
2018	823,752	4,623,708	984,148	466,070	636,214	7,533,892	274,466	1,046,917	859,134
2019	821,949	4,614,380	983,247	465,223	635,101	7,519,900	274,201	1,045,267	857,700
2020	822,057	4,617,229	984,284	465,549	635,562	7,524,681	274,484	1,046,096	858,345
2021	821,583	4,617,139	985,053	465,607	635,673	7,525,055	274,689	1,046,410	858,547
2022	823,438	4,622,114	984,000	465,926	636,024	7,531,502	274,422	1,046,638	858,890
2023	820,859	4,611,441	983,857	465,034	634,893	7,516,084	274,355	1,045,125	857,492
2024	822,093	4,616,339	983,839	465,438	635,398	7,523,107	274,364	1,045,784	858,112
2025	822,430	4,620,342	984,972	465,864	635,991	7,529,599	274,677	1,046,809	858,931
2026	821,758	4,612,973	982,968	465,084	634,912	7,517,695	274,122	1,044,956	857,442
2027	823,033	4,626,057	986,396	466,461	636,813	7,538,760	275,069	1,048,193	860,051
2028	822,116	4,613,794	982,710	465,130	634,956	7,518,706	274,057	1,044,959	857,478
2029	821,744	4,616,444	984,478	465,500	635,508	7,523,674	274,535	1,046,069	858,299
2030	820,649	4,610,335	983,740	464,932	634,758	7,514,414	274,321	1,044,929	857,318
2031	824,537	4,631,567	986,172	466,894	637,350	7,546,520	275,024	1,048,846	860,692
2032	821,903	4,611,536	982,108	464,892	634,626	7,515,065	273,890	1,044,396	857,023
2033	821,051	4,614,662	984,905	465,390	635,391	7,521,399	274,642	1,046,010	858,190
2034	822,432	4,619,425	984,579	465,755	635,836	7,528,027	274,570	1,046,519	858,707
2035	821,905	4,611,945	982,278	464,939	634,696	7,515,763	273,936	1,044,523	857,120
TOTAL	37,624,928	262,049,700	50,771,470	23,834,568	45,394,734	419,675,400	10,431,966	43,948,727	36,785,115

TABLE B-11. Minimum OMP&R Costs of Each Aqueduct Reach to be Reimbursed Through Minimum OMP&R Component of Transportation Charge

(in dollars)

Calendar Year	CALIFORNIA AQUEDUCT (continued)								
	SOUTH SAN JOAQUIN DIVISION (continued)								
	Reach 10A	Reach 11B	Reach 12D	Reach 12E	Reach 13B	Reach 14A	Reach 14B	Reach 14C	Reach 15A
	[29]	[30]	[31]	[32]	[33]	[34]	[35]	[36]	[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	1,490,461	201,935	260,981	1,216,126
1980	284,207	120,896	123,120	167,249	164,749	1,988,619	189,132	238,607	1,437,614
1981	199,927	76,965	33,322	113,202	171,669	1,741,488	163,934	161,182	1,799,832
1982	264,947	158,178	142,631	224,170	224,051	1,793,867	195,086	15,768	1,933,859
1983	308,801	136,350	124,724	203,733	217,324	2,421,794	199,708	181,879	2,550,842
1984	396,448	163,331	108,212	188,724	245,764	3,312,127	329,490	204,332	3,215,901
1985	298,337	198,368	154,995	194,327	360,308	3,463,178	237,127	180,068	3,427,049
1986	422,493	248,170	242,660	346,410	349,369	3,781,427	320,984	360,156	3,574,451
1987	488,226	334,059	325,697	469,378	322,824	3,731,912	463,757	238,813	4,080,465
1988	532,489	290,881	220,658	374,653	318,253	3,451,893	411,110	313,806	3,746,920
1989	733,030	268,025	207,487	595,433	380,883	3,512,884	333,996	220,978	3,751,081
1990	651,465	363,652	225,171	480,738	677,729	4,021,727	439,953	212,851	4,381,643
1991	716,328	328,683	269,873	371,312	433,313	4,309,082	424,704	273,169	4,566,702
1992	574,145	334,579	270,768	409,314	423,717	4,734,368	729,211	571,412	4,270,793
1993	723,450	413,722	278,375	496,851	594,201	5,182,830	664,063	423,780	5,266,124
1994	703,493	346,600	239,873	482,301	445,909	4,012,614	414,899	254,393	3,727,019
1995	881,902	405,045	242,253	622,654	507,102	4,607,154	309,283	315,905	3,973,757
1996	984,784	367,570	238,622	519,560	604,736	4,892,967	214,773	187,784	4,331,630
1997	1,864,113	309,696	254,080	516,115	429,771	5,094,202	261,221	275,610	4,011,366
1998	1,011,284	295,927	170,556	384,226	484,072	4,753,508	309,440	248,178	4,695,541
1999	1,125,514	373,814	171,495	399,331	504,020	5,041,004	351,551	231,583	4,753,855
2000	924,210	407,081	329,756	651,715	567,781	5,957,878	343,438	141,041	5,385,171
2001	870,742	413,016	893,071	519,027	660,369	4,701,148	(133,796)	(94,419)	6,007,151
2002	1,309,728	381,311	295,967	959,788	862,655	5,969,394	39,304	256,180	5,598,378
2003	817,168	338,931	233,756	690,414	612,296	6,183,504	(128,254)	24,819	6,974,920
2004	609,367	244,096	173,363	623,894	584,409	7,283,893	(107,944)	(142,634)	8,848,430
2005	884,677	212,724	119,691	851,556	469,679	6,312,322	(169,616)	(182,745)	5,900,809
2006	779,349	259,016	155,809	735,600	545,429	6,846,089	247,423	208,109	7,734,486
2007	806,084	267,872	161,061	760,885	564,124	7,300,049	255,825	215,190	8,166,971
2008	829,373	275,610	165,708	782,871	580,421	7,614,095	263,210	221,403	8,471,420
2009	866,629	648,969	589,638	917,194	964,134	5,962,564	813,829	562,199	5,679,840
2010	866,734	648,784	589,284	917,029	963,862	5,961,567	813,474	561,935	5,679,527
2011	869,659	651,382	591,931	920,549	967,722	5,982,017	816,922	564,345	5,698,023
2012	869,791	651,562	592,153	920,774	967,987	5,983,449	817,184	564,530	5,699,191
2013	869,834	652,136	593,057	921,383	968,832	5,987,257	818,153	565,239	5,701,520
2014	869,331	652,595	594,073	921,725	969,511	5,989,245	819,123	565,970	5,701,391
2015	870,011	653,081	594,495	922,420	970,233	5,993,763	819,721	566,380	5,705,755
2016	869,096	652,189	593,538	921,234	968,909	5,986,134	818,504	565,526	5,698,987
2017	869,418	652,564	593,976	921,717	969,465	5,989,210	819,036	565,900	5,701,594
2018	869,467	653,235	595,034	922,432	970,459	5,993,680	820,176	566,731	5,704,324
2019	868,670	652,253	593,868	921,186	969,002	5,985,694	818,763	565,732	5,697,646
2020	869,589	652,792	594,250	922,000	969,801	5,991,023	819,366	566,138	5,703,082
2021	870,267	653,021	594,262	922,430	970,145	5,993,891	819,529	566,227	5,706,485
2022	869,338	653,069	594,837	922,223	970,213	5,992,338	819,934	566,562	5,703,212
2023	869,210	652,221	593,530	921,303	968,959	5,986,573	818,523	565,532	5,699,534
2024	869,194	652,585	594,127	921,678	969,496	5,988,900	819,152	565,994	5,700,845
2025	870,196	653,238	594,650	922,634	970,465	5,995,155	819,923	566,521	5,707,038
2026	868,425	652,063	593,689	920,917	968,716	5,983,950	818,519	565,560	5,696,003
2027	871,452	654,109	595,393	923,892	971,761	6,003,344	820,983	567,249	5,715,005
2028	868,196	652,044	593,780	920,835	968,689	5,983,375	818,567	565,604	5,695,087
2029	869,759	652,789	594,158	922,048	969,802	5,991,375	819,306	566,088	5,703,726
2030	869,107	652,101	593,390	921,149	968,781	5,985,586	818,351	565,411	5,698,695
2031	871,255	654,454	596,057	924,201	972,270	6,005,198	821,648	567,742	5,715,582
2032	867,665	651,687	593,487	920,316	968,158	5,979,986	818,139	565,312	5,691,760
2033	870,136	652,788	593,957	922,150	969,803	5,992,119	819,173	565,974	5,705,117
2034	869,848	653,047	594,526	922,340	970,181	5,993,218	819,717	566,386	5,705,023
2035	867,814	651,770	593,539	920,444	968,282	5,980,831	818,229	565,374	5,692,634
TOTAL	46,059,593	26,941,568	23,354,395	40,437,221	40,982,493	305,530,230	31,120,872	22,204,233	299,022,412

TABLE B-11. Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed Through Minimum OMP&R Component of Transportation Charge

(in dollars)

Calendar Year	CALIFORNIA AQUEDUCT (continued)								
	SOUTH SAN JOAQUIN DIVISION (continued)		TEHACHAPI DIVISION			MOJAVE DIVISION			
	Reach 16A	Subtotal	Reach 17E	Reach 17F	Subtotal	Reach 18A	Reach 19	Reach 19C	Reach 20A
	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]	[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	1,798.566	5,960.033	3,539.402	45.997	3,585.399	99.670	307.386	0	261.205
1980	2,231.456	7,463.378	4,749.245	54.806	4,804.051	116.487	446.175	0	290.719
1981	2,762.773	7,646.858	5,485.957	64.886	5,550.843	316.590	585.003	0	325.112
1982	2,961.383	8,475.944	6,349.080	55.997	6,405.077	447.739	638.615	0	275.763
1983	4,302.165	11,303.322	14,153.033	96.397	14,249.430	345.229	564.698	0	368.139
1984	5,077.824	14,043.628	18,448.383	77.201	18,525.584	267.497	563.588	0	413.443
1985	5,683,454	14,964,899	18,134,698	137,928	18,272,626	298,932	475,028	0	450,444
1986	5,780.666	16,593.102	19,297.129	109,938	19,407.067	703.413	350,906	0	347,690
1987	5,636,043	17,063,245	17,398,908	98,355	17,497,263	1,261,056	558,996	0	818,475
1988	5,150.238	15,704.693	17,697,838	138,405	17,836,243	1,242,139	560,911	0	585.014
1989	5,458.633	16,336.263	17,641,151	88,488	17,729,639	1,049,615	283.065	0	366,590
1990	6,440.643	18,959.051	19,995.760	99,868	20,095.628	1,298,537	229.083	0	469.502
1991	5,805.189	18,565.503	19,903.346	131,558	20,034,904	1,432,360	665,443	0	1,025,089
1992	6,471,964	19,838,439	18,194,788	279,610	18,474,398	1,167,898	738,238	0	666,181
1993	7,583,165	23,092,943	19,051,939	199,640	19,251,579	1,868,745	606,763	0	1,232,409
1994	7,142,378	19,069,838	17,354,702	204,963	17,559,665	1,699,479	763,493	0	1,145,700
1995	6,540,575	19,680,665	19,360,033	191,516	19,551,549	1,284,146	614,314	0	1,941,939
1996	7,065,052	20,408,184	19,041,451	237,846	19,279,297	1,163,708	576,674	0	1,335,804
1997	7,387,904	21,710,020	19,724,881	176,120	19,901,001	1,330,450	730,628	0	1,401,562
1998	7,531,886	20,887,644	23,229,552	182,754	23,412,306	1,513,824	309,052	0	7,568,901
1999	8,717,679	22,580,702	19,690,120	152,644	19,842,764	3,104,013	632,659	0	5,313,388
2000	12,484,909	28,278,532	23,258,426	245,010	23,503,436	1,876,491	740,777	0	1,382,646
2001	15,785,706	30,836,893	24,056,649	618,258	24,674,907	2,440,376	2,549,692	0	1,843,160
2002	11,475,179	28,350,187	20,789,485	472,793	21,262,278	1,405,443	800,065	0	758,244
2003	11,512,641	28,641,208	20,865,522	283,196	21,148,718	3,734,791	673,419	0	707,540
2004	14,644,290	33,620,379	26,619,990	244,908	26,864,898	1,819,685	1,349,413	0	1,303,773
2005	13,904,817	29,005,711	16,556,912	1,498,186	18,055,098	5,650,484	1,487,019	0	1,529,919
2006	14,204,922	32,689,201	20,116,620	656,919	20,773,539	2,752,334	900,927	0	1,109,718
2007	14,101,850	33,606,163	20,806,857	679,568	21,486,425	2,844,236	930,542	0	1,142,027
2008	14,750,686	34,990,114	21,274,592	699,209	21,973,801	2,839,232	938,819	0	1,013,192
2009	8,201,150	27,372,009	23,256,250	341,348	23,597,598	1,962,373	1,050,623	0	1,579,321
2010	8,199,684	27,367,071	23,256,149	341,282	23,597,431	1,961,828	1,047,087	0	1,577,159
2011	8,226,121	27,462,618	23,304,514	342,599	23,647,113	1,969,724	1,056,301	0	1,586,117
2012	8,228,118	27,469,301	23,308,938	342,681	23,651,619	1,970,265	1,057,664	0	1,587,131
2013	8,233,567	27,487,552	23,316,044	342,915	23,658,959	1,971,983	1,065,412	0	1,592,155
2014	8,236,619	27,497,860	23,311,776	343,048	23,654,824	1,973,346	1,076,576	0	1,598,802
2015	8,242,826	27,518,579	23,329,727	343,305	23,673,032	1,974,816	1,077,135	0	1,599,872
2016	8,232,265	27,483,256	23,302,969	342,865	23,645,834	1,972,133	1,073,227	0	1,596,406
2017	8,236,547	27,497,578	23,313,034	343,045	23,656,079	1,973,267	1,075,547	0	1,598,231
2018	8,242,934	27,518,989	23,321,377	343,313	23,664,690	1,975,275	1,084,522	0	1,604,048
2019	8,231,814	27,481,796	23,295,770	342,851	23,638,621	1,972,326	1,078,278	0	1,599,207
2020	8,239,084	27,506,050	23,318,682	343,151	23,661,833	1,973,950	1,077,200	0	1,599,467
2021	8,242,925	27,518,828	23,333,830	343,308	23,677,138	1,974,659	1,074,112	0	1,598,194
2022	8,241,075	27,512,751	23,317,116	343,239	23,660,355	1,974,789	1,083,652	0	1,603,354
2023	8,232,861	27,485,218	23,305,439	342,890	23,648,329	1,972,243	1,072,786	0	1,596,241
2024	8,236,206	27,496,437	23,309,134	343,032	23,652,166	1,973,334	1,078,099	0	1,599,637
2025	8,244,760	27,524,997	23,334,887	343,388	23,678,275	1,975,305	1,077,834	0	1,600,513
2026	8,229,421	27,473,783	23,289,094	342,752	23,631,846	1,971,751	1,077,994	0	1,598,766
2027	8,255,986	27,562,487	23,367,789	343,854	23,711,643	1,977,940	1,078,352	0	1,602,155
2028	8,228,694	27,471,365	23,284,670	342,722	23,627,392	1,971,686	1,079,782	0	1,599,678
2029	8,239,518	27,507,472	23,321,879	343,169	23,665,048	1,973,964	1,075,709	0	1,598,693
2030	8,231,489	27,480,628	23,302,201	342,832	23,645,033	1,971,888	1,072,108	0	1,595,696
2031	8,258,726	27,571,695	23,367,952	343,972	23,711,924	1,978,972	1,085,146	0	1,606,316
2032	8,224,049	27,455,868	23,270,866	342,529	23,613,395	1,970,607	1,079,715	0	1,599,079
2033	8,240,433	27,510,492	23,328,840	343,203	23,672,043	1,973,967	1,072,173	0	1,596,812
2034	8,242,126	27,516,208	23,326,347	343,278	23,669,625	1,974,727	1,078,449	0	1,600,545
2035	8,225,194	27,459,690	23,274,570	342,578	23,617,148	1,970,870	1,079,690	0	1,599,218
TOTAL	473,573,237	1,400,392,062	1,179,639,298	17,864,867	1,197,504,165	101,080,596	51,680,846	0	81,631,389

TABLE B-11. Minimum OMP&R Costs of Each Aqueduct Reach to be Reimbursed Through Minimum OMP&R Component of Transportation Charge

(in dollars)

Calendar Year	CALIFORNIA AQUEDUCT (continued)								
	MOJAVE DIVISION (continued)							SANTA ANA DIVISION	
	Reach 20B	Reach 21	Reach 22A	Reach 22B	Reach 23	Reach 24	Subtotal	Reach 25	Reach 26A
	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[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	96,340	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	2,104,832	76,960	202,566	3,571,387	84,462	1,235,189
1980	237,250	156,794	117,274	2,670,387	147,009	688,605	4,870,700	72,651	1,532,535
1981	292,081	181,062	119,602	3,030,407	134,895	47,750	5,032,502	35,662	1,575,444
1982	330,502	186,109	125,429	3,248,883	299,712	623,755	6,176,507	26,852	1,822,250
1983	326,767	219,943	140,523	3,899,769	223,626	384,292	6,472,986	19,017	1,663,599
1984	329,933	266,919	146,866	4,783,997	59,337	1,104,149	7,935,729	11,319	2,325,661
1985	388,327	799,514	125,780	5,330,501	261,135	811,346	8,941,007	17,764	2,707,662
1986	315,566	242,158	178,847	6,190,812	156,053	515,945	9,001,390	31,012	2,768,728
1987	357,971	298,190	236,263	5,731,239	151,796	732,607	10,146,593	19,362	2,847,390
1988	400,005	331,099	149,876	6,910,472	253,833	970,052	11,403,401	36,576	3,087,873
1989	345,614	194,047	138,825	5,963,386	349,544	1,242,144	9,932,830	30,881	3,190,809
1990	202,412	273,748	49,174	6,905,442	436,785	1,891,053	11,755,736	25,518	3,330,913
1991	516,257	478,555	231,223	7,488,366	263,723	1,561,051	13,662,067	32,172	3,847,589
1992	696,623	585,072	168,251	7,076,997	317,042	622,116	12,038,418	55,819	4,043,878
1993	818,675	509,309	207,818	7,765,751	359,632	1,708,915	15,078,017	72,464	5,638,325
1994	957,350	873,215	241,679	7,691,548	1,220,795	1,245,936	15,839,195	105,373	5,139,991
1995	2,411,412	355,198	179,930	6,994,639	842,041	746,371	15,369,990	96,781	4,357,648
1996	1,713,145	790,618	136,397	8,590,347	889,842	(78,782)	15,117,753	156,395	4,051,744
1997	2,043,179	640,177	189,241	8,138,580	1,586,227	3,355,446	19,415,490	177,217	4,585,198
1998	508,030	297,621	115,100	8,888,912	1,925,089	1,134,837	22,261,366	142,703	4,857,213
1999	1,583,887	1,344,804	158,127	9,548,762	2,027,154	1,340,712	25,053,506	189,880	5,957,072
2000	1,437,269	974,362	165,942	9,541,048	1,711,994	1,520,219	19,350,748	353,640	4,203,640
2001	1,526,739	1,071,309	476,330	7,684,613	1,893,231	25,579	19,511,029	298,329	2,435,173
2002	583,717	1,157,056	281,096	11,281,918	1,694,767	946,719	18,909,025	509,094	3,423,421
2003	621,363	467,741	278,116	13,347,106	2,096,392	(411,897)	21,514,571	368,565	3,749,154
2004	1,025,345	1,043,564	404,058	10,436,430	2,128,942	947,017	20,458,227	427,842	5,453,713
2005	867,477	670,615	347,499	7,415,415	2,415,177	2,156,058	22,539,663	451,980	5,594,543
2006	618,066	609,184	240,529	13,667,694	2,190,675	1,792,091	23,881,218	435,685	4,578,654
2007	637,847	629,324	248,333	14,686,551	2,255,878	1,986,231	25,360,969	450,706	4,712,702
2008	626,462	630,664	247,891	13,796,170	2,187,071	1,974,832	24,254,333	463,733	4,828,948
2009	926,052	696,094	383,756	8,316,496	451,120	2,170,794	17,536,629	68,306	6,085,251
2010	923,812	694,848	382,756	8,307,583	450,520	1,775,016	17,120,609	68,315	6,085,115
2011	930,638	699,270	385,699	8,345,989	451,944	2,235,186	17,660,868	68,546	6,104,073
2012	931,553	699,811	386,101	8,350,443	452,211	1,908,890	17,344,069	68,556	6,105,268
2013	936,542	702,638	388,309	8,371,551	453,573	1,006,099	16,488,262	68,559	6,107,354
2014	943,569	706,510	391,443	8,398,521	455,389	2,632,579	18,176,735	68,519	6,106,589
2015	944,125	706,963	391,670	8,404,267	455,681	1,000,463	16,554,992	68,573	6,111,280
2016	941,349	705,210	390,467	8,387,862	454,696	2,869,710	18,391,060	68,501	6,104,183
2017	942,933	706,170	391,159	8,396,115	455,195	1,675,966	17,214,583	68,527	6,106,876
2018	948,712	709,447	393,719	8,420,663	456,791	1,975,079	17,568,256	68,530	6,109,328
2019	944,469	706,889	391,865	8,398,670	455,425	2,854,227	18,401,356	68,469	6,102,459
2020	944,039	706,829	391,645	8,401,609	455,527	1,745,801	17,296,067	68,539	6,108,398
2021	942,256	705,956	390,834	8,397,575	455,194	775,758	16,314,538	68,593	6,112,249
2022	948,116	709,083	393,458	8,417,307	456,556	1,825,161	17,411,476	68,519	6,108,184
2023	941,099	705,093	390,353	8,387,266	454,624	2,819,195	18,338,900	68,510	6,104,808
2024	944,506	707,014	391,864	8,401,458	455,545	1,670,166	17,221,623	68,509	6,105,934
2025	944,627	707,279	391,885	8,407,161	455,826	1,857,600	17,418,030	68,588	6,112,639
2026	944,215	706,698	391,762	8,396,251	455,276	2,922,216	18,464,929	68,449	6,100,706
2027	945,323	707,929	392,159	8,416,516	456,304	1,505,034	17,081,712	68,686	6,121,228
2028	945,300	707,263	392,247	8,399,700	455,536	808,664	16,359,856	68,431	6,099,614
2029	943,136	706,353	391,237	8,398,604	455,302	2,758,754	18,301,752	68,553	6,109,182
2030	940,632	704,809	390,148	8,384,751	454,465	2,869,648	18,384,145	68,502	6,103,943
2031	949,631	710,321	394,072	8,433,538	457,424	225,891	15,841,311	68,671	6,121,476
2032	945,101	707,047	392,174	8,396,167	455,363	2,733,783	18,279,036	68,388	6,096,014
2033	940,970	705,204	390,267	8,391,431	454,792	1,439,736	16,965,352	68,584	6,110,886
2034	944,922	707,382	392,030	8,406,578	455,816	1,234,473	16,794,922	68,560	6,110,430
2035	945,129	707,092	392,182	8,396,890	455,368	4,221,893	19,768,332	68,400	6,096,973
TOTAL	49,196,859	36,177,471	17,104,382	468,463,199	43,413,490	87,765,062	936,513,294	7,304,747	280,437,255

TABLE B-11. Minimum OMP&R Costs of Each Aqueduct Reach to be Reimbursed Through Minimum OMP&R Component of Transportation Charge

(in dollars)

Calendar Year	CALIFORNIA AQUEDUCT (continued)								
	SANTA ANA DIVISION (continued)				WEST BRANCH				
	Reach 28G	Reach 28H	Reach 28J	Subtotal	Reach 29A	Reach 29F	Reach 29G	Reach 29H	Reach 29J
	[56]	[57]	[58]	[59]	[60]	[61]	[62]	[63]	[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	1,820,574	1,366,942	285,575	284,188	972,584	29,850
1980	158,340	129,897	1,120,131	3,013,554	1,698,215	224,472	455,619	874,259	288,303
1981	160,053	111,722	333,550	2,216,431	1,783,405	123,264	615,047	2,305,110	8,794
1982	205,350	135,463	1,518,759	3,708,674	1,919,979	190,500	702,265	2,208,264	414,230
1983	244,720	124,651	412,806	2,464,793	2,739,814	149,333	888,475	745,939	579,882
1984	240,496	190,924	769,068	3,537,468	3,463,038	81,260	2,358,495	537,207	719,282
1985	451,600	182,242	871,492	4,230,760	3,866,946	295,836	3,047,591	975,729	614,735
1986	439,048	256,526	982,332	4,477,646	3,791,427	457,604	2,893,171	1,480,015	1,032,216
1987	278,094	218,717	1,118,529	4,482,092	3,423,494	213,106	2,933,342	944,604	459,398
1988	271,868	200,811	1,176,659	4,773,787	3,447,403	255,113	3,017,463	883,714	446,468
1989	230,953	281,861	1,130,035	4,864,539	4,025,641	405,583	2,738,143	1,398,165	865,738
1990	437,812	308,144	1,538,449	5,640,836	4,088,481	383,655	3,232,445	3,153,869	777,713
1991	843,388	632,912	1,630,321	6,986,382	3,862,056	304,143	3,550,063	639,527	763,037
1992	281,864	5,636,464	1,102,519	11,120,544	4,286,050	327,802	3,892,480	1,014,551	872,953
1993	382,195	570,563	994,721	7,658,268	3,969,075	343,304	4,515,385	1,670,952	852,208
1994	617,136	415,603	1,022,412	7,300,515	3,649,861	293,376	3,359,381	1,879,417	872,624
1995	1,308,828	704,154	894,338	7,361,749	4,137,046	883,315	4,750,275	1,588,080	754,904
1996	1,001,063	1,041,697	1,316,493	7,567,392	4,511,858	966,044	3,593,671	4,208,195	877,111
1997	493,841	949,188	953,590	7,159,034	4,543,506	1,030,809	2,429,066	3,755,901	1,597,361
1998	379,997	991,426	(67,444)	6,303,895	4,872,244	464,376	3,474,463	2,398,630	1,996,114
1999	493,493	1,964,137	845,343	9,449,925	4,768,390	4,338,174	4,924,176	1,391,028	1,000,370
2000	844,558	1,004,569	1,130,423	7,536,830	5,460,691	782,887	4,277,874	2,361,194	171,261
2001	1,668,195	811,163	5,688,912	10,901,772	5,908,798	1,533,322	5,137,414	4,393,983	240,853
2002	1,251,118	424,389	2,197,952	7,805,974	5,341,880	1,480,328	4,082,857	4,442,291	(51,885)
2003	535,209	376,265	1,279,384	6,308,577	4,461,737	1,289,703	3,728,632	3,336,304	(627,530)
2004	1,206,016	440,811	3,465,088	10,993,470	8,918,901	1,317,754	3,491,206	5,059,781	(615,239)
2005	1,439,765	684,382	(1,750,113)	6,420,557	5,794,901	2,491,755	9,043,269	(472,624)	2,762,038
2006	1,098,598	517,408	2,723,264	9,353,609	6,248,004	681,464	4,474,550	3,919,482	(84,714)
2007	1,136,475	535,247	2,390,346	9,225,476	6,445,534	703,745	4,623,674	4,053,603	(93,667)
2008	1,169,322	550,717	2,525,195	9,537,915	6,705,848	724,003	4,753,040	4,172,827	(101,430)
2009	634,233	442,191	2,019,362	9,249,343	6,147,456	657,334	2,999,231	3,633,656	725,264
2010	634,310	442,245	2,338,564	9,568,549	6,147,397	653,418	2,998,377	3,620,567	725,352
2011	636,345	443,739	1,924,294	9,176,997	6,165,794	661,813	3,009,000	3,654,696	726,900
2012	636,442	443,805	2,106,287	9,360,358	6,166,978	663,140	3,009,826	3,659,334	727,012
2013	636,473	443,827	2,370,896	9,627,109	6,168,928	671,448	3,012,470	3,687,862	727,048
2014	636,104	443,569	1,985,769	9,240,550	6,167,911	683,884	3,014,603	3,729,713	726,625
2015	636,603	443,917	2,237,728	9,498,101	6,172,657	684,032	3,016,840	3,731,264	727,193
2016	635,933	443,451	1,919,345	9,171,413	6,165,550	680,234	3,012,726	3,716,661	726,429
2017	636,170	443,614	2,528,148	9,783,335	6,168,236	682,533	3,014,453	3,725,033	726,699
2018	636,205	443,640	2,047,929	9,305,632	6,170,525	692,263	3,017,555	3,758,325	726,741
2019	635,622	443,233	2,549,057	9,798,840	6,163,704	685,834	3,013,021	3,734,828	726,074
2020	636,294	443,701	1,797,397	9,054,329	6,169,746	684,223	3,015,494	3,730,397	726,841
2021	636,790	444,047	2,110,597	9,372,276	6,173,717	680,499	3,016,564	3,718,810	727,409
2022	636,110	443,573	2,931,790	10,188,176	6,169,394	691,181	3,016,786	3,754,039	726,632
2023	636,018	443,509	2,052,381	9,305,226	6,166,203	679,589	3,012,873	3,714,193	726,526
2024	636,004	443,501	2,371,214	9,625,162	6,167,233	685,315	3,014,549	3,733,777	726,512
2025	636,737	444,010	1,725,337	8,987,311	6,174,031	684,551	3,017,557	3,732,354	727,348
2026	635,442	443,108	2,852,622	10,100,327	6,161,939	685,557	3,012,131	3,733,285	725,868
2027	637,657	444,652	1,456,605	8,728,828	6,182,724	684,375	3,021,589	3,733,648	728,400
2028	635,276	442,991	2,290,598	9,536,910	6,160,787	687,755	3,012,056	3,741,004	725,679
2029	636,418	443,788	2,163,631	9,421,572	6,170,572	682,392	3,015,494	3,724,111	726,985
2030	635,942	443,456	2,228,881	9,480,724	6,165,344	678,871	3,012,320	3,711,540	726,440
2031	637,514	444,552	2,973,431	10,245,644	6,182,830	691,773	3,023,185	3,758,886	728,234
2032	634,886	442,720	1,636,352	8,878,360	6,157,143	688,001	3,010,408	3,741,030	725,234
2033	636,694	443,980	2,407,724	9,667,868	6,172,375	678,343	3,015,485	3,710,942	727,299
2034	636,483	443,834	2,181,758	9,441,065	6,171,781	685,364	3,016,683	3,735,014	727,060
2035	634,997	442,797	2,893,328	10,136,495	6,158,117	687,633	3,010,783	3,739,342	725,359
TOTAL	37,421,172	32,825,609	103,556,370	461,545,153	303,106,693	42,901,620	183,946,798	170,032,489	37,437,643

TABLE B-11. Minimum OMP&R Costs of Each Aqueduct Reach to be Reimbursed Through Minimum OMP&R Component of Transportation Charge

(in dollars)

Calendar Year	CALIFORNIA AQUEDUCT (continued)									GRAND TOTAL
	WEST BRANCH (cont.)		COASTAL BRANCH							
	Reach 30	Subtotal	Reach 31A [a]	Reach 33A	Reach 33B	Reach 34	Reach 35	Subtotal	Total	
	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	42,918
1963	0	0	0	0	0	0	0	0	0	168,358
1964	0	0	0	0	0	0	0	0	0	184,729
1965	0	0	0	0	0	0	0	0	0	378,874
		0								
1966	0	0	0	0	0	0	0	0	0	408,397
1967	0	0	0	0	0	0	0	0	0	634,505
1968	0	0	0	0	0	0	0	0	2,160,548	2,745,160
1969	0	0	509,728	0	0	0	0	509,728	3,324,718	4,074,939
1970	0	0	609,988	0	0	0	0	609,988	3,983,062	4,676,282
1971	0	0	699,052	0	0	0	0	699,052	5,614,013	6,185,714
1972	420,789	1,820,832	697,576	0	0	0	0	697,576	12,353,356	12,998,869
1973	621,431	2,248,000	641,626	0	0	0	0	641,626	14,590,688	15,194,233
1974	723,949	2,223,720	669,279	0	0	0	0	669,279	16,598,762	17,372,561
1975	841,991	3,140,708	806,429	0	0	0	0	806,429	19,569,999	20,517,423
1976	(650,944)	1,710,546	840,927	0	0	0	0	840,927	19,002,859	20,027,213
1977	634,581	2,923,325	872,169	0	0	0	0	872,169	23,267,885	24,213,489
1978	3,088,954	5,306,854	934,119	0	0	0	0	934,119	24,818,739	26,012,786
1979	958,068	3,897,207	871,688	0	0	0	0	871,688	23,421,881	24,675,598
1980	222,549	3,763,417	1,047,396	4,790	0	30	75	1,052,291	30,105,348	32,038,398
1981	1,093,897	5,929,517	1,037,469	4,790	0	30	75	1,042,364	33,884,524	35,516,366
1982	978,624	6,413,862	1,015,555	4,790	0	30	75	1,020,450	39,515,188	41,611,655
1983	3,698,681	8,802,124	1,146,269	4,957	0	30	77	1,151,333	54,543,263	56,802,781
1984	755,136	7,914,418	1,427,192	5,051	0	31	78	1,432,352	63,947,633	67,105,188
1985	1,753,355	10,554,192	1,849,827	5,051	0	31	78	1,854,987	69,700,009	73,272,898
1986	1,338,657	10,993,090	1,714,723	5,051	0	31	78	1,719,883	73,437,761	76,707,917
1987	1,406,519	9,380,463	1,689,141	4,324	0	26	67	1,693,558	71,443,424	75,217,576
1988	1,452,589	9,502,750	1,964,428	4,509	0	28	70	1,969,035	72,349,117	76,060,618
1989	1,505,029	10,938,299	1,768,942	4,509	0	28	70	1,773,549	73,894,076	78,662,348
1990	847,500	12,483,663	2,274,772	0	0	0	0	2,274,772	86,130,115	91,361,385
1991	1,191,090	10,309,916	2,187,841	0	0	0	0	2,187,841	86,877,284	90,982,870
1992	2,259,032	12,652,868	2,465,364	0	0	0	0	2,465,364	94,167,321	99,235,524
1993	1,157,876	12,508,800	2,811,441	0	0	0	0	2,811,441	100,019,568	107,299,130
1994	1,674,576	11,729,235	3,894,639	0	0	0	0	3,894,639	92,336,811	99,944,106
1995	(421,879)	11,691,741	3,481,049	0	0	0	0	3,481,049	98,887,435	105,659,504
1996	1,574,098	15,730,977	5,144,684	0	0	0	0	5,144,684	105,119,193	112,018,784
1997	1,521,491	14,878,134	2,523,741	(33)	0	0	0	2,523,708	107,647,058	113,385,326
1998	1,291,185	14,497,012	4,303,206	1,878,551	1,386	160,400	88,026	6,431,569	120,663,477	127,330,678
1999	2,059,968	18,482,106	4,186,890	1,950,758	16,646	184,325	87,373	6,425,992	124,753,820	133,895,183
2000	1,529,054	14,582,961	2,887,384	2,533,121	20,756	253,532	109,322	5,804,115	122,249,124	130,905,236
2001	(942,708)	16,271,662	3,113,399	2,241,933	14,426	153,879	58,875	5,582,512	135,962,968	143,315,101
2002	3,419,111	18,714,582	3,187,937	2,686,101	49,670	189,442	81,720	6,194,870	125,082,782	136,721,587
2003	968,853	13,157,699	3,338,003	2,777,886	41,188	200,985	85,013	6,443,075	124,965,982	133,887,739
2004	1,515,533	19,687,936	3,542,320	2,668,727	70,179	240,426	109,830	6,631,482	143,841,151	153,942,418
2005	(1,119,961)	18,499,378	3,871,812	2,984,019	120,182	292,253	137,816	7,406,082	126,047,731	134,166,265
2006	(3,426,344)	11,812,442	3,712,424	2,953,567	15,191	272,839	132,183	7,086,204	132,566,445	141,834,009
2007	2,605,969	18,338,858	3,837,608	3,047,983	15,714	282,227	136,691	7,320,223	143,987,944	153,919,911
2008	2,702,596	18,956,884	3,961,204	3,159,814	16,169	290,383	140,638	7,568,208	147,770,822	158,198,616
2009	3,018,521	17,181,462	4,006,112	1,941,533	0	1,680	4,465	5,953,790	122,587,842	131,426,192
2010	2,926,467	17,071,578	4,005,748	1,941,422	0	1,619	4,303	5,953,092	122,369,704	131,207,577
2011	3,094,243	17,312,446	4,020,078	1,946,835	0	1,721	4,576	5,973,210	123,018,775	131,889,787
2012	2,922,167	17,148,457	4,020,945	1,947,235	0	1,740	4,629	5,974,549	122,738,855	131,611,688
2013	3,330,006	17,597,762	4,022,885	1,948,040	0	1,869	4,969	5,977,763	122,644,558	131,521,003
2014	3,015,532	17,338,268	4,023,255	1,948,014	0	2,067	5,490	5,978,826	123,708,710	132,584,951
2015	2,875,790	17,207,776	4,026,318	1,949,503	0	2,062	5,478	5,983,361	122,270,328	131,153,356
2016	3,433,233	17,734,833	4,021,431	1,947,186	0	2,010	5,345	5,975,972	124,212,608	133,085,110
2017	3,255,898	17,572,852	4,023,343	1,948,080	0	2,042	5,429	5,978,894	123,523,856	132,400,411
2018	3,165,776	17,531,185	4,025,617	1,949,026	0	2,193	5,829	5,982,665	123,411,504	132,292,303
2019	3,704,072	18,027,533	4,020,694	1,946,734	0	2,102	5,583	5,975,113	125,136,217	134,006,624
2020	3,508,436	17,835,137	4,024,449	1,948,592	0	2,067	5,493	5,980,601	123,160,837	132,039,716
2021	2,722,842	17,039,841	4,026,696	1,949,749	0	2,003	5,323	5,983,771	121,738,626	130,622,801
2022	2,744,304	17,102,336	4,024,795	1,948,644	0	2,177	5,787	5,981,403	123,691,991	132,571,060
2023	3,102,909	17,402,293	4,021,786	1,947,373	0	2,000	5,312	5,976,471	123,967,392	132,840,750
2024	3,877,069	18,204,455	4,022,920	1,947,827	0	2,088	5,545	5,978,380	123,999,827	132,875,216
2025	2,117,073	16,452,914	4,027,233	1,949,942	0	2,067	5,493	5,984,735	121,884,955	130,769,981
2026	3,905,316	18,224,096	4,019,533	1,946,174	0	2,099	5,577	5,973,383	125,676,189	134,544,046
2027	37,231	14,387,967	4,032,815	1,952,665	0	2,051	5,454	5,992,985	119,327,311	128,224,740
2028	7,076,969	21,404,250	4,018,969	1,945,866	0	2,133	5,671	5,972,639	126,180,163	135,046,593
2029	1,775,892	16,095,446	4,024,832	1,948,809	0	2,036	5,417	5,981,094	122,798,885	131,678,762
2030	3,122,256	17,416,771	4,021,173	1,947,085	0	1,989	5,287	5,975,534	124,190,495	133,062,546
2031	95,358	14,480,266	4,033,494	1,952,866	0	2,170	5,761	5,994,291	119,717,317	128,615,643
2032	7,059,493	21,381,309	4,016,646	1,944,728	0	2,143	5,696	5,969,213	127,375,560	136,236,809
2033	2,083,681	16,388,125	4,025,658	1,949,280	0	1,969	5,236	5,982,143	122,011,717	130,893,761
2034	3,035,981	17,371,883	4,025,852	1,949,255	0	2,083	5,534	5,982,724	122,610,238	131,492,131
2035	3,962,643	18,283,877	4,017,243	1,945,027	0	2,137	5,677	5,970,084	127,036,141	135,898,753
TOTAL	126,220,053	863,645,296	196,139,761	81,517,739	381,507	2,575,303	1,312,589	281,926,899	6,301,594,485	6,732,103,475

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]

(in 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	Wheeler Ridge 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	211,197	1	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	933,292	502,196	241,714	97,004
1973	0	0	14,449	14,449	493,490	688,030	381,232	306,268	278,923
1974	0	0	17,473	17,473	565,575	783,562	447,772	358,739	367,266
1975	0	0	14,779	14,779	349,758	1,341,019	518,816	550,860	595,252
1976	0	0	20,856	20,856	571,361	1,638,453	641,115	755,747	756,175
1977	0	0	22,635	22,635	512,996	1,013,307	284,828	298,300	337,889
1978	0	0	21,692	21,692	586,355	2,339,502	607,042	732,036	658,404
1979	0	0	16,237	16,237	605,136	3,554,256	1,008,564	818,816	791,488
1980	0	0	19,945	19,945	523,369	2,083,336	1,129,152	1,051,629	1,047,495
1981	0	0	23,842	23,842	567,692	3,952,931	1,939,189	1,336,867	1,319,739
1982	0	0	12,157	12,157	605,780	3,082,031	1,363,705	1,200,226	1,213,660
1983	0	0	2,342	2,342	82,222	879,916	343,597	341,584	304,715
1984	0	0	4,822	4,822	271,543	1,695,568	885,941	678,307	602,408
1985	0	0	10,188	10,188	451,020	3,171,920	1,613,745	1,397,490	1,397,098
1986	0	0	15,501	15,501	807,984	6,601,752	2,627,407	2,405,224	2,432,322
1987	0	0	27,223	27,223	886,956	5,753,132	2,523,544	2,240,552	2,223,371
1988	17,813	0	24,020	41,833	909,300	6,280,898	2,611,297	2,562,330	2,560,462
1989	29,819	43,846	26,519	100,184	1,161,160	9,748,180	3,910,492	3,964,188	3,974,290
1990	52,210	67,109	40,775	160,094	1,834,626	10,467,177	4,501,309	5,785,069	6,019,952
1991	10,429	10,118	5,252	25,799	378,966	1,923,595	490,766	903,923	1,031,345
1992	13,319	13,070	9,406	35,795	311,251	3,211,086	1,168,304	1,255,567	1,314,358
1993	(11,941)	(8,753)	(5,392)	(26,086)	(158,214)	532,899	345,215	(124,821)	(102,311)
1994	46,538	39,910	29,105	115,553	799,370	5,658,038	2,298,300	2,504,629	2,516,185
1995	20,014	20,620	11,791	52,425	247,645	4,017,881	1,513,362	919,965	841,178
1996	57,320	47,288	23,483	128,091	718,807	8,112,547	3,969,388	2,430,979	2,231,167
1997	67,416	52,935	21,955	142,306	1,038,568	6,900,694	2,845,506	2,589,077	2,417,154
1998	(10,647)	(9,488)	(4,554)	(24,689)	(121,313)	238,073	(314,172)	(245,259)	(219,762)
1999	31,618	25,288	10,570	67,476	514,166	5,319,699	2,316,189	1,587,062	1,295,067
2000	58,591	42,543	15,078	116,212	860,785	8,018,823	3,043,577	2,963,119	3,035,444
2001	358,726	248,919	213,001	820,646	4,045,747	24,049,006	9,826,265	14,784,423	15,166,621
2002	186,186	102,222	60,093	348,501	2,190,992	16,807,227	6,740,615	8,238,545	8,538,761
2003	175,952	115,069	95,023	386,044	2,487,701	20,922,559	8,769,499	10,363,118	10,792,509
2004	242,315	134,187	103,360	479,862	2,412,375	21,059,461	9,018,396	11,887,828	12,476,791
2005	278,132	143,598	145,812	567,542	2,734,374	28,939,713	12,758,363	12,347,806	12,701,242
2006	434,003	542,507	505,453	1,481,963	4,279,689	32,872,956	14,632,061	16,425,914	19,293,623
2007	590,459	738,139	687,740	2,016,338	4,884,615	36,569,764	16,650,156	20,880,413	24,428,791
2008	689,860	862,132	803,342	2,355,334	5,704,591	44,287,072	18,806,430	23,601,489	27,683,761
2009	471,576	374,214	388,821	1,234,611	6,222,720	35,919,615	17,427,406	21,193,631	21,056,894
2010	493,069	391,422	416,518	1,301,009	6,494,048	45,056,631	18,338,525	22,334,405	22,179,499
2011	496,138	391,567	424,244	1,311,949	6,535,307	41,237,117	18,371,517	22,402,363	22,246,938
2012	513,832	404,948	448,456	1,367,236	6,747,998	40,192,527	19,566,716	24,118,512	23,976,313
2013	560,013	444,221	504,326	1,508,560	7,372,283	51,426,238	21,483,111	26,452,214	26,263,763
2014	600,463	476,875	556,355	1,633,693	7,891,382	46,233,371	23,325,486	28,820,000	28,606,708
2015	615,599	484,040	585,983	1,685,622	8,005,259	51,650,783	23,684,134	29,258,892	29,037,962
2016	627,608	488,983	611,797	1,728,388	8,083,847	59,438,512	24,552,753	30,642,124	30,449,028
2017	625,762	481,926	621,137	1,728,825	7,971,646	52,444,860	23,696,330	29,341,378	29,129,658
2018	648,401	495,855	661,842	1,806,098	8,193,075	52,533,464	25,051,903	31,333,909	31,141,761
2019	669,420	508,101	701,669	1,879,190	8,387,740	60,423,941	25,812,404	32,346,051	32,148,359
2020	642,270	480,276	679,668	1,802,214	7,945,406	53,737,217	24,377,874	30,566,928	30,397,902
2021	642,532	479,487	681,741	1,803,760	7,932,881	52,687,280	24,368,714	30,570,232	30,403,674
2022	623,724	463,956	657,470	1,745,150	7,686,003	48,842,618	23,638,630	29,701,958	29,555,328
2023	627,067	466,716	661,782	1,755,565	7,729,871	52,722,222	23,897,354	30,081,432	29,938,566
2024	648,871	484,720	689,917	1,823,508	8,016,067	57,790,267	24,697,461	31,006,976	30,838,190
2025	646,099	482,429	686,339	1,814,867	7,979,674	48,512,593	24,616,451	30,926,406	30,762,216
2026	650,304	485,903	691,768	1,827,975	8,034,879	60,190,056	24,745,569	31,059,481	30,888,518
2027	640,989	478,212	679,748	1,798,949	7,912,611	54,011,665	24,523,835	30,875,285	30,722,567
2028	645,211	481,697	685,195	1,812,103	7,968,037	53,120,240	26,396,467	30,734,219	30,566,014
2029	637,413	475,259	675,134	1,787,806	7,865,686	52,515,131	24,297,368	30,556,325	30,402,216
2030	642,289	479,286	681,426	1,803,001	7,929,672	54,700,535	24,326,610	30,503,278	30,335,059
2031	633,951	472,401	670,665	1,777,017	7,820,233	49,592,734	24,166,751	30,405,070	30,256,324
2032	645,931	482,292	686,126	1,814,349	7,977,488	53,937,159	24,348,708	30,465,093	30,286,457
2033	676,778	507,762	725,926	1,910,466	8,382,352	57,267,841	26,232,078	33,092,914	32,920,858
2034	653,115	488,224	695,394	1,836,733	8,071,777	53,626,236	24,758,054	31,024,630	30,845,599
2035	640,445	477,760	679,043	1,797,248	7,905,458	56,713,224	26,080,351	33,688,778	33,639,744
TOTAL	19,957,002	15,859,791	19,968,644	55,785,437	256,877,956	1,733,653,914	780,276,480	953,980,209	961,433,616

a) Excludes extra peaking costs assigned directly to contractors. Refer to Appendix B text discussion of Table B-17 under "Project Water Charges."
b) Costs for 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]

(in dollars)

Calendar Year	CALIFORNIA AQUEDUCT (continued)								
	Reach 16A Chrisman Pumping Plant	Reach 17E Edmonston Pumping Plant	Reach 18A Alamo Powerplant	Reach 22B Pearblossom Pumping Plant	Reach 23 Mojave Siphon Powerplant	Reach 24 Silverwood Lake [d]	Reach 26A Devil Canyon Powerplant	Reach 28J Lake Perris [d]	Reach 29A Oso Pumping Plant
	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[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	180,602	542,625	0	25,568	0	0	(3,024)	0	102,315
1973	441,598	1,548,428	0	231,389	0	0	(436,768)	0	158,587
1974	618,864	2,164,223	0	354,093	0	0	(521,656)	0	193,311
1975	1,149,731	4,010,395	0	604,161	0	0	(1,071,023)	0	350,436
1976	1,561,385	5,443,936	0	932,444	0	0	(1,519,156)	0	362,767
1977	703,802	2,360,624	0	358,028	0	0	(1,175,966)	0	111,135
1978	1,186,696	4,180,131	0	1,551,015	0	0	(3,038,194)	0	125,183
1979	1,581,250	5,475,688	0	1,881,587	0	0	(3,419,581)	0	138,384
1980	2,102,439	7,028,235	0	1,762,063	0	0	(3,318,152)	0	236,768
1981	2,838,773	9,351,931	0	2,296,771	0	0	(3,842,971)	0	444,280
1982	2,424,920	8,352,207	0	1,498,620	0	0	(2,736,072)	0	539,245
1983	540,330	1,582,582	0	341,957	0	384,275	(5,478,830)	0	71,197
1984	1,129,131	3,448,759	0	622,123	0	0	(7,326,265)	(10,080)	240,134
1985	2,781,953	9,261,674	0	1,195,768	0	0	(10,477,567)	(56,570)	874,069
1986	4,999,949	16,956,023	(1,013,756)	2,359,599	0	0	(11,484,996)	0	1,269,590
1987	4,456,059	14,684,476	(1,026,193)	1,831,238	0	131,606	(10,814,483)	53,242	1,325,936
1988	5,126,229	16,819,159	(744,374)	2,375,784	0	0	(14,495,967)	0	1,421,097
1989	8,369,623	28,090,313	(766,443)	4,102,557	0	686,468	(18,532,961)	89,890	2,013,335
1990	13,630,073	48,369,421	(834,673)	6,504,876	0	89,075	(20,911,839)	147,163	2,857,409
1991	2,426,220	8,641,086	(269,625)	996,352	0	0	(4,884,013)	0	534,818
1992	2,642,161	8,854,347	(934,311)	1,167,670	0	156,847	(9,513,281)	(61,233)	717,740
1993	(582,580)	(2,649,876)	(56,908)	(253,503)	0	(34,870)	(7,502,549)	0	68,719
1994	5,276,189	18,302,830	(58,712)	2,572,826	0	0	(11,662,318)	147,989	1,203,006
1995	1,677,210	5,571,517	(1,242,189)	1,025,717	0	467,095	(9,742,248)	0	247,869
1996	4,723,600	16,483,976	(2,644,648)	2,487,165	(857,876)	1,959,474	(12,358,465)	0	895,929
1997	5,424,334	19,413,834	(2,488,338)	3,037,087	(1,680,469)	0	(13,293,791)	111,776	897,657
1998	(488,690)	(1,683,606)	(1,969,187)	(402,338)	(1,217,950)	(144,207)	(10,183,555)	0	(25,895)
1999	3,326,334	12,889,920	(2,811,928)	1,795,375	(2,482,354)	(4)	(14,772,635)	(4)	677,032
2000	6,985,918	25,206,821	(5,129,549)	3,965,245	(4,429,149)	(4)	(25,857,029)	(4)	1,215,093
2001	34,168,450	126,253,821	(3,298,048)	18,936,837	(3,649,034)	(3)	(19,510,279)	(3)	6,409,025
2002	19,287,645	70,880,766	(4,926,146)	10,444,621	(5,255,302)	(2)	(24,676,762)	(2)	3,719,061
2003	24,604,455	90,561,339	(3,431,664)	14,432,726	(6,760,773)	(1)	(28,047,969)	(1)	4,378,568
2004	28,497,371	104,778,229	(6,227,543)	16,376,616	(7,691,607)	0	(31,246,141)	0	5,297,989
2005	28,859,498	102,413,847	(6,140,331)	18,183,010	(6,778,759)	0	(30,599,808)	0	4,111,678
2006	40,946,961	145,423,964	(3,692,647)	23,083,255	(7,076,716)	0	(26,385,376)	0	7,830,756
2007	51,857,122	184,162,871	(4,294,257)	29,674,189	(6,676,525)	0	(25,202,114)	0	9,638,982
2008	58,767,212	208,727,721	(6,048,353)	32,949,111	(8,911,711)	0	(33,686,209)	0	11,201,062
2009	49,248,027	184,675,289	(5,510,634)	27,794,433	(6,491,520)	0	(31,022,541)	0	10,652,848
2010	51,897,900	194,621,177	(5,485,254)	29,302,324	(6,448,439)	0	(31,029,891)	0	11,148,835
2011	52,069,886	195,255,920	(5,492,272)	29,382,434	(6,439,573)	0	(31,893,599)	0	11,161,070
2012	56,168,246	210,702,310	(5,846,792)	32,458,204	(6,992,862)	0	(32,763,346)	0	11,809,184
2013	61,565,599	230,944,976	(5,652,150)	35,277,714	(6,744,613)	0	(32,125,194)	0	12,911,225
2014	67,103,976	251,753,837	(5,682,708)	38,121,500	(6,771,177)	0	(32,641,434)	0	14,115,824
2015	68,122,187	255,574,256	(5,693,994)	38,937,128	(6,858,073)	0	(33,041,336)	0	14,232,592
2016	71,488,045	268,298,853	(5,928,879)	41,532,691	(7,202,386)	0	(33,768,201)	0	14,736,837
2017	68,349,692	256,449,909	(5,671,857)	39,120,319	(6,907,326)	0	(33,434,896)	0	14,258,319
2018	73,128,292	274,475,377	(6,067,643)	43,135,035	(7,731,018)	0	(34,298,153)	0	14,853,549
2019	75,521,711	283,482,631	(5,784,357)	42,428,451	(7,167,463)	0	(33,961,637)	0	16,061,034
2020	71,389,307	267,974,386	(5,891,065)	41,108,609	(7,377,974)	0	(34,885,535)	0	14,884,381
2021	71,405,903	268,042,003	(5,908,063)	41,147,345	(7,429,243)	0	(34,543,452)	0	14,872,718
2022	69,408,812	260,559,379	(5,944,769)	39,677,985	(7,434,464)	0	(34,144,124)	0	14,629,862
2023	70,320,061	263,997,398	(6,022,332)	40,509,053	(7,566,401)	0	(34,766,355)	0	14,707,718
2024	72,434,864	271,912,441	(5,836,681)	41,031,696	(7,336,963)	0	(34,505,483)	0	15,371,555
2025	72,256,736	271,249,878	(5,939,914)	41,307,459	(7,438,056)	0	(34,108,290)	0	15,183,554
2026	72,553,633	272,356,870	(5,903,866)	41,738,327	(7,468,068)	0	(34,953,352)	0	15,126,955
2027	72,171,632	270,950,594	(5,939,780)	41,191,938	(7,426,405)	0	(34,468,637)	0	15,223,609
2028	71,789,931	269,485,056	(5,877,637)	41,189,627	(7,387,351)	0	(34,689,003)	0	15,018,182
2029	71,411,489	268,086,300	(5,907,069)	40,748,594	(7,429,433)	0	(34,449,309)	0	15,065,655
2030	71,242,576	267,424,422	(5,859,915)	40,826,257	(7,360,568)	0	(34,527,546)	0	14,920,997
2031	71,062,053	266,776,153	(6,024,291)	41,089,346	(7,927,736)	0	(34,231,695)	0	14,859,269
2032	71,123,577	266,958,800	(5,793,849)	40,088,252	(7,549,932)	0	(33,969,558)	0	15,102,962
2033	77,365,540	290,470,067	(6,089,764)	44,961,195	(8,106,728)	0	(35,010,839)	0	16,003,647
2034	72,448,217	271,945,261	(5,848,825)	41,031,870	(7,713,779)	0	(33,808,308)	0	15,301,073
2035	79,163,918	297,474,893	(6,169,917)	42,800,126	(7,951,103)	0	(35,645,057)	0	18,138,648
TOTAL	2,226,434,627	8,285,802,673	(217,824,100)	1,269,239,514	(260,126,879)	3,695,749	(1,372,416,784)	422,163	462,206,369

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]

(in dollars)

Calendar Year	CALIFORNIA AQUEDUCT (continued)							GRAND TOTAL
	Reach 29G Warne Powerplant	Reach 29H Pyramid Lake [d]	Reach 29J Castaic Powerplant	Reach 30 Castaic Lake [d]	Reach 31A Las Perillas & Badger Hill Pumping Plants	Reach 33A 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	0	118,676	0	774,253	1,117,913
1969	0	0	0	0	78,350	0	507,516	773,646
1970	0	0	0	0	136,429	0	693,842	1,103,798
1971	0	0	0	0	166,296	0	1,121,164	1,513,435
1972	0	0	(211,144)	0	237,638	0	2,648,786	3,261,922
1973	0	0	(1,057,564)	0	120,913	0	2,661,036	3,168,975
1974	0	0	(1,547,884)	0	118,582	0	3,336,872	3,919,920
1975	0	0	(2,455,461)	0	94,848	0	5,689,034	6,053,571
1976	0	0	(2,827,557)	0	141,260	0	7,886,569	8,478,786
1977	0	0	(3,734,462)	0	71,311	0	628,796	1,164,427
1978	0	0	(1,542,479)	0	179,925	0	6,979,261	7,587,308
1979	0	0	(2,773,323)	0	192,126	0	9,249,255	9,870,628
1980	0	0	(3,408,863)	0	168,458	0	9,882,560	10,425,874
1981	0	0	(2,834,322)	0	169,177	0	16,972,365	17,563,899
1982	(783,626)	0	(3,463,971)	0	168,390	0	12,859,335	13,477,272
1983	(495,041)	65,741	(3,260,764)	(3,176,515)	17,920	0	(7,537,336)	(7,452,772)
1984	(2,027,345)	0	(2,336,089)	(2,151,129)	112,679	0	(4,435,858)	(4,159,493)
1985	(5,930,176)	0	(15,698,638)	0	146,843	0	(10,322,391)	(9,861,183)
1986	(5,579,301)	0	(11,072,448)	0	297,886	0	10,799,251	11,622,736
1987	(6,304,539)	68,410	(11,562,269)	(41,897)	245,082	0	5,787,267	6,701,446
1988	(6,993,235)	54,038	(12,292,638)	(211,526)	214,519	0	5,288,073	6,239,206
1989	(8,235,085)	14,390	(14,514,469)	126,791	282,180	0	23,323,739	24,585,083
1990	(11,011,065)	0	(20,116,506)	245,180	416,832	0	46,159,453	48,154,173
1991	(3,600,495)	439,068	(6,579,194)	0	3,610	0	2,057,456	2,462,221
1992	(5,508,780)	0	(9,493,502)	(935,650)	101,665	0	(5,857,012)	(5,509,966)
1993	(4,525,955)	(13,291)	(9,266,007)	(446,527)	(111,306)	0	(24,723,671)	(24,907,971)
1994	(5,813,538)	20,518	(10,547,914)	(86,993)	206,258	0	12,537,293	13,452,216
1995	(1,934,202)	0	(4,049,615)	0	243,434	0	(443,026)	(142,956)
1996	(4,248,531)	0	(8,457,232)	0	296,170	0	15,023,643	15,870,541
1997	(4,797,589)	0	(8,727,328)	(897)	298,483	208,816	13,156,006	14,336,880
1998	(740,480)	(931,305)	(3,360,851)	(2,108,804)	(51,634)	(87,016)	(23,936,638)	(24,082,640)
1999	(5,526,541)	(4)	(9,954,674)	(4)	159,358	234,077	(5,948,035)	(5,366,393)
2000	(9,464,490)	(4)	(17,958,033)	(4)	231,108	380,555	(7,792,563)	(6,815,566)
2001	(7,987,833)	(3)	(13,981,232)	(3)	1,080,182	2,152,324	204,400,516	209,266,909
2002	(10,286,902)	(2)	(18,455,024)	(2)	529,085	1,320,943	82,907,125	85,446,618
2003	(10,281,922)	(1)	(17,307,974)	(1)	621,149	1,482,525	121,098,141	123,971,886
2004	(12,033,953)	0	(20,022,179)	0	651,104	1,718,113	134,540,475	137,432,712
2005	(8,251,156)	0	(13,698,272)	0	826,136	1,669,939	157,342,906	160,644,822
2006	(11,846,663)	0	(21,072,103)	0	1,157,341	2,954,530	234,547,856	240,309,508
2007	(10,589,552)	0	(18,964,191)	0	1,606,271	4,691,288	314,433,208	321,334,161
2008	(15,175,359)	0	(26,611,644)	0	1,705,919	4,256,483	341,552,984	349,612,909
2009	(14,881,913)	0	(25,170,192)	0	2,051,045	5,613,779	292,556,167	300,013,498
2010	(14,913,517)	0	(25,328,107)	0	2,137,319	5,871,977	319,683,384	327,478,441
2011	(15,034,490)	0	(25,428,823)	0	2,138,050	5,874,159	315,850,697	323,697,953
2012	(15,277,004)	0	(25,992,105)	0	2,204,739	6,074,916	340,399,558	348,514,792
2013	(15,436,252)	0	(26,220,858)	0	2,401,605	6,664,187	389,211,565	398,092,408
2014	(15,906,509)	0	(26,940,164)	0	2,565,297	7,154,169	419,858,176	429,383,251
2015	(15,814,198)	0	(26,768,889)	0	2,601,207	7,261,655	432,184,306	441,875,187
2016	(16,225,521)	0	(27,487,248)	0	2,625,988	7,335,841	460,488,437	470,300,672
2017	(15,909,387)	0	(26,970,762)	0	2,590,608	7,229,930	433,716,775	443,417,246
2018	(16,041,534)	0	(27,261,438)	0	2,660,434	7,438,943	464,352,881	474,352,054
2019	(17,015,372)	0	(29,043,009)	0	2,721,822	7,622,689	485,597,255	495,864,185
2020	(16,653,246)	0	(28,309,158)	0	2,582,334	7,205,164	451,107,124	460,854,744
2021	(16,663,697)	0	(28,346,624)	0	2,578,386	7,193,340	450,378,516	460,115,157
2022	(16,909,368)	0	(28,771,413)	0	2,500,533	6,960,308	432,271,275	441,702,428
2023	(16,904,417)	0	(28,763,149)	0	2,514,367	7,001,718	441,667,235	451,152,671
2024	(17,051,903)	0	(29,017,307)	0	2,604,616	7,271,859	461,211,588	471,051,163
2025	(16,918,079)	0	(28,787,066)	0	2,593,139	7,237,508	451,454,535	461,249,076
2026	(16,741,641)	0	(28,483,648)	0	2,610,549	7,289,622	465,009,005	474,871,859
2027	(17,107,637)	0	(29,109,736)	0	2,571,994	7,174,210	455,365,134	465,076,694
2028	(16,756,801)	0	(28,507,565)	0	2,589,469	7,226,527	454,897,375	464,677,515
2029	(17,024,240)	0	(28,969,810)	0	2,557,194	7,129,914	448,990,325	458,643,817
2030	(16,727,478)	0	(28,459,349)	0	2,577,373	7,190,317	451,112,568	460,845,241
2031	(16,779,107)	0	(28,564,483)	0	2,542,862	7,087,012	444,310,262	453,907,512
2032	(16,804,031)	0	(28,694,562)	0	2,592,451	7,235,447	449,326,974	459,118,811
2033	(16,825,821)	0	(28,790,365)	0	2,720,121	7,617,602	493,828,346	504,121,164
2034	(16,825,644)	0	(28,740,041)	0	2,622,184	7,324,447	457,990,974	467,899,484
2035	(20,335,543)	0	(34,795,031)	0	2,569,737	7,167,454	492,540,222	502,242,928
TOTAL	(625,457,704)	(282,445)	(1,112,938,722)	(8,787,981)	81,476,076	210,437,271	13,371,224,046	13,683,887,439

TABLE B-13. Capital and Operating Costs of Project Conservation Facilities to be Reimbursed through Delta Water Charge

(in 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
				Application of Oroville Power Revenues to:			
	Capital Costs [a]	Capital Cost Credits [b]	Operating Costs [c]	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	62,493,755	(751,330)	(14,000)	0	0	107,780	61,836,205
1965	70,920,988	(763,541)	(14,000)	0	0	551,850	70,695,297
1966	125,265,788	(748,649)	(14,000)	0	0	1,081,023	125,584,162
1967	94,374,172	(812,145)	(13,446)	0	0	1,189,212	94,737,793
1968	39,889,088	(431,574)	1,303,821	(951,000)	0	793,399	40,603,734
1969	5,279,981	(259,015)	2,890,772	(11,007,000)	0	601,867	(2,493,395)
1970	4,130,490	(203,733)	4,818,634	(14,650,000)	(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	3,985,414	(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	8,084,450	(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	9,547,014	(14,650,000)	(1,500,000)	2,131,884	4,559,699
1980	10,372,763	0	13,258,298	(14,650,000)	(1,500,000)	3,638,851	11,119,912
1981	11,194,479	0	10,326,538	(14,650,000)	(1,500,000)	4,597,474	9,968,491
1982	16,634,428	0	16,154,872	(14,650,000)	(1,500,000)	4,594,682	21,233,982
1983	12,037,206	0	22,253,515	(34,705,000)	(8,735,000)	3,751,993	(5,397,286)
1984	8,706,748	0	22,700,224	(14,650,000)	(10,348,000)	2,979,126	9,388,098
1985	11,921,382	0	23,464,019	(14,650,000)	(8,198,000)	2,069,024	14,606,425
1986	20,464,281	0	26,479,379	(14,650,000)	(9,107,000)	1,602,419	24,789,079
1987	30,814,266	0	23,514,665	(14,650,000)	(9,451,000)	1,762,179	31,990,110
1988	31,587,615	0	26,003,911	(14,650,000)	(8,677,000)	1,808,899	36,073,425
1989	10,125,424	0	28,442,946	(14,650,000)	(8,102,000)	2,678,007	18,494,377
1990	27,882,191	0	37,255,751	(14,650,000)	(8,498,000)	1,436,712	43,426,654
1991	35,966,870	0	76,428,061	(14,650,000)	(9,487,000)	1,727,664	89,985,595
1992	27,622,044	0	32,284,164	(14,650,000)	(8,526,000)	1,707,822	38,438,030
1993	21,156,123	0	36,071,890	(14,650,000)	(8,768,000)	1,708,490	35,518,503
1994	13,755,771	0	39,321,477	(14,650,000)	(7,484,000)	2,134,392	33,077,640
1995	14,253,704	0	44,519,764	(14,650,000)	(4,976,939)	2,042,481	41,189,010
1996	10,536,189	0	49,167,138	(14,650,000)	(5,503,289)	2,448,692	41,998,730
1997	13,959,817	0	50,303,842	(14,650,000)	(5,740,515)	1,699,730	45,572,874
1998	3,706,236	0	53,230,282	(14,650,000)	(8,135,000)	1,193,198	35,324,716
1999	5,756,399	0	54,083,724	(14,650,000)	(9,198,000)	9,686	36,001,809
2000	8,946,372	0	55,770,292	(14,650,000)	(10,452,028)	13,491	39,628,127
2001	7,763,464	0	75,262,091	(14,650,000)	(15,231,433)	23,866	53,167,988
2002	13,395,718	0	67,824,612	(14,650,000)	(22,034,770)	24,426	44,559,986
2003	14,733,270	0	77,483,994	(14,650,000)	(30,910,299)	9,833	46,666,798
2004	12,424,830	0	91,278,920	(14,650,000)	(34,155,125)	7,548	54,906,173
2005	(7,126,781)	0	99,112,650	(14,650,000)	(23,020,957)	0	54,314,912
2006	20,564,429	0	77,707,728	(14,650,000)	(16,279,103)	3,129,000	70,472,054
2007	23,840,166	0	81,207,038	(14,650,000)	(15,464,828)	3,129,000	78,061,376
2008	22,544,551	0	81,634,854	(14,650,000)	(15,646,347)	3,129,000	77,012,058
2009	6,810,473	0	58,176,083	(14,650,000)	(9,040,000)	3,129,000	44,425,556
2010	3,800,473	0	57,374,045	(14,650,000)	(9,040,000)	3,129,000	40,613,518
2011	1,736,473	0	56,401,919	(14,650,000)	(9,040,000)	0	34,448,392
2012	396,699	0	54,930,760	(14,650,000)	(9,040,000)	0	31,637,459
2013	396,699	0	57,975,624	(14,650,000)	(9,040,000)	0	34,682,323
2014	396,699	0	56,510,610	(14,650,000)	(9,040,000)	0	33,217,309
2015	396,699	0	54,566,848	(14,650,000)	(9,040,000)	0	31,273,547
2016	396,699	0	58,183,091	(14,650,000)	(9,040,000)	0	34,889,790
2017	396,699	0	57,379,283	(14,650,000)	(9,040,000)	0	34,085,982
2018	396,699	0	57,808,862	(14,650,000)	(9,040,000)	0	34,515,561
2019	396,699	0	56,691,638	(14,650,000)	(9,040,000)	0	33,398,337
2020	396,699	0	54,284,698	(14,650,000)	(9,040,000)	0	30,991,397
2021	396,699	0	58,353,702	(14,650,000)	(9,040,000)	0	35,060,401
2022	396,699	0	57,148,280	(14,650,000)	(9,040,000)	0	33,854,979
2023	396,699	0	54,244,306	(14,650,000)	(9,040,000)	0	30,951,005
2024	396,699	0	55,164,940	(14,650,000)	(9,040,000)	0	31,871,639
2025	396,699	0	59,588,504	(14,650,000)	(9,040,000)	0	36,295,203
2026	396,699	0	57,021,041	(14,650,000)	(9,040,000)	0	33,727,740
2027	396,699	0	53,832,562	(14,650,000)	(9,040,000)	0	30,539,261
2028	396,699	0	54,279,666	(14,650,000)	(9,040,000)	0	30,986,365
2029	396,699	0	60,178,188	(14,650,000)	(9,040,000)	0	36,884,887
2030	396,699	0	56,025,284	(14,650,000)	(9,040,000)	0	32,731,983
2031	396,699	0	54,186,355	(14,650,000)	(9,040,000)	0	30,893,054
2032	396,699	0	53,706,811	(14,650,000)	(9,040,000)	0	30,413,510
2033	396,699	0	58,612,551	(14,650,000)	(9,040,000)	0	35,319,250
2034	396,699	0	55,440,673	(14,650,000)	(9,040,000)	0	32,147,372
2035	396,699	0	55,972,771	(14,650,000)	(9,040,000)	0	32,679,470
TOTAL	1,095,412,955	(11,528,320)	2,997,740,079	(1,002,213,000)	(585,729,633)	72,730,905	2,566,412,986

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 (2005) reflected in the Delta Water Charge.

TABLE B-14. Capital Costs of Transportation Facilities Allocated to Each Contractor

(in dollars)

Calendar Year	NORTH BAY AREA			SOUTH BAY AREA				CENTRAL COASTAL AREA		
	Napa County FC&WCD	Solano County WA (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	122	224	346
1953	0	0	0	323	479	1,808	2,610	336	620	956
1954	0	0	0	819	1,306	5,150	7,275	421	777	1,198
1955	0	0	0	977	1,570	6,297	8,844	211	390	601
1956	0	0	0	8,844	14,459	63,816	87,119	227	418	645
1957	15,199	11,436	26,635	21,564	35,240	649,596	706,400	291	536	827
1958	33,420	16,591	50,011	67,764	71,717	733,414	872,895	720	1,328	2,048
1959	20,697	6,591	27,288	154,255	143,730	493,050	791,035	10,636	69,139	79,775
1960	9,097	8,830	17,927	296,492	275,610	1,018,661	1,590,763	15,255	99,794	115,049
1961	6,950	7,445	14,395	853,506	802,675	1,914,709	3,570,890	10,163	36,681	46,844
1962	(194)	(926)	(1,120)	545,123	615,141	1,686,041	2,846,305	17,281	39,570	56,851
1963	1,319	1,111	2,430	657,426	1,281,271	3,243,838	5,182,535	68,821	140,841	209,662
1964	38,393	35,466	73,859	712,650	1,747,783	7,251,800	9,712,233	138,614	282,003	420,617
1965	198,833	62,221	261,054	360,779	606,025	3,414,457	4,381,261	250,706	497,152	747,858
1966	461,619	49,917	511,536	592,714	592,598	2,245,215	3,430,527	587,951	1,117,486	1,705,437
1967	1,569,498	40,379	1,609,877	796,995	803,951	2,401,862	4,002,808	936,412	1,762,694	2,699,106
1968	859,613	61,691	921,304	736,470	696,075	1,997,924	3,430,469	351,131	675,220	1,026,351
1969	74,388	59,318	133,706	269,698	293,275	764,950	1,327,923	76,966	164,583	241,549
1970	43,361	67,877	111,238	58,676	61,200	135,569	255,445	47,891	109,224	157,115
1971	26,763	34,052	60,815	12,086	18,227	84,089	114,402	28,638	80,715	109,353
1972	19,643	18,905	38,548	12,293	12,763	63,610	88,666	19,289	50,230	69,519
1973	56,510	30,874	87,384	10,494	12,136	39,380	62,010	23,010	56,178	79,188
1974	165,830	65,832	231,662	15,722	24,402	73,119	113,243	25,037	61,383	86,420
1975	91,824	89,234	181,058	16,730	15,806	41,394	73,930	14,740	61,416	76,156
1976	57,765	83,651	141,416	34,004	34,663	109,610	178,277	33,638	130,440	164,078
1977	64,167	80,147	144,314	46,229	45,115	133,375	224,719	108,324	264,720	373,044
1978	69,319	81,717	151,036	71,234	66,008	174,898	312,140	21,415	103,822	125,237
1979	191,273	282,907	474,180	45,468	42,943	110,665	199,076	22,941	125,669	148,610
1980	264,433	386,006	650,439	134,522	124,352	304,614	563,488	103,258	462,895	566,153
1981	227,606	383,086	610,692	(33,738)	(29,856)	(65,637)	(129,231)	(15,416)	(135,240)	(150,656)
1982	549,164	870,611	1,419,775	7,876	8,321	27,065	43,262	4,102	(58,882)	(54,780)
1983	1,254,900	1,433,061	2,687,961	138,413	131,515	339,246	609,174	32,196	110,287	142,483
1984	2,547,878	2,750,040	5,297,918	152,992	140,971	351,921	645,884	35,448	107,723	143,171
1985	7,143,123	6,443,613	13,586,736	19,776	19,245	53,491	92,512	17,424	78,896	96,320
1986	10,565,937	16,926,630	27,492,567	32,034	31,581	88,070	151,685	44,135	306,452	350,587
1987	7,979,832	12,599,507	20,579,339	50,153	48,675	138,959	237,787	126,995	1,342,116	1,469,111
1988	2,312,909	4,343,513	6,656,422	116,181	112,294	302,461	530,936	156,473	1,479,545	1,636,018
1989	1,224,538	1,553,352	2,777,890	108,320	102,804	260,092	471,216	152,173	1,210,940	1,363,113
1990	443,002	824,055	1,267,057	224,283	224,188	625,213	1,073,684	222,208	1,559,457	1,781,665
1991	99,848	89,269	189,117	413,426	383,368	946,246	1,743,040	298,398	2,184,088	2,482,486
1992	57,045	62,083	119,128	182,231	169,968	442,055	794,254	361,210	3,504,755	3,865,965
1993	122,423	128,634	251,057	129,344	125,312	342,416	597,072	1,170,649	11,997,954	13,168,603
1994	71,274	83,270	154,544	46,042	58,050	229,649	333,741	4,260,734	46,401,596	50,662,330
1995	30,605	29,271	59,876	97,808	97,063	257,484	452,355	12,268,787	155,255,849	167,524,636
1996	20,275	19,069	39,344	49,854	48,056	127,493	225,403	11,284,548	145,409,409	156,693,957
1997	20,039	107,784	127,823	82,598	78,996	209,517	371,111	3,184,506	38,158,718	41,343,224
1998	17,309	21,447	38,756	27,114	23,949	62,646	113,709	883,014	10,563,182	11,446,196
1999	67,542	106,333	173,875	74,358	73,714	208,601	356,673	929,800	9,604,289	10,534,089
2000	15,937	37,603	53,540	27,390	28,767	80,015	136,172	489,386	5,542,764	6,032,150
2001	4,469	11,525	15,994	140,023	269,536	1,854,608	2,264,167	80,654	631,609	712,263
2002	17,782	43,709	61,491	805,106	1,189,094	5,874,598	7,868,798	71,502	468,992	540,494
2003	49,553	15,819	65,372	1,156,057	1,330,130	4,614,252	7,100,439	15,686	280,419	296,105
2004	151,772	19,068	170,840	1,483,165	1,378,279	6,565,455	9,426,899	15,251	119,668	134,919
2005	60,245	62,677	122,922	1,615,351	1,489,435	4,280,795	7,385,581	(14,358)	(204,694)	(219,052)
2006	1,502,468	43,606	1,546,074	758,367	696,264	1,673,269	3,127,900	80,728	598,596	679,324
2007	4,296,903	55,039	4,351,942	2,220,777	2,034,093	4,863,653	9,118,523	102,289	645,252	747,541
2008	5,025,499	51,844	5,077,343	1,585,069	1,452,657	3,477,332	6,515,058	95,587	629,360	724,947
2009	12,904	20,719	33,623	29,310	28,279	76,145	133,734	57,933	495,857	553,790
2010	12,904	20,719	33,623	29,310	28,279	76,145	133,734	57,933	495,857	553,790
2011	12,904	20,719	33,623	29,310	28,279	76,145	133,734	57,933	495,857	553,790
2012	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0
TOTAL	50,258,309	50,758,947	101,017,256	18,332,240	20,241,940	67,622,721	106,196,901	39,442,353	445,676,820	485,119,173

Note: Allocated capital costs as a result of permanent water transfes under Monterey are not reflected on this Table

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

(in dollars)

Calendar Year	SAN JOAQUIN VALLEY AREA									
				Kern County Water Agency						
	Dudley Ridge Water District	Empire West Side Irrigation District (b	Future Contractor San Joaquin Valley	Municipal and Industrial	Municipal and (c Industrial	Agri-cultural	County of Kings	Oak Flat Water District	Tulare Lake Basin Water Storage District	Total
	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]
1952	389	20	58	938	119	9,129	20	12	785	11,470
1953	1,076	53	161	2,887	345	27,383	55	33	2,157	34,150
1954	1,350	68	201	3,373	417	32,369	69	43	2,718	40,608
1955	677	34	101	1,497	197	14,721	35	23	1,371	18,656
1956	726	34	108	2,702	273	24,255	35	25	1,416	29,574
1957	932	38	139	6,048	494	49,932	39	29	1,707	59,358
1958	2,308	102	344	14,374	1,153	119,049	104	61	4,368	141,863
1959	7,384	364	2,517	26,218	2,597	253,891	372	381	14,757	308,481
1960	12,940	630	3,666	34,054	4,155	352,166	644	498	25,696	434,449
1961	21,848	1,063	3,954	51,407	6,500	538,707	1,087	598	43,377	668,541
1962	49,320	2,410	7,867	94,933	13,834	1,017,146	2,465	1,879	98,141	1,287,995
1963	208,757	10,687	32,172	364,014	55,715	3,934,636	10,932	5,990	425,330	5,048,233
1964	328,286	16,961	64,890	600,152	88,904	6,636,279	17,350	11,942	672,013	8,436,777
1965	538,215	27,481	117,996	1,098,999	152,930	11,999,892	28,116	21,802	1,095,126	15,080,557
1966	1,107,757	52,586	279,172	2,218,832	339,222	24,857,487	53,789	38,891	2,173,090	31,120,826
1967	852,537	39,537	445,562	2,012,744	286,990	23,629,026	40,444	34,775	1,653,429	28,995,044
1968	198,739	9,739	166,267	1,104,132	70,086	11,544,942	9,962	12,238	396,075	13,512,180
1969	94,436	4,793	35,473	616,516	27,216	6,416,147	4,903	7,302	191,574	7,398,360
1970	54,344	2,720	21,686	414,659	15,520	4,145,046	2,782	3,999	109,470	4,770,226
1971	25,462	1,291	12,094	190,552	7,114	1,622,274	1,320	540	51,618	1,912,265
1972	11,589	589	8,354	82,886	3,409	723,623	602	343	23,526	854,921
1973	6,657	335	10,201	39,973	1,980	458,527	343	221	13,448	531,685
1974	9,478	469	11,044	45,420	2,766	483,866	479	326	18,979	572,827
1975	13,329	677	5,246	36,467	3,710	382,743	692	425	27,048	470,337
1976	17,506	837	12,615	53,085	5,621	654,026	856	1,152	34,455	780,153
1977	9,672	436	47,790	36,478	3,753	886,672	446	494	18,497	1,004,238
1978	23,499	(30,406)	6,178	54,219	6,579	575,169	1,209	1,402	47,446	685,295
1979	25,051	1,295	5,664	53,866	6,610	559,746	1,325	1,862	51,293	706,712
1980	144,980	(4,617)	31,160	321,890	38,126	3,211,810	7,682	7,144	297,215	4,055,390
1981	(5,427)	(15,464)	200	(44,773)	(1,223)	(385,275)	(296)	1,752	(11,324)	(461,830)
1982	49,916	2,584	6,600	83,283	13,142	654,692	2,638	1,252	102,287	916,394
1983	52,429	(35,295)	12,125	110,465	13,872	1,073,500	2,769	1,327	107,337	1,338,529
1984	86,345	4,474	14,303	154,799	22,764	1,617,225	4,572	2,678	177,020	2,084,180
1985	25,435	1,311	5,649	47,055	6,766	484,485	1,341	1,176	52,013	625,231
1986	38,309	(41,067)	9,862	71,661	10,320	796,097	2,009	778	78,142	966,111
1987	28,769	1,476	7,004	55,537	7,969	616,845	1,509	1,491	58,679	779,279
1988	52,329	2,831	17,078	70,572	12,049	909,046	2,894	4,620	109,713	1,181,132
1989	156,099	8,019	27,551	352,103	42,943	3,834,481	8,201	12,134	318,604	4,760,135
1990	292,361	15,142	50,360	553,394	87,199	6,094,021	15,487	22,729	599,233	7,729,926
1991	349,413	18,103	60,419	580,572	91,765	6,447,565	18,515	23,486	716,292	8,306,130
1992	125,891	6,439	28,019	241,559	34,559	2,711,639	6,585	10,883	256,370	3,421,944
1993	86,113	4,375	30,245	174,630	23,840	2,059,168	4,474	4,698	174,772	2,562,315
1994	64,762	3,323	23,894	124,518	17,633	1,488,418	3,398	2,173	132,095	1,860,214
1995	82,969	(1,000)	72,734	167,698	24,390	2,472,332	4,355	2,824	169,318	2,995,620
1996	27,611	(61,913)	51,990	68,870	8,812	1,233,548	1,437	1,590	56,092	1,388,037
1997	136,503	7,041	48,721	241,400	36,417	2,951,687	7,195	3,706	279,205	3,711,875
1998	70,585	(121,012)	23,037	122,493	18,582	1,470,316	3,734	1,278	144,651	1,733,664
1999	82,290	4,249	26,824	144,882	21,945	1,736,415	4,343	3,856	168,404	2,193,208
2000	21,067	1,072	9,811	45,646	6,006	547,273	1,094	(1,081)	42,783	673,671
2001	17,632	900	7,790	35,687	5,017	428,254	920	777	35,867	532,844
2002	74,060	3,804	15,942	132,582	20,004	1,494,264	3,891	724	151,158	1,896,429
2003	(51,492)	(2,691)	(5,668)	(76,971)	(13,187)	(832,512)	(2,752)	330	(106,022)	(1,090,965)
2004	6,953	358	2,362	15,272	1,853	164,896	367	1,482	14,211	207,754
2005	25,401	1,319	5,257	45,551	6,627	465,754	1,348	399	52,133	603,789
2006	45,518	2,343	14,745	88,610	12,259	977,008	2,397	1,014	93,003	1,236,897
2007	96,650	4,989	24,340	174,767	25,731	1,931,510	5,104	2,094	197,755	2,462,940
2008	72,196	3,716	21,210	136,295	19,388	1,513,050	3,802	2,022	147,511	1,919,190
2009	12,075	616	7,350	25,027	3,391	328,279	630	508	24,557	402,433
2010	12,075	616	7,350	25,027	3,391	328,279	630	508	24,557	402,433
2011	12,075	616	7,350	25,027	3,391	328,279	630	508	24,557	402,433
2012	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0
TOTAL	5,916,156	(38,500)	1,967,134	13,576,553	1,733,950	151,101,198	301,378	268,146	11,887,098	186,713,113

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; $5,261 in 1995; $63,318 in 1996 and $124,667 in 1998 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

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA									
	Antelope Valley-East Kern Water Agency	Castaic Lake Water Agency (d	Coachella Valley Water District	Crestline-Lake Arrowhead Water Agency	Desert Water Agency	Littlerock Creek Irrigation District	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District
	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]
1952	3,158	1,042	850	254	1,402	70	1,695	418	6,079	1,550
1953	10,026	3,327	2,668	799	4,401	222	5,318	1,328	19,058	4,852
1954	12,742	4,193	3,465	1,031	5,714	285	6,908	1,691	24,608	6,290
1955	5,411	1,881	1,374	401	2,267	115	2,756	715	9,229	2,377
1956	9,775	3,590	2,196	612	3,622	191	4,449	1,267	13,138	3,438
1957	26,306	9,255	6,343	1,816	10,461	540	12,767	3,450	40,646	10,534
1958	49,204	17,599	11,581	3,290	19,099	991	23,360	6,414	72,708	18,898
1959	70,247	29,740	15,869	4,616	26,171	1,347	31,759	9,030	98,596	25,519
1960	84,552	38,760	22,068	6,797	36,395	1,547	43,260	10,772	147,170	37,469
1961	126,542	54,262	34,613	12,530	57,086	2,245	63,709	16,437	236,164	57,707
1962	198,558	85,352	43,719	13,861	72,102	3,344	84,709	24,943	253,435	64,330
1963	580,138	255,252	116,797	33,149	192,624	9,828	234,926	73,256	610,277	160,624
1964	1,094,365	501,858	209,462	55,445	345,446	18,442	429,605	137,769	1,026,066	276,118
1965	1,908,076	947,523	385,533	103,757	635,825	32,819	786,986	244,587	1,913,090	512,862
1966	3,960,302	2,150,972	812,655	215,858	1,340,235	69,325	1,664,584	517,269	3,943,586	1,062,417
1967	4,976,538	4,100,531	1,077,422	296,069	1,776,892	88,301	2,182,240	653,250	5,821,681	1,550,239
1968	5,924,474	3,998,942	1,350,742	368,156	2,227,646	107,350	2,738,009	783,940	7,982,824	2,122,940
1969	5,822,708	3,079,426	1,690,259	539,851	2,787,631	121,303	3,256,507	865,455	10,898,185	2,769,647
1970	5,032,959	3,277,778	2,050,788	695,345	3,382,251	106,381	3,872,367	736,775	13,795,809	3,457,109
1971	2,577,507	2,146,954	1,071,523	338,581	1,767,179	48,337	2,087,223	347,057	8,137,053	1,987,120
1972	973,436	283,257	331,759	92,079	547,138	19,134	668,550	134,360	2,691,137	697,957
1973	354,407	914,303	158,579	82,223	261,557	6,304	238,094	46,102	1,760,570	403,582
1974	451,450	280,861	259,175	74,113	427,433	8,143	518,453	59,145	1,617,394	425,927
1975	253,438	246,492	193,632	52,821	319,337	4,954	392,110	33,995	1,533,664	407,913
1976	237,539	255,238	136,751	37,235	225,529	4,245	277,807	31,002	962,280	255,901
1977	199,554	371,469	91,384	25,858	150,711	3,757	183,609	26,834	591,445	155,537
1978	302,111	470,176	78,573	22,226	129,584	5,233	157,815	38,654	428,989	111,769
1979	357,678	938,985	81,807	21,795	134,915	5,965	166,931	44,410	403,569	108,408
1980	1,867,517	1,777,294	423,755	113,166	698,855	32,435	864,104	240,899	2,040,757	548,085
1981	(158,728)	610,795	(47,102)	(8,865)	(77,678)	(2,576)	(102,568)	(19,588)	(143,875)	(43,557)
1982	1,557,934	861,928	298,770	78,903	492,728	26,237	613,587	196,672	1,421,407	388,261
1983	2,062,512	521,349	396,033	115,678	653,134	34,699	803,945	259,939	2,126,313	581,672
1984	1,518,361	295,783	297,559	85,097	490,731	27,272	606,124	188,562	1,546,628	423,408
1985	896,226	158,810	217,115	62,532	358,064	13,104	441,299	107,533	1,115,498	304,903
1986	841,555	104,860	221,194	58,152	364,790	9,038	454,702	93,309	1,048,625	286,302
1987	333,052	105,625	166,099	43,992	273,928	5,566	340,485	40,716	783,725	213,202
1988	259,234	174,155	65,831	22,723	108,570	3,384	128,339	26,743	429,498	113,644
1989	1,045,999	434,394	323,138	97,036	532,920	16,777	649,616	125,344	1,375,722	372,048
1990	678,053	374,313	332,566	97,789	548,468	7,335	672,344	67,179	1,509,745	409,710
1991	831,687	401,961	367,196	120,925	605,579	11,966	733,443	92,625	1,979,364	540,210
1992	633,272	356,952	270,826	131,328	446,647	9,556	501,634	76,760	2,093,387	573,386
1993	634,283	332,089	222,347	171,095	366,700	10,194	353,470	73,955	3,848,084	1,046,752
1994	467,409	165,607	132,599	93,839	218,685	7,255	218,494	53,209	2,347,599	637,733
1995	459,990	293,308	132,690	78,390	218,835	7,436	232,377	54,544	1,959,986	530,656
1996	299,764	206,742	110,520	44,965	182,270	4,885	211,872	35,808	4,004,066	972,829
1997	438,898	249,699	103,382	24,640	170,497	7,397	214,534	54,452	2,819,566	397,103
1998	231,375	201,318	61,853	40,974	102,009	3,938	104,688	29,174	3,547,590	302,471
1999	272,187	177,666	88,999	38,450	146,777	4,878	169,400	35,895	5,453,212	228,739
2000	138,739	77,710	54,773	23,902	90,332	2,660	103,134	19,109	13,635,919	171,058
2001	128,753	43,584	50,665	15,634	83,557	2,951	101,850	20,674	19,270,173	95,921
2002	165,050	106,305	34,254	11,387	56,492	2,415	67,803	18,275	9,602,339	126,093
2003	(50,046)	(14,093)	2,633	2,112	4,342	(883)	3,341	(6,547)	3,747,303	26,514
2004	57,468	36,689	18,594	5,192	30,665	1,009	37,809	7,426	2,043,583	36,088
2005	165,714	98,956	31,766	10,127	52,389	2,773	62,093	20,813	920,041	50,953
2006	324,880	248,999	110,655	44,935	182,498	5,609	202,678	41,612	1,952,465	215,406
2007	468,605	470,067	220,171	72,533	363,110	8,048	429,711	59,815	1,345,304	353,266
2008	434,273	584,819	179,499	47,821	296,029	7,482	368,180	55,538	910,903	247,820
2009	69,451	184,392	22,065	6,526	36,389	1,291	44,381	9,336	148,784	39,713
2010	69,451	60,225	22,065	6,526	36,389	1,291	44,381	9,336	148,784	39,713
2011	69,451	51,535	22,065	6,526	36,389	1,291	44,381	9,336	148,784	39,713
2012	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0
TOTAL	52,815,570	34,222,854	15,196,162	4,864,598	25,061,743	947,431	29,858,137	6,948,778	160,219,728	26,968,849

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

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA					
	San Gorgonio Pass Water Agency	The Metropolitan Water District of Southern California (e	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC&WCD	Total	South Bay Area Future Contractor	GRAND TOTAL
	[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]
1952	962	69,020	370	86,870	0	0	0	0	59	99,352
1953	3,011	217,634	1,187	273,831	0	0	0	0	264	311,811
1954	3,904	279,967	1,496	352,294	0	0	0	0	766	402,141
1955	1,474	111,602	670	140,272	0	0	0	0	969	169,342
1956	2,127	179,335	1,299	225,039	0	0	0	0	9,172	351,549
1957	6,526	516,050	3,367	648,061	0	0	0	0	23,172	1,464,453
1958	11,701	945,684	6,390	1,186,919	0	0	2	2	32,888	2,286,626
1959	15,815	1,364,298	9,894	1,702,901	0	0	14	14	57,918	2,967,412
1960	23,307	1,914,521	12,798	2,379,416	0	0	28	28	123,202	4,660,834
1961	36,153	3,212,125	18,770	3,928,343	0	0	10	10	316,220	8,545,243
1962	40,012	3,543,471	29,069	4,456,905	0	0	32	32	228,202	8,875,170
1963	99,266	11,185,928	86,807	13,638,872	0	0	51	51	528,496	24,610,279
1964	170,012	18,065,455	164,709	22,494,752	0	0	7,791	7,791	590,034	41,736,063
1965	316,082	33,763,577	307,475	41,858,192	0	0	3,139	3,139	332,680	62,664,741
1966	654,194	74,485,027	681,898	91,558,322	0	0	(48)	(48)	783,728	129,110,328
1967	958,406	130,599,417	1,279,076	155,360,062	0	0	47	47	1,479,421	194,146,365
1968	1,314,841	147,502,290	1,360,687	177,782,841	0	0	51,573	51,573	1,254,192	197,978,910
1969	1,726,891	140,096,646	1,085,026	174,739,535	0	0	234,232	234,232	398,183	184,473,488
1970	2,160,122	161,983,078	1,147,609	201,698,371	0	0	16,227	16,227	74,028	207,082,650
1971	1,237,573	133,903,316	738,822	156,388,245	0	0	27,204	27,204	12,457	158,624,741
1972	434,507	43,931,880	66,878	50,872,072	0	0	9	9	13,182	51,936,917
1973	256,711	39,723,010	290,020	44,495,462	0	0	25	25	8,099	45,263,853
1974	264,349	18,896,593	86,362	23,369,398	0	0	45	45	28,570	24,402,165
1975	253,838	16,732,939	83,975	20,509,108	0	0	21	21	8,226	21,318,836
1976	158,850	13,545,451	84,623	16,212,451	0	0	51	51	16,486	17,492,912
1977	96,517	11,769,352	110,833	13,776,860	0	0	28	28	21,181	15,544,384
1978	69,152	15,781,696	174,876	17,770,854	0	0	38	38	28,876	19,073,476
1979	66,847	27,627,424	343,361	30,302,095	0	0	23	23	26,668	31,857,364
1980	337,811	59,493,774	641,586	69,080,038	0	0	26	26	59,169	74,974,703
1981	(26,356)	15,661,179	224,257	15,865,338	0	0	34	34	(6,746)	15,727,601
1982	238,792	30,873,857	316,107	37,365,183	0	0	11	11	16,086	39,705,931
1983	357,812	25,056,047	187,121	33,156,254	0	0	19	19	72,225	38,006,645
1984	260,327	16,317,441	103,160	22,160,453	0	0	26	26	83,252	30,414,884
1985	187,454	10,236,155	56,162	14,154,855	0	0	29	29	16,338	28,572,021
1986	176,057	8,365,310	34,777	12,058,671	0	0	31	31	16,248	41,035,900
1987	131,163	6,955,356	36,142	9,429,051	0	0	32	32	29,062	32,523,661
1988	70,260	6,626,545	57,117	8,086,043	0	0	55	55	50,083	18,140,689
1989	227,772	18,531,680	153,200	23,885,646	0	0	44	44	43,324	33,301,368
1990	251,185	17,430,869	125,376	22,504,932	0	0	63	63	96,419	34,453,746
1991	331,235	20,792,168	132,558	26,940,917	0	0	54	54	149,922	39,811,666
1992	351,492	21,196,762	116,999	26,759,001	0	0	42	42	80,900	35,041,234
1993	646,980	29,471,748	105,693	37,283,390	0	0	30	30	59,324	53,921,791
1994	394,936	16,392,019	50,941	21,180,325	0	0	14	14	34,208	74,225,376
1995	331,399	16,078,395	72,214	20,450,220	0	0	3	3	42,395	191,525,105
1996	1,100,219	23,237,696	49,282	30,460,918	0	0	0	0	21,388	188,829,047
1997	1,987,864	13,530,777	72,335	20,071,144	0	0	3	3	34,976	65,660,156
1998	3,351,560	11,234,515	65,270	19,276,735	0	0	7	7	11,162	32,620,229
1999	6,135,848	8,999,050	55,105	21,806,206	0	0	2	2	34,683	35,098,736
2000	17,011,956	5,386,696	23,952	36,739,940	0	0	0	0	16,879	43,652,352
2001	24,660,997	2,944,670	12,652	47,432,081	0	0	0	0	67,794	51,025,143
2002	11,951,414	5,253,452	34,427	27,429,706	0	0	0	0	380,408	38,177,326
2003	4,685,945	3,859,509	(5,032)	12,255,098	0	0	0	0	589,637	19,215,686
2004	2,390,732	4,170,999	12,482	8,848,736	0	0	0	0	531,172	19,320,320
2005	837,616	6,245,799	33,769	8,532,809	0	0	0	0	540,659	16,966,708
2006	1,504,446	13,869,050	85,407	18,788,640	0	0	0	0	270,193	25,649,028
2007	218,782	33,048,396	153,495	37,211,303	0	0	0	0	760,434	54,652,683
2008	152,630	53,174,437	180,654	56,640,085	0	0	0	0	548,129	71,424,752
2009	24,594	5,579,851	64,527	6,231,300	0	0	0	0	18,676	7,373,556
2010	24,594	2,246,591	18,709	2,728,055	0	0	0	0	18,676	3,870,311
2011	24,594	2,013,308	15,502	2,482,875	0	0	0	0	18,676	3,625,131
2012	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0
TOTAL	90,715,261	1,566,220,887	11,464,293	2,025,504,291	0	0	341,067	341,067	11,103,090	2,915,994,891

e) Costs from Table B-10 allocated to MWDSC are reduced herein by $16,425,374 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] [c]

(in 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	0	0	0	0	0	0	0
1963	0	0	0	153,725	105,637	364,698	624,060	0	0	0
1964	0	0	0	216,131	170,872	529,854	916,857	6,694	21,659	28,353
1965	0	0	0	284,275	259,858	899,072	1,443,205	13,751	36,017	49,768
1966	18,057	0	18,057	320,279	290,714	1,072,916	1,683,909	26,516	61,329	87,845
1967	41,560	0	41,560	391,134	320,885	1,187,229	1,899,248	56,450	118,225	174,675
1968	121,469	0	121,469	507,646	361,817	1,309,517	2,178,980	104,127	207,970	312,097
1969	165,236	0	165,236	609,761	397,257	1,411,240	2,418,258	122,004	242,348	364,352
1970	169,023	0	169,023	644,078	412,189	1,450,186	2,506,453	125,923	250,728	376,651
1971	171,231	0	171,231	650,897	415,305	1,457,089	2,523,291	128,361	256,289	384,650
1972	172,593	0	172,593	652,206	416,233	1,461,370	2,529,809	129,819	260,399	390,218
1973	173,593	31,353	204,946	653,539	416,883	1,464,608	2,535,030	130,802	262,956	393,758
1974	176,471	32,924	209,395	654,523	417,501	1,466,613	2,538,637	131,973	265,816	397,789
1975	184,914	36,276	221,190	656,819	418,743	1,470,336	2,545,898	133,248	268,941	402,189
1976	189,589	40,819	230,408	658,140	419,548	1,472,444	2,550,132	133,998	272,068	406,066
1977	192,530	45,078	237,608	660,803	421,313	1,478,024	2,560,140	135,711	278,710	414,421
1978	195,797	49,159	244,956	664,373	423,610	1,484,815	2,572,798	141,226	292,188	433,414
1979	199,326	53,320	252,646	669,666	426,971	1,493,720	2,590,357	142,316	297,474	439,790
1980	209,065	67,724	276,788	673,449	429,157	1,499,354	2,601,960	143,484	303,872	447,356
1981	222,528	87,377	309,905	683,589	435,488	1,514,863	2,633,940	148,742	327,440	476,182
1982	234,116	106,881	340,997	681,463	433,968	1,511,522	2,626,953	147,957	320,554	468,511
1983	262,076	151,207	413,284	682,698	434,392	1,512,899	2,629,989	148,166	317,556	465,722
1984	325,968	224,170	550,139	693,786	441,088	1,530,172	2,665,046	149,805	323,171	472,976
1985	455,691	364,186	819,877	706,190	448,265	1,548,090	2,702,545	151,610	328,656	480,266
1986	819,376	692,256	1,511,632	708,078	449,245	1,550,813	2,708,136	152,497	332,673	485,170
1987	1,360,258	1,558,749	2,919,007	710,649	450,862	1,555,321	2,716,832	154,756	348,360	503,116
1988	1,771,094	2,207,426	3,978,520	714,860	453,368	1,562,476	2,730,704	161,294	417,458	578,752
1989	1,890,890	2,432,396	4,323,286	723,738	459,184	1,578,141	2,761,063	169,399	494,091	663,490
1990	1,954,717	2,513,362	4,468,079	731,780	464,542	1,591,698	2,788,020	177,331	557,209	734,540
1991	1,977,962	2,556,601	4,534,563	748,884	476,306	1,624,504	2,849,694	188,990	639,036	828,026
1992	1,983,238	2,561,318	4,544,556	779,473	496,563	1,674,504	2,950,540	204,758	754,445	959,203
1993	1,986,275	2,564,623	4,550,898	793,829	505,611	1,698,036	2,997,476	223,986	941,012	1,164,998
1994	1,992,843	2,571,524	4,564,367	804,257	512,334	1,716,406	3,032,997	286,790	1,584,690	1,871,480
1995	1,996,698	2,576,028	4,572,726	808,731	515,474	1,728,829	3,053,034	517,259	4,094,617	4,611,876
1996	1,998,368	2,577,625	4,575,993	816,633	520,770	1,742,877	3,080,280	1,186,671	12,565,710	13,752,381
1997	1,999,484	2,578,675	4,578,160	820,682	523,416	1,749,898	3,093,996	1,808,036	20,572,448	22,380,484
1998	2,000,598	2,584,668	4,585,266	827,410	527,808	1,761,546	3,116,764	1,985,088	22,693,988	24,679,076
1999	2,001,570	2,585,873	4,587,443	829,627	529,153	1,765,065	3,123,845	2,034,685	23,287,300	25,321,985
2000	2,005,405	2,591,910	4,597,315	987,275	533,338	1,776,909	3,297,522	2,087,476	23,832,603	25,920,079
2001	2,324,657	2,779,862	5,104,519	1,115,353	534,991	1,781,504	3,431,848	2,115,581	24,150,915	26,266,496
2002	2,324,954	2,780,566	5,105,521	1,129,701	550,658	1,889,305	3,569,664	2,120,269	24,187,628	26,307,897
2003	2,326,155	2,783,237	5,109,392	1,214,305	620,665	2,235,168	4,070,138	2,124,478	24,215,240	26,339,718
2004	2,329,518	2,784,225	5,113,743	1,347,155	700,044	2,510,537	4,557,736	2,125,415	24,231,974	26,357,389
2005	2,339,962	2,785,469	5,125,431	1,491,998	783,488	2,908,024	5,183,510	2,126,338	24,239,219	26,365,557
2006	2,343,771	2,789,399	5,133,170	1,621,784	875,049	3,171,180	5,668,013	2,125,455	24,226,636	26,352,091
2007	2,450,415	2,792,246	5,242,661	1,698,190	918,551	3,275,725	5,892,466	2,130,499	24,264,036	26,394,535
2008	2,760,691	2,795,901	5,556,592	1,924,110	1,047,852	3,584,892	6,556,854	2,137,001	24,305,052	26,442,053
2009	3,130,307	2,799,408	5,929,715	2,088,650	1,141,906	3,810,036	7,040,592	2,143,190	24,345,801	26,488,991
2010	3,131,281	2,800,840	5,932,121	2,092,244	1,143,773	3,815,063	7,051,080	2,147,015	24,378,541	26,525,556
2011	3,132,276	2,802,303	5,934,579	2,095,911	1,145,680	3,820,197	7,061,788	2,150,921	24,411,973	26,562,894
2012	3,133,294	2,803,798	5,937,092	2,099,663	1,147,630	3,825,447	7,072,740	2,154,916	24,446,161	26,601,077
2013	3,133,294	2,803,798	5,937,092	1,926,260	1,041,992	3,460,749	6,429,001	2,154,916	24,446,161	26,601,077
2014	3,133,294	2,803,798	5,937,092	1,856,328	976,758	3,295,593	6,128,679	2,148,222	24,424,502	26,572,724
2015	3,133,294	2,803,798	5,937,092	1,781,030	887,771	2,926,375	5,595,176	2,141,164	24,410,144	26,551,308
2016	3,112,728	2,803,798	5,916,526	1,742,211	856,916	2,752,531	5,351,658	2,128,400	24,384,832	26,513,232
2017	3,086,015	2,803,798	5,889,813	1,667,974	826,744	2,638,218	5,132,936	2,098,465	24,327,936	26,426,401
2018	2,995,233	2,803,798	5,799,031	1,548,440	785,812	2,515,930	4,850,182	2,050,789	24,238,191	26,288,980
2019	2,945,498	2,803,798	5,749,296	1,442,997	750,372	2,414,207	4,607,576	2,032,911	24,203,813	26,236,724
2020	2,941,177	2,803,798	5,744,975	1,407,235	735,440	2,375,261	4,517,936	2,028,992	24,195,433	26,224,425
2021	2,938,646	2,803,798	5,742,444	1,400,048	732,324	2,368,358	4,500,730	2,026,554	24,189,872	26,216,426
2022	2,937,086	2,803,798	5,740,884	1,398,683	731,396	2,364,077	4,494,156	2,025,096	24,185,762	26,210,858
2023	2,935,944	2,770,280	5,706,224	1,397,277	730,747	2,360,839	4,488,863	2,024,114	24,183,205	26,207,319
2024	2,932,664	2,768,646	5,701,310	1,396,224	730,129	2,358,834	4,485,187	2,022,942	24,180,345	26,203,287
2025	2,923,052	2,765,070	5,688,122	1,393,891	728,886	2,355,111	4,477,888	2,021,668	24,177,220	26,198,888
2026	2,917,710	2,760,318	5,678,028	1,392,419	728,082	2,353,003	4,473,504	2,020,917	24,174,093	26,195,010
2027	2,914,339	2,755,885	5,670,224	1,389,439	726,317	2,347,423	4,463,179	2,019,205	24,167,451	26,186,656
2028	2,910,601	2,751,627	5,662,228	1,385,439	724,020	2,340,632	4,450,091	2,013,689	24,153,973	26,167,662
2029	2,906,565	2,747,261	5,653,826	1,379,455	720,659	2,331,727	4,431,841	2,012,599	24,148,687	26,161,286
2030	2,895,412	2,731,803	5,627,215	1,375,300	718,473	2,326,093	4,419,866	2,011,431	24,142,289	26,153,720
2031	2,880,000	2,710,744	5,590,744	1,363,861	712,141	2,310,584	4,386,586	2,006,174	24,118,721	26,124,895
2032	2,866,708	2,689,805	5,556,513	1,366,387	713,661	2,313,925	4,393,973	2,006,959	24,125,607	26,132,566
2033	2,834,658	2,642,370	5,477,028	1,365,189	713,238	2,312,548	4,390,975	2,006,750	24,128,605	26,135,355
2034	2,761,585	2,565,777	5,327,362	1,352,945	706,542	2,295,275	4,354,762	2,005,111	24,122,990	26,128,101
2035	2,613,488	2,419,522	5,033,010	1,339,187	699,364	2,277,357	4,315,908	2,003,306	24,117,505	26,120,811
TOTAL	130,995,881	133,057,851	264,053,732	78,962,360	44,423,739	149,689,382	273,075,481	86,503,151	966,780,519	1,053,283,670

a) Unadjusted for prior overpayments or underpayments of charges.
b) Determined at the current Project Interest Rate of 4.608 percent per annum.
c) Reflects the transfers of permanent aqueduct capacity among contractors.

TABLE B-15. Capital Cost Component of Transportation Charge for Each Contractor

(in 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	Municipal and Industrial [a]	Agri-cultural	County of Kings	Oak Flat Water District	Tulare Lake Basin Water Storage District	Total
	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[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	2.724	0	0	0	0	0	0	2.724
1965	0	0	6.027	64.262	9.281	0	0	0	0	79.570
1966	0	0	12.035	120.217	17.068	0	0	0	0	149.320
1967	0	0	26.249	233.186	34.339	0	0	0	0	293.774
1968	77.385	1.747	48.934	335.663	48.951	423.377	9.404	4.715	65.265	1.015.441
1969	77.520	5.241	57.399	391.879	52.519	869.466	10.154	5.125	246.939	1.716.243
1970	84.961	5.241	59.206	423.268	53.905	1.057.532	10.442	5.330	182.739	1.882.625
1971	96.866	5.241	60.310	444.380	54.695	1.404.594	10.608	5.740	194.461	2.276.896
1972	108.230	5.241	60.925	454.082	55.057	2.103.256	10.690	11.000	599.896	3.408.378
1973	119.053	5.241	61.351	458.302	55.231	2.425.783	10.733	6.355	232.030	3.374.079
1974	180.691	5.241	61.870	460.337	55.331	2.716.516	10.766	7.116	385.132	3.883.000
1975	219.464	5.241	62.432	462.650	55.472	3.253.641	10.808	7.331	459.555	4.536.594
1976	167.329	5.241	62.700	464.506	55.661	3.507.395	10.849	8.280	328.756	4.610.718
1977	164.510	5.241	63.342	467.209	55.947	3.843.095	10.911	7.585	314.333	4.932.173
1978	175.874	0	65.775	469.066	56.138	4.271.925	11.016	7.995	337.242	5.395.031
1979	208.581	5.241	66.090	471.827	56.473	4.690.758	11.082	8.200	379.551	5.897.803
1980	221.872	5.241	66.378	474.569	56.810	5.118.678	11.153	11.685	381.996	6.348.383
1981	221.872	5.241	67.964	490.958	58.751	5.602.017	11.561	8.815	404.903	6.872.083
1982	221.872	5.241	67.975	488.679	58.689	6.048.107	11.548	9.225	427.281	7.338.617
1983	232.154	5.241	68.311	492.919	59.358	6.555.977	11.681	7.728	50.869	7.484.239
1984	244.059	5.241	68.928	498.543	60.064	6.877.598	11.830	9.840	333.572	8.109.675
1985	255.424	5.241	69.656	506.425	61.223	7.323.689	12.065	10.045	242.672	8.486.440
1986	266.788	5.241	69.944	508.820	61.568	7.452.205	12.137	10.455	517.853	8.905.011
1987	278.152	5.241	70.449	512.489	62.096	8.216.777	12.247	10.660	540.229	9.708.340
1988	289.516	5.241	70.809	515.348	62.506	8.637.427	12.330	11.070	562.606	10.166.853
1989	300.880	5.241	71.694	519.003	63.130	8.940.876	12.497	11.480	585.513	10.510.314
1990	156.122	5.241	73.130	537.356	65.369	9.256.140	12.932	11.685	631.333	10.749.308
1991	289.034	5.241	75.772	566.393	69.944	9.256.140	13.757	11.685	631.333	10.919.300
1992	312.244	5.241	78.965	597.071	74.793	9.256.140	14.752	11.685	631.333	10.982.224
1993	312.244	5.241	80.456	609.930	76.633	9.256.140	15.120	11.685	631.333	10.998.782
1994	312.244	5.241	82.079	619.299	77.912	9.256.140	15.392	11.685	631.333	11.011.325
1995	312.244	5.241	83.371	626.034	78.865	9.256.140	15.603	11.685	631.333	11.020.517
1996	288.814	5.241	87.340	635.184	80.196	8.938.429	15.956	11.685	631.333	10.694.178
1997	288.814	5.241	90.203	638.976	80.681	8.872.915	16.128	11.685	631.333	10.635.976
1998	288.819	5.241	92.912	652.398	82.706	8.613.754	16.583	11.685	631.333	10.395.431
1999	288.819	5.241	94.205	659.278	83.750	8.613.754	16.818	11.685	631.333	10.404.882
2000	288.819	5.241	95.728	667.504	84.996	7.970.205	17.093	11.685	631.333	9.772.604
2001	288.819	5.241	96.292	670.125	85.341	7.841.428	17.169	11.685	631.333	9.647.434
2002	310.715	5.241	96.745	672.199	85.632	7.841.428	17.233	11.685	592.910	9.633.789
2003	310.715	5.241	97.683	680.005	86.810	7.841.428	17.473	11.685	590.704	9.641.744
2004	310.715	5.241	97.345	675.412	86.023	7.829.467	44.666	11.685	508.926	9.569.479
2005	310.715	5.241	97.488	676.336	86.135	7.829.467	44.691	11.685	508.926	9.570.684
2006	310.715	5.241	97.811	679.136	86.543	7.829.467	46.442	11.685	507.258	9.574.299
2007	334.140	5.241	98.732	684.673	87.309	8.202.741	46.609	11.685	507.258	9.978.388
2008	334.140	5.241	100.280	695.782	88.944	8.202.740	46.956	11.685	507.258	9.993.026
2009	334.140	5.241	101.653	704.607	90.200	8.202.740	47.225	11.685	507.258	10.004.749
2010	334.140	5.241	102.138	706.259	90.423	8.202.740	47.280	11.685	507.258	10.007.164
2011	334.140	5.241	102.634	707.947	90.652	8.202.740	47.335	11.685	507.258	10.009.632
2012	334.140	5.241	103.141	709.672	90.886	8.202.740	47.393	11.685	507.258	10.012.156
2013	334.140	5.241	103.141	709.672	90.886	8.202.740	47.393	11.685	507.258	10.012.156
2014	334.140	5.241	100.417	709.672	90.886	8.202.740	47.393	11.685	507.258	10.009.432
2015	334.140	5.241	97.113	645.410	81.605	8.202.740	47.393	11.685	507.258	9.932.585
2016	334.140	5.241	91.105	589.455	73.818	8.202.740	47.393	11.685	507.258	9.862.835
2017	334.140	5.241	76.892	476.486	56.547	8.202.740	47.393	11.685	507.258	9.718.382
2018	334.140	5.241	54.206	374.009	41.935	8.202.740	37.989	11.685	507.258	9.569.203
2019	334.140	5.241	45.741	317.793	38.367	8.202.740	37.238	11.685	507.258	9.500.203
2020	334.140	5.241	43.935	286.404	36.981	8.202.740	36.951	11.685	507.258	9.465.335
2021	334.140	5.241	42.831	265.292	36.191	8.202.740	36.785	11.685	507.258	9.442.163
2022	334.140	5.241	42.215	255.590	35.829	8.202.740	36.703	11.685	507.258	9.431.401
2023	334.140	5.241	41.790	251.370	35.655	8.202.740	36.660	11.685	507.258	9.426.539
2024	334.140	5.241	41.270	249.335	35.555	8.202.740	36.627	11.685	507.258	9.423.851
2025	334.140	5.241	40.708	247.022	35.414	8.202.740	36.584	11.685	507.258	9.420.792
2026	334.140	5.241	40.441	245.166	35.225	8.202.740	36.544	11.685	507.258	9.418.440
2027	334.140	5.241	39.799	242.463	34.939	8.202.740	36.482	11.685	507.258	9.414.747
2028	334.140	5.241	37.366	240.606	34.748	8.202.740	36.377	11.685	507.258	9.410.161
2029	334.140	5.241	37.051	237.845	34.413	8.202.740	36.310	11.685	507.258	9.406.683
2030	334.140	5.241	36.763	235.103	34.076	8.202.740	36.240	11.685	507.258	9.403.246
2031	334.140	5.241	35.176	218.714	32.135	8.202.740	35.832	11.685	507.258	9.382.921
2032	334.140	5.241	35.166	220.994	32.197	8.202.740	35.845	11.685	507.258	9.385.266
2033	334.140	5.241	34.830	216.753	31.528	8.202.740	35.711	11.685	507.258	9.379.886
2034	334.140	5.241	34.213	211.129	30.822	8.202.740	35.563	11.685	507.258	9.372.791
2035	334.140	5.241	33.484	203.248	29.663	8.202.740	35.328	11.685	507.258	9.362.787
TOTAL	18,883,724	347.662	4,781,233	33,449,696	4,250,421	484,778,732	1,779,852	723.283	32,768,595	581,763,198

d) 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

(in dollars)

Calendar Year	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	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District
	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0
1963	33,309	0	0	0	0	0	0	0	51,711	0
1964	62,847	27,438	16,286	4,369	37,145	1,142	28,427	8,202	82,782	34,973
1965	118,565	52,989	28,459	7,191	40,756	2,081	50,300	15,217	135,023	35,333
1966	215,713	101,232	51,184	12,474	73,129	3,752	90,369	27,670	232,426	61,445
1967	417,348	210,746	98,904	23,464	141,365	7,282	175,119	54,006	433,210	115,536
1968	679,132	419,579	164,991	38,538	231,834	11,777	286,701	87,265	729,615	194,465
1969	986,308	623,243	249,378	57,283	345,252	17,243	426,589	127,179	1,136,053	302,553
1970	1,288,041	780,054	352,336	84,769	487,182	23,419	592,598	171,243	1,690,923	443,566
1971	1,548,953	946,985	471,194	120,171	659,386	28,835	790,147	208,755	2,394,267	619,582
1972	1,682,697	1,056,391	533,559	137,410	749,360	31,296	897,191	226,425	2,824,733	720,754
1973	1,733,186	1,070,858	553,392	142,098	777,217	32,271	931,585	233,266	2,962,112	756,290
1974	1,751,576	1,117,449	562,610	146,284	790,534	32,592	944,027	235,613	3,051,750	776,837
1975	1,774,997	1,131,822	577,197	150,058	812,296	33,006	971,021	238,624	3,134,098	798,523
1976	1,788,124	1,144,406	587,768	152,747	828,555	33,258	991,263	240,355	3,212,183	819,292
1977	1,800,420	1,157,448	595,329	154,643	840,037	33,475	1,005,782	241,933	3,261,176	832,321
1978	1,810,750	1,176,420	600,379	155,959	847,711	33,666	1,015,604	243,300	3,291,289	840,240
1979	1,826,394	1,200,415	604,990	157,091	854,308	33,932	1,024,100	245,268	3,313,131	845,930
1980	1,844,919	1,248,282	609,777	158,201	861,177	34,236	1,033,076	247,529	3,333,678	851,450
1981	1,941,660	1,338,837	636,015	163,962	896,759	35,887	1,077,612	259,794	3,437,581	879,355
1982	1,933,412	1,369,996	632,062	163,511	892,804	35,756	1,072,876	258,797	3,430,256	877,137
1983	2,014,262	1,413,950	648,871	167,528	917,891	37,092	1,104,681	268,810	3,502,625	896,905
1984	2,121,326	1,440,538	670,884	173,418	951,144	38,859	1,142,162	282,045	3,610,884	926,520
1985	2,200,039	1,455,659	686,764	177,751	976,129	40,247	1,173,518	291,645	3,689,629	948,078
1986	2,246,544	1,463,805	698,218	180,934	994,360	40,914	1,205,255	297,120	3,746,498	963,621
1987	2,290,309	1,469,235	709,928	183,911	1,013,034	41,377	1,220,251	301,897	3,800,178	978,277
1988	2,307,717	1,474,730	718,732	186,176	1,027,137	41,664	1,238,246	303,993	3,840,527	989,254
1989	2,321,324	1,483,792	722,401	187,353	1,032,760	41,839	1,245,234	305,378	3,862,773	995,140
1990	2,376,618	1,506,478	741,616	192,411	1,060,538	42,713	1,279,437	311,911	3,934,480	1,014,532
1991	2,412,406	1,526,119	759,874	197,542	1,089,317	43,098	1,314,716	315,436	4,013,699	1,036,030
1992	2,456,548	1,547,359	779,790	203,932	1,121,316	43,730	1,353,471	320,331	4,118,290	1,064,576
1993	2,490,605	1,566,360	794,895	210,923	1,145,092	44,239	1,380,175	324,417	4,229,726	1,095,098
1994	2,525,075	1,584,177	807,651	220,102	1,164,765	44,786	1,399,138	328,384	4,436,172	1,151,256
1995	2,550,681	1,593,135	815,344	225,178	1,176,594	45,178	1,410,957	331,262	4,563,157	1,185,751
1996	2,576,074	1,609,138	823,318	229,455	1,188,534	45,584	1,423,636	334,239	4,670,098	1,214,705
1997	2,592,836	1,620,522	830,201	231,931	1,198,571	45,853	1,435,302	336,210	4,890,575	1,268,272
1998	2,617,453	1,634,405	836,569	233,300	1,208,050	46,264	1,960,073	339,238	5,047,337	1,290,351
1999	2,630,574	1,645,712	840,426	235,602	1,213,780	46,486	1,966,884	340,876	5,246,597	1,307,340
2000	2,646,159	2,799,550	845,840	237,785	1,222,113	46,763	1,977,372	404,656	5,556,215	1,320,327
2001	2,654,237	2,805,476	849,253	239,158	1,227,301	46,915	1,983,935	405,856	6,339,304	1,330,150
2002	2,678,268	2,808,670	852,342	240,066	1,232,158	47,087	1,990,197	407,112	7,459,404	1,335,726
2003	2,688,045	2,816,210	854,621	240,737	1,235,484	47,229	1,994,810	408,286	8,024,736	1,343,149
2004	2,685,105	2,815,909	909,067	240,863	1,235,743	47,176	1,995,319	407,946	8,248,366	1,344,732
2005	2,688,639	2,819,157	6,519,065	241,177	1,995,193	47,238	1,998,034	408,466	8,372,090	1,346,917
2006	2,698,852	2,826,122	6,566,877	241,800	2,004,596	47,408	2,002,065	409,781	8,428,648	1,350,049
2007	2,719,463	2,849,642	6,678,936	244,607	2,030,065	47,758	2,017,179	412,786	8,550,637	1,363,507
2008	2,749,645	2,889,891	7,027,291	249,218	2,098,144	48,270	2,047,499	417,084	8,636,154	1,385,963
2009	2,778,172	2,936,665	7,734,783	252,314	2,211,133	48,754	2,074,440	421,192	8,695,131	1,402,009
2010	2,782,819	2,955,702	7,745,767	252,745	2,214,798	48,840	2,077,815	421,880	8,704,955	1,404,631
2011	2,787,566	2,961,387	7,756,984	253,185	2,218,540	48,927	2,081,262	422,584	8,714,986	1,407,308
2012	2,792,420	2,966,216	7,768,455	253,635	2,222,367	49,016	2,084,787	423,302	8,725,244	1,410,047
2013	2,759,111	2,966,216	7,706,625	253,635	2,200,654	49,016	2,084,787	423,302	8,673,534	1,396,950
2014	2,729,574	2,932,085	7,641,305	249,266	2,184,224	47,874	2,051,899	414,404	8,642,462	1,388,772
2015	2,673,855	2,901,274	7,583,859	246,444	2,160,520	46,935	2,026,381	406,811	8,590,221	1,374,714
2016	2,576,708	2,844,157	7,479,874	241,161	2,117,172	45,264	1,978,918	393,223	8,492,818	1,348,602
2017	2,375,073	2,710,302	7,255,521	230,171	2,025,076	41,734	1,879,436	364,792	8,292,034	1,294,510
2018	2,113,287	2,422,579	6,938,079	215,097	1,900,656	37,238	1,741,905	327,582	7,995,629	1,215,581
2019	1,806,113	2,126,632	6,509,468	196,352	1,740,742	31,773	1,564,632	281,489	7,589,192	1,107,494
2020	1,504,380	1,895,996	5,989,464	168,866	1,542,480	25,597	1,357,585	230,574	7,034,322	966,480
2021	1,243,467	1,648,994	5,342,622	133,464	1,298,959	20,180	1,125,176	187,197	6,330,978	790,465
2022	1,109,723	1,489,510	4,448,578	116,225	1,096,646	17,719	999,846	166,354	5,900,511	689,293
2023	1,059,234	1,481,787	3,750,167	111,537	977,130	16,745	958,630	158,320	5,763,132	653,757
2024	1,040,844	1,422,932	3,635,628	107,351	949,586	16,424	943,720	155,510	5,673,495	633,209
2025	1,017,422	1,405,074	3,522,836	103,577	914,558	16,010	913,930	151,935	5,591,147	611,523
2026	1,004,296	1,386,832	3,420,242	100,888	885,870	15,757	892,231	149,916	5,513,062	590,755
2027	992,000	1,368,326	3,344,957	98,992	865,239	15,541	876,645	148,105	5,464,068	577,726
2028	981,670	1,340,500	3,308,442	97,676	853,317	15,350	866,351	146,589	5,433,955	569,807
2029	966,026	1,302,198	3,277,187	96,544	843,120	15,084	856,834	144,377	5,412,114	564,116
2030	947,501	1,225,009	3,251,693	95,434	833,453	14,780	846,818	141,863	5,391,567	558,597
2031	850,761	1,082,000	3,121,249	89,673	783,797	13,128	791,447	127,705	5,287,663	530,692
2032	859,008	1,030,512	3,131,338	90,124	788,580	13,260	800,469	129,338	5,294,989	532,909
2033	778,157	957,984	3,052,617	86,107	755,131	11,924	765,333	118,675	5,222,619	513,142
2034	671,094	915,761	2,943,321	80,217	710,087	10,157	719,890	104,691	5,114,360	483,526
2035	592,381	894,047	2,860,693	75,884	676,086	8,769	687,252	94,796	5,035,615	461,969
TOTAL	133,969,812	119,211,005	192,436,341	11,939,645	81,896,536	2,362,469	90,712,349	19,042,107	365,536,588	65,730,392

TABLE B-15. Capital Cost Component of Transportation Charge for Each Contractor

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA					
	San Gorgonio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC&WCD	Total	South Bay Area Future Contractor	GRAND 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	690,539	0	775,559	0	0	0	0	0	1,399,620
1964	21,728	1,260,042	9,375	1,594,755	0	0	0	0	0	2,542,689
1965	21,859	2,179,810	17,761	2,705,344	0	0	405	405	0	4,278,292
1966	37,952	3,898,819	33,415	4,839,578	0	0	564	564	0	6,779,273
1967	71,260	7,691,085	68,133	9,507,458	0	0	562	562	0	11,917,277
1968	120,056	14,340,331	133,256	17,437,540	0	0	564	564	0	21,066,091
1969	187,000	21,850,137	202,534	26,510,751	0	0	3,190	3,190	0	31,178,029
1970	274,923	28,982,865	257,777	35,429,696	0	0	15,116	15,116	0	40,379,563
1971	384,903	37,229,879	316,207	45,719,265	0	0	15,942	15,942	0	51,091,274
1972	447,913	44,047,132	353,823	53,708,683	0	0	17,327	17,327	0	60,227,008
1973	470,035	46,283,635	357,228	56,303,173	0	0	17,327	17,327	0	62,828,313
1974	483,106	48,306,053	371,994	58,570,424	0	0	17,329	17,329	0	65,616,575
1975	496,565	49,268,119	376,391	59,762,717	0	0	17,331	17,331	0	67,485,918
1976	509,488	50,120,026	380,667	60,808,133	0	0	17,332	17,332	0	68,622,789
1977	517,576	50,809,655	384,975	61,634,771	0	0	17,335	17,335	0	69,796,447
1978	522,490	51,408,868	390,618	62,337,293	0	0	17,336	17,336	0	71,000,828
1979	526,011	52,212,368	399,522	63,243,460	0	0	17,338	17,338	0	72,441,394
1980	529,414	53,618,983	417,004	64,787,725	0	0	17,339	17,339	0	74,479,550
1981	546,614	56,648,010	449,669	68,311,754	0	0	17,341	17,341	0	78,621,204
1982	545,272	57,445,385	461,087	69,118,350	0	0	17,342	17,342	0	79,910,771
1983	557,430	59,017,274	477,181	71,024,500	0	0	17,343	17,343	0	82,035,076
1984	575,647	60,292,946	486,708	72,713,081	0	0	17,344	17,344	0	84,528,260
1985	588,902	61,123,708	491,961	73,844,031	0	0	17,345	17,345	0	86,350,503
1986	598,458	61,644,854	494,820	74,575,401	0	0	17,347	17,347	0	88,202,697
1987	607,471	62,073,067	496,600	75,185,534	0	0	17,348	17,348	0	91,050,177
1988	614,224	62,431,147	498,461	75,672,007	0	0	17,350	17,350	0	93,144,185
1989	617,863	62,774,359	501,420	76,091,636	0	0	17,353	17,353	0	94,367,142
1990	629,735	63,740,269	509,405	77,340,143	0	0	17,355	17,355	0	96,097,445
1991	642,915	64,654,870	515,984	78,522,006	0	0	17,358	17,358	0	97,670,947
1992	660,417	65,753,514	522,988	79,946,261	0	0	17,361	17,361	0	99,400,146
1993	679,128	66,881,843	529,216	81,371,717	0	0	17,363	17,363	0	101,101,234
1994	713,838	68,462,914	534,886	83,373,145	0	0	17,365	17,365	0	103,870,679
1995	735,201	69,349,548	537,642	84,519,627	0	0	17,366	17,366	0	107,795,145
1996	753,283	70,226,791	541,582	85,636,436	0	0	17,366	17,366	0	117,756,635
1997	813,864	71,506,285	544,296	87,314,718	0	0	17,366	17,366	0	128,020,700
1998	924,386	72,258,544	548,317	88,944,285	0	0	17,366	17,366	0	131,738,189
1999	1,112,635	72,889,545	551,983	90,028,440	0	0	17,366	17,366	0	133,483,962
2000	1,461,010	73,400,470	555,112	92,473,372	0	0	17,367	17,367	0	136,078,258
2001	2,437,980	73,709,810	556,488	94,585,863	0	0	17,367	17,367	0	139,053,526
2002	3,871,429	73,880,967	557,223	97,360,648	0	0	17,367	17,367	0	141,994,884
2003	4,575,059	74,190,253	559,250	98,977,868	0	0	17,367	17,367	0	144,156,226
2004	4,854,707	74,420,558	558,950	99,764,440	0	0	17,367	17,367	0	145,380,154
2005	4,999,448	68,308,736	559,705	100,303,866	0	0	17,367	17,367	0	146,566,415
2006	5,050,938	68,640,735	561,781	100,829,652	0	0	17,367	17,367	0	147,574,592
2007	5,144,935	69,389,059	567,117	102,015,691	0	0	17,367	17,367	0	149,541,107
2008	5,158,843	71,435,700	576,875	104,720,577	0	0	17,367	17,367	0	153,286,469
2009	5,168,725	74,090,116	588,571	108,402,005	0	0	17,367	17,367	0	157,883,419
2010	5,170,349	74,447,933	592,832	108,821,066	0	0	17,367	17,367	0	158,354,354
2011	5,172,007	74,588,576	594,093	109,007,405	0	0	17,367	17,367	0	158,593,665
2012	5,173,702	74,716,314	595,162	109,180,667	0	0	17,367	17,367	0	158,821,099
2013	5,165,553	74,095,931	595,162	108,370,476	0	0	17,367	17,367	0	157,367,169
2014	5,160,499	73,582,068	585,787	107,610,219	0	0	17,367	17,367	0	156,275,513
2015	5,151,843	72,713,673	577,401	106,453,931	0	0	16,962	16,962	0	154,487,054
2016	5,135,750	71,086,870	561,747	104,302,264	0	0	16,802	16,802	0	151,963,317
2017	5,102,443	67,495,033	527,028	99,593,153	0	0	16,805	16,805	0	146,777,490
2018	5,053,646	61,131,002	461,906	91,554,187	0	0	16,802	16,802	0	138,078,385
2019	4,986,703	54,011,793	392,628	82,345,011	0	0	14,177	14,177	0	128,452,987
2020	4,898,780	47,352,292	337,385	73,304,201	0	0	2,251	2,251	0	119,259,123
2021	4,788,799	39,686,903	278,955	62,876,159	0	0	1,425	1,425	0	108,779,347
2022	4,725,790	33,513,981	241,339	54,515,515	0	0	40	40	0	100,392,854
2023	4,703,667	32,040,758	237,934	51,912,798	0	0	39	39	0	97,741,782
2024	4,690,597	30,137,849	223,168	49,630,313	0	0	38	38	0	95,443,986
2025	4,677,138	29,287,218	218,771	48,431,139	0	0	36	36	0	94,216,865
2026	4,664,214	28,539,731	214,495	47,378,289	0	0	34	34	0	93,143,305
2027	4,656,126	27,926,950	210,187	46,544,862	0	0	32	32	0	92,279,700
2028	4,651,212	27,363,438	204,544	45,832,851	0	0	30	30	0	91,523,023
2029	4,647,691	26,590,172	195,640	44,911,103	0	0	29	29	0	90,564,768
2030	4,644,288	25,207,056	178,158	43,336,217	0	0	27	27	0	88,940,291
2031	4,627,089	22,296,272	145,493	39,746,969	0	0	26	26	0	85,232,141
2032	4,628,431	21,491,934	134,075	38,924,967	0	0	24	24	0	84,393,309
2033	4,616,273	19,990,297	117,981	36,986,240	0	0	24	24	0	82,369,508
2034	4,598,055	18,813,667	108,453	35,273,279	0	0	23	23	0	80,456,318
2035	4,584,801	18,058,646	103,201	34,134,140	0	0	21	21	0	78,966,677
TOTAL	187,338,078	3,661,005,978	28,439,483	4,959,620,785	0	0	868,230	868,230	0	7,132,665,096

TABLE B-16A. Minimum OMP&R Component of Transportation Charge for Each Contractor

(in 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	9.699	8.868	21.132	39.699	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	195.793	349.938	0	0	0
1966	0	0	0	79.753	78.779	218.543	377.075	0	0	0
1967	0	0	0	127.896	123.667	335.224	586.787	0	0	0
1968	130	0	130	126.058	120.563	333.506	580.127	11.800	21.770	33.570
1969	80.875	0	80.875	145.411	138.050	372.585	656.046	63.113	116.435	179.548
1970	94.872	0	94.872	128.993	120.245	320.664	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	79.196	146.107	225.303
1973	32.993	0	32.993	122.738	116.785	325.726	565.249	75.714	139.683	215.397
1974	46.498	0	46.498	154.435	146.929	403.080	704.444	76.530	141.189	217.719
1975	37.707	0	37.707	189.175	182.087	513.823	885.085	92.605	170.845	263.450
1976	60.786	0	60.786	203.064	193.435	524.813	921.312	94.935	175.144	270.079
1977	78.400	0	78.400	179.869	169.065	500.101	849.035	102.945	189.922	292.867
1978	56.318	0	56.318	239.301	228.855	647.828	1.115.984	104.060	191.978	296.038
1979	73.852	0	73.852	236.986	232.105	666.742	1.135.833	100.748	185.868	286.616
1980	81.769	0	81.769	389.575	372.185	1.010.830	1.772.590	126.328	233.105	359.433
1981	101.340	0	101.340	317.408	302.272	834.257	1.453.937	140.208	258.712	398.920
1982	191.987	0	191.987	386.742	369.633	1.098.844	1.855.219	142.045	262.101	404.146
1983	80.215	0	80.215	438.536	428.973	1.269.373	2.136.882	171.001	315.523	486.524
1984	106.485	0	106.485	591.243	565.721	1.817.629	2.974.593	201.768	372.284	574.052
1985	215.341	0	215.341	674.975	655.490	1.840.211	3.170.676	242.935	448.233	691.168
1986	203.704	0	203.704	613.273	583.077	1.784.056	2.980.406	233.000	429.904	662.904
1987	295.505	0	295.505	687.629	652.468	2.000.817	3.340.914	230.484	463.838	694.322
1988	312.677	(58)	312.619	676.847	655.274	1.910.092	3.242.213	258.807	561.030	819.837
1989	403.330	688.185	1.091.515	716.831	712.354	1.897.149	3.326.334	244.772	668.476	913.248
1990	658.942	674.944	1.333.886	782.589	780.305	2.129.966	3.692.860	310.222	677.025	987.247
1991	726.717	860.903	1.587.620	543.178	524.741	1.520.569	2.588.488	302.369	673.858	976.227
1992	483.580	712.313	1.195.893	796.058	855.050	2.253.496	3.904.604	346.220	736.477	1.082.697
1993	524.000	708.129	1.232.129	1.280.736	1.261.431	3.338.742	5.880.909	386.060	734.138	1.120.198
1994	573.815	658.277	1.232.092	1.368.651	1.312.740	3.560.294	6.241.685	481.022	888.288	1.369.310
1995	539.407	660.770	1.200.177	1.232.272	1.187.201	3.216.470	5.635.943	477.929	881.323	1.359.252
1996	604.992	1.011.298	1.616.290	1.185.220	1.124.968	3.007.330	5.317.518	649.161	1.197.179	1.846.340
1997	563.579	741.881	1.305.460	1.029.670	968.999	2.667.649	4.666.318	406.652	749.805	1.156.457
1998	461.929	661.478	1.123.407	1.064.804	1.174.966	3.502.898	5.742.668	810.178	2.963.766	3.773.944
1999	605.754	993.840	1.599.594	1.221.279	1.262.915	5.074.641	7.558.835	793.094	3.042.686	3.835.780
2000	776.091	1.492.976	2.269.067	2.174.362	1.295.738	3.755.201	7.225.301	714.603	3.446.638	4.161.241
2001	650.709	1.442.691	2.093.400	2.031.962	1.037.198	3.542.165	6.611.325	732.910	3.127.544	3.860.454
2002	1.097.797	1.872.282	2.970.079	2.451.182	1.358.411	6.061.824	9.871.417	770.413	3.588.248	4.358.661
2003	1.168.105	2.246.243	3.414.348	2.255.838	1.056.691	3.546.786	6.859.315	816.900	3.745.271	4.562.171
2004	1.618.445	2.345.386	3.963.831	2.583.387	1.278.759	3.533.253	7.395.399	821.144	3.751.765	4.572.909
2005	917.325	1.801.406	2.718.731	2.396.749	1.132.232	2.953.491	6.482.472	878.460	4.206.062	5.084.522
2006	1.256.135	2.187.625	3.443.760	2.510.725	1.184.819	3.442.338	7.137.882	871.307	4.057.667	4.928.974
2007	1.311.373	2.281.548	3.592.921	2.725.851	1.275.964	3.714.055	7.715.870	903.832	4.197.826	5.101.658
2008	1.344.867	2.339.566	3.684.433	2.821.795	1.319.240	3.858.521	7.999.556	922.744	4.353.138	5.275.882
2009	820.615	1.344.204	2.164.819	2.683.059	1.302.918	3.631.480	7.617.457	743.922	2.761.942	3.505.864
2010	820.489	1.343.879	2.164.368	2.682.874	1.302.916	3.631.526	7.617.316	743.836	2.761.491	3.505.327
2011	823.419	1.348.980	2.172.399	2.693.598	1.307.630	3.644.624	7.645.852	746.443	2.770.518	3.516.961
2012	823.611	1.349.332	2.172.943	2.694.148	1.307.873	3.645.284	7.647.305	746.605	2.771.171	3.517.776
2013	824.121	1.350.394	2.174.515	2.695.297	1.308.255	3.646.248	7.649.800	746.995	2.772.915	3.519.910
2014	824.368	1.351.165	2.175.533	2.695.377	1.308.014	3.645.404	7.648.795	747.127	2.773.829	3.520.956
2015	824.986	1.352.171	2.177.157	2.697.367	1.308.998	3.648.161	7.654.526	747.676	2.775.886	3.523.562
2016	823.950	1.350.379	2.174.329	2.694.239	1.307.533	3.644.106	7.645.878	746.781	2.772.407	3.519.188
2017	824.366	1.351.122	2.175.488	2.695.452	1.308.083	3.645.618	7.649.153	747.135	2.773.809	3.520.944
2018	824.963	1.352.369	2.177.332	2.696.804	1.308.534	3.646.751	7.652.089	747.594	2.775.856	3.523.450
2019	823.881	1.350.429	2.174.310	2.693.686	1.307.133	3.642.912	7.643.731	746.679	2.772.212	3.518.891
2020	824.615	1.351.567	2.176.182	2.696.150	1.308.392	3.646.465	7.651.007	747.342	2.774.640	3.521.982
2021	825.016	1.352.105	2.177.121	2.697.660	1.309.226	3.648.850	7.655.736	747.724	2.775.945	3.523.669
2022	824.782	1.352.045	2.176.827	2.696.283	1.308.301	3.646.113	7.650.697	747.441	2.775.246	3.522.687
2023	824.015	1.350.460	2.174.475	2.694.481	1.307.669	3.644.495	7.646.645	746.841	2.772.609	3.519.450
2024	824.321	1.351.124	2.175.445	2.695.140	1.307.867	3.644.975	7.647.982	747.074	2.773.670	3.520.744
2025	825.181	1.352.492	2.177.673	2.697.955	1.309.280	3.648.948	7.656.183	747.842	2.776.524	3.524.366
2026	823.643	1.350.034	2.173.677	2.692.935	1.306.768	3.641.891	7.641.594	746.469	2.771.418	3.517.887
2027	826.304	1.354.301	2.180.605	2.701.588	1.311.086	3.654.012	7.666.686	748.840	2.780.253	3.529.093
2028	823.561	1.349.965	2.173.526	2.692.540	1.306.523	3.641.176	7.640.239	746.380	2.771.157	3.517.537
2029	824.666	1.351.596	2.176.262	2.696.423	1.308.569	3.646.983	7.651.975	747.401	2.774.801	3.522.202
2030	823.880	1.350.220	2.174.100	2.694.090	1.307.492	3.644.009	7.645.591	746.728	2.772.160	3.518.888
2031	826.545	1.354.907	2.181.452	2.701.934	1.311.090	3.653.925	7.666.949	748.999	2.781.099	3.530.098
2032	823.095	1.349.222	2.172.317	2.691.025	1.305.765	3.639.048	7.635.838	745.966	2.769.615	3.515.581
2033	824.776	1.351.653	2.176.429	2.697.012	1.308.953	3.648.114	7.654.079	747.527	2.775.131	3.522.658
2034	824.912	1.352.084	2.176.996	2.697.047	1.308.811	3.647.621	7.653.479	747.599	2.775.641	3.523.240
2035	823.211	1.349.399	2.172.610	2.691.421	1.305.970	3.639.625	7.637.016	746.071	2.769.998	3.516.069
TOTAL	40,773,112	62,849,281	103,622,393	113,041,533	64,233,453	184,735,457	362,010,443	35,503,449	127,656,202	163,159,651

TABLE B-16A. Minimum OMP&R Component of Transportation Charge for Each Contractor

(in dollars)

Calendar Year	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	Total
				Municipal and Industrial	Agricultural				
	[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	60,701	678,086	2,008	2,073	77,591	865,867
1969	45,479	2,235	30,158	80,554	1,197,126	2,286	2,085	90,773	1,450,696
1970	46,969	2,292	35,450	96,673	1,381,493	2,344	2,158	93,408	1,660,787
1971	47,997	2,314	35,366	106,654	1,643,163	2,366	2,288	94,874	1,935,022
1972	49,866	2,414	37,844	122,313	1,729,169	2,469	2,254	98,777	2,045,106
1973	50,006	2,385	36,180	125,553	1,719,873	2,440	2,310	98,330	2,037,077
1974	52,818	2,556	36,570	135,661	1,823,065	2,614	2,529	104,609	2,160,422
1975	66,963	3,243	44,251	162,738	2,235,242	3,317	3,191	132,663	2,651,608
1976	66,504	3,328	45,364	159,303	2,215,999	3,404	2,919	133,940	2,630,761
1977	75,595	3,812	49,192	189,661	2,522,290	3,898	3,708	152,838	3,000,994
1978	70,688	3,503	49,725	174,897	2,427,163	3,583	3,644	141,672	2,874,875
1979	68,879	3,436	48,142	173,677	2,378,315	3,514	3,492	138,493	2,817,948
1980	95,898	4,722	59,551	235,741	3,146,570	4,830	4,777	191,582	3,743,671
1981	118,448	5,965	66,183	266,353	3,440,557	6,099	5,187	239,323	4,148,115
1982	134,083	6,711	67,061	311,879	3,848,922	6,862	6,382	270,061	4,651,961
1983	184,902	9,242	80,869	426,485	5,030,031	9,450	8,494	372,182	6,121,655
1984	194,228	9,656	95,555	471,854	5,636,134	9,874	8,719	389,892	6,815,912
1985	200,694	9,957	115,227	486,162	6,042,593	10,182	8,982	402,457	7,276,254
1986	207,028	10,302	110,479	530,803	6,372,710	10,536	10,341	415,776	7,667,975
1987	205,002	10,259	109,401	533,451	6,378,437	10,493	10,517	412,889	7,670,449
1988	203,711	10,223	122,903	516,432	6,388,497	10,455	10,341	410,868	7,673,430
1989	224,049	11,269	116,197	564,169	6,747,046	11,526	11,102	452,406	8,137,764
1990	271,051	13,666	148,238	664,040	8,111,616	13,976	13,206	547,974	9,783,767
1991	275,748	13,854	144,486	662,755	8,111,610	14,168	13,218	556,474	9,792,313
1992	317,889	16,027	162,466	764,224	9,115,453	16,393	18,209	642,672	11,053,333
1993	359,879	17,989	184,477	831,662	10,372,245	18,399	19,560	724,397	12,528,608
1994	309,099	15,487	224,254	738,622	9,789,905	15,840	16,434	622,912	11,732,553
1995	395,441	19,918	220,899	898,339	11,190,121	20,373	21,551	799,070	13,565,712
1996	392,055	19,968	301,835	902,162	12,199,788	20,424	21,664	796,711	14,654,607
1997	396,222	20,154	186,450	942,987	10,974,350	20,613	19,344	806,084	13,366,204
1998	489,209	24,563	288,941	1,098,336	12,675,458	25,125	21,596	995,325	15,618,553
1999	409,335	20,884	272,299	963,313	11,345,079	21,360	21,509	832,557	13,886,336
2000	414,557	21,089	207,531	1,020,792	10,386,585	21,569	22,694	841,923	12,936,740
2001	499,979	25,444	231,676	1,208,436	11,751,169	26,023	31,679	1,015,604	14,790,010
2002	457,889	21,551	224,731	1,079,700	10,693,217	22,041	25,564	812,862	13,337,555
2003	529,663	25,088	242,320	1,173,085	11,744,825	25,660	30,579	940,416	14,711,636
2004	486,184	23,155	246,564	1,139,332	11,300,426	63,079	25,920	748,385	14,033,045
2005	457,614	21,856	259,209	1,009,776	10,750,554	59,437	24,302	705,662	13,288,410
2006	512,780	24,420	258,532	1,170,293	11,786,416	75,629	27,010	786,760	14,641,840
2007	544,467	25,943	269,257	1,227,111	12,416,935	80,132	28,623	835,647	15,428,115
2008	579,116	27,611	280,315	1,204,684	13,090,546	85,037	30,298	889,177	16,186,784
2009	429,519	19,884	261,723	972,167	10,717,619	64,350	22,707	647,384	13,135,353
2010	429,406	19,879	261,689	971,939	10,715,267	64,334	22,705	647,215	13,132,434
2011	431,271	19,965	262,671	975,864	10,758,692	64,608	22,781	650,031	13,185,883
2012	431,371	19,970	262,729	976,094	10,761,201	64,623	22,785	650,181	13,188,954
2013	431,706	19,985	262,873	976,815	10,768,830	64,671	22,794	650,682	13,198,356
2014	431,997	19,998	262,932	977,374	10,774,432	64,710	22,798	651,117	13,205,358
2015	432,256	20,010	263,123	978,010	10,781,554	64,750	22,810	651,504	13,214,017
2016	431,768	19,988	262,808	976,855	10,768,811	64,677	22,790	650,773	13,198,470
2017	431,975	19,997	262,934	977,337	10,774,095	64,708	22,798	651,084	13,204,928
2018	432,369	20,015	263,103	978,183	10,783,051	64,764	22,809	651,672	13,215,966
2019	431,822	19,990	262,779	976,918	10,769,228	64,683	22,788	650,855	13,199,063
2020	432,102	20,003	263,007	977,628	10,777,270	64,726	22,803	651,273	13,208,812
2021	432,211	20,008	263,135	977,946	10,781,027	64,745	22,811	651,437	13,213,320
2022	432,276	20,011	263,049	977,969	10,780,720	64,750	22,805	651,534	13,213,114
2023	431,782	19,988	262,828	976,900	10,769,356	64,679	22,791	650,795	13,199,119
2024	431,996	19,998	262,915	977,355	10,774,152	64,710	22,797	651,116	13,205,039
2025	432,341	20,014	263,181	978,214	10,783,817	64,763	22,814	651,631	13,216,775
2026	431,719	19,986	262,706	976,667	10,766,430	64,667	22,783	650,700	13,195,658
2027	432,804	20,035	263,526	979,358	10,796,647	64,834	22,836	652,324	13,232,364
2028	431,717	19,985	262,677	976,636	10,765,959	64,666	22,781	650,697	13,195,118
2029	432,095	20,003	263,025	977,636	10,777,454	64,726	22,804	651,264	13,209,007
2030	431,716	19,985	262,788	976,746	10,767,665	64,669	22,789	650,696	13,197,054
2031	433,015	20,045	263,590	979,784	10,801,028	64,864	22,840	652,640	13,237,806
2032	431,528	19,977	262,534	976,167	10,760,690	64,637	22,772	650,415	13,188,720
2033	432,079	20,002	263,065	977,648	10,777,812	64,726	22,806	651,240	13,209,378
2034	432,242	20,010	263,097	977,961	10,780,938	64,748	22,808	651,484	13,213,288
2035	431,571	19,979	262,570	976,277	10,761,944	64,643	22,775	650,479	13,190,238
TOTAL	22,204,444	1,060,164	12,848,844	51,009,811	573,584,468	2,516,259	1,165,833	37,388,239	701,778,062

TABLE B-16A. Minimum OMP&R Component of Transportation Charge for Each Contractor

(in dollars)

Calendar Year	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	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District
	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[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	65,074	28,085	11,697	2,958	19,291	1,089	24,380	8,173	52,315	14,399
1969	86,339	70,342	15,522	3,925	25,598	1,445	32,348	10,844	69,419	19,106
1970	107,807	84,577	19,392	4,904	31,981	1,804	40,391	13,540	86,727	23,865
1971	178,820	105,979	32,228	8,150	53,151	2,992	66,999	22,459	144,136	39,636
1972	363,555	202,625	106,740	30,967	176,037	6,601	213,032	48,102	548,123	144,113
1973	404,661	222,765	121,341	34,674	200,116	7,346	243,320	53,975	724,535	190,156
1974	434,868	235,528	130,627	37,062	215,432	7,677	262,735	56,383	786,107	207,019
1975	504,791	289,501	151,031	43,176	249,082	9,082	303,108	65,580	905,424	238,842
1976	559,013	262,420	160,686	44,454	265,004	10,030	325,512	73,253	964,524	256,570
1977	675,504	335,749	184,813	47,743	304,792	11,890	381,161	87,355	1,069,446	289,793
1978	600,343	376,946	187,028	54,156	308,449	10,711	373,192	78,304	1,148,279	300,751
1979	661,123	349,072	196,264	52,211	323,677	12,124	401,469	87,126	1,125,452	302,508
1980	858,039	415,571	253,090	71,921	417,398	15,435	508,379	112,853	1,518,405	401,223
1981	1,001,503	511,087	284,970	73,534	469,970	18,046	588,024	131,992	1,548,350	420,523
1982	1,128,643	557,494	320,938	89,560	529,292	20,193	649,204	148,012	1,870,559	497,871
1983	1,744,932	832,687	450,049	119,275	742,218	30,643	922,072	225,793	2,373,149	639,682
1984	2,105,780	943,524	548,784	150,179	905,055	36,810	1,112,196	271,187	3,018,294	803,394
1985	2,157,936	1,055,744	584,697	157,841	964,282	38,972	1,191,309	277,250	3,230,403	860,780
1986	2,311,841	1,102,466	618,750	162,748	1,020,438	40,051	1,268,806	295,987	3,318,638	893,069
1987	2,366,343	1,032,918	628,222	167,262	1,036,061	41,773	1,283,836	307,844	3,400,838	913,933
1988	2,303,274	1,042,113	649,276	175,694	1,070,784	40,604	1,321,553	298,438	3,587,873	960,968
1989	2,280,051	1,088,176	613,266	169,993	1,011,401	39,501	1,240,888	292,775	3,499,964	932,519
1990	2,636,186	1,275,150	708,829	201,242	1,169,006	45,472	1,424,445	336,069	4,084,211	1,078,392
1991	2,737,441	1,454,172	763,989	210,644	1,259,974	48,936	1,546,583	358,165	4,348,900	1,150,633
1992	2,781,586	1,579,025	750,248	198,232	1,237,307	49,829	1,538,733	362,844	4,131,745	1,115,632
1993	3,109,819	1,689,775	850,589	234,719	1,402,796	56,125	1,722,415	411,539	5,023,595	1,338,111
1994	2,825,181	1,609,511	795,078	225,270	1,311,244	51,258	1,634,795	376,175	4,797,440	1,268,058
1995	3,121,440	1,720,649	848,101	231,718	1,398,686	58,749	1,766,297	444,998	4,828,432	1,272,345
1996	3,093,678	1,966,634	862,720	228,008	1,422,789	56,813	1,817,427	423,444	4,707,473	1,256,549
1997	3,250,394	1,810,292	918,428	281,067	1,514,687	59,547	1,853,224	446,127	5,705,741	1,477,757
1998	3,876,893	2,050,491	1,070,620	299,667	1,765,661	73,841	3,208,176	561,294	6,077,011	1,635,115
1999	3,757,844	2,077,696	1,097,945	308,176	1,810,727	74,274	3,177,408	538,581	6,389,002	1,718,172
2000	3,753,245	3,381,437	1,035,666	291,684	1,708,021	68,473	3,000,250	594,938	5,873,262	1,571,225
2001	4,457,941	3,768,942	1,110,674	297,870	1,831,713	80,824	3,284,565	699,672	5,752,335	1,554,602
2002	3,642,409	3,495,416	1,018,470	282,635	1,679,659	62,597	3,002,723	549,856	5,635,219	1,511,997
2003	4,060,267	3,386,319	1,121,573	298,335	1,849,687	67,913	3,289,616	607,514	5,906,716	1,602,981
2004	4,454,661	4,040,877	1,440,024	320,549	1,902,951	76,867	3,426,241	678,148	6,597,217	1,755,989
2005	4,216,104	3,658,879	6,193,536	303,509	2,377,681	73,029	3,039,129	628,576	6,333,028	1,668,667
2006	4,155,326	3,540,504	8,022,820	335,035	2,828,454	70,084	3,418,049	626,718	6,718,868	1,776,711
2007	4,305,820	3,871,198	8,243,539	352,356	2,946,130	72,655	3,572,917	649,392	7,049,137	1,863,361
2008	4,355,289	3,961,701	8,308,309	347,258	2,948,669	74,742	3,559,581	655,662	6,979,549	1,862,020
2009	3,710,389	3,427,980	6,619,424	272,649	2,345,267	65,711	2,932,427	569,675	5,774,016	1,531,927
2010	3,709,181	3,423,932	6,709,202	267,539	2,350,345	65,682	2,931,072	569,465	5,683,199	1,513,987
2011	3,722,280	3,441,214	6,610,069	274,282	2,349,817	65,929	2,942,235	571,520	5,805,911	1,539,498
2012	3,723,342	3,436,554	6,662,295	270,294	2,352,362	65,951	2,943,211	571,692	5,735,213	1,525,852
2013	3,726,921	3,452,950	6,731,739	259,393	2,350,036	66,032	2,946,887	572,293	5,541,762	1,488,692
2014	3,730,088	3,445,500	6,658,603	280,205	2,368,037	66,114	2,950,672	572,857	5,911,448	1,561,448
2015	3,732,755	3,443,347	6,701,033	259,951	2,349,437	66,161	2,952,771	573,265	5,552,211	1,491,654
2016	3,727,717	3,456,931	6,638,770	282,950	2,367,753	66,065	2,948,453	572,473	5,959,891	1,570,563
2017	3,729,888	3,453,100	6,807,971	268,195	2,373,152	66,108	2,950,391	572,819	5,698,059	1,519,768
2018	3,734,063	3,453,858	6,669,766	272,402	2,361,809	66,202	2,954,673	573,519	5,773,155	1,535,096
2019	3,728,398	3,466,267	6,844,528	282,917	2,396,235	66,089	2,949,590	572,614	5,959,001	1,570,598
2020	3,731,220	3,462,467	6,576,107	269,188	2,343,605	66,135	2,951,607	573,033	5,715,931	1,523,437
2021	3,732,283	3,437,936	6,652,326	257,038	2,338,788	66,145	2,952,037	573,171	5,500,606	1,481,454
2022	3,733,151	3,439,304	6,949,885	270,450	2,396,880	66,184	2,953,869	573,375	5,738,286	1,528,175
2023	3,727,892	3,446,329	6,680,573	282,318	2,372,614	66,067	2,948,530	572,496	5,948,745	1,568,394
2024	3,730,185	3,473,492	6,758,310	268,200	2,366,805	66,119	2,950,928	572,883	5,697,992	1,519,856
2025	3,733,679	3,419,471	6,559,726	270,750	2,344,067	66,178	2,953,558	573,410	5,744,338	1,529,250
2026	3,727,361	3,471,847	6,942,802	283,698	2,410,165	66,071	2,948,764	572,455	5,972,623	1,573,140
2027	3,738,417	3,356,165	6,470,895	266,634	2,328,310	66,260	2,957,230	574,131	5,672,507	1,515,739
2028	3,727,360	3,574,905	6,705,602	257,288	2,345,568	66,076	2,948,984	572,469	5,503,084	1,481,586
2029	3,731,150	3,406,103	6,720,809	281,826	2,378,642	66,130	2,951,370	573,011	5,940,664	1,567,233
2030	3,727,210	3,446,341	6,737,723	282,892	2,380,786	66,054	2,947,926	572,388	5,958,822	1,570,271
2031	3,740,713	3,360,057	6,932,953	250,923	2,372,599	66,316	2,959,812	574,531	5,393,296	1,461,690
2032	3,725,426	3,572,598	6,542,151	281,265	2,352,690	66,042	2,947,503	572,175	5,928,645	1,564,409
2033	3,730,925	3,415,934	6,763,325	265,220	2,363,347	66,117	2,950,763	572,950	5,645,824	1,509,591
2034	3,732,695	3,448,436	6,689,450	262,906	2,351,661	66,163	2,952,883	573,266	5,604,599	1,501,904
2035	3,725,905	3,472,360	6,988,716	299,917	2,436,266	66,051	2,947,862	572,248	6,260,282	1,629,157
TOTAL	192,162,358	154,589,415	232,755,322	14,291,651	108,552,394	3,410,999	141,662,496	28,377,121	297,549,951	79,203,406

TABLE B-16A. Minimum OMP&R Component of Transportation Charge for Each Contractor

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA					
	San Gorgonio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC&WCD	Total	South Bay Area Future Contractor	GRAND 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	3,219	42,918
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	378,875
1966	0	0	0	0	0	0	0	0	31,321	408,396
1967	0	0	0	0	0	0	0	0	47,718	634,505
1968	8,821	972,734	9,504	1,218,520	0	0	0	0	46,945	2,745,159
1969	11,704	1,295,607	12,610	1,654,809	0	0	0	0	52,963	4,074,937
1970	14,623	1,624,569	15,746	2,069,926	0	0	0	0	69,744	4,676,285
1971	24,302	2,716,584	26,118	3,421,554	0	0	54	54	55,532	6,185,714
1972	89,131	8,038,463	68,369	10,035,858	0	0	40	40	80,412	12,998,870
1973	117,779	9,890,316	78,313	12,289,297	0	0	1	1	54,219	15,194,233
1974	128,169	11,581,491	83,453	14,166,551	0	0	143	143	76,783	17,372,560
1975	147,899	13,584,548	101,893	16,593,957	0	0	1,069	1,069	84,547	20,517,423
1976	158,664	12,862,489	94,799	16,037,418	0	0	139	139	106,717	20,027,212
1977	178,774	16,203,699	121,966	19,892,685	0	0	892	892	98,618	24,213,491
1978	186,384	17,811,770	132,435	21,568,748	0	0	39	39	100,786	26,012,788
1979	186,688	16,414,289	126,756	20,238,759	0	0	3,235	3,235	119,352	24,675,595
1980	248,399	20,926,898	154,096	25,901,707	0	0	416	416	178,812	32,038,398
1981	259,244	23,731,024	186,592	29,224,859	0	0	3,847	3,847	185,347	35,516,365
1982	307,955	27,994,510	209,141	34,323,372	0	0	11,075	11,075	173,894	41,611,654
1983	394,524	38,953,367	326,258	47,754,649	0	0	1,928	1,928	220,926	56,802,779
1984	496,808	45,597,671	382,104	56,371,786	0	0	3,765	3,765	225,959	67,072,552
1985	531,765	50,064,444	416,652	61,532,075	0	0	2,888	2,888	340,322	73,228,724
1986	551,066	52,858,915	442,334	64,885,109	0	0	2,787	2,787	279,227	76,682,112
1987	564,352	50,737,631	411,276	62,892,289	0	0	2,388	2,388	345,116	75,240,983
1988	593,787	51,262,231	406,248	63,712,843	0	0	545	545	365,207	76,126,694
1989	576,852	52,638,942	431,020	64,815,348	0	0	1,800	1,800	422,329	78,708,338
1990	667,687	61,053,824	494,721	75,175,234	0	0	788	788	474,284	91,448,066
1991	711,803	60,874,529	470,139	75,935,908	0	0	3,654	3,654	214,683	91,098,893
1992	688,558	67,460,598	502,131	82,396,468	0	0	647	647	443,676	100,077,318
1993	828,208	68,749,547	538,751	85,955,989	0	0	3,630	3,630	599,571	107,321,034
1994	784,017	63,928,225	474,133	80,080,385	0	0	2,279	2,279	609,932	101,268,236
1995	785,191	68,079,888	523,512	85,080,006	0	0	2,906	2,906	534,971	107,378,967
1996	773,653	72,757,439	561,100	89,927,727	0	0	8,007	8,007	571,857	113,942,346
1997	917,372	75,655,465	564,455	94,454,556	0	0	7,449	7,449	428,638	115,385,082
1998	1,000,665	80,549,464	608,366	102,777,264	0	0	798	798	465,140	129,501,774
1999	1,054,800	84,857,717	627,858	107,490,200	0	0	416	416	559,344	134,930,505
2000	964,052	82,467,206	635,833	105,345,292	0	0	505	505	0	131,938,146
2001	948,812	92,865,248	708,297	117,361,495	0	0	319	319	0	144,717,003
2002	923,393	85,334,068	657,014	107,795,456	0	0	3,627	3,627	0	138,336,795
2003	987,904	82,216,721	620,034	106,015,580	0	0	3,393	3,393	0	135,566,443
2004	1,086,161	99,273,497	762,493	125,815,675	0	0	3,455	3,455	0	155,784,314
2005	1,032,743	77,179,085	676,642	107,380,608	0	0	3,451	3,451	0	134,958,194
2006	1,100,491	80,245,197	641,197	113,479,454	0	0	3,100	3,100	0	143,635,010
2007	1,154,410	89,081,067	717,166	123,879,148	0	0	3,200	3,200	0	155,720,912
2008	1,148,769	90,101,936	745,224	125,048,709	0	0	3,250	3,250	0	158,198,614
2009	948,363	76,162,042	639,529	104,999,399	0	0	3,300	3,300	0	131,426,192
2010	936,639	75,986,086	638,505	104,784,834	0	0	3,300	3,300	0	131,207,579
2011	953,139	76,447,358	642,141	105,365,393	0	0	3,300	3,300	0	131,889,788
2012	944,176	76,209,618	640,852	105,081,412	0	0	3,300	3,300	0	131,611,690
2013	919,746	76,273,661	645,010	104,975,122	0	0	3,300	3,300	0	131,521,003
2014	967,331	76,875,747	642,960	106,031,010	0	0	3,300	3,300	0	132,584,952
2015	921,557	75,894,449	642,201	104,580,792	0	0	3,300	3,300	0	131,153,354
2016	973,350	77,332,925	646,104	106,543,945	0	0	3,300	3,300	0	133,085,110
2017	940,027	76,822,158	644,964	105,846,600	0	0	3,300	3,300	0	132,400,413
2018	949,976	76,730,676	644,973	105,720,168	0	0	3,300	3,300	0	132,292,305
2019	973,343	78,009,170	648,582	107,467,332	0	0	3,300	3,300	0	134,006,627
2020	942,405	76,675,943	647,355	105,478,433	0	0	3,300	3,300	0	132,039,716
2021	914,892	75,502,210	640,770	104,049,656	0	0	3,300	3,300	0	130,622,802
2022	945,457	76,768,224	641,195	106,004,435	0	0	3,300	3,300	0	132,571,060
2023	971,928	77,068,582	643,292	106,297,760	0	0	3,300	3,300	0	132,840,749
2024	940,069	77,327,515	650,350	106,322,704	0	0	3,300	3,300	0	132,875,214
2025	946,177	75,415,231	635,851	104,191,686	0	0	3,300	3,300	0	130,769,983
2026	975,025	78,417,853	650,126	108,011,930	0	0	3,300	3,300	0	134,544,046
2027	937,256	73,110,322	618,824	101,612,690	0	0	3,300	3,300	0	128,224,738
2028	915,025	79,741,621	677,305	108,516,873	0	0	3,300	3,300	0	135,046,593
2029	971,110	75,895,480	632,489	105,116,017	0	0	3,300	3,300	0	131,678,763
2030	973,170	77,216,694	643,337	106,523,614	0	0	3,300	3,300	0	133,062,547
2031	901,779	73,361,600	619,769	101,996,038	0	0	3,300	3,300	0	128,615,643
2032	969,323	80,521,985	676,840	109,721,052	0	0	3,300	3,300	0	136,236,808
2033	933,357	75,475,512	635,049	104,327,914	0	0	3,300	3,300	0	130,893,758
2034	928,269	76,166,029	643,565	104,921,826	0	0	3,300	3,300	0	131,492,129
2035	1,011,744	79,318,620	650,393	109,379,521	0	0	3,300	3,300	0	135,898,754
TOTAL	48,941,012	4,081,220,224	33,149,080	5,415,865,429	0	0	181,025	181,025	8,723,612	6,755,340,615

TABLE B-16B. Minimum OMP&R Component of Transportation Charge for Each Contractor for Off-Aqueduct Power Facilities

(in 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]
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	2,696,450	3,737,556	0	0	0
1986	45,887	0	45,887	312,938	365,147	2,595,765	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	89,214	247,977	337,191	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	235,605	332,447	833,227	492,578	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	48,518	193,255	241,773	455,751	294,951	1,220,497	1,971,199	44,788	298,986	343,774
1998	82,317	251,217	333,534	380,321	380,282	1,103,662	1,864,265	198,376	1,028,220	1,226,596
1999	58,017	195,562	253,579	559,900	446,655	1,039,572	2,046,127	147,204	791,946	939,150
2000	28,759	128,393	157,152	374,808	237,138	748,820	1,360,766	82,628	474,268	556,896
2001	81,300	156,491	237,791	394,562	232,158	860,678	1,487,398	133,971	592,623	726,594
2002	40,384	128,219	168,603	384,774	230,122	521,729	1,136,625	91,976	586,079	678,055
2003	38,551	95,034	133,585	309,137	185,287	659,690	1,154,114	80,724	488,877	569,601
2004	50,258	128,102	178,360	447,529	209,965	546,009	1,203,503	92,779	661,706	754,485
2005	65,505	165,913	231,418	501,846	295,003	842,594	1,639,443	115,120	669,867	784,987
2006	119,936	226,400	346,336	573,936	384,893	730,995	1,689,824	701,594	952,682	1,654,276
2007	163,361	222,650	386,011	825,308	469,513	897,792	2,192,613	166,669	1,571,541	1,738,210
2008	277,105	331,613	608,718	1,162,734	573,067	1,168,174	2,903,975	997,305	1,814,537	2,811,842
2009	259,103	188,581	447,684	1,154,210	577,061	1,159,610	2,890,881	989,994	1,801,235	2,791,229
2010	264,257	189,869	454,126	1,161,129	580,520	1,166,562	2,908,211	995,929	1,812,033	2,807,962
2011	206,746	201,094	407,840	969,991	472,730	1,267,577	2,710,298	768,707	1,398,615	2,167,322
2012	209,498	201,189	410,687	969,864	472,668	1,267,411	2,709,943	768,606	1,398,432	2,167,038
2013	123,876	117,714	241,590	567,115	276,386	741,102	1,584,603	449,432	817,715	1,267,147
2014	32,296	30,250	62,546	145,651	70,984	190,335	406,970	115,426	210,011	325,437
2015	19,654	17,938	37,592	86,318	42,067	112,799	241,184	68,406	124,460	192,866
2016	17,244	15,367	32,611	73,945	36,038	96,631	206,614	58,601	106,621	165,222
2017	17,155	14,935	32,090	71,866	35,024	93,914	200,804	56,953	103,622	160,575
2018	7,457	6,345	13,802	30,532	14,880	39,899	85,311	24,196	44,024	68,220
2019	7,561	6,292	13,853	30,277	14,756	39,566	84,599	23,994	43,656	67,650
2020	8,319	6,779	15,098	32,619	15,897	42,626	91,142	25,850	47,033	72,883
2021	12,426	10,091	22,517	48,559	23,666	63,457	135,682	38,483	70,017	108,500
2022	11,792	9,576	21,368	46,081	22,458	60,218	128,757	36,518	66,443	102,961
2023	8,388	6,812	15,200	32,777	15,974	42,833	91,584	25,976	47,261	73,237
2024	6,111	4,962	11,073	23,879	11,638	31,205	66,722	18,924	34,431	53,355
2025	453	368	821	1,772	864	2,315	4,951	1,404	2,555	3,959
2026	724	588	1,312	2,830	1,379	3,698	7,907	2,243	4,081	6,324
2027	1,108	900	2,008	4,328	2,109	5,656	12,093	3,430	6,241	9,671
2028	936	760	1,696	3,657	1,782	4,779	10,218	2,898	5,273	8,171
2029	923	750	1,673	3,607	1,758	4,713	10,078	2,858	5,200	8,058
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	3,230,173	5,039,741	8,269,914	18,293,788	12,696,529	39,457,939	70,448,256	7,332,673	18,246,326	25,578,999

TABLE B-16B. Minimum OMP&R Component of Transportation Charge for Each Contractor for Off-Aqueduct Power Facilities

(in 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	59,322	1,053,957	11,978,046	38,810	42,297	1,253,257	14,953,641
1986	552,172	12,858	885,988	11,788,714	40,659	38,275	872,008	14,190,674
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	13,395	706,155	5,788,599	18,587	15,716	480,903	7,267,985
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	41,275	36,377	1,051,178	15,747,923
1996	407,919	13,446	1,226,968	9,219,091	28,668	24,001	1,691,135	12,611,228
1997	423,144	(6)	794,476	7,471,645	(31)	22,025	137,304	8,848,557
1998	471,993	4,597	837,228	8,366,817	127	25,458	175,371	9,881,591
1999	360,554	19,182	874,948	7,723,883	24,159	20,065	1,749,925	10,772,716
2000	193,895	5,762	392,659	4,215,772	11,530	9,847	667,127	5,496,592
2001	201,286	6,533	226,283	2,840,015	7,494	11,768	286,120	3,579,499
2002	153,869	4,557	309,688	2,803,477	9,257	10,806	301,042	3,592,696
2003	128,292	3,998	255,374	2,744,723	10,279	8,100	292,016	3,442,782
2004	167,903	12,186	431,994	2,937,167	30,970	10,800	278,035	3,869,055
2005	333,319	15,889	390,336	5,934,322	78,555	11,863	567,567	7,331,851
2006	247,554	17,879	471,737	5,338,967	41,974	14,186	416,884	6,549,181
2007	304,261	15,918	690,690	5,795,693	50,405	20,627	508,960	7,386,554
2008	351,306	18,379	797,486	6,759,933	58,199	23,817	587,657	8,596,777
2009	348,731	18,244	878,058	6,623,961	57,772	23,642	583,349	8,533,757
2010	350,822	18,354	883,321	6,663,670	58,118	23,784	586,846	8,584,915
2011	270,781	14,166	681,791	5,138,080	44,859	18,358	452,956	6,620,991
2012	270,746	14,165	681,701	5,137,406	44,853	18,355	452,897	6,620,123
2013	158,315	8,283	398,616	3,004,030	26,227	10,733	264,826	3,871,030
2014	40,660	2,127	102,375	771,517	6,736	2,757	68,014	994,186
2015	24,096	1,261	60,671	457,228	3,992	1,634	40,308	589,190
2016	20,642	1,080	51,975	391,691	3,420	1,399	34,530	504,737
2017	20,062	1,050	50,513	380,675	3,324	1,360	33,559	490,543
2018	8,523	446	21,461	161,730	1,412	578	14,258	208,408
2019	8,452	442	21,281	160,379	1,400	573	14,138	206,665
2020	9,106	476	22,927	172,785	1,509	617	15,232	222,652
2021	13,556	709	34,131	257,220	2,246	919	22,676	331,457
2022	12,864	673	32,389	244,090	2,131	872	21,518	314,537
2023	9,150	479	23,039	173,623	1,516	620	15,306	223,733
2024	6,666	349	16,784	126,488	1,104	452	11,151	162,994
2025	495	26	1,245	9,386	82	34	827	12,095
2026	790	41	1,989	14,991	131	54	1,322	19,318
2027	1,208	63	3,042	22,928	200	82	2,021	29,544
2028	1,021	53	2,571	19,373	169	69	1,708	24,964
2029	1,007	53	2,535	19,104	167	68	1,684	24,618
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	9,996,883	448,119	22,689,971	207,519,822	958,799	654,124	18,628,176	260,895,894

TABLE B-16B. Minimum OMP&R Component of Transportation Charge for Each Contractor for Off-Aqueduct Power Facilities

(in dollars)

Calendar Year	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	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District
	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[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	3,749,257	1,572,025	2,032,672	170,137	3,230,451	0	0	157,601	884,188	601,583
1986	3,159,857	1,694,487	2,097,408	173,460	3,340,188	15,873	0	301,486	739,563	1,088,901
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	3,559,487	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	4,324,009	1,901,361	2,498,462	44,237	4,120,837	43,892	881,146	636,541	75,278	1,397,623
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	3,411,379	1,468,949	4,294,703	42,135	4,319,206	24,319	891,191	648,652	625,340	1,175,556
1998	3,977,988	1,599,394	7,554,910	16,624	6,174,031	30,365	508,248	657,806	166,952	827,650
1999	3,696,973	1,694,851	3,195,685	71,662	3,678,076	18,305	501,486	710,674	815,001	1,375,575
2000	2,372,130	994,396	1,420,806	40,083	1,954,947	0	374,972	257,146	617,664	508,258
2001	2,668,867	1,411,816	458,191	53,221	755,763	0	212,427	443,872	1,333,688	118,828
2002	1,674,587	1,389,921	569,606	74,418	939,655	0	140,550	531,620	2,422,881	844,839
2003	1,480,979	1,405,892	488,863	47,681	806,231	0	637,929	284,877	807,486	640,047
2004	1,812,210	1,676,067	554,535	71,930	759,819	0	465,681	368,704	2,071,504	449,688
2005	2,242,606	1,592,527	2,076,562	21,114	2,095,696	2,433	587,884	433,365	1,931,459	599,331
2006	2,785,063	1,800,201	2,678,718	120,396	1,105,994	29,922	1,734,640	683,876	3,324,970	670,675
2007	2,516,000	2,574,329	5,817,326	185,754	1,721,283	108,147	1,015,760	1,001,532	4,424,193	667,380
2008	6,830,190	4,213,175	7,776,352	380,149	3,210,715	124,869	4,254,402	1,156,391	6,588,387	1,849,372
2009	7,572,613	4,182,290	7,719,347	369,713	3,187,179	123,953	4,815,440	1,147,914	6,540,091	1,835,815
2010	7,618,008	4,207,362	7,765,621	371,929	3,206,285	124,696	4,848,489	1,154,795	6,579,296	1,846,820
2011	5,917,075	4,050,008	5,993,886	287,073	2,474,767	96,247	3,740,273	891,327	5,078,222	1,425,466
2012	5,916,300	4,273,244	5,993,100	287,035	2,474,443	96,234	3,739,783	891,211	5,077,557	1,425,279
2013	3,459,478	2,498,722	3,504,386	167,840	1,446,898	56,272	2,186,789	521,124	2,969,034	833,413
2014	888,488	641,740	900,022	43,106	371,603	14,452	561,627	133,839	762,529	214,043
2015	526,549	380,317	533,384	25,546	220,225	8,565	332,840	79,317	451,901	126,849
2016	451,077	325,805	456,932	21,884	188,659	7,337	285,132	67,949	387,128	108,668
2017	438,391	316,642	444,081	21,269	183,353	7,131	277,113	66,038	376,241	105,611
2018	186,250	134,525	188,668	9,036	77,897	3,030	117,731	28,056	159,846	44,869
2019	184,694	133,402	187,092	8,961	77,247	3,004	116,748	27,822	158,511	44,494
2020	198,981	143,721	201,564	9,654	83,222	3,237	125,779	29,974	170,772	47,936
2021	296,218	213,953	300,063	14,371	123,891	4,818	187,244	44,621	254,224	71,361
2022	281,097	203,032	284,746	13,638	117,567	4,572	177,686	42,344	241,247	67,718
2023	199,947	144,418	202,542	9,701	83,626	3,252	126,389	30,119	171,600	48,169
2024	145,665	105,211	147,556	7,067	60,923	2,369	92,077	21,942	125,014	35,092
2025	10,809	7,807	10,949	524	4,521	176	6,832	1,628	9,276	2,604
2026	17,264	12,469	17,488	838	7,220	281	10,913	2,601	14,816	4,159
2027	26,404	19,071	26,747	1,281	11,043	429	16,690	3,977	22,661	6,361
2028	22,310	16,114	22,600	1,082	9,331	363	14,103	3,361	19,147	5,375
2029	22,001	15,891	22,286	1,067	9,202	358	13,907	3,314	18,882	5,300
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	110,312,547	63,074,232	97,555,005	4,311,291	84,002,220	1,517,100	38,853,584	17,791,208	66,213,366	31,331,159

TABLE B-16B. Minimum OMP&R Component of Transportation Charge for Each Contractor for Off-Aqueduct Power Facilities

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA				TOTAL STATE WATER PROJECT [a]
	San Gorgonio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC&WCD	Total	
	[29]	[30]	[31]	[32]	[33]	[34]	[35]	[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	77,446,523	0	89,844,437	0	0	0	0	108,590,343
1986	0	77,581,287	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	92,173,695
1993	0	55,312,615	0	69,847,379	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	40,862,813	0	56,786,199	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	37,121,379	108,559	54,131,368	0	0	0	0	65,536,671
1998	0	30,341,609	149,170	52,004,747	0	0	0	0	65,310,733
1999	0	42,257,580	106,226	58,122,094	0	0	0	0	72,133,666
2000	0	43,977,877	123,318	52,641,597	0	0	0	0	60,213,003
2001	0	49,183,605	84,487	56,724,765	0	0	0	0	62,756,047
2002	0	45,579,833	154,113	54,322,023	0	0	0	0	59,898,002
2003	3,385	42,982,970	132,336	49,718,676	0	0	0	0	55,018,758
2004	44,621	58,640,223	170,747	67,085,729	0	0	0	0	73,091,132
2005	62,042	61,362,119	65,360	73,072,498	0	0	0	0	83,060,197
2006	458,220	81,025,875	200,630	96,619,180	0	0	0	0	106,858,797
2007	617,187	90,906,983	1,008,870	112,564,744	0	0	0	0	124,268,132
2008	1,110,907	82,019,400	1,164,863	120,679,172	0	0	0	0	135,600,484
2009	1,102,764	81,418,153	1,156,324	121,171,596	0	0	0	0	135,835,147
2010	1,109,374	81,906,226	1,163,256	121,902,157	0	0	0	0	136,657,371
2011	856,269	89,882,553	897,858	121,591,024	0	0	0	0	133,497,475
2012	856,157	89,870,772	897,740	121,798,855	0	0	0	0	133,706,646
2013	500,627	52,550,742	524,942	71,220,267	0	0	0	0	78,184,637
2014	128,575	13,496,461	134,819	18,291,304	0	0	0	0	20,080,443
2015	76,198	7,998,472	79,899	10,840,062	0	0	0	0	11,900,894
2016	65,276	6,852,021	68,446	9,286,314	0	0	0	0	10,195,498
2017	63,440	6,659,314	66,521	9,025,145	0	0	0	0	9,909,157
2018	26,953	2,829,206	28,262	3,834,329	0	0	0	0	4,210,070
2019	26,727	2,805,575	28,026	3,802,303	0	0	0	0	4,175,070
2020	28,795	3,022,597	30,193	4,096,425	0	0	0	0	4,498,200
2021	42,866	4,499,658	44,948	6,098,236	0	0	0	0	6,696,392
2022	40,678	4,269,972	42,654	5,786,951	0	0	0	0	6,354,574
2023	28,935	3,037,261	30,340	4,116,299	0	0	0	0	4,520,053
2024	21,079	2,212,702	22,103	2,998,800	0	0	0	0	3,292,944
2025	1,564	164,187	1,640	222,517	0	0	0	0	244,343
2026	2,498	262,245	2,620	355,412	0	0	0	0	390,273
2027	3,821	401,084	4,007	543,576	0	0	0	0	596,892
2028	3,229	338,899	3,385	459,299	0	0	0	0	504,348
2029	3,184	334,196	3,338	452,926	0	0	0	0	497,353
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	7,285,371	1,960,577,534	9,110,495	2,491,935,112	0	0	0	0	2,857,128,175

a) Costs allocated to contractors in 1989 through 2002 are reduced by credits for Off-Aqueduct Power Facility costs allocated to the pumping of non-Project water.

TABLE B-17. Unit Variable OMP&R Component of Transportation Charge

(in dollars per acre-foot)

Calendar Year	NORTH BAY AQUEDUCT						SOUTH BAY AQUEDUCT		CALIFORNIA AQUEDUCT	
	Reach 1 Barker Slough Pumping Plant		Reach 3A Cordelia Pumping Plant Solano County WA		Reach 3B Cordelia Pumping Plant Napa County FC&WCD [a]		Reach 1 South Bay and Del Valle Pumping Plants [b]		Reach 1 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	6.8245097	1.6158914	1.6158914
1979	0	0	0	0	2.4747752	2.4747752	4.9524184	7.1045026	2.1520842	2.1520842
1980	0	0	0	0	2.9737588	2.9737588	4.5186576	5.8960239	1.3773663	1.3773663
1981	0	0	0	0	2.6488168	2.6488168	4.3834851	6.4662961	2.0828110	2.0828110
1982	0	0	0	0	10.0222589	10.0222589	5.6383622	7.4121096	1.7737474	1.7737474
1983	0	0	0	0	1.0240490	1.0240490	0.8686507	1.7250802	0.8564295	0.8564295
1984	0	0	0	0	1.6524119	1.6524119	2.7719370	3.9566693	1.1847323	1.1847323
1985	0	0	0	0	2.5219114	2.5219114	3.6942124	5.3128683	1.6186559	1.6186559
1986	0	0	0	0	4.4046604	4.4046604	7.2799131	10.6056639	3.3257508	3.3257508
1987	0	0	0	0	3.5386715	3.5386715	6.4837861	9.2421280	2.7583419	2.7583419
1988	1.1792022	1.1792022	0	1.1792022	4.4545623	5.6337645	6.1749958	8.7900561	2.6150603	2.6150603
1989	1.2712038	1.2712038	2.5418648	3.8130686	4.2795803	5.5507841	8.1600349	11.6976286	3.5375937	3.5375937
1990	2.0024548	2.0024548	4.2324041	6.2348589	5.8752161	7.8776709	11.7200790	15.8670513	4.1469723	4.1469723
1991	1.2488027	1.2488027	2.6241245	3.8729272	3.8050725	5.0538752	7.5402614	11.2642636	3.7240022	3.7240022
1992	0.7095451	0.7095451	1.4174620	2.1270071	2.3506623	3.0602074	4.0600957	6.4118184	2.3517227	2.3517227
1993	-0.3463994	-0.3463994	-0.6048649	-0.9512643	-1.0204313	-1.3668307	-1.4929839	-1.2402745	0.2527094	0.2527094
1994	1.4607776	1.4607776	2.6575471	4.1183247	4.2850412	5.7458188	7.9485622	11.2592004	3.3106382	3.3106382
1995	0.7544766	0.7544766	1.2974895	2.0519661	2.2753763	3.0298529	3.2312761	5.2800374	2.0487613	2.0487613
1996	1.6427835	1.6427835	2.7704025	4.4131860	4.7993051	6.4420886	8.0186492	11.3633990	3.3447498	3.3447498
1997	1.7801484	1.7801484	3.0246843	4.8048327	5.0575904	6.8377388	9.6521246	12.6148371	2.9627125	2.9627125
1998	-0.3031174	-0.3031174	-0.5212041	-0.8243215	-0.8497854	-1.1529028	-1.7656471	-1.6140875	0.1515596	0.1515596
1999	0.7893362	0.7893362	1.2927037	2.0820399	1.9928526	2.7821888	5.1162295	6.9791811	1.8629516	1.8629516
2000	1.3959233	1.3959233	1.9764390	3.3723623	3.0411557	4.4370790	6.3511103	8.6610803	2.3099700	2.3099700
2001	8.1656675	8.1656675	12.6117906	20.7774581	22.7930551	30.9587226	42.4371629	55.0733192	12.6361563	12.6361563
2002	4.0978448	4.0978448	5.1839120	9.2817568	8.7407898	12.8386346	17.7297693	23.7157370	5.9859677	5.9859677
2003	4.2299106	4.2299106	6.8941022	11.1240128	12.4277426	16.6576532	18.7448272	25.2861174	6.5412902	6.5412902
2004	4.7386444	4.7386444	6.0853109	10.8239553	12.7072043	17.4458487	19.1567803	26.2235278	7.0667475	7.0667475
2005	6.1143976	6.1143976	7.3530754	13.4674730	19.0132129	25.1276105	25.2864316	33.5767244	8.2902928	8.2902928
2006	6.8000000	6.8000000	18.5713748	25.3713748	32.1780691	38.9780691	31.4073332	39.7548735	8.3475403	8.3475403
2007	10.2076137	10.2076137	35.1913707	45.3989844	40.4552779	50.6628916	36.6421205	47.0209087	10.3787882	10.3787882
2008	7.7081039	7.7081039	41.1028367	48.8109406	32.1658527	39.8739566	36.8213919	49.5322432	12.7108513	12.7108513
2009	6.6436958	6.6436958	56.4851321	63.1288279	16.5280068	23.1717026	39.9594174	50.1984861	10.2390687	10.2390687
2010	6.9099808	6.9099808	59.0825660	65.9925468	17.4640537	24.3740345	41.7017564	54.5453778	12.8436214	12.8436214
2011	6.9166504	6.9166504	21.5739394	28.4905898	17.5488834	24.4655338	31.3292222	41.4956505	10.1664283	10.1664283
2012	7.1260585	7.1260585	22.3111846	29.4372431	18.3043461	25.4304046	32.3488265	42.2577259	9.9088994	9.9088994
2013	7.7316713	7.7316713	24.4749862	32.2066575	20.3562550	28.0879263	35.3415508	48.0199628	12.6784120	12.6784120
2014	8.2417738	8.2417738	26.2741047	34.5158785	22.1214868	30.3632606	37.8300275	49.2282114	11.3981839	11.3981839
2015	8.3662810	8.3662810	26.6688705	35.0351515	22.6905149	31.0567959	38.3759371	51.1097075	12.7337704	12.7337704
2016	8.4576404	8.4576404	26.9412121	35.3988525	23.1303345	31.5879749	38.7526748	53.4063997	14.6537249	14.6537249
2017	8.3623301	8.3623301	26.5523967	34.9147268	22.9413589	31.3036890	38.2148037	51.1443424	12.9295387	12.9295387
2018	8.5930973	8.5930973	27.3198347	35.9129320	23.8931962	32.4862935	39.2762960	52.2276789	12.9513829	12.9513829
2019	8.7987837	8.7987837	27.9945455	36.7933292	24.7720791	33.5708628	40.2094918	55.1061602	14.8966684	14.8966684
2020	8.3758667	8.3758667	26.4614876	34.8373543	23.4975804	31.8734471	38.0890126	51.3371638	13.2481512	13.2481512
2021	8.3683752	8.3683752	26.4180165	34.7863917	23.4880469	31.8564221	38.0289708	51.0182748	12.9893040	12.9893040
2022	8.1234121	8.1234121	25.5623141	33.6857262	22.6518429	30.7752550	36.8454736	48.8869305	12.0414569	12.0414569
2023	8.1669617	8.1669617	25.7143802	33.8813419	22.8004134	30.9673751	37.0557706	50.0536890	12.9979184	12.9979184
2024	8.4509319	8.4509319	26.7063361	35.1572680	23.7697554	32.2206873	38.4277520	52.6751253	14.2473733	14.2473733
2025	8.4148272	8.4148272	26.5801102	34.9949374	23.6464692	32.0612964	38.2532870	50.2133810	11.9600940	11.9600940
2026	8.4695960	8.4695960	26.7715152	35.2411112	23.8335171	32.3031131	38.5179325	53.3569400	14.8390075	14.8390075
2027	8.3482794	8.3482794	26.3477686	34.6960480	23.4193937	31.7676731	37.9317972	51.2476096	13.3158124	13.3158124
2028	8.4032695	8.4032695	26.5397796	34.9430491	23.6070617	32.0103312	38.1975023	51.2935465	13.0960442	13.0960442
2029	8.3016972	8.3016972	26.1850689	34.4867661	23.2604203	31.5621175	37.7068452	50.6537083	12.9468631	12.9468631
2030	8.3652124	8.3652124	26.4069422	34.7721546	23.4771960	31.8424084	38.0135859	51.4992296	13.4856437	13.4856437
2031	8.2566118	8.2566118	26.0276033	34.2842151	23.1064761	31.3630879	37.4889523	49.7153397	12.2263874	12.2263874
2032	8.4126406	8.4126406	26.5725620	34.9852026	23.6391319	32.0517725	38.2428091	51.5402532	13.2974441	13.2974441
2033	8.8144003	8.8144003	27.9758678	36.7902681	25.0103686	33.8247689	40.1836620	54.3022387	14.1185767	14.1185767
2034	8.5062084	8.5062084	26.8993939	35.4056023	23.9584568	32.4646652	38.6948133	51.9156037	13.2207904	13.2207904
2035	8.3411860	8.3411860	26.3228650	34.6640510	23.3951085	31.7362945	37.8975098	51.8793535	13.9818437	13.9818437

a) Rates are for an interim facility from 1968 through 1987.

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

(in dollars per acre-foot)

Calendar Year	CALIFORNIA AQUEDUCT (continued)									
	Reach 4 Dos Amigos Pumping Plant		Reach 14A Buena Vista Pumping Plant		Reach 15A Teerink Pumping Plant		Reach 16A Chrisman Pumping Plant		Reach 17E Edmonston 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
	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[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	1.0745886	2.6181208	0	0	0	0	0	0	0	0
1969	0.7051830	1.8118981	0	0	0	0	0	0	0	0
1970	0.7838143	1.7303492	0.3333333	2.0636825	0	0	0	0	0	0
1971	0.4151197	1.2959634	1.3603318	2.6562952	4.9729730	7.6292682	0	0	0	0
1972	0.5689843	1.4720839	1.0818018	2.5538857	1.1418280	3.6957137	2.2892599	5.9849736	7.3206022	13.3055758
1973	0.6025584	1.5411975	0.9854386	2.5266361	1.2143719	3.7410080	2.1051633	5.8461713	7.4512435	13.2974148
1974	0.5766848	1.4739254	0.9233319	2.3972573	1.0924098	3.4896671	1.9449022	5.4345693	6.9004732	12.3350425
1975	0.4638166	1.5600186	0.8201332	2.3801518	0.9574493	3.3376011	1.9610412	5.2986423	6.9962702	12.2949125
1976	0.5196472	1.7137740	0.9637643	2.6775383	1.0211874	3.6987257	2.2275746	5.9263003	7.9384515	13.8647518
1977	0.6172856	2.3852592	1.0980643	3.4833235	1.3715867	4.8549102	2.9301764	7.7850866	9.9990004	17.7840870
1978	0.4578324	2.0737238	0.9617095	3.0354333	1.0432294	4.0786627	1.9992416	6.0779043	7.1214594	13.1993637
1979	0.6624709	2.8145551	1.1111583	3.9257134	1.2652451	5.1909585	2.7288840	7.9198425	9.6837428	17.6035853
1980	0.8090774	2.1864437	1.3528383	3.5392820	1.5041463	5.0434283	3.2274062	8.2708345	11.0353314	19.3061659
1981	1.0965610	3.1793720	1.2422925	4.4216645	1.3219771	5.7436416	2.9988606	8.7425022	10.0207633	18.7632655
1982	0.8365509	2.6102983	1.2049224	3.8152207	1.3715109	5.1867316	2.9378063	8.1245379	10.2606361	18.3851740
1983	0.3691099	1.2255394	0.7604543	1.9859937	0.8857383	2.8717320	1.8026411	4.6743731	5.5653668	10.2397399
1984	0.6642414	1.8489737	1.0562168	2.9051905	1.2202995	4.1254900	2.5897300	6.7152200	8.3105777	15.0257977
1985	0.8780315	2.4966874	1.4221464	3.9188338	1.6516280	5.5704618	3.5176053	9.0880671	11.8858945	20.9739616
1986	1.4047267	4.7304775	2.3730496	7.1035271	2.7567993	9.8603264	6.0029982	15.8633246	20.6708919	36.5342165
1987	1.2966188	4.0549607	2.2362590	6.2912197	2.5459999	8.8372196	5.3658848	14.2031044	17.8358435	32.0389479
1988	1.2001961	3.8152564	2.1148911	5.9301475	2.4017135	8.3318610	5.0600095	13.3918705	16.6769503	30.0688208
1989	1.4991710	5.0367647	2.6962512	7.7330159	3.0078924	10.7409083	6.6054692	17.3463775	22.2552075	39.6015850
1990	1.9023461	6.0493184	3.3101004	9.3594188	3.7483042	13.1077230	8.7425943	21.8503173	31.1242008	52.9745181
1991	1.0592185	4.7832207	2.1212585	6.9044792	2.4222131	9.3266923	5.7602628	15.0869551	20.6196938	35.7066489
1992	0.9064819	3.2582046	1.4858303	4.7440349	1.7077285	6.4517634	3.6067199	10.0584833	12.1335007	22.1919840
1993	0.1664878	0.4191972	-0.1384508	0.2807464	-0.1312944	0.1494520	-0.7173389	-0.5678869	-3.5014056	-4.0692925
1994	1.4294391	4.7400773	2.5099528	7.2500301	2.7989861	10.0490162	6.1401376	16.1891538	21.5691939	37.7583477
1995	0.8047106	2.8534719	1.3496693	4.2031412	1.4945512	5.6976924	3.1864400	8.8841324	10.8322270	19.7163594
1996	1.6726383	5.0173881	2.5952092	7.6125973	2.8425227	10.4551200	6.3087407	16.7638607	22.6420778	39.4059385
1997	1.2769880	4.2397005	2.5012144	6.7409149	2.6893394	9.4302543	6.2890095	15.7192638	23.0714697	38.7907335
1998	-0.2050857	-0.0535261	-0.3945877	-0.4481138	-0.4188957	-0.8670095	-0.9854414	-1.8524509	-3.5434867	-5.3959376
1999	0.8422034	2.7051550	1.4022138	4.1073688	1.2802066	5.3875754	3.4122984	8.7998738	13.6052879	22.4051617
2000	0.9306975	3.2406675	1.6377891	4.8784566	1.8007516	6.6792082	4.2452324	10.9244406	15.5438684	26.4683090
2001	6.0848645	18.7210208	11.2089222	29.9299430	12.2904776	42.2204206	28.4069032	70.6273238	106.3233062	176.9506300
2002	2.5678475	8.5538152	4.4973316	13.0511468	4.9050420	17.9561888	11.3506067	29.3067955	42.1780286	71.4848241
2003	3.0449725	9.5862627	5.4662061	15.0524688	5.9552204	21.0076892	13.8563946	34.8640838	51.5224036	86.3864874
2004	3.2119300	10.2786775	5.6545833	15.9332608	6.1386667	22.0719275	14.3036966	36.3756241	53.1773366	89.5529607
2005	3.9275885	12.2178813	7.3894399	19.6073212	8.0559637	27.6632849	18.7794943	46.4427792	67.4558144	113.8985936
2006	3.8566685	12.2042088	7.2839186	19.4881274	8.8793760	28.3675034	19.2573509	47.6248543	69.0630361	116.6878904
2007	4.9707136	15.3495018	9.1659112	24.5154130	11.2092044	35.7246174	24.3340597	60.0586771	87.3662368	147.4249139
2008	5.7184737	18.4293250	10.8953467	29.3246717	13.4029410	42.7276127	29.1330778	71.8606905	104.6732213	176.5339118
2009	5.2621919	15.5012606	9.6770197	25.1782803	10.0779669	35.2562472	24.1281921	59.3844393	91.5145160	150.8989553
2010	5.5373037	18.3809251	10.1978973	28.5788224	10.6152531	39.1940755	25.4264491	64.6205246	96.4431314	161.0636560
2011	4.7879224	14.9543507	8.1250794	23.0794301	8.3682704	31.4477005	19.9487175	51.3964180	75.4735638	126.8699818
2012	5.0994112	15.0083106	8.7284399	23.7367505	8.9983948	32.7351453	21.4693193	54.2044646	81.2549878	135.4594524
2013	5.5988556	18.2772676	9.5730018	27.8502694	9.8568828	37.7071522	23.5323618	61.2395140	89.0613455	150.3008595
2014	6.0790090	17.4771929	10.4298987	27.9070916	10.7361983	38.6432899	25.6493085	64.2925984	97.0860499	161.3786483
2015	6.1724788	18.9062492	10.5887326	29.4949818	10.8980495	40.3930313	26.0385031	66.4315344	98.5593519	164.9908863
2016	6.3988552	21.0525801	11.0893215	32.1419016	11.4276276	43.5695292	27.3250425	70.8945717	103.4664489	174.3610206
2017	6.1756572	19.1051959	10.6185843	29.7237802	10.9324635	40.6562437	26.1254620	66.7817057	98.8970373	165.6787430
2018	6.5289419	19.4803248	11.3396772	30.8200020	11.6876129	42.5076149	27.9519967	70.4596116	105.8483575	176.3079691
2019	6.7271412	21.6238096	11.7059690	33.3297786	12.0653925	45.3951711	28.8668372	74.2620083	109.3219042	183.5839125
2020	6.3532788	19.6014300	11.0621081	30.6635381	11.4084399	42.0719780	27.2872992	69.3592772	103.3413238	172.7006010
2021	6.3508916	19.3401956	11.0633039	30.4034995	11.4106062	41.8141057	27.2936443	69.1077500	103.3673990	172.4751490
2022	6.1606195	18.2020764	10.7490773	28.9511537	11.0922189	40.0433726	26.5302917	66.5736643	100.4818093	167.0554736
2023	6.2280474	19.2259658	10.8864083	30.1123741	11.2360494	41.3484235	26.8786017	68.2270252	101.8076412	170.0346664
2024	6.4365686	20.6839419	11.2213605	31.9053024	11.5736814	43.4789838	27.6869440	71.1659278	104.8599915	176.0259193
2025	6.4154560	18.3755500	11.1922024	29.5677524	11.5451681	41.1129205	27.6188615	68.7317820	104.6044795	173.3362615
2026	6.4491062	21.2881137	11.2403622	32.5284759	11.5925698	44.1210457	27.7323427	71.8533884	105.0313795	176.8847679
2027	6.3913187	19.7071311	11.1737019	30.8808330	11.5302877	42.4111207	27.5863288	69.9974495	104.4890652	174.4865147
2028	6.8793576	19.9754018	11.1226503	31.0980521	11.4715329	42.5695850	27.4404300	70.0100150	103.9238966	173.9339116
2029	6.3322976	19.2791607	11.0582709	30.3374316	11.4100589	41.7474905	27.2957802	69.0432707	103.3844816	172.4277523
2030	6.3399185	19.8255622	11.0390734	30.8646356	11.3848546	42.2494902	27.2312145	69.4807047	103.1292356	172.6099403
2031	6.2982567	18.5246441	11.0035322	29.5281763	11.3553052	40.8834815	27.1622133	68.0456948	102.8792384	170.9249332
2032	6.3456777	19.6431218	11.0252545	30.6683763	11.3666140	42.0349903	27.1857292	69.2207195	102.9496748	172.1703943
2033	6.8365151	20.9550918	11.9762575	32.9313493	12.3553141	45.2866634	29.5716104	74.8582738	112.0165309	186.8748047
2034	6.4523601	19.6731505	11.2277496	30.9009001	11.5764621	42.4773622	27.6920496	70.1694118	104.8726457	175.0420575
2035	6.7969726	20.7788163	12.1918994	32.9707157	12.6251145	45.5958302	30.2590063	75.8548365	114.7178647	190.5727012

TABLE B-17. Unit Variable OMP&R Component of Transportation Charge

(in dollars per acre-foot)

Calendar Year	CALIFORNIA AQUEDUCT (continued)									
	Reach 18A Alamo Powerplant		Reach 22B Pearblossom Pumping Plant		Reach 23 Mojave Siphon Powerplant		Reach 26A Devil Canyon Powerplant		Reach 29A Oso 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
	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[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	0	14.2519509	27.5575267	0	0	-2.3717647	25.1857620	1.4212193	14.7267951
1973	0	0	4.4326545	17.7300693	0	0	-8.4298618	9.3002075	1.0210537	14.3184685
1974	0	0	3.4431782	15.7782207	0	0	-5.1043660	10.6738547	0.9241725	13.2592150
1975	0	0	3.1739313	15.4688438	0	0	-5.6510611	9.8177827	0.9362286	13.2311411
1976	0	0	3.9391330	17.8038848	0	0	-6.4449941	11.3588907	0.8622774	14.7270292
1977	0	0	3.4988957	21.2829827	0	0	-11.6274558	9.6555269	0.9076172	18.6917042
1978	0	0	4.1619043	17.3612680	0	0	-8.1314274	9.2298406	0.7314697	13.9308334
1979	0	0	5.2283922	22.8319775	0	0	-9.5825772	13.2494003	0.9509677	18.5545530
1980	0	0	4.4253989	23.7315648	0	0	-11.5446606	12.1869042	1.4272378	20.7334037
1981	0	0	4.0325337	22.7957992	0	0	-6.7528607	16.0429385	1.5690769	20.3323424
1982	0	0	3.7143664	22.0995404	0	0	-6.9141441	15.1853963	1.4949290	19.8801030
1983	0	0	1.7592652	11.9990051	0	0	-23.7923414	-11.7933363	1.2824635	11.5222034
1984	0	0	2.5203002	17.5460979	0	0	-29.2940447	-11.7479468	1.7818310	16.8076287
1985	0	0	3.5406919	24.5146535	0	0	-30.7672356	-6.2525821	2.1691578	23.1431194
1986	-2.3583180	34.1758985	6.0306655	40.2065640	0	0	-29.2499580	10.9566060	3.2296473	39.7638638
1987	-2.5482255	29.4907224	5.0997322	34.5904546	0	0	-29.7006533	4.8898013	3.1281318	35.1670797
1988	-1.3847067	28.6841141	4.7880132	33.4721273	0	0	-29.0334518	4.4386755	2.9887414	33.0575622
1989	-1.1019487	38.4996363	6.4559997	44.9556360	0	0	-28.3706997	16.5849363	3.5266078	43.1281928
1990	-1.0673268	51.9071913	9.0317647	60.9389560	0	0	-28.8797266	32.0592294	3.6820302	56.6565483
1991	-1.5206590	34.1859899	6.1338271	40.3198170	0	0	-30.3294563	9.9903607	2.1966277	37.9032766
1992	-2.6080003	19.5839837	3.6796265	23.2636102	0	0	-29.7938993	-6.5302891	1.9058052	24.0977892
1993	-0.1885524	-4.2578449	-0.9592579	-5.2171028	0	0	-30.6629489	-35.8800517	0.1578038	-3.9114887
1994	-0.1279266	37.6304211	6.5139903	44.1444114	0	0	-30.4781656	13.6662458	3.0574815	40.8158292
1995	-3.4425314	16.2738280	3.4305039	19.7043319	0	0	-30.3517624	-10.6474305	1.5732257	21.2895851
1996	-5.9839345	33.4220040	6.6794995	40.1015035	-2.3423415	37.7591620	-29.5900574	8.1691046	3.1318961	42.5378346
1997	-4.7847600	34.0059735	6.8397922	40.8457657	-3.8632009	36.9825648	-30.6066647	6.3759001	2.7928728	41.5836063
1998	-5.0614104	-10.4573480	-1.2355351	-11.6928831	-3.7700558	-15.4629389	-30.6550762	-46.1180151	-0.3008626	-5.6968002
1999	-4.7679511	17.6372106	3.5508098	21.1880204	-4.9754645	16.2125559	-29.6766184	-13.4640625	1.8929287	24.2980904
2000	-5.3795304	21.0887786	4.6132547	25.7020333	-5.2137446	20.4882887	-30.4802775	-9.9919888	1.8186581	28.2869671
2001	-4.6442419	172.3063881	29.7998271	202.1062152	-5.7699535	196.3362617	-30.9018409	165.4344208	13.4272431	190.3778731
2002	-5.4660253	66.0187988	12.6802813	78.6990801	-6.4072093	72.2918708	-30.1661581	42.1257127	4.7724074	76.2572315
2003	-3.3577630	83.0287244	15.2059804	98.2347048	-7.2230635	91.0116413	-30.5804591	60.4311822	5.9515747	92.3380621
2004	-5.5585791	83.9943816	15.6342250	99.6286066	-7.4295016	92.1991050	-30.2399666	61.9591384	6.2328767	95.7858374
2005	-6.5254292	107.3731644	20.9387356	128.3119000	-7.9723844	120.3395156	-36.6168324	83.7226832	7.1228596	121.0214532
2006	-2.8363852	113.8515052	19.1245811	132.9760863	-6.0540536	126.9220327	-22.6285408	104.2934919	9.7423521	126.4302425
2007	-3.5469034	143.8780105	26.2029527	170.0809632	-5.9865457	164.0944175	-22.6655042	141.4289133	10.7429850	158.1678989
2008	-6.1792223	170.3546895	39.7923628	210.1470523	-11.6792032	198.4678491	-44.4925037	153.9753454	11.0326156	187.5665274
2009	-5.4956805	145.4032748	33.2046694	178.6079442	-8.5087715	170.0991727	-40.9743505	129.1248222	10.4926466	161.3916019
2010	-5.4703689	155.5932871	34.9884343	190.5817214	-8.4523027	182.1294187	-40.9840584	141.1453603	10.9811740	172.0448300
2011	-3.7860374	123.0839444	22.8805757	145.9645201	-5.3225547	140.6419654	-26.4882701	114.1536953	9.8213240	136.6913058
2012	-4.0304221	131.4290303	25.2757267	156.7047570	-5.7798695	150.9248875	-27.2106125	123.7142750	10.3368540	145.7963064
2013	-3.8962474	146.4046121	27.4713246	173.8759367	-5.5746825	168.3012542	-26.6806144	141.6206398	11.3014962	161.6023557
2014	-3.9173121	157.4613362	29.6858266	187.1471628	-5.5966388	181.5505240	-27.1093618	154.4411622	12.3559097	173.7345580
2015	-3.9250925	161.0657938	30.3209700	191.3867638	-5.6684615	185.7183023	-27.4414889	158.2768134	12.4581196	177.4490059
2016	-4.0870079	170.2740127	32.3421761	202.6161888	-5.9530494	196.6631394	-28.0451643	168.6179751	12.8994971	187.2605177
2017	-3.9098321	161.7689109	30.4636235	192.2325344	-5.7091712	186.5233632	-27.7683479	158.7550153	12.4806389	178.1593819
2018	-4.1826632	172.1253059	33.5899478	205.7152537	-6.3899838	199.3252699	-28.4853001	170.8399698	13.0016583	189.3096274
2019	-3.9873831	179.5965294	33.0397193	212.6362487	-5.9241840	206.7120647	-28.2058170	178.5062477	14.0585980	197.6425105
2020	-4.0609412	168.6396598	32.0119372	200.6515970	-6.0981792	194.5534178	-28.9731323	165.5802855	13.0286457	185.7292467
2021	-4.0726583	168.4024907	32.0421015	200.4445922	-6.1405551	194.3040371	-28.6890258	165.6150113	13.0184371	185.4935861
2022	-4.0979616	162.9575120	30.8978872	193.8553992	-6.1448703	187.7105289	-28.3573761	159.3531528	12.8058592	179.8613328
2023	-4.1514283	165.8832381	31.5450534	197.4282915	-6.2539219	191.1743696	-28.8741517	162.3002179	12.8740090	182.9086754
2024	-4.0234522	172.0024671	31.9520438	203.9545109	-6.0642824	197.8902285	-28.6574923	169.2327362	13.4550808	189.4810001
2025	-4.0946145	169.2416470	32.1667845	201.4084315	-6.1478393	195.2605922	-28.3276154	166.9329768	13.2905190	186.6267805
2026	-4.0697653	172.8150026	32.5023082	205.3173108	-6.1726456	199.1446652	-29.0294561	170.1152091	13.2409762	190.1257441
2027	-4.0945225	170.3919922	32.0768264	202.4688186	-6.1382094	196.3306092	-28.6268905	167.7037187	13.3255799	187.8120946
2028	-4.0516848	169.8822268	32.0750269	201.9572537	-6.1059301	195.8513236	-28.8099088	167.0414148	13.1457648	187.0796764
2029	-4.0719733	168.3557790	31.7315877	200.0873667	-6.1407122	193.9466545	-28.6108383	165.3358162	13.1873191	185.6150714
2030	-4.0394681	168.5704722	31.7920651	200.3625373	-6.0837927	194.2787446	-28.6758159	165.6029287	13.0606963	185.6706366
2031	-4.1527790	166.7721542	31.9969366	198.7690908	-6.5525791	192.2165117	-28.4301056	163.7864061	13.0066645	183.9315977
2032	-3.9939260	168.1764683	31.2173683	199.3938366	-6.2403091	193.1535275	-28.2123951	164.9411324	13.2199752	185.3903695
2033	-4.1979118	182.6768929	35.0120079	217.6889008	-6.7005230	210.9883778	-29.0772003	181.9111775	14.0083651	200.8831698
2034	-4.0318236	171.0102339	31.9521789	202.9624128	-6.3757357	196.5866771	-28.0784744	168.5082027	13.3933859	188.4354434
2035	-4.2531644	186.3195368	33.3291486	219.6486854	-6.5718930	213.0767924	-29.6039310	183.4728614	15.8771816	206.4498828

TABLE B-17. Unit Variable OMP&R Component of Transportation Charge

(in dollars per acre-foot)

Calendar Year	CALIFORNIA AQUEDUCT (continued)							
	Reach 29G Warne Powerplant		Reach 29J Castaic Powerplant		Reach 31A Las Perillas and Badger Hill Pumping Plants		Reach 33A Devil's Den, Bluestone, and Polonio Pass Pumping Plants	
	Unit Rate	Cumulative Unit Rate	Unit Rate	Cumulative Unit Rate	Unit Rate	Cumulative Unit Rate	Unit Rate	Cumulative Unit Rate
	[31]	[32]	[33]	[34]	[35]	[36]	[37]	[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	4.1196074	0	0
1969	0	0	0	0	1.2624065	3.0743046	0	0
1970	0	0	0	0	1.6309699	3.3613191	0	0
1971	0	0	0	0	1.4985537	2.7945171	0	0
1972	0	0	-2.9350830	11.7917121	1.9517720	3.4238559	0	0
1973	0	0	-6.8099448	7.5085237	1.5374531	3.0786506	0	0
1974	0	0	-7.4013274	5.8578876	1.5168982	2.9908236	0	0
1975	0	0	-6.5604921	6.6706490	1.1130304	2.6730490	0	0
1976	0	0	-6.7213324	8.0056968	1.5685447	0.0000000 3.2823187	0	0
1977	0	0	-30.4985994	-11.8068952	1.7573375	4.1425967	0	0
1978	0	0	-9.0130187	4.9178147	1.9429506	4.0166744	0	0
1979	0	0	-19.0478097	-0.4932567	1.5600341	4.3745892	0	0
1980	0	0	-7.4485479	13.2848558	1.5124754	3.6989191	0	0
1981	0	0	-10.0059379	10.3264045	1.5414199	4.7207919	0	0
1982	-2.1714430	17.7086600	-9.5987314	8.1099286	1.7581649	4.3684632	0	0
1983	-8.9130752	2.6091282	-39.8193120	-37.2101838	0.1783064	1.4038458	0	0
1984	-15.0246012	1.7830275	-17.3126964	-15.5296689	0.8560669	2.7050406	0	0
1985	-14.7115359	8.4315835	-38.9450653	-30.5134818	1.2075223	3.7042097	0	0
1986	-14.1893653	25.5744985	-28.1596224	-2.5851239	2.2635962	6.9940737	0	0
1987	-14.8696165	20.2974632	-27.0536484	-6.7561852	1.9135150	5.9684757	0	0
1988	-14.7032843	18.3542779	-25.6857024	-7.3314245	1.7733304	5.5885868	0	0
1989	-14.4231503	28.7050425	-25.3986130	3.3064295	2.4154074	7.4521721	0	0
1990	-14.1850383	42.4715100	-26.0776141	16.3938959	3.7962241	9.8455425	0	0
1991	-14.7813217	23.1219549	-25.1420394	-2.0200845	2.4124332	7.1956539	0	0
1992	-14.6199453	9.4778439	-25.1951380	-15.7172941	1.2766497	4.5348543	0	0
1993	-10.3386629	-14.2501516	-21.1218951	-35.3720467	-1.1726278	-0.7534306	0	0
1994	-14.7696788	26.0461504	-26.7435205	-0.6973701	2.3664953	7.1065726	0	0
1995	-12.2705911	9.0189940	-25.6908056	-16.6718116	2.5750190	5.4284909	0	0
1996	-14.8515762	27.6862584	-29.5639188	-1.8776604	2.5837041	7.6010922	0	0
1997	-14.9272063	26.6564000	-27.1541858	-0.4977858	2.7029648	6.9426653	24.4572499	31.3999152
1998	-8.6041243	-14.3009245	-22.2303491	-36.5312736	-0.4719744	-0.5255005	-3.9178748	-4.4433753
1999	-15.4517685	8.8463219	-27.8324731	-18.9861512	1.3273109	4.0324659	9.8021998	13.8346657
2000	-14.1657262	14.1212409	-26.9670099	-12.8457690	1.8842617	5.1249292	14.2514058	19.3763350
2001	-16.7349298	173.6429433	-29.2914155	144.3515278	12.2866597	31.0076805	92.6567756	123.6644561
2002	-13.2004532	63.0567783	-23.7780801	39.2786982	5.3023584	13.8561736	41.2910941	55.1472677
2003	-13.9757183	78.3623438	-23.6270529	54.7352909	6.1431169	15.7293796	47.1787833	62.9081629
2004	-14.1574752	81.6283622	-23.6679973	57.9603649	6.2519570	16.5306345	50.7266903	67.2573248
2005	-14.2938791	106.7275741	-23.7301832	82.9973909	8.0069021	20.2247834	60.5160134	80.7407968
2006	-14.7385970	111.6916455	-26.2160936	85.4755519	8.0172156	20.2214244	49.0850937	69.3065181
2007	-11.8024282	146.3654707	-21.2107248	125.1547459	10.9089067	26.2584085	93.2476149	119.5060234
2008	-14.9471457	172.6193817	-26.2930252	146.3263565	10.1894580	28.6187830	60.3876347	89.0064177
2009	-14.6581131	146.7334888	-24.8688316	121.8646572	12.2508947	27.7521553	79.6438938	107.3960491
2010	-14.6892419	157.3555881	-25.0248561	132.3307320	12.7662137	31.1471388	83.3069960	114.4541348
2011	-13.2297879	123.4615179	-22.4386091	101.0229088	12.7688252	27.7231759	83.3379586	111.0611345
2012	-13.3723176	132.4239888	-22.8144009	109.6095879	13.6584002	28.6667108	86.1861297	114.8528405
2013	-13.5117115	148.0906442	-23.0151874	125.0754568	14.8779882	33.1552558	94.5462531	127.7015089
2014	-13.9233382	159.8112198	-23.6465534	136.1646664	15.8920615	33.3692544	101.4977369	134.8669913
2015	-13.8425360	163.6064699	-23.4962180	140.1102519	16.1145282	35.0207774	103.0226598	138.0434372
2016	-14.2025771	173.0579406	-24.1267536	148.9311870	16.2680463	37.3206264	104.0751506	141.3957770
2017	-13.9258575	164.2335244	-23.6734109	140.5601135	16.0488651	35.1540610	102.5725622	137.7266232
2018	-14.0415287	175.2680987	-23.9285500	151.3395487	16.4814390	35.9617638	105.5378794	141.4996432
2019	-14.8939517	182.7485588	-25.4923127	157.2562461	16.8617389	38.4855485	108.1447283	146.6302768
2020	-14.5769742	171.1522725	-24.8481790	146.3040935	15.9976082	35.5990382	102.2212085	137.8202467
2021	-14.5861228	170.9074633	-24.8810648	146.0263985	15.9731479	35.3133435	102.0534527	137.3667962
2022	-14.8011638	165.0601690	-25.2539205	139.8062485	15.4908520	33.6929284	98.7473762	132.4403046
2023	-14.7968307	168.1118447	-25.2466674	142.8651773	15.5765494	34.8025152	99.3348751	134.1373903
2024	-14.9259280	174.5550721	-25.4697527	149.0853194	16.1356475	36.8195894	103.1674163	139.9870057
2025	-14.8087894	171.8179911	-25.2676602	146.5503309	16.0645474	34.4400974	102.6800758	137.1201732
2026	-14.6543486	175.4713955	-25.0013368	150.4700587	16.1723996	37.4605133	103.4194320	140.8799453
2027	-14.9747134	172.8373812	-25.5508815	147.2864997	15.9335540	35.6406851	101.7820589	137.4227440
2028	-14.6676191	172.4120573	-25.0223302	147.3897271	16.0418131	36.0172149	102.5242864	138.5415013
2029	-14.9017141	170.7133573	-25.4280627	145.2852946	15.8418649	35.1210256	101.1536253	136.2746509
2030	-14.6419513	171.0286853	-24.9800081	146.0486772	15.9668726	35.7924348	102.0105661	137.8030009
2031	-14.6871435	169.2444542	-25.0722893	144.1721649	15.7530791	34.2777232	100.5449659	134.8226891
2032	-14.7089599	170.6814096	-25.1864653	145.4949443	16.0602816	35.7034034	102.6508388	138.3542422
2033	-14.7280339	186.1551359	-25.2705553	160.8845806	16.8512039	37.8062957	108.0725480	145.8788437
2034	-14.7278788	173.7075646	-25.2263838	148.4811808	16.2444798	35.9176303	103.9135053	139.8311356
2035	-17.8001752	188.6497076	-30.5411124	158.1085952	15.9195670	36.6983833	101.6862005	138.3845838

TABLE B-18. Variable OMP&R Component of Transportation Charge for Each Contractor [a]

(in 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	121.141	192.606	0	0	0
1967	0	0	0	19.958	53.785	163.255	236.998	0	0	0
1968	6.989	0	6.989	29.899	120.985	341.768	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	49.687	0	431.443	481.130	0	0	0
1971	10.609	0	10.609	23.842	28.328	416.329	468.499	0	0	0
1972	14.434	0	14.434	54.838	144.669	524.208	723.715	0	0	0
1973	14.449	0	14.449	18.398	15.590	547.807	581.795	0	0	0
1974	17.473	0	17.473	9.499	29	636.186	645.714	0	0	0
1975	14.779	0	14.779	22.318	4.765	425.284	452.367	0	0	0
1976	20.856	0	20.856	97.874	121.693	502.769	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	652.860	767.757	0	0	0
1979	16.237	0	16.237	137.101	77.145	652.629	866.875	0	0	0
1980	19.945	0	19.945	98.743	64.891	517.531	681.165	0	0	0
1981	23.842	0	23.842	126.437	141.456	567.968	835.861	0	0	0
1982	12.157	0	12.157	97.117	46.742	651.246	795.105	0	0	0
1983	2.342	0	2.342	8.171	5.412	148.743	162.326	0	0	0
1984	4.822	0	4.822	26.707	13.141	349.314	389.162	0	0	0
1985	10.188	0	10.188	79.863	102.790	466.291	648.944	0	0	0
1986	15.501	0	15.501	112.370	131.118	932.090	1.175.578	0	0	0
1987	27.223	0	27.223	216.211	234.290	812.631	1.263.132	0	0	0
1988	31.265	11.533	42.798	229.578	297.129	779.537	1.306.244	0	0	0
1989	37.874	66.850	104.724	306.533	304.275	1.051.562	1.662.370	0	0	0
1990	54.736	105.421	160.157	524.114	502.545	1.456.008	2.482.667	0	0	0
1991	8.159	18.824	26.983	105.736	142.105	316.839	564.680	0	(2.636)	(2.636)
1992	12.515	23.808	36.323	93.772	122.436	273.849	490.057	0	0	0
1993	(7.223)	(17.293)	(24.516)	(36.162)	(12.912)	(78.024)	(127.098)	0	0	0
1994	39.106	77.257	116.363	231.800	257.533	642.006	1.131.339	0	0	0
1995	15.701	36.724	52.425	160.663	93.610	151.287	405.560	0	0	0
1996	31.526	96.570	128.096	214.883	186.694	735.431	1.137.008	502	0	502
1997	29.683	116.555	146.238	351.185	219.799	912.861	1.483.845	34.932	233.584	268.516
1998	(6.178)	(18.511)	(24.689)	(6.218)	(16.448)	(65.208)	(87.874)	(15.961)	(82.727)	(98.688)
1999	14.757	52.720	67.477	243.434	193.968	450.667	888.069	51.783	278.589	330.372
2000	21.999	94.213	116.212	377.922	239.083	754.700	1.371.705	76.769	440.637	517.406
2001	289.309	531.337	820.646	1.679.427	991.540	2.835.762	5.506.729	529.655	2.342.947	2.872.602
2002	88.266	260.234	348.500	1.044.099	626.264	1.420.252	3.090.615	240.166	1.530.422	1.770.588
2003	127.364	258.679	386.043	1.047.074	630.062	2.237.611	3.914.747	280.147	1.696.611	1.976.758
2004	141.905	337.958	479.863	1.281.030	603.718	1.559.326	3.444.074	280.136	1.997.943	2.278.079
2005	192.704	374.839	567.543	1.465.137	850.315	2.484.981	4.800.433	343.229	1.884.813	2.228.042
2006	612.268	869.696	1.481.964	1.987.206	1.314.443	2.537.608	5.839.257	1.769.257	2.402.441	4.171.698
2007	861.269	1.155.069	2.016.338	2.702.860	1.518.810	2.894.110	7.115.780	576.497	5.435.851	6.012.348
2008	995.852	1.359.482	2.355.334	3.501.728	1.725.781	3.522.002	8.749.511	2.225.160	4.048.546	6.273.706
2009	545.114	689.497	1.234.611	3.498.700	1.740.546	3.456.745	8.695.991	2.684.901	4.885.017	7.569.918
2010	581.321	719.688	1.301.009	3.825.955	1.907.563	3.823.758	9.557.276	2.861.353	5.206.061	8.067.414
2011	591.454	720.495	1.311.949	3.172.102	1.543.758	4.149.565	8.865.425	2.776.528	5.051.727	7.828.255
2012	623.045	744.191	1.367.236	3.228.909	1.570.454	4.225.773	9.025.136	2.871.321	5.224.196	8.095.517
2013	695.878	812.682	1.508.560	3.677.179	1.793.768	4.801.996	10.272.943	3.192.538	5.808.631	9.001.169
2014	763.636	870.057	1.633.693	3.761.472	1.829.452	4.922.821	10.513.745	3.371.675	6.134.560	9.506.235
2015	802.042	883.580	1.685.622	3.910.203	1.905.082	5.110.971	10.926.256	3.451.086	6.279.044	9.730.130
2016	835.502	892.886	1.728.388	4.094.368	2.000.415	5.340.640	11.435.423	3.534.894	6.431.528	9.966.422
2017	847.547	881.277	1.728.824	3.914.066	1.907.769	5.114.434	10.936.269	3.443.166	6.264.633	9.707.799
2018	899.870	906.227	1.806.097	3.996.770	1.947.957	5.222.768	11.167.495	3.537.491	6.436.253	9.973.744
2019	950.895	928.296	1.879.191	4.224.029	2.063.341	5.510.616	11.797.986	3.665.757	6.669.625	10.335.382
2020	921.939	880.274	1.802.213	3.931.580	1.918.143	5.133.716	10.983.439	3.445.506	6.268.892	9.714.398
2021	924.633	879.127	1.803.760	3.906.247	1.905.182	5.101.827	10.913.256	3.434.170	6.248.266	9.682.436
2022	893.252	851.898	1.745.150	3.740.904	1.823.115	4.888.693	10.452.712	3.311.008	6.024.180	9.335.188
2023	898.828	856.737	1.755.565	3.834.032	1.871.047	5.005.369	10.710.448	3.353.435	6.101.373	9.454.808
2024	935.205	888.303	1.823.508	4.037.776	1.972.421	5.267.513	11.277.710	3.499.675	6.367.449	9.867.124
2025	930.579	884.287	1.814.866	3.840.313	1.870.178	5.021.338	10.731.829	3.428.004	6.237.048	9.665.052
2026	937.598	890.377	1.827.975	4.092.236	2.000.475	5.335.694	11.428.405	3.521.999	6.408.065	9.930.064
2027	922.057	876.892	1.798.949	3.925.631	1.915.846	5.124.761	10.966.238	3.435.569	6.250.811	9.686.380
2028	929.100	883.004	1.812.104	3.930.759	1.919.443	5.129.355	10.979.557	3.463.538	6.301.699	9.765.237
2029	916.090	871.715	1.787.805	3.878.835	1.892.147	5.065.371	10.836.353	3.406.866	6.198.589	9.605.455
2030	924.226	878.775	1.803.001	3.945.050	1.925.415	5.149.923	11.020.388	3.445.075	6.268.107	9.713.182
2031	910.314	866.704	1.777.018	3.804.385	1.854.114	4.971.534	10.630.033	3.370.567	6.132.545	9.503.112
2032	930.303	884.046	1.814.349	3.946.901	1.925.462	5.154.025	11.026.388	3.458.856	6.293.181	9.752.037
2033	981.764	928.702	1.910.466	4.160.094	2.030.590	5.430.224	11.620.908	3.646.971	6.635.445	10.282.416
2034	942.287	894.446	1.836.733	3.974.905	1.938.637	5.191.560	11.105.102	3.495.778	6.360.359	9.856.137
2035	921.146	876.102	1.797.248	3.979.408	1.945.679	5.187.935	11.113.022	3.459.615	6.294.561	9.754.176
TOTAL	26,846,804	28,952,230	55,799,034	123,203,121	63,456,345	171,433,271	358,092,737	96,959,614	186,988,866	283,948,480

a) Table B-18 includes extra peaking charges for additional power shown in Table 9.

TABLE B-18. Variable OMP&R Component of Transportation Charge for Each Contractor

(in dollars)

Calendar Year	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	Total
				Municipal and Industrial	Agricultural				
	[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	68,977	5,176	0	0	440,922	2,355	4,760	65,680	587,870
1969	56,774	101	0	0	321,387	181	3,338	17,956	399,737
1970	69,818	6,811	0	0	470,867	0	5,595	16,550	569,641
1971	53,097	7,747	0	0	769,054	4,785	6,353	158,419	999,455
1972	62,365	8,515	0	0	1,151,788	2,057	7,375	379,686	1,611,786
1973	33,931	4,615	0	0	770,121	2,307	3,017	77,630	891,621
1974	49,114	4,413	0	46,752	677,660	2,206	3,114	106,332	889,591
1975	63,140	4,671	0	34,580	848,249	2,491	3,920	134,295	1,091,346
1976	70,851	5,132	0	94,653	966,820	2,737	4,910	100,597	1,245,701
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	1,616,975	4,319	6,294	24,901	1,953,046
1979	107,956	4,871	0	194,048	2,371,175	5,602	13,172	434,472	3,131,297
1980	88,746	1,935	0	121,603	1,731,588	4,762	7,766	163,301	2,119,701
1981	129,687	18,533	0	263,077	2,398,339	7,275	8,904	263,922	3,089,737
1982	108,561	937	0	145,246	2,375,404	4,541	6,763	48,137	2,689,589
1983	61,443	0	0	13,954	929,183	5,662	3,232	1,218	1,014,692
1984	82,423	0	0	216,437	1,996,259	5,946	7,475	10,496	2,319,036
1985	114,571	12,938	0	242,645	2,567,184	8,422	8,815	271,970	3,226,545
1986	236,756	5,513	0	377,798	4,876,960	17,433	16,927	376,088	5,907,475
1987	187,090	10,273	0	504,168	4,230,949	16,140	15,529	375,604	5,339,753
1988	188,170	14,894	0	524,965	4,250,194	15,528	11,928	374,528	5,380,207
1989	285,261	15,450	0	681,238	6,158,648	20,063	21,693	649,604	7,831,957
1990	218,786	7,710	0	845,877	4,778,185	12,056	12,072	344,008	6,218,694
1991	4,393	1,047	0	185,013	47,869	0	521	10,331	249,174
1992	76,840	4,426	0	227,332	1,699,824	6,059	5,222	151,055	2,170,758
1993	20,064	4,843	0	78,585	340,588	2,090	1,467	123,913	571,550
1994	135,626	7,854	0	471,316	3,417,815	9,967	10,102	293,748	4,346,428
1995	181,772	4,611	0	409,656	3,437,735	11,619	10,492	288,010	4,343,895
1996	286,064	9,577	0	715,404	6,328,965	21,039	16,403	1,196,303	8,573,755
1997	308,515	0	0	650,416	5,627,735	0	15,559	94,838	6,697,063
1998	19,652	(28)	0	63,221	63,450	(1)	1,318	(1,107)	146,505
1999	161,490	8,592	0	470,360	3,349,552	10,821	9,074	790,700	4,800,589
2000	196,187	5,830	0	417,007	4,033,798	11,666	10,413	642,667	5,317,568
2001	777,821	25,461	0	442,707	11,535,052	29,205	45,389	1,115,061	13,970,696
2002	418,442	12,018	0	809,800	7,293,812	24,413	29,241	793,881	9,381,607
2003	441,754	13,766	0	1,061,838	9,252,120	35,392	27,905	1,014,620	11,847,395
2004	504,583	36,620	0	1,368,881	8,654,665	93,072	32,722	835,324	11,525,867
2005	998,003	46,843	0	1,133,280	17,846,799	241,987	34,769	1,710,528	22,012,209
2006	715,801	51,697	0	1,370,671	15,586,354	121,436	41,137	1,205,422	19,092,518
2007	880,186	46,049	0	2,009,327	17,054,013	146,154	59,159	1,472,355	21,667,243
2008	1,056,793	55,288	0	2,411,594	20,395,905	174,593	72,452	1,767,778	25,934,403
2009	888,889	46,504	0	2,244,888	17,264,496	147,976	58,363	1,486,912	22,138,028
2010	1,054,017	55,143	0	2,640,997	19,947,794	174,928	73,209	1,763,135	25,709,223
2011	857,527	44,863	0	2,144,411	16,365,941	143,045	57,949	1,434,451	21,048,187
2012	860,622	45,025	0	2,161,617	16,664,530	143,818	56,481	1,439,627	21,371,720
2013	1,048,073	54,832	0	2,615,214	19,836,520	174,608	72,267	1,753,192	25,554,706
2014	1,002,195	52,432	0	2,521,434	19,478,323	167,472	64,970	1,676,447	24,963,273
2015	1,084,141	56,719	0	2,716,347	20,777,935	180,838	72,582	1,813,525	26,702,087
2016	1,207,218	63,158	0	3,013,607	22,789,812	200,856	83,526	2,019,406	29,377,583
2017	1,095,549	57,316	0	2,743,672	20,952,884	182,669	73,698	1,832,609	26,938,397
2018	1,117,060	58,441	0	2,806,087	21,521,431	186,291	73,823	1,868,592	27,631,725
2019	1,239,974	64,871	0	3,100,589	23,511,636	206,352	84,911	2,074,199	30,282,532
2020	1,124,005	58,804	0	2,817,978	21,504,971	187,271	75,514	1,880,208	27,648,751
2021	1,109,025	58,021	0	2,782,851	21,277,495	184,832	74,039	1,855,150	27,341,413
2022	1,043,762	54,606	0	2,624,621	20,162,424	174,095	68,636	1,745,980	25,874,124
2023	1,102,475	57,678	0	2,764,709	21,094,050	183,648	74,088	1,844,193	27,120,841
2024	1,186,079	62,052	0	2,966,299	22,498,024	197,385	81,210	1,984,045	28,975,094
2025	1,053,709	55,127	0	2,655,135	20,488,816	175,884	68,173	1,762,620	26,259,464
2026	1,220,724	63,864	0	3,047,921	23,028,708	203,018	84,582	2,041,998	29,690,815
2027	1,130,066	59,121	0	2,834,128	21,622,995	188,235	75,900	1,890,347	27,800,792
2028	1,145,449	59,926	0	2,869,314	21,846,956	190,764	74,647	1,916,080	28,103,136
2029	1,105,525	57,837	0	2,774,623	21,212,110	184,224	73,797	1,849,296	27,257,412
2030	1,136,857	59,477	0	2,847,776	21,689,401	189,347	76,868	1,901,708	27,901,434
2031	1,062,259	55,574	0	2,672,188	20,536,796	177,177	69,690	1,776,921	26,350,605
2032	1,126,396	58,929	0	2,822,939	21,535,762	187,678	75,795	1,884,208	27,691,707
2033	1,201,628	62,865	0	3,015,146	23,010,700	200,127	80,476	2,010,054	29,580,996
2034	1,128,117	59,019	0	2,830,298	21,635,709	188,013	75,359	1,887,088	27,803,603
2035	1,191,520	62,336	0	2,995,653	22,841,732	198,202	79,697	1,993,146	29,362,286
TOTAL	39,179,873	2,021,965	0	92,909,441	748,260,537	6,008,777	2,589,149	67,329,025	958,298,768

TABLE B-18. Variable OMP&R Component of Transportation Charge for Each Contractor

(in dollars)

Calendar Year	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	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District
	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[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	39.430	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	12.785	0	4.496	1.515	0	32.107	0
1973	286	28.968	102.812	6.896	159.536	3.855	0	0	301.444	0
1974	15.558	28.982	100.955	9.890	157.742	4.932	221	0	177.173	5.961
1975	99.186	28.568	108.253	12.758	170.111	6.391	0	0	136.066	50.723
1976	385.090	38.365	135.276	17.835	213.594	8.164	0	0	139.354	65.476
1977	199.166	21.006	0	23.598	0	1.974	1.702	0	239.663	74.838
1978	581.729	45.550	174.116	20.875	264.178	2.731	0	0	37.043	67.462
1979	1,058.904	83.940	228.437	28.603	340.510	2.328	90.803	0	236	3.668
1980	1,390.117	51.143	256.759	29.229	401.038	3.667	94.362	0	0	16.504
1981	1.480.362	118.583	274.149	33.632	430.304	23.861	90.590	0	254.649	57.523
1982	923.973	132.575	292.674	27.190	461.216	0	230.608	0	126.461	189.895
1983	333.772	(335.712)	172.336	10.792	272.477	385	0	0	(71.602)	(8.768)
1984	485.847	(142.910)	273.597	19.572	433.785	15	0	0	(66.353)	(91.433)
1985	821.069	(335.343)	413.406	34.603	657.011	0	0	32.464	(47.544)	(32.348)
1986	1,109.047	54.812	728.808	60.274	1,160.650	5.548	0	105.375	69.170	101.843
1987	1.019.605	(40.745)	668.383	63.601	1.083.530	32.651	585	157.843	88.076	49.930
1988	1,019.793	(74.006)	688.891	66.914	1,134.141	11,991	300	50.654	92.465	38.688
1989	1,736.901	178.359	978.885	97.114	1,633.489	38.269	8.951	350.953	340.460	210.334
1990	2,442.558	422.502	1,402.619	110.934	2,313.410	90.472	0	446.408	599.573	530.099
1991	286.485	(3.054)	277.078	33.945	456.999	17.978	128.405	132.700	35.339	52.116
1992	587.340	(208.900)	240.119	11.952	396.022	4.871	241.338	78.306	(22.718)	(53.500)
1993	(190.611)	(491.161)	(809.033)	(2.389)	(1.334.429)	(3.246)	(61.112)	(29.466)	(157.452)	(519.798)
1994	1.841.902	66.338	189.616	34.480	312.714	41.201	731.185	315.446	122.829	204.783
1995	761.209	(247.735)	(251.547)	7.960	(414.889)	7.727	165.622	114.342	(7.579)	(140.714)
1996	1,883.530	72.171	508.274	18.313	838.330	16.510	289.044	385.745	49.537	133.848
1997	2,121.818	22.440	365.342	24.076	330.153	15.099	414.596	438.212	61.553	115.882
1998	(553.432)	(722.825)	(3,952.729)	(2.892)	(3,258.099)	(4.225)	(44.233)	(80.469)	(86.610)	(429.359)
1999	1.218.255	(530.571)	(679.666)	18.353	(782.262)	6.032	167.446	245.763	(173.336)	(242.474)
2000	1.762.537	(352.398)	(422.891)	24.463	(581.873)	0	286.211	191.064	(183.843)	(151.279)
2001	10.827.817	4.470.124	1.505.453	207.527	2.483.171	0	854.664	1.796.639	4.382.027	390.425
2002	3.846.682	1.896.064	705.816	158.247	1.164.355	0	324.654	1.221.084	3.011.471	1.046.866
2003	4,984.131	2.894.664	872.808	142.251	1.439.410	0	1,398.478	958.733	1.656.721	1.325.498
2004	5,021.152	3.147.856	958.231	184.956	1,312.960	0	1,293.614	1,021.566	3.479.126	777.056
2005	6.424.244	3.349.052	2.876.377	24.670	4.109.863	0	1.715.312	1.257.555	1.576.917	1.170.778
2006	8,477.497	3.896.596	6.314.971	368.074	2,607.337	91.081	5.215.910	2,081.661	7,822.220	1.581.089
2007	7,697.860	6.415.288	14.793.464	548.075	4.377.225	330.919	3.106.484	3.064.602	10.267.739	1.697.147
2008	21.431.162	10.666.083	18.646.414	1.174.930	7.698.767	391.816	13.911.938	3.628.555	15.797.870	4.434.490
2009	20.430.121	8.909.572	15.637.016	986.575	6.456.241	334.428	13.483.462	3.097.090	13.248.207	3.718.795
2010	21.863.678	9.711.788	17.092.703	1.056.351	7.057.268	357.865	14.402.884	3.314.137	14.481.514	4.064.986
2011	17.404.070	9.175.897	13.824.012	815.723	5.707.685	283.093	11.029.790	2.621.688	11.712.169	3.287.626
2012	18.584.065	10.434.833	14.981.799	875.364	6.185.714	302.287	11.840.307	2.799.438	12.693.085	3.562.971
2013	20.701.612	11.907.183	17.150.259	976.147	7.081.032	336.731	13.138.589	3.118.418	14.530.278	4.078.674
2014	22.265.033	12.962.876	18.702.825	1.052.993	7.722.058	362.161	14.141.226	3.353.926	15.845.663	4.447.905
2015	22,774.703	13.338.496	19,167.322	1.077.166	7,913.841	370.451	14.461.635	3,430.701	16.239.201	4.558.372
2016	24,076.745	14,178.249	20,419.637	1.140.646	8,430.899	391.630	15.309.794	3.626.836	17.300.204	4.856.198
2017	22.874.124	13.381.323	19.225.232	1.081.836	7.937.751	372.069	14.525.531	3.445.678	16.288.265	4.572.144
2018	24,338.518	14,407.525	20.688.720	1.156.087	8,541.998	395.888	15.542.831	3.666.269	17.528.181	4.920.191
2019	25,394.949	14,970.795	21,617.107	1.198.930	8,925.312	413.072	16.068.268	3,825.406	18,314.741	5.140.980
2020	23.845.648	13.928.150	20.051.773	1.128.410	8.279.014	387.871	15.161.373	3.592.025	16.988.537	4.768.712
2021	23,812.112	13,901.713	20,055.978	1.126.963	8,280.751	387.326	15.145.637	3,586.973	16.992.100	4.769.712
2022	23,042.192	13,309.555	19,297.667	1.088.721	7,967.658	374.802	14.647.892	3,470.995	16.349.633	4.589.371
2023	23.455.890	13.600.765	19.654.556	1.108.811	8.115.011	381.531	14.917.747	3.533.313	16.652.002	4.674.246
2024	24,321.149	14,192.922	20,494.084	1.147.763	8,461.637	395.606	15,411.824	3,663.653	17,363.279	4.873.903
2025	23.930.769	13.951.592	20,215.583	1.132.511	8,346.649	389.256	15,218.509	3.604.847	17.127.323	4.807.670
2026	24,436.041	14,324.750	20,600.952	1,155.039	8,505.760	397.475	15.514.299	3,680.960	17,453.820	4.899.318
2027	24,093.428	14,021.675	20,308.920	1,138.718	8,385.186	391.902	15,299.021	3,629.349	17,206.402	4.829.867
2028	24,021.347	14,031.502	20,228.715	1,135.938	8,352.071	390.729	15,260.247	3,618.491	17,138.449	4,810.793
2029	23,805.507	13,831.160	20,022.167	1,124.891	8,266.791	387.218	15,119.025	3,585.978	16,963.455	4,761.672
2030	23,835.865	13,903.834	20,054.515	1,126.817	8,280.146	387.712	15,139.792	3,590.551	16,990.860	4,769.364
2031	23,581.583	13,725.190	19,834.534	1,114.856	8,189.320	383.576	15,018.702	3,552.247	16,804.485	4,717.048
2032	23,780.153	13,851.119	19,974.371	1,120.290	8,247.057	386.806	15,067.227	3,582.159	16,922.960	4,750.305
2033	25,830.513	15,316.212	22,029.444	1,223.733	9,095.559	420.157	16,448.301	3,891.018	18,664.087	5,239.042
2034	24,180.847	14,135.408	20,406.343	1,140.203	8,425.410	393.324	15,336.623	3,642.518	17,288.942	4,853.036
2035	26,345.582	15,051.938	22,218.564	1,235.845	9,173.643	428.535	16,599.377	3,968.606	18,824.316	5,284.018
TOTAL	720,559.566	393,283.591	573,093.251	33,331.413	248,773.939	11,360.994	429,909.106	112,459.005	493,992.410	137,330.168

TABLE B-18. Variable OMP&R Component of Transportation Charge for Each Contractor

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA					
	San Gorgonio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC&WCD	Total	South Bay Area Future Contractor	GRAND 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	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	192,606
1967	0	0	0	0	0	0	0	0	0	236,998
1968	0	0	0	30,401	0	0	0	0	0	1,117,912
1969	0	0	0	30,627	0	0	0	0	0	773,646
1970	0	0	0	39,430	0	0	0	0	0	1,103,799
1971	0	0	0	34,871	0	0	0	0	0	1,513,434
1972	0	848,011	0	947,266	0	0	0	0	0	3,297,202
1973	0	1,083,328	0	1,687,126	0	0	0	0	0	3,174,991
1974	0	1,872,297	0	2,373,712	0	0	0	0	0	3,926,489
1975	0	3,887,152	0	4,499,209	0	0	0	0	0	6,057,701
1976	0	5,485,263	0	6,488,418	0	0	0	0	0	8,477,311
1977	0	(796,686)	0	(234,739)	0	0	0	0	0	1,152,444
1978	0	3,696,428	0	4,890,112	0	0	0	0	0	7,632,606
1979	0	4,021,960	0	5,859,389	0	0	0	0	0	9,873,798
1980	0	5,362,245	0	7,605,064	0	0	0	0	0	10,425,875
1981	0	10,862,932	0	13,626,585	0	0	0	0	0	17,576,025
1982	0	7,685,168	0	10,069,760	0	0	0	0	0	13,566,611
1983	0	(8,994,497)	0	(8,620,817)	0	0	0	0	0	(7,441,457)
1984	0	(7,633,741)	0	(6,721,621)	0	0	0	0	0	(4,008,601)
1985	0	(15,213,299)	0	(13,669,981)	0	0	0	0	0	(9,784,304)
1986	0	1,135,478	0	4,531,005	0	0	0	0	0	11,629,559
1987	0	(3,007,097)	0	116,362	0	0	0	0	0	6,746,470
1988	0	(3,407,929)	0	(378,098)	0	0	0	0	0	6,351,151
1989	0	9,488,536	0	15,062,251	0	0	0	0	0	24,661,302
1990	0	30,759,725	204,582	39,322,882	0	0	0	0	0	48,184,400
1991	0	184,870	22,623	1,625,484	0	0	0	0	0	2,463,685
1992	0	(9,471,028)	0	(8,196,198)	0	0	0	0	0	(5,499,060)
1993	0	(21,473,875)	0	(25,072,572)	0	0	0	0	0	(24,652,636)
1994	0	4,059,683	0	7,920,177	0	0	0	0	0	13,514,307
1995	0	(4,895,977)	0	(4,901,581)	0	0	0	0	0	(99,701)
1996	0	1,859,275	0	6,054,577	0	0	0	0	0	15,893,938
1997	0	2,428,729	(921)	6,336,979	0	0	0	0	0	14,932,641
1998	0	(14,440,371)	(67,583)	(23,642,827)	0	0	0	0	0	(23,707,573)
1999	0	(10,520,287)	(35,124)	(11,307,871)	0	0	0	0	0	(5,221,364)
2000	0	(14,717,733)	7,302	(14,138,440)	0	0	0	0	0	(6,815,549)
2001	0	158,911,350	267,050	186,096,247	0	0	0	0	0	209,266,920
2002	0	57,208,907	271,168	70,855,314	0	0	0	0	0	85,446,624
2003	7,010	89,819,141	348,102	105,846,947	0	0	0	0	0	123,971,890
2004	52,109	102,056,117	400,088	119,704,831	0	0	0	0	0	137,432,714
2005	57,936	108,335,701	138,191	131,036,596	0	0	0	0	0	160,644,823
2006	280,549	170,559,710	427,378	209,724,073	0	0	0	0	0	240,309,510
2007	1,060,717	228,593,024	2,569,909	284,522,453	0	0	0	0	0	321,334,162
2008	2,663,773	202,844,808	3,009,350	306,299,956	0	0	0	0	0	349,612,910
2009	2,233,859	169,323,956	2,515,630	260,374,952	0	0	0	0	0	300,013,500
2010	2,441,815	184,273,086	2,725,443	282,843,518	0	0	0	0	0	327,478,440
2011	1,974,859	204,716,385	2,091,140	284,644,137	0	0	0	0	0	323,697,953
2012	2,140,257	221,991,008	2,264,057	308,655,185	0	0	0	0	0	348,514,794
2013	2,450,037	253,712,062	2,574,007	351,755,029	0	0	0	0	0	398,092,407
2014	2,671,832	276,440,025	2,797,780	382,766,303	0	0	0	0	0	429,383,249
2015	2,738,189	283,884,801	2,876,218	392,831,096	0	0	0	0	0	441,875,191
2016	2,917,091	302,090,302	3,054,623	417,792,854	0	0	0	0	0	470,300,670
2017	2,746,462	284,769,772	2,885,774	394,105,961	0	0	0	0	0	443,417,250
2018	2,955,531	306,529,087	3,102,166	423,772,992	0	0	0	0	0	474,352,053
2019	3,088,158	319,385,947	3,225,426	441,569,091	0	0	0	0	0	495,864,182
2020	2,864,539	296,705,536	3,004,354	410,705,942	0	0	0	0	0	460,854,743
2021	2,865,140	296,450,985	2,998,903	410,374,293	0	0	0	0	0	460,115,158
2022	2,756,810	284,524,287	2,875,675	394,295,258	0	0	0	0	0	441,702,432
2023	2,807,794	290,272,512	2,936,831	402,111,009	0	0	0	0	0	451,152,671
2024	2,927,726	302,792,243	3,061,936	419,107,725	0	0	0	0	0	471,051,161
2025	2,887,941	298,154,618	3,010,600	412,777,868	0	0	0	0	0	461,249,079
2026	2,942,993	304,995,036	3,088,155	421,994,598	0	0	0	0	0	474,871,857
2027	2,901,274	299,592,376	3,026,215	414,824,333	0	0	0	0	0	465,076,692
2028	2,889,816	299,112,763	3,026,615	414,017,476	0	0	0	0	0	464,677,510
2029	2,860,310	295,442,815	2,985,804	409,156,793	0	0	0	0	0	458,643,818
2030	2,864,931	296,463,187	2,999,661	410,407,235	0	0	0	0	0	460,845,240
2031	2,833,505	292,929,280	2,962,421	405,646,747	0	0	0	0	0	453,907,515
2032	2,853,482	295,309,169	2,989,236	408,834,334	0	0	0	0	0	459,118,815
2033	3,147,063	326,123,959	3,297,294	450,726,382	0	0	0	0	0	504,121,168
2034	2,915,192	301,530,972	3,049,087	417,297,905	0	0	0	0	0	467,899,480
2035	3,174,081	324,653,312	3,258,376	450,216,193	0	0	0	0	0	502,242,925
TOTAL	78,972,781	8,710,646,800	86,245,542	12,029,958,568	0	0	0	0	0	13,686,097,586

TABLE B-19. Total Transportation Charge for Each Contractor

(in 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	21,132	76,669	0	0	0
1963	0	0	0	199,673	190,236	447,594	837,503	0	0	0
1964	0	0	0	263,210	277,398	621,174	1,161,782	6,694	21,659	28,353
1965	0	0	0	373,722	404,239	1,157,791	1,935,752	13,751	36,017	49,768
1966	18,057	0	18,057	419,362	421,628	1,412,600	2,253,590	26,516	61,329	87,845
1967	41,560	0	41,560	538,988	498,337	1,685,708	2,723,033	56,450	118,225	174,675
1968	128,588	0	128,588	663,603	603,365	1,984,791	3,251,759	115,927	229,740	345,667
1969	254,662	0	254,662	787,031	539,211	2,082,793	3,409,035	185,117	358,783	543,900
1970	277,493	0	277,493	822,758	532,434	2,202,293	3,557,485	200,110	387,595	587,705
1971	227,419	0	227,419	787,810	551,979	2,169,422	3,509,211	202,372	392,830	595,202
1972	224,922	0	224,922	829,451	678,385	2,319,944	3,827,780	209,015	406,506	615,521
1973	221,035	31,353	252,388	794,675	549,258	2,338,141	3,682,074	206,516	402,639	609,155
1974	240,442	32,924	273,366	818,457	564,459	2,505,879	3,888,795	208,503	407,005	615,508
1975	237,400	36,276	273,676	868,312	605,595	2,409,443	3,883,350	225,853	439,786	665,639
1976	271,231	40,819	312,050	959,078	734,676	2,500,026	4,193,780	228,933	447,212	676,145
1977	293,565	45,078	338,643	923,250	713,422	2,475,917	4,112,589	238,656	468,632	707,288
1978	273,807	49.159	322.966	978.585	692.451	2.785.503	4,456.539	245,286	484.166	729,452
1979	289.415	53.320	342.735	1,043.753	736,221	2.813.091	4.593.065	243.064	483.342	726.406
1980	310.779	67.724	378.502	1,161.767	866,233	3.027.715	5.055.715	269.812	536.977	806.789
1981	347,710	87,377	435,087	1,127,434	879,216	2,917,088	4,923,738	288,950	586,152	875,102
1982	438,260	106,881	545,141	1,165,322	850,343	3,261,612	5,277,277	290,002	582,655	872,657
1983	354,703	151,207	505,911	1,176,878	900,223	3,794,952	5,872,053	319,167	633,079	952,246
1984	467,232	224,170	691,403	1,469,016	1,097,338	5,737,303	8,303,657	351,573	695,455	1,047,028
1985	735,929	364,186	1,100,115	1,919,455	1,789,224	6,551,042	10,259,721	394,545	776,889	1,171,434
1986	1,084,468	692,256	1,776,724	1,746,659	1,528,587	6,862,724	10,137,970	385,497	762,577	1,148,074
1987	1,773,371	1,558,749	3,332,120	2,236,518	2,011,731	6,674,848	10,923,097	385,240	812,198	1,197,438
1988	2,231,006	2,333,097	4,564,103	2,238,150	2,210,377	6,368,341	10,816,868	420,101	978,488	1,398,589
1989	2,396,678	3,325,671	5,722,349	2,154,455	1,871,882	5,916,199	9,942,536	414,171	1,162,567	1,576,738
1990	2,745,521	3,432,532	6,178,053	2,573,752	2,261,764	6,667,922	11,503,438	487,553	1,234,234	1,721,787
1991	2,748,016	3,681,509	6,429,525	1,753,376	1,621,035	4,527,400	7,901,811	491,359	1,476,188	1,967,547
1992	2,553,906	3,528,155	6,082,061	2,074,547	2,003,168	5,385,315	9,463,030	550,978	1,490,922	2,041,900
1993	2,592,266	3,503,436	6,095,702	2,879,786	2,011,060	6,511,316	11,402,162	610,046	1,675,150	2,285,196
1994	2,717,706	3,536,656	6,254,362	2,906,520	2,642,290	7,313,944	12,862,754	767,812	2,472,978	3,240,790
1995	2,648,648	3,509,127	6,157,775	3,034,893	2,288,863	5,893,110	11,216,866	995,188	4,975,940	5,971,128
1996	2,698,584	3,890,907	6,589,491	2,584,033	2,137,277	6,674,929	11,396,239	1,837,045	13,762,994	15,600,039
1997	2,641,264	3,630,366	6,271,631	2,657,288	2,007,165	6,550,905	11,215,358	2,294,408	21,854,823	24,149,231
1998	2,538,666	3,478,852	6,017,518	2,266,317	2,066,608	6,302,898	10,635,823	2,977,681	26,603,247	29,580,928
1999	2,680.098	3.827.995	6.508.093	2,854,240	2,432,691	8.329.945	13.616.876	3.026,766	27.400.521	30.427.287
2000	2.832.254	4.307.492	7.139.746	3.914.367	2.305.297	7.035.630	13.255.294	2.961.476	28.194.146	31.155.622
2001	3,345.975	4,910.381	8,256.356	5,221.304	2,795.887	9.020.109	17,037.300	3,512.117	30,214.029	33.726.146
2002	3.551.401	5,041.301	8.592.703	5.009.756	2.765.455	9.893.110	17.668.321	3.222.824	29.892.377	33.115.201
2003	3,660.175	5,383.193	9,043.368	4,826.354	2,492.705	8,679.255	15,998.314	3.302.249	30.145.999	33.448.248
2004	4,140,126	5,595,671	9,735,797	5,659,101	2,792,486	8,149,125	16,600,712	3,319,474	30,643,388	33,962,862
2005	3,515,496	5,127,627	8,643,123	5,855,730	3,061,038	9,189,090	18,105,858	3,463,147	30,999,961	34,463,108
2006	4,332,110	6,073,120	10,405,230	6,693,651	3,759,204	9,882,121	20,334,976	5,467,613	31,639,426	37,107,039
2007	4,786,418	6,451,513	11,237,931	7,952,209	4,182,838	10,781,682	22,916,729	3,777,497	35,469,254	39,246,751
2008	5,378,515	6,826,562	12,205,077	9,410,367	4,665,940	12,133,589	26,209,896	6,282,210	34,521,273	40,803,483
2009	4,755,139	5,021,690	9,776,829	9,424,619	4,762,431	12,057,871	26,244,921	6,562,007	33,793,995	40,356,002
2010	4,797,348	5,054,276	9,851,624	9,762,202	4,934,772	12,436,909	27,133,883	6,748,133	34,158,126	40,906,259
2011	4,753,895	5,072,872	9,826,767	8,931,602	4,469,798	12,881,963	26,283,363	6,442,599	33,632,833	40,075,432
2012	4,789,448	5,098,510	9,887,958	8,992,584	4,498,625	12,963,915	26,455,124	6,541,448	33,839,960	40,381,408
2013	4,777,169	5,084,588	9,861,757	8,865,851	4,420,401	12,650,095	25,936,347	6,543,881	33,845,422	40,389,303
2014	4,753,594	5,055,270	9,808,864	8,458,828	4,185,208	12,054,153	24,698,189	6,382,450	33,542,902	39,925,352
2015	4,779,976	5,057,487	9,837,463	8,474,918	4,143,918	11,798,306	24,417,142	6,408,332	33,589,534	39,997,866
2016	4,789,424	5,062,430	9,851,854	8,604,763	4,200,902	11,833,908	24,639,573	6,468,676	33,695,388	40,164,064
2017	4,775,083	5,051,132	9,826,215	8,349,358	4,077,620	11,492,184	23,919,162	6,345,719	33,470,000	39,815,719
2018	4,727,523	5,068,739	9,796,262	8,272,546	4,057,183	11,425,348	23,755,077	6,360,070	33,494,324	39,854,394
2019	4,727,835	5,088,815	9,816,650	8,390,989	4,135,602	11,607,301	24,133,892	6,469,341	33,689,306	40,158,647
2020	4,696.050	5,042.418	9,738.468	8,067.584	3,977.872	11,198.068	23,243.524	6,247.690	33,285.998	39,533.688
2021	4,700.721	5,045.121	9,745.842	8,052.514	3,970,398	11,182.492	23,205.404	6,246,931	33,284,100	39,531,031
2022	4,666.912	5,017.317	9,684.229	7,881.951	3,885.270	10,959,101	22,726.322	6,120.063	33,051,631	39,171,694
2023	4,667.175	4,984.289	9,651.464	7,958.567	3,925.437	11,053.536	22,937.540	6,150.366	33,104.448	39,254.814
2024	4,698.301	5,013.035	9,711.336	8,153.019	4,022.055	11,302.527	23,477.601	6,288.615	33,355.895	39,644.510
2025	4,679,265	5,002,217	9,681,482	7,933,931	3,909,208	11,027,712	22,870,851	6,198,918	33,193,347	39,392,265
2026	4,679,675	5,001,317	9,680,992	8,180,420	4,036,704	11,334,286	23,551,410	6,291,628	33,357,657	39,649,285
2027	4,663,808	4,987,978	9,651,786	8,020,986	3,955,358	11,131,852	23,108,196	6,207,044	33,204,756	39,411,800
2028	4,664,198	4,985,356	9,649,554	8,012,395	3,951,768	11,115,942	23,080,105	6,226,505	33,232,102	39,458,607
2029	4,648,244	4,971,322	9,619,566	7,958,320	3,923,133	11,048,794	22,930,247	6,169,724	33,127,277	39,297,001
2030	4,643,518	4,960,798	9,604,316	8,014,440	3,951,380	11,120,025	23,085,845	6,203,234	33,182,556	39,385,790
2031	4,616,859	4,932,355	9,549,214	7,870,180	3,877,345	10,936,043	22,683,568	6,125,740	33,032,365	39,158,105
2032	4,620,106	4,923,073	9,543,179	8,004,313	3,944,888	11,106,998	23,056,199	6,211,781	33,188,403	39,400,184
2033	4,641,198	4,922,725	9,563,923	8,222,295	4,052,781	11,390,886	23,665,962	6,401,248	33,539,181	39,940,429
2034	4,528,784	4,812,307	9,341,091	8,024,897	3,953,990	11,134,456	23,113,343	6,248,488	33,258,990	39,507,478
2035	4,357,845	4,645,023	9,002,868	8,010,016	3,951,013	11,104,917	23,065,946	6,208,992	33,182,064	39,391,056
TOTAL	201,845,970	229,899,103	431,745,073	333,500,802	184,810,066	545,316,049	1,063,626,917	226,298,887	1,299,671,913	1,525,970,800

TABLE B-19. Total Transportation Charge for Each Contractor

(in dollars)

Calendar Year	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	Total
				Municipal and Industrial	Agri-cultural				
	[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	2,724	0	0	0	0	0	2,724
1965	0	0	6,027	73,543	0	0	0	0	79,570
1966	0	0	12,035	137,285	0	0	0	0	149,320
1967	0	0	26,249	267,525	0	0	0	0	293,774
1968	184,168	8,886	54,573	445,315	1,542,385	13,767	11,548	208,536	2,469,178
1969	179,773	7,577	87,557	524,952	2,387,979	12,621	10,548	355,668	3,566,676
1970	201,748	14,344	94,656	573,846	2,909,892	12,786	13,083	292,697	4,113,053
1971	197,960	15,302	95,676	605,729	3,816,811	17,759	14,381	447,754	5,211,373
1972	220,461	16,170	98,769	631,452	4,984,213	15,216	20,629	1,078,359	7,065,270
1973	202,990	12,241	97,531	639,086	4,915,777	15,480	11,682	407,990	6,302,777
1974	282,623	12,210	98,440	698,081	5,217,241	15,586	12,759	596,073	6,933,013
1975	349,567	13,155	106,683	715,440	6,337,132	16,616	14,442	726,513	8,279,548
1976	304,684	13,701	108,064	774,124	6,690,214	16,990	16,109	563,293	8,487,179
1977	266,670	10,811	112,534	797,692	6,864,009	18,453	13,895	510,238	8,594,301
1978	355,506	4,441	115,500	890,776	8,316,063	18,918	17,933	503,815	10,222,952
1979	385,416	13,548	114,232	896,025	9,440,248	20,198	24,864	952,516	11,847,048
1980	406,516	11,898	125,929	888,723	9,996,836	20,745	24,228	736,879	12,211,755
1981	470,007	29,739	134,147	1,079,139	11,440,913	24,935	22,906	908,148	14,109,935
1982	464,516	12,889	135,036	1,004,493	12,272,433	22,951	22,370	745,479	14,680,167
1983	637,690	14,483	149,180	1,027,082	15,479,376	39,967	29,127	428,002	17,804,908
1984	910,228	14,897	164,483	2,063,001	23,605,500	54,424	59,610	783,561	27,655,704
1985	1,098,641	87,458	184,883	2,350,412	27,911,512	69,479	70,139	2,170,356	33,942,880
1986	1,262,744	33,914	180,423	2,364,977	30,490,589	80,765	75,998	2,181,725	36,671,135
1987	1,121,185	50,709	179,850	2,804,592	29,274,226	78,014	74,244	2,240,660	35,823,480
1988	1,106,658	61,504	193,712	2,750,239	29,186,168	74,164	60,118	2,198,227	35,630,790
1989	1,142,042	49,186	187,891	2,435,448	29,247,553	67,045	68,581	2,441,530	35,639,276
1990	865,340	34,348	221,368	2,541,124	27,362,503	51,053	49,009	1,868,258	32,993,003
1991	582,223	23,253	220,258	2,055,047	17,561,895	27,925	26,778	1,228,823	21,726,203
1992	951,603	39,089	241,431	2,369,575	25,860,016	55,791	50,832	1,905,963	31,474,300
1993	1,163,893	53,616	264,933	2,799,265	31,374,185	72,885	69,515	2,639,551	38,437,843
1994	1,018,998	43,743	306,333	2,808,612	29,250,068	60,456	57,282	2,115,514	35,661,006
1995	1,515,671	46,600	304,270	3,499,388	36,373,551	88,870	80,105	2,769,591	44,678,047
1996	1,374,852	48,232	389,175	3,559,914	36,686,273	86,087	73,753	4,315,482	46,533,768
1997	1,416,695	25,389	276,653	3,107,536	32,946,645	36,710	68,613	1,669,559	39,547,800
1998	1,269,673	34,373	381,853	2,733,889	29,719,479	41,834	60,057	1,800,922	36,042,080
1999	1,220,198	53,899	366,504	3,051,649	31,032,268	73,158	62,333	4,004,515	39,864,523
2000	1,093,458	37,922	303,259	2,582,958	26,606,360	61,858	54,639	2,783,050	33,523,504
2001	1,767,905	62,679	327,968	2,632,892	33,967,664	79,891	100,521	3,048,118	41,987,639
2002	1,340,915	43,367	321,476	2,957,019	28,631,934	72,944	77,296	2,500,695	35,945,647
2003	1,410,424	48,093	340,003	3,257,112	31,583,096	88,804	78,269	2,837,756	39,643,557
2004	1,469,385	77,202	343,909	3,701,642	30,721,725	231,787	81,127	2,370,670	38,997,446
2005	2,099,651	89,829	356,697	3,295,863	42,361,142	424,670	82,619	3,492,683	52,203,154
2006	1,786,850	99,237	356,343	3,778,380	40,541,204	285,481	94,018	2,916,324	49,857,838
2007	2,063,054	93,151	367,989	4,699,110	43,469,382	323,300	120,094	3,324,220	54,460,300
2008	2,321,355	106,519	380,595	5,198,490	48,449,124	364,785	138,252	3,751,870	60,710,990
2009	2,001,279	89,873	363,376	4,889,920	42,808,816	317,323	116,397	3,224,903	53,811,887
2010	2,168,385	98,617	363,827	5,292,939	45,529,471	344,660	131,383	3,504,454	57,433,736
2011	1,893,719	84,235	365,305	4,600,665	40,465,453	299,847	110,773	3,044,696	50,864,693
2012	1,896,879	84,401	365,870	4,619,970	40,765,877	300,687	109,306	3,049,963	51,192,953
2013	1,972,234	88,341	366,014	4,791,203	41,812,120	312,899	117,479	3,175,958	52,636,248
2014	1,808,992	79,798	363,349	4,401,741	39,227,012	286,311	102,210	2,902,836	49,172,249
2015	1,874,633	83,231	360,236	4,482,043	40,219,457	296,973	108,711	3,012,595	50,437,879
2016	1,993,768	89,467	353,913	4,705,710	42,153,054	316,346	119,400	3,211,967	52,943,625
2017	1,881,726	83,604	339,826	4,304,555	40,310,394	298,094	109,541	3,024,510	50,352,250
2018	1,892,092	84,143	317,309	4,221,675	40,668,952	290,456	108,895	3,041,780	50,625,302
2019	2,014,388	90,544	308,520	4,454,948	42,643,983	309,673	119,957	3,246,450	53,188,463
2020	1,899,353	84,524	306,942	4,141,918	40,657,766	290,457	110,619	3,053,971	50,545,550
2021	1,888,932	83,979	305,966	4,096,411	40,518,482	288,608	109,454	3,036,521	50,328,353
2022	1,823,042	80,531	305,264	3,926,398	39,389,974	277,679	103,998	2,926,290	48,833,176
2023	1,877,547	83,386	304,618	4,051,673	40,239,769	286,503	109,184	3,017,552	49,970,232
2024	1,958,881	87,640	304,185	4,245,328	41,601,404	299,826	116,144	3,153,570	51,766,978
2025	1,820,685	80,408	303,889	3,917,030	39,484,759	277,313	102,706	2,922,336	48,909,126
2026	1,987,373	89,132	303,147	4,306,968	42,012,869	304,360	119,104	3,201,278	52,324,231
2027	1,898,218	84,460	303,325	4,093,930	40,645,310	289,751	110,503	3,051,950	50,477,447
2028	1,912,327	85,205	300,043	4,123,875	40,835,028	291,976	109,182	3,075,743	50,733,379
2029	1,872,767	83,134	300,076	4,027,052	40,211,408	285,427	108,354	3,009,502	49,897,720
2030	1,902,713	84,703	299,551	4,093,701	40,659,806	290,256	111,342	3,059,662	50,501,734
2031	1,829,414	80,860	298,766	3,902,821	39,540,564	277,873	104,215	2,936,819	48,971,332
2032	1,892,064	84,147	297,700	4,052,297	40,499,192	288,160	110,252	3,041,881	50,265,693
2033	1,967,847	88,108	297,895	4,241,075	41,991,252	300,564	114,967	3,168,552	52,170,260
2034	1,894,499	84,270	297,310	4,050,210	40,619,387	288,324	109,852	3,045,830	50,389,682
2035	1,957,231	87,556	296,054	4,204,841	41,806,416	298,173	114,157	3,150,883	51,915,311
TOTAL	90,264,924	3,877,910	17,630,077	204,309,340	2,014,143,559	11,263,687	5,132,389	156,114,035	2,502,735,921

TABLE B-19. Total Transportation Charge for Each Contractor

(in dollars)

Calendar Year	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	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District
	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0
1963	33,309	0	0	0	0	0	0	0	51,711	0
1964	62,847	27,438	16,286	4,369	37,145	1,142	28,427	8,202	82,782	34,973
1965	118,565	52,989	28,459	7,191	40,756	2,081	50,300	15,217	135,023	35,333
1966	215,713	101,232	51,184	12,474	73,129	3,752	90,369	27,670	232,426	61,445
1967	417,348	210,746	98,904	23,464	141,365	7,282	175,119	54,006	433,210	115,536
1968	744,206	478,065	176,688	41,496	251,125	12,866	311,081	95,438	781,930	208,864
1969	1,072,647	724,212	264,900	61,208	370,850	18,688	458,937	138,023	1,205,472	321,659
1970	1,395,848	904,061	371,728	89,673	519,163	25,223	632,989	184,783	1,777,650	467,431
1971	1,727,773	1,087,835	503,422	128,321	712,537	31,827	857,146	231,214	2,538,403	659,218
1972	2,047,032	1,306,587	640,299	181,162	925,397	42,393	1,111,738	274,527	3,404,963	864,867
1973	2,138,133	1,322,591	777,545	183,668	1,136,869	43,472	1,174,905	287,241	3,988,091	946,446
1974	2,202,002	1,381,959	794,192	193,236	1,163,708	45,201	1,206,983	291,996	4,015,030	989,817
1975	2,378,974	1,449,891	836,481	205,992	1,231,490	48,479	1,274,129	304,204	4,175,588	1,088,088
1976	2,732,227	1,445,191	883,730	215,036	1,307,153	51,452	1,316,775	313,608	4,316,061	1,141,338
1977	2,675,090	1,514,203	780,142	225,984	1,144,829	47,339	1,388,646	329,288	4,570,285	1,196,952
1978	2,992,822	1,598,916	961,523	230,990	1,420,338	47,108	1,388,796	321,604	4,476,611	1,208,453
1979	3,546,421	1,633,427	1,029,691	237,905	1,518,496	48,384	1,516,371	332,394	4,438,819	1,152,106
1980	4,093,075	1,714,996	1,119,626	259,351	1,679,613	53,338	1,635,817	360,382	4,852,083	1,269,177
1981	4,423,525	1,968,507	1,195,134	271,128	1,797,033	77,794	1,756,226	391,786	5,240,580	1,357,401
1982	3,986,028	2,060,065	1,245,674	280,261	1,883,312	55,949	1,952,688	406,809	5,427,276	1,564,903
1983	5,176,847	2,322,172	1,837,054	333,027	2,827,158	69,370	2,026,753	494,603	6,037,306	1,556,367
1984	7,212,801	3,363,792	2,920,693	445,283	4,553,156	75,761	2,254,358	553,232	7,065,792	2,331,555
1985	8,928,301	3,748,085	3,717,539	540,332	5,827,873	79,219	2,364,827	758,960	7,756,676	2,378,093
1986	8,827,289	4,315,570	4,143,184	577,416	6,515,636	102,386	2,474,061	999,968	7,873,869	3,047,434
1987	8,844,016	4,156,106	3,998,374	604,923	6,363,049	211,795	2,506,458	1,026,303	9,240,891	3,033,831
1988	8,318,897	4,219,308	3,997,055	615,940	6,426,199	124,654	2,560,945	779,724	9,521,529	2,828,684
1989	8,695,945	4,099,133	3,641,415	586,536	5,896,166	170,557	2,508,279	1,442,530	8,960,529	2,930,080
1990	9,983,987	4,539,471	4,316,516	620,333	6,956,699	289,335	2,703,882	1,639,730	9,811,261	3,677,785
1991	6,484,746	3,508,397	2,823,346	567,387	4,492,594	175,123	3,462,995	1,294,508	8,938,057	3,035,310
1992	8,585,673	4,465,956	2,894,932	470,101	4,609,710	121,321	4,264,418	1,129,477	8,589,549	2,979,755
1993	8,969,300	4,097,366	3,092,789	472,751	4,934,951	157,733	4,143,277	1,347,409	9,521,838	3,319,666
1994	11,156,140	4,710,354	3,137,490	554,731	5,007,134	225,794	5,136,234	1,698,881	10,227,799	4,076,838
1995	10,757,339	4,967,410	3,910,360	509,093	6,281,228	155,546	4,224,022	1,527,143	9,459,288	3,715,005
1996	11,126,138	5,155,485	6,847,257	553,160	11,124,041	150,598	4,290,870	1,867,098	9,885,354	3,807,043
1997	11,376,427	4,922,203	6,408,674	579,209	7,362,617	144,818	4,594,313	1,869,201	11,283,209	4,037,467
1998	9,918,902	4,561,465	5,509,370	546,699	5,889,643	146,245	5,632,264	1,477,869	11,204,690	3,323,757
1999	11,303,646	4,887,688	4,454,390	633,793	5,920,321	145,097	5,813,224	1,835,894	12,277,264	4,158,613
2000	10,534,071	6,822,985	2,879,421	594,015	4,303,208	115,236	5,638,805	1,447,804	11,863,298	3,248,531
2001	20,608,862	12,456,358	3,923,571	797,776	6,297,948	127,739	6,335,591	3,346,039	17,807,354	3,394,005
2002	11,841,946	9,590,071	3,146,234	755,366	5,015,827	109,684	5,458,124	2,709,672	18,528,975	4,739,428
2003	13,213,422	10,503,085	3,337,865	729,004	5,330,812	115,142	7,320,833	2,259,410	16,395,659	4,911,675
2004	13,973,128	11,680,709	3,861,857	818,298	5,211,473	124,043	7,180,855	2,476,364	20,396,213	4,327,465
2005	15,571,593	11,419,615	17,665,540	590,470	10,578,433	122,700	7,340,359	2,727,962	18,213,494	4,785,693
2006	18,116,738	12,063,423	23,583,386	1,065,305	8,546,381	238,495	12,370,664	3,802,036	26,294,706	5,378,524
2007	17,239,143	15,710,457	35,533,265	1,330,792	11,074,703	559,479	9,712,340	5,128,312	30,291,706	5,591,395
2008	35,366,286	21,730,850	41,758,366	2,151,555	15,956,295	639,697	23,773,420	5,857,692	38,001,960	9,531,845
2009	34,491,295	19,456,507	37,710,570	1,881,251	14,199,820	572,846	23,305,769	5,235,871	34,257,445	8,488,546
2010	35,973,686	20,298,784	39,313,293	1,948,564	14,828,696	597,083	24,260,260	5,460,277	35,448,964	8,830,424
2011	29,830,991	19,628,506	34,184,951	1,630,263	12,750,809	494,196	19,793,560	4,507,119	31,311,288	7,659,898
2012	31,016,127	21,110,847	35,405,649	1,686,328	13,234,886	513,488	20,608,088	4,685,643	32,231,099	7,924,149
2013	30,647,122	20,825,071	35,093,009	1,657,015	13,078,620	508,051	20,357,052	4,635,137	31,714,608	7,797,729
2014	29,613,183	19,982,201	33,902,755	1,625,570	12,645,922	490,601	19,705,424	4,475,026	31,162,102	7,612,168
2015	29,707,862	20,063,434	33,985,598	1,609,107	12,644,023	492,112	19,773,627	4,490,094	30,833,534	7,551,589
2016	30,832,247	20,805,142	34,995,213	1,686,641	13,104,483	510,296	20,522,297	4,660,481	32,140,041	7,884,031
2017	29,417,476	19,861,367	33,732,805	1,601,471	12,519,332	487,042	19,632,471	4,449,327	30,654,599	7,492,033
2018	30,372,118	20,418,487	34,485,233	1,652,622	12,882,360	502,358	20,357,140	4,595,426	31,456,811	7,715,737
2019	31,114,154	20,697,096	35,158,195	1,687,160	13,139,536	513,938	20,699,238	4,707,331	32,021,445	7,863,566
2020	29,280,229	19,430,334	32,818,908	1,576,118	12,248,321	482,840	19,596,344	4,425,606	29,909,562	7,306,565
2021	29,084,080	19,202,596	32,350,989	1,531,836	12,042,389	478,469	19,410,094	4,391,962	29,077,908	7,112,992
2022	28,166,163	18,441,401	30,980,876	1,489,034	11,578,751	463,277	18,779,293	4,253,068	28,229,677	6,874,557
2023	28,442,963	18,673,299	30,287,838	1,512,367	11,548,381	467,595	18,951,296	4,294,248	28,535,479	6,944,566
2024	29,237,843	19,194,557	31,035,578	1,530,381	11,838,951	480,518	19,398,549	4,413,988	28,859,780	7,062,060
2025	28,692,679	18,783,944	30,309,094	1,507,362	11,609,795	471,620	19,092,829	4,331,820	28,472,084	6,951,047
2026	29,184,962	19,195,898	30,981,484	1,540,463	11,809,015	479,584	19,366,207	4,405,932	28,954,321	7,067,372
2027	28,850,249	18,765,237	30,151,519	1,505,625	11,589,778	474,132	19,149,586	4,355,562	28,365,638	6,929,693
2028	28,752,687	18,963,021	30,265,359	1,491,984	11,560,287	472,518	19,089,685	4,340,910	28,094,635	6,867,561
2029	28,524,684	18,555,352	30,042,449	1,504,328	11,497,755	468,790	18,941,136	4,306,680	28,335,115	6,898,321
2030	28,510,576	18,575,184	30,043,931	1,505,143	11,494,385	468,546	18,934,536	4,304,802	28,341,249	6,898,232
2031	28,173,057	18,167,247	29,888,736	1,455,452	11,345,716	463,020	18,769,961	4,254,483	27,485,444	6,709,430
2032	28,364,587	18,454,229	29,647,860	1,491,679	11,388,327	466,108	18,815,199	4,283,672	28,146,594	6,847,623
2033	30,339,595	19,690,130	31,845,386	1,575,060	12,214,037	498,198	20,164,397	4,582,643	29,532,530	7,261,775
2034	28,584,636	18,499,605	30,039,114	1,483,326	11,487,158	469,644	19,009,396	4,320,475	28,007,901	6,838,466
2035	30,663,868	19,418,345	32,067,973	1,611,646	12,285,995	503,355	20,234,491	4,635,650	30,120,213	7,375,144
TOTAL	1,157,004,284	730,158,243	1,095,839,919	63,874,000	523,225,089	18,651,562	701,137,535	177,669,441	1,223,292,316	313,595,125

TABLE B-19. Total Transportation Charge for Each Contractor

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA					
	San Gorgonio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC&WCD	Total	South Bay Area Future Contractor	GRAND 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	3,219	79,888
1963	0	690,539	0	775,559	0	0	0	0	12,626	1,625,689
1964	21,728	1,260,042	9,375	1,594,755	0	0	0	0	13,938	2,801,552
1965	21,859	2,179,810	17,761	2,705,344	0	0	405	405	28,937	4,799,776
1966	37.952	3.898.819	33.415	4,839,578	0	0	564	564	31,321	7,380,275
1967	71,260	7,691,085	68,133	9,507,458	0	0	562	562	47,718	12,788,780
1968	128,877	15,313,065	142,760	18,686,461	0	0	564	564	46,945	24,929,162
1969	198.704	23.145.744	215.144	28.196.187	0	0	3.190	3.190	52,963	36.026,612
1970	289,546	30,607,434	273,523	37,539,052	0	0	15,116	15,116	69,744	46,159,647
1971	409.205	39.946.463	342,325	49.175.690	0	0	15.996	15.996	55.532	58.790.422
1972	537,044	52,933,606	422,192	64,691,808	0	0	17,367	17,367	80,412	76,523,080
1973	587,814	57,257,279	435,541	70,279,596	0	0	17,328	17,328	54,219	81,197,537
1974	611,275	61,759,841	455,447	75,110,687	0	0	17,472	17,472	76,783	86,915,624
1975	644,464	66,739,819	478,284	80,855,883	0	0	18,400	18,400	84,547	94,061,042
1976	668,152	68,467,779	475,466	83,333,969	0	0	17,471	17,471	106,717	97,127,311
1977	696,350	66,216,668	506,941	81,292,717	0	0	18,227	18,227	98,618	95,162,383
1978	708.874	72.917.066	523,053	88.796.153	0	0	17,375	17,375	100,786	104,646,223
1979	712,699	72,648,617	526,278	89,341,608	0	0	20,573	20,573	119,352	106,990,787
1980	777,813	79,908,126	571,100	98,294,496	0	0	17,755	17,755	178,812	116,943,823
1981	805,858	91,241,966	636,261	111,163,198	0	0	21,188	21,188	185,347	131,713,594
1982	853,227	93,125,063	670,228	113,511,482	0	0	28,417	28,417	173,894	135,089,036
1983	951.954	101.767.502	803.439	126.203.552	0	0	19.271	19.271	220.926	151.578.866
1984	1,072,455	137,486,443	868,812	170,204,133	0	0	21,109	21,109	225,959	208,148,992
1985	1,120,667	173,421,376	908,613	211,550,562	0	0	20,233	20,233	340,322	258,385,266
1986	1,149,524	193,220,534	937,154	234,184,025	0	0	20,134	20,134	279,227	284,217,289
1987	1,171,823	178,742,796	907,876	220,808,240	0	0	19,736	19,736	345,116	272,449,227
1988	1,208,011	190,221,758	904,709	231,727,412	0	0	17,895	17,895	365,207	284,520,863
1989	1,194,715	193,213,383	932,440	234,271,708	0	0	19,153	19,153	422,329	287,594,089
1990	1,297,422	239,518,227	1,486,593	286,841,241	0	0	18,143	18,143	474,284	339,729,949
1991	1,354,718	179,928,498	1,140,955	217,206,634	0	0	21,012	21,012	214,683	255,467,415
1992	1,348,975	196,144,138	1,025,119	236,629,123	0	0	18,008	18,008	443,676	286,152,099
1993	1,507,336	169,470,130	1,067,967	212,102,513	0	0	20,993	20,993	599,571	270,943,980
1994	1,497,855	209,289,443	1,009,019	257,727,713	0	0	19,644	19,644	609,932	316,376,201
1995	1,520,392	173,396,272	1,061,154	221,484,251	0	0	20,272	20,272	534,971	290,063,309
1996	1,526,936	181,379,764	1,103,083	238,816,826	0	0	25,373	25,373	571,857	319,533,594
1997	1,731,236	186,711,858	1,216,389	242,237,621	0	0	24,815	24,815	428,638	323,875,094
1998	1,925,051	168,709,246	1,238,270	220,083,469	0	0	18,164	18,164	465,140	302,843,123
1999	2,167.435	189,484.555	1,250,943	244,332,863	0	0	17,782	17,782	559,344	335,326,769
2000	2,425,062	185,127,820	1,321,565	236,321,821	0	0	17,872	17,872	0	321,413,858
2001	3,386,792	374,670,013	1,616,322	454,768,370	0	0	17,686	17,686	0	555,793,496
2002	4,794,822	262,003,775	1,639,518	330,333,441	0	0	20,994	20,994	0	425,676,305
2003	5,573,358	289,209,085	1,659,722	360,559,071	0	0	20,760	20,760	0	458,713,317
2004	6,037.598	334,390.395	1,892,278	412,370,675	0	0	20,821	20,821	0	511,688,314
2005	6,152,169	315,185,641	1,439,898	411,793,568	0	0	20,818	20,818	0	525,229,629
2006	6,890,198	400,471,517	1,830,986	520,652,359	0	0	20,467	20,467	0	638,377,909
2007	7,977,249	477,970,133	4,863,062	622,982,036	0	0	20,567	20,567	0	750,864,313
2008	10,082,292	446,401,844	5,496,312	656,748,414	0	0	20,617	20,617	0	796,698,477
2009	9,453,711	400,994,267	4,900,054	594,947,952	0	0	20,667	20,667	0	725,158,258
2010	9,658,177	416,613,331	5,120,036	618,351,575	0	0	20,667	20,667	0	753,697,744
2011	8,956,274	445,634,872	4,225,232	620,607,959	0	0	20,667	20,667	0	747,678,881
2012	9,114,292	462,787,712	4,397,811	644,716,119	0	0	20,667	20,667	0	772,654,229
2013	9,035.963	456,632.396	4,339.121	636,320,894	0	0	20,667	20,667	0	765,165,216
2014	8,928,237	440,394,301	4,161,346	614,698,836	0	0	20,667	20,667	0	738,324,157
2015	8,887,787	440,491,395	4,175,719	614,705,881	0	0	20,262	20,262	0	739,416,493
2016	9,091,467	457,362,118	4,330,920	637,925,377	0	0	20,102	20,102	0	765,544,595
2017	8,852,372	435,746,277	4,124,287	608,570,859	0	0	20,105	20,105	0	732,504,310
2018	8,986,106	447,219,971	4,237,307	624,881,676	0	0	20,102	20,102	0	748,932,813
2019	9,074,931	454,212,485	4,294,662	635,183,737	0	0	17,477	17,477	0	762,498,866
2020	8,734.519	423.756.368	4,019.287	593.585.001	0	0	5.551	5.551	0	716.651.782
2021	8,611,697	416,139,756	3,963,576	583,398,344	0	0	4,725	4,725	0	706,213,699
2022	8,468.735	399,076,464	3,800,863	560,602,159	0	0	3,340	3,340	0	681,020,920
2023	8,512,324	402,419,113	3,848,397	564,437,866	0	0	3,339	3,339	0	686,255,255
2024	8,579,471	412,470,309	3,957,557	578,059,542	0	0	3,338	3,338	0	702,663,305
2025	8.512.820	403.021.254	3.866.862	565.623.210	0	0	3.336	3.336	0	686.480.270
2026	8,584,730	412,214,865	3,955,396	577,740,229	0	0	3,334	3,334	0	702,949,481
2027	8,498,477	401,030,732	3,859,233	563,525,461	0	0	3,332	3,332	0	686,178,022
2028	8,459,282	406,556,721	3,911,849	568,826,499	0	0	3,330	3,330	0	691,751,474
2029	8,482.295	398,262.663	3,817,271	559.636.839	0	0	3,329	3,329	0	681,384,702
2030	8,482,389	398,886,937	3,821,156	560,267,066	0	0	3,327	3,327	0	682,848,078
2031	8,362,373	388,587,152	3,727,683	547,389,754	0	0	3,326	3,326	0	667,755,299
2032	8,451,236	397,323,088	3,800,151	557,480,353	0	0	3,324	3,324	0	679,748,932
2033	8,696,693	421,589,768	4,050,324	592,040,536	0	0	3,324	3,324	0	717,384,434
2034	8,441.516	396,510.668	3,801.105	557,493,010	0	0	3,323	3,323	0	679,847,927
2035	8,770,626	422,030,578	4,011,970	593,729,854	0	0	3,321	3,321	0	717,108,356
TOTAL	322,537,242	18,413,450,536	156,944,600	24,897,379,894	0	0	1,049,255	1,049,255	8,723,612	30,431,231,472

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 2006 at 4.608 percent per annum)

Procedure	Capital Cost Component		Minimum Operation, Maintenance, Power and Replacement Component [a]		Total Delta Water Rate	
	[1]		[2]		[3]	
Commencing in 2007						
Total Costs of "Initial" Project Conservation Facilities to be Reimbursed and Project Water Entitlements during the Project Repayment Period.	$4,762.55 [b]	296.98 AF	$3,234.99 [c]	296.98 AF	$7,997.54	296.98 AF
Less, Project Power Revenues to be Realized During the Project Repayment Period.	(1,731.49)		(689.61)		(2,421.10)	
Less, Delta Water Charges Paid and Project Water Entitlements, Prior to 2007	(2,228.97) [d]	(231.00) AF	(1,630.64)	(231.00) AF	(3,859.61)	(231.00) AF
TOTAL	$802.09	65.98 AF	$914.74	65.98 AF	$1,716.83	65.98 AF
Rate Applicable in 2007	$12.16	per acre-foot	$13.86	per acre-foot	$26.02	per acre-foot

Calculation under original provisions, without the Monterey Amendment

(for Plumas County and Empire)

Procedure	Capital Cost Component		Minimum Operation, Maintenance, Power and Replacement Component [a]		Total Delta Water Rate	
	[4]		[5]		[6]	
Commencing in 2007						
Total Costs of "Initial" Project Conservation Facilities to be Reimbursed and Project Water Entitlements during the Project Repayment Period.	$4,750.63 [b]	296.98 AF	$3,221.00 [c]	296.98 AF	$7,971.62	296.98 AF
Less, Project Power Revenues to be Realized During the Project Repayment Period.	(1,731.49)		(689.61)		(2,421.10)	
Less, Delta Water Charges Paid and Project Water Entitlements, Prior to 2007	(2,228.97) [d]	(231.00) AF	(1,630.64)	(231.00) AF	(3,859.61)	(231.00) AF
TOTAL	$790.17	65.98 AF	$900.75	65.98 AF	$1,690.91	65.98 AF
Rate Applicable in 2007	$11.98	per acre-foot	$13.65	per acre-foot	$25.63	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. OMP&R costs exclude amounts for Conservation RAS.
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 from 1961 through 1978.
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

(in dollars per acre-foot)

Item	Capital Cost Component	Minimum Operation, Maintenance, Power and Replacement Component	Total Delta Water Rate
	[1]	[2]	[3]
Initial Conservation Facilities			
Oroville Division			
Water Supply and power costs [a]	43.82	24.66	68.49
Less, Oroville Power Revenues	-26.24	-10.45	-36.69
Subtotal	17.58	14.21	31.79
Delta Facilities [b]	12.51	12.11	24.62
California Aqueduct, portion			
Reach 1	2.80	4.57	7.38
Reach 2A	1.67	0.74	2.41
Reach 2B	0.88	0.40	1.29
Reach 3	0.60	0.23	0.84
Subtotal	5.96	5.95	11.91
San Luis Facilities	8.44	6.10	14.54
Planning and preoperating costs through 2001	2.45	0.00	2.45
45,000 AF relinquished costs	0.18	0.21	0.39
Less, Capital Cost Credits	-1.18	0.00	-1.18
Less, Delta Water Charges paid prior to 2007	-33.78	-24.71	-58.50
Rate applicable in 2007	12.16	13.86	26.02

a) Includes revenue received from non-contractors.
b) Includes (1) Delta Facility planning costs, (2) Delta Studies costs, and (3) Suisun Marsh Facilities Costs.
Note: The OMP&R unit rates do not includes amounts for Conservation RAS.

TABLE B-21. Total Delta Water Charge for Each Contractor

(in 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	266,952	882,469	1,149,421	1,048,658	957,470	2,279,691	4,285,819	141,683	888,760	1,030,443
1999	290,688	923,459	1,214,147	1,084,480	990,178	2,357,566	4,432,224	589,391	1,072,362	1,661,753
2000	390,936	948,784	1,339,720	1,628,402	1,005,778	2,394,709	5,028,889	598,677	1,089,257	1,687,934
2001	496,412	1,097,880	1,594,292	1,868,283	1,005,998	2,395,234	5,269,515	598,809	1,089,496	1,688,305
2002	512,928	1,125,429	1,638,357	1,896,134	1,020,996	2,430,942	5,348,072	607,736	1,105,738	1,713,474
2003	511,059	1,112,692	1,623,751	1,856,232	999,510	2,379,785	5,235,527	594,946	1,082,469	1,677,415
2004	569,615	1,441,431	2,011,046	2,043,834	1,094,911	2,606,931	5,745,676	651,732	1,185,788	1,837,520
2005	573,730	1,219,893	1,793,623	2,081,144	1,084,212	2,581,456	5,746,812	645,364	1,174,201	1,819,565
2006	606,342	1,272,002	1,878,344	2,167,747	1,129,330	2,688,880	5,985,957	672,220	1,223,064	1,895,284
2007	595,224	1,232,237	1,827,461	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2008	603,681	1,233,538	1,837,219	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2009	612,137	1,234,839	1,846,976	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2010	620,594	1,236,140	1,856,734	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2011	629,051	1,237,441	1,866,492	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2012	637,508	1,238,742	1,876,250	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2013	644,663	1,240,043	1,884,706	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2014	654,421	1,241,344	1,895,765	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2015	671,985	1,242,645	1,914,630	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2016	688,248	1,242,645	1,930,893	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2017	704,511	1,242,645	1,947,156	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2018	720,774	1,242,645	1,963,419	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2019	737,037	1,242,645	1,979,682	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2020	752,649	1,242,645	1,995,294	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2021	755,251	1,242,645	1,997,896	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2022	755,251	1,242,645	1,997,896	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2023	755,251	1,242,645	1,997,896	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2024	755,251	1,242,645	1,997,896	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2025	755,251	1,242,645	1,997,896	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2026	755,251	1,242,645	1,997,896	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2027	755,251	1,242,645	1,997,896	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2028	755,251	1,242,645	1,997,896	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2029	755,251	1,242,645	1,997,896	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2030	755,251	1,242,645	1,997,896	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2031	755,251	1,242,645	1,997,896	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2032	755,251	1,242,645	1,997,896	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2033	755,251	1,242,645	1,997,896	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2034	755,251	1,242,645	1,997,896	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
2035	755,251	1,242,645	1,997,896	2,097,764	1,092,870	2,602,072	5,792,706	650,518	1,183,578	1,834,096
TOTAL	26,465,815	51,321,257	77,787,072	88,248,290	53,978,987	134,941,521	277,168,798	29,105,320	53,574,143	82,679,463

TABLE B-21. Total Delta Water Charge for Each Contractor

(in dollars)

Calendar Year	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	Total
				Municipal and Industrial	Agri-cultural				
	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[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	2,803,995	21,223,694	83,328	118,743	2,468,598	27,962,864
1996	534,818	69,191	0	2,756,635	19,492,814	81,921	102,219	2,426,904	25,464,502
1997	1,208,521	67,162	0	3,047,908	22,148,973	90,576	129,072	2,683,338	29,375,550
1998	1,216,671	77,807	0	2,726,511	22,070,376	91,188	129,942	2,820,148	29,132,643
1999	1,258,233	69,974	0	2,819,648	22,824,299	94,303	134,381	2,793,715	29,994,553
2000	1,278,056	70,943	0	3,223,279	21,220,235	95,788	136,498	2,837,730	28,862,529
2001	1,278,336	71,058	0	2,864,700	21,110,372	95,809	136,528	2,838,352	28,395,155
2002	1,393,975	72,121	0	3,272,056	21,060,431	97,237	138,564	2,711,156	28,745,540
2003	1,364,640	70,550	0	3,203,191	20,617,243	95,192	135,648	2,654,103	28,140,567
2004	1,494,892	77,810	0	3,845,137	22,248,916	104,277	148,595	2,897,005	30,816,632
2005	1,480,284	77,153	0	3,653,945	22,127,832	232,331	147,143	2,739,621	30,458,309
2006	1,541,885	80,379	0	3,619,232	23,235,419	242,000	153,266	2,587,429	31,459,610
2007	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2008	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2009	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2010	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2011	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2012	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2013	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2014	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2015	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2016	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2017	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2018	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2019	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2020	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2021	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2022	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2023	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2024	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2025	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2026	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2027	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2028	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2029	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2030	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2031	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2032	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2033	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2034	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
2035	1,492,106	77,741	0	3,502,388	22,485,282	242,123	148,318	2,495,959	30,443,917
TOTAL	73,813,295	4,118,728	0	170,231,671	1,159,247,377	9,440,045	7,556,243	133,969,105	1,558,376,464

TABLE B-21. Total Delta Water Charge for Each Contractor

(in dollars)

Calendar Year	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	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District
	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[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	1,341,923	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	2,323,295	652,153
1998	3,155,093	1,235,593	526,609	132,222	868,562	52,433	1,728,006	394,387	2,338,963	656,551
1999	3,262,870	1,277,800	544,598	136,739	898,233	54,224	1,787,034	407,859	2,418,863	678,979
2000	3,314,278	2,279,763	553,178	138,893	912,384	55,078	1,815,190	510,073	2,456,972	689,676
2001	3,315,004	2,280,263	553,299	138,924	912,584	55,090	1,815,587	510,185	2,457,510	689,827
2002	3,437,351	2,314,256	561,548	140,995	926,188	55,912	1,842,654	517,791	2,494,146	700,112
2003	3,365,016	2,265,555	549,731	138,028	906,698	54,735	1,803,877	506,894	2,441,659	685,379
2004	3,686,201	2,481,798	602,201	151,202	993,241	59,960	1,976,053	555,277	2,674,711	750,797
2005	3,650,179	2,457,547	596,316	149,725	983,535	59,374	2,018,049	549,850	2,648,574	743,459
2006	3,802,076	2,559,814	3,256,234	155,955	1,344,441	61,844	2,038,172	572,731	2,758,791	774,398
2007	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2008	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2009	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2010	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2011	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2012	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2013	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2014	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2015	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2016	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2017	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2018	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2019	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2020	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2021	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2022	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2023	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2024	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2025	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2026	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2027	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2028	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2029	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2030	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2031	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2032	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2033	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2034	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
2035	3,679,329	2,477,172	3,151,109	150,920	1,301,036	59,848	1,972,370	554,241	2,669,726	749,397
TOTAL	172,690,206	107,294,876	105,849,847	7,341,630	57,395,704	2,908,741	88,816,686	25,930,308	132,289,307	36,939,698

TABLE B-21. Total Delta Water Charge for Each Contractor

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA					
	San Gorgonio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC&WCD	Total	South Bay Area Future Contractor	GRAND TOTAL
	[30]	[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]
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	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	29,441,595	0	16,117	14,694	30,811	0	49,027,703
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	83,007,946
1997	0	45,548,810	447,746	56,444,590	214,918	27,173	30,223	272,314	0	93,062,361
1998	0	45,855,992	450,529	57,394,940	107,459	27,356	31,537	166,352	0	93,159,618
1999	47,152	47,422,430	466,491	59,403,272	226,327	28,291	33,820	288,438	0	96,994,387
2000	71,841	48,169,576	478,942	61,445,844	229,892	69,207	35,708	334,807	0	98,699,723
2001	95,809	48,180,135	479,047	61,483,264	229,942	83,833	37,187	350,962	0	98,781,493
2002	97,237	48,898,394	486,188	62,472,772	233,371	85,083	39,185	357,639	0	100,275,854
2003	118,989	47,869,376	475,957	61,181,894	228,460	83,293	39,743	351,496	0	98,210,650
2004	156,416	52,438,420	521,386	67,047,663	250,266	92,048	0	342,314	0	107,800,851
2005	167,795	51,925,988	516,291	66,466,682	247,820	31,300	0	279,120	0	106,564,111
2006	188,222	51,397,939	537,775	69,448,392	258,133	32,607	50,485	341,225	0	111,008,812
2007	195,155	49,738,600	520,414	67,219,317	249,799	723,749	18,703	992,251	0	108,109,748
2008	450,158	49,738,600	520,414	67,474,320	249,799	723,749	52,472	1,026,020	0	108,408,278
2009	450,158	49,738,600	520,414	67,474,320	249,799	723,749	54,290	1,027,838	0	108,419,853
2010	450,158	49,738,600	520,414	67,474,320	249,799	723,749	56,108	1,029,656	0	108,431,429
2011	450,158	49,738,600	520,414	67,474,320	249,799	723,749	58,186	1,031,734	0	108,443,265
2012	450,158	49,738,600	520,414	67,474,320	249,799	723,749	60,264	1,033,812	0	108,455,101
2013	450,158	49,738,600	520,414	67,474,320	249,799	723,749	62,602	1,036,150	0	108,465,895
2014	450,158	49,738,600	520,414	67,474,320	249,799	723,749	64,940	1,038,488	0	108,479,292
2015	450,158	49,738,600	520,414	67,474,320	249,799	723,749	67,538	1,041,086	0	108,500,755
2016	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,519,615
2017	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,535,878
2018	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,552,141
2019	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,568,404
2020	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,584,016
2021	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,586,618
2022	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,586,618
2023	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,586,618
2024	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,586,618
2025	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,586,618
2026	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,586,618
2027	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,586,618
2028	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,586,618
2029	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,586,618
2030	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,586,618
2031	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,586,618
2032	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,586,618
2033	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,586,618
2034	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,586,618
2035	450,158	49,738,600	520,414	67,474,320	249,799	723,749	70,135	1,043,683	0	108,586,618
TOTAL	17,466,162	2,478,945,550	23,709,711	3,257,578,426	10,898,924	21,985,067	2,534,363	35,418,354	0	5,289,008,577

TABLE B-22. Water System Revenue Bond Surcharge for Each Contractor

(in 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	Santa Barbara County	Total
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[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	126,000	149,378	416,955	692,333	131,674	270,727	402,401
1996	132,304	232,343	364,647	158,514	180,787	505,043	844,344	242,654	534,448	777,102
1997	135,556	237,492	373,048	171,263	187,162	522,127	880,552	141,810	846,616	988,426
1998	130,346	228,366	358,712	164,682	179,971	502,065	846,718	136,361	814,087	950,448
1999	182,507	316,416	498,923	227,072	248,031	691,830	1,166,933	188,835	1,124,110	1,312,945
2000	238,571	364,418	602,989	260,766	284,875	794,730	1,340,371	218,359	1,364,019	1,582,378
2001	234,773	358,616	593,389	561,965	280,341	782,078	1,624,384	214,883	1,342,304	1,557,187
2002	257,520	391,851	649,371	610,230	288,977	806,174	1,705,381	221,503	1,383,661	1,605,164
2003	268,151	408,027	676,178	635,422	300,907	839,455	1,775,784	230,647	1,440,782	1,671,429
2004	268,425	408,444	676,869	636,070	301,214	840,312	1,777,596	230,883	1,442,252	1,673,135
2005	253,413	385,602	639,015	610,756	284,369	793,318	1,688,443	217,970	1,361,594	1,579,564
2006	466,224	709,422	1,175,646	1,123,655	523,176	1,459,528	3,106,359	401,017	2,505,032	2,906,049
2007	466,420	709,718	1,176,138	1,124,125	523,395	1,460,139	3,107,659	401,185	2,506,080	2,907,265
2008	438,849	667,766	1,106,615	1,057,676	492,456	1,373,828	2,923,960	377,470	2,357,941	2,735,411
2009	445,514	677,908	1,123,422	1,073,741	499,936	1,394,695	2,968,372	383,204	2,393,756	2,776,960
2010	426,290	648,656	1,074,946	1,027,408	478,363	1,334,513	2,840,284	366,668	2,290,464	2,657,132
2011	460,176	700,218	1,160,394	1,109,078	516,389	1,440,595	3,066,062	395,815	2,472,535	2,868,350
2012	460,666	700,964	1,161,630	1,110,259	516,939	1,442,129	3,069,327	396,237	2,475,168	2,871,405
2013	485,554	738,834	1,224,388	1,170,242	544,867	1,520,041	3,235,150	417,644	2,608,891	3,026,535
2014	503,510	766,157	1,269,667	1,213,518	565,016	1,576,253	3,354,787	433,088	2,705,369	3,138,457
2015	529,520	805,734	1,335,254	1,276,205	594,203	1,657,677	3,528,085	455,460	2,845,120	3,300,580
2016	534,898	813,918	1,348,816	1,289,167	600,238	1,674,514	3,563,919	460,086	2,874,018	3,334,104
2017	527,034	801,952	1,328,986	1,270,214	591,414	1,649,896	3,511,524	453,322	2,831,765	3,285,087
2018	464,783	707,229	1,172,012	1,120,182	521,559	1,455,017	3,096,758	399,778	2,497,289	2,897,067
2019	501,213	762,661	1,263,874	1,207,981	562,438	1,569,061	3,339,480	431,112	2,693,025	3,124,137
2020	461,530	702,279	1,163,809	1,112,341	517,908	1,444,833	3,075,082	396,980	2,479,809	2,876,789
2021	466,529	709,884	1,176,413	1,124,388	523,517	1,460,481	3,108,386	401,279	2,506,666	2,907,945
2022	450,746	685,869	1,136,615	1,086,350	505,806	1,411,073	3,003,229	387,704	2,421,865	2,809,569
2023	450,394	685,333	1,135,727	1,085,501	505,411	1,409,971	3,000,883	387,401	2,419,974	2,807,375
2024	432,595	658,251	1,090,846	1,042,605	485,439	1,354,252	2,882,296	372,092	2,324,342	2,696,434
2025	389,979	593,405	983,384	939,895	437,617	1,220,841	2,598,353	335,436	2,095,365	2,430,801
2026	350,547	533,404	883,951	844,860	393,368	1,097,398	2,335,626	301,519	1,883,497	2,185,016
2027	389,346	592,440	981,786	938,368	436,906	1,218,857	2,594,131	334,891	2,091,960	2,426,851
2028	288,127	438,423	726,550	694,419	323,323	901,990	1,919,732	247,829	1,548,111	1,795,940
2029	317,838	483,632	801,470	766,026	356,663	995,000	2,117,689	273,384	1,707,748	1,981,132
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	13,366,906	20,475,350	33,842,256	30,430,300	15,283,990	42,697,660	88,411,950	11,709,259	70,069,663	81,778,922

TABLE B-22. Water System Revenue Bond Surcharge for Each Contractor

(in 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	Agri-cultural	County of Kings	Oak Flat Water District	Tulare Lake Basin Water Storage District	Total
	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[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	139,227	6,339	0	317,885	2,894,182	8,598	11,490	284,798	3,662,519
1996	169,333	7,703	0	354,341	2,722,241	10,460	13,978	346,366	3,624,422
1997	165,364	7,980	0	366,285	2,673,847	10,826	14,465	357,986	3,596,753
1998	159,011	7,672	0	352,211	2,571,110	10,410	13,909	344,232	3,458,555
1999	218,784	10,373	0	485,897	3,371,115	14,376	19,166	476,017	4,595,728
2000	251,339	11,735	0	557,296	3,620,348	16,500	21,990	546,406	5,025,614
2001	247,338	11,547	0	548,424	3,461,158	16,238	21,640	537,707	4,844,052
2002	273,542	11,904	0	565,321	3,496,023	16,737	22,306	521,659	4,907,492
2003	284,834	12,395	0	588,659	3,640,346	17,428	23,227	543,193	5,110,082
2004	285,125	12,408	0	589,259	3,644,059	17,446	23,251	543,748	5,115,296
2005	269,179	11,714	0	556,305	3,431,851	39,485	21,951	488,483	4,818,968
2006	495,230	21,551	0	1,023,478	6,313,845	72,643	40,384	814,866	8,781,997
2007	495,438	21,560	0	1,023,907	6,316,488	75,257	40,401	812,623	8,785,674
2008	466,151	20,285	0	963,382	5,943,110	70,809	38,013	764,588	8,266,338
2009	473,232	20,594	0	978,014	6,033,379	71,884	38,590	776,201	8,391,894
2010	452,811	19,705	0	935,812	5,773,035	68,782	36,925	742,707	8,029,777
2011	488,806	21,271	0	1,010,201	6,231,938	74,250	39,860	801,746	8,668,072
2012	489,326	21,294	0	1,011,277	6,238,574	74,329	39,903	802,600	8,677,303
2013	515,763	22,444	0	1,065,912	6,575,620	78,345	42,058	845,961	9,146,103
2014	534,836	23,274	0	1,105,330	6,818,788	81,242	43,614	877,245	9,484,329
2015	562,464	24,477	0	1,162,428	7,171,028	85,438	45,867	922,561	9,974,263
2016	568,177	24,725	0	1,174,234	7,243,862	86,306	46,333	931,931	10,075,568
2017	559,824	24,362	0	1,156,971	7,137,366	85,037	45,651	918,230	9,927,441
2018	493,700	21,484	0	1,020,315	6,294,331	74,993	40,259	809,773	8,754,855
2019	532,395	23,168	0	1,100,286	6,787,676	80,871	43,415	873,242	9,441,053
2020	490,244	21,334	0	1,013,173	6,250,274	74,468	39,977	804,105	8,693,575
2021	495,553	21,565	0	1,024,146	6,317,964	75,275	40,410	812,813	8,787,726
2022	478,789	20,835	0	989,499	6,104,228	72,728	39,043	785,316	8,490,438
2023	478,415	20,819	0	988,726	6,099,461	72,671	39,013	784,702	8,483,807
2024	459,509	19,996	0	949,654	5,858,424	69,800	37,471	753,693	8,148,547
2025	414,242	18,026	0	856,101	5,281,295	62,923	33,780	679,444	7,345,811
2026	372,356	16,204	0	769,538	4,747,289	56,561	30,364	610,744	6,603,056
2027	413,568	17,997	0	854,710	5,272,713	62,821	33,725	678,340	7,333,874
2028	306,053	13,318	0	632,510	3,901,961	46,489	24,957	501,992	5,427,280
2029	337,612	14,692	0	697,733	4,304,320	51,283	27,531	553,756	5,986,927
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	14,416,931	633,307	0	30,590,199	192,164,451	1,939,561	1,182,778	24,827,556	265,754,783

TABLE B-22. Water System Revenue Bond Surcharge for Each Contractor

(in dollars)

Calendar Year	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	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District
	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[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	500,083	290,999	111,729	31,823	184,169	8,769	229,530	64,852	623,848	165,594
1996	606,387	353,131	135,428	38,635	223,236	10,640	278,178	78,696	760,333	201,821
1997	626,151	362,776	139,565	39,802	230,058	10,972	286,779	81,146	808,482	207,472
1998	602,091	348,838	134,202	38,273	221,218	10,550	275,761	78,028	777,418	199,501
1999	826,108	479,470	184,524	52,650	304,166	14,475	642,815	107,060	1,041,566	277,200
2000	940,325	1,150,965	210,453	60,212	346,906	16,486	736,157	121,898	1,191,538	316,860
2001	925,355	1,132,642	207,102	59,254	341,384	16,224	724,438	135,581	1,172,568	311,816
2002	974,814	1,167,539	213,483	61,079	351,902	16,724	746,758	139,071	1,208,696	321,423
2003	1,015,056	1,215,738	222,296	63,601	366,429	17,415	777,586	144,812	1,258,593	334,692
2004	1,016,092	1,216,978	222,523	63,666	366,803	17,432	778,379	144,960	1,259,877	335,033
2005	959,268	1,148,920	210,078	60,105	346,290	16,457	734,849	136,853	1,189,420	316,297
2006	1,764,840	2,113,756	2,063,426	110,581	852,281	30,278	1,351,959	251,779	2,188,268	581,916
2007	1,765,578	2,114,641	2,064,289	110,627	852,637	30,290	1,352,525	251,885	2,189,184	582,159
2008	1,661,212	1,989,641	1,942,266	104,087	802,237	28,500	1,272,575	236,995	2,059,777	547,747
2009	1,686,444	2,019,862	1,971,767	105,668	814,422	28,933	1,291,904	240,595	2,091,063	556,067
2010	1,613,673	1,932,703	1,886,684	101,109	779,279	27,684	1,236,157	230,213	2,000,833	532,072
2011	1,741,945	2,086,335	2,036,658	109,146	841,224	29,885	1,334,420	248,513	2,159,880	574,367
2012	1,743,800	2,088,557	2,038,826	109,262	842,120	29,917	1,335,841	248,778	2,162,180	574,978
2013	1,838,010	2,201,394	2,148,976	115,165	887,616	31,533	1,408,011	262,218	2,278,994	606,042
2014	1,905,981	2,282,802	2,228,446	119,424	920,441	32,699	1,460,080	271,915	2,363,272	628,454
2015	2,004,438	2,400,725	2,343,561	125,593	967,988	34,388	1,535,504	285,961	2,485,352	660,918
2016	2,024,797	2,425,108	2,367,364	126,869	977,820	34,737	1,551,100	288,866	2,510,595	667,631
2017	1,995,029	2,389,456	2,332,560	125,004	963,444	34,227	1,528,296	284,619	2,473,686	657,816
2018	1,759,385	2,107,223	2,057,048	110,239	849,646	30,184	1,347,780	251,001	2,181,504	580,117
2019	1,897,284	2,272,386	2,218,278	118,879	916,241	32,550	1,453,418	270,674	2,352,489	625,586
2020	1,747,070	2,092,474	2,042,650	109,467	843,699	29,973	1,338,346	249,244	2,166,235	576,057
2021	1,765,991	2,115,135	2,064,772	110,653	852,837	30,297	1,352,841	251,943	2,189,695	582,295
2022	1,706,248	2,043,581	1,994,921	106,909	823,985	29,272	1,307,074	243,420	2,115,618	562,596
2023	1,704,915	2,041,985	1,993,363	106,826	823,342	29,250	1,306,053	243,230	2,113,966	562,157
2024	1,637,541	1,961,290	1,914,590	102,604	790,805	28,094	1,254,441	233,618	2,030,427	539,942
2025	1,476,222	1,768,078	1,725,978	92,496	712,901	25,326	1,130,863	210,604	1,830,404	486,751
2026	1,326,957	1,589,303	1,551,460	83,144	640,818	22,765	1,016,518	189,309	1,645,327	437,534
2027	1,473,823	1,765,205	1,723,173	92,346	711,742	25,285	1,129,025	210,262	1,827,430	485,960
2028	1,090,672	1,306,303	1,275,199	68,339	526,710	18,712	835,511	155,600	1,352,351	359,624
2029	1,203,139	1,441,005	1,406,693	75,386	581,023	20,641	921,667	171,645	1,491,802	396,708
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	51,529,431	58,529,673	49,844,593	3,238,918	23,617,081	888,023	38,210,588	7,285,835	64,092,983	17,027,329

TABLE B-22. Water System Revenue Bond Surcharge for Each Contractor

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA					
	San Gorgonio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC&WCD	Total	South Bay Area Future Contractor	GRAND TOTAL
	[30]	[31]	[32]	[33]	[34]	[35]	[36]	[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	10,539,433	90,436	12,943,057	16,957	2,119	3,704	22,780	0	18,013,188
1996	124,074	12,810,361	109,783	15,730,703	20,640	2,580	4,621	27,841	0	21,369,059
1997	28,259	13,168,230	112,960	16,102,652	21,382	2,674	4,872	28,928	0	21,970,359
1998	27,174	12,662,268	108,619	15,483,941	20,562	2,571	4,685	27,818	0	21,126,192
1999	53,545	17,454,651	149,123	21,587,353	28,348	3,543	6,765	38,656	0	29,200,538
2000	70,117	19,805,800	168,259	25,135,976	32,271	9,794	7,996	50,061	0	33,737,389
2001	69,001	19,490,499	165,580	24,751,444	31,757	9,638	7,869	49,264	0	33,419,720
2002	71,126	20,091,004	170,682	25,534,301	32,736	9,935	8,112	50,783	0	34,452,492
2003	74,063	20,920,403	177,728	26,588,412	34,087	10,345	8,446	52,878	0	35,874,763
2004	74,138	20,941,743	177,910	26,615,534	34,121	10,356	8,456	52,933	0	35,911,363
2005	69,992	19,770,593	167,960	25,127,082	32,213	9,776	7,983	49,972	0	33,903,044
2006	128,769	34,565,228	309,009	46,312,090	59,265	17,986	14,686	91,937	0	62,374,078
2007	128,823	34,579,696	309,139	46,331,473	59,290	17,994	14,692	91,976	0	62,400,185
2008	121,208	32,535,632	290,865	43,592,742	55,785	16,930	13,824	86,539	0	58,711,605
2009	123,049	33,029,814	295,283	44,254,871	56,633	17,187	14,034	87,854	0	59,603,373
2010	117,740	31,604,556	282,541	42,345,244	54,189	16,446	13,428	84,063	0	57,031,446
2011	127,099	34,116,825	305,001	45,711,298	58,497	17,753	14,495	90,745	0	61,564,921
2012	127,234	34,153,155	305,325	45,759,973	58,559	17,772	14,511	90,842	0	61,630,480
2013	134,108	35,998,315	321,821	48,232,203	61,723	18,732	15,295	95,750	0	64,960,129
2014	139,068	37,329,538	333,722	50,015,842	64,005	19,425	15,860	99,290	0	67,362,372
2015	146,251	39,257,886	350,961	52,599,526	67,311	20,428	16,680	104,419	0	70,842,127
2016	147,737	39,656,614	354,526	53,133,764	67,995	20,636	16,849	105,480	0	71,561,651
2017	145,565	39,073,603	349,314	52,352,619	66,995	20,332	16,601	103,928	0	70,509,585
2018	128,371	34,458,396	308,054	46,168,948	59,082	17,931	14,641	91,654	0	62,181,294
2019	138,433	37,159,223	332,199	49,787,640	63,713	19,336	15,788	98,837	0	67,055,021
2020	127,473	34,217,205	305,898	45,845,791	58,669	17,805	14,538	91,012	0	61,746,058
2021	128,853	34,587,775	309,211	46,342,298	59,304	17,998	14,696	91,998	0	62,414,766
2022	124,494	33,417,678	298,750	44,774,546	57,298	17,389	14,198	88,885	0	60,303,282
2023	124,397	33,391,581	298,517	44,739,582	57,253	17,375	14,187	88,815	0	60,256,189
2024	119,481	32,072,021	286,720	42,971,574	54,991	16,689	13,627	85,307	0	57,875,004
2025	107,711	28,912,517	258,475	38,738,326	49,573	15,045	12,284	76,902	0	52,173,577
2026	96,820	25,989,098	232,340	34,821,393	44,561	13,524	11,042	69,127	0	46,898,169
2027	107,536	28,865,534	258,055	38,675,376	49,493	15,020	12,264	76,777	0	52,088,795
2028	79,580	21,361,337	190,968	28,620,906	36,626	11,115	9,076	56,817	0	38,547,225
2029	87,786	23,564,050	210,660	31,572,205	40,403	12,262	10,012	62,677	0	42,522,100
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	4,134,271	1,025,327,470	9,064,730	1,352,790,925	1,722,791	495,292	425,336	2,643,419	0	1,825,222,255

TABLE B-23. Total Transportation and Delta Water Charge for Each Contractor

(in 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	21,132	76,669	0	0	0
1963	0	0	0	199,673	190,236	447,594	837,503	0	0	0
1964	0	0	0	263,210	277,398	621,174	1,161,782	6,694	21,659	28,353
1965	0	0	0	373,722	404,239	1,157,791	1,935,752	13,751	36,017	49,768
1966	18,057	0	18,057	419,362	421,628	1,412,600	2,253,590	26,516	61,329	87,845
1967	41,560	0	41,560	552,988	548,387	1,862,808	2,964,183	56,450	118,225	174,675
1968	128,588	0	128,588	682,759	633,066	2,178,036	3,493,861	115,927	229,740	345,667
1969	254,662	0	254,662	817,355	583,307	2,298,276	3,698,938	185,117	358,783	543,900
1970	277,493	0	277,493	903,666	640,164	2,787,493	4,331,323	200,110	387,595	587,705
1971	227,419	0	227,419	845,130	675,059	2,806,542	4,326,731	202,372	392,830	595,202
1972	224,922	0	224,922	929,119	822,262	3,027,272	4,778,653	209,015	406,506	615,521
1973	221,035	31,353	252,388	915,555	716,357	3,120,308	4,752,220	206,516	402,639	609,155
1974	240,442	32,924	273,366	956,141	746,798	3,324,543	5,027,482	208,503	407,005	615,508
1975	237,400	36,276	273,676	1,014,516	792,919	3,213,566	5,021,001	225,853	439,786	665,639
1976	271,231	40,819	312,050	1,127,567	943,328	3,362,062	5,432,957	228,933	447,212	676,145
1977	293,565	45,078	338,643	1,096,181	922,067	3,302,979	5,321,227	238,656	468,632	707,288
1978	273,807	49,159	322,966	1,184,963	935,682	3,712,097	5,832,742	245,286	484,166	729,452
1979	289,415	53,320	342,735	1,281,524	1,009,429	3,819,046	6,109,999	243,064	483,342	726,406
1980	310,779	86,049	396,827	1,434,484	1,173,659	4,118,582	6,726,725	282,208	540,456	822,664
1981	347,710	112,817	460,527	1,542,998	1,348,984	4,507,072	7,399,054	307,018	596,566	903,584
1982	438,260	141,798	580,058	1,623,310	1,369,396	4,940,901	7,933,607	328,168	682,443	1,010,611
1983	354,703	163,242	517,946	1,493,581	1,259,998	4,909,747	7,663,326	357,171	701,981	1,059,152
1984	467,232	246,623	713,856	1,803,603	1,478,252	6,869,751	10,151,606	409,482	800,953	1,210,435
1985	735,929	386,187	1,122,116	2,301,425	2,224,952	7,795,981	12,322,358	500,648	969,826	1,470,474
1986	1,119,826	714,023	1,833,849	2,170,037	2,013,959	8,193,339	12,377,335	536,703	1,037,924	1,574,627
1987	1,773,371	1,581,733	3,355,104	2,666,542	2,505,517	7,979,748	13,151,807	570,595	1,148,862	1,719,457
1988	2,349,015	2,524,068	4,873,083	2,727,700	2,774,284	7,829,776	13,331,760	673,019	1,439,487	2,112,506
1989	2,548,170	3,700,620	6,248,790	2,711,651	2,515,323	7,578,335	12,805,309	772,517	1,814,603	2,587,120
1990	2,899,410	3,848,146	6,747,556	3,146,946	2,929,625	8,354,874	14,431,445	933,311	2,046,195	2,979,506
1991	2,940,701	4,169,425	7,110,126	2,418,874	2,384,093	6,430,306	11,233,273	979,649	2,366,642	3,346,291
1992	2,797,105	4,144,190	6,941,295	2,893,339	2,926,955	7,656,397	13,476,691	1,118,743	2,526,627	3,645,370
1993	2,854,875	4,171,687	7,026,562	3,750,112	2,977,192	8,849,446	15,576,750	1,185,596	2,725,769	3,911,365
1994	2,987,315	4,224,488	7,211,803	3,787,188	3,586,085	9,612,974	16,986,247	1,335,886	3,517,571	4,853,457
1995	2,960,697	4,404,411	7,365,108	4,035,839	3,313,187	8,393,270	15,742,296	1,647,663	6,194,234	7,841,897
1996	3,044,394	4,897,402	7,941,796	3,643,676	3,178,232	9,227,992	16,049,900	2,591,704	15,229,004	17,820,708
1997	3,027,378	4,733,999	7,761,378	3,870,184	3,145,383	9,337,452	16,353,019	3,002,323	23,731,433	26,733,756
1998	2,935,964	4,589,687	7,525,651	3,479,657	3,204,049	9,084,654	15,768,360	3,255,725	28,306,094	31,561,819
1999	3,153,293	5,067,870	8,221,163	4,165,792	3,670,900	11,379,341	19,216,033	3,804,992	29,596,993	33,401,985
2000	3,461,761	5,620,694	9,082,455	5,803,535	3,595,950	10,225,069	19,624,554	3,778,512	30,647,422	34,425,934
2001	4,077,160	6,366,877	10,444,037	7,651,552	4,082,226	12,197,421	23,931,199	4,325,809	32,645,829	36,971,638
2002	4,321,849	6,558,581	10,880,431	7,516,120	4,075,428	13,130,226	24,721,774	4,052,063	32,381,776	36,433,839
2003	4,439,385	6,903,912	11,343,297	7,318,008	3,793,122	11,898,495	23,009,625	4,127,842	32,669,250	36,797,092
2004	4,978,166	7,445,546	12,423,712	8,339,005	4,188,611	11,596,368	24,123,984	4,202,089	33,271,428	37,473,517
2005	4,342,639	6,733,122	11,075,761	8,547,630	4,429,619	12,563,864	25,541,113	4,326,481	33,535,756	37,862,237
2006	5,404,676	8,054,544	13,459,220	9,985,053	5,411,710	14,030,529	29,427,292	6,540,850	35,367,522	41,908,372
2007	5,848,062	8,393,468	14,241,530	11,174,098	5,799,103	14,843,893	31,817,094	4,829,200	39,158,912	43,988,112
2008	6,421,045	8,727,866	15,148,911	12,565,807	6,251,266	16,109,489	34,926,562	7,310,198	38,062,792	45,372,990
2009	5,812,790	6,934,437	12,747,227	12,596,124	6,355,237	16,054,638	35,005,999	7,595,729	37,371,329	44,967,058
2010	5,844,232	6,939,072	12,783,304	12,887,374	6,506,005	16,373,494	35,766,873	7,765,319	37,632,168	45,397,487
2011	5,843,122	7,010,531	12,853,653	12,138,444	6,079,057	16,924,630	35,142,131	7,488,932	37,288,946	44,777,878
2012	5,887,622	7,038,216	12,925,838	12,200,607	6,108,434	17,008,116	35,317,157	7,588,203	37,498,706	45,086,909
2013	5,907,386	7,063,465	12,970,851	12,133,857	6,058,138	16,772,208	34,964,203	7,612,043	37,637,891	45,249,934
2014	5,911,525	7,062,771	12,974,296	11,770,110	5,843,094	16,232,478	33,845,682	7,466,056	37,431,849	44,897,905
2015	5,981,481	7,105,866	13,087,347	11,848,887	5,830,991	16,058,055	33,737,933	7,514,310	37,618,232	45,132,542
2016	6,012,570	7,118,993	13,131,563	11,991,694	5,894,010	16,110,494	33,996,198	7,579,280	37,752,984	45,332,264
2017	6,006,628	7,095,729	13,102,357	11,717,336	5,761,904	15,744,152	33,223,392	7,449,559	37,485,343	44,934,902
2018	5,913,080	7,018,613	12,931,693	11,490,492	5,671,612	15,482,437	32,644,541	7,410,366	37,175,191	44,585,557
2019	5,966,085	7,094,121	13,060,206	11,696,734	5,790,910	15,778,434	33,266,078	7,550,971	37,565,909	45,116,880
2020	5,910,229	6,987,342	12,897,571	11,277,689	5,588,650	15,244,973	32,111,312	7,295,188	36,949,385	44,244,573
2021	5,922,501	6,997,650	12,920,151	11,274,666	5,586,785	15,245,045	32,106,496	7,298,728	36,974,344	44,273,072
2022	5,872,909	6,945,831	12,818,740	11,066,065	5,483,946	14,972,246	31,522,257	7,158,285	36,657,074	43,815,359
2023	5,872,820	6,912,267	12,785,087	11,141,832	5,523,718	15,065,579	31,731,129	7,188,285	36,708,000	43,896,285
2024	5,886,147	6,913,931	12,800,078	11,293,388	5,600,364	15,258,851	32,152,603	7,311,225	36,863,815	44,175,040
2025	5,824,495	6,838,267	12,662,762	10,971,590	5,439,695	14,850,625	31,261,910	7,184,872	36,472,290	43,657,162
2026	5,785,473	6,777,366	12,562,839	11,123,044	5,522,942	15,033,756	31,679,742	7,243,665	36,424,732	43,668,397
2027	5,808,405	6,823,063	12,631,468	11,057,118	5,485,134	14,952,781	31,495,033	7,192,453	36,480,294	43,672,747
2028	5,707,576	6,666,424	12,374,000	10,804,578	5,367,961	14,620,004	30,792,543	7,124,852	35,963,791	43,088,643
2029	5,721,333	6,697,599	12,418,932	10,822,110	5,372,666	14,645,866	30,840,642	7,093,626	36,018,603	43,112,229
2030	5,398,769	6,203,443	11,602,212	10,112,204	5,044,250	13,722,097	28,878,551	6,853,752	34,366,134	41,219,886
2031	5,372,110	6,175,000	11,547,110	9,967,944	4,970,215	13,538,115	28,476,274	6,776,258	34,215,943	40,992,201
2032	5,375,357	6,165,718	11,541,075	10,102,077	5,037,758	13,709,070	28,848,905	6,862,299	34,371,981	41,234,280
2033	5,396,449	6,165,370	11,561,819	10,320,059	5,145,651	13,992,958	29,458,668	7,051,766	34,722,759	41,774,525
2034	5,284,035	6,054,952	11,338,987	10,122,661	5,046,860	13,736,528	28,906,049	6,899,006	34,442,568	41,341,574
2035	5,113,096	5,887,668	11,000,764	10,107,780	5,043,883	13,706,989	28,858,652	6,859,510	34,365,642	41,225,152
TOTAL	241,678,691	301,695,710	543,374,401	452,179,392	254,073,043	722,955,230	1,429,207,665	267,113,466	1,423,315,719	1,690,429,185

TABLE B-23. Total Transportation and Delta Water Charge for Each Contractor

(in dollars)

SAN JOAQUIN VALLEY AREA

Calendar Year	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	Total
				Municipal and Industrial	Agri-cultural				
	[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	2,724	0	0	0	0	0	2,724
1965	0	0	6,027	73,543	0	0	0	0	79,570
1966	0	0	12,035	137,285	0	0	0	0	149,320
1967	0	0	26,249	267,525	0	0	0	0	293,774
1968	224,863	19,355	54,573	445,315	1,707,907	16,944	19,621	307,144	2,795,722
1969	241,040	10,858	87,557	524,952	2,725,665	16,821	19,353	458,146	4,084,393
1970	306,153	34,294	94,656	573,846	3,874,807	21,431	30,373	520,792	5,456,353
1971	327,556	37,022	95,676	605,729	5,194,583	27,171	34,653	712,014	7,034,405
1972	381,217	40,283	98,769	631,452	7,160,048	26,469	63,760	1,983,416	10,385,415
1973	398,531	38,905	97,531	1,025,724	7,288,944	28,813	39,235	781,297	9,698,980
1974	506,825	40,119	98,440	1,144,626	7,998,836	29,540	42,529	1,041,211	10,902,126
1975	679,255	40,568	106,683	1,197,000	9,378,180	31,236	48,144	1,554,104	13,035,170
1976	718,929	43,089	108,064	1,323,673	10,621,999	32,663	52,075	1,440,444	14,340,936
1977	579,202	39,006	112,534	1,367,237	10,935,227	34,430	54,184	1,136,448	14,258,267
1978	697,714	36,029	115,500	1,565,715	13,267,022	38,924	58,998	1,170,331	16,950,233
1979	780,939	47,842	114,232	1,668,782	15,342,234	43,061	70,589	1,724,129	19,791,809
1980	961,857	49,577	125,929	1,770,094	16,980,862	48,017	94,886	1,670,360	21,701,583
1981	1,210,796	83,943	134,147	2,430,626	22,581,643	66,491	100,598	2,281,316	28,889,561
1982	1,246,912	70,137	135,036	2,523,486	24,975,869	70,658	108,243	2,275,922	31,406,263
1983	1,181,152	52,487	149,180	2,084,871	24,620,691	75,438	87,400	506,508	28,757,728
1984	1,490,607	28,469	164,483	3,396,201	33,347,123	94,317	121,380	1,539,693	40,182,273
1985	1,766,381	129,899	184,883	3,891,023	39,315,432	117,579	139,459	2,814,739	48,359,395
1986	2,008,191	79,276	180,423	4,079,656	43,415,702	136,711	153,113	3,651,450	53,704,522
1987	1,883,365	95,194	179,850	4,570,657	42,685,043	137,328	151,352	3,744,261	53,447,050
1988	1,968,313	109,572	193,712	4,734,317	44,620,432	138,274	146,509	3,898,655	55,809,784
1989	2,122,936	101,699	187,891	4,677,170	46,811,366	137,082	166,333	4,379,959	58,584,436
1990	1,882,977	86,903	221,368	4,827,701	45,586,813	121,149	148,635	3,957,759	56,833,305
1991	1,687,849	80,192	220,258	4,535,666	37,462,468	103,904	134,645	3,498,769	47,723,752
1992	2,233,468	105,011	241,431	5,549,954	48,659,564	143,779	175,628	4,537,599	61,646,434
1993	2,455,623	120,014	264,933	5,805,843	54,560,731	161,518	195,193	5,291,453	68,855,308
1994	2,260,461	107,520	306,333	5,210,092	52,031,343	145,621	178,005	4,664,186	64,903,561
1995	2,856,907	115,436	304,270	6,621,268	60,491,427	180,796	210,338	5,522,987	76,303,430
1996	2,079,003	125,126	389,175	6,670,890	58,901,328	178,468	189,950	7,088,752	75,622,692
1997	2,790,580	100,531	276,653	6,521,729	57,769,465	138,112	212,150	4,710,883	72,520,103
1998	2,645,355	119,852	381,853	5,812,611	54,360,965	143,432	203,908	4,965,302	68,633,278
1999	2,697,215	134,246	366,504	6,357,194	57,227,682	181,837	215,880	7,274,247	74,454,804
2000	2,622,853	120,600	303,259	6,363,533	51,446,943	174,146	213,127	6,167,186	67,411,647
2001	3,293,579	145,284	327,968	6,046,016	58,539,194	191,938	258,689	6,424,177	75,226,846
2002	3,008,432	127,392	321,476	6,794,396	53,188,388	186,918	238,166	5,733,510	69,598,679
2003	3,059,898	131,038	340,003	7,048,962	55,840,685	201,424	237,144	6,035,052	72,894,206
2004	3,249,402	167,420	343,909	8,136,038	56,614,700	353,510	252,973	5,811,423	74,929,374
2005	3,849,114	178,696	356,697	7,506,113	67,920,825	696,486	251,713	6,720,787	87,480,431
2006	3,823,965	201,167	356,343	8,421,090	70,090,468	600,124	287,668	6,318,619	90,099,445
2007	4,050,598	192,452	367,989	9,225,405	72,271,152	640,680	308,813	6,632,802	93,689,891
2008	4,279,612	204,545	380,595	9,664,260	76,877,516	677,717	324,583	7,012,417	99,421,245
2009	3,966,617	188,208	363,376	9,370,322	71,327,477	631,330	303,305	6,497,063	92,647,698
2010	4,113,302	196,063	363,827	9,731,139	73,787,788	655,565	316,626	6,743,120	95,907,430
2011	3,874,631	183,247	365,305	9,113,254	69,182,673	616,220	298,951	6,342,401	89,976,682
2012	3,878,311	183,436	365,870	9,133,635	69,489,733	617,139	297,527	6,348,522	90,314,173
2013	3,980,103	188,526	366,014	9,359,503	70,873,022	633,367	307,855	6,517,878	92,226,268
2014	3,835,934	180,813	363,349	9,009,459	68,531,082	609,676	294,142	6,276,040	89,100,495
2015	3,929,203	185,449	360,236	9,146,859	69,875,767	624,534	302,896	6,431,115	90,856,059
2016	4,054,051	191,933	353,913	9,382,332	71,882,198	644,775	314,051	6,639,857	93,463,110
2017	3,933,656	185,707	339,826	8,963,914	69,933,042	625,254	303,510	6,438,699	90,723,608
2018	3,877,898	183,368	317,309	8,744,378	69,448,565	607,572	297,472	6,347,512	89,824,074
2019	4,038,889	191,453	308,520	9,057,622	71,916,941	632,667	311,690	6,615,651	93,073,433
2020	3,881,703	183,599	306,942	8,657,479	69,393,322	607,048	298,914	6,354,035	89,683,042
2021	3,876,591	183,285	305,966	8,622,945	69,321,728	606,006	298,182	6,345,293	89,559,996
2022	3,793,937	179,107	305,264	8,418,285	67,979,484	592,530	291,359	6,207,565	87,767,531
2023	3,848,068	181,946	304,618	8,542,787	68,824,512	601,297	296,515	6,298,213	88,897,956
2024	3,910,496	185,377	304,185	8,697,370	69,945,110	611,749	301,933	6,403,222	90,359,442
2025	3,727,033	176,175	303,889	8,275,519	67,251,336	582,359	284,804	6,097,739	86,698,854
2026	3,851,835	183,077	303,147	8,578,894	69,245,440	603,044	297,786	6,307,981	89,371,204
2027	3,803,892	180,198	303,325	8,451,028	68,403,305	594,695	292,546	6,226,249	88,255,238
2028	3,710,486	176,264	300,043	8,258,773	67,222,271	580,588	282,457	6,073,694	86,604,576
2029	3,702,485	175,567	300,076	8,227,173	67,001,010	578,833	284,203	6,059,217	86,328,564
2030	3,394,819	162,444	299,551	7,596,089	63,145,088	532,379	259,660	5,555,621	80,945,651
2031	3,321,520	158,601	298,766	7,405,209	62,025,846	519,996	252,533	5,432,778	79,415,249
2032	3,384,170	161,888	297,700	7,554,685	62,984,474	530,283	258,570	5,537,840	80,709,610
2033	3,459,953	165,849	297,895	7,743,463	64,476,534	542,687	263,285	5,664,511	82,614,177
2034	3,386,605	162,011	297,310	7,552,598	63,104,669	530,447	258,170	5,541,789	80,833,599
2035	3,449,337	165,297	296,054	7,707,229	64,291,698	540,296	262,475	5,646,842	82,359,228
TOTAL	178,495,150	8,629,945	17,630,077	405,131,210	3,365,555,387	22,643,293	13,871,410	314,910,696	4,326,867,168

TABLE B-23. Total Transportation and Delta Water Charge for Each Contractor

(in dollars)

Calendar Year	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	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District
	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0
1963	33,309	0	0	0	0	0	0	0	51,711	0
1964	62,847	27,438	16,286	4,369	37,145	1,142	28,427	8,202	82,782	34,973
1965	118,565	52,989	28,459	7,191	40,756	2,081	50,300	15,217	135,023	35,333
1966	215,713	101,232	51,184	12,474	73,129	3,752	90,369	27,670	232,426	61,445
1967	417,348	210,746	98,904	23,464	141,365	7,282	175,119	54,006	433,210	115,536
1968	744,206	491,125	176,688	41,496	251,125	12,866	311,081	95,438	781,930	208,864
1969	1,072,647	742,016	264,900	61,208	370,850	18,688	458,937	138,023	1,205,472	321,659
1970	1,395,848	941,966	371,728	89,673	519,163	25,223	632,989	184,783	1,777,650	467,431
1971	1,727,773	1,136,343	503,422	128,321	712,537	31,827	857,146	231,214	2,538,403	659,218
1972	2,207,788	1,381,338	682,096	185,824	989,700	43,760	1,179,256	287,548	3,774,702	950,069
1973	2,360,340	1,429,754	829,097	190,947	1,216,863	46,049	1,270,009	313,372	4,042,999	960,784
1974	2,481,092	1,525,225	853,731	204,027	1,256,738	48,922	1,328,852	331,627	4,480,180	1,104,244
1975	2,698,796	1,616,198	900,445	219,242	1,332,005	53,231	1,414,851	355,193	4,655,321	1,207,793
1976	3,163,245	1,652,864	958,179	232,081	1,424,703	57,721	1,491,141	381,199	4,854,833	1,278,480
1977	3,145,012	1,740,705	859,286	245,063	1,267,009	54,200	1,578,494	406,543	5,110,695	1,336,049
1978	3,593,002	1,873,735	1,058,836	255,418	1,567,751	56,795	1,625,709	419,949	5,108,379	1,373,766
1979	4,266,594	1,953,504	1,144,724	267,741	1,689,966	60,273	1,801,011	449,679	5,153,276	1,341,866
1980	4,950,893	2,091,841	1,254,546	295,300	1,890,349	67,594	1,972,994	498,972	5,664,035	1,484,871
1981	5,778,625	2,561,138	1,413,847	328,765	2,140,325	100,740	2,291,039	603,182	6,478,238	1,688,045
1982	5,537,462	2,724,147	1,499,972	346,669	2,284,051	82,284	2,265,745	641,909	6,769,199	1,929,385
1983	6,287,841	2,794,693	2,021,337	380,786	3,118,525	88,372	2,461,270	658,528	6,981,081	1,808,463
1984	7,663,206	3,873,394	3,123,607	497,530	4,874,874	96,480	2,726,640	727,732	8,069,552	2,597,938
1985	9,494,182	4,339,431	3,957,883	601,872	6,209,843	103,693	2,916,561	959,565	8,909,659	2,686,498
1986	9,462,355	4,974,829	4,418,531	647,576	6,954,134	130,208	3,100,055	1,223,753	9,159,122	3,398,233
1987	9,496,466	4,832,282	4,286,505	678,027	6,830,144	240,859	3,154,460	1,254,957	10,560,620	3,398,610
1988	9,094,804	5,019,001	4,343,583	704,352	6,996,687	158,832	3,328,582	1,044,110	11,111,463	3,270,823
1989	10,985,206	5,028,306	4,050,973	691,132	6,579,291	210,621	3,409,349	1,746,666	10,828,253	3,453,364
1990	12,376,664	5,496,308	4,745,014	729,168	7,663,400	331,158	3,640,183	1,953,805	11,739,188	4,220,944
1991	9,236,278	4,610,066	3,298,997	688,804	5,277,044	221,152	4,499,612	1,639,984	11,121,092	3,642,282
1992	11,792,383	5,798,748	3,452,415	612,831	5,529,109	174,984	5,477,700	1,532,224	11,160,289	3,693,763
1993	12,205,489	5,445,406	3,656,000	617,132	5,863,795	211,890	5,368,538	1,753,869	12,123,330	4,041,978
1994	14,274,279	6,012,641	3,681,660	694,501	5,904,571	277,997	6,319,305	2,090,615	12,750,420	4,776,885
1995	14,140,578	6,387,506	4,503,309	661,742	7,259,099	212,229	5,511,821	1,952,389	12,220,505	4,480,562
1996	14,566,985	6,618,643	7,455,778	710,580	12,127,573	208,342	5,609,442	2,300,101	12,746,956	4,598,694
1997	15,136,535	6,512,295	7,071,320	750,347	8,455,419	207,872	6,031,417	2,342,092	14,414,986	4,897,092
1998	13,676,086	6,145,896	6,170,181	717,194	6,979,423	209,228	7,636,031	1,950,284	14,321,071	4,179,809
1999	15,392,624	6,644,958	5,183,512	823,182	7,122,720	213,796	8,243,073	2,350,813	15,737,693	5,114,792
2000	14,788,674	10,253,713	3,643,052	793,120	5,562,498	186,800	8,190,152	2,079,775	15,511,808	4,255,067
2001	24,849,221	15,869,263	4,683,972	995,954	7,551,916	199,053	8,875,616	3,991,805	21,437,432	4,395,648
2002	16,254,111	13,071,866	3,921,265	957,440	6,293,917	182,320	8,047,536	3,366,534	22,231,817	5,760,963
2003	17,593,494	13,984,378	4,109,892	930,633	6,603,939	187,292	9,902,296	2,911,116	20,095,911	5,931,746
2004	18,675,421	15,379,485	4,686,581	1,033,166	6,571,517	201,435	9,935,287	3,176,601	24,330,801	5,413,295
2005	20,181,040	15,026,082	18,471,934	800,300	11,908,258	198,531	10,093,257	3,414,665	22,051,488	5,845,449
2006	23,683,654	16,736,993	28,903,046	1,331,841	10,743,103	330,617	15,760,795	4,626,546	31,241,765	6,734,838
2007	22,684,050	20,302,270	40,748,663	1,592,339	13,228,376	649,617	13,037,235	5,934,438	35,150,616	6,922,951
2008	40,706,827	26,197,663	46,851,741	2,406,562	18,059,568	728,045	27,018,365	6,648,928	42,731,463	10,828,989
2009	39,857,068	23,953,541	42,833,446	2,137,839	16,315,278	661,627	26,570,043	6,030,707	39,018,234	9,794,010
2010	41,266,688	24,708,659	44,351,086	2,200,593	16,909,011	684,615	27,468,787	6,244,731	40,119,523	10,111,893
2011	35,252,265	24,192,013	39,372,718	1,890,329	14,893,069	583,929	23,100,350	5,309,873	36,140,894	8,983,662
2012	36,439,256	25,676,576	40,595,584	1,946,510	15,378,042	603,253	23,916,299	5,488,662	37,063,005	9,248,524
2013	36,164,461	25,503,637	40,393,094	1,923,100	15,267,272	599,432	23,737,433	5,451,596	36,663,328	9,153,168
2014	35,198,493	24,742,175	39,282,310	1,895,914	14,867,399	583,148	23,137,874	5,301,182	36,195,100	8,990,019
2015	35,391,629	24,941,331	39,480,268	1,885,620	14,913,047	586,348	23,281,501	5,330,296	35,988,612	8,961,904
2016	36,536,373	25,707,422	40,513,686	1,964,430	15,383,339	604,881	24,045,767	5,503,588	37,320,362	9,301,059
2017	35,091,834	24,727,995	39,216,474	1,877,395	14,783,812	581,117	23,133,137	5,288,187	35,798,011	8,899,246
2018	35,810,832	25,002,882	39,693,390	1,913,781	15,033,042	592,390	23,677,290	5,400,668	36,308,041	9,045,251
2019	36,690,767	25,446,654	40,527,582	1,956,959	15,356,813	606,336	24,125,026	5,532,246	37,043,660	9,238,549
2020	34,706,628	23,999,980	38,012,667	1,836,505	14,393,056	572,661	22,907,060	5,229,091	34,745,523	8,632,019
2021	34,529,400	23,794,903	37,566,870	1,793,409	14,196,262	568,614	22,735,305	5,198,146	33,937,329	8,444,684
2022	33,551,740	22,962,154	36,126,906	1,746,863	13,703,772	552,397	22,058,737	5,050,729	33,015,021	8,186,550
2023	33,827,207	23,192,456	35,432,310	1,770,113	13,672,759	556,693	22,229,719	5,091,719	33,319,171	8,256,120
2024	34,554,713	23,633,019	36,101,277	1,783,905	13,930,792	568,460	22,625,360	5,201,847	33,559,933	8,351,399
2025	33,848,230	23,029,194	35,186,181	1,750,778	13,623,732	556,794	22,196,062	5,096,665	32,972,214	8,187,195
2026	34,191,248	23,262,373	35,684,053	1,774,527	13,750,869	562,197	22,355,095	5,149,482	33,269,374	8,254,303
2027	34,003,401	23,007,614	35,025,801	1,748,891	13,602,556	559,265	22,250,981	5,120,065	32,862,794	8,165,050
2028	33,522,688	22,746,496	34,691,667	1,711,243	13,388,033	551,078	21,897,566	5,050,751	32,116,712	7,976,582
2029	33,407,152	22,473,529	34,600,251	1,730,634	13,379,814	549,279	21,835,173	5,032,566	32,496,643	8,044,426
2030	32,189,905	21,052,356	33,195,040	1,656,063	12,795,421	528,394	20,906,906	4,859,043	31,010,975	7,647,629
2031	31,852,386	20,644,419	33,039,845	1,606,372	12,646,752	522,868	20,742,331	4,808,724	30,155,170	7,458,827
2032	32,043,916	20,931,401	32,798,969	1,642,599	12,689,363	525,956	20,787,569	4,837,913	30,816,320	7,597,020
2033	34,018,924	22,167,302	34,996,495	1,725,980	13,515,073	558,046	22,136,767	5,136,884	32,202,256	8,011,172
2034	32,263,965	20,976,777	33,190,223	1,634,246	12,788,194	529,492	20,981,766	4,874,716	30,677,627	7,587,863
2035	34,343,197	21,895,517	35,219,082	1,762,566	13,587,031	563,203	22,206,861	5,189,891	32,789,939	8,124,541
TOTAL	1,381,223,921	895,982,792	1,251,534,359	74,454,548	604,237,874	22,448,326	828,164,809	210,885,584	1,419,674,606	367,562,152

TABLE B-23. Total Transportation and Delta Water Charge for Each Contractor

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA					
	San Gorgonio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC&WCD	Total	South Bay Area Future Contractor	GRAND 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	3,219	79,888
1963	0	690,539	0	775,559	0	0	0	0	12,626	1,625,689
1964	21,728	1,260,042	9,375	1,594,755	0	0	0	0	13,938	2,801,552
1965	21,859	2,179,810	17,761	2,705,344	0	0	405	405	28,937	4,799,776
1966	37,952	3,898,819	33,415	4,839,578	0	0	564	564	31,321	7,380,275
1967	71,260	7,691,085	68,133	9,507,458	0	0	562	562	47,718	13,029,930
1968	128,877	15,313,065	142,760	18,699,521	0	1,050	1,439	2,489	46,945	25,512,793
1969	198,704	23,145,744	215,144	28,213,991	0	1,225	4,119	5,344	52,963	36,854,190
1970	289,546	30,607,434	273,523	37,576,957	0	3,848	17,111	20,959	69,744	48,320,533
1971	409,205	39,946,463	342,325	49,224,198	0	4,546	19,182	23,728	55,532	61,487,214
1972	537,044	54,976,817	422,192	67,618,135	0	4,929	21,145	26,074	80,412	83,729,132
1973	587,814	59,575,172	435,541	73,258,742	0	7,059	21,772	28,831	54,219	88,654,535
1974	611,275	65,991,774	455,447	80,673,134	0	8,336	22,403	30,739	76,783	97,599,138
1975	644,464	71,813,105	478,284	87,388,928	0	9,416	23,517	32,933	84,547	106,501,893
1976	668,152	74,889,946	475,466	91,528,011	0	7,004	23,251	30,255	106,717	112,427,071
1977	696,350	73,320,946	506,941	90,267,293	0	16,917	24,054	40,971	98,618	111,032,307
1978	708,874	81,933,455	523,053	100,098,721	0	12,635	24,219	36,854	100,786	124,071,754
1979	712,699	83,583,809	526,278	102,951,420	0	16,575	28,346	44,921	119,352	130,086,642
1980	862,107	93,010,922	583,496	114,627,919	0	19,834	26,556	46,390	178,812	144,500,919
1981	946,788	112,152,065	672,397	137,155,193	0	21,682	34,558	56,240	185,347	175,049,505
1982	1,021,156	117,123,623	727,476	142,953,077	0	16,117	43,111	59,228	173,894	184,116,739
1983	1,076,102	118,970,809	854,111	147,501,918	0	15,202	29,405	44,607	220,926	185,765,602
1984	1,211,437	156,252,901	933,156	192,648,447	20,590	15,442	31,790	67,822	225,959	245,200,397
1985	1,287,602	195,472,350	993,495	237,932,635	24,050	16,976	32,399	73,425	340,322	301,620,724
1986	1,344,580	218,310,192	1,058,119	264,181,687	31,753	18,145	33,591	83,489	279,227	334,034,736
1987	1,379,421	204,837,839	1,056,160	252,006,349	37,071	17,794	33,378	88,243	345,116	324,113,126
1988	1,465,634	221,645,350	1,123,943	269,307,163	48,058	19,117	33,600	100,775	365,207	345,900,277
1989	1,505,285	230,306,400	1,232,220	280,027,066	61,184	20,809	37,183	119,176	422,329	360,794,226
1990	1,624,564	277,172,576	1,855,829	333,548,801	66,041	20,855	36,807	123,703	474,284	415,138,600
1991	1,720,675	221,864,576	1,549,792	269,370,354	180,212	22,526	42,194	244,932	214,683	339,243,411
1992	1,779,693	245,342,779	1,503,314	297,850,231	208,216	26,028	43,511	277,755	443,676	384,281,453
1993	1,943,122	219,214,982	1,551,085	273,996,616	209,613	26,203	47,582	283,398	599,571	370,249,570
1994	1,920,319	257,372,371	1,475,136	317,550,701	201,284	25,161	46,074	272,519	609,932	412,388,220
1995	1,982,578	225,839,379	1,568,231	286,719,927	216,944	27,118	50,016	294,078	534,971	394,801,706
1996	1,651,010	235,386,048	1,622,470	305,602,621	217,250	27,156	56,618	301,024	571,857	423,910,599
1997	1,759,495	245,428,898	1,777,095	314,784,863	236,300	29,847	59,910	326,057	428,638	438,907,814
1998	1,952,225	227,227,506	1,797,418	292,962,350	128,021	29,927	54,386	212,334	465,140	417,128,933
1999	2,268,132	254,361,636	1,866,557	325,323,488	254,675	31,834	58,367	344,876	559,344	461,521,694
2000	2,567,020	253,103,196	1,968,766	322,903,641	262,163	79,001	61,576	402,740	0	453,850,970
2001	3,551,602	442,340,647	2,260,949	541,003,078	261,699	93,471	62,742	417,912	0	687,994,709
2002	4,963,185	330,993,173	2,296,388	418,340,514	266,107	95,018	68,291	429,416	0	560,404,651
2003	5,766,410	357,998,864	2,313,407	448,329,377	262,547	93,638	68,949	425,134	0	592,798,730
2004	6,268,152	407,770,558	2,591,574	506,033,872	284,387	102,404	29,277	416,068	0	655,400,528
2005	6,389,956	386,882,222	2,124,149	503,387,332	280,033	41,076	28,801	349,910	0	665,696,784
2006	7,207,189	486,434,684	2,677,770	636,412,841	317,398	50,593	85,638	453,629	0	811,760,799
2007	8,301,227	562,288,429	5,692,615	736,532,826	309,089	741,743	53,962	1,104,794	0	921,374,246
2008	10,653,658	528,676,076	6,307,591	767,815,476	305,584	740,679	86,913	1,133,176	0	963,818,360
2009	10,026,918	483,762,681	5,715,751	706,677,143	306,432	740,936	88,991	1,136,359	0	893,181,484
2010	10,226,075	497,956,487	5,922,991	728,171,139	303,988	740,195	90,203	1,134,386	0	919,160,619
2011	9,533,531	529,490,297	5,050,647	733,793,577	308,296	741,502	93,348	1,143,146	0	917,687,067
2012	9,691,684	546,679,467	5,223,550	757,950,412	308,358	741,521	95,442	1,145,321	0	942,739,810
2013	9,620,229	542,369,311	5,181,356	752,027,417	311,522	742,481	98,564	1,152,567	0	938,591,240
2014	9,517,463	527,462,439	5,015,482	732,188,998	313,804	743,174	101,467	1,158,445	0	914,165,821
2015	9,484,196	529,487,881	5,047,094	734,779,727	317,110	744,177	104,480	1,165,767	0	918,759,375
2016	9,689,362	546,757,332	5,205,860	758,533,461	317,794	744,385	107,086	1,169,265	0	945,625,861
2017	9,448,095	524,558,480	4,994,015	728,397,798	316,794	744,081	106,841	1,167,716	0	911,549,773
2018	9,564,635	531,416,967	5,065,775	738,524,944	308,881	741,680	104,878	1,155,439	0	919,666,248
2019	9,663,522	541,110,308	5,147,275	752,445,697	313,512	743,085	103,400	1,159,997	0	938,122,291
2020	9,312,150	507,712,173	4,845,599	706,905,112	308,468	741,554	90,224	1,140,246	0	886,981,856
2021	9,190,708	500,466,131	4,793,201	697,214,962	309,103	741,747	89,556	1,140,406	0	877,215,083
2022	9,043,387	482,232,742	4,620,027	672,851,025	307,097	741,138	87,673	1,135,908	0	849,910,820
2023	9,086,879	485,549,294	4,667,328	676,651,768	307,052	741,124	87,661	1,135,837	0	855,098,062
2024	9,149,110	494,280,930	4,764,691	688,505,436	304,790	740,438	87,100	1,132,328	0	869,124,927
2025	9,070,689	481,672,371	4,645,751	671,835,856	299,372	738,794	85,755	1,123,921	0	847,240,465
2026	9,131,708	487,942,563	4,708,150	680,035,942	294,360	737,273	84,511	1,116,144	0	858,434,268
2027	9,056,171	479,634,866	4,637,702	669,675,157	299,292	738,769	85,731	1,123,792	0	846,853,435
2028	8,989,020	477,656,658	4,623,231	664,921,725	286,425	734,864	82,541	1,103,830	0	838,885,317
2029	9,020,239	471,565,313	4,548,345	658,683,364	290,202	736,011	83,476	1,109,689	0	832,493,420
2030	8,932,547	448,625,537	4,341,570	627,741,386	249,799	723,749	73,462	1,047,010	0	791,434,696
2031	8,812,531	438,325,752	4,248,097	614,864,074	249,799	723,749	73,461	1,047,009	0	776,341,917
2032	8,901,394	447,061,688	4,320,565	624,954,673	249,799	723,749	73,459	1,047,007	0	788,335,550
2033	9,146,851	471,328,368	4,570,738	659,514,856	249,799	723,749	73,459	1,047,007	0	825,971,052
2034	8,891,674	446,249,268	4,321,519	624,967,330	249,799	723,749	73,458	1,047,006	0	788,434,545
2035	9,220,784	471,769,178	4,532,384	661,204,174	249,799	723,749	73,456	1,047,004	0	825,694,974
TOTAL	344,137,675	21,917,723,556	189,719,041	29,507,749,245	12,621,715	22,480,359	4,008,954	39,111,028	8,723,612	37,545,462,304

TABLE B-24. Equivalent Unit Charge for Water Supply for Each Contractor [a]

(in dollars per acre-foot)

Project Service Area and Water Supply Contractor	Transportation Charge					Delta Water Charge	Water System Revenue Bond Surcharge	Total Equivalent Unit Charge
	Capital Cost Component	Minimum OMP&R Component	Off-Aqueduct Component	Variable OMP&R Component	Total			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
FEATHER RIVER AREA								
City of Yuba City	0.00	0.00	0.00	0.00	0.00	55.51	8.13	63.63
County of Butte	0.00	0.00	0.00	0.00	0.00	33.84	0.94	34.78
Plumas County Flood Control and Water Conservation District	26.70	3.41	0.00	0.00	30.11	32.63	5.01	67.75
Feather River Area	2.86	0.37	0.00	0.00	3.22	39.51	3.30	46.03
NORTH BAY AREA								
Napa County Flood Control and Water Conservation District	135.62	42.90	4.36	17.44	200.32	20.20	11.27	231.79
Solano County Water Agency	83.62	34.22	4.35	11.76	133.96	26.63	10.49	171.07
North Bay Area	103.21	37.49	4.36	13.90	158.96	24.21	10.78	193.95
SOUTH BAY AREA								
Alameda County Flood Control and Water Conservation District, Zone 7	36.18	33.99	8.08	25.72	103.98	25.89	7.36	137.22
Alameda County Water District	24.74	25.90	7.02	16.78	74.44	21.70	4.44	100.58
Santa Clara Valley Water District	22.15	19.42	6.37	13.28	61.21	15.63	3.22	80.06
South Bay Area	25.19	23.21	6.80	16.18	71.37	18.55	4.19	94.12
SAN JOAQUIN VALLEY AREA								
County of Kings	5.10	5.21	3.40	9.86	23.58	20.54	3.51	47.63
Dudley Ridge Water District	5.13	4.78	3.16	6.03	19.10	16.23	2.26	37.59
Empire West Side Irrigation District	1.99	4.00	2.43	5.46	13.89	17.54	1.72	33.14
Kern County Water Agency	9.26	9.24	4.87	8.22	31.59	19.05	2.39	53.03
Oak Flat Water District	2.00	2.26	1.96	3.73	9.95	15.98	1.71	27.64
Tulare Lake Basin Water Storage District	5.19	4.67	3.10	5.70	18.66	16.59	2.16	37.41
San Joaquin Valley Area	8.54	8.46	4.57	5.76	27.32	16.71	2.19	46.22
CENTRAL COASTAL AREA								
San Luis Obispo County Flood Control and Water Conservation District	167.69	80.38	14.76	118.09	380.93	58.68	20.98	460.59
Santa Barbara County Flood Control and Water Conservation District	733.75	113.82	17.96	107.18	972.71	48.37	53.01	1,074.09
Central Coastal Area	559.43	103.52	16.97	110.54	790.46	51.55	43.14	885.15
SOUTHERN CALIFORNIA AREA								
Antelope Valley-East Kern Water Agency	45.13	40.28	29.32	85.09	199.82	32.99	7.89	240.71
Castaic Lake Water Agency	49.33	41.05	23.25	60.67	174.30	27.98	12.45	214.73
Coachella Valley Water District	51.57	49.30	37.49	97.10	235.46	22.35	10.21	268.02
Crestline-Lake Arrowhead Water Agency	109.60	87.56	32.61	110.75	340.52	42.55	14.44	397.51
Desert Water Agency	43.39	39.41	48.20	57.65	188.65	20.22	6.64	215.51
Littlerock Creek Irrigation District	60.68	53.51	28.96	95.98	239.14	43.28	10.21	292.63
Mojave Water Agency	96.15	97.86	27.10	161.62	382.73	58.15	20.26	461.13
Palmdale Water District	51.29	47.37	36.24	109.30	244.20	41.84	9.20	295.24
San Bernardino Valley Municipal Water District	175.21	118.24	27.22	101.16	421.83	52.34	18.67	492.84
San Gabriel Valley Municipal Water District	98.25	80.15	41.51	71.20	291.10	36.76	12.61	340.47
San Gorgonio Pass Water Agency	588.92	199.27	22.72	154.21	965.12	59.63	13.74	1,038.49
The Metropolitan Water District of Southern California	77.53	56.34	35.33	60.90	230.10	32.33	10.16	272.59
Ventura County Flood Control District	136.13	99.90	23.25	128.46	387.74	58.64	19.78	466.17
Southern California Area	71.58	52.89	32.01	61.52	218.00	31.40	9.77	259.18
ALL AREAS	47.24	33.65	19.06	37.05	137.00	25.66	6.70	169.37

a) Hypothetical charges, which, if assessed on all Table A water delivered to date, all surplus water delivered prior to May 1, 1973, and all Table A water 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, 4.608 percent per annum.

TABLE B-25. Equivalent Unit Transportation Costs of Water Delivered From or Through Each Aqueduct Reach [a]

(in dollars per acre-foot)

Aqueduct Reach	Unit Costs of Reach [b]						Cumulative Unit Costs from the Delta					
	Capital Costs	Water System Revenue Bond Surcharge [c]	Minimum OMP&R	Off-Aqueduct Costs	Variable OMP&R	Total	Capital Costs	Water System Revenue Bond Surcharge [c]	Minimum OMP&R	Off-Aqueduct Costs	Variable OMP&R	Total
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
North Bay Aqueduct												
1	39.97	13.26	11.65	1.31	3.81	70.00	39.97	13.26	11.65	1.31	3.81	70.00
2	42.54	14.11	5.09	0.00	0.00	61.74	82.51	27.37	16.74	1.31	3.81	131.74
3A	7.58	2.51	10.13	2.45	6.17	28.84	90.09	29.88	26.87	3.76	9.98	160.58
3B	48.77	16.18	22.90	3.15	13.69	104.69	131.28	43.55	39.64	4.46	17.50	236.43
South Bay Aqueduct												
1	6.99	2.32	13.66	5.39	14.28	42.64	8.94	2.97	16.35	7.15	20.95	56.36
2	0.66	0.22	1.54	0.00	0.00	2.42	9.60	3.19	17.89	7.15	20.95	58.78
4	2.20	0.73	2.63	0.00	0.00	5.56	11.80	3.92	20.52	7.15	20.95	64.34
5	4.61	1.53	2.06	0.00	0.00	8.20	16.41	5.45	22.58	7.15	20.95	72.54
6	0.27	0.09	0.22	0.00	0.00	0.58	16.68	5.54	22.80	7.15	20.95	73.12
7	2.04	0.68	0.40	0.00	0.00	3.12	18.72	6.22	23.20	7.15	20.95	76.24
8	2.77	0.92	0.66	0.00	0.00	4.35	21.49	7.14	23.86	7.15	20.95	80.59
9	5.73	1.90	2.48	0.00	0.00	10.11	27.22	9.04	26.34	7.15	20.95	90.70
California Aqueduct												
1	1.95	0.65	2.69	1.76	6.67	13.72	1.95	0.65	2.69	1.76	6.67	13.72
2A	1.24	0.41	0.53	0.00	0.00	2.18	3.19	1.06	3.22	1.76	6.67	15.90
2B	0.64	0.21	0.27	0.00	0.00	1.12	3.83	1.27	3.49	1.76	6.67	17.02
3	0.55	0.18	0.20	0.00	0.00	0.93	4.38	1.45	3.69	1.76	6.67	17.95
4	0.88	0.29	1.33	0.82	3.01	6.33	5.26	1.74	5.02	2.58	9.68	24.28
5	0.68	0.23	0.27	0.00	0.00	1.18	5.94	1.97	5.29	2.58	9.68	25.46
6	0.17	0.06	0.13	0.00	0.00	0.36	6.11	2.03	5.42	2.58	9.68	25.82
7	1.02	0.34	0.32	0.00	0.00	1.68	7.13	2.37	5.74	2.58	9.68	27.50
8C	0.02	0.01	0.06	0.00	0.00	0.09	7.15	2.38	5.80	2.58	9.68	27.59
8D	0.39	0.13	0.26	0.00	0.00	0.78	7.54	2.51	6.06	2.58	9.68	28.37
9	0.33	0.11	0.24	0.00	0.00	0.68	7.87	2.62	6.30	2.58	9.68	29.05
10A	0.35	0.12	0.31	0.00	0.00	0.78	8.22	2.74	6.61	2.58	9.68	29.83
11B	0.51	0.17	0.20	0.00	0.00	0.88	8.73	2.91	6.81	2.58	9.68	30.71
12D	0.48	0.16	0.18	0.00	0.00	0.82	9.21	3.07	6.99	2.58	9.68	31.53
12E	0.34	0.11	0.30	0.00	0.00	0.75	9.55	3.18	7.29	2.58	9.68	32.28
13B	0.73	0.24	0.35	0.00	0.00	1.32	10.28	3.42	7.64	2.58	9.68	33.60
14A	2.81	0.93	2.70	1.39	5.68	13.51	13.09	4.35	10.34	3.97	15.36	47.11
14B	0.44	0.15	0.33	0.00	0.00	0.92	13.53	4.50	10.67	3.97	15.36	48.03
14C	0.37	0.12	0.25	0.00	0.00	0.74	13.90	4.62	10.92	3.97	15.36	48.77
15A	2.09	0.69	2.81	1.68	6.17	13.44	15.99	5.31	13.73	5.65	21.53	62.21
16A	3.45	1.14	4.35	3.63	14.39	26.96	19.44	6.45	18.08	9.28	35.92	89.17
17E	11.65	3.86	12.23	12.70	53.14	93.58	31.09	10.31	30.31	21.98	89.06	182.75
17F	3.02	1.00	0.15	0.00	0.00	4.17	34.11	11.31	30.46	21.98	89.06	186.92
18A	2.71	0.90	1.47	0.00	-5.58	(0.50)	36.82	12.21	31.93	21.98	83.48	186.42
19	2.00	0.66	0.89	0.00	0.00	3.55	38.82	12.87	32.82	21.98	83.48	189.97
19C	2.18	0.72	0.00	0.00	0.00	2.90	41.00	13.59	32.82	21.98	83.48	192.87
20A	1.59	0.53	1.47	0.00	0.00	3.59	42.59	14.12	34.29	21.98	83.48	196.46
20B	1.93	0.64	0.97	0.00	0.00	3.54	44.52	14.76	35.26	21.98	83.48	200.00
21	0.98	0.33	0.67	0.00	0.00	1.98	45.50	15.09	35.93	21.98	83.48	201.98
22A	1.02	0.34	0.35	0.00	0.00	1.71	46.52	15.43	36.28	21.98	83.48	203.69
22B	9.98	3.31	9.47	4.10	17.52	44.38	56.50	18.74	45.75	26.08	101.00	248.07
23	2.74	0.91	0.65	0.00	-7.12	(2.82)	59.24	19.65	46.40	26.08	93.88	245.25
24	5.32	1.76	1.84	0.00	0.00	8.92	64.56	21.41	48.24	26.08	93.88	254.17
25	3.88	1.29	0.10	0.00	0.00	5.27	68.44	22.70	48.34	26.08	93.88	259.44
26A	4.24	1.41	6.13	0.00	-48.59	(36.81)	72.68	24.11	54.47	26.08	45.29	222.63
28G	7.90	2.62	2.32	0.00	0.00	12.84	80.58	26.73	56.79	26.08	45.29	235.47
28H	7.60	2.52	2.43	0.00	0.00	12.55	88.18	29.25	59.22	26.08	45.29	248.02
28J	85.27	28.28	33.82	0.00	0.00	147.37	173.45	57.53	93.04	26.08	45.29	395.39
West Branch												
29A	3.95	1.31	7.02	1.56	6.24	20.08	38.06	12.62	37.48	23.54	95.30	207.00
29F	2.89	0.96	0.84	0.00	0.00	4.69	40.95	13.58	38.32	23.54	95.30	211.69
29G	9.58	3.18	3.99	0.00	-22.46	(5.71)	50.53	16.76	42.31	23.54	72.84	205.98
29H	5.97	1.98	3.79	0.00	0.00	11.74	56.50	18.74	46.10	23.54	72.84	217.72
29J	10.01	3.32	1.09	0.00	-42.01	(27.59)	66.51	22.06	47.19	23.54	30.83	190.13
30	16.06	5.33	3.40	0.00	0.00	24.79	82.57	27.39	50.59	23.54	30.83	214.92
Coastal Branch												
31A	7.26	2.41	16.04	1.73	5.37	32.81	14.80	4.92	22.10	4.31	15.05	61.18
33A	271.38	90.02	30.24	14.69	70.17	476.50	286.18	94.94	52.34	19.00	85.22	537.68
34	193.89	64.31	0.84	0.00	0.00	259.04	480.07	159.25	53.18	19.00	85.22	796.72
35	0.00	0.00	0.00	0.00	0.00	0.00	480.07	159.25	53.18	19.00	85.22	796.72

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 to approximate unit costs at canalside. Includes surplus water prior to May 1, 1973.

b) Hypothetical charges which, if assessed on all Table A water delivered to date, all surplus water delivered prior to May 1, 1973, and all Table A water 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 4.608 percent per annum.

c) The Water System Revenue Bond Surcharge equivalent unit rate is calculated by multiplying Column [1] by the ratio of the 2004 WSRB surcharge to the sum of the Transportation Capital and the Capital component of the Delta Water Charge.

TABLE B-26. Capital Costs of Each Aqueduct Reach to be Reimbursed Through the Capital Cost Component of the East Branch Enlargement Transportation Charge

(in dollars)

Calendar Year	CALIFORNIA AQUEDUCT MOJAVE DIVISION							
	Reach 18A	Reach 19	Reach 20A	Reach 20B	Reach 21	Reach 22A	Reach 22B	Reach 23B
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[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	2,319,000	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	223,000	1,465,000
1996	0	0	0	0	0	0	6,014,000	478,000
1997	0	0	0	0	0	0	404,000	1,327,000
1998	0	0	0	0	0	0	0	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

(in 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	38,348,000	0	4,878,000	0	4,878,000	43,226,000
1994	7,081,000	0	11,071,000	0	3,151,000	0	3,151,000	14,222,000
1995	5,350,000	0	7,038,000	0	2,137,000	0	2,137,000	9,175,000
1996	1,706,000	0	8,198,000	0	9,181,000	0	9,181,000	17,379,000
1997	1,905,000	0	3,636,000	0	175,000	0	175,000	3,811,000
1998	28,000	0	28,000	0	0	0	0	28,000
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	143,418,000	8,607,000	152,025,000	390,912,000

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

(in dollars)

Calendar Year	CALIFORNIA AQUEDUCT MOJAVE DIVISION							
	Reach 18A	Reach 19	Reach 20A	Reach 20B	Reach 21	Reach 22A	Reach 22B	Reach 23B
	[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	1,048,625	0
1995	0	0	0	0	0	0	953,814	0
1996	0	0	0	0	0	0	1,171,411	0
1997	0	0	0	0	0	0	1,110,038	0
1998	0	0	0	0	0	0	1,213,002	0
1999	1,229	517	646	409	383	169	668,466	0
2000	4,452	1,875	2,340	1,484	1,386	614	1,315,920	0
2001	347	146	183	116	108	48	1,045,627	0
2002	1,639	690	861	546	510	226	1,539,859	0
2003	0	0	0	0	0	0	1,814,089	0
2004	2,132	27,868	18,579	18,731	10,355	8,528	1,485,104	0
2005	1,205	15,752	10,502	10,588	5,853	4,820	1,045,785	0
2006	0	0	0	0	0	0	1,839,222	0
2007	0	0	0	0	0	0	1,963,545	0
2008	0	0	0	0	0	0	1,862,750	0
2009	0	0	0	0	0	0	1,862,750	0
2010	0	0	0	0	0	0	1,862,750	0
2011	0	0	0	0	0	0	1,862,750	0
2012	0	0	0	0	0	0	1,862,750	0
2013	0	0	0	0	0	0	1,862,750	0
2014	0	0	0	0	0	0	1,862,750	0
2015	0	0	0	0	0	0	1,862,750	0
2016	0	0	0	0	0	0	1,862,750	0
2017	0	0	0	0	0	0	1,862,750	0
2018	0	0	0	0	0	0	1,862,750	0
2019	0	0	0	0	0	0	1,862,750	0
2020	0	0	0	0	0	0	1,862,750	0
2021	0	0	0	0	0	0	1,862,750	0
2022	0	0	0	0	0	0	1,862,750	0
2023	0	0	0	0	0	0	1,862,750	0
2024	0	0	0	0	0	0	1,862,750	0
2025	0	0	0	0	0	0	1,862,750	0
2026	0	0	0	0	0	0	1,862,750	0
2027	0	0	0	0	0	0	1,862,750	0
2028	0	0	0	0	0	0	1,862,750	0
2029	0	0	0	0	0	0	1,862,750	0
2030	0	0	0	0	0	0	1,862,750	0
2031	0	0	0	0	0	0	1,862,750	0
2032	0	0	0	0	0	0	1,862,750	0
2033	0	0	0	0	0	0	1,862,750	0
2034	0	0	0	0	0	0	1,862,750	0
2035	0	0	0	0	0	0	1,862,750	0
TOTAL	11,004	46,848	33,111	31,874	18,595	14,405	70,371,507	0

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

(in dollars)

Calendar Year	CALIFORNIA AQUEDUCT (continued)							TOTAL
	MOJAVE DIVISION (continued)			SANTA ANA DIVISION				
	Reach 23C	Reach 24	Subtotal	Reach 25	Reach 26A [a]	Reach 26B	Subtotal	
	[9]	[10]	[11]	[12]	[13]	[14]	[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	1,048,625	0	1,713,260	0	1,713,260	2,761,885
1995	0	0	953,814	0	1,452,549	0	1,452,549	2,406,363
1996	0	0	1,171,411	0	1,350,581	0	1,350,581	2,521,992
1997	679,826	0	1,789,864	0	1,528,509	0	1,528,509	3,318,373
1998	825,038	0	2,038,040	0	1,619,068	0	1,619,068	3,657,108
1999	382,178	0	1,053,997	0	956,229	0	956,229	2,010,226
2000	735,803	0	2,063,874	0	1,409,109	0	1,409,109	3,472,983
2001	812,634	0	1,859,209	0	811,400	0	811,400	2,670,609
2002	727,751	0	2,272,082	0	1,143,205	0	1,143,205	3,415,287
2003	899,739	0	2,713,828	0	1,248,051	0	1,248,051	3,961,879
2004	913,701	0	2,484,998	0	1,815,458	0	1,815,458	4,300,456
2005	1,036,550	0	2,131,055	0	1,862,342	0	1,862,342	3,993,397
2006	1,091,151	0	2,930,373	0	1,899,216	0	1,899,216	4,829,589
2007	1,117,178	0	3,080,723	0	1,943,971	0	1,943,971	5,024,694
2008	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2009	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2010	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2011	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2012	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2013	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2014	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2015	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2016	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2017	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2018	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2019	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2020	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2021	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2022	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2023	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2024	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2025	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2026	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2027	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2028	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2029	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2030	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2031	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2032	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2033	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2034	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
2035	1,109,728	0	2,972,478	0	1,995,971	0	1,995,971	4,968,449
TOTAL	40,293,933	0	110,821,277	0	76,640,136	0	76,640,136	187,461,413

a) 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

(in 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	The 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	5,094,237	1,828,410	2,722,156	212	199,684	33,380,096	43,226,000
1994	273	1,726,376	631,816	478,543	27	128,988	11,255,977	14,222,000
1995	0	1,130,963	423,243	206,978	0	87,480	7,326,336	9,175,000
1996	0	2,025,987	645,296	606,205	0	375,830	13,725,682	17,379,000
1997	0	451,011	154,366	205,796	0	7,164	2,992,663	3,811,000
1998	0	3,551	1,293	0	0	0	23,156	28,000
1999	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0
TOTAL	660,604	43,735,629	13,025,499	18,184,774	121,366	5,870,912	309,313,216	390,912,000

TABLE B-29. Capital Cost Component of East Branch Enlargement Facilities Transportation Charge for Each Contractor

(in 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 [a]	The 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	18,266	1,209,293	360,156	502,810	3,356	0	8,552,529	10,646,410
1989	19,175	1,269,524	378,094	527,854	3,523	0	8,978,504	11,176,674
1990	19,186	1,270,244	378,308	528,153	3,525	0	8,983,597	11,183,013
1991	19,187	1,270,261	378,314	528,160	3,525	0	8,983,717	11,183,164
1992	38,420	2,543,616	757,549	1,057,606	7,059	0	17,989,315	22,393,565
1993	40,122	2,662,533	793,256	1,105,728	7,371	0	18,827,641	23,436,651
1994	39,705	2,628,706	782,890	1,092,986	7,295	0	18,591,099	23,142,681
1995	39,632	2,623,828	781,438	1,090,958	7,281	0	18,556,603	23,099,740
1996	39,856	2,639,103	786,038	1,097,172	7,323	0	18,664,309	23,233,801
1997	41,743	2,763,629	823,074	1,149,085	7,669	0	19,545,322	24,330,522
1998	42,642	2,823,126	840,793	1,173,823	7,834	0	19,966,107	24,854,325
1999	44,738	2,961,887	882,120	1,231,519	8,219	0	20,947,475	26,075,958
2000	49,031	3,246,109	966,768	1,349,695	9,008	0	22,957,586	28,578,197
2001	49,048	3,247,263	967,111	1,350,175	9,011	0	22,965,748	28,588,356
2002	47,729	3,159,931	941,102	1,313,862	8,769	0	22,348,105	27,819,498
2003	40,383	2,662,845	792,431	1,109,474	7,418	0	18,837,475	23,450,026
2004	43,914	2,907,364	865,881	1,208,849	8,068	0	20,561,864	25,595,940
2005	32,275	2,136,768	636,380	888,444	5,929	0	15,111,947	18,811,743
2006	53,494	3,625,410	1,090,816	1,472,551	9,828	0	25,568,477	31,820,576
2007	67,152	4,549,811	1,368,792	1,848,518	12,337	0	32,088,918	39,935,528
2008	63,426	4,294,213	1,291,490	1,745,954	11,653	0	30,288,880	37,695,616
2009	64,886	4,402,364	1,325,221	1,786,139	11,921	0	31,043,916	38,634,447
2010	64,638	4,369,374	1,313,198	1,779,328	11,876	0	30,824,799	38,363,213
2011	66,186	4,495,818	1,354,017	1,821,963	12,159	0	31,698,616	39,448,759
2012	66,292	4,502,964	1,356,182	1,824,822	12,179	0	31,748,937	39,511,376
2013	65,590	4,447,846	1,338,611	1,805,535	12,049	0	31,366,580	39,036,211
2014	66,192	4,466,570	1,341,392	1,822,113	12,161	0	31,517,083	39,225,511
2015	67,935	4,584,990	1,377,059	1,870,091	12,481	0	32,351,999	40,264,555
2016	68,121	4,597,374	1,380,759	1,875,207	12,516	0	32,439,514	40,373,491
2017	69,782	4,710,625	1,414,919	1,920,940	12,822	0	33,237,674	41,366,762
2018	68,169	4,599,566	1,381,283	1,876,526	12,525	0	32,455,860	40,393,929
2019	70,046	4,732,262	1,421,907	1,928,227	12,868	0	33,387,185	41,552,495
2020	67,201	4,531,071	1,360,289	1,849,913	12,347	0	31,975,270	39,796,091
2021	68,717	4,635,694	1,392,023	1,891,612	12,624	0	32,711,490	40,712,160
2022	68,003	4,595,810	1,381,133	1,871,915	12,494	0	32,423,016	40,352,371
2023	56,498	3,833,714	1,154,094	1,555,264	10,380	0	27,033,673	33,643,623
2024	58,473	3,965,053	1,193,302	1,609,579	10,743	0	27,961,930	34,799,080
2025	66,907	4,524,191	1,359,911	1,841,799	12,293	0	31,915,814	39,720,915
2026	24,538	1,703,639	517,840	675,475	4,508	0	11,981,129	14,907,129
2027	25,000	1,731,166	525,631	688,200	4,593	0	12,178,439	15,153,029
2028	16,319	1,120,310	338,928	449,230	2,998	0	7,889,128	9,816,913
2029	17,026	1,166,423	352,574	468,679	3,128	0	8,215,818	10,223,648
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	2,055,643	138,212,288	41,443,074	56,585,933	377,666	0	975,673,088	1,214,347,692

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 1999, $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 Contractor

(in 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	The 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	320,415	101,486	95,075	0	70,133	2,174,776	2,761,885
1995	0	278,176	86,604	86,479	0	59,461	1,895,643	2,406,363
1996	0	287,293	82,991	106,208	0	55,287	1,990,213	2,521,992
1997	0	389,636	123,446	100,643	0	62,571	2,642,077	3,318,373
1998	0	429,772	135,927	109,979	0	66,278	2,915,152	3,657,108
1999	37	236,006	75,040	60,907	11	39,144	1,599,081	2,010,226
2000	132	403,693	121,479	120,396	40	57,683	2,769,559	3,472,982
2001	10	310,158	90,353	94,888	3	33,215	2,141,981	2,670,608
2002	49	391,107	108,642	140,014	15	46,798	2,728,663	3,415,288
2003	0	453,227	124,576	164,477	0	51,090	3,168,508	3,961,878
2004	1,278	501,557	153,704	142,324	265	74,317	3,427,009	4,300,454
2005	722	475,085	157,779	99,156	150	76,236	3,184,268	3,993,396
2006	0	561,690	168,751	166,756	0	77,746	3,854,647	4,829,590
2007	0	583,118	173,444	178,028	0	79,578	4,010,527	5,024,695
2008	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2009	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2010	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2011	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2012	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2013	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2014	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2015	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2016	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2017	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2018	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2019	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2020	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2021	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2022	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2023	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2024	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2025	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2026	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2027	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2028	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2029	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2030	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2031	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2032	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2033	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2034	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2035	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
TOTAL	2228	21,820,249	6,605,090	6,394,222	484	3,137,305	149,501,804	187,461,382

TABLE B-31. Total East Branch Enlargement Facilities Transportation Charge for Each Contractor

(in 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	The 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	18,266	1,209,293	360,156	502,810	3,356	0	8,552,529	10,646,410
1989	19,176	1,269,524	378,094	527,854	3,523	0	8,978,504	11,176,675
1990	19,186	1,270,244	378,308	528,153	3,525	0	8,983,597	11,183,013
1991	19,187	1,270,261	378,314	528,160	3,525	0	8,983,717	11,183,164
1992	38,420	2,543,616	757,549	1,057,606	7,059	0	17,989,315	22,393,565
1993	40,122	2,662,533	793,256	1,105,728	7,371	0	18,827,641	23,436,651
1994	39,705	2,949,121	884,376	1,188,061	7,295	70,133	20,765,875	25,904,566
1995	39,632	2,902,004	868,042	1,177,437	7,281	59,461	20,452,246	25,506,103
1996	39,856	2,926,396	869,029	1,203,380	7,323	55,287	20,654,522	25,755,793
1997	41,743	3,153,265	946,520	1,249,728	7,669	62,571	22,187,399	27,648,895
1998	42,642	3,252,898	976,720	1,283,802	7,834	66,278	22,881,259	28,511,433
1999	44,775	3,197,893	957,160	1,292,426	8,230	39,144	22,546,556	28,086,184
2000	49,163	3,649,802	1,088,247	1,470,090	9,048	57,683	25,727,147	32,051,180
2001	49,058	3,557,421	1,057,465	1,445,063	9,014	33,215	25,107,729	31,258,965
2002	47,778	3,551,037	1,049,744	1,453,876	8,784	46,798	25,076,769	31,234,786
2003	40,383	3,116,071	917,007	1,273,952	7,418	51,090	22,005,983	27,411,904
2004	45,192	3,408,921	1,019,585	1,351,173	8,333	74,317	23,988,874	29,896,395
2005	32,997	2,611,853	794,159	987,600	6,078	76,236	18,296,215	22,805,138
2006	53,494	4,187,099	1,259,566	1,639,307	9,828	77,746	29,423,124	36,650,164
2007	67,152	5,132,928	1,542,235	2,026,546	12,337	79,578	36,099,445	44,960,221
2008	63,426	4,872,761	1,466,521	1,914,844	11,653	81,706	34,253,155	42,664,066
2009	64,886	4,980,911	1,500,251	1,955,027	11,921	81,706	35,008,191	43,602,893
2010	64,638	4,947,921	1,488,229	1,948,217	11,876	81,706	34,789,076	43,331,663
2011	66,186	5,074,365	1,529,048	1,990,851	12,159	81,706	35,662,891	44,417,206
2012	66,292	5,081,511	1,531,212	1,993,711	12,179	81,706	35,713,212	44,479,823
2013	65,590	5,026,393	1,513,642	1,974,423	12,049	81,706	35,330,855	44,004,658
2014	66,192	5,045,117	1,516,422	1,991,002	12,161	81,706	35,481,359	44,193,959
2015	67,934	5,163,538	1,552,090	2,038,981	12,481	81,706	36,316,275	45,233,005
2016	68,121	5,175,922	1,555,790	2,044,097	12,516	81,706	36,403,789	45,341,941
2017	69,782	5,289,172	1,589,949	2,089,830	12,821	81,706	37,201,950	46,335,210
2018	68,169	5,178,114	1,556,313	2,045,414	12,524	81,706	36,420,136	45,362,376
2019	70,046	5,310,809	1,596,937	2,097,115	12,869	81,706	37,351,460	46,520,942
2020	67,201	5,109,618	1,535,320	2,018,803	12,347	81,706	35,939,545	44,764,540
2021	68,717	5,214,241	1,567,052	2,060,501	12,625	81,706	36,675,766	45,680,608
2022	68,003	5,174,357	1,556,164	2,040,804	12,494	81,706	36,387,291	45,320,819
2023	56,498	4,412,262	1,329,124	1,724,153	10,380	81,706	30,997,948	38,612,071
2024	58,473	4,543,598	1,368,333	1,778,468	10,743	81,706	31,926,205	39,767,526
2025	66,907	5,102,739	1,534,942	2,010,688	12,293	81,706	35,880,090	44,689,365
2026	24,538	2,282,187	692,870	844,365	4,508	81,706	15,945,406	19,875,580
2027	25,000	2,309,713	700,661	857,090	4,593	81,706	16,142,714	20,121,477
2028	16,319	1,698,858	513,959	618,120	2,998	81,706	11,853,404	14,785,364
2029	17,026	1,744,970	527,604	637,568	3,128	81,706	12,180,094	15,192,096
2030	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2031	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2032	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2033	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2034	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
2035	0	578,547	175,031	168,889	0	81,706	3,964,275	4,968,448
TOTAL	2,057,871	160,032,539	48,048,151	62,980,158	378,149	3,137,305	1,125,174,908	1,401,809,081

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 per day ($m^3 \times 10^3$/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
	head of water in feet	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	millisiemens 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).

Other Common Conversion Factors

1 cubic foot=7.48 gallons=62.4 pounds of water

1 cubic foot per second (cfs)=450 gallons per minute (gpm)

1 cfs=646,320 gallons a day=1.98 ac-ft a day

1 acre-foot=325,900 gallons=43,560 cubic feet

1 million gallons=3.07 acre-feet

1 million gallons a day (mgd)=1,120 ac-ft a year