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MANAGEMENT OF THE

CALIFORNIA STATE WATER PROJECT

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Cover photo shows an aerial view of Castaic Lake, Castaic Dam, and Castaic Lagoon.

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Bulletin 132-09

Management of the California State Water Project

Covers Activities during Calendar Year 2008

Published December 2012

Edmund G. Brown Jr. *Governor*
State of California

John Laird *Secretary for Natural Resources*
California Natural Resources Agency

Mark W. Cowin *Director*
Department of Water Resources

Foreword

Bulletin 132-09, Management of the California State Water Project, continues the Bulletin 132 annual series begun in 1963. Bulletin 132-09 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 water contractors' Statements of Charges for 2010. Appendix B was previously printed and distributed to State Water Project water contractors to document and support calculation of contractors' annual charges.

The Bulletin discusses significant events and issues that affect State Water Project management and operations. The Bulletin covers the period from January 1, 2008, through December 31, 2008.

Bulletin 132-09 also discusses water supply and delivery as well as Delta resources and environmental issues, local assistance programs, power resources, recreation, and financial analysis of the State Water Project.

Please note that the water delivery figures listed are accurate at the time of this Bulletin 132 publication, but small volumes of water may be reclassified over time pursuant to long-term water supply contract provisions. If your research requires more current data than were available at the time of publication, please consult the most recent edition of Bulletin 132 and/or contact DWR staff in the State Water Project Analysis Office.

Mark W. Cowin
Director

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Appendix A Annual Financial Report (discontinued)

Appendix B Data and Computations Used to Determine 2010 Water Charges (included in this bulletin)

Appendix C The California State Water Project Summary (discontinued)

Appendix D Costs of Recreation and Fish and Wildlife Enhancement (discontinued)

Appendix E Water Operations in the Sacramento-San Joaquin Delta (discontinued)

Appendix F San Joaquin Valley Post-Project Economic Impact (discontinued)

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Bulletin 132 also relies on these DWR divisions and offices for information, financial and cost accounting data, and content review.

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California Water Commission

The California Water Commission consists of nine members appointed by the Governor and confirmed by the Senate. Seven members are chosen for their expertise related to the control, storage, and beneficial use of water, and two are chosen for their knowledge of the environment. The commission advises the Director of the Department of Water Resources (DWR) on matters within DWR's jurisdiction, approves rules and regulations, and monitors and reports on the construction and operation of the State Water Project (SWP).

The roles and responsibilities of the California Water Commission are defined in the Water Code, Government Code, and Code of Civil Procedure.

The commission's SWP-specific responsibilities are to:

- conduct an annual review of the construction and operation of the SWP and report to DWR and the Legislature with any recommendations (Water Code Section 165);
- hold public hearings on all additional facilities proposed to be added to the SWP and name any new facilities (Water Code Sections 161.5 and 166); and
- adopt a resolution of necessity, and give each affected person a venue to be heard, before DWR may commence an eminent domain proceeding (Code of Civil Procedure Section 1245.210).

Commission members at the time of publication are:

Anthony Saracino (Chair)

Andrew Ball

Joseph Byrne

Daniel Curtin

Joe Del Bosque

Kimberley Delfino

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Acronyms and Abbreviations

Symbols

2,4-D 2,4-dichlorophenoxyacetic acid or dacthal
µg/L micrograms per liter
µm micrometer
µS/cm microsiemens per centimeter

A

AB Assembly Bill
ACWA Association of California Water Agencies
af acre-feet/acre-foot
Ag Council Agricultural Water Management Council
ALP Alternative Licensing Process
ANS Aquatic Nuisance Species
ASCE American Society of Civil Engineers

B

Bay-Delta Accord Principles for Agreement on Bay-Delta Standards between the State of California and the Federal Government
Bay-Delta Estuary San Francisco Bay/Sacramento-San Joaquin Delta Estuary
Bay-Delta Plan Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary
BCDC Bay Conservation and Development Commission
BDCP Bay Delta Conservation Plan
BLH Baldwin-Lima-Hamilton
BMPs Best Management Practices
BO biological opinion

C

CAISO California Independent System Operator
CALFED CALFED Bay-Delta Program
CAMAL Net California Association of Mutual Aid Laboratories Network
C.A.S.T. Catch A Special Thrill
CBDA California Bay-Delta Authority
CCR California Code of Regulations
CDEC California Data Exchange Center
CDFA California Department of Food and Agriculture
CDO Cease and Desist Order
CEEIN California Environmental Education Interagency Network

CEQA California Environmental Quality Act
CESA California Endangered Species Act
CFR Comprehensive Facility Review
cfs cubic feet per second
CIMIS California Irrigation Management Information System
cm centimeter
CO_2 carbon dioxide
Corps U.S. Army Corps of Engineers
CPUC California Public Utilities Commission
CREEC California Regional Environmental Education Community
CUSE Catholic University of Santiago del Estero
CUWCC California Urban Water Conservation Council
CVFPB Central Valley Flood Protection Board
CVFPP Central Valley Flood Protection Plan
CVP Central Valley Project Cental Valley Project
CVPIA Central Valley Project Improvement Act
CVRWQCB Central Valley Regional Water Quality Control Board
CV-SALTS Central Valley Salinity Alternatives for Long-term Sustainability
CWC California Water Code
CWIN California Water Impact Network
CWT coded-wire tagged

D

D-1485 State Water Resources Control Board, Water Right Decision 1485
D-1641 State Water Resources Control Board, Water Right Decision 1641
DBEEP Delta-Bay Enhanced Enforcement Program
DBP disinfection byproduct
DBW Department of Boating and Waterways
DCC Delta Cross Channel
DDA Davis-Dolwig Act
Delta Fish Agreement Delta Pumping Plant Fish Protection Agreement
Delta Plan Water Quality Control Plan for the Sacramento-San Joaquin Delta and Suisun Marsh (1978)
DFG Department of Fish and Game
DHCCP Delta Habitat Conservation and Conveyance Program
DIRWM Division of Integrated Regional Water Management
DMC Delta-Mendota Canal
DMMs demand management measures
DO dissolved oxygen
DOE Division of Engineering
DPH Department of Public Health
DPLA Division of Planning and Local Assistance
DPR Department of Parks and Recreation
DPS distinct population segment
DRMS Delta Risk Management Strategy
DSIWM Division of Statewide Integrated Water Management
DSM2 Delta Simulation Model 2

DSOD Division of Safety of Dams
DWR Department of Water Resources

E

EC electrical conductivity
EIR environmental impact report
EIS environmental impact statement
ELAP DPH Environmental Laboratory Accreditation Program
EPA U.S. Environmental Protection Agency
ERO Electric Reliability Organization
ERP CALFED Ecosystem Restoration Program
ESA federal Endangered Species Act
ET_o reference evapotranspiration
EWA Environmental Water Account
EWMPs Efficient Water Management Practices

F

FAAST Financial Assistance Application Submittal Tool
Farm Bureau California Farm Bureau Federation
FERC Federal Energy Regulatory Commission
FGC California Fish and Game Commission
Fishery Plan Revised Fishery Protection Plan
FPA Federal Power Act
FRFH Feather River Fish Hatchery
FWS Future Water Supply
FY fiscal year

G

GBP Grassland Bypass Project
GHG greenhouse gas
GIS geographic information system
GOES Geostationary Operational Environmental Satellite
gpm gallons per minute
GPS global positioning system

H

HEA Habitat Expansion Agreement
HECA Habitat Expansion Coordination Agreement
HFC high-flow channel
HGMP Hatchery and Genetics Management Plan
hp horsepower
HVAC heating ventilation and air conditioning

I

IEP Interagency Ecological Program
IFDM Integrated On-Farm Drainage Management
IRRP Interim Reliability Requirement Program

J

JPOD Joint Point of Diversion

K

km kilometer
kV kilovolt/kilovolt(s)
KWBA Kern Water Bank Authority
kWh kilowatt hour

L

LADPR Los Angeles Department of Parks and Recreation
LADWP Los Angeles Department of Water and Power
LEAPS Lake Elsinore Advance Pump Storage
LFC low-flow channel
LGA Local Groundwater Assistance
LiDAR light detection and ranging
LSIP Levee System Integrity Program
LTMS Long-term Management Strategy
LTPP Long-term Procurement Plan

M

MAA Management Agency Agreement
maf million acre-feet
mg/L milligrams per liter
MIDS Morrow Island Distribution System
mmhos/cm millimhos per centimeter
MOU memorandum of understanding
MRTU Market Redesign and Technology Upgrade
mS/cm millisiemens per centimeter
MW megawatt
MWh megawatt hour
MWQI Municipal Water Quality Investigations
MWQP Municipal Water Quality Program

N

NAESB North American Energy Standards Board
NBA North Bay Aqueduct

NDFCERP North Delta Flood Control and Ecosystem Restoration Project
NDOI Net Delta Outflow Index
NEMDC Natomas East Main Drainage Canal
NEPA National Environmental Policy Act
NERC North American Electric Reliability Corporation
NOAA National Oceanic and Atmospheric Administration
NOAA Fisheries National Marine Fisheries Service
NODOS North-of-the-Delta Offstream Storage
NPC Nevada Power Company
NWS National Weather Service

O

OCAP Operations Criteria and Plan
O&M Operations and Maintenance
OMP&R operations, maintenance, power, and replacement
OM&R operations, maintenance, and replacement
OTM otolith thermal marking
OWUET Office of Water Use Efficiency and Transfers

P

PAO Public Affairs Office
PCL Planning and Conservation League
PFMA Potential Failure Mode Analysis
PFR Periodic Facility Review
PG&E Pacific Gas & Electric Company
PL Public Law
PL 84-99 Public Law 84-99, Flood Control and Coastal Emergency Act
PLC programmable logic controller
POD pelagic organism decline
PRC Public Resources Code
Proposition 1E Disaster Preparedness and Flood Prevention Bond Act of 2006
Proposition 13 Safe Drinking Water, Clean Water, Watershed Protection and Flood Protection Bond Act of 2000
Proposition 25 The Clean Water Bond Law of 1984
Proposition 44 The Water Conservation and Water Quality Bond Law of 1986
Proposition 50 Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002
Proposition 82 The Water Conservation Bond Law of 1988
Proposition 84 Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006
Proposition 204 Safe, Clean, Reliable Water Supply Act of 1996
PSP proposal solicitation package

Q

QA/QC quality assurance and quality control
QSA Quantification Settlement Agreement

R

RA Resource Adequacy
RCRC Regional Council of Rural Counties
Reclamation Bureau of Reclamation
R&FWE Recreation and Fish and Wildlife Enhancement
RM river mile
RO reverse osmosis
ROD record of decision
RPA reasonable and prudent alternative
RRR Red Rock Ranch
RST rotary screw trap
RTDF-CP Real Time Data and Forecasting Comprehensive Program
RTWQMP Real-time Water Quality Monitoring Program
RWQCB Regional Water Quality Control Board

S

Sacramento Valley 40-30-30 Index Sacramento Valley Water Year Hydrologic Classification
San Joaquin Valley 60-20-20 Index San Joaquin Valley Water Year Hydrologic Classification
SARMP Settlement Agreement Recreation Management Plan
SB Senate Bill
SB 34 Delta Flood Protection Act of 1988
SBA South Bay Aqueduct
SCE Southern California Edison
SDG&E San Diego Gas & Electric Company
SDIP South Delta Improvements Program
SDWA South Delta Water Agency
SJRGA San Joaquin River Group Authority
SJRIODAY San Joaquin River Input-Output Day
SJRRP San Joaquin River Restoration Program
SJVDIP San Joaquin Valley Drainage Implementation Program
SMP Suisun Marsh Plan
SMPA Suisun Marsh Preservation Agreement
SMSCG Suisun Marsh Salinity Control Gates
SMUD Sacramento Municipal Utility District
SRCD Suisun Resource Conservation District
STID Supporting Technical Information Document
SVWMA Sacramento Valley Water Management Agreement
SVWMP Sacramento Valley Water Management Program
SWC State Water Contractors

SWP State Water Project
SWPAO State Water Project Analysis Office
SWRCB State Water Resources Control Board

T

TAO Thermalito Afterbay Outlet
TDF through-Delta facility
THM trihalomethane
TLDD Tulare Lake Drainage District
TOC total organic carbon

U

UC University of California
USDA U.S. Department of Agriculture
USFWS U.S. Fish and Wildlife Service
USGS U.S. Geological Survey
USJRBSI Upper San Joaquin River Basin Storage Investigation
UWMP Urban Water Management Plan

V

VAMP Vernalis Adaptive Management Plan
VFD variable frequency drive

W

WECC Western Electricity Coordinating Council
WET Water Education for Teachers
Working Group Smelt Working Group (formerly the Delta Smelt Working Group)
WQCP Water Quality Control Plan

Y

Yuba Accord Lower Yuba River Accord
Yuba Project Yuba River Development Project

State Water Project Long-term Water Supply Contractors

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.

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

Non-SWP Water Contractors

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

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
City of Tracy	Tracy
Contra Costa Water District	Contra Costa
County of Fresno	Fresno
County of Tulare	Tulare
Del Puerto Water District	Del Puerto
East Contra Costa Irrigation District	East Contra Costa
Hills Valley Irrigation District	Hills Valley
Kern Delta Water District	Kern Delta
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
Tejon-Castac Water District	Tejon-Castac
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

State Water Project Highlights

The Sacramento-San Joaquin Delta, with Mount Diablo in the background.

The annual Bulletin 132 series began in 1963 and reported the first deliveries of water by the new State Water Project (SWP). Bulletin 132-09, *Management of the California State Water Project*, continues this series as the forty-seventh edition. It reports on SWP planning, construction, finance, management, and operations during calendar year 2008. The SWP is operated and maintained by the California Department of Water Resources (DWR).

The SWP is one of the world's largest water, power, and conveyance systems. In the past decade it has conveyed an annual average of 2.9 million acre-feet (maf). SWP facilities—pumping and power plants; reservoirs, lakes, and storage tanks; canals, tunnels, and pipelines—capture, store, and convey water to 29 public water agencies.

2008 Water Year and SWP Highlights

The Sacramento Valley Water Year Hydrologic Classification (Sacramento Valley 40-30-30 Index) and the San Joaquin Valley Water Year Hydrologic Classification (San Joaquin Valley 60-20-20 Index) were both "critical", based on observed data for water year 2007–2008.

At the end of the 2007–2008 water year, water storage in major SWP reservoirs and the State share of joint-use reservoirs was 1.95 maf or 36 percent of maximum storage, compared to 2.72 maf or 50 percent of maximum storage at the end of water year 2006–2007. For more information see Chapter 8, Water Supply.

In 2008, SWP deliveries of 2,838,128 acre-feet (af) was delivered to 29 long-term water contractors and 20 other agencies. Table A deliveries totaled 1,234,240 af, of which 106,181 af was 2007 carryover. For more information see Chapter 9, Water Contracts and Deliveries.

DWR continued to be its own energy scheduling coordinator and scheduled the purchase and sale of energy to operate the SWP. In 2008, energy used at the 28 SWP pumping and generating plants totaled 5.74 million megawatt hours (MWh).

DWR sold 2.40 million MWh of energy to 17 utilities and 25 power marketers for total revenues of $189.25 million in 2008. For further information see Chapter 10, Power Resources.

In 2008, SWP facilities supported an estimated 4.2 million recreation days; 44 percent of the total SWP recreational use occurred at the four major reservoirs in Southern California: Pyramid Lake, Castaic Lake, Silverwood Lake, and Lake Perris. For further recreation information, see Chapter 13, Recreation.

The project continued to pay bondholders as scheduled and remained financially viable. In 2008, the SWP handled approximately $986 million each in revenues and expenses. For more information, see Chapter 14, Financial Analysis.

DWR Begins Crafton Hills Reservoir Enlargement Study

In June, DWR released an advisory that it began geologic work examining the feasibility of enlarging Crafton Hills Reservoir.

The proposed enlargement would increase the reservoir's storage capacity from 85 af to about 225 af. The additional storage would

provide operational flexibility, improve system reliability, and ease energy grid demands by reducing pumping during peak electricity use periods.

Draft EIR for East Branch Extension – Phase II

In August 2008, DWR released the Draft Environmental Impact Report (EIR) for the State Water Project East Branch Extension–Phase II.

Phase II would complete EBX's planned capacity increase, allowing San Gorgonio to receive its maximum annual Table A amount of SWP water. In addition, the project would enable San Bernardino to increase its distribution system capacity to the Redlands and Yucaipa Valley service areas.

Drought

In June 2008, the Governor issued Executive Order S-06-08 declaring a Statewide drought, which directed State agencies and departments to take immediate action to address the dry conditions.

In August 2008, DWR awarded $17 million in Proposition 50 grants Statewide to fund water saving programs that addressed California's drought.

In September 2008, DWR hosted a Drought Summit, where State, federal and local water officials gathered to discuss California's ongoing drought and ways to alleviate the effects of ongoing dry conditions. At this summit, DWR announced the creation of a 2009 Drought Water Bank, a program designed to facilitate water transfers.

Climate Change

Legislative mandates, Executive Order S-3-05, and the latest update to the *California Water Plan* call for quantitative assessments of climate change effects. To address these concerns, DWR and Reclamation formed a joint Climate Change Work Team to provide qualitative and quantitative information to managers on potential effects and risks of climate change to California's water resources.

In October 2008, DWR released a climate change white paper detailing how climate change is affecting the State's water supplies and setting forth a number of recommendations to help avoid or reduce climate change impacts to water resources.

In November 2008, DWR participated in a climate change summit that brought together top experts from local water agencies, cities, State government, and those in the water community connected with State and federal water systems, to discuss the effects of climate change and adaptation of California's water management.

Yearly Activities Summary

2008 Precipitation and Water Storage

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 2007–2008

California experienced lower-than-average rainfall and spring runoff during water year 2007–2008 (covering October 2007 through September 2008). The State, as a whole, received precipitation at 78 percent of average, compared to 65 percent of average in 2006–2007. Even though the April 1 snow

water content was slightly above average, based on snow course data, the statewide April–July runoff was less than 65 percent of average. The Northern Sierra 8-Station Precipitation Index seasonal total was 34.9 inches of precipitation, which was 70 percent of average, and the 22nd driest year out of 88 years of record.

Runoff

Statewide river runoff totaled 60 percent of average in water year 2007–2008. Sacramento River and San Joaquin River region runoff were 55 percent and 58 percent of average, respectively.

Water Year 2007–2008 Storage Totals

The average end-of-month total storage for water year 2007–2008 in major SWP reservoirs was 2.59 maf. End-of-water-year storage on September 30, 2008 at Lake Oroville was 1.10 maf, about 0.47 maf less than the previous water year.

Calendar Year 2008 Storage Total

The total storage in major SWP reservoirs was about 1.79 maf at the end of calendar year 2008, compared with 2.45 maf in 2007.

2008 Water Supplies, Contracts, and Deliveries

2008 Water Deliveries

DWR approved 1.04 maf of initial 2008 Table A requests on November 22, 2007, resulting in 25 percent of SWP water contractor requests. DWR increased the 2008 Table A amounts to 1.46 maf, or 35 percent on February 1, 2008.

In 2008, 2,838,128 af was delivered to 29 long-term contractors and 20 other agencies, as follows:

- 1,128,059 af of Table A water;
- 2,729 af of Article 21 water;
- 106,181 af of 2007 carryover water;
- 226,504 af recovered from water bank;
- 73,376 af of flexible storage withdrawl from Castaic Lake and Lake Perris;
- 2,778 af of SWP water for recreation and fish and wildlife;
- 1,129,766 af of nonproject water delivered to satisfy settlement agreements and agreements with SWP water contractors for local water supplies;
- 89,708 af of dry year purchase water; and
- 79,027 af delivered to satisfy agreements between the SWP and CVP.

Table H-1 shows SWP water deliveries by category for 1962 through 2008. For more information see Chapter 9, Water Contracts and Deliveries.

Power Resources

In 2008, DWR sold 2.40 million MWh of energy to 17 utilities and 25 power marketers for total revenues of $189.25 million. DWR also received $27.30 million in revenues for capacity, exchanges, and other energy-related services, including $16.95 million for transactions made through CAISO. See Table 10-4 in Chapter 10, Power Resources, for information about energy and other services sold and revenue received, including those sold to CAISO.

The sidebar, State Water Project Power Generation and Consumption in 2008, summarizes amounts of power generated and consumed by SWP. For more information, see Chapter 10, Power Resources.

Oroville Facilities Relicensing

The original 50-year term Federal Energy Regulatory Commission (FERC) Project Number 2100 hydropower license for operation of the Oroville Facilities, expired January 31, 2007. The project continued to operate under an annual license issued by FERC on February 1, 2008.

Table H-1 SWP Water Delivered by Category, 1962–2008 (Acre-feet) [a]

	Table A Water			Other SWP Water Deliveries					
				Article 21/Unscheduled					
Year	Municipal and Industrial	Agricultural	Total	Municipal and Industrial	Agricultural	Other Water[b]	Feather River Diversions[c]	Fish & Wildlife/ Recreation Water	Total Deliveries
1962	—	—	—	—	—	9,704	7,499	—	17,203
1963	—	—	—	—	—	13,212	16,049	—	29,261
1964	—	—	—	—	—	21,743	17,891	—	39,634
1965	—	—	—	—	—	35,985	27,425	—	63,410
1966	—	—	—	—	—	59,599	33,361	—	92,960
1967	5,563	5,791	11,354	0	0	45,225	24,639	—	81,218
1968	86,541	85,168	171,709	10,000	111,534	1,214	903,367	—	1,197,824
1969	63,956	129,064	193,020	0	72,397	8,692	832,454	—	1,106,563
1970	83,415	150,578	233,993	0	131,848	25,401	804,320	—	1,195,562
1971	93,776	263,564	357,340	0	294,581	35,438	825,886	8	1,513,253
1972	186,796	425,005	611,801	0	422,322	53,848	875,529	6,489	1,969,989
1973	297,497	395,391	692,888	0	294,916	29,540	851,285	1,155	1,869,784
1974	423,982	450,093	874,075	0	412,453	31,493	963,956	2,118	2,284,095
1975	670,492	553,498	1,223,990	356	620,329	46,995	924,696	3,377	2,819,743
1976	631,876	741,126	1,373,002	4,147	547,538	103,546	1,018,653	1,745	3,048,631
1977	354,930	218,966	573,896	0	0	410,991	624,497	1,111	1,610,495
1978	782,625	529,740	1,312,365	0	16,215	177,245	836,864	1,691	2,344,380
1979	692,888	711,404	1,404,292	0	646,830	431,693	933,067	1,766	3,417,648
1980	726,545	784,946	1,511,491	52,200	350,017	40,269	925,750	2,131	2,881,858
1981	1,053,273	835,852	1,889,125	18,920	889,508	283,310	993,785	4,688	4,079,336
1982	916,014	822,042	1,738,056	140	214,994	144,267	819,586	4,646	2,921,689
1983	482,749	701,370	1,184,119	0	13,019	172,030	633,778	7,849	2,010,795
1984	725,799	861,794	1,587,593	3,663	259,254	366,273	891,128	7,040	3,114,951
1985	983,341	929,424	1,912,765	9,638	292,206	474,417	924,049	4,033	3,617,108
1986	998,611	1,009,295	2,007,906	2,595	21,755	177,176	843,040	3,865	3,056,337
1987	1,079,983	1,033,932	2,113,915	6,949	107,958	375,810	882,301	7,672	3,494,605
1988	1,308,071	1,068,302	2,376,373	0	0	520,375	884,877	4,889	3,786,514
1989	1,602,543	1,251,204	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	543,582	565,395	4,879	1,666,490
1992	955,687	455,112	1,410,799	1,156	0	166,992	613,978	2,605	2,195,530
1993	1,069,258	1,243,978	2,313,236	0	0	256,853	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	85,560	860,077	2,575	2,979,635
1996	1,143,638	1,371,186	2,514,824	12,091	16,556	252,346	1,005,148	3,907	3,804,872
1997	1,220,200	1,040,183	2,260,383	2,814	18,618	322,000	993,211	4,146	3,601,172
1998	865,795	860,724	1,726,519	9,982	10,306	127,405	872,738	2,108	2,749,058
1999	1,405,311	1,333,592	2,738,903	61,191	96,879	85,312	1,108,672	4,324	4,095,281
2000	1,968,161	1,231,745	3,199,906	170,302	138,483	333,384	1,085,886	4,030	4,931,991
2001	1,168,333	365,930	1,534,263	10,261	33,174	535,147	1,077,997	2,929	3,193,771
2002	1,849,052	715,805	2,564,857	9,502	27,663	272,277	1,131,880	3,694	4,009,873
2003	2,102,557	787,658	2,890,215	5,397	29,629	233,069	1,006,995	2,846	4,168,151
2004	1,951,657	643,342	2,594,999	103,890	112,949	341,922	1,171,835	2,865	4,328,460
2005	1,877,647	948,563	2,826,210	186,787	544,296	92,858	1,074,706	1,506	4,726,363
2006	1,973,268	998,583	2,971,851	293,358	327,981	119,405	1,112,551	1,936	4,827,082
2007	1,572,198	509,019	2,081,217	185,825	124,148	449,935	1,217,990	2,581	4,061,696
2008	1,015,241	218,999	1,234,240	2,729	0	488,818	1,109,563	2,778	2,838,128
Total	**40,738,572**	**29,180,373**	**69,918,945**	**1,233,548**	**7,311,267**	**9,938,351**	**37,730,560**	**144,188**	**126,276,859**

[a] Note: values presented in this table reflect changes to historical delivery data as a result of an audit performed by DWR. These data supersede values presented in previous B132 editions.
[b] Includes water conveyed for SWP and non-SWP water contractors.
[c] Includes amounts of water diverted according to various water rights agreements.

FERC issued the Final Environmental Impact Statement (EIS) for the Oroville Facilities Project on May 18, 2007. On July 6, 2007, DWR submitted to the National Marine Fisheries Service (NOAA Fisheries), the combined Biological Assessment and Essential Fish Habitat Assessment. DWR certified the Oroville Facilities Relicensing Final Environmental Impact Report on July 22, 2008, and filed it with the State Water Resources Control Board (SWRCB) on the same day. A month later, Butte and Plumas counties filed a lawsuit challenging the adequacy of the final EIR.

For additional Oroville Facilities relicensing information, see Chapter 3, Environmental Programs, Chapter 6, Legislation and Litigation, Chapter 10, Power Resources, and Chapter 13, Recreation.

Financial Analysis

In 2008, DWR continued to pay bondholders as scheduled. The SWP was financially viable and was indirectly paid for by the approximately 25 million water users served by the project. Direct payment was through the 29 long-term water contractors. In 2008, the SWP handled approximately $986 million in revenues and $986 million in expenses. The 2008 Income Statement for the State Water Project sidebar presents a summary of the year's revenues and expenses. For more information about SWP revenues and expenditures for the year, see Chapter 14, Financial Analysis.

Delta Resources and Environmental Issues

Environmental Water Account

The Environmental Water Account (EWA) provides beneficial environmental changes to protect the fish of the Bay-Delta Estuary and increases SWP and CVP operational flexibility for enhancement of water supply reliability to its customers. The three management agencies—NOAA Fisheries, U.S. Fish and Wildlife Service (USFWS), and Department of Fish and Game (DFG) and the two project agencies—Reclamation and DWR, are responsible for EWA implementation.

The final supplemental EIS/EIR to the EWA final EIS/EIR (2004) was released in March 2008 by the five EWA agencies to provide an evaluation of the effects associated with the possibility of extending the current EWA through 2011. No action has been taken to extend the EWA based on this document.

The EWA Operating Principles Agreement was originally executed among the five State and federal agencies in 2000, and in 2004; it was extended through December 31, 2007. The agreement was not extended past 2007, although federal authorization continues through 2010. DWR has not purchased any water for the EWA since 2007. The EWA no longer accrues any operational assets in the absence of an Operating Principles Agreement.

For more EWA information, see Chapter 3, Environmental Programs, Chapter 7, Water Supply Development and Reliability, and Chapter 9, Water Contracts and Deliveries.

Delta Vision

Executive Order S-17-06 directed the Governor's Delta Vision Blue Ribbon Task Force to complete a durable vision for sustainable management of the Sacramento-San Joaquin Delta by January 1, 2008 and a strategic plan by November 2008.

The final *Delta Vision Strategic Plan* was released in November. Following the release of the strategic plan, the Delta Vision Committee held two workshops to solicit public opinion on the recommendations for implementation of the strategic plan. On December 15, 2008, the Delta Vision Committee met in its final session to finalize its recommendations to the Governor on implementation of the strategic plan.

State Water Project Power Generation and Consumption in 2008

Power Generation and Consumption	Millions of Megawatt Hours
Energy generation by SWP facilities	3.541
Energy sources and firm purchases under agreements and exchanges	4.603
Total Energy Available to the SWP	8.144
Energy sales	(2.399)
Net SWP Power Consumption	5.745

North Delta Program

The North Delta Program is part of the CALFED Conveyance Program. Several improvements to North Delta conveyance facilities proposed in the CALFED Record of Decision are being considered, and DWR has been evaluating them in cooperation with other agencies.

A Notice Of Intent And Notice Of Preparation for an EIS/EIR for the Franks Tract Project were published in September 2008, and scoping meetings were held in October 2008.

Proposed project actions and alternatives have been subdivided into two groups for analysis in the EIR.

See Chapter 2, Delta Resources, for more North Delta Program information.

Quagga Mussel Monitoring

The quagga mussel, *Dreissena rostriformis bugensis*, and the closely related zebra mussel, *D polymorpha*, are invasive aquatic species.

In January 2008, zebra mussels were detected for the first time in California reservoirs. In 2008, DWR continued to participate in a multiagency effort to prevent spread, manage and control existing populations, monitor waterbodies for new populations, and provide public outreach and education.

In 2008, DWR formed the Aquatic Nuisance Species Program (ANS Program). Under this program, DWR implemented a comprehensive monitoring program for larval and adult quagga and zebra mussels throughout the SWP system, including key source waters. No mussel populations were found in the SWP.

2008 Income Statement for the State Water Project

Revenues	Thousands of Dollars
Water Contract Payments	1,031,531
Revenue Bond Cover Adjustments	(41,841)
Rate Management Adjustments	(22,283)
Other Revenues	18,552
Total Operating Revenues	**985,959**
Expenses	
Project Operations, Maintenance, Power, and Replacement	719,201
Deposits to Reserves	(9,765)
Water Bond Principal	130,365
Water Bond Interest	146,158
Total Operating Expense and Debt Service	**985,959**
Net System Revenues	**0**

Status of Threatened or Endangered Species Listings

North American Green Sturgeon

In 2006, NOAA Fisheries published a final rule listing the Southern distinct population segment (DPS) of North American green sturgeon as threatened under the federal Endangered Species Act (ESA). In 2008, the proposed critical habitat designation was published in the Federal Register. Final designation by NOAA Fisheries is expected in 2009.

Delta Smelt

In 1993, delta smelt was designated as threatened under the ESA. At the time of the ruling, delta smelt populations had declined nearly 90 percent since the 1970s, and abundance has continued to decrease. In 2006, the Center for Biological Diversity, the Bay Institute, and the Natural Resources Defense Council petitioned USFWS to change the delta smelt status from threatened to endangered under the ESA. In 2008, USFWS accepted the petition and issued a 90-day finding that it will consider upgrading the status of delta smelt from threatened to endangered.

Longfin Smelt

In 2007, the Bay Institute, the Center for Biological Diversity and the Natural Resource Defense Council petitioned USFWS to list the Bay-Delta longfin smelt population as threatened or endangered under the federal ESA, and petitioned the California Fish and Game Commission to list the fish statewide under California Endangered Species Act (CESA).

In May 2008, USFWS issued a 90-day finding that it will consider listing longfin smelt under the federal ESA. For more information on listed species, see Chapter 3, Environmental Programs.

Pelagic Organism Decline in the Upper San Francisco Estuary

Long-term monitoring by the Interagency Ecological Program (IEP) showed continued marked declines in pelagic fishes in the upper San Francisco Estuary in 2008. Affected populations include delta smelt, longfin smelt, striped bass, and threadfin shad. IEP formed a pelagic organism decline (POD) work team to evaluate the potential causes. In January 2008, SWRCB convened a workshop regarding the decline of pelagic fishes in the San Francisco Bay/ Sacramento-San Joaquin Delta Estuary.

Lake Davis Restocked with Trout

Lake Davis, an SWP storage reservoir in the upper Feather River watershed, was treated to eliminate invasive northern pike in September 2007.

The Department of Public Health declared the water and sediment of Lake Davis clear of chemicals and suitable as a drinking water source. In May 2008, DFG restocked the lake with thousands of rainbow trout and reopened it to the public. DFG and DWR completed the 2008 season of post-project monitoring, indicating eradication of northern pike in Lake Davis. For more information see Chapter 3, Environmental Programs.

SWP Security Measures

Security and protection of the SWP remain primary goals for DWR. SWP facilities are closely monitored and DWR staff are vigilant in maintaining a secure environment. Security patrols of SWP facilities are more frequent and ongoing, and plans are in place to address potential or actual acts of terrorism. Security system improvements continue, in conjunction with Reclamation and other federal and State agencies.

SWP Milestones through the Decades

Forty Years Ago–1968

The official dedication ceremony of Oroville Dam and Lake Oroville was held, and electric power generation began at Oroville Dam.

DWR sold $150 million in bonds to pay for construction costs of the Oroville Division power facilities. This was the first sale of revenue bonds to finance SWP construction.

Banks Pumping Plant was completed. With seven units, its pumping capacity was 6,400 cubic feet per second (cfs).

Lake del Valle, created in 1968, provides recreation and fish and wildlife enhancement, flood control for Alameda Creek, and regulatory storage for a portion of the water delivered through the South Bay Aqueduct.

Twenty Years Ago–1988

Oroville Dam, the tallest and one of the largest earthen dams in the United States, celebrated the 20th anniversary of its dedication.

After more than 2 years of planning and negotiating, DWR purchased 19,900 acres of property adjacent to the Kern River, establishing the Kern Water Bank, an SWP groundwater recharge program.

Ten Years Ago–1998

The electric power utility industry was deregulated. DWR joined the deregulation realm and adapted to changes in markets, prices, and purchasing.

Chapter 1
The State Water Project

Patterns in the fields of the Sacramento-San Joaquin Delta.

This chapter primarily provides background on the State Water Project (SWP), including brief descriptions of SWP facilities, planning, construction, power operations, financing, contracting agencies, and the project's many uses and functions. It also provides a glimpse of California history, with a look at the processes and decisions that went into the creation of the largest state-built water project in the country.

Chapters 2 through 15 provide more detail on significant events and specific topics related to management of the SWP in calendar year 2008. At the end of the bulletin, Appendix B presents data and computations used to determine the SWP Contractors' Statements of Charges for 2010.

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.

The State Water Project

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, built in 1770 to serve the San Diego mission, was 6 miles long. In the early twentieth century, several cities, including San Francisco and Los Angeles, 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 rainfall and snowmelt 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 securing 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, built, operated, and managed by the Department of Water Resources (DWR), is the largest state-built, multipurpose, user-financed water project in the country. It was designed and built to deliver water, control flooding, generate power, provide recreational opportunities, and enhance habitat for fish and wildlife. SWP water irrigates about 750,000 acres of farmland, mainly in the southern San Joaquin Valley. Approximately 25 million of California's estimated 37 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 DWR-designated water year 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 30 dams (29 of which impound water), 20 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 4,165,931 acre-feet (af) of Table A water during 2008, gradually increasing to a maximum of 4,172,786 af by 2016. Some changes have occurred since the long-term water contracts were signed in the 1960s, including population growth variations, differences in local use, local water conservation programs, and conjunctive-use programs. The SWP delivered 1,128,059 af of approved 2008 Table A water to long-term SWP water contractors' service areas in 2008. 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 lakes lies Lake Oroville, which 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.

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, comprising 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 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 to 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 1,062,183 af. Generally, water is pumped into San Luis

Figure 1-1 **Names and Locations of Primary Water Delivery Facilities, December 31, 2008**

Reservoir from 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 water contractors.

SWP water not stored in San Luis Reservoir and water released from San Luis flows 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 it to farmlands within the service areas of the SWP and CVP. Along its journey, this 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 southern 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 the Coastal Branch Aqueduct 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, home to roughly two-thirds of California's population. Before it can be delivered, the water must first cross the Tehachapi Mountains. Fourteen 80,000-horsepower 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 Powerplant, Pearblossom Pumping Plant, and Mojave Siphon Powerplant into Silverwood Lake in the San Bernardino Mountains. From Silverwood Lake, water flows through the San Bernardino Tunnel to Devil Canyon Powerplant. 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 Powerplant Afterbay to Cherry Valley, bringing water to Yucaipa, Calimesa, Beaumont, Banning, and other communities. Phase II, when completed, will assist with this delivery.

Water in the West Branch flows through Oso Pumping Plant, Quail Lake, and then from the Peace Valley Pipeline through Warne Powerplant into Pyramid Lake in Los Angeles County. From there it flows through the Angeles Tunnel, Castaic Powerplant, Elderberry Forebay, and into Castaic Lake, terminus of the West Branch. Castaic Powerplant 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 generating plants and power purchased from and exchanged with 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 SWP's necessary operating power.

Tables 1-1 through 1-5 present statistical information about primary storage facilities, primary dams, pumping plants, power plants, and aqueducts.

Table 1-1 Physical Characteristics of Primary Storage Facilities

Facility	Data at Absolute Maximum Elevation		
	Gross Capacity (Acre-feet)	Surface Area (Acres)	Shoreline (Miles)
Antelope Lake	22,600	930	15
Frenchman Lake	55,500	1,580	21
Lake Davis	84,400	4,030	32
Lake Oroville	3,537,600	15,810	167
Thermalito Forebay	11,800	630	10
Thermalito Afterbay	57,000	4,300	26
Thermalito Diversion Pool	13,400	320	10
Clifton Court Forebay	31,300	2,180	8
Bethany Reservoir	5,100	180	6
Lake del Valle	77,100	1,060	16
San Luis Reservoir	2,027,800	12,520	65
SWP storage, 1,062,183 af			
O'Neill Forebay	56,400	2,700	12
SWP storage, 29,500 af			
Los Banos Reservoir	34,600	620	12
Little Panoche Reservoir	5,600	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

Future Planning and 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 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 additional SWP facilities. Increasingly, issues such as escalating costs, environmental concerns, and increased non-SWP demands for limited water supplies have become important factors affecting the planning and construction of new facilities.

In response to changes in water management policy, DWR continues to reassess plans for 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.

Planners are also concerned about climate change and its potentially serious effects on water resources. Temperature increases may affect water demand and aquatic ecosystems. Projected increases in air temperature may lead to changes in the amount, timing, and form of precipitation—rain or snow, changes in the volume and timing of runoff, Delta water quality changes due to sea-level rise, and changes in the amount of irrigation water needed due to modified evapotranspiration rates.

The ability of the SWP and CVP to meet the water demands of their customers and the environment depends on the accumulation of mountain snow and subsequent spring and summer snow-melt runoff. A warming climate may reduce this natural water storage mechanism.

To address these concerns, DWR and Reclamation formed a joint Climate Change Work Team to provide qualitative and quantitative assessments of the potential risks and effects of climate change on California's water resources. The team will regularly update decision makers on climate

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	4,150
Sisk	554	385	18,600	77,645
O'Neill Forebay	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	138		
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	2,575	203,200
Greenspot	4	382	50	3,900
Crafton Hills	3	613	40	4,000
Cherry Valley	2	130	75	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 (MW)	Nameplate Capacity (MW)
Hydro					
Thermalito Diversion Dam	1	63-77	615	3	3
Thermalito	4 (3 p-g)[a]	85-102	17,400	114	114
Hyatt	6 (3 p-g)[a]	410-676	16,950	645	645
Gianelli (total)	8 p-g[a]	99-327	16,960	363	424
Alamo	1	115-141	1,740	15	17
Warne	2	719-739	1,600	67	74
Mojave Siphon	3	81-136	2,880	29	30
Devil Canyon	4	1,406	2,940	235	276
Castaic[d]	7 (6 p-g)[a]	900-1,050	20,820	1,128	1,254
Coal					
Reid Gardner, Unit 4 (total)	1[b]			234	275
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%.
[d] Castaic Pumping-Generating Plant is owned and operated by the Los Angeles Department of Water and Power.

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 Powerplant to Greenspot Pumping Station	0.0	0.0	16.2	0.0	16.2
Greenspot Pumping Station to Noble Creek Terminus	0.0	0.0	16.4	0.0	16.4
Subtotal	*9.7*	*23.4*	*137.1*	*9.8*	*180.0*
Total	**24.1**	**417.4**	**240.2**	**23.3**	**705.0**

change impacts, the ability of existing facilities to accommodate these impacts, and available mitigation measures.

In response to changes brought about by population growth, environmental concerns, climate change, and other factors, DWR continues to plan, design, and construct transportation and power-producing facilities for the SWP. For information on current SWP planning and construction, see Chapter 12, Engineering, Construction, and Real Estate. Information about prior construction activities can be found in previous issues of Bulletin 132.

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 the delivery of SWP water. Costs are repaid as debt service on the bonds comes due.

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 in accordance with its long-term water supply contract. Therefore, only 29 agencies and districts now have long-term contracts with DWR as of December 31, 2008.

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 amount by 2016 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.

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 more detailed information about each contracting agency.

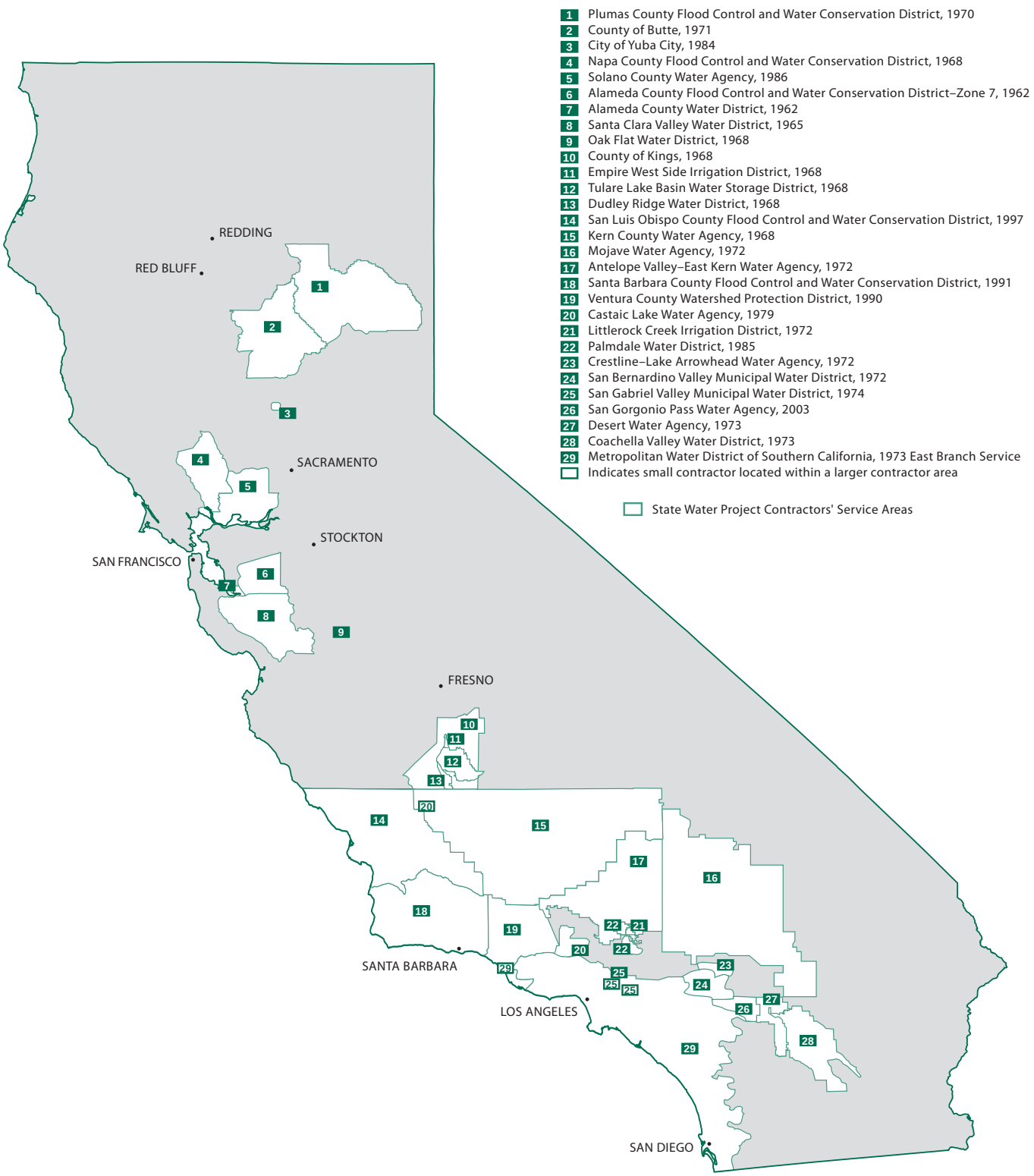

Figure 1-2 Names, Locations, and First Year of Service of Long-Term Contracting Agencies, December 31, 2008

Table 1-6 Long-term Water Supply Contracting Agencies, by Area, as of December 31, 2008

Contracting Agency	Cumulative Deliveries (af)[a]	Annual Table A (af)	Payments (Dollars)	Gross Area (Acres)	Assessed Valuation (Dollars)[b]	Estimated Population
Upper Feather River Area						
City of Yuba City	26,750	9,600	4,623,176	9,332	4,400,000,000	63,338
County of Butte	23,542	27,500	2,012,412	1,049,280	19,891,872,887	220,748
Plumas County Flood Control and WCD	10,715	2,020	1,610,003	1,676,056[c]	2,060,744,342	21,200
Subtotal	*61,007*	*39,120*	*8,245,591*	*2,734,668*	*26,352,617,229*	*305,286*
North Bay Area						
Napa County Flood Control and WCD	247,388	23,200	83,387,716	510,010	26,755,229,545	136,704
Solano County Water Agency	667,282	47,406	114,924,876	537,600	45,800,000,000	426,729
Subtotal	*914,670*	*70,606*	*198,312,592*	*1,047,610*	*72,555,229,545*	*563,433*
South Bay Area						
Alameda County Flood Control and WCD–Zone 7	1,285,277	80,619	158,317,895	275,900	39,675,000,000	208,000
Alameda County WD	1,135,385	42,000	101,876,139	67,139	48,006,743,353	331,300
Santa Clara Valley WD	3,610,020	100,000	310,572,817	849,000	303,856,221,321	1,764,499
Subtotal	*6,030,682*	*222,619*	*570,766,851*	*1,192,039*	*391,537,964,674*	*2,303,799*
San Joaquin Valley Area						
County of Kings	122,345	9,305	6,213,236	893,300	9,202,115,027	154,434
Castaic Lake Water Agency	471,637	12,700	—	8,700	4,532,936	0
Dudley Ridge WD	2,134,701	57,343	75,577,030	37,600	87,100,000	36
Empire West Side Irrigation District	112,802	3,000	3,684,080	7,400		11
Kern County Water Agency	32,453,913	998,730	1,669,074,183	5,224,000	84,289,021,000	770,300
Oak Flat WD	197,926	5,700	5,938,566	4,500		10
Tulare Lake Basin Water Storage District	4,615,939	95,922	149,245,720	189,519	152,288,305	23
Subtotal	*40,109,263*	*1,182,700*	*1,909,732,815*	*6,365,019*	*93,735,057,268*	*924,814*
Central Coastal Area						
San Luis Obispo County Flood Control and WCD	50,400	25,000	62,753,468	2,122,240	37,363,525,861	260,727
Santa Barbara County Flood Control and WCD	262,192	45,486	400,447,650	1,775,296	49,196,921,210	421,625
Subtotal	*312,592*	*70,486*	*463,201,118*	*3,897,536*	*86,560,447,071*	*682,352*
Southern California Area						
Antelope Valley-East Kern Water Agency	1,689,427	141,400	423,051,291	1,525,547	25,685,000,000	365,000
Castaic Lake Water Agency[e]	748,787	82,500	252,116,096	124,800	27,070,976,711	249,600
Coachella Valley WD	967,542	121,100	279,419,300	639,857	57,727,890,764	363,760
Crestline-Lake Arrowhead Water Agency	50,224	5,800	23,708,836	55,100	1,500,527,807	25,000
Desert Water Agency	1,116,187	50,000	229,649,901	209,760	11,479,691,200	71,277
Littlerock Creek Irrigation District	19,825	2,300	5,875,302	10,000	438,155,825	2,900
Metropolitan WD of Southern California	29,988,026	1,911,500	8,622,621,498	3,314,621[f]	2,103,656,331,845	18,559,751
Mojave Water Agency	286,652	75,800	219,632,204	3,136,000	34,764,740,354	443,000
Palmdale WD	216,870	21,300	64,314,095	119,680	1,470,701,596	109,845
San Bernardino Valley Municipal WD	671,616	102,600	468,709,073	224,000	28,115,559,357	600,000
San Gabriel Valley Municipal WD	339,211	28,800	129,277,658	18,297	11,720,110,333	210,145
San Gorgonio Pass Water Agency	15,841	17,300	88,627,635	140,800	581,148,848	75,000
Ventura County Watershed Protection District	49,603	20,000	51,706,819	308,252	25,763,165,853	460,000
Subtotal	*36,159,811*	*2,580,400*	*10,858,709,709*	*9,826,173*	*2,329,974,000,493*	*21,535,278*
Total	**83,588,025**	**4,165,931**	**14,051,523,420**	**25,063,586[g]**	**3,000,715,316,280**	**26,314,962**

[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 1981–1982 fiscal year and fiscal years thereafter.
[c] Total of all Plumas County Flood Control and Water Conservation District, including Last Chance Creek Water District.
[d] 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 Watershed Protection District.
[g] Includes duplicate values. Some areas that are within two or more agencies are included in each agency's total.

Chapter 2
Delta Resources

Patterns in the Delta.

Significant Events in 2008

A draft environmental impact report (EIR) for the North Delta Flood Control and Ecosystem Restoration Project became available in January 2008.

The Notice of Intent and Notice of Preparation for an environmental impact statement (EIS)/EIR for the Franks Tract Project were published in September 2008, and scoping meetings were held in October 2008.

In November 2008, the Delta Vision Blue Ribbon Task Force released the *Delta Vision Strategic Plan*.

Information for this chapter was contributed by the FloodSAFE Environmental Stewardship and Statewide Resources Office, the Bay-Delta Office, and the Division of Flood Management.

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 areas of the Sacramento-San Joaquin Delta: the North Delta, West Delta, and South Delta (see Figure 2-1).

These programs share the common goals to:

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

Delta Water Management Programs

Future water deliveries to millions of Californians throughout the state will be affected by many factors, including two significant changes: Delta pumping restrictions and climate change. The first stage of the CALFED Bay-Delta Program (CALFED Stage 1), implemented from 2000 through 2007, focused on conveying water supply through the Delta. Specific projects and studies were undertaken during CALFED Stage 1 to determine the feasibility of a through-Delta approach.

Four major concurrent Delta planning efforts are under way with objectives related to providing a sustainable Delta: Delta Vision, Delta Risk Management Strategy, the CALFED Ecosystem Restoration Program (ERP) Conservation Strategy, and Bay Delta Conservation Plan (BDCP).

Delta Vision

Executive Order S-17-06 directed the Governor's Delta Vision Blue Ribbon Task Force to complete a durable vision for sustainable management of the Sacramento-San Joaquin Delta by January 1, 2008, and a strategic plan by November 2008. The task force issued its report, *Our Vision for the California Delta*, in December 2007.

The task force worked throughout 2008 to develop the strategic plan. The final *Delta Vision Strategic Plan* was released in November. It outlined strategies for addressing a range of threats facing the Delta, including urbanization, earthquake risk, invasive species and the decline of desirable species, climate change, a fragile levee system, and the lack of definitive governance. The basic conclusion of the strategic plan was that California's Delta must be managed according to two coequal goals: "Restore the Delta ecosystem and create a more reliable water supply for California."

Following the release of the strategic plan, the Delta Vision Committee held two workshops to solicit public opinion on the recommendations for its implementation. On December 15, 2008, the committee met in its final session to finalize its implementation recommendations to the Governor.

For more information, visit the Delta Vision website at:
http://deltavision.ca.gov/index.shtml.

Delta Risk Management Strategy

The 2000 CALFED Record of Decision (ROD) presented its Preferred Program Alternative describing actions, studies, and conditional

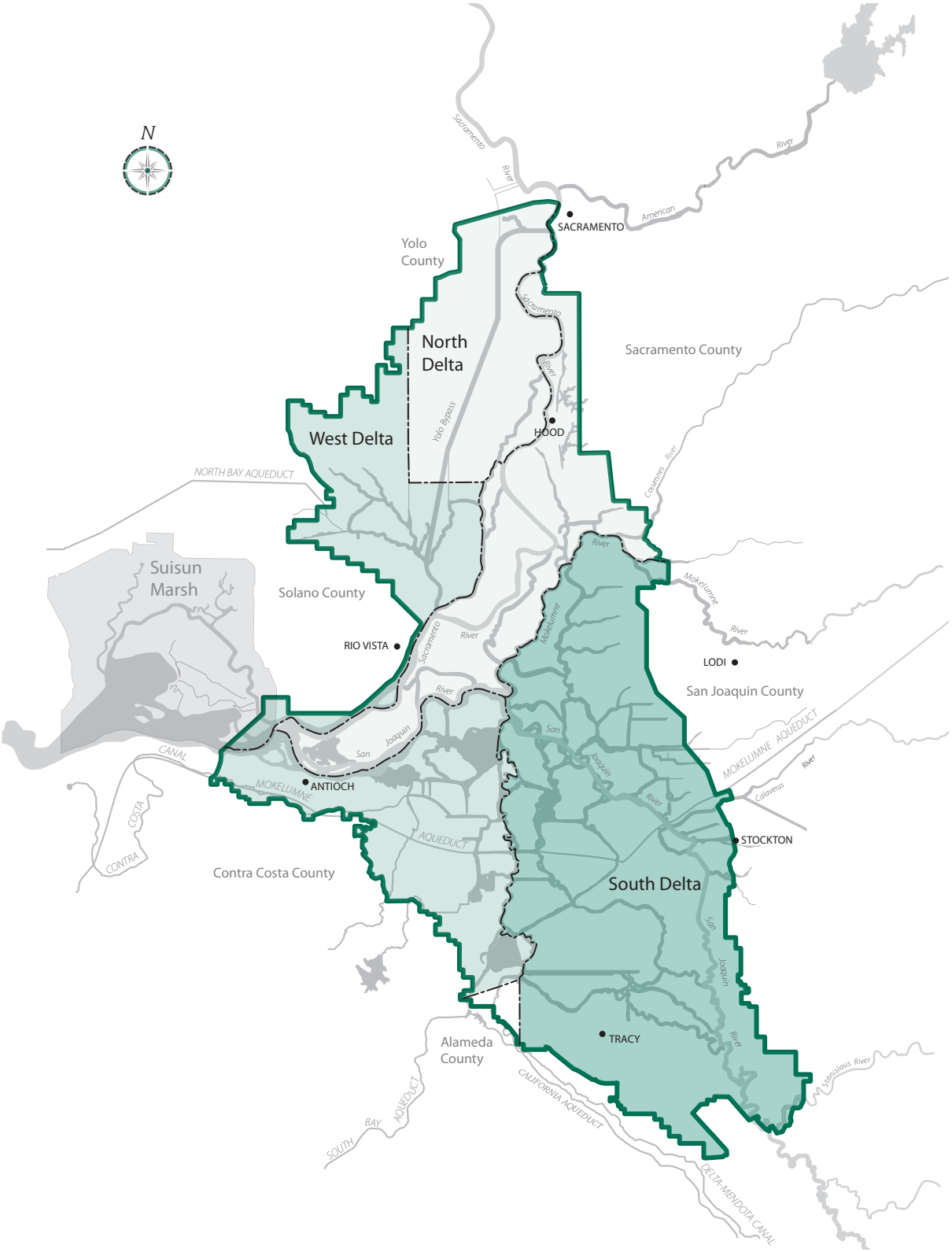

Figure 2-1 **The North, West, and South Delta as Defined in Public Resources Code Section 29735**

decisions to help resolve issues in the Delta. Included in the CALFED Stage 1 implementation of the preferred alternative was completion of a Delta Risk Management Strategy (DRMS) that would look at sustainability of the Delta and assess major risks to Delta resources from floods, seepage, subsidence, and earthquakes. DRMS would also evaluate the consequences and develop recommendations to manage the risk.

The DRMS preliminary findings have been reviewed by a CALFED scientific panel. The review has lead to a reevaluation of some of the initial DRMS analyses. Results of the reevaluation will be incorporated into the final report. Delta Vision, the CALFED ERP, and BDCP depend on the best available information from DRMS to support their own processes. DRMS is a source of scientific and technical information on the Delta and Suisun Marsh levees for other studies and initiatives such as Delta Vision, BDCP, and the CALFED end of Stage 1 assessment.

North Delta Program

Since 2003, DWR has been involved in evaluating several proposed modifications included in the CALFED ROD. These modifications include changes in the North Delta's conveyance facilities to improve Delta water quality, fisheries, and water supply reliability, as well as improvements to flood protection and ecosystem health.

CALFED North Delta actions include:

- evaluation and implementation of improved operational procedures for the Delta Cross Channel (DCC) to address fishery and water quality concerns;
- evaluation of a screened through-Delta facility (TDF) on the Sacramento River of up to 4,000 cubic feet per second (cfs);
- evaluation of flow and salinity in Franks Tract to improve fish protection and improve water quality through installation of operable barriers in the Franks Tract region; and
- design and construction of floodway improvements to provide conveyance, flood control, and ecosystem health (North Delta Flood Control and Ecosystem Restoration Project).

A notice of intent and notice of preparation for an environmental impact statement (EIS)/environmental impact report (EIR) for the Franks Tract Project were published in September 2008, and scoping meetings were held in October 2008.

For more information about North Delta Program activities, see Chapter 7, Water Supply Development and Reliability, or visit the DWR North Delta Program website: http://baydeltaoffice.water.ca.gov/ndelta/index.cfm.

North Delta Flood Control and Ecosystem Restoration Project

The North Delta Flood Control and Ecosystem Restoration Project (NDFCERP) provides flood control improvements and ecosystem restoration in the North Delta. As a CALFED Stage 1 action, 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.

Project Area. The project area (Figure 2-2) is approximately 197 square miles in which DWR is considering alternatives for flood control and restoration actions. The following criteria were used to develop project area boundaries.

- The project area must include the footprint area of each alternative.
- The project area should be hydrologically contiguous.

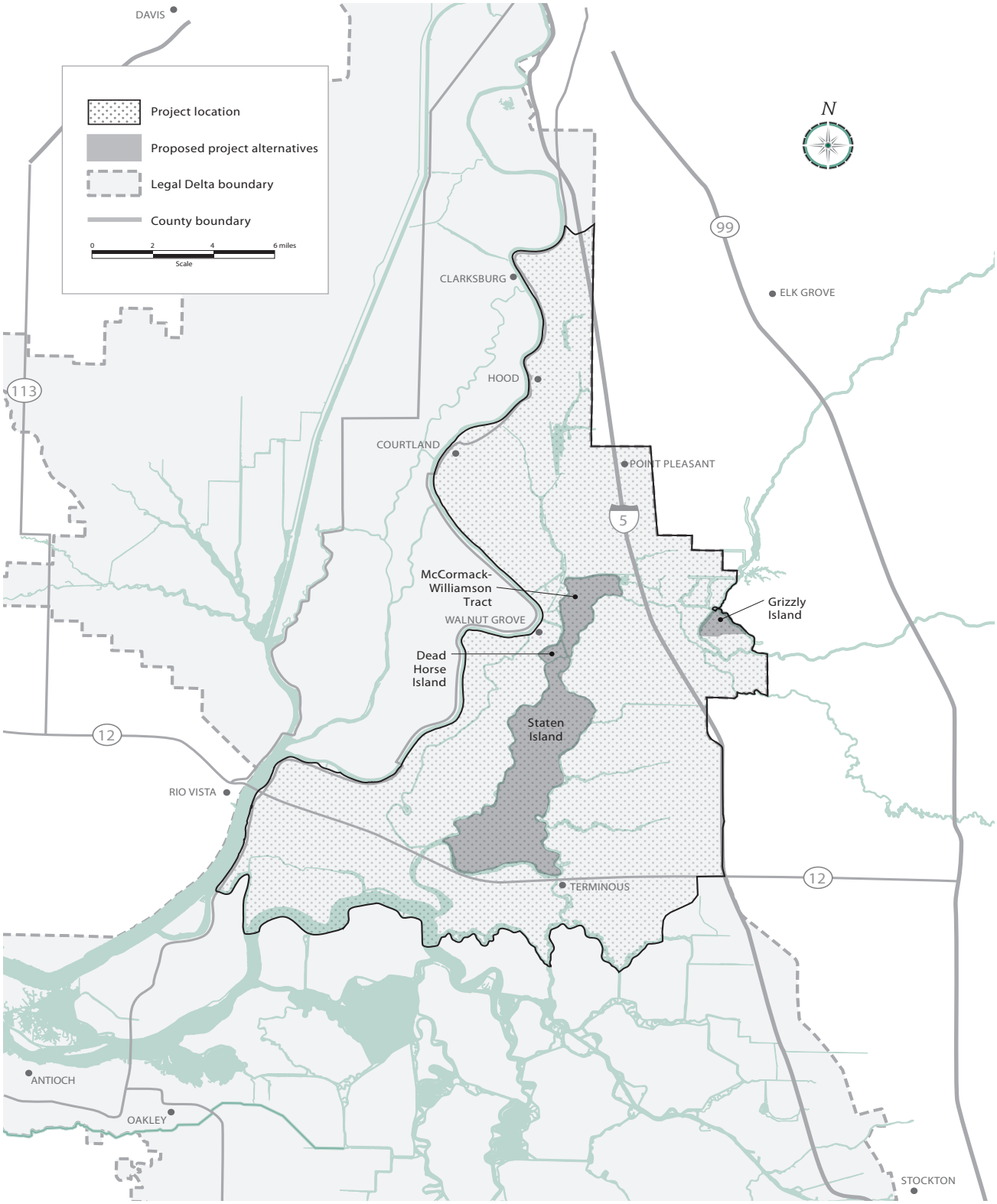

Figure 2-2 **North Delta Flood Control and Ecosystem Restoration Project, Project Area**

- The project area should include portions of all waterways where existing flow patterns could be substantially affected by one or more of the alternatives.
- The project area should be compatible with flood control planning and implementation responsibilities of other flood control agencies.

Environmental Review. Proposed project actions and alternatives are subdivided into two basic groups for analysis in the EIR.

Group I consists of modifications to levees on McCormack-Williamson Tract, downstream levee raising to offset potential hydraulic impacts caused by these modifications, restoration of McCormack-Williamson Tract and the Grizzly Slough property, and dredging of the Mokelumne River.

Group II consists of proposed project actions on Staten Island and levee modifications and dredging along the Mokelumne River.

DWR staff worked with federal regulatory agency scientists and academic experts to complete development of three ecological conceptual model alternatives for the Group I actions. Details of the conceptual models are in Appendix D of the public draft EIR.

A preferred project alternative will be chosen through the EIR process and will be identified in the final EIR.

Project Status. The public comment period for NDFCERP draft EIR began January 28, 2008. In addition to being submitted to the State Clearinghouse, the draft EIR and the notice of completion received wide distribution via newspaper, email, the DWR website, and printed and compact disc copies.

A public meeting was held on February 20, 2008, in Walnut Grove. The formal public comment period closed March 28, 2008. Approximately 150 comments were received during the 60-day comment period.

For more information, visit the NDFCERP website at: http://www.water.ca.gov/floodsafe/fessro/levees/north_delta.

West Delta Program

Objectives of the West Delta Program include the following:

- effectively manage SWP-owned lands on Sherman and Twitchell islands (approximately 13,000 acres total);
- improve the integrity of local levees;
- implement land-use management techniques to control subsidence and soil erosion on Sherman and Twitchell islands; and
- provide diverse habitat for wildlife, especially waterfowl.

DWR is a major landowner on Twitchell and Sherman islands and holds two of the three trustee 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.

In late 2008, DWR constructed 150 acres for a rice project (for planting in 2009) on Twitchell Island. Construction included land leveling, a water system, and all research appurtenances. The goal of this research project is to determine whether growing rice reverses subsidence, can be done without deleterious effects to the environment (including export water quality), and is economically feasible in the Delta.

South Delta Improvements Program

In 1999, the South Delta facilities became a key component of the CALFED Bay-Delta Program.

South Delta Improvements Program (SDIP) elements in the CALFED 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.

The SDIP consists of physical/structural and operational components. SDIP Stage 1, the physical/structural component, would consist of constructing and utilizing permanent operable gates and conveyance dredging. The SDIP Stage 2 operational component would consist of changes in export regulations.

DWR and the Bureau of Reclamation (Reclamation) identified the following project objectives and purposes for SDIP:

- reduce the movement of San Joaquin River watershed Central Valley fall-run and late fall-run juvenile Chinook salmon into the South Delta via Old River (SDIP Stage 1);
- maintain adequate water levels and water quality through improved circulation for agricultural diversions in the South Delta, downstream of the Head of Old River (SDIP Stage 1);
- increase water deliveries and delivery reliability to SWP and CVP water contractors south of the Delta (SDIP Stage 2); and
- provide opportunities to convey water for fish and wildlife purposes by increasing the maximum permitted level of diversion through the existing intake gates at Clifton Court Forebay to 8,500 cfs (SDIP Stage 2).

The SDIP Stage 1 physical/structural component consists of the following elements:

- construct and operate a fish-control gate at the Head of Old River to reduce the downstream movement of San Joaquin River watershed Central Valley fall-run and late fall-run juvenile Chinook salmon into the South Delta via the Head of Old River;
- construct and operate up to three flow-control structures (gates) at Middle River (near the confluence of Middle River with Victoria Canal), Grant Line Canal (near the confluence of Grant Line Canal and Old River), and Old River (just east of the Delta-Mendota Canal intake) to improve existing water level and circulation patterns in South Delta water channels;
- dredge various channels in the South Delta, including Middle and Old rivers, to improve conveyance, and dredge areas surrounding agricultural diversions to improve their function; and
- extend up to 24 agricultural diversion intake facilities to improve their function.

The SDIP final EIR/EIS (2006) determined the preferred alternative for SDIP Stage 1 to be installation of permanent control gates to replace temporary structures currently installed and removed each year under the DWR Temporary Barriers Program. The preferred alternative also includes the elements of dredging and extending agricultural diversions.

Preferred Plan

The preferred plan for SDIP is to construct the physical/structural component as soon as permits are obtained and defer the operational component until more is known about the project's potential effects on the delta smelt and other protected fish species.

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.

Program Status

DWR and Reclamation suspended most planning and permitting activities during 2007 because the Endangered Species Act (ESA) consultation for the Operations Criteria and Plan (OCAP) needs to be completed for the program to move forward. Most planning and permitting efforts continued to be either slowed or suspended during 2008.

Temporary Barrier Facilities

Temporary rock barriers will continue to be installed annually, during low flow conditions, until the four proposed permanent gates are operational. The barriers are installed at four sites (see Figure 2-3), 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 Jones Pumping Plant intake and about 8 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.

In 2008, three temporary flow control structures were installed at Middle River, Grant Line Canal, and Old River as they were installed in the past. However, due to a court order to protect delta smelt, the barrier was not installed at the Head of Old River in the spring.

For more information, visit the Temporary Barriers Project website: http://baydeltaoffice.water.ca.gov/sdb/tbp/index_tbp.cfm.

Other South Delta Actions

Besides SDIP, actions in the South Delta include implementing flood and ecosystem improvements in the lower San Joaquin River and pursuing construction of potential interties between the SWP California Aqueduct and CVP Delta-Mendota Canal.

Delta Flood Control

Many important assets in the Sacramento-San Joaquin Delta are protected from flooding by levees. Without the levees, much of 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, a major aqueduct, and other public developments. They are critical to the protection of in-Delta water quality and water quality for approximately 25 million Californians who receive a portion of their water from the Delta. The State Legislature recognized the importance

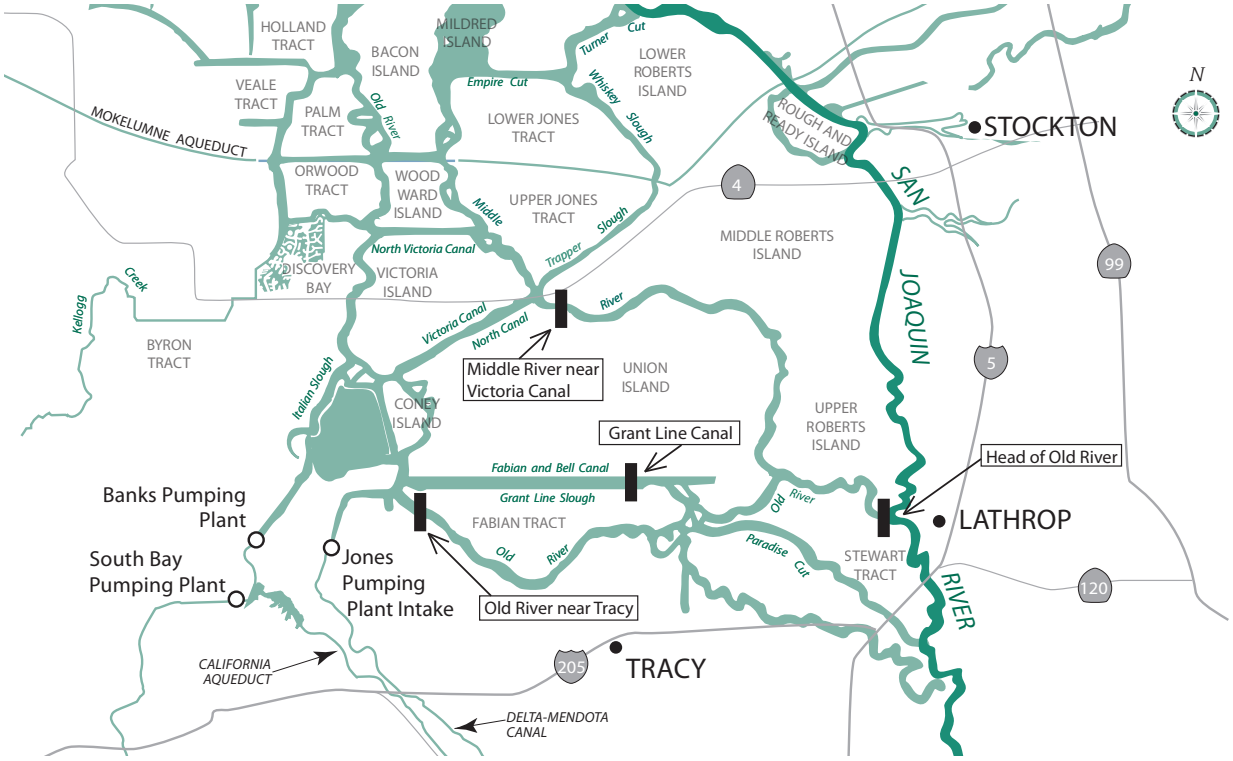

Figure 2-3 Temporary Barrier Locations

of the Delta and enacted the Delta Flood Protection Act of 1988 (SB 34 [Water Code Sections 12300 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."

Since 1988, the Delta Levees Program has managed approximately $280 million in State-appropriated funds. These monies, combined with local funds, have realized approximately $357 million in levee improvements (through State fiscal year 2007–2008).

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 is for local assistance under the Delta Levee Maintenance Subventions Program. The remaining $6 million is for the Delta Levees 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.

In 1996, Assembly Bill (AB) 360 was signed into law, expanding the area covered by the Delta Levees Program to include the remainder of the legal Delta and 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 (LSIP).

Proposition 84, approved by voters in November 2006, allocates $275 million to the Delta over the next four years.

Proposition 1E, also approved by voters in November 2006, adds funding for Delta levee improvements.

CALFED Levee System Integrity Program

CALFED LSIP goals and objectives are described below.

Base Level Protection

According to the CALFED ROD, all Delta levees should be built to the U.S. Army Corps of Engineers (Corps) Delta-specific levee standard (Public Law [PL] 84-99). This standard provides protection against flooding in a 100-year flood event. The minimum freeboard is 1.5 feet for levees protecting agricultural land. 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 3:1 and 5:1.

The CALFED LSIP program provides funding to help local levee maintaining agencies improve all Delta levees to the PL 84-99 standard. About 500 out of 1,100 miles of Delta levees, including approximately 400 miles of project levees, are at or above the PL 84-99 standard. During CALFED Stage 1 (implemented 2000–2007), about 200 additional miles of levees were planned to be altered to meet the PL 84-99 level of protection, provided there was sufficient funding. Additional Proposition 84 funds became available to the Delta Levee Maintenance Subventions Program in fiscal year 2007–2008.

Levee Upgrades

Upgrading the Delta levees is an integral part of the CALFED LSIP plan being implemented through the DWR Delta Flood Protection Program.

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

Levee improvements beyond the PL 84-99 standard, where appropriate, will follow or complement the completion of base level protection depending on continuation of the program and funding availability. Results from DRMS will enable DWR to prioritize future work.

Special Improvement Projects

Another LSIP goal is to enhance the stability of levees in the Delta. LSIP would provide funding to the levee maintaining agencies for making improvements such as raising levee crests to Hazard Mitigation Plan and PL 84-99 sustainable levee cross-section standards. This work will be completed on levees that have particular importance in the State. Priorities include protecting life and 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

LSIP support of maintenance and improvement of the levee system in the Suisun Marsh provides for levee integrity, ecosystem restoration, and water quality benefits. The Suisun Marsh Levee Investigation was undertaken in January 1999, at the request of the CALFED Policy Group, to determine whether adding Suisun Marsh levees into the LSIP would

contribute to CALFED program goals. The team 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.

CALFED LSIP actions for the Suisun Marsh will be developed during preparation of the Suisun Marsh Plan. Full implementation of the Suisun Marsh portion of LSIP awaits completion of the Suisun Marsh Charter, independent funding, and authority in the Water Code, or other law, for the program authorization.

For more information about the Suisun Marsh Plan and Charter, see Chapter 4, Water Quality.

Delta Flood Emergency Preparedness and Response Plan

DWR is developing a Delta Flood Emergency Preparedness and Response Plan to improve its ability to prepare for, respond to, and recover from multiple-island levee failure within the Sacramento-San Joaquin Delta caused by a flood or seismic event. The plan objective is to minimize recovery time from such an event through preparedness, response, and actions taken.

For more information, visit the Delta Emergency Operations Plan website: http://www.water.ca.gov/floodmgmt/hafoo/fob/fsas/deop.cfm.

Delta Levee Maintenance Subventions Program

The Delta Levee Maintenance Subventions Program provides funding, as a reimbursement of up to 75 percent of eligible costs, to local Delta reclamation districts for levee maintenance and improvement. The program helps protect the Delta ecosystem, Delta communities and agriculture, State and private infrastructure, and the State water supply.

Each year, up to 70 participating local agencies prepare work plans and file funding applications with the Central Valley Flood Protection Board (CVFPB). The applications and work plans are reviewed by DWR, which then makes recommendations and requests CVFPB approval for the program funding levels. CVFPB approves each district's maximum possible reimbursement and maximum advanced reimbursement amounts. After CVFPB approval, agreements are executed between CVFPB 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 (CEQA), ESA and California Endangered Species Act (CESA), 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 Levees Habitat Improvement

As part of the CALFED LSIP, the DWR FloodSafe Environmental Stewardship and Statewide Resources Office continues to move forward in creating valuable habitat in the Delta. By the end of 2007, the program had developed 283.7 acres of various types of habitat, 9,410 linear feet of shaded riverine aquatic habitat for mitigation, and 24.4 acres and 14,328 linear feet of shaded riverine aquatic habitat for enhancement.

Completed mitigation and enhancement projects include:

- 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 Corps;
- 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
- Delta In-Channel Demonstration Project.

The Delta In-Channel Demonstration Project was undertaken with support from CALFED to determine the feasibility of "environmentally friendly" structures for controlling erosion and protecting Delta habitat associated with in-channel islands. The three in-channel island test sites were Webb Tract Sites I and III and Little Tinsley Island. The project demonstrated the feasibility of protection and restoration of Delta priority landforms and populations of special-status species using environmentally friendly biotechnical treatments.

Other projects underway include the following:

- long-term management of Meins Landing for conversion to tidal marsh and enhancement of salt marsh harvest mouse habitat;
- bird monitoring at the Decker Island restoration site;
- construction of a setback levee on Sherman Island;
- Sherman Island Parcel 11 Revegetation Project;
- Dutch Slough tidal marsh restoration; and
- Bradford Island Tract 19 mitigation area monitoring and maintenance.

Proposed projects include Delta levees habitat mitigation, flooded islands, McCormack-Williamson Tract, Elk Slough, and Veale Tract.

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 2007, 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 and avian 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 improve the quantity and quality of newly developed habitat in the Delta.

Delta Special Flood Control Projects Program

The Delta 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 (GPS) equipment and light detection and ranging (LiDAR);
- upgrading levees to the standards included in Bulletin 192-82; and
- considering projects to achieve net long-term habitat improvement for fish and wildlife.

While DWR 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. Districts receiving these funds are required to participate in a habitat improvement program to ensure net long-term habitat enhancement.

Levee restoration projects, habitat projects, and other special projects in 2008 included levee restoration projects on Bethel, Bouldin, Bradford, Grizzly, West, Holland, Jersey, New Hope, Simmons, Wheeler, Sherman, Twitchell, Webb, and Van Sickle islands/tracts and Honker Bay, and habitat, programmatic enhancement, and subsidence reversal projects on Sherman, Twitchell, New Hope, Jersey, and Merritt islands/tracts and Dutch Slough.

Reuse of Dredged Material for Delta Levees

As local sources of fill material for levee repair are depleted, new economical sources must be located. DWR has worked to find more opportunities to reuse clean, dredged materials in the Sacramento-San Joaquin Delta.

As part of this effort, a charter for the multiagency Delta Long-Term Management Strategy (LTMS) for the beneficial reuse of dredged material became effective in February 2007. The LTMS is designed to improve operational efficiency and coordination of collective and individual agency decision-making responsibilities, resulting in approved dredging and dredged material management actions in the Delta. Regular LTMS meetings include representatives from DWR, the Corps, the U.S. Environmental Protection Agency, the Regional Water Quality Control Board (RWQCB), the ports of Stockton and Sacramento, and other interested parties. LTMS is evaluating potential beneficial reuse opportunities, particularly from the proposed Sacramento and Stockton Deep Water Ship Channel projects, and has prepared a draft summary of Delta dredged material placement sites and a draft Delta-wide map of existing sediment placement sites.

To facilitate the permitting process for dredging and dredged material placement and reuse, a draft joint permit application for dredging and dredged material placement/reuse has been developed, an interagency agreement between DWR and RWQCB is underway, a sediment background study is being planned, and development of general order Waste Discharge Requirements to help streamline RWQCB's approval process has been initiated.

LTMS long-term goals include the following:

- developing a streamlined permitting process for dredging and dredged material reuse;
- developing a consolidated guidance document addressing sampling, tests, protocols, and methods for assessing sediment and dredged material characterization;
- developing a sediment management plan designed to help anyone who wants a better understanding of methodologies for assessing and characterizing sediments and determining appropriate disposal options;
- developing a programmatic biological assessment for sensitive Delta species;
- drafting a programmatic EIR/EIS for the Delta LTMS; and

- identifying and permitting additional sediment placement and beneficial reuse sites in the Delta.

For more information, visit the LTMS website: http://www.deltaltms.com.

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 (USGS) are conducting 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.

Additional USGS research activities in 2008 include assessments of water quality impacts, greenhouse gas (GHG) release, and other impacts of tule cultivation in subsided Delta islands.

Development of a Farm Scale Wetlands Demonstration Project continued in 2008. It would be located adjacent to the existing Subsidence Reversal Demonstration Project and is intended to determine the land accretion and carbon sequestration rates associated with wetland farming within the western Delta. The rationale for this study stems from work performed since 1997 at the Twitchell Wetlands Research Facility. This research has shown that wetland restoration can accrete a net average of 2 inches of land surface per year and potentially sequester 25 tons of carbon per acre per year. Implementation of the wetlands demonstration project includes construction of a farm scale wetland, between 300 and 1,000 acres, within the western Delta.

In addition to tules, rice is a wetland crop with an existing agricultural market that has the potential to accrete land mass and sequester carbon. The Subsidence Mitigation Through Rice Cultivation Research project will determine whether growing rice reverses subsidence without deleterious effects to the environment and is economically feasible in the Delta. The project area is a 320-acre parcel on Twitchell Island and is planned to operate for 6 years (2008 through 2013). A Proposal Solicitation Package (PSP) was issued in March 2008 and a public meeting was held in April. One proposal was awarded to Reclamation District 1601 (Twitchell Island). Twitchell Island is collaborating with a team of private consultants as well as experts from the University of California and USGS.

DWR continues to 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.

For current information related to these projects, please visit http://www.water.ca.gov/floodmgmt/dsmo/bdlb/opp/subsidence.cfm.

Delta Agricultural Water Agencies

In 1974, the Delta Water Agency was replaced by six Delta agricultural water agencies: North Delta Water Agency, South Delta Water Agency, Central Delta Water Agency, 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. DWR 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 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 portions of the lawsuit that South Delta Water Agency 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. Ongoing efforts are being made to improve water levels, circulation, and water quality in South Delta channels. These efforts include modifying and dredging around local diverters' intakes, conducting a series of computer modeling studies, and modifying barrier flap gate operations. Other alternatives being considered include changing barrier heights at Middle River by 1 foot, dredging portions on upper Middle River, and installing portable pumps at Paradise Cut. Data collected in the Temporary Barriers Program were 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 the City of Antioch in 1968. These contracts compensate Contra Costa and Antioch for purchasing water of usable quality when such water is not available from Mallard Slough and the San Joaquin River.

According to the contract terms, 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.

Photo: Ryan Martin

Chapter 3
Environmental Programs

Giant garter snake, Thamnophis gigas.

Significant Events in 2008

Zebra mussels were detected for the first time in California reservoirs in January 2008. However, no mussel populations were found in the State Water Project (SWP).

The State Water Resources Control Board (SWRCB) approved the Lower Yuba River Accord on March 25, 2008, setting the flow schedules for the river and authorizing accord-based water transfers through 2015.

In March 2008, the supplemental environmental impact statement (EIS)/ environmental impact report (EIR) for the Environmental Water Account (EWA) was released.

In April 2008, Federal Judge Oliver Wanger ruled that the National Marine Fisheries Service (NOAA Fisheries) 2004 biological opinion (BO) did not adequately protect sensitive salmon populations when authorizing the long-term operations of the State and federal water projects.

On December 15, 2008, the U.S. Fish and Wildlife Service (USFWS) issued a new Operations Criteria and Plan (OCAP) BO for delta smelt.

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

The Department of Water Resources (DWR) has developed and implemented several programs to avoid, minimize, or offset adverse environmental impacts resulting from construction and 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 offsetting adverse impacts to species of concern, species listed as threatened or endangered by a State or federal agency, or species proposed for listing. The SWP is operated pursuant to biological opinions (BO) issued under the federal Endangered Species Act (ESA), as well as consistency determinations or incidental take permits issued under the California Endangered Species Act (CESA). 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 Central Valley Project (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 later in this chapter and in Chapter 7, Water Supply Development and Reliability, and Chapter 9, Water Contracts and Deliveries.)

San Joaquin River Activities

DWR and the Bureau of Reclamation (Reclamation) coordinate to increase flows in the San Joaquin River during the pulse flow period, from April 15 through May 15, 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 component of the San Joaquin River Agreement. VAMP calls for intensive fisheries sampling in the lower San Joaquin River during the pulse flow period. Studies coordinate variable export pumping rates with 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 from 1999 to 2010 to determine if a relationship exists between river flow, Delta exports, and salmon survival throughout the southern Delta. The results 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.

VAMP actions were implemented between April 22 and May 22, 2008. The VAMP target flow was 3,200 cubic feet per second (cfs). The mean daily flow varied between a low of 2,640 cfs (May 22) and a high of 3,480 cfs (May 15) during the target flow period. The 2008 VAMP fisheries study utilized acoustic telemetry instead of coded wire tags. Flow and fisheries monitoring were conducted in the lower San Joaquin and Old rivers and the Delta.

Temporary Barriers

VAMP-participating agencies install temporary barriers in the San Joaquin River to provide an adequate water supply for South Delta water diverters, improve water quality in the Stockton Deep Water Channel, and prevent entrainment of juvenile Chinook salmon at the South Delta facilities.

In accordance with the 2007 court order to protect delta smelt, a temporary barrier was not installed at the Head of Old River in spring 2008. However, the barrier was installed in the fall from October 16 to November 9.

Temporary agricultural barriers are installed to increase water levels in the South Delta for local water users. In 2008, barriers were installed at Middle River from May 21 to November 9; at Old River near Tracy from June 4 to November 25; and at Grant Line Canal from June 26 to November 24.

Brief background information about the temporary barriers can be found in Chapter 2, Delta Resources.

San Joaquin River Restoration Program

In 2006, the San Joaquin River Restoration Program (SJRRP) was established to implement the court settlement to restore 153 miles of the San Joaquin River from Friant Dam to the confluence of the Merced River. The agencies responsible for the implementation of the program include Reclamation, the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NOAA Fisheries), DWR, and the California Department of Fish and Game (DFG). During 2007, many organization and management actions were initiated to provide a structure for the SJRRP. A Program Management Plan was completed in May 2007 to provide a framework and strategy that the implementing agencies will use to collaborate and adaptively implement the program. Four technical work groups were formed to support the SJRRP: Water Management, Engineering and Design, Environmental Compliance and Permitting, and Fisheries Management.

In 2008, the implementing agencies of the SJRRP, through the technical work groups, released numerous technical memoranda and key program documents to help develop the draft program environmental impact statement (EIS)/environmental impact report(EIR). A monitoring plan for physical parameters was released and is scheduled to be implemented in 2009.

More information about SJRRP is available on the program's website: http://www.restoresjr.net.

Environmental Water Account

EWA was established in the CALFED Bay-Delta Program (CALFED) programmatic EIS/EIR Record of Decision. The EWA is a cooperative management program for fishery protection, restoration, and recovery needs. Water assets acquired through banking, borrowing, transferring, and arranging conveyance are used to augment stream flows and Delta outflows, modify water exports during critical stages of fish life cycles, and replace water supply that may be interrupted by changes to water operations associated with fish protective actions.

The Final Supplemental EIS/EIR to the EWA Final EIS/EIR (2004) was released in March 2008 by the five EWA agencies for the purpose of providing an evaluation of the effects associated with the possibility of extending the current EWA through 2011.

For more information about EWA, see Chapter 7, Water Supply Development and Reliability, and Chapter 9, Water Contracts and Deliveries.

Lower Yuba River Accord

The Lower Yuba River Accord (Yuba Accord) was announced in 2005 to settle long-standing litigation over instream flows in the Yuba River in relation to fisheries. The purpose of the Yuba Accord is to resolve instream flow issues associated with the operation of the Yuba River Development Project (Yuba Project [includes New Bullards Bar Dam and Reservoir and several small water and hydroelectric facilities located above and below Englebright Dam]) in a way

that protects and enhances lower Yuba River fisheries and local water supply reliability. The Yuba Project provides revenue for local flood control and water supply projects, water for the CALFED EWA for protection and restoration of Sacramento-San Joaquin Delta fisheries, and improvements in statewide water supply management, including dry year water supplies for participating SWP and CVP contractors.

Supported by 17 federal and State agencies, agricultural interests, and conservation groups, implementation of the Yuba Accord depended on completion of environmental documentation, agreement execution, and State Water Resources Control Board (SWRCB) approval, all of which occurred in spring 2008.

Functionally, the Yuba Accord is based on three sets of agreements: a water purchase agreement with DWR, including water for the EWA and SWP and CVP contractors; conjunctive use agreements with Yuba County Water Agency (Yuba) member units; and a fisheries agreement.

Implementation of the Yuba Accord provides:

- higher releases into the Yuba River to benefit Chinook salmon and steelhead;
- transfer water for the EWA annually and dry year transfer water for SWP and CVP contractors from both surface and groundwater substitution sources;
- a long-term program for lower Yuba River fisheries monitoring and studies; and
- funding for local conjunctive use, water use efficiency, levee improvement, and other water management activities.

The SWRCB approved the Yuba Accord on March 25, 2008, setting the flow schedules for the river and authorizing accord-based water transfers through 2015.

Oroville Facilities Relicensing

DWR continued to seek a new 50-year license for the Oroville Facilities from the Federal Energy Regulatory Commission (FERC) to generate hydroelectric power while meeting existing commitments and complying with laws and regulations regarding water supply, flood control, the environment, and recreational opportunities.

Implementation of most of the actions outlined in the *Settlement Agreement for Licensing of the Oroville Facilities, FERC Project No. 2100* (Settlement Agreement) cannot take place prior to the issuance of the new license; however, a short list of projects was initiated when the Settlement Agreement was signed by DWR. This includes:

- continued funding of the Feather River Fish Hatchery (FRFH);
- planning and permitting for Feather River spawning gravel supplementation;
- funding for development of an Oroville Wildlife Area management plan;
- funding for the operations of the Oroville Wildlife Area;
- a screening-level analysis for Feather River riparian/floodplain habitat enhancement; and
- engineering studies to determine the best approach for providing cooler Feather River water temperatures below Oroville Dam.

Various conservation measures for the species identified in the USFWS 2007 BO for the Oroville Facilities relicensing project are currently being implemented on SWP lands. Monitoring associated with these measures includes an annual vernal pool survey, protective measures for elderberry shrubs (host plant for the valley elderberry longhorn beetle), and annual monitoring of nesting bald eagles within the SWP area. In addition, habitat management activities within the Oroville Wildlife Area

are coordinated through DFG staff. These activities include providing nest and forage habitat for waterfowl and upland bird species, monitoring and maintaining Thermalito Afterbay brood pond water surface elevations, and protecting and conserving giant garter snake habitat. At the conclusion of each calendar year, a summary report of monitoring activity is compiled and submitted to USFWS.

DWR continued efforts to complete a Hatchery and Genetics Management Plan (HGMP) for the FRFH spring-run Chinook salmon program. Section 7 of the ESA (16 U.S.C. 1536) provides that agencies are obligated to consult with NOAA Fisheries on any activities that may affect a listed anadromous fish species, including hatchery programs. HGMPs are a mechanism for addressing the take of certain listed species that may occur as a result of artificial propagation activities. NOAA Fisheries uses the information provided by HGMPs to evaluate impacts on anadromous salmon and steelhead listed under the ESA, and in certain situations, HGMPs will apply to the evaluation and issuance of ESA Section 10 take permits. Completed HGMPs may also be used for regional fish production and management planning by federal, State, and tribal resource managers. The primary goal of the HGMP is to devise biologically based artificial propagation management strategies that ensure the conservation and recovery of listed fish species.

For more information, visit the Oroville Relicensing website: http://www.water.ca.gov/orovillerelicensing.

Ongoing Environmental Activities Related to the Oroville Facilities FERC License

Invasive Plant Management

In 2008, DWR coordinated with DFG and the Department of Parks and Recreation to conduct invasive plant control and removal. Red sesbania (*Sesbania punicea*) was treated in areas around the Thermalito Power Canal, Thermalito Forebay, and Oroville Wildlife Area near the fish weir road. *Arundo donax* (giant reed) was also treated in several locations within the Oroville Wildlife Area and around Thermalito Afterbay.

Lake Oroville Fishery Management

Since 1993, FERC has required DWR to improve fish habitat in Lake Oroville as part of DWR's revised recreation plan. DWR continues to conduct fish habitat projects and fish stocking at the lake.

In 2008, DWR provided funding to stock Lake Oroville with 363,800 coho salmon fingerlings (approximately 4 inches long) reared at FRFH.

In the fluctuation zone of the lake, DWR constructed fish habitat structures and planted several thousand willow tree cuttings.

The Lake Oroville reservoir elevation reached its annual low point, 703.72 feet, on January 15, 2008 and its annual high point, 761.1 feet, on May 26.

Feather River Fish Hatchery, 2008–2009 Brood Year

FRFH is a SWP facility that has been in operation since the 1960s. It is operated by DFG and funded by DWR, and DWR performs all of the major maintenance activities.

During summer 2008, the water supply to FRFH was shut down for two months to complete major maintenance activities and perform an inspection of the water supply pipeline. This was the first time the water supply had been shut down in decades. All the hatchery salmon were stocked prior to this activity, and the hatchery steelhead were moved to the FRFH Thermalito Annex facility to continue growing during the summer.

FRFH fish releases continued in 2008 as follows:

- 7,658,810 FRFH juvenile fall-run Chinook salmon released in the Delta, Sacramento River, and San Francisco and San Pablo bays;
- juvenile steelhead released in the Feather River: 400,898 at Boyd's Pump (Sutter County) and 400 at Bedrock Park (Butte County) as part of the Delta Pumping Plant Fish Protection Agreement;
- 401,098 steelhead released in the Feather River; and
- 2,024,012 juvenile spring-run Chinook: 1,016,835 released in the Feather River and 1,007,177 released in San Pablo Bay. All fish were coded wire tagged and adipose fin marked.

During the fall spawning period, 1,065 adult spring-run Chinook salmon returned to the hatchery, as well as 4,370 fall-run Chinook salmon and 312 steelhead. Slightly more than 11 million Chinook salmon eggs and 409,054 steelhead eggs were collected during the spawning season.

Invasive Species

Northern Pike Containment and Eradication, Lake Davis

In September 2007, the northern pike eradication effort at Lake Davis led to the temporary closure of the lake to conduct a large-scale rotenone application. (See Bulletin 132-08 for more information.)

The selected chemical neutralization option was natural degradation which required that no water be released downstream to Big Grizzly Creek until neutralization was complete. In the months following the eradication activities, the treatment chemicals naturally degraded in the lake, but due to cold water temperatures, full neutralization took longer than expected, and DWR had to execute a second amendment to the DWR-DFG minimum flow agreement to allow additional time for the chemicals to dissipate. The dam outlet remained closed until no trace of the chemicals remained. By early 2008, water quality tests documented the water's return to normal. Releases to Big Grizzly Creek resumed in February 2008.

In spring 2008, Lake Davis reopened to the public, after the California Department of Public Health declared the water and sediment of Lake Davis clear of chemicals and the water suitable as a drinking water source. The lake was restored as a municipal water source for the City of Portola. Trout restocking in the lake began in December 2007 and continued in April 2008. Trophy-size trout were planted in the lake in May 2008. Tributary streams were planted in May and June.

Plumas County and the City of Portola embarked on construction of a new water treatment plant below Lake Davis to resume delivery of the county's SWP allocation.

DFG and DWR completed the 2008 season of post-project monitoring, indicating eradication project success. The agencies also committed to continued operation of the Northern Pike Containment System (see Bulletins 132-07 and 132-08), at the Lake Davis outlet to Big Grizzly Creek, through 2009.

Quagga and Zebra Mussel Monitoring

The quagga mussel, *Dreissena rostriformis bugensis*, and the closely related zebra mussel, *D. polymorpha*, are invasive aquatic species.

In January 2008, the zebra mussel was detected in San Justo Reservoir in San Benito County. This added to the existing threat posed by the quagga mussel, which was detected in 2007 in the lower Colorado River

and connected water diversion systems (see Bulletin 132-08). After the zebra mussel discovery, DWR participated in an intensive survey of source waters, including San Luis Reservoir, and nearby waterbodies to delineate the population and detect new populations. In 2008, DWR continued to participate in a multiagency effort to prevent spread, manage and control existing populations, monitor waterbodies for new populations, and provide public outreach and education. A top priority continued to be public outreach to prevent the spread of mussels by recreational boaters.

In 2008, DWR formed the Aquatic Nuisance Species Program (ANS Program) within the Division of Operations and Maintenance. Under this program, staff implemented a comprehensive monitoring program for larval and adult quagga and zebra mussels throughout the SWP, including key source waters. No mussel populations were found in the SWP. A vulnerability assessment of the SWP was conducted. ANS Program staff also implemented a comprehensive applied research program at San Justo Reservoir. Program components included mussel biology, biofouling, antifouling coating performance, and evaluation of monitoring methodologies.

More information about the quagga and zebra mussel is provided on agency websites:

DFG, http://www.dfg.ca.gov/invasives/quaggamussel

U.S. Geological Survey (USGS), http://nas.er.usgs.gov/taxgroup/mollusks/zebramussel

Endangered Species and Biological Opinions

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. The Endangered Species Act (ESA) and the California Endangered Species Act (CESA) 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 prohibit the unauthorized take of endangered species.

Section 7 of the ESA requires federal agencies to ensure that any action authorized, funded, or carried out by them is not likely to jeopardize the continued existence of listed species or modify their critical habitat, otherwise formal consultation is required. Federal agencies must consult with either the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service (wildlife agencies). As part of the consultation process, the wildlife agencies issue a biological opinion which states the wildlife agency's determination of whether the action is likely to jeopardize a species or adversly modify critical habitat. If a wildlife agency determines an action will jeopardize or adversely modify, it will suggest reasonable and prudent alternatives that the "action agency" may take to avoid the likely jeopardy or adverse modification (Title 16, United States Code Sections 1531–1544 [1973]). CESA is substantially similar in all aspects (California Fish and Game Code Sections 2050–2098 [1984]).

DWR, http://www.water.ca.gov/environmentalservices/invasive_species.cfm

Biological Opinions Issued on the CVP/SWP Operating Criteria and Plan

The CVP and SWP Long-Term Operations Criteria and Plan (OCAP) incorporates measures to provide protection for ESA-listed fish species. In July 2006, Reclamation requested reinitiation of ESA Section 7 consultation with NOAA Fisheries and USFWS regarding future combined CVP and SWP operations. During 2008, DWR, Reclamation, NOAA Fisheries, USFWS, and DFG continued to meet regularly to develop information needed for the OCAP BO.

U.S. Fish and Wildlife Service Biological Opinion

In 2007, the existing OCAP delta smelt BO was ruled inadequate and the court ordered that a new BO be prepared. In November, a draft BO was released, and on December 15, 2008, the final delta smelt BO was issued by the USFWS. The final BO concluded that long-term coordinated SWP and CVP operations were likely to jeopardize the continued existence of delta smelt (*Hypomesus transpacificus*) and adversely modify critical habitat for the species. The BO outlined five components of a reasonable and prudent alternative (RPA) to ensure that long-term OCAP did not jeopardize the survival of delta smelt.

- RPA Component 1: Protection of the Adult Delta Smelt Life Stage—Increase the suitability of spawning habitat and reduce entrainment of pre-spawning adult delta smelt from December through March by controlling Old and Middle river flows.
- RPA Component 2: Protection of Larval and Juvenile Delta Smelt—Improve flow conditions so that larval and juvenile delta smelt can successfully rear in the Central Delta from the onset of spawning until temperatures reach the lethal limit for delta smelt.
- RPA Component 3: Improve Habitat for Delta Smelt Growth and Rearing—Improve the quality and quantity of habitat for delta smelt in the fall by increasing delta outflow.
- RPA Component 4: Habitat Restoration —Create or restore a minimum of 8,000 acres of intertidal and subtidal habitat in the Delta and Suisun Marsh.
- RPA Component 5: Monitoring and Reporting—Gather and report information to ensure that actions are properly implemented, results of the actions are achieved, and actions can be refined, if needed, based on evaluation of information gathered.

NOAA Fisheries Biological Opinion

On April 16, 2008, a federal judge ruled that the 2004 BO was incomplete and did not adequately address the recovery of listed salmonid species or the impact of OCAP on critical habitat. The 2004 BO was remanded by the court. In December 2008, NOAA Fisheries issued a draft BO on the effect of OCAP on salmonids and green sturgeon. The draft BO concluded that long-term OCAP was likely to jeopardize the continued existence of, as well as destroy or adversely modify the designated/proposed critical habitat for, federally listed species: endangered Sacramento River winter-run Chinook Salmon (*Oncorhynchus tshawytscha*), threatened Central Valley spring-run Chinook salmon (*O. tshawytscha*), and threatened southern distinct population segment (DPS) of North American green sturgeon (*Acipenser medirostris*). The final BO is expected to be released in March 2009.

Delta Export Curtailment

In order to protect delta smelt until the new BO is issued, court-ordered limitations on

the joint operations of the SWP and CVP were set in December 2007 (Bulletin 132-08). Additional emergency regulations to ensure protection of longfin smelt (*Spirinchus thaleichthys*) during the CESA candidacy period were adopted by the Fish and Game Commission (FGC) in February 2008. Both orders provide a range of flows for operation of the water projects. A team of scientists was assigned by USFWS to provide input on water project operations. The Smelt Working Group (Working Group; formerly the Delta Smelt Working Group) met throughout 2008 to review smelt distribution and abundance based on monitoring and survey data and recommend actions for water project operations. Recommendations were made based on five factors and associated levels of concern as follows:

- previous year's delta smelt fall mid-water trawl index: <40 = concern, >300 = less concern;
- fish salvage: high numbers = high concern, low numbers = less concern;
- fish distribution: south = high concern, north/northwest = less concern;
- X2 location: >80 kilometer (km) = high concern, <75 = less concern; and
- water temperature: 12° to 25°C = high concern, above 25°C = less concern.

In 2008, 1,029 delta smelt were salvaged by SWP and 1,009 were salvaged by CVP, which is slightly less than the combined annual salvage of 2,679 at both facilities in 2007. Longfin smelt salvage was 1,112 at SWP and 357 at CVP in 2008, which is consistent with the low salvage levels of the previous four years.

The Bay Delta Conservation Plan

The Bay Delta Conservation Plan (BDCP) is a current effort by DWR, Reclamation, Mirant Delta, LLC, and the State and federal water contractors to attain long-term take authorization under the CESA and ESA while providing for the conservation and management of covered species in the Sacramento-San Joaquin Delta. The BDCP was formed in 2006 and is comprised of a 26-member Steering Committee including federal and State fishery agencies and water agencies, environmental organizations, and others. When completed, the BDCP will provide a plan to restore and protect water supply, water quality, and ecosystem health within a stable regulatory framework. The BDCP will be composed of a Habitat Conservation Plan and a Natural Community Conservation Plan. The goal of the BDCP is to restore habitat within the Delta in a way that allows reliable delivery of water throughout California.

In early 2008, DWR established the Delta Habitat Conservation and Conveyance Program (DHCCP) to support the development of the BDCP in areas such as engineering, real estate services, identification of habitat restoration opportunity areas, and preliminary designs for conveyance facilities. The BDCP conducted 10 initial scoping meetings during spring 2008. The Steering Committee and its subgroups spent the year developing biological goals and objectives and conservation measures included in the *Overview of the Draft Conservation Strategy for the BDCP*, published in December 2008.

More information is available on the BDCP website:
http://baydeltaconservationplan.com.

Decisions on Endangered Species

North American Green Sturgeon

The DPS of North American green sturgeon, *Acipenser medirostris*, was listed as threatened under ESA in 2006 (see Bulletin 132-07). On September 8, 2008, the proposed critical habitat designation was

published by NOAA Fisheries in the Federal Register. Final designation is expected in 2009.

Delta Smelt

In 2006, the Center for Biological Diversity, Bay Institute, and Natural Resources Defense Council filed a petition with USFWS to uplist delta smelt from threatened to endangered species status under ESA (Bulletin 132-07). On July 9, 2008, the USFWS accepted the petition and issued a 90-day finding that it will consider upgrading the status of delta smelt from threatened to endangered.

Longfin Smelt

In 1992 the USFWS was petitioned to list longfin smelt. The 12-month finding issued by USFWS in 1994 concluded that listing of longfin smelt was not warranted because of a lack of data to support the listing. USFWS also determined the Bay-Delta population was not a DPS.

On August 8, 2007, the Bay Institute, Center for Biological Diversity, and the Natural Resources Defense Council petitioned USFWS to list the Bay-Delta population of longfin smelt as threatened or endangered under ESA, and petitioned FGC to list the fish statewide under CESA. On February 7, 2008, the FGC declared longfin smelt a candidate species for listing as endangered under CESA, which initiated a 12-month review of the species' status by DFG. Emergency regulations to ensure protection of longfin smelt during the candidacy period were adopted by FGC in February 2008.

In May 2008, USFWS issued a 90-day finding that it would consider listing the longfin smelt Bay-Delta population as a DPS under ESA. Following a public comment period, USFWS initiated a 12-month review of the status of the species.

Trends in Fish Abundance

The abundance index, based on fall midwater trawl sampling from 1967 through 2008, for longfin smelt is shown on Figure 3-1.

Figure 3-2 shows the abundance index for delta smelt, from 1967 through 2008, based on fall midwater trawl sampling. Using only the first two tow net surveys, 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 2008 index was the lowest on record. Since 2002, abundance indices for this species have been lower than expected. See the Pelagic Organism Decline section in this chapter for a discussion of the declining abundance of delta smelt and other pelagic fish species in the Delta.

Figure 3-3 shows estimates of returning adult winter-run Chinook salmon from 1967 through 2008. These estimates, referred to as escapement estimates, are 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 which, Red Bluff Diversion Dam counts were used to generate the escapement estimates. The estimated winter-run Chinook escapement for 2008 was 2,830, indicating the continuation of a drastic decline from the increasing trend from 2001 through 2006. This represented only about 18 percent of the parent stock of 2005.

Figure 3-4 shows estimates of returning adult spring-run Chinook salmon from 1990 through 2008. Individual estimates are

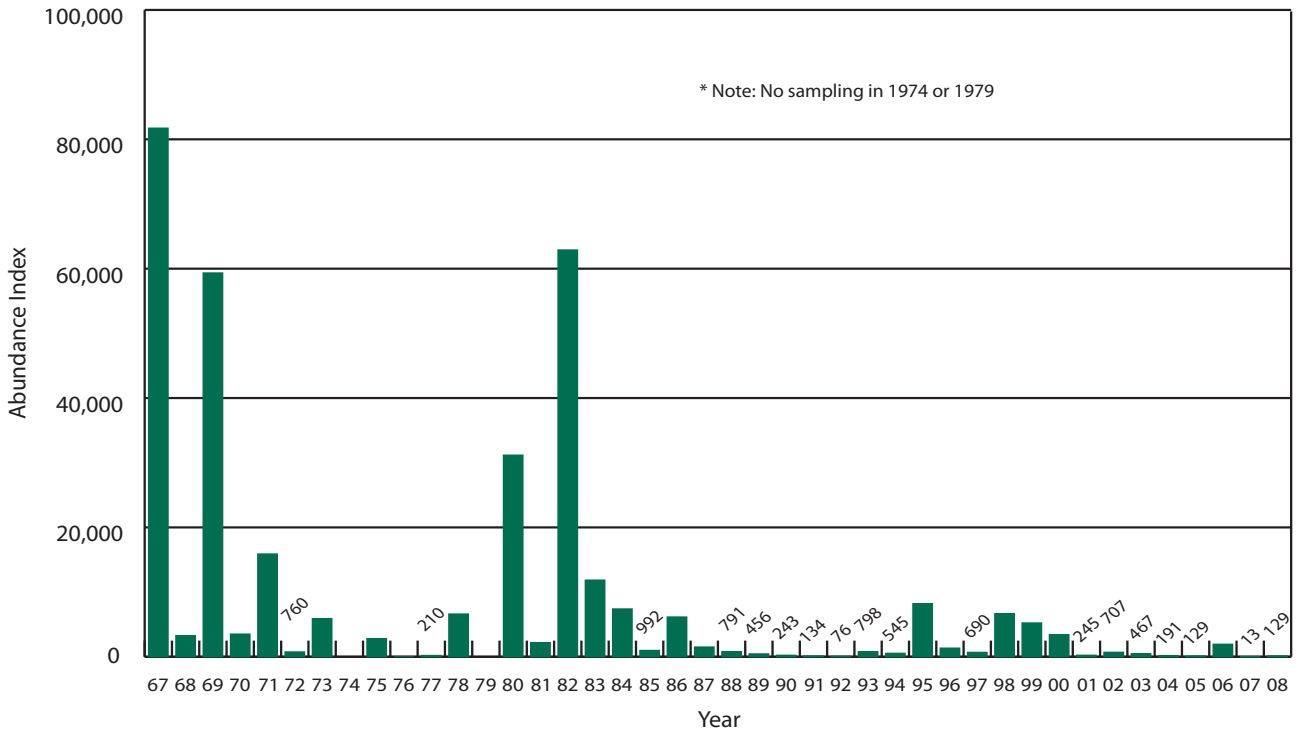

Figure 3-1 **Longfin Smelt Fall Midwater Trawl Abundance Index, 1967–2008***

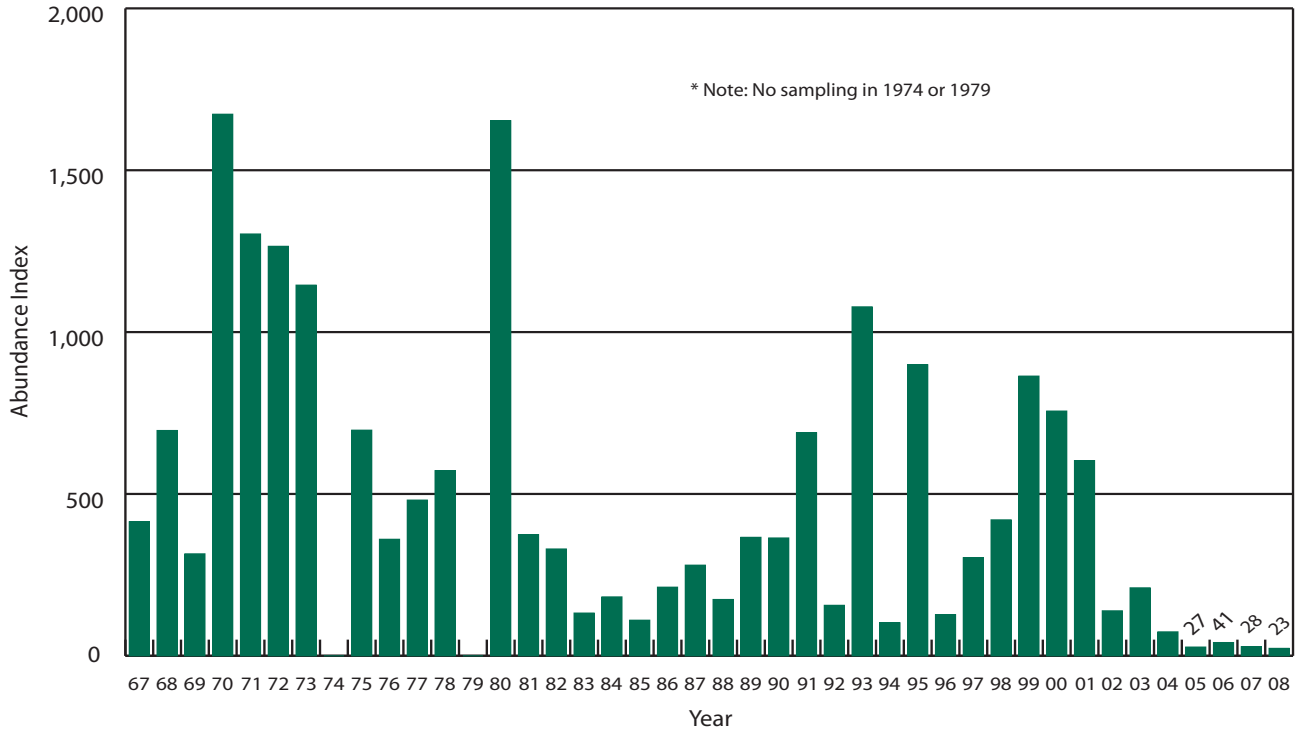

Figure 3-2 **Delta Smelt Fall Midwater Trawl Abundance Index, 1967–2008***

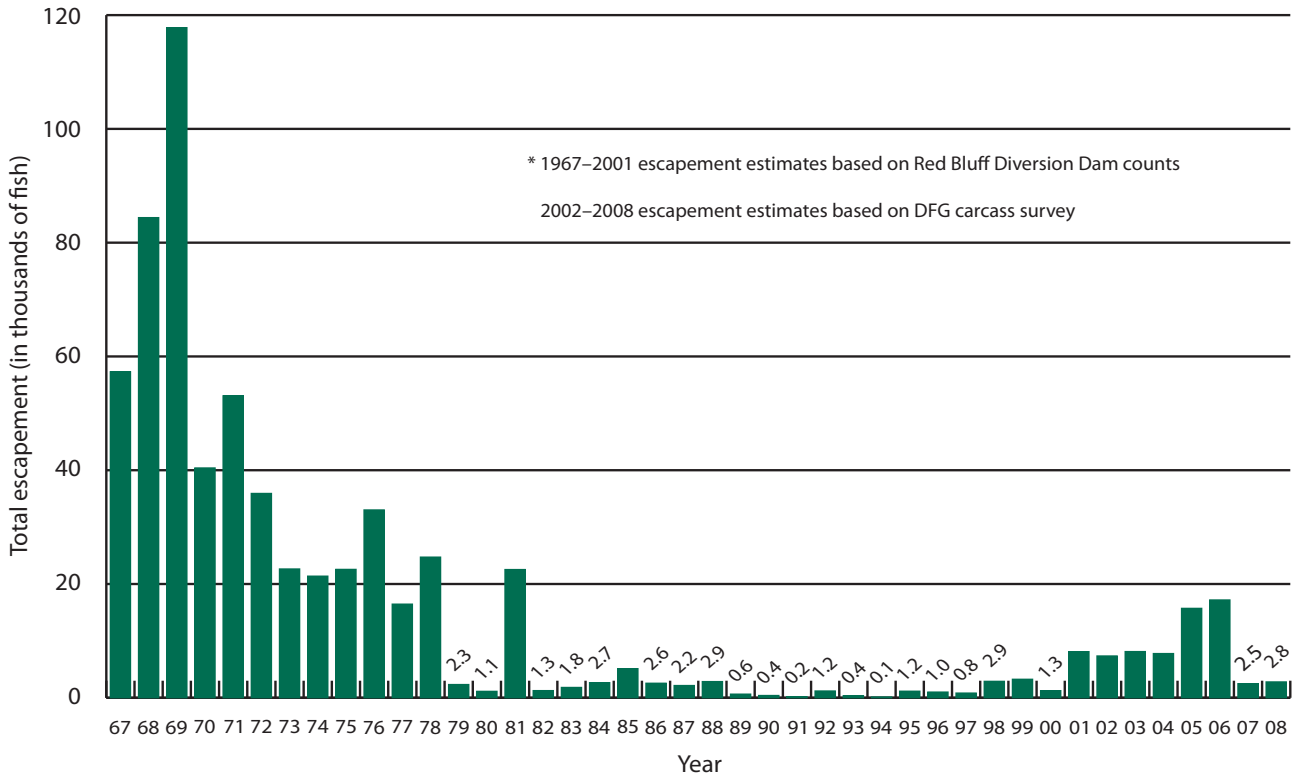

Figure 3-3 Estimated Total Adult Winter-Run Chinook Salmon Escapement, 1967–2008*

shown for the principal spring-run spawning streams, Mill Creek, Deer Creek, and Butte Creek, and FRFH. The escapement estimates are shown separately for each stream, because the Feather River estimate is based on returns to the FRFH, where the genetic integrity of spring-run Chinook salmon is uncertain. The estimated escapement for 2008 was 1,624 for FRFH and about 4,437 for the other streams combined. The 2008 FRFH escapement was approximately 92 percent of the 2005 parent stock escapement estimate. The escapement of naturally spawned fish for Mill, Deer, and Butte creeks was about 32 percent of the 2005 parent stock.

Due to lack of comprehensive monitoring programs, 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. The program progressively expanded since the mid-1990s in preparation for the FERC relicensing of the Oroville Facilities. Field program elements have expanded to include the operation of rotary screw traps (RST), acoustic and radio telemetry, salmon and steelhead spawning surveys, salmon escapement surveys, spring-run Chinook tagging, and otolith thermal marking studies.

Rotary Screw Traps

RSTs capture juvenile salmon and steelhead as they emigrate from the Feather River. Over the last 10 years, DWR has used RSTs

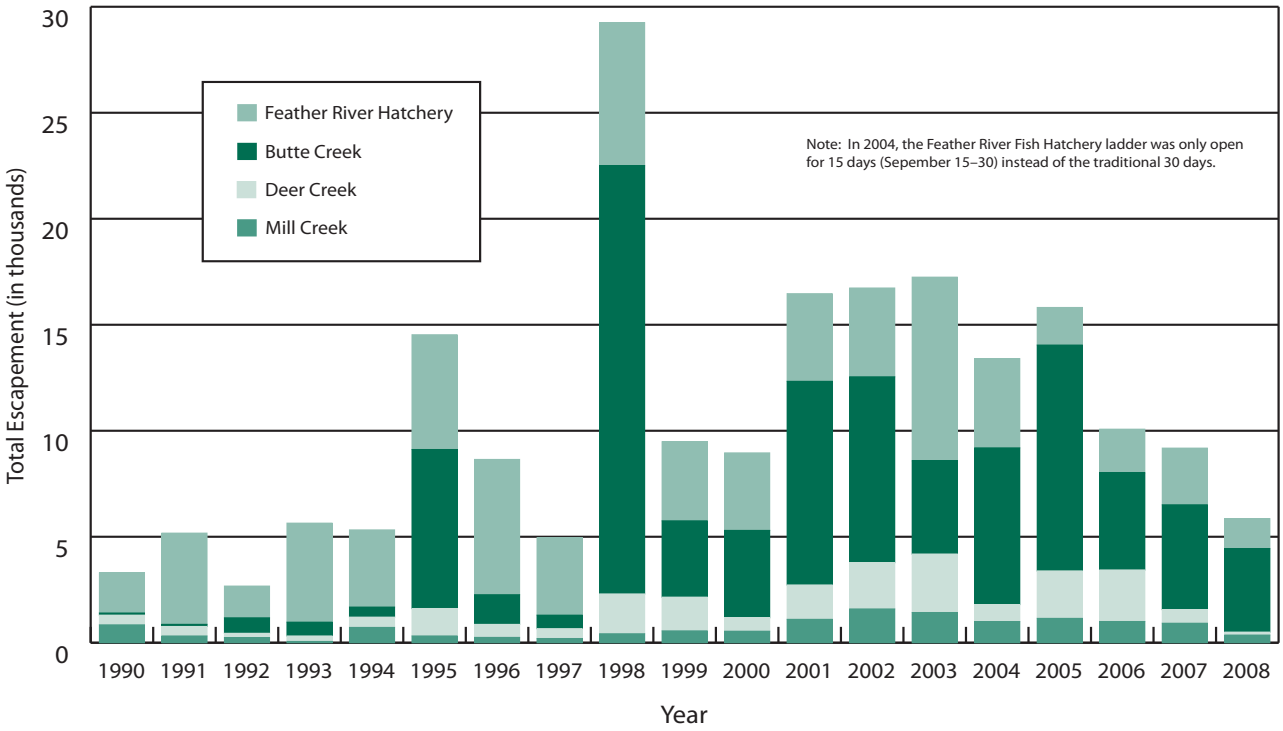

Figure 3-4 Estimated Total Spring-Run Chinook Salmon Escapement, 1990–2008

as the primary method to assess the general abundance and timing of emigrating juvenile salmon and steelhead in the lower Feather River. In addition, large numbers of naturally produced salmon have been coded-wire tagged (CWT) in an effort to examine their return success. This long-term monitoring yields valuable baseline information about juvenile salmonid production in the lower Feather River and the effects of project operations on abundance and migration timing.

Emigration timing and speed measurements confirm that most naturally produced juvenile Chinook salmon move rapidly through the upper reaches of the lower Feather River. Consistent with select years of trapping data, turbidity may influence the emigration timing of naturally produced juvenile salmon. However, other studies demonstrate that the timing of adult spawning plays a large role in determining juvenile salmon emigration patterns as well.

The 2008 season was fished throughout the emigration period (December through June). Two RST locations were used to assess the timing and general abundance of juvenile Chinook salmon, steelhead, and other fish species emigrating from the lower Feather River. Within the low-flow channel (LFC; Fish Barrier Dam to Thermalito Afterbay Outlet), one RST at Steep Riffle (river mile [RM] 61) provided a passage estimate of 4,592,043 juveniles. Within the high-flow channel (HFC; Thermalito Afterbay Outlet [TAO] to the confluence with Honcut Creek), two RSTs located at Herringer Riffle (RM 46) provided a passage estimate of 2,827,839 juveniles. Although Chinook salmon and steelhead were the primary targets of trapping efforts, records were kept on all fish species caught. Thirty-one species were caught during the trapping season. Chinook salmon was the dominant species, comprising approximately 98 percent of the catch.

In 2008, a juvenile salmon mark and recapture study was conducted to evaluate in-river survival and emigration timing estimates in relation to environmental variables. The mark and recapture study began on February 7, 2008, when the first group of CWT salmon were released. Approximately 131,136 CWT fall-run-sized fry and parr (from 11 tag groups) were released just above TAO (RM 59) during the study. At the Herringer RSTs (RM 46), 932 CWT salmon were recovered. Using RST efficiency estimates, approximately 15,882 CWT salmon were recaptured during the entire study period. The study ended on April 22, 2008, after 17 consecutive days of zero CWT recaptures at the Herringer RSTs. The average speed of the recaptured salmon fry was 10.7 km per day and the mean emigration time over 42.6 river km was 3.6 days.

Acoustic and Radio Telemetry

Acoustic and radio telemetry gathers baseline information on the migration and holding patterns of adult Chinook salmon in the river. A telemetry study was conducted to collect additional data to evaluate the relationship between water temperature and migration patterns of prespawning adult Chinook salmon in the Feather River below the Fish Barrier Dam.

Chinook salmon with a spring-run life history enter freshwater in early summer and hold in their natal tributaries up to several months before spawning. In order to collect additional data to evaluate water temperature and migration patterns of prespawning adult Chinook salmon, spring-run adult Chinook salmon are captured and radio tagged to document their habitat use. Because the water temperature regime associated with the ongoing operation of the Oroville Facilities may expose prespawning adult Chinook salmon to elevated water temperatures during the migration and holding period, radio tagging was implemented to determine whether the pools downstream of the TAO provide water temperatures suitable for holding. Between March 27 and July 15, 2008, 44 adult Chinook salmon received radio tags via esophageal implant. Of the 44 tags deployed, 39 were located. A total of 25 tags were recovered: 3 were recovered during the escapement survey; 21 were recovered at the FRFH; and 1 was reported by an angler. The total gross distance traveled by tagged fish ranged from 0 to 142.2 river miles. The largest surveyed net movement was downstream 57.7 river miles.

Salmon and Steelhead Spawning Surveys

Salmon and steelhead spawning surveys (redd surveys) are conducted to determine the abundance and distribution as well as physical characteristics of natural spawning sites in the lower Feather River.

To gain a better understanding of Feather River salmon and steelhead spawning characteristics, redd surveys are performed to identify the location, timing, and magnitude (where possible) of spawning in the lower Feather River. The survey is generally performed weekly, and most of the available spawning area between the Fish Barrier Dam and Honcut Creek is searched.

The salmon redd survey was conducted between September 10, 2008, and November 3, 2008. Approximately 344 salmon redds occupied 1,844 square meters of spawning habitat in the uppermost reach of the LFC. Auditorium Riffle (RM 66) contained the largest amount of redds (137) occupying 947 square meters of habitat. Ten weekly steelhead redd surveys were performed between January 2, 2008, and March 3, 2008. A total of 55 redds were observed during the sampling period. Redd construction likely began sometime in late December, peaked in late January, and was essentially complete by the beginning of March. Thirty-five mature redds were observed in January with another 20 redds

added at the beginning of February. The surveys revealed that more than half (67 percent) of all redds were constructed in the uppermost mile of river (between RM 66 and 67), between the Table Mountain Bicycle Bridge and Lower Auditorium Riffle. This section of river maintained 37 redds per mile, two-thirds greater than any other section. Hatchery Ditch and Lower Auditorium riffle contained the most redds with 10 and 11 redds, respectively. 38 percent of the total amount of redds observed in the survey were located in these two locations.

Salmon Escapement Survey

The purpose of the salmon escapement survey is to evaluate the abundance, distribution, and timing of in-river Chinook salmon spawning.

The survey provides information crucial to monitoring, management, and conservation of the Feather River's salmon populations. The data are used to identify trends in population and age structure, track patterns in spawning distribution, determine proportions of hatchery versus wild fish, and explore environmental effects on salmon survival rates. Estimating the number of salmon returning to spawn is the basic goal of the carcass survey. This estimate is based on a weekly mark and recapture experiment in which salmon carcasses are tagged, chopped, and placed back into the river. The rate at which tagged carcasses are recovered (the recovery rate) relative to the number of carcasses checked for tags (chopped) provides the basis for an estimate of the total population.

Due to low numbers of returning fish in 2008, the data from the LFC and HFC were pooled to generate one estimate for the lower Feather River. A pooled Peterson estimator is used to calculate the escapement estimate. For the lower Feather River, the estimate was 5,939. There were an estimated 236 grilse (fish ≤ 65 centimeter (cm) fork length). These estimates include both fall-run and spring-run Chinook salmon since their spawning is currently not fully segregated on the Feather River. Approximately 95 percent of the spawning population utilized the LFC. This is the second highest percentage since DWR began surveys in 2000. Since 2000, the long-term average for the LFC's spawning population is 73 percent.

Spring-Run Salmon Tagging

To better understand spring-run Chinook salmon life history in the Feather River, a program was developed to mark spring-run Chinook salmon entering FRFH. The spring-run Chinook salmon tagging program serves to segregate spawning of spring- and fall-run Chinook salmon in the hatchery. The program also investigates potential differences in spawning distribution and timing of the early arriving spring-run salmon in the river and contributes to a better understanding of spring-run salmon life history in the Feather River. Early arriving spring-run salmon entering the hatchery were marked with individually numbered Hallprint dart tags for identification. Once marked, fish were released back in the river and allowed to over-summer there. During the hatchery spawning season, the mark enabled hatchery staff to distinguish the early arriving spring-run fish from the fall-run fish, so that spring-run fish could be spawned separately from the fall-run. The mark also enabled the escapement survey crew to differentiate between spring- and fall-run salmon, so that any potential differences or trends in the in-river spawning behavior of the two runs could be analyzed.

Between May and July 2008, 1,915 spring-run Chinook salmon were marked. When spawning began in the fall, a total of 1,235 fish were recaptured: 1,058 at FRFH and 177 in the river escapement survey. The recovery rate (65 percent) is the highest to date (mean 38 percent). This was likely due to the July 4 closure of inland harvest.

Otolith Thermal Marking Studies

The Chinook salmon run in the Feather River consists of both Central Valley spring-run and fall-run fish, both of which are heavily supplemented by the FRFH. In order to effectively determine the composition of the run (spring-run versus fall-run) and the origin of the fish (hatchery versus naturally produced), DFG and DWR developed an otolith thermal marking (OTM) program for the FRFH. Thermal marking is an efficient method to mark 100 percent of the fish produced at the hatchery.

In 2005–2006, 100 percent marking of spring- and fall-run Chinook salmon began. It is anticipated that by 2009–2010 the entire cohort of spawning salmon will be thermally marked (ages 2 through 5 years) and otolith analysis will begin. With continuation of this program, DWR will be able to definitively determine the origin and the proportions of spring- and fall-run fish within the river and the hatchery. With known origin and race, more advanced otolith analysis techniques can be employed to investigate potential differences in life history strategy for fall- and spring-run fish, as well as hatchery and naturally produced Chinook salmon. This will provide valuable information to evaluate the effectiveness of past management decisions aimed at the recovery of natural-origin Chinook salmon and guide future restoration actions.

Pelagic Organism Decline in the Upper San Francisco Estuary

By the early 2000s, long-term monitoring by the Interagency Ecological Program (IEP) had revealed marked declines in numerous pelagic (open water) fish species in the upper San Francisco Estuary (the Delta and Suisun Bay). This decline has collectively become known as the pelagic organism decline (POD).

Abundance indices calculated from several IEP monitoring programs continued to indicate record and near-record lows in 2008 for resident pelagic fish of the upper estuary, including delta smelt, longfin smelt, striped bass, and threadfin shad. These declines had several significant management consequences, including limits to pumping to protect delta smelt and the proposed listing of longfin smelt as a threatened species.

Since 2005, IEP scientists have been coordinating studies investigating potential causes of POD. Based on the 2007 synthesis of results (see Bulletin 132-08), research objectives were refined for 2008. The main objective of 2008 POD work is to evaluate the following question: What stressors, under what conditions, currently affect pelagic fish populations? This shift in focus from identifying factors that could have caused the POD to identifying what current factors may be keeping populations down now, may provide useful information to resource managers.

The full report, *Pelagic Organism Decline Progress Report: 2007 Synthesis of Results*, is available at http://www.water.ca.gov/iep/pod/synthesis_reports_workplans.cfm.

Additional information can be found in the *Pelagic Fish Action Plan*, published in March 2007, available from the Delta Initiatives website at http://www.water.ca.gov/deltainit.

Fish-Related Mitigation Projects

In 1986, DWR and DFG signed the Delta Pumping Plant Fish Protection Agreement (Delta Fish Agreement) to annually provide funds to offset direct losses of Chinook salmon, steelhead, and striped bass at Banks Pumping Plant. The Delta Fish Agreement is commonly referred to as the Four Pumps Agreement because it was adopted as part of the mitigation for four additional pumps

at the Banks Pumping Plant. Direct losses are defined as losses of fish that occur from the time fish are drawn into Clifton Court Forebay until the surviving fish are returned to the Delta. In principle, DFG and DWR intended this agreement to offset direct losses of all fish caused by the diversion of water by the pumping plant starting in 1986. However, at that time, information on impacts and measures to offset those impacts was sufficient only to deal with Chinook salmon, steelhead, and striped bass. The agreement allowed for addressing impacts on other fish species once impacts could be identified and measures could be developed that would offset such impacts.

The process that led to this agreement included an advisory committee of representatives from interest groups concerned with fish resources affected by the SWP, including, but not limited to, representatives of the SWP water contractors, sport and commercial fishing groups, and environmental groups. The agreement formalized the Delta Pumping Plant Fish Advisory Committee.

To mitigate fish loss, mitigation projects are selected and funded by the Delta Fish Agreement. The agreement outlines how project proposals are reviewed and selected for funding and gives priority to mitigation measures for habitat restoration and other nonhatchery measures. Under the agreement, DWR calculates fish loss as prescribed in the agreement, and approved mitigation projects earn fish mitigation credits to satisfy the fish loss mitigation provisions in the agreement. Mitigation is on a fish-for-fish basis.

The agreement provides for two funding components. One component is the Annual Mitigation Account for compensating the annual fish loss. It has no expiration date. The second is a $15 million lump sum provided by DWR for additional projects to compensate for post-1986 fish loss. The agreement specifies that the $15 million must be expended by December 29, 1996.

The Delta Fish Agreement has been amended three times:

- Amendment 1 (1996)—extended the period to expend the remaining $9 million of the $15 million to December 29, 2001;
- Amendment 2 (2001)—extended the period to expend the remaining $5 million of the $15 million to December 31, 2004; and
- Amendment 3 (2004)—extended the period to expend the remaining $3.6 million of the $15 million to December 31, 2007.

DWR and DFG work with the Delta Pumping Plant Fish Advisory Committee to review the success of the agreement in offsetting the direct effects of diversions by the Banks Pumping Plant. If warranted, the agreement can be renegotiated to fulfill SWP's responsibilities to compensate direct fish loss. The agreement requires DWR and DFG to conduct an annual review and report the results.

Since 1986, DWR has spent $47 million on mitigation projects developed under the Delta Fish Agreement. Some of the mitigation projects initiated, approved, or implemented in association with the agreement and its amendments are shown in Table 3-1.

During 2008, DFG and DWR continued negotiations to address the direct and indirect losses of delta smelt, longfin smelt, winter-run Chinook salmon, and spring-run Chinook salmon and to determine the required mitigation for these fish losses in Amendment 4 to the Delta Fish Agreement.

Table 3-1 Delta Fish Agreement Mitigation Projects Funded, Approved, or Implemented

Project	Project Description	Project Location
1986 Delta Fish Agreement		
San Joaquin River System		
San Joaquin fish barrier, 1992–2009	Fish barrier to improve salmon spawning and rearing habitat and migration pathways in the San Joaquin Basin	San Joaquin River Georgiana Slough
San Joaquin tributary diversion fish screens	Two screens installed as part of the San Joaquin River tributary diversion fish screening pilot project	Merced River
Merced River salmon habitat enhancement program	Gravel replacement and maintenance projects to provide benefits to fall-run salmon and steelhead; spawning and rearing habitat improvement; fish passage improvement; elimination of salmonid predator habitat; and improved channel, floodplain, and riparian areas	Merced River
Merced River hyacinth control	Pilot water hyacinth eradication project	Merced River
Merced River fish facility expansion	Expanding the fish facility to increase salmon production and costsharing in annual operating costs	Merced River
Spring-run salmon increased protection	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	Various
Bay-Delta		
Striped bass stocking and net pen rearing	Planting hatchery-reared and net-pen-reared striped bass	Bay-Delta
Salmon acclimation pens	Operating an acclimation pen to improve the survival of hatchery-reared salmon during their release	San Pablo Bay
Delta-Bay Enhanced Enforcement Program (DBEEP)	Enhancing enforcement of fish and game laws in the Delta and upstream to benefit salmon, steelhead, and striped bass	Bay-Delta and upstream into the Sacramento and San Joaquin river basins
Grizzly Island fish screen	Constructing fish screen	Suisun Marsh
Suisun Marsh fish screens	Screening diversions	Suisun Marsh
Sacramento River System		
Feather River salmon projects	Hatchery expansion; salmon passage	Feather River
Sacramento River spawning gravel	Gravel replacement and maintenance for salmon and steelhead	Sacramento River
Mill Creek spawning gravel	Gravel replacement and maintenance for salmon and steelhead	Mill Creek
Mill Creek water exchange project	Implementing a conjunctive-use project to improve salmon migration flows	Mill Creek and Deer Creek
Spring-run salmon passage projects	Constructing fish ladders and screens	Butte Creek
1996 Amendment		
San Joaquin River System		
San Joaquin tributary diversion fish screens	Screening diversions on the San Joaquin River tributaries	Merced River
San Joaquin salmon predator isolation	Predator isolation projects on San Joaquin River tributaries	various
Sacramento River System		
Spring-run salmon migration	Conjunctive-use project to improve spring-run salmon migration	Deer Creek

Table 3-1 Delta Fish Agreement Mitigation Projects Funded, Approved, or Implemented *(continued)*

Project	Project Description	Project Location
2001 Amendment		
San Joaquin River System		
Merced River salmon habitat enhancement project	Gravel replacement and maintenance projects to provide benefits to fall-run salmon and steelhead; spawning and rearing habitat improvement; fish passage improvement; elimination of salmonid predator habitat; and improved channel, floodplain, and riparian areas	Merced River
Salmon spawning habitat and channel restoration projects	Gravel augmentation, rehabilitation of spawning riffles, floodplain and channel rehabilitation	Tuolumne River
Stanislaus River salmon and steelhead habitat	Gravel replacement and maintenance to provide benefits to fall-run Chinook salmon and steelhead	Stanislaus River
Merced River wing deflector gravel	Salmon spawning gravel replenishment at wing deflector site	Merced River
Sacramento River System		
Spring-run salmon migration	Revised conjunctive-use project to improve spring-run salmon migration	Deer Creek
2004 Amendment		
San Joaquin River System		
Merced River fish facility operations and maintenance	Augmentation of the Delta Fish Agreement annual funding due to increased operating costs	Merced River
Merced River salmon habitat enhancement project—Robinson reach	Post-construction activities related to permit compliance and costsharing requirements	Merced River
Expansion of the Robinson reach conservation easement (Merced River salmon habitat enhancement project)	Placement of conservation easements on nearly 9,000 acres at the confluence of the Merced and San Joaquin rivers, covering approximately 5 miles of riparian habitat	Merced River
Merced River salmon habitat enhancement project	Complete design scenarios for additional phases of the project	Merced River
Stanislaus River salmon habitat	Increasing and improving spawning and rearing habitat for Chinook salmon and steelhead	Stanislaus River
Sacramento River System		
Deer Creek water exchange (operations and maintenance)	Groundwater exchange project designed to fulfill the water needs of local agricultural and domestic water users while achieving the fisheries flow objectives for salmon and steelhead	Deer Creek
Bay-Delta		
Delta-Bay Enhanced Enforcement Program (DBEEP)	Additional funding for focused enforcement efforts to protect anadromous species of concern in the Delta and upstream areas	Bay-Delta and upstream into the Sacramento and San Joaquin river basins
Suisun Marsh fish screens	Operation and maintenance of 14 fish screens in Suisun Marsh over a 12-year period	Suisun Marsh

Climate Change

In this century, climate change will have a dramatic effect upon water supply, flood management, and ecosystems.

In 2008, DWR staff were developing new models or revising existing ones to improve the ability to operate the SWP, anticipate how and when streams and rivers will flood, and project sea level rise.

Computer applications were developed to estimate salinity intrusion into the Delta for one-foot and two-foot sea level rise scenarios. These applications can be used in computer models of SWP and CVP operations to evaluate potential impacts of sea level rise on system operations.

DWR continues to be actively engaged in outreach efforts with multiple partners on the water resource impacts of climate change, focusing on public awareness, interagency coordination, and adaptation strategies.

In October 2008, DWR released *Managing an Uncertain Future*, a white paper on climate change adaptation for California's water sector that sets forth 10 adaptation strategies to help avoid or reduce climate change impacts to water resources. This report is the first State-level adaptation strategy for water resources in the U.S.

Climate Change Impacts to SWP and CVP Operations

Investigating climate change impacts to SWP and CVP operations provides a foundation for developing system adaptation plans. DWR has conducted initial studies of climate change impacts to SWP and CVP operations using the CalSim-II model. Impacts were evaluated for projected changes to streamflows, agricultural water demands, and rising sea levels. Midcentury and end-of-the-century impacts were assessed for:

- annual Delta exports;
- reservoir carryover storage;
- Sacramento Valley groundwater pumping;
- power supply;
- Delta X2 salinity standard compliance; and
- vulnerability of the system to operational interruption.

The initial assessment indicated that SWP and CVP would be impacted significantly by projected climate changes.

Results of the study were further analyzed in an attempt to isolate the relative effects of inflow seasonal pattern change (caused mainly by the warming trend), annual inflow change (induced predominantly by the annual precipitation trend), and sea level rise on water resource management for the SWP and CVP.

Climate Change Technical Advisory Group

In 2008, DWR convened a team of climate experts to provide technical advice to DWR on incorporating climate change into decision-making about California's water resources. This team, known as the Climate Change Technical Advisory Group, is focusing on the challenges presented in the development of state-of-the-art climate change science, better analytical tools for modeling and planning for climate change impacts, and climate change adaptation strategies for California's water sector.

For more information, visit the DWR climate change website: http://www.water.ca.gov/climatechange.

Chapter 4
Water Quality Programs

Middle River in the Sacramento-San Joaquin Delta.

Significant Events in 2008

The Sacramento Valley Water Year Hydrologic Classification (40-30-30 Index) and the San Joaquin Valley Water Year Hydrologic Classification (60-20-20 Index) were both critical.

In June 2008, the Municipal Water Quality Investigations (MWQI) program completed a 2-year data summary report entitled *The Municipal Water Quality Investigations Program Summary and Findings from Data Collected from October 2005 through September 2007*. The report summarizes and interprets MWQI sampling data.

On July 16, 2008, the State Water Resources Control Board (SWRCB) adopted Resolution 2008-0056, approving the *Strategic Workplan for the Bay-Delta*.

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

The State Water Project (SWP) is the largest State-built, multipurpose water project in the United States. California's existence and continued prosperity depends on water. More than two-thirds of the people of California rely partly or wholly on the SWP for their daily water needs. The Department of Water Resources (DWR), Division of Operations and Maintenance (O&M) currently maintains 15 automated water quality monitoring stations at key locations along the SWP. This network of automated stations continuously monitors a variety of water quality parameters throughout the system and provides real-time data to SWP water contractors. In addition, field grab samples collected weekly, monthly, quarterly, or annually from more than 30 SWP locations are routinely analyzed for a broad range of constituents at the State's Bryte Chemical Laboratory.

Delta Activities

The State Water Resources Control Board (SWRCB) establishes water quality objectives and monitoring plans to protect a variety of the beneficial uses of water. The water quality objectives are set at points of delivery under Article 19 of the long-term SWP water supply contracts. The California Department of Public Health (DPH) establishes maximum contaminant levels for treated drinking water.

Water quality in the Delta and Suisun Marsh is protected under SWRCB's Water Right Decision 1641 (D-1641), adopted in December 1999 (see the sidebar, State Water Resources Control Board). SWRCB's issuance of D-1641 is part of its implementation of the 1995 *Water Quality Control Plan* (WQCP) *for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan) and, accordingly, this decision amends certain water rights of water rights holders to help achieve the plan's objectives. SWRCB ensures these objectives are met in part by the inclusion of water quality monitoring requirements in D-1641 as operating conditions for the SWP and Central Valley Project (CVP).

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

Water Supply Conditions

Water Year Classifications and Water Supply Indexes

SWRCB's D-1641 contains water quality and flow standards that are conditioned by water year type and 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."

The Sacramento Valley Water Year Hydrologic Classification (40-30-30 Index) and the San Joaquin Valley Water Year Hydrologic Classification (60-20-20 Index) were both critical, based on the May 1 Water Supply Index forecast. (For a detailed discussion of water year 2007–2008, see Chapter 8, Water Supply.)

State Water Resources Control Board

The State Water Resources Control Board (SWRCB), established by the California Legislature in 1967, oversees water rights and protects water quality by setting and implementing statewide policy, allocating appropriative water rights, coordinating with and supporting Regional Water Quality Control Board (RWQCB) efforts, and reviewing petitions that contest RWQCB actions. The five SWRCB members are appointed by the Governor and confirmed by the Senate. SWRCB is responsible for four major programs.

Water quality: to preserve, protect, enhance, and restore water quality.

Water rights: to issue permits for water rights specifying amounts, conditions, and construction timetables for diversion and storage.

Financial assistance: to assist local agencies and individuals with pollution prevention or cleaning-up.

Enforcement: to enforce water rights and water quality laws and regulations.

Under their water quality authority, the SWRCB and RWQCBs adopt water quality control plans (WQCPs) for the 16 planning basins in the State. The WQCPs contain water quality objectives for flow, salinity, dissolved oxygen (DO) levels, and other parameters necessary for the protection of various beneficial uses, such as municipal and industrial, agricultural, and fish and wildlife. SWRCB implements these objectives in a number of ways, depending on the circumstances, including imposing conditions on water right permits and licenses.

State Water Project (SWP) and Central Valley Project (CVP) responsibilities for meeting Delta water quality objectives is dictated by the WQCPs and SWRCB water right decisions which impose conditions on SWP and CVP water right permits and licenses.

Current water quality objectives for the Delta and Suisun Marsh are contained in the *WQCP for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary*, adopted December 13, 2006 (2006 Bay-Delta Plan). *Water Right Decision 1641* (D-1641) implements the objectives in the 2006 Bay-Delta Plan. SWP and CVP are operated in coordination to meet the terms in D-1641 relevant to each project.

SWRCB conducts proceedings to gather information, receive recommendations, consider public comments, and conduct detailed discussions to evaluate new information for periodic comprehensive review of the current WQCP and consideration of new or revised water quality objectives. Before adopting a water quality control plan, SWRCB must consider all relevant management agency agreements that are intended to protect a specific beneficial use of water.

Recent issues of concern related to the WQCP include pelagic organism decline (POD), delta smelt, San Joaquin River flows, and southern delta salinity.

In July 2008, SWRCB adopted the *Strategic Workplan for Activities in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary*, which prioritizes and describes the scope of individual activities and provides specificity regarding timelines and resource needs for implementing coordinated activities in the Bay-Delta.

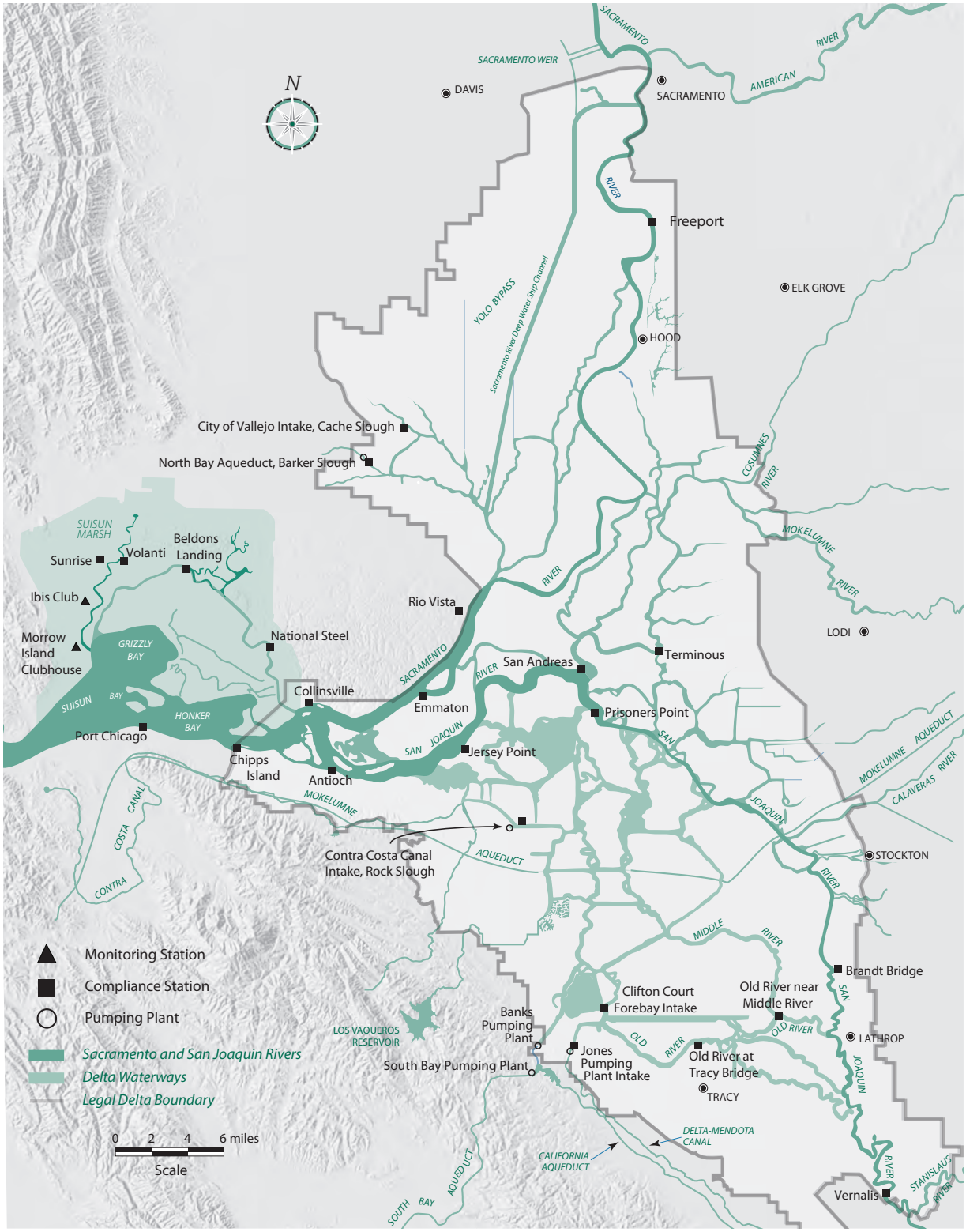

Figure 4-1 Decision 1641 Water Quality Compliance and Monitoring Stations in the Sacramento-San Joaquin Delta

Operations Under State Water Resources Control Board Water Right Decision 1641

In 2008, DWR and the Bureau of Reclamation (Reclamation) jointly operated the SWP and CVP in accordance with SWRCB's D-1641 which includes water quality, flow, and operational criteria for the Delta. Operations of the projects were coordinated with various objectives of the Bay-Delta Plan, Central Valley Project Improvement Act, and biological opinions for listed species.

As mentioned above, the water quality and flow criteria contained within D-1641 are conditioned by water year type. Specifically, the Sacramento Valley 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. In 2008, the SWP and CVP were operated using water quality and flow criteria based on the May 1 forecast of critical for the Sacramento River Basin and critical for the San Joaquin River.

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 Endangered Species Act (ESA) and the California Endangered Species Act (CESA) include the winter and spring runs of Chinook salmon, delta smelt, steelhead, and green sturgeon.

Real-time monitoring of fish movement and conditions in the estuary aids daily water management and provides timely protection of targeted fish species from entrainment at the Delta pumping facilities. (See Chapter 3, Environmental Programs, for a discussion of other environmental issues.)

Delta Cross Channel Gates

The Delta Cross Channel gates are operated in accordance with SWRCB D-1641. In 2008, the gates were open for 247 days to allow fresher Sacramento River water to flow into interior Delta channels toward the SWP and CVP export facilities. Reclamation's standard operating procedures call for gate closure when flow on the Sacramento River at Freeport reaches between 20,000 cubic feet per second (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 gate closure under certain conditions from November 1 through May 20 for fisheries protection as requested by USFWS, NOAA Fisheries, and DFG.

Water Quality Standards

Water quality objectives in D-1641 are categorized by the beneficial uses they are intended to protect, including municipal, industrial, agricultural, and fish and wildlife. DWR operators adjust upstream releases and Delta exports in order to meet D-1641 water quality and flow standards. D-1641 contains salinity standards (recorded as electrical conductivity [EC]) for three stations in the South Delta downstream of Vernalis. The stations are primarily influenced by San Joaquin River flow and in-Delta diversions. San Joaquin River flows are not influenced by SWP upstream reservoirs, but local water levels may be influenced by SWP exports, and circulation may be influenced by the annual placement of South Delta barriers.

Municipal and Industrial Objectives

D-1641 includes a year-round 250 milligrams per liter (mg/L) (maximum mean daily) chloride objective that is in effect at Delta export locations (Contra Costa Canal Pumping Plant No. 1, Clifton Court Forebay, Jones Pumping Plant, Cache Slough at the City of Vallejo Intake, and Barker Slough). Chloride levels remained below the objective for 294 days in 2008.

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.

Agricultural Objectives

D-1641 contains agricultural salinity objectives, which vary by location. The salinity objectives, recorded as EC, are based on both water year type and a 14-day running average during the irrigation season, from April to mid-August, at Emmaton, Jersey Point, Terminous, and San Andreas in the West and Central Delta. The agricultural salinity objectives at these Delta locations become less stringent under dryer conditions. Emmaton and Jersey Point met the objective in 2008. (Data for Terminous and San Andreas were not available.)

In the South Delta, the salinity objectives are based on a 30-day running average. The 0.7 millisiemens per centimeter (mS/cm) objective for the South Delta was not met at Vernalis, Brandt Bridge, Old River near Tracy, and Union Island. The SWP and CVP are jointly required by D-1641 to meet the agricultural EC objectives imposed at these South Delta compliance locations. (See also, Chapter 2, Delta Resources, and Chapter 7, Water Supply Development and Reliability.)

Estuarine Habitat Protection Standard

The estuarine habitat protection standard incorporates modified X2 criteria (geographic isohaline) first established in the 1994 delta smelt biological opinion (BO). 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 (Collinsville, Chipps Island, Port Chicago, or Martinez) are associated with an abundance of fish and biota.

The requirement for meeting X2 criteria at Collinsville applies to all days during February through June. The number of days per month when the daily average 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 (NDOI) of 7,100 cfs, 11,400 cfs, or 29,200 cfs, when the X2 position is at Collinsville, 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 January through May 2008, in million acre feet (maf), was 1.70, 1.81, 1.79, 1.89, and 2.68, respectively. The X2 habitat protection objective at Chipps Island was required and met for 29 days in February, 31 days in March, and 27 days in April.

Additionally in 2008, the X2 habitat protection objective at Port Chicago was not triggered.

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 NDOI was introduced in the 1995 Bay-Delta Plan and is now part of D-1641. NDOI calculates Delta outflow using 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 Operations Agreement, allow

for greater flexibility in project operations. During 2008, Delta water conditions began and ended in excess, totaling an accumulated 117 days.

D-1641 sets specific minimum monthly NDOI standards for the protection of fish and wildlife based upon water year type. In 2008, the monthly mean NDOI was highest in February, averaging 24,500 cfs. The monthly mean NDOI remained above 3,000 cfs during all months of the year, with the lowest monthly mean NDOI occurring in August, with 3,110 cfs. All NDOI standards were met in 2008.

River 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 BO, set flow requirements based on the May 1 Sacramento Valley water year classification forecast. Water year 2008 was forecast to be critical, requiring mean monthly flows of 3,000 cfs for September, 3,000 cfs for October, and 3,500 cfs for November and December. During these periods, the 7-day running average could not be more than 1,000 cfs below the monthly standard. The actual mean monthly flows were 5,193 cfs for September, 3,203 cfs for October, 6,316 cfs for November, and 5,274 cfs for December.

If the X2 objective is required to be at or west of the Chipps Island location, critical year base Vernalis flows are set at 1,140 cfs from February to April 14 and from May 16 through June 30. The base flow objective is relaxed to 710 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 alternative spring pulse flow and export limits. Typically, Reclamation and DWR use this alternative in lieu of D-1641 limits. The pulse flow objective for the spring 2008 VAMP period was 3,110 cfs. The San Joaquin Valley water year type was critical, therefore VAMP was a single-step operation with no fall pulse flow.

Export Standards

D-1641 includes an export limitation for the 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 3-day average that combines the inflow rate for Clifton Court Forebay (excluding Byron-Bethany Irrigation District diversions from Clifton Court Forebay) added to the Jones 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 2008, combined SWP and CVP exports averaged about 25 percent of Delta inflow, meeting the 35 percent limitation.

During the more restrictive period from February through June (35 percent objective), exports averaged about 17 percent.

From July through the following January, the SWP and CVP exported about 34 percent, 31 percent less than the allowed 65 percent. From July through December 2008, the combined inflow diverted averaged 39 percent.

South Delta Temporary Barriers

The South Delta Temporary Barriers Project, initiated as a test project in 1991, was extended for 5 years in 1996, and extended again for 7 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 near Tracy, Grant Line Canal, and at Head of Old River. Additional background information can be found in Chapter 2, Delta Resources.

In 2008, barriers were installed at Middle River from May 21 to November 9; at Old River near Tracy from June 4 to November 25; and at Grant Line Canal from June 26 to November 24.

The barrier placed at Head of Old River in the fall helps keep upstream migrating adult salmon from straying out of the San Joaquin River into interior Delta channels and can help improve dissolved oxygen (DO) conditions in the Stockton Deep Water Ship Channel (DWSC). In 2008, a temporary barrier was not installed at Head of Old River in the spring in accordance with the 2007 Wanger decision to protect delta smelt. The barrier was installed in the fall from October 16 to November 9.

Special Study and Biological Surveys

DWR conducts several special studies and biological surveys each year. This includes a special study in the Stockton DWSC during the late summer and early fall to monitor the occurrence of low DO levels. Low DO levels 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 DWSC have dropped below both the 5.0 mg/L and 6.0 mg/L water quality objectives set by SWRCB and the RWQCB, 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.

Head of Old River barrier installation began on October 1, 2008 and was completed on October 16, 2008. Barrier removal began on November 3 and was completed on November 9, 2008.

Methods

Monitoring DO concentration in the Stockton DWSC was conducted by boat on 12 monitoring runs, from June 16 to November 25, 2008. During each run, 14 sites were sampled at low water slack tide from Prisoners 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 Prisoners 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 (June 16 to November 25), DO levels varied between regions within the channel (not including the turning basin) from a low of 4.5 mg/L to a high of 10.3 mg/L. In the western channel, DO concentrations were relatively high and stable, ranging from 6.9 to 8.5 mg/L. In the central channel, DO concentrations were variable, ranging from 5.5 to 8.4 mg/L. In the eastern channel, DO levels were the lowest, ranging from a low of 4.5 mg/L to a high of 10.3 mg/L.

DO concentrations in the Stockton DWSC fell below both the State's 5.0 mg/L and 6.0 mg/L objectives on two monitoring runs, June 16 (stations 11 through 13) and September 12 (stations 8 through 13). All sites were above State DO objectives on subsequent sampling runs.

Higher San Joaquin River inflows, as well as the absence of intermittent reverse flows near Stockton, coincided with improved DO conditions. Further monitoring operations for the fall 2008 special study were suspended after November 25, 2008.

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:

- 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 Point;
- 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 2008. 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 176 species of benthic macrofauna were collected in 2008 at the 10 sampling sites. Of the 176 species, the following 10 dominant species represented 82.8 percent of all organisms collected:

- the amphipods: *Ampelisca abdita, Monocorophium acherusicum, Americorophium stimpsoni, Corophium alienense, Americorophium spinicorne, Gammarus daiberi;*
- the sabellide polychaete: *Laonome sp. A*;
- the turbificid worms: *Varichaetadrilus angustipenis;* and
- the Asian clams: *Corbula amurensis* and *Corbicula fluminea*.

Of the 10 dominant species, *Corbula amurensis, Ampelisca abdita,* and *Monocorophium acherusicum* 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, Americorophium spinicorne*, 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 three species, *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

Phytoplankton are small, free-floating or attached algae that can be tiny, single-celled organisms (less than 5 micrometers [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* is one of the main groups of pigments contained in the algal species that make up phytoplankton.

Monthly sampling of chlorophyll *a* concentrations and phytoplankton was conducted in 2008 by DWR's Bay-Delta Monitoring Branch at 13 stations throughout the upper San Francisco Estuary:

- 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 Bulls Head Point near Martinez and off Middle Point near Nichols;
- Grizzly Bay at Dolphin near Suisun Slough; and
- San Pablo Bay near Pinole Point and near the mouth of the Petaluma River.

Chlorophyll *a* concentration was measured at 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 2008, 91.7 percent had chlorophyll *a* levels below 10 micrograms per liter (µg/L). Chlorophyll *a* levels below 10 µg/L are considered limiting for zooplankton growth. The mean chlorophyll *a* concentration for all samples in 2008 was 6.52 µg/L, and the median value was 2.19 µg/L. In 2007, mean chlorophyll *a* concentrations were lower, with a mean of 5.48 µg/L and a median of 1.79 µg/L. The maximum chlorophyll *a* concentration in 2008 was 226.42 µg/L, recorded in June at the San Joaquin River at Vernalis. This maximum was higher than the 2007 peak of 108.00 µg/L. The minimum chlorophyll *a* concentration in 2008 was 0.76 µg/L, recorded in January at the San Joaquin River at Buckley Cove and Disappointment Slough near Bishop Cut stations, and in February at the Suisun Bay off Middle Point near Nichols monitoring station.

There were 13 samples with chlorophyll *a* levels above 10 µg/L. Of those, 11 were from the San Joaquin River near Vernalis, one was from Frank's Tract near Russo's Landing, and one was from San Pablo Bay near Pinole Point.

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 *a* 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 2008 was 2.29 µg/L, and the median value was 1.17 µg/L. The maximum pheophytin *a* concentration was 32.08 µg/L, recorded at San Joaquin River near Vernalis monitoring station in July. The minimum pheophytin *a* concentration was 0.27 µg/L, recorded at Suisun Bay at Bull's Head near Martinez in November.

Phytoplankton populations consisted of these categories (in order of abundance): unknown flagellates, cryptophyte flagellates (class Cryptophyceae), centric diatoms (class Coscinodiscophyceae), pennate diatoms (classes Bacillariophyceae and Fragilariophyceae), chrysophyte flagellates (class Chrysophyceae), cyanobacteria (class Cyanophyceae), green algae (classes Chlorophyceae, Ulvophyceae, and Zygnematophyceae), euglenoid flagellates (class Euglenophyceae), unknown genus, dinoflagellates (class Dinophyceae), ciliates (class Kinetofragminophora),

and synurophyte flagellates (class Synurophyceae). Of the genera identified, the following were the 10 most common, in order of abundance: unidentified flagellates, *Pyrenomonas, Cyclotella*, *Cryptomonas*, unknown chrysophyte flagellates, *Aulacoseira*, *Phormidium*, *Fragilaria*, *Cocconeis*, and *Chroococcus.*

Activities Outside the Delta

Routine SWP water quality monitoring activities, as well as special studies, are conducted outside the Delta. The special studies are in response to increasingly stringent regulations facing water purveyors who rely on DWR to deliver high-quality raw water. Most of these special studies were initiated because of the fish and wildlife and water quality concerns held by agencies that provide domestic water.

Water Quality Monitoring in the SWP

The DWR, Division of O&M monitors water quality throughout the SWP. The SWP water quality monitoring program exists due to increasingly stringent regulations, statewide drought conditions, threatened or endangered fish species, operational constraints, and increasing demands on SWP water supply, which invariably affect the quality of the SWP aqueducts, forebays, lakes, and reservoirs. The SWP water quality program includes the analysis of over 200 different chemical, biological, and physical constituents at more than 40 stations.

The SWP water quality monitoring program includes 16 automated monitoring stations at key locations along the SWP (see Table 4-1). This network of automated stations continuously monitors a variety of physico-chemical parameters such as conductivity, turbidity, pH, UV_{254}, and fluorometry, providing real-time data.

Data generated from the autostations are used to assess spatial changes, short- and long-term trends, impacts from emergencies (e.g., spills and pipe ruptures), the influence of operations and hydrology, and the general suitability of SWP water for drinking water purposes as defined by public health protection standards. The data are periodically assessed and disseminated through a variety of media including memos, network postings, conference calls, and email distributions. Special studies are also periodically conducted to investigate the impacts of specific incidents affecting SWP water quality, such as groundwater turn-ins, floodwater inflows, hydrology, and Delta hydrodynamics. Published reports can be found at http://www.water.ca.gov/publications/browse.cfm.

Water quality monitoring stations are located on SWP storage and conveyance facilities around the State from the Feather River watershed in the north to Lake Perris in the south. Facilities include the Oroville Facilities, California Aqueduct with the East and West Branches, North Bay Aqueduct, South Bay Aqueduct, and the San Luis Joint-Use Complex (see Table 4-2). Sampling frequency is monthly at most stations, but can vary from weekly to annually depending on location, time of year, or special events. Water samples are shipped to DWR's Bryte Chemical Laboratory in West Sacramento for processing and analysis of water quality constituents. Constituents analyzed can include dissolved solids; nutrients; minerals such as chloride, sulfate, and sodium; trace metals; herbicides; pesticides; organic substances; and phytoplankton (see Table 4-3).

Water quality in the SWP during 2008 is summarized in Tables 4-4 and 4-5. Salinity and bromide concentrations were relatively high at most locations except at Thermalito Afterbay and in the North Bay Aqueduct at Barker Slough. Dissolved organic carbon in the Delta-Mendota Canal, California

Table 4-1 O&M SWP Automated Water Quality Monitoring Stations and Test Parameters

CDEC ID	Location	County	EC (µS/cm)	Temp °C	Turbidity (NTU[a])	pH	Fluoro[b]	UVA-254[c]
BKS	Barker Slough Pumping Plant	Solano	x	x	x	x	–	–
C13	Check 13	Merced	x	x	x	x	–	x
C21	Check 21	Kings	x	x	x	–	–	–
C29	Check 29	Kern	x	x	x	–	–	–
C41	Check 41	Kern	x	x	x	x	–	–
C66	Check 66	San Bernardino	x	x	x	–	–	–
CLC	Clifton Court	Contra Costa	x	x	x	x	x	–
CPP	Cordelia Pumping Plant	Solano	x	x	x	–	–	–
CSO	Castaic Lake Outlet	Los Angeles	x	x	x	x	–	–
DCO	Del Valle Conservation Outlet Works	Alameda	x	x	x	x	–	–
DV7	Del Valle Check 7	Alameda	x	x	x	x	x	–
DVC	Devil Canyon Headworks	San Bernardino	x	x	x			–
EDP	Edmonston Pumping Plant	Kern	–	–	–	–	–	x
HBP	Banks Pumping Plant	Alameda	x	x	x	x	x	x
PPP	Pacheco Pumping Plant	Merced	x	x	x		x	–
VSB	Vallecitos Turn-Out	Alameda	x	x	x	x	–	–

CDEC = California Data Exchange Center
[a] NTU = nephelometric turbidity unit
[b] Fluoro = fluorometry (measures chlorophyll)
[c] UVA-254 = 254nm ultraviolet absorbance (measures dissolved organic carbon)

Table 4-2 O&M SWP Water Quality Grab Sample Locations

Water Data Library Station Code	Station Name	Water Data Library Station Code	Station Name
AN001000	Antelope Lake	KB000386	Dyer Reservoir (DYR), Check Siphon 1
KA000331	Banks Pumping Plant	FR001000	Frenchman Lake
KG000000	Barker Slough Pumping Plant	LD001000	Lake Davis
CAS00000	Castaic Dam Control Building	PE001000	Lake Perris, Inlet
CA001000	Castaic Lake	PE002000	Lake Perris, Outlet
CA002000	Castaic Lake Outlet Tower	PE003000	Lake Perris, Alisandro Island
CA003000	Castaic Lake	PE004000	Lake Perris, Moreno Palm Beach
KA007089	Check 13	PE005000	Lake Perris, Dam
KA017226	Check 21	PE006000	Lake Perris, Back-side of the Island
KA024454	Check 23	OR001000	Lake Oroville
KA024454	Check 29	SL000000	Pacheco Pumping Plant
KA029021	Check 39	PY001000	Pyramid Lake
KA030341	Check 41	PY002000	Pyramid Lake
KA040341	Check 66	PY003000	Pyramid Lake
KA000000	Clifton Court Forebay	SL001000	San Luis Reservoir, Trashracks
KC000934	Coastal Branch	SL005000	San Luis Reservoir, Tunnel Island
KG002111	Cordelia Pumping Plant	KB004207	Santa Clara Terminal Tank
KB001638	Del Valle Check 7	KB000000	South Bay Pumping Plant (SBU)
DV000000	Del Valle Conservation Outlet (DCO)	SI001000	Silverwood Lake, Inlet
DV001000	Del Valle Reservoir	SI002000	Silverwood Lake, Outlet
DMC06716	Delta-Mendota Canal, North of McCabe Road	TA001000	Thermalito Afterbay
KA041134	Devil Canyon Headworks	TF001000	Thermalito Forebay
KA041288	Devil Canyon Afterbay	KB002240	Vallecitos

Table 4-3 O&M SWP Grab Sampling Schedule

Station Name	Station Number	Depth (meters)	Major Minerals	Project Standard[a]	Nutrients	Total Organic Carbon	Dissolved Organic Carbon	UV-254	Suspended Solids	Turbidity	Bromide	Taste & Odor (MIB-geosmin)	Phytoplankton	Pesticides & Herbicides[b]	MTBE (Purgeable organics)	Radiological	Total Dissolved Solids (TDS)	Copper (Dissolved)	Priority Pollutants	Total & Fecal Coliform	Pathogens EPA 1623	Iron and Manganese	Reservoir Profile	Asbestos	Automated Station[c]	Tytronics UVA Monitor	Title 22[d]	Constituents of Concern[e]
Feather River Watershed																												
Antelope Lake	AN001000			A	A								A										A					
Frenchman Lake	FR001000			A	A								A										A					
Lake Davis	LD001000			A	A																	M[3]	A					
Lake Oroville	OR001000		Q	Q	M[2]	Q	Q		Q	Q			M	Q	Q													
Thermalito Forebay	TF001000			Q																								
Thermalito Afterbay	TA001000			M	M[2]				Q		Q		A															
South Bay Aqueduct																												
South Bay Pumping Plant																									#*			
Dyer Reservior																									#*			
Del Valle Check No. 7	KB001632			M	M	M	M		M	M	M	M	M		M										#			
Del Valle Reservoir	DV001000	0.5		Q	M	Q	Q		Q	Q	Q	M	M		M					M	M		M					
	DV001000	4										M	M		M													
	DV001000	8										M	M		M													
Del Valle Conservation Outlet	DV000000			M[1]	M[1]	M[1]	M[1]		M[1]	M[1]	M[1]	W[1]								M[1]								
Valecitos	KB002250			M[1]	M[1]	M[1]	M[1]		M[1]																#			
Santa Clara Terminal Tank	KB004207			Q[2]						Q[2]	Q[2]		Q[2]												#			
North Bay Aqueduct																												
Barker Slough Pumping Plant	KG000000			M	M	M	M		M	M	M	M	M	T	M										#			
Cordelia Reservoir	KG002111			Q					Q	Q	Q														#			
San Luis Joint-Use Facilities																												
Pacheco Pumping Plant	SL000000			M	M	M	M					W	M												#			

Table 4-3 O&M SWP Grab Sampling Schedule

Station Name	Station Number	Depth (meters)	Major Minerals	Project Standard[a]	Nutrients	Total Organic Carbon	Dissolved Organic Carbon	UV-254	Suspended Solids	Turbidity	Bromide	Taste & Odor (MIB-geosmin)	Phytoplankton	Pesticides & Herbicides[b]	MTBE (Purgeable organics)	Radiological	Total Dissolved Solids (TDS)	Copper (Dissolved)	Priority Pollutants	Total & Fecal Coliform	Pathogens EPA 1623	Iron and Manganese	Reservoir Profile	Asbestos	Automated Station[c]	Tytronics UVA Monitor	Title 22[d]	Constituents of Concern[e]
California Aqueduct																												
Clifton Court Forebay	KA000000		M			M	M		M	M	M		M												#			
Banks Pumping Plant	KA000331			M	M	M	M	M	M	M	M	W	M	T	M	Q								Q	#	#		
Check 12	KA006633																											
O'Neill FB Outlet (Check 13)	KA007089			M	M	M	M	M	M					T		Q								Q	#	#		
Check 21	KA017226			M	M	M	M		M					T										Q	#			
Coastal Branch	KC000934			M		M			M																			
Check 23	KA019705																											B
Check 29	KA024454			M	M	M	M		M					T	T										#			
Check 39	KA029021																											B
Check 41	KA030341			M	M	M	M			M	M			T	T	Q								Q	#			
Check 66	KA040341				M												M	M							#			
Devil Canyon Headworks	KA041134			M	M	M	M			M	M			T	T										#			
Devil Canyon Afterbay	KA041288																								#			
Central and Southern SWP Reservoirs																												
San Luis Reservoir—Trashracks	SL001000	3		M	M	M	M					W	M															
San Luis Reservoir—Tunnel Island	SL005000																											
Pyramid Lake	PY001000			Q	M					Q	M		W[3]										W[3]					
	PY003000												W[3]										W[3]					
	PY005000												W[3]										W[3]					
Castaic Lake	CA001000												W[3]										W[3]					
	CA002000			Q	M	M	M			Q	M		W[3]					M					W[3]					

Table 4-3 O&M SWP Grab Sampling Schedule

Station Name	Station Number	Depth (meters)	Major Minerals	Project Standard[a]	Nutrients	Total Organic Carbon	Dissolved Organic Carbon	UV-254	Suspended Solids	Turbidity	Bromide	Taste & Odor (MIB-geosmin)	Phytoplankton	Pesticides & Herbicides[b]	MTBE (Purgeable organics)	Radiological	Total Dissolved Solids (TDS)	Copper (Dissolved)	Priority Pollutants	Total & Fecal Coliform	Pathogens EPA 1623	Iron and Manganese	Reservoir Profile	Asbestos	Automated Station[c]	Tytronics UVA Monitor	Title 22[d]	Constituents of Concern[e]
Silverwood Lake	SI001000												W[3]										W[3]					
	SI002000			Q	M					Q	M		W[3]										W[3]					
Lake Perris	PE001000												W[3]										W[3]					
	PE002000			Q	M	M	M			Q	M		W[3]					M					W[3]					
	PE005000												W[3]										W[3]					
Castaic Dam Control Bldg	CAS00000																M								#			
Warne Powerplant	WEWPP																		Q						#			
Central Valley Project																												
Delta Mendota Canal	DMC06716			M	M	M	M								T													

Sampling Frequency:

A=Annual
Q=Quarterly (Feb, May, Aug, Nov)
Q1=Feb, May, Aug–Dec
Q2=Monthly during Del Valle Releases or else Q
T=Mar, Jun, Sep
#=Location of Automated WQ Station
#*=Future planned stations

M=Monthly
M1=Monthly during Del Valle Releases
M2=Monthly (Apr–Nov)
M3=Monthly (May–Sep)
M4=Weekly in Winter or else Monthly
B=Bi-weekly during Pump-ins

W=Weekly
W1=Weekly in Winter
W2=Weekly during Del Valle Releases
W3=Weekly (Winter=Bi-monthly)

[a] Project Standard: Alkalinity, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chloride, Chromium, Copper, Fluoride, Iron, Lead, Magnesium, Manganese, Mercury, Nitrate, Selenium, Silver, Sodium, Solids (Dissolved), Specific Conductance, Sulfate, Turbidity, and Zinc.

[b] Herbicides and Pesticides: chlorinated organics, organo-phosphorus pesticides, herbicides, carbamates, and miscellaneous pesticides.

[c] Automated Station: *http://www.water.ca.gov/swp/waterquality/AutostationData/Autostation_map.cfm.*

[d] Title 22: 22 CCR Section 64431 or as modified for a particular project.

[e] Constituents of Concern: Arsenic, Bromide, Chromium, Manganese , nitrate (as NO_3), sulfate (SO_4), total organic carbon (TOC), dissolved organic carbon (DOC), total dissolved solids (TDS).

Aqueduct and North Bay Aqueduct at Barker Slough averaged less than 5 mg/L. Turbidity averaged 41 NTU in the North Bay Aqueduct at Barker Slough, while averages in the Delta-Mendota Canal and California Aqueduct ranged from 1 to 9 NTU. Water quality in the Oroville Facilities and upper Feather River reservoirs was excellent, with nondetectable to low levels of minerals, nutrients, and most minor elements.

Sampling for pesticides, herbicides, and other organic compounds is conducted quarterly in March, June, and September at eight sites. The herbicides 2,4-dichlorophenoxyacetic acid (2,4-D) and metolachlor were detected in the North Bay Aqueduct, Delta-Mendota Canal, and California Aqueduct at Banks Pumping Plant. Diuron was detected at all sampled sites. Simazine was detected at all sites except in the North Bay Aqueduct at Barker Slough. Atrazine was detected in the North Bay Aqueduct in September 2008. California Aqueduct at Check 41 stood out as having the highest concentrations of diuron (7.72 ug/L) and simazine (3.35 ug/L) in March, coinciding with spring annual highway weed abatement spraying and heavy rainfall, which both increase the runoff of these herbicides into surface waters.

Groundwater Turn-ins

Groundwater turn-ins to the California Aqueduct are authorized during periods of reduced SWP allocations. SWP contractors, or other participants of an approved program, convey groundwater into the aqueduct. This water may be used for local redistribution, transfer to other water contractors, or exchange with the Environmental Water Account. Turn-ins are allowed provided they do not result in the degradation of SWP water quality, cause toxicity to fish and wildlife, or adversely affect beneficial uses.

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

During 2008, 483,133 acre-feet (af) of groundwater was admitted to the California Aqueduct. The majority of the turn-ins were from Tier 2 sources in the south San Joaquin Valley (San Joaquin Field Division), comprised of turn-ins from Kern Water Bank Authority (254,300 af), Semitropic Water Storage District (84,062 af), Kern County Water Agency (107,169 af), and Arvin-Edison Water Storage District (37,602 af). These turn-ins may have contributed to increases in arsenic within the California Aqueduct, balanced by slight decreases in organic carbon.

Approximately 14,309 af of groundwater from Westlands Water District (Westlands) was also turned in to the California Aqueduct (San Luis Field Division) from July through September 2008. Westlands turn-ins did not adversely affect the overall water quality of project water. While the Westlands turn-in water was significantly higher than aqueduct water in arsenic, boron, nitrate, sulfate, and total dissolved solids (TDS), there were only very slight increases in these constituents downstream of the turn-ins, due to the relatively low turn-in volumes.

Additional SWP water quality data are available electronically through DWR's website at http://www.water.ca.gov/swp/waterquality.

Table 4-4 Mean Water Quality at Selected SWP Grab Sample Locations, 2008

Constituent	Units[a]	Detection Limit	Thermalito Afterbay at Outlet	North Bay Aqueduct, Barker Slough Pumping Plant	Delta-Mendota Canal Upstream of McCabe Road	California Aqueduct					
						Banks Pumping Plant	O'Neill Forebay Outlet (Check 13)	Kettleman City (Check 21)	Near Highway 119 (Check 29)	Tehachapi Afterbay (Check 41)	Devil Canyon Headworks
Alkalinity	mg/L as $CaCO_3$	1	44	102	86	79	83	82	78	80	79
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	0.003	0.002	0.003	0.002	0.003	0.004	0.004	0.004
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	0.2	0.2	0.2	0.2	0.2	0.2
Bromide	mg/L	0.01	<0.01	0.05	0.29	0.28	0.29	0.30	0.26	0.26	0.25
Calcium	mg/L	1	9	18	25	22	23	23	26	27	25
Chloride	mg/L	1	<1	29	90	85	92	91	78	76	74
Chromium	mg/L	0.001	<0.001	0.001	0.001	<0.001	<0.001	0.001	0.001	0.002	0.002
Copper	mg/L	0.001	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Fluoride	mg/L	0.1	<0.1	NR	NR	NR	NR	NR	<0.1	NR	NR
Hardness	mg/L as $CaCO_3$	1	41	109	130	117	120	118	110	110	106
Iron	mg/L	0.005	<0.005	0.019	0.010	0.014	0.008	0.006	<0.005	<0.005	<0.005
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	16	16	15	15	15	11	10	10
Manganese	mg/L	0.005	<0.005	0.016	<0.005	0.018	<0.005	<0.005	<0.005	0.006	0.012
Nitrite + Nitrate	mg/L as N	0.01	<0.01	0.38	NR	0.78	0.79	0.74	1.05	1.04	0.82
Organic Carbon, Dissolved	mg/L as C	0.5	NR	4.7	3.6	3.8	3.6	3.5	2.7	2.3	2.6
Organic Carbon, Total	mg/L as C	0.5	NR	5.1	3.9	3.9	3.8	3.6	3.0	2.4	2.8
Phosphate-Ortho	mg/L as P	0.01	<0.01	0.17	NR	0.09	0.08	0.08	NR	0.04	0.05
Phosphorus-Total	mg/L	0.01	0.01	0.22	NR	0.12	0.10	0.11	0.08	0.06	0.06
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	4	32	64	59	62	63	59	59	58
Specific Conductance	µS/cm	1	94	360	585	528	560	558	519	509	499
Sulfate	mg/L	1	2	31	56	46	44	46	48	48	45
Total Dissolved Solids	mg/L	1	56	205	328	299	310	309	292	291	284
Turbidity	NTU	1	4	41	9	8	7	5	5	5	1
Zinc	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

[a] mg/L = milligrams per liter; µS/cm = microsiemens per centimeter; NTU = nephelometric turbidity unit; NR = No data recorded at this location.

NOTE: A grab sample is a single sample chosen to represent the conditions in a given matrix (usually natural water) at a specific location, depth, and time. All reported constituents are the yearly mean of laboratory analytical values sampled monthly from January through December. The yearly mean may be based upon one to twelve samples for the list of constituents. When one or more analytical results is nondetect, the mean is calculated using "0" for the nondetect results, which accounts for mean values that are less than the detection limit.

Table 4-5 Pesticides, Herbicides, and Other Organic Substances Detected in the SWP, 2008

Sampling Location[a]	Sampling Station ID No.	Sample Date	Chemical Detected[b]	Concentration (µg/L)[c]
North Bay Aqueduct Barker Slough Pumping Plant	KG000000	3/19/08	2,4-D	0.1
			Diuron	0.58
		6/18/08	Diuron	0.36
			Metolachlor	0.1
		9/17/08	Atrazine	0.11
Delta-Mendota Canal upstream of McCabe Road	DMC06716	3/19/08	2,4-D	0.1
			Diuron	1.08
			Simazine	0.04
		6/18/08	Diuron	0.29
			Metolachlor	0.1
Banks Pumping Plant	KA000331	3/19/08	2,4-D	0.1
			Diuron	0.54
			Simazine	0.04
		6/18/08	Diuron	0.25
			Metolachlor	0.2
			Simazine	0.02
O'Neill Forebay Outlet (Check 13)	KA007089	3/19/08	Diuron	0.29
			Simazine	0.05
		6/18/08	Diuron	0.27
			Simazine	0.03
California Aqueduct near Kettleman City (Check 21)	KA017226	3/18/08	Diuron	0.35
			Simazine	0.07
		6/17/08	Diuron	0.27
			Simazine	0.03
California Aqueduct near Highway 119 (Check 29)	KA024454	3/18/08	Diuron	0.49
			Simazine	0.09
		6/17/08	Simazine	0.03
California Aqueduct at Tehachapi Afterbay (Check 41)	KA030341	3/19/08	Diuron	7.72
			Simazine	3.35
		6/18/08	Diuron	0.25
			Simazine	0.03
California Aqueduct at Devil Canyon Headworks	KA041134	3/19/08	Diuron	1.72
			Simazine	0.69
		6/18/08	Diuron	0.40
			Simazine	0.10

[a] Water at these locations was sampled during March, June, and September.
[b] Only chemicals found in detectable amounts at the sampling stations are included in this table. Refer to the document entitled "Analytical Methods for Organic Chemicals" for a complete listing of all organic chemicals included in the laboratory analysis. This document is available online at http://www.water.ca.gov/swp/waterquality/GrabSample/index.cfm.
[c] µg/L = micrograms per liter.

Municipal Water Quality Program

The Sacramento-San Joaquin Delta provides drinking water for more than 25 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 wastewater discharges, storm water runoff from cities, agricultural discharges, recreational activities, abandoned mines, and illegal dumping. The Municipal Water Quality Program (MWQP) is responsible for evaluating the suitability of Delta water as a drinking water source, identifying sources of water quality degradation, and evaluating means of eliminating or preventing degradation. The MWQP includes the Municipal Water Quality Investigations (MWQI), Water Quality Special Studies, Field Support, and Quality Assurance/Quality Control sections.

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

Real Time Data and Forecasting Comprehensive Program

The Real Time Data and Forecasting Comprehensive Program (RTDF-CP) has become a central element of the MWQP. The goal of the program is to develop the capability for real-time data and forecasting of short- and long-term source drinking water quality conditions in the Delta and SWP. Current program components include:

- organizational coordination and collaboration between DWR monitoring and forecasting groups;
- coordination and collaboration with outside agencies to enhance real-time monitoring activities;
- real-time data acquisition through monitoring;
- enhancement of forecasting and fingerprinting of drinking water quality through the use of computer models;
- information management and dissemination;
- emergency response preparedness as it relates to drinking water quality; and
- scientific support studies.

In 2008, MWQP added a fourth station to the real-time monitoring network at the Jones Pumping Plant. The Jones Pumping Plant station is instrumented with an organic carbon analyzer and is equipped with communications equipment enabling the collection and transmission of near real-time organic carbon data. Jones Pumping Plant data represent water quality conditions at the headworks of the Delta-Mendota Canal (DMC) and will facilitate modeling the influence of the DMC on SWP water quality downstream of the joint operating facilities at San Luis Reservoir. The station is cooperatively managed by MWQP and the San Luis & Delta-Mendota Water Authority. In addition to the Jones Pumping Plant station, the real-time monitoring network now includes stations located at Banks Pumping Plant, the Sacramento River at Hood, and the San Joaquin River near Vernalis (McCune Station). MWQP will also be evaluating the feasibility of adding a fifth station at the Gianelli Pumping-Generating Plant at San Luis Reservoir.

In 2008, a number of other improvements came to the RTDF-CP, including: (1) development of an in-house web prototype for daily data reports to replace the weekly RTDF report; (2) completion of a new water quality monitoring building at Banks Pumping Plant and consolidation of MWQP and O&M water quality real-time instrumentation with shared data storage

and upgraded communication capabilities; (3) enhanced real-time data availability through the California Data Exchange Center (CDEC); and (4) improvement of the Delta Simulation Model 2 (DSM2) Extension for the California Aqueduct.

Quality Assurance/Quality Control

The Quality Assurance/Quality Control (QA/QC) Program was established by Water Resources Engineering Memorandum No. 60 in 1992 to ensure that data generated by DWR environmental monitoring programs meet high quality standards and are scientifically defensible. This is accomplished by encouraging monitoring programs to follow standardized procedures including quality control measurements in their sampling protocols.

The program performs the following functions:

- procures specialized products and services from outside sources on an as-needed basis, which may include obtaining certified laboratory standards and outside instructors for teaching technical classes;
- publishes QA/QC guidance documents;
- develops and maintains the drinking water quality database and associated QC metadata as part of the DWR Water Data Library; and
- assists departmental programs in developing quality assurance project plans.

With assistance from California State University, QA/QC program presented the training class, "Applied Environmental Statistics," on February 4-8, 2008. The class provided training on up-to-date methods for analyzing environmental data.

Reports

Quality Assurance Project Plan for Real-Time, Continuous Monitoring of Bromide and Nutrients at Banks Pumping Plant and San Joaquin River near Vernalis, April 2008

This manual addresses all essential activities in the operation of the analytical laboratory and the quality assurance and quality control measures used by the laboratory in determining the organic, inorganic, and biological entities found in California waters. It describes the QA/QC program for all laboratory practices in order to generate the most precise and accurate data possible.

Summary and Findings from Data Collected from October 2005 through September 2007, June 2008

This report summarizes and interprets 2 years of MWQP grab-sampling data collected from 11 MWQP stations.

Real-Time Continuous Monitoring of Bromide and Nutrients at Banks Pumping Plant and San Joaquin River near Vernalis, July 2008

This report describes a program conducted by MWQP to install and operate laboratory-grade ion chromatography process anion analyzers at key Delta locations. It also describes how the analyzers were installed and operated, as well as the results from the QA/QC procedures. The analyzers were also evaluated for reliability.

DSM2 Extension for the California Aqueduct, South Bay Aqueduct, and Delta-Mendota Canal Phase 2 Analysis, June 2008

This report was prepared by a consultant for MWQP and the SWP drinking water contractors. The report summarizes the Phase 2 analysis of the DSM2 Extension for the California Aqueduct, South Bay Aqueduct, and DMC systems (DSM2

Aqueduct Model). The Phase 1 model was constructed and calibrated for flow and water quality for a 3-year period (January 1, 2000, through December 31, 2003). The model includes the main branch of the California Aqueduct, the East Branch through Silverwood Lake, the West Branch through Pyramid Lake, the South Bay Aqueduct through the Santa Clara Tank, and the DMC to the Mendota Pool. The second phase of development and analysis of the DSM2 Aqueduct Model included the following four tasks:

- Task 1: Tracer tests for determination of travel time;
- Task 2: Analysis of San Luis Reservoir and O'Neill Forebay;
- Task 3: Development of a planning simulation mode; and
- Task 4: Development of a forecast mode implementation plan.

The purpose of Phase 2 was to investigate ways to improve the DSM2 Aqueduct Model developed in Phase 1 and extend the usefulness of the tool through development of a planning mode and a forecasting mode application.

Special Studies

Besides examining the relative contributions of different organic carbon sources in the Delta, MWQP has also examined the loads contributed by different sources, both in an urban and agricultural context. In 2004, the MWQP program, in partnership with the Dry Creek Conservancy, received Proposition 13 and CALFED grant funding to assess water quality and loads of parameters of concern from an urban drainage in metropolitan Sacramento. MWQP's sampling efforts focused on the Natomas East Main Drainage Canal (NEMDC; also known as Steelhead Creek), which receives water from one of the fastest developing regions in the State. Analysis of loading data found that the daily load from Steelhead Creek represented as little as 3 percent of the load in the Sacramento River during the dry season and up to 93 percent of the river load during the wet season. Together with an analysis of loading from the Sacramento Regional Water Treatment Plant, the data indicate that urban runoff and wastewater discharges have a substantial impact on the Sacramento River at Hood and may have been underestimated in previous synoptic estimates of urban loading. The study report and other MWQP publications can be found on the DWR website at http://www.water.ca.gov/publications/.

A portion of this study was also published in collaboration with University of California, Riverside, in the American Geophysical Union's journal, *Water Resources Research*.

Bryte Chemical Laboratory

Established in 1951, Bryte Chemical Laboratory is DWR's primary analytical laboratory. Its main function is to analyze drinking, surface and waste water and groundwater, for the various water quality programs within DWR. Since 1990, the laboratory has been certified biannually by the DPH Environmental Laboratory Accreditation Program (ELAP) to perform water quality analyses following EPA or American Water Works Association (AWWA) analytical methods. This certification allows the laboratory to perform regulatory work that can be used for compliance purposes. 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 standard minerals, nutrients, metals, pesticides, herbicides, volatile organic compounds, and many other chemical constituents.

In 2008, the laboratory upgraded its capability and capacity to detect and analyze chlorophyll *a* and pheophytin *a* in

water samples with the purchase of a fully automated and computer controlled Perkin Elmer Lambda 35 UV/VIS spectrometer instrument system. The spectrometer is equipped with a new technologically advanced dual-beam detection system that generates data that are highly stable, accurate, and reproducible.

The 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. These contracts are used to perform analyses that are beyond the capability and capacity of the laboratory, such as solids and fish tissues. The laboratory works in conjunction with the DWR Municipal Water Quality Program QA/QC Section to replace these contracts as they expire each fiscal year. On July 1, 2008, WECK Laboratory, located in the City of Industry, was awarded the contract for water analysis worth $1.5 million over 3 years.

SWP security and protection has continued to be a primary goal for DWR since the terrorist attacks of September 11, 2001. To help protect the SWP from biochemical and chemical agents, the laboratory continues to be an active member in a group of laboratories called the California Association of Mutual Aid Laboratories Network (CAMAL Net) headed by DPH. The laboratory network's main objective is to voluntarily assist DPH in the analysis of chemical agents in water quality samples should a natural disaster or terrorist event occur in California. The assistance is only required should the analytical capacity of DPH be exceeded or to confirm the presence or absence of chemical agents in water quality samples provided by DPH. In 2007, Bryte Laboratory was classified as a Level II participating laboratory in the CAMAL Net organization. Level II only allows the laboratory to receive samples that are prescreened and determined nonhazardous to laboratory personnel.

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. Figure 4-2 shows the water quality monitoring and compliance sampling locations.

Blacklock Restoration Project

DWR received CALFED Ecosystem Restoration Program grant funds in 2001 to acquire 70 acres of what is referred to as the Blacklock property in December 2003. DWR, in cooperation with Reclamation, DFG, USFWS, and SRCD, implemented the Blacklock Restoration Project (location shown on Figure 4-2). This project restored diked, managed wetlands to tidal wetlands. In July 2006, a natural breach in the levee occurred. It was determined that the planned breach should still be constructed to allow for full tidal flow and optimum sediment transportation. The planned breach construction occurred on October 3 and 4, 2006.

The project goals and objectives are to: (1) restore the area to a fully functioning, self-sustaining marsh ecosystem created through restoration of natural hydrologic, sedimentation, and biological processes; (2) increase the area and contiguity of emergent wetlands providing habitat for tidal

Figure 4-2 Compliance and Monitoring Stations and Water Management Facilities in the Suisun Bay and Marsh

Suisun Marsh Habitat Management, Preservation, and Restoration Plan (Suisun Marsh Plan)

On March 2, 1987, the Department of Water Resources (DWR), the Bureau of Reclamation (Reclamation), the Department of Fish and Game (DFG), and the Suisun Resource Conservation District (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 Central Valley Project (CVP) and State Water Project (SWP) on wetlands in the marsh, as well as a portion of the adverse effects of other upstream diversions. This objective is primarily accomplished by operation of large-scale facilities in the marsh to maintain a dependable supply of adequate quality water within Suisun Marsh channels. These large-scale facilities are currently operated and maintained by DWR. They include the Suisun Marsh Salinity Control Gates, Roaring River Distribution System, Morrow Island Distribution System, and Goodyear Slough Outfall (see Figure 4-2).

On August 4, 1995, the Suisun Marsh Coordinators, representing the four agencies party to SMPA, began discussions directed at updating the agreement. Representatives from Reclamation, DWR, DFG, and SRCD established a negotiating team, technical group, drafting committee, and environmental documentation team. Beginning in September 1995, the SMPA negotiating team met monthly and made significant progress developing the basis to amend the agreement. Representatives from the SWP and CVP water contractors actively participated in the negotiations. The Revised SMPA, dated June 20, 2005, reflects future hydrologic and salinity conditions in the Suisun Marsh as prescribed by the State Water Resources Control Board (SWRCB) 1995 Water Quality Control Plan. It places more emphasis on improving water and land management practices and facilities operations, in partnership with the local managed wetlands landowners.

In 2001, the Suisun Principal Agencies (Principal Agencies), a group of agencies with primary responsibility for Suisun Marsh management, directed the formation of a charter group to develop a plan for the marsh that would balance the needs of the CALFED Bay-Delta Program (CALFED), the SMPA, and other plans by protecting and enhancing existing land uses, and existing waterfowl and wildlife values. The Principal Agencies are the U.S. Fish and Wildlife Service (USFWS), Reclamation, DFG, DWR, the National Marine Fisheries Service (NOAA Fisheries), SRCD, and CALFED.

The Principal Agencies directed the formation of a charter group to develop the Suisun Marsh Habitat Management, Preservation, and Restoration Plan, known as the Suisun Marsh Plan (SMP). In addition to the Principal Agencies, the charter group includes other regulatory agencies such as the U.S. Army Corps of Engineers (Corps), the San Francisco Bay Conservation and Development Commission (BCDC), and the State and Regional Water Quality Control Boards.

Development of the SMP has been a multiagency, collaborative process to design a plan that will balance the goals and objectives of CALFED, SMPA, and other management and restoration programs within the Suisun Marsh in a manner that is responsive to

the concerns of all stakeholders and is based upon voluntary participation by private landowners. Landowners in the marsh and other agencies that have a jurisdictional or other stake in the outcome of the SMP have been engaged in the process.

Overall, the SMP is intended to balance the benefits of tidal wetland restoration with other habitat uses in the marsh by evaluating alternatives that provide for a politically acceptable change in marshwide land uses, such as salt marsh harvest mouse habitat, managed wetlands, public use, and upland habitat. The SMP will be a comprehensive plan designed to address the various conflicts regarding use of marsh resources, with a focus on achieving an acceptable multistakeholder approach to the restoration of tidal wetlands and the management of wetlands and their functions. As such, the SMP is intended to be a flexible, science-based, management plan for the Suisun Marsh, consistent with the Revised SMPA and CALFED. It is also intended to set the regulatory foundation for future actions.

marsh species; and (3) assist in the recovery of at-risk species. The final restoration plan for the project was published in June 2007.

DWR has begun to implement a 10-year monitoring program at the Blacklock site. Monitoring is being done in cooperation with State and federal agencies. There are 15 parameters being monitored, including sediment accretion, channel network evolution, vegetation development, water quality, methyl mercury, and avian use.

For more information about the Blacklock Restoration Project, visit the Suisun Marsh Program website at http://www.water.ca.gov/suisun/restoration.

Revised Suisun Marsh Preservation Agreement

In 1987, DWR, Reclamation, DFG, and SRCD signed the Suisun Marsh Preservation Agreement (SMPA). SMPA contains provisions for actions to control channel water and soil salinity to mitigate impacts of the SWP, CVP, and other upstream diverters on managed wetlands in Suisun Marsh. A Revised SMPA and Revised Mitigation and Monitoring Agreement were signed in 2005 to make channel water salinity requirements consistent with D-1641 and replace additional large-scale water management facilities with landowner water and management activities to meet the SMPA objectives in the western marsh.

The Revised SMPA includes the following actions: operate the initial facilities and Suisun Marsh Salinity Control Gates; meet channel water salinity standards consistent with D-1641; implement a water manager program; provide portable pumps; update Individual Ownership Adaptive Management Habitat Plans; establish a drought response fund; and replace turnouts on the Roaring River Distribution System.

During 2008, SRCD continued to implement these activities.

The Suisun Marsh Habitat Management, Preservation, and Restoration Plan provides funding for private landowner wetland management activities.

Suisun Marsh Habitat Management, Preservation, and Restoration Plan

During 2008, work continued on the Suisun Marsh Habitat Management, Preservation, and Restoration Plan (Suisun Marsh Plan [SMP]; see sidebar). High-level representatives from the Suisun Marsh Charter Group agencies met on a monthly basis to review potential actions and develop alternatives to be included in the SMP. The "writing group," a team of staff-level representatives of some of the Principal Agencies, also met monthly to develop impact analyses for the environmental impact statement (EIS)/environmental impact report (EIR). The SMP EIS/EIR is being developed in coordination with the recommendations of the Delta Vision Process and with information and evaluation provided by the Delta Risk Management Study and other regional programmatic processes. Reclamation and USFWS have agreed to serve as joint National Environmental Policy Act lead agencies, and DFG has agreed to serve as the California Environmental Quality Act lead agency. The "writing group" is developing an adaptive management plan that will be an appendix to the EIR/EIS. It is anticipated that a draft EIR/EIS will be available sometime in 2010.

Operation and Maintenance

Initial Facilities Maintenance

Several facilities constructed by DWR operate in the Suisun Marsh. They are identified in the *Plan of Protection for the Suisun Marsh* (1984) 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. The location of the initial facilities and the gates is shown on Figure 4-2.

Morrow Island Distribution System Fish Screen and Alternatives

MIDS is an interior ditch bordered by levees that was created to distribute water to managed wetlands. Relatively less saline water is taken from Goodyear Slough in the west through water control structures that transport the water into a ditch. Water is then distributed to managed wetlands through private landowner water control structures along the ditch. Water not used by the landowners exits into Grizzly Bay through water control structures in the east. MIDS is owned by Reclamation and DWR. DWR operates and maintains this facility.

Based on previous study results, a fish screen at MIDS would likely have negligible benefits to sensitive fish populations (see Bulletin 132-07, Chapter 4, Water Quality). DWR and Reclamation are proposing to fulfill the outstanding terms and conditions of the USFWS 1997 BO for the MIDS maintenance project by acquiring and protecting, in perpetuity, aquatic habitat in Suisun Marsh. (For additional information about the BO, see Bulletin 132-08.) The status of this proposal remains on-going without new notable developments or changes.

Suisun Marsh Salinity Control Gates

The Suisun Marsh Salinity Control Gates (SMSCG) are operated as needed to meet salinity standards. When they are not in operation, they are placed in an open position to minimize fish concerns related to predation and impedance. In the past, installation or removal of the flashboards and operation of the gates has varied due to salinity conditions, fisheries agencies' requests for sensitive species concerns, or special studies and repairs.

Status of SMSCG in 2007–2008. During the 2007–2008 control season (October 2007 through May 2008), the flashboards were installed with the boat lock gates open per the NOAA Fisheries agreement for fish passage, and the SMSCG began operation on November 30, 2007, due to salinity concerns in the marsh. The SMSCG continued to operate until December 16, 2007. Thereafter, the three radial gates remained open between December 17, 2007, and April 29, 2008, due to low salinity levels as a result of storms during January through March 2008. Although salinity increased in the marsh after March 2008, the levels remained low enough to meet monthly standards for the remainder of the control season. DWR removed the flashboards on April 30, 2008.

Monitoring

Water Quality and Compliance

Salinity levels during the 2007–2008 control season were below monthly standards except for November 2007 when the D-1641 monthly standard was violated by 0.2 mS/cm as a result of a gate operational delay. Deficiency standards were in effect in February 2008 as defined by D-1641, condition number two. As such, only the S21 and S42 compliance stations apply to the monthly deficiency standards defined in D-1641. Details of salinity levels in the marsh are available in the monthly report entitled, *Suisun Marsh Monitoring Program Channel Water Salinity Report*, at: http://www.water.ca.gov/suisun/dataReports.

Suisun Marsh Expenditure History

Suisun Marsh expenditures and reimbursements administered by DWR for calendar years 1968 through 2008 are summarized in Table 4-6. From 1968 through December 31, 2008, DWR disbursed more than $127.6 million of SWP funds for planning, design, environmental documentation, construction, maintenance, monitoring, mitigation, and permit compliance in support of implementing the Plan of Protection for the Suisun Marsh through the SMPA and for meeting standards set by SWRCB. Reclamation has reimbursed DWR about $48.3 million (38 percent), and the State's General Fund has reimbursed about $9.5 million (7 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 4-6 for DWR's up-front payments, Reclamation reimbursements, General Fund reimbursements, and DWR's cumulative expenditure balance.

Table 4-6 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]	Reclamation Invoice Payment [5]	Interest Payment Credited Back to Contractors [6]	Net SWP Costs [2] through [6] [7]	Recreation Costs[c] [8]	SWP Water Contractors' Costs [7] minus [8] [9]
1968	10,571					10,571	359	10,212
1969	34,181					34,181	1,162	33,019
1970	23,343					23,343	794	22,549
1971	1,042					1,042	35	1,007
1972	47					47	2	45
1973	0					0	0	0
1974	0					0	0	0
1975	2,709					2,709	92	2,617
1976	32,960					32,960	1,121	31,839
1977	37,475					37,475	1,274	36,201
1978	350,831					350,831	11,928	338,903
1979	3,660,099					3,660,099	124,618	3,535,481
1980	5,005,759					5,005,759	170,772	4,834,987
1981	2,964,974					2,964,974	101,311	2,863,663
1982	2,955,705			(2,500,000)		455,705	101,111	354,594
1983	2,754,094					2,754,094	93,643	2,660,451
1984	2,418,344					2,418,344	82,388	2,335,956
1985	2,332,773					2,332,773	79,432	2,253,341
1986	6,495,322					6,495,322	220,843	6,274,479
1987	13,600,701					13,600,701	462,424	13,138,277
1988	7,456,364			(17,368,725)[b]	(2,039,752)	(11,952,113)	253,516	(12,205,629)
1989	2,341,960	(9,478,000)	6,634,600	(1,219,691)[b]	(283,857)	(2,004,988)	79,643	(2,084,631)
1990	3,030,010			(695,450)		2,334,560	101,460	2,223,100
1991	6,223,042			(2,925,429)		3,297,613	210,454	3,087,159
1992	2,737,259			(1,174,655)		1,562,604	91,951	1,470,653
1993	2,979,255			(238,130)		2,741,125	99,897	2,641,228
1994	3,192,213			(1,962,549)		1,229,664	107,281	1,122,383
1995	2,721,978			(647,138)		2,074,840	91,218	1,983,622
1996	3,391,678			(1,482,396)		1,909,282	113,244	1,796,038
1997	3,634,267			(1,520,219)		2,114,048	121,132	1,992,916
1998	5,342,834			(1,107,501)		4,235,333	177,132	4,058,201
1999	8,867,742			(2,696,200)		6,171,542	301,424	5,870,118
2000	2,857,534			(3,300,053)		(442,519)	98,145	(540,665)
2001	2,623,227			(444,009)		2,179,218	89,494	2,089,724
2002	3,752,486			(791,319)		2,961,167	124,386	2,836,780
2003	3,258,583			(2,389,979)		868,604	107,566	761,038
2004	2,874,629			(952,940)		1,921,689	94,885	1,826,804
2005	3,940,876			(1,409,296)		2,531,580	130,049	2,401,531
2006	5,790,721			(868,449)		4,922,272	193,303	4,728,968
2007	4,086,170			(939,879)		3,146,291	134,850	3,011,441
2008	3,807,087			(1,670,278)		2,136,809	125,119	2,011,690
Total	**127,590,845**	**(9,478,000)**	**6,634,600**	**(48,304,285)**	**(2,323,609)**	**74,119,551**	**4,299,461**	**69,820,090**

[a] Under Assembly Bill 1442, the General Fund paid 20% of the Suisun Marsh costs through June 1988, which totaled $9,478,000. This payment included $2,843,400, which represents 7% of the costs through June 1988 paid by the General Fund. This amount has reduced the costs billed to the SWP water contractors. The remaining $6,634,600 received from the General Fund represents DWR's recreation project purpose share of 14%.

[b] Excludes interest payments made by Reclamation.

[c] Allocation factors for capital recreation costs have changed from 14% to 3.4% and operations and maintenance and operations and maintenance recreation costs from 14% to 3.3%.

Chapter 5
Local Assistance

Rows of crops require irrigation.

Significant Events in 2008

In 2008, the Department of Water Resources (DWR) awarded 50 local public grants awards, under the Local Groundwater Assistance (LGA) grant program. A total of $10.7 million ($6.4 million from Proposition 50 and $4.3 million from Proposition 84) was used to fund projects that aided groundwater (GW) management including new conveyance, GW storage, and GW extraction.

The Water Use Efficiency (WUE) Branch continued to provide technical assistance on how to prepare an urban water management plan (UWMP). DWR received 22 urban water management plans.

DWR initiated three new cooperative agreements with the Agricultural Water Management Council (Ag Council).

In the spring of 2008, staff made a presentation to the Central Valley Salinity Alternatives for Long-term Sustainability (CV-SALTS) Technical Advisory Committee on the salt loads exported into the San Joaquin Valley by the Cental Valley Project (CVP) and the State Water Project (SWP).

From January through December of 2008, the Environmental Review Section screened 4,170 State Clearinghouse documents.

Information in this chapter was contributed by the Division of Statewide Integrated Water Management, the Division of Environmental Services, and the Division of Integrated Regional Water Management.

The Department of Water Resources (DWR) manages the Davis-Grunsky Act Program, water use efficiency, 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) water 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 recreation grant 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 Use and Efficiency Branch in the Division of Statewide Integrated Water Management (DSIWM) activities include providing technical assistance to local agencies; managing water use efficiency financial assistance programs; managing the California Irrigation Management Information System (CIMIS); reviewing, tracking, and reporting on urban and agricultural water management plans; and managing drainage and water recycling/desalination projects. The Division of Planning and Local Assistance (DPLA) and the Office of Water Use Efficiency and Transfers (OWUET) envisioned a new organization, and the reorganization process was initiated in September 2008. The transition to the interim organization began in December 2008, and is planned to become effective in July 2009.

California Irrigation Management Information System

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.

In 2008, DWR's CIMIS network remained at 130 stations, with approximately 70 percent of the stations on the network belonging to local cooperators. The demand for CIMIS data has been increasing steadily since its establishment in 1982. In 2008, the number of registered data users had grown from 661 in 1989, to more than 20,000.

Approximately 555,000 reports were generated from the database with more than 30,000,000 visits to the website (http://wwwcimis.water.ca.gov) for information in 2008. Users can register online, access archived data, download data files, and peruse content about the CIMIS program and other helpful metadata and information. A separate but concurrently operating database and web application is maintained for redundancy to protect the data.

Other ongoing CIMIS enhancements include the nonideal site weather station network study and the incorporation of the Geostationary Operational Environmental Satellite (GOES) model producing statewide daily reference evapotranspiration (ET_o) maps. In addition, staff is updating CIMIS brochures, evapotranspiration calculations, other methods of data acquisition and dissemination, data quality refinements, and providing technical assistance.

Recycling and Water Desalination Branch

The goal of DSIWM's Recycling and Water Desalination Branch is to improve water use efficiency by promoting increased use of nonconventional water sources—namely recycled water and desalinated brackish and ocean waters—through planning, technical, and financial assistance. As part of a balanced water portfolio, nonconventional water sources will help meet existing and future water supply and environmental needs. The branch's mission consists of increasing the safe and beneficial use of recycled water, advancing energy-efficient treatment and desalination technologies, and encouraging economically and environmentally acceptable use of desalinated brackish and ocean waters.

In 2008, Recycling and Water Desalination Branch activities included the following:

- provided timely water recycling and desalination information reports;
- continued to develop new knowledge on water recycling and desalination activities and projects in California;
- initiated essential water recycling projects and activities in collaboration with the WateReuse Research Foundation, University of California (UC) Santa Cruz, UC Santa Barbara, and the Bureau of Reclamation (Reclamation);
- participated and assisted the WateReuse Research Foundation in developing a national database on water recycling facilities and recycled water production and uses;
- continued to manage grant agreements for 48 desalination projects awarded in the first and second cycles of the Proposition 50 desalination grant program. The funded projects include: 14 research and development projects, 15 pilots and demonstrations, 12 feasibility studies, and 7 construction projects;
- continued to provide technical knowledge on water recycling and water desalination issues, including responses to questions from policy makers, regulators, State and local agencies, and the public on permitting issues; public health regulations; types, locations, and amounts of water reuse occurring; and desalinated water production and use;
- represented DWR in several meetings, workshops, and conferences (e.g., Multi-State Desalination Summit in Las Vegas, NV; Water Education Foundation Future Water Leader Group Learning Workshop in Sacramento; Bay Area Water Forum) and published technical papers on water recycling and desalination;
- made presentations about California's water recycling and desalination activities to DWR's visitors;
- assisted the California Building Standards Commission's staff to address comments from the public as well as the Green Building Code Advisory Committee concerning proposed water use efficiency standards and the use of recycled water and graywater in green buildings. The standards are to be included in the proposed California Green Building Standards Code as part of Title 24;
- assisted with the implementation of several Recycled Water Task Force recommendations;
- participated in the development of a "Salt Management Guide" addressing salt management issues specific to the use

of recycled water in landscape irrigation and provided appropriate management techniques;

- served on the Water-Energy Committee of the California Sustainability Alliance and assisted with the development of a study entitled "The Role of Recycled Water in Energy Efficiency and Greenhouse Gas Reduction." The study will estimate the potential energy and carbon benefits of accelerating and increasing the development and use of recycled water in the State of California;
- served on the several project advisory committees to guide various desalination projects managed by WateReuse Foundation and Water Research Foundation (formerly the American Water Works Association Research Foundation or AwwaRF);
- published six articles in DWR's *Water Conservation News* publication on various water recycling and water desalination issues;
- participated in Reclamation's Brine-Concentrate Management Study. The study aimed to survey the current state of Southern California's brine-concentrate treatment and disposal facilities, regulatory requirements, and emerging/secondary constituent issues; evaluate and compare treatment and disposal methods that could meet forecasted trends in brine-concentrate management for coastal and inland areas; and provide a comparative review of recommended projects for coastal and inland areas to meet expected brine-concentrate treatment and disposal requirements; and
- contributed to the California Desalination Planning Handbook, published February 2008. The handbook was produced in collaboration with the California State University, Sacramento, Center for Collaborative Policy. It included guidelines for developing environmentally acceptable water desalination projects meeting regulatory and permitting requirements. The document is an important resource for project proponents and communities. The planning process outlined in the handbook is intended to identify and address siting, regulatory, technical, environmental, and other issues, which should be considered in determining whether and how to proceed with a desalination project. The handbook is available on the DWR desalination website at http://www.water.ca.gov/desalination/.

Proposition 50 Water Use Efficiency Grant Program

Proposition 50 provided approximately $105 million for the Water Use Efficiency grant program for 3 years. The grant program provided funds for implementation of all urban Best Management Practices (BMPs) and agricultural Efficient Water Management Practices (EWMPs) that would result in local, regional, and statewide benefits. The State benefits are water conservation, flow and timing, water quality, and energy, among other benefits.

A competitive proposal solicitation package (PSP) was developed for both grant cycles, along with a comprehensive review and evaluation of the project proposals. The PSP defines project benefits, eligible projects, eligible applicants, funding caps, reporting, and other contract requirements. Both grant cycles were two-step processes. Applicants were required to submit a Concept Proposal in Step 1, and successful Concept Proposals were invited to submit a Full Proposal in Step 2. All submittals were made on-line through the Financial Assistance Application Submittal Tool (FAAST).

In 2008, continuation of drought and urgency of dealing with urban water shortages led DWR to prepare, on a fast-track schedule, an urban emergency drought grant program. A PSP was released and proposals were submitted to DWR. After review and evaluation, 53 cooperative agreements were

developed. In this grant cycle, DWR made significant efforts to help disadvantaged communities.

Agricultural Water Management Plans

Throughout 2008, the Agricultural Water Management Council (Ag Council; 79 agricultural water suppliers and three environmental organizations) continued its efforts under the Memorandum of Understanding (MOU; efficient water management practices by agricultural water suppliers) to improve water use efficiency through implementation of efficient water management practices. The council recognizes and tracks water supplier water management planning and implementation of cost-effective efficient water management practices through a review and endorsement procedure. The signatory agricultural water suppliers voluntarily commit to implement locally cost-effective management practices. Agricultural water suppliers represent more than 4.6 million retail irrigated acres and a total of 5.86 million acres of agricultural land.

New Cooperative Agreements with the Ag Council

DWR initiated three new cooperative agreements with the Ag Council. The first agreement was to conduct three drought workshops for the agricultural water suppliers and growers. The second cooperative agreement is to help fund a project that will enable water suppliers to submit their water management plans online. A third cooperative agreement enables the Ag Council to provide technical assistance to the agricultural water suppliers to develop water management plans and implement efficiency measures.

Urban Water Management Plans

DWR received 22 urban water management plans in 2008. The 2005 Urban Water Management Plan (UWMP) Guidebook and DWR 2005 UWMP Review Sheets were posted on the Urban Water Management website and provided to urban water suppliers throughout the State. In addition, technical assistance for preparing a UWMP was available.

Assembly Bill 1420 Compliance

Assembly Bill (AB) 1420 (Chapter 628, Statutes 2007) amended the Urban Water Management Planning Act (Water Code Section 10610 et seq.) which requires, effective January 1, 2009, that the terms of, and eligibility for, any water management grant or loan made to an urban water supplier and awarded or administered by DWR, the State Water Resources Control Board (SWRCB), or the California Bay-Delta Authority (CBDA) or its successor agency (collectively referred to as "Funding Agencies"), be conditioned on the implementation of the water demand management measures (DMMs) described in the urban water management plan, as determined by DWR.

Water management grants and loans include programs and projects for surface water or groundwater storage, recycling, desalination, water conservation, water supply reliability, and water supply augmentation. This funding includes, but is not limited to, funds made available pursuant to Public Resources Code Section 75026 (the Integrated Regional Water Management Program).

AB 1420 required DWR, to consult with SWRCB and CBDA, in the development of eligibility requirements that consider the California Urban Water Conservation Council's (CUWCC) BMPs and alternative approaches that provide equal or greater water savings. This work was initiated during 2008 and draft AB 1420 compliance criteria were prepared for review and public comment.

Agricultural Drainage Program

The Agricultural Drainage Program's mission is to seek in-valley solutions to the surface and subsurface agricultural drainage water problems in the State, particularly the San Joaquin Valley, and to 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. These activities include:

- developing, educating, and promoting the use of Integrated On-Farm Regional Drainage Management Systems in the San Joaquin Valley;
- providing technical assistance and collaborating with water and drainage districts and local entities to reduce and control surface and subsurface agricultural drainage water;
- maintaining research and demonstration projects to develop drainage reuse systems, including development of cost-effective, salt-tolerant crops (including energy crops), drainage treatment, disposal technologies, and salt separation and utilization;
- monitoring the quality and distribution of shallow groundwater levels in drainage-impaired areas of the San Joaquin Valley;
- promoting 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;
- maintaining programs to help improve water quality in the San Joaquin River; and
- providing grants for control of agricultural drainage water and the reduction of its toxic elements, using Propositions 13, 50, 84, 204, and DWR project funding.

The Agricultural Drainage Program is divided into two major activities: management of Proposition 204 (Drainage Management 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 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 water management 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 program's goal is to develop methods of using and concentrating salts and reducing trace element contaminants in the State's subsurface agricultural drainage water.

When bond funds are available, DWR solicits proposals from public entities seeking funding for Proposition 204 eligible activities. A technical review committee reviews and screens the proposals. DWR 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. Due to fiscal constraints, there were no solicitations for proposals in 2008.

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, and the San Joaquin River Water Quality Improvement Program.

Drainage Monitoring and Evaluation

Drainage monitoring and evaluation provides information on the quality, quantity, and movement of drainage water. In 2008, the following activities were conducted:

- Monitoring shallow groundwater levels and flows, and collecting water quality data for drainage water from Westside San Joaquin Valley tile drain sumps. In Kern County, groundwater levels are measured quarterly for approximately 200 wells.
- 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 collection of groundwater, soil, and operational data for the integrated on-farm drainage management project at Red Rock Ranch (RRR) in western Fresno County.
- 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 (http://www.water.ca.gov/drainage/).

Drainage Treatment

Development of Membrane Treatment of Agricultural Drainage Water. DWR continues to fund research on the use of membrane treatment for desalting agricultural drainage water under a multiyear contract with the UCLA Department of Chemical Engineering.

Grassland Area Farmers: Westside Drainage Plan. DWR continues to participate in a multiagency cooperative effort with Grassland Area Farmers to comply with the objectives of the Central Valley Regional Water Quality Control Board's (CVRWQCB) *Water Quality Control Plan (Basin Plan) for the Sacramento River Basin and the San Joaquin River Basin*. One of the key components of the plan is drainage water treatment.

Agricultural Subsurface Drainage: Salt Recovery, Purification, and Utilization. DWR continues to support investigations of processes for concentrating and purifying drainage salts for marketing purposes.

Selenium Removal from Agricultural Subsurface Water. DWR continues to participate in cooperative research with the University of California Salinity/Drainage Program (http://ucanr.org/sites/wrc/). Activities include a multiyear study for mitigating selenium eco-toxic risk in agricultural drainage systems.

Integrated On-Farm Drainage Management

DWR San Joaquin District's Integrated On-Farm Drainage Management (IFDM) became a permanent activity when the Integrated Drainage Management Section was created in 2001. Its objective is to provide technical assistance on 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 they reduce the volume of drainage water. The program is investigating the use of accelerated evaporation systems (solar evaporators) for zero-discharge systems and evaluating 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 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 RRR;
- participate in joint investigations with Reclamation to determine the feasibility of nanofiltration as a pretreatment for desalination of subsurface drainage water using reverse osmosis (RO) 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 RRR by California State University, Fresno, 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 the U.S. Department of Agriculture (USDA) in an investigation to determine crop production using an active drainage management system that employs *in situ* 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 RRR. 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 RRR 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; and
- improving enhanced evaporation features of the pilot solar evaporator.

DWR continues to collect data on evaporation rates of subsurface drainage water using dyes, nozzles, screens, and other devices and materials. The data are used to develop design specifications for evaporating and recovering salts from drainage water to determine optimum weather parameters for operating the water solar evaporator, and to study methods to minimize and control potential salt drift. A white paper summarizing results of previous research was released titled *Solar Evaporator for Integrated on-Farm Drainage Management System at Red Rock Ranch, San JoaquinValley, California.*

DWR continues to assist Reclamation with performing project tasks for the HydroGeoSphere project at RRR. To facilitate development of the conceptual model, DWR staff collected topographic survey data of RRR and the surrounding areas 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.

DWR is continuing research on *Prosopis alba,* an Argentine mesquite tree, in cooperation with the Forestry Research Station at Catholic University of Santiago del Estero (CUSE) in Argentina. *Prosopis alba*, which originated from the plantations of CUSE, 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 potential for investment of the agriforestry component in an IFDM system. The lumber is coveted by the furniture industry in Argentina and has a value of $1,000 per ton of sawn lumber. There were a number of trees that were planted at several drainage-impaired locations within the Westside of the San Joaquin Valley. DWR has partnered with the Westside Resource Conservation District to monitor the growth and performance of the trees. After the planting trial, a group of trees with the best salt and boron tolerance qualities will be selected for final testing.

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

Central Valley Salinity Management Program

In 2006, the CVRWQCB and SWRCB initiated a comprehensive effort to address salinity problems in California's Central Valley and adopt long-term solutions that would lead to enhanced water quality and economic sustainability. The Central Valley Salinity Alternatives for Long-term Sustainability (CV-SALTS) is an effort to develop and implement a comprehensive salinity management program. The CV-SALTS' goal is to maintain a healthy environment and a good quality of life for all Californians by protecting our most essential and vulnerable resource: water. DWR is involved in the process by providing expertise in salinity management through participation in the committees and activities of the Central Valley Salinity Policy Group. This group provides guidance and technical support on specific issues through various committees (Technical Advisory Committee, Social and Economic Impact Committee, and Public Education and Outreach Committee) and overall direction and management (Executive Committee) for the development of a comprehensive Central Valley salinity management plan.

In spring 2008, DWR staff made a presentation to the CV-SALTS Technical Advisory Committee on the Salt Loads Exported into the San Joaquin Valley by the Central Valley Project (CVP) and the SWP.

Drainage Reduction and Reuse Program

DWR's Drainage Reduction and Reuse Program 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.

Environmental Services

DWR's South Central Region 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 management of drainage water. Environmental activities include the following:

- RRR research projects that involve required biological monitoring activities in accordance with Waste Discharge Requirements permits;
- helping landowners locate information required 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 (GPS) technology, which is then imported into a geographic information system (GIS) format linked to a database created to track key information associated with development of vegetation plots;
- responding to information requests from landowners seeking a better understanding of CEQA and National Environmental Policy Act (NEPA) public review process, so they can provide meaningful comments on upcoming State and federal drainage-related projects; and
- reviewing quarterly and annual environmental monitoring reports related to evaporation pond operation and investigation.

Wetlands Study. As per CVRWQCB data indicate wetlands discharges have contributed about 9 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 the Central Valley Project Improvement Act (CVPIA), Environmental Water Account (EWA), and other programs. Timing of wetlands 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 wetlands management practices.

Research is underway 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 timing of wetlands discharges when assimilative capacity is available. In addition to funds provided by CALFED for the study of the *Effect of Delayed Wetlands Drawdown on Moist Soil Plants*, 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 Management Subaccount).

DWR's South Central Region Environmental Services Section, in a collaborative effort with DFG and other entities, is collecting biological data in seasonal San Joaquin Basin wetlands within the Grasslands Ecological Area. Information collected will be used to determine management actions that will create the opportunity for blending saline, west-side and agricultural return flows with high-quality east-side reservoir releases into the San Joaquin River. The objective is to improve compliance with State water quality objectives while protecting the integrity of the wetlands ecosystem.

Wetlands managers typically begin draining managed wetlands (a primary source of saline discharge) in mid-to-late March at the same time farmers need relatively high- quality water for irrigation of salt-sensitive crops. However, modifying water release to a later drawdown

date (mid-to-late April) during the San Joaquin River's assimilative capacity, could be detrimental to the health of the wetlands ecosystem. Timing and duration of drawdown is planned for optimum germination and seed production of swamp timothy (*Crypsis schoenoides*), a plant that is widely managed for, and preferentially selected by, some waterfowl and shorebirds.

Swamp timothy seed production is being estimated through soil core sampling. Six-paired wetlands sites are being studied to compare the potential changes in wetlands vegetation associated with a late drawdown date. Sample collection will be taken from fall 2006 through spring 2009. Meetings were conducted with staff from the Grassland Water District and DFG. Scientific sampling, which began in the fall of 2007, continues.

San Joaquin River Water Quality Improvement Program

DWR's 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 SWP water contractors. These efforts are intended 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.

Specific efforts include the West Side Regional Plan, Reclamation's San Luis Drainage Feature Reevaluation to provide drainage service to the San Luis Unit of the CVP, and the IFDM program maintained by DWR and collaborating agencies.

On-farm and Regional Drainage Management Activities. Drainage management activities involving source control and drainage reuse have proven effective in reducing salt loads in the San Joaquin River. This is demonstrated by the efforts of the Grassland Area Farmers on the Grassland Bypass Project (GBP). Since the implementation of the GBP, drainage discharges have decreased from 58,000 af to about 16,000 af, and salt loads have been reduced from 210,000 tons to 67,000 tons. The reductions are possible because DWR funded, through Proposition 13, an important GBP component, the San Joaquin River Improvement Project (SJRIP). It consisted of about 4,000 acres of lands dedicated for reuse of subsurface drainage water generated by Grassland Area Farmers to grow salt-tolerant crops. In 2008, DWR funded, through Proposition 50, an expansion of the SJRIP to 6,000 acres. DWR continues to provide technical assistance to continue improving and developing this important part of the GBP project.

Agricultural Drainage Program staff have been working with the Grassland Area Farmers to help them reduce subsurface agricultural drainage water discharges into the San Joaquin River.

Real-time Water Quality Monitoring Program. The Real-time Water Quality Monitoring Program (RTWQMP) collects flow, electrical conductivity (EC), and temperature data from several satellite-linked and web-accessible stations on the mainstem of the San Joaquin River and its tributaries. The information provided can be used by San Joaquin River water managers and stakeholders for improving management and coordination of eastside reservoir releases and agricultural and wetland drainage flows, 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.

Forecasting flow and salinity conditions on the San Joaquin River allows decision makers to take advantage of assimilative capacity of the river when available. Data collected from the network of monitoring stations is used with the San Joaquin River Input-Output Day (SJRIODAY) model to generate biweekly forecasts of salinity and flow conditions on the river near Vernalis and other upstream stations. DWR publishes the information weekly on its website. Figure 5-1 shows an example of the information generated.

In October 2007, DWR met with Reclamation, CVRWQCB, and other interested parties to establish the Real-time Management Partners. Throughout 2008, DWR worked closely and cooperatively with the partners to develop stakeholder interest in a real-time water quality management program, culminating in the first of a series of workshops, which is scheduled for January 2009. The goal of these workshops is to both educate the stakeholders to the potential opportunities and benefits of a real-time program, and to eventually formulate a coordinated management program in the San Joaquin River Basin.

Central Valley Project's San Luis Unit Drainage Resolution. Reclamation and the federal water contractors began a series of meetings to explore creative alternatives to providing drainage service. The concepts discussed included the potential of providing relief to

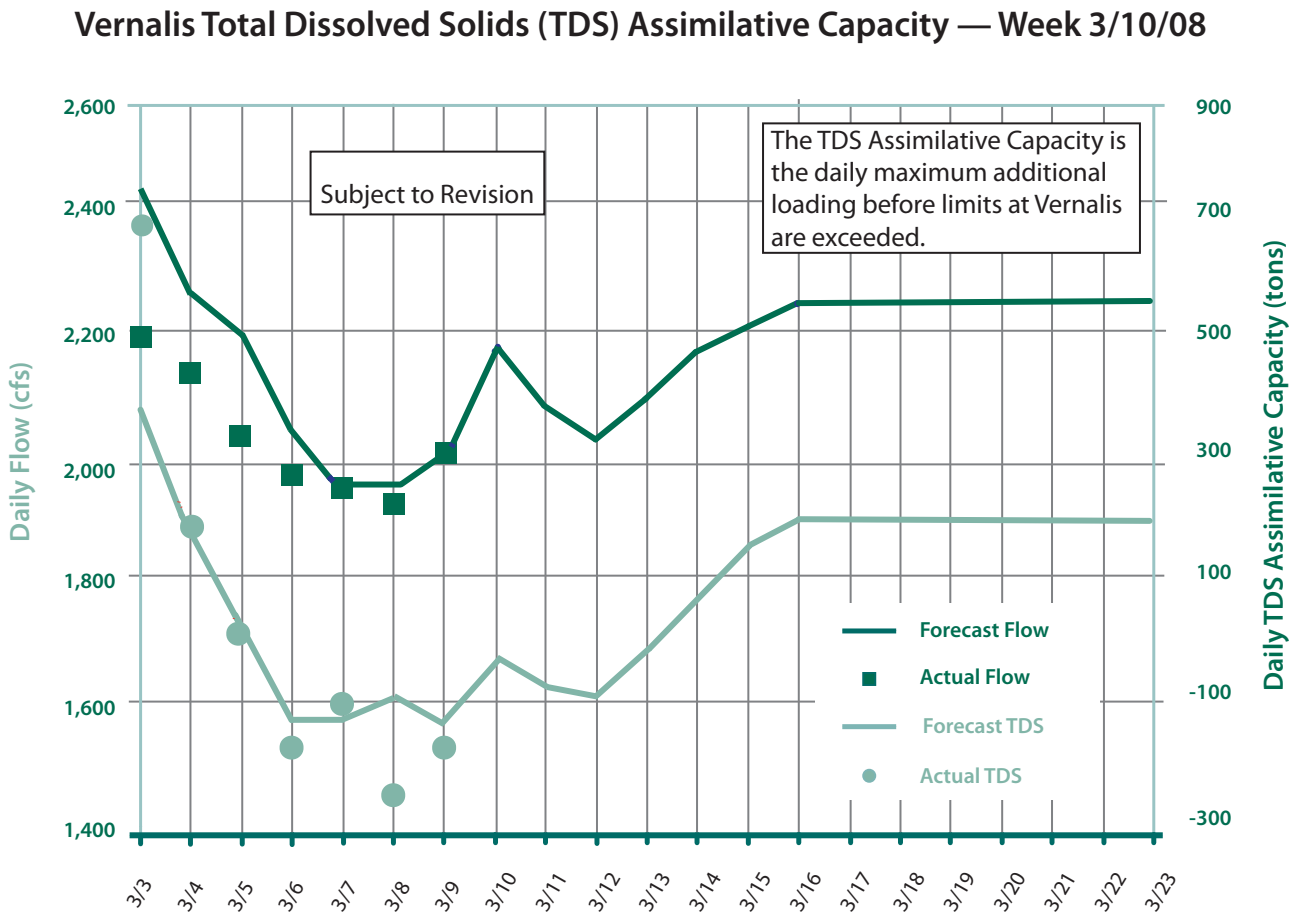

Figure 5-1 San Joaquin River Input Output Day Modeling Forecasts Example

Reclamation of their drainage obligation to the CVP San Luis Unit (Unit) in exchange for transferring a number of federal facilities and water rights. The concepts discussed included: assumption of drainage obligation; means of providing drainage; relief of capital obligations; transfer of water facilities; transfer of water rights; restrictions on exercise of Permit No. 12860; CVPIA restoration fund payments; points of delivery; environmental benefits; and effects on Reclamation's legal obligations including environmental compliance.

In March 2008, CVP's west side contractors presented a draft legislative proposal called: the San Luis Unit Drainage Resolution Act (Act). The purpose of the Act would be to promote continued sustainable agricultural productivity in the Central Valley of California by providing for timely, effective irrigation drainage in the Unit of the CVP and in areas adjacent to the Unit, through the transfer of irrigation drainage to local responsibility and control in exchange for certain concessions from Reclamation. Key elements under discussion included: payment requirements, revised contract terms and conditions, potential for capital relief, contract repayment obligations, a drainage implementation plan, and mechanisms to indemnify the United States. Throughout the year, various meetings were held to discuss and refine the proposals. However, no agreement was reached.

One of the results of the drainage settlement discussions was a request by a California Senator to the U. S. Fish and Wildlife Service (USFWS) to take the lead and prepare a monitoring plan for drainage service and allow other agencies the opportunity to comment. Within three months, USFWS prepared a draft plan, and DWR reviewed the document and submitted comments.

DWR is participating in the drainage resolution process to provide information to Reclamation on a technical level, as well as a policy level, to protect against potential adverse effects to DWR's water supply, water quality, shifting drainage liability to the State of California, and financial liability associated with federal/State facilities.

San Luis Drainage Feature Re-evaluation. The San Luis Drainage Feature Re-evaluation is a Reclamation project. The project purpose is to provide agricultural drainage service to the Unit to achieve a long-term, sustainable salt and water balance in the root zone of irrigated lands in the Unit and adjacent areas. A long-term sustainable salt and water balance is needed to maintain sustainable agriculture in the Unit and the region. The proposed federal action is to plan and construct a drainage system for the Unit. This proposed action would meet the needs of the Unit for drainage service and fulfill the requirements of a February 2000 Court Order.

In March 2008, Reclamation released the San Luis Drainage Feature Re-evaluation Feasibility Report. The purpose of the feasibility study was to determine if the proposed action was feasible and warranted federal implementation. The feasibility report presents an overview of the feasibility study, the selected project action alternatives analyzed for feasibility, the proposed facilities associated with the alternatives, and the resources necessary to formulate viable plans for the alternatives. It also presents the economic and financial analyses and the resulting findings, conclusions, and recommendations of the feasibility study.

The Agricultural Drainage Program staff provided assistance to Reclamation on technical issues.

Salinity Objectives in the South Delta. Staff from the Agricultural Drainage Program continued to participate with a DWR team in the SWRCB public process to review salinity objectives in the South Delta. Preparation for multiple SWRCB meetings

on the subject have included discussion of issues, available information, and funding and development and preparation of specific comments, documents, and presentations to provide to SWRCB in coordination with other organizations such as the State Water Contractors (SWC) Reclamation, CVP contractors, and the San Joaquin River Group Authority (SJRGA).

In November 2008, the SWRCB staff held a workshop to present and discuss the progress to date and planned next steps for the re-evaluation of southern Delta salinity objectives for agriculture in the San Francisco Bay/Sacramento-San Joaquin Delta. Participants had an opportunity to ask questions and provide additional information.

The agenda centered around a progress review of a crop salt-tolerance study. The study is being funded by DWR through the SWRCB. The study is of primary importance to DWR, since DWR is partially responsible for salinity compliance standards at three locations in the southern Delta.

American Society of Civil Engineers Agricultural Salinity Assessment and Management. Agricultural Drainage Program staff participated in updating Chapter 21 of the American Society of Civil Engineers (ASCE) Manual No. 71 *Agricultural Salinity Assessment and Management*, which was released in 1990. The manual integrates contemporary concepts and management practices for agricultural water and salinity problems. It consists of more than 28 chapters, written by multiple authors, and covers not only the technical and scientific aspects, but also the environmental, economic, and legal aspects of the topic.

Chapter 21 covers the treatment and disposal of subsurface drainage from irrigated lands, including technical aspects and current treatment technology research.

Management Agency Agreement between the CVRWQCB and Reclamation. Agricultural Drainage Program staff participated, reviewed, and commented on a Management Agency Agreement (MAA)entered into between the CVRWQCB and Reclamation, for the purpose of addressing salt imported into the Lower San Joaquin River from the Delta-Mendota Canal (DMC). The MAA is a cooperative means of implementing relevant provisions of the CVRWQCB's *Water Quality Control Plan for the Sacramento River and the San Joaquin River Basins–4th Edition* (Basin Plan) and to provide mitigation and dilution flows to create assimilative capacity for salt in the San Joaquin River. The MAA specifies Reclamation actions including initiating stakeholder efforts to develop a real-time management program, continuing to implement existing projects that will offset a minimum of 25 percent of the excess DMC salt load as defined in the Basin Plan by July 1, 2010, participating in projects that reduce salt load into the river, and other actions to provide assimilative capacity in the river. This salt load reduction goal will be used to measure Reclamation's progress toward meeting DMC load allocations contained in the Basin Plan.

Proposition 84, Delta, San Joaquin River, and Sacramento River Water Quality Grant Program Guidelines. Staff from the Bay-Delta Office and the Agricultural Drainage Program collaborated in drafting the guidelines that establish the process and criteria that DWR will use to solicit applications, evaluate proposals, and award grants under the Delta, San Joaquin River, and Sacramento River Water Quality Grant Programs. The process included two workshops to receive public input to draft guidelines that will govern the grant process.

These guidelines do not include the proposal solicitation package (PSP). The PSP, containing additional detailed information, will be issued separately after these guidelines are adopted by DWR.

Determining the Optimal Plant Species for a Winter Waterfowl Habitat On Alkaline Soil Utilizing Low-Selenium Saline Drainwater. The Agricultural Drainage Program, in collaboration with the Westside Resource Conservation District, evaluated approved funding for a study to determine the productivity of beneficial waterfowl plants in a saline habitat in the Tulare Lake Drainage District (TLDD).

The study will be conducted over a 3-year period on the TLDD winter waterfowl habitat. During the first year, one of the three 100-acre cells will be planted with a variety of plant species known for their food and cover value. A quantitative evaluation will be made of each of the species planted at the end of the growing season to determine the plants' germination and growth success. Based upon the results of the first year, plant species will be selected and a second 100–acre cell will be planted. A plant evaluation of all of the cells will be conducted at the end of the second growing season to determine first year growth, second year growth, and the natural growth in the unplanted control cell. During the final year of the study, the third cell will be planted. At the end of the third growing season, a report will be completed evaluating the productivity of the individual plant species and a best practices management plan will be developed based upon the observations of the TLDD winter waterfowl habitat.

Development of Alternative Value-Added Products From Cactus (*Opuntia*) Grown as a New Fruit/Forage Crop for Selenium Laden Waters and Drainage-Impacted Soils in the West side of Central California. The Agricultural Drainage Program, in collaboration with the Center for Irrigation Technology of California State University, Fresno, and the USDA, initiated a research project to provide new and realistic information for growing and producing value-added products from *Opuntia* crops both irrigated with poor water quality and grown under non-irrigated conditions in the West side of Central California, as well as grown in poor quality sediment soil with good quality water. Introducing a new alternative crop, *Opuntia*, for drainage-impacted areas, simultaneously helps manage naturally occurring selenium present in the soil and water via accumulation and volatilization, and produces new marketable food products. Moreover, because *Opuntia* thrives under arid conditions with a minimum of water, successfully growing this crop with subsurface drainage water, may provide the semi-retired land areas within the Westlands Water District and other drainage-impaired lands with a potential new crop for reclamation of these soils. The development of unique valued-added products from *Opuntia* will improve profitability and thereby increase the realistic potential of growing this crop in the West side of Central California.

Environmental Impact Document Review

The Environmental Review Section in DWR's Division of Environmental Services screens State Clearinghouse documents and circulates SWP-related materials for review by the Division of Integrated Regional Water Management (DIRWM), Division of Operations and Maintenance (O&M), and Division of Engineering. Other divisions and offices are notified and asked to comment when their expertise is required.

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

In 2008, the Environmental Review Section screened 4,170 State Clearinghouse documents; 959 were referred for detailed

review. Of these referrals, 683 were made when the projects were at the Notice of Preparation or Early Consultation stage, and 106 assignments were for negative declarations, environmental impact reports (EIRs), and NEPA environmental assessments. O&M received 133 formal referrals and six for information. The State Water Project Analysis Office (SWPAO) received 20 formal referrals and two for information. In addition to the information referrals made to O&M and SWPAO, 746 other information referrals were made to other DWR staff.

DWR comments submitted to the CEQA or NEPA lead agencies addressed a number of issues, including runoff from proposed developments, safety and water supply, encroachment on physical facilities, impacts to cross-drainage facilities, and proposed plans to acquire, convey, sell, and transfer SWP water.

During 2008, the Environmental Review Section tracked documents related to development along the California Aqueduct, levee encroachment, dam safety issues, water transfers and other water supply issues, wastewater treatment, quarry development, electrical transmission lines near SWP facilities, and development of a high-speed rail.

In 2008, referrals were down by 11 percent from 2007. Part of this reduction may be due to the lack of funding to start new construction projects, which was related to the economic downturn. Part of this reduction may also be attributed to an increase in administrative-type projects such as master plans, implementation plans, and transportation plans plus "elements" of these plans, as in "housing element" (an 18 percent increase over 2007—from 141 to 167 combined) and others, and many of these documents would be of little or no interest to DWR.

Water Conservation Bond Laws

To assist local agencies in obtaining financing for their water management programs, California voters approved eight bond laws between 1984 and 2006 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 Bond 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) authorized $500 million for the Integrated Regional Water Management (IRWM) Grant Program to be implemented jointly by DWR and SWRCB.
- The Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006

(Proposition 84), authorized $1 billion to continue the IRWM Program. Under these programs, grants and construction loans are available with repayment periods of up to 20 years, at reduced interest rates for most programs.

- The Disaster Preparedness and Flood Prevention Bond Act of 2006 (Proposition 1E), authorized $300 million for IRWM Stormwater Flood Management.

Propositions 25, 44, and 204

Funding is fully obligated.

Proposition 82

New Local Water Supply construction and feasibility study loans are still available. Water Conservation, and Groundwater Recharge funding has been fully obligated.

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 have been obligated.

Proposition 50—Integrated Regional Water Management

In 2008, DWR and SWRCB developed guidelines and PSPs for two rounds of Proposition 50 IRWM implementation grant funding. DWR and SWRCB awarded approximately $307 million to 16 agencies in the first solicitation, and $58 million to four agencies in the second round of IRWM grant funding. Of the total $365 million provided in both rounds of funding, DWR awarded $184 million.

In June 2008, DWR awarded thirty-one local public agencies Local Groundwater Assistance (LGA) grants with $6.4 million in grant funding. Twenty-one received their maximum requested grant amounts. Four agencies received capacity building grants worth $50,000 each. Six agencies were granted partial funding. The LGA grant requests from these six agencies were subsequently fully funded with the addition of Proposition 84 funds in December 2008, as described below.

Propositions 84 and 1E

In 2008, staff continued developing the IRWM grant program guidelines, as well as the PSPs for Planning and Implementation grants, and Stormwater Flood Management grants, as funded by Propositions 84 and 1E respectively.

In addition, approximately $4.3 million was awarded to 25 agencies under the LGA program. Six of the local agencies, which had previously received partial grant awards in June 2008 from Proposition 50, were supplemented with Proposition 84 funds. Sixteen agencies received their maximum requested grant amounts from this LGA solicitation. An additional three agencies received Capacity Building Grants limited to $50,000 each Typical projects fall under the following categories.

Local Water Supply

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

Integrated Regional Water Management

Projects in this category protect communities from drought, protect and improve water quality, and improve water security by reducing dependence on imported water.

Water Conservation Bond Laws—Projects and Funding

Table 5-1 totals the number of projects and funds committed for each of the water conservation bond laws through December 2008.

Table 5-1 Cumulative Water Conservation Bond Laws—Projects and Funding through 2008

Bond Law	Bond Law Subaccount (Type of Project)	Number of Projects[a]	Funding[a] (millions of dollars)
Clean Water Bond Law of 1984 (Prop 25)	Water Conservation	7	9.74
Water Conservation and Water Quality Bond Law of 1986 (Prop 44)	Water Conservation	24	41.60
	Groundwater Recharge	10	28.04
	Subtotal	*34*	*69.64*
Water Conservation Bond Law of 1988 (Prop 82)	Water Conservation	7	17.44
	Groundwater Recharge	8	24.30
	Local Water Supply	5	11.90
	Subtotal	*20*	*53.64*
Safe, Clean, Reliable Water Supply Act of 1996 (Prop 204)	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 Bond Act of 2000 (Prop 13)	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 (Prop 50)	Local Groundwater Assistance	115	25.00
	Integrated Regional Water Management	39	196.88
	Subtotal	*154*	*221.88*
Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Prop 84)	Local Groundwater Assistance	25	4.30
	Integrated Regional Water Management	0	0.00
	Subtotal	*25*	*4.30*
Disaster Preparedness and Flood Prevention Bond Act of of 2006 (Prop 1E)	Stormwater Flood Management	0	0.00
	Subtotal	*0*	*0.00*
Total of All Projects		**450**	**934.23**

[a] Construction and feasibility study loan and grant commitments as of December 31, 2008.

Chapter 6
Legislation and Litigation

Architectural detail on the California State Capitol, Sacramento.

Significant Events in 2008

Significant legislation related to groundwater quality monitoring and water pricing, and a bill appropriating money to various purposes, passed in 2008. While these bills do not directly impact the State Water Project (SWP) or project operations, they may impact SWP contractors or their customers.

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 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

No legislation directly impacting the SWP or SWP operations passed in 2008. However, the following bills could affect SWP contractors or their customers.

AB 2222 (Caballero; Chapter 670, Statutes of 2008)—Groundwater Quality: Monitoring

This bill requires the State Water Resources Control Board (SWRCB) to identify funding options to extend its comprehensive Groundwater Ambient Monitoring and Assessment (GAMA) Program; recommend enhancements for public accessibility to groundwater data; and prepare a report to the Legislature to identify communities relying on contaminated groundwater as a primary source of drinking water.

AB 2882 (Wolk; Chapter 610, Statutes of 2008)—Allocation-Based Conservation Water Pricing

This bill authorizes public entities that supply water to adopt allocation-based conservation water pricing. This bill requires a Proposition 218 election. Not all post-Proposition 218 proposed assessments to fund water agency charges have succeeded in receiving voter approval.

SBX2 1 (Perata; Chapter 1, Statutes of 2008)—Water Quality, Flood Control, Water Storage, and Wildlife Preservation

This bill appropriates more than $820 million in Proposition 84, Proposition 1E, and Proposition 50 bond funds to DWR for various activities including emergency flood planning, storm water flood management, Integrated Regional Water Management activities, surface water storage feasibility studies, and to develop a plan for reoperation of the flood protection and water supply systems.

Federal Legislation

There was no significant federal legislation affecting management of the SWP in 2008.

Litigation

As of December 31, 2008, 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 2005 biological opinion (BO) issued by the U.S. Fish and Wildlife Service (USFWS) which found that SWP and Central Valley Project (CVP) operations did 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)).) In the new action of *Natural Resources Defense Council, et al. v. Kempthorne, et al.*, the plaintiffs claim the USFWS opinion fails to adequately consider or address the effects on delta smelt. The plaintiffs also claim the opinion improperly relies on uncertain measures and the adaptive management process without adequate evidence that the measures will be undertaken and be effective. The case seeks to have the U.S. Department of the Interior and USFWS withdraw the opinion and not take any action in reliance upon it.

DWR intervened to protect its interests in the BO relevant to the operations of the SWP, filing an answer to an amended complaint on October 24, 2006.

On May 25, 2007, the federal district court issued a decision on the summary judgment motion finding that the 2005 BO was invalid because, among other issues, the measures to protect delta smelt were not sufficiently prescriptive. In order to determine how the projects will operate pending completion of a new BO, the judge requested the parties prepare an interim remedy.

In August 2007, the court held eight days of hearings on the proposed remedies by plaintiffs and defendants. On August 31, 2007, the judge issued a ruling from the bench. The order:

- provided remand of the BO to USFWS without vacating the existing BO, but required compliance with the interim remedy;
- enjoined DWR and Reclamation from taking any actions inconsistent with the interim remedy;
- ordered a USFWS status report to be filed with the court on April 30, 2008, and set September 15, 2008, for USFWS to issue and new delta smelt BO;
- provided a public health and safety exception for CVP and SWP operations;
- provided that the injunction ends after issuance of a new BO or further order or final judgment, whichever occurs first; and
- required additional fish/larval monitoring, flow restrictions, and other protective measures for fish in SWP and CVP operations pending issuance of a new BO.

The court subsequently extended the deadline for USFWS to complete the BO from September 15, 2008, to December 15, 2008. USFWS issued a BO pertaining to the effect of CVP and SWP operations on delta smelt. In it, USFWS found that the operations could jeopardize the continued existence of the species.

Another similar case was filed October 4, 2006, *Watershed Enforcers, a project of California Sportfishing Protection Alliance, a non-profit corporation v. California Department of Water Resources, Lester Snow, Ralph Torres, David Starks, David Duval and L.D. Elmore* (Alameda County Superior Court, Case No. RG06292124). Watershed Enforcers asserts that DWR lacks authority for the losses, also known as "take," of the endangered delta smelt and winter- and spring-run salmon. DWR believes that a number of agreements/plans starting as early as 1986 with the Department of Fish and Game (DFG) provide for SWP compliance with the California Endangered Species Act (CESA) and the federal Endangered Species Act (ESA) allowing "incidental take" of these fish. For the past 12 years, DWR has been operating the SWP while actively addressing and mitigating environmental impacts, including incidental take. Plaintiffs claim that DWR is not operating consistent with CESA because it has not obtained a permit, a consistency determination, or completed a conservation plan. On March 22, 2007, the court gave DWR 60 days to obtain take authorization from DFG. DWR appealed. The

parties also negotiated a joint motion for stay of the appeal through December 2008 to coordinate the federal BO reconsultation and issuance of a new BO by the end of 2008. DWR will then seek a consistency determination from DFG, in effect mooting the appeal.

No action occurred on this case in 2008.

Salmon

In another case (*Pacific Coast Federation of Fishermen's Associations/Institute for Fisheries Resources, The Bay Institute, BayKeeper, and Its Deltakeeper Chapter, California Trout, Friends of the River, Natural Resources Defense Council, Northern California Council of the Federation of Fly Fishers, and Sacramento River Preservation Trust, all non-profit organizations and the Winnemem Wintu Tribe v. Carlos M. Gutierrez, in his official capacity as Secretary of Commerce, William T. Hogarth, in his official capacity as Assistant Administrator for Fisheries, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Dirk Kempthorne, in his official capacity as Secretary of the Interior, and William E. Rinne, in his official capacity as Acting Commissioner, United States Bureau of Reclamation and (Intervenors/Defendants) San Luis & Delta Mendota Water Authority, Westlands Water District, California Farm Bureau Federation, Glenn-Colusa Irrigation District, et al. and State Water Contractors, et al.*), the plaintiffs, nine environmental groups, served a 60-day notice to the federal defendants, NOAA, of alleged violations of ESA on May 31, 2006.

DWR was not named as a defendant in this case but has intervened in this matter, providing similar input and contribution as in the delta smelt case. The defendants in this case attempted to consolidate the smelt and salmon/steelhead cases but the motion was denied. The smelt litigation went forward and an interim remedy order was issued on December 14, 2007. A similar litigation path is anticipated in this case.

Plaintiffs' amended complaint alleges that the survival and population stability of five salmon and steelhead species are threatened by the current and planned joint operations of the CVP and SWP. Plaintiffs allege the operations of the water projects continue to block fish passage to hundreds of miles of upstream spawning and rearing habitat; further reduce and degrade the remaining habitat due to water diversions; create high temperatures and changes in dissolved oxygen ratios and silt load; and draw large numbers of fish into the Central and South Delta as a result of operations of the Delta Cross Channel and the CVP and SWP pumps. Plaintiffs claim a percentage of salmon and steelhead are killed through direct entrainment from project water diversions and from other unscreened diversions resulting in a lower survival rate. Plaintiffs request the court declare the 2004 CVP/SWP coordinated operations BO unlawful and issue an injunction from implementation of project operations as described in the 2004 opinion.

A motion for summary judgment was heard before federal Judge Wanger on October 3, 2007.

On April 16, 2008, Judge Wanger held that the 2004 National Marine Fisheries Service (NOAA Fisheries) BO: (1) did not reconcile factual findings and analysis with its conclusions; (2) failed to analyze impact on critical habitat; (3) failed to consider recovery of species; and (4) failed to include any analysis of the effects of climate change on CVP and SWP operations, and in turn on salmonids. NOAA Fisheries was ordered to prepare a new BO.

State Water Resources Control Board Hearing

In February 2005, DWR and the Bureau of Reclamation (Reclamation) petitioned the State Water Resources Control Board (SWRCB). This petition requested a temporary change and delay of the effective

date to implement the southern Delta agricultural water quality objective contained in SWRCB's Water Right 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 the southern 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 requested order sought to stop a potential violation of the southern Delta agricultural water quality objective of 0.7 millimhos per centimeter (mmhos/cm) electrical conductivity (EC) by DWR and Reclamation. This water quality objective was scheduled to be in effect annually, from April 1 through August 31, beginning in 2005. 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 February 15, 2006, SWRCB issued a cease and desist order requiring DWR and Reclamation to take corrective actions to obviate the threat of noncompliance with conditions in D-1641 that implement the 0.7 mmhos/cm EC water quality requirement by constructing the permanent gates or equivalent measures by July 1, 2009. The order also requires DWR and Reclamation to report to SWRCB if they exceed or threaten to exceed the water quality requirements and to report the reasons for the exceedance. SWRCB will then determine if enforcement actions are necessary. The cease and desist order also allows Joint Point of Diversion operation if DWR and Reclamation comply with the conditions of their water rights and SWRCB's order.

SWRCB was asked to reconsider its cease and desist order. However, the board did not take any action on this request, and the cease and desist order became a final order on May 16, 2006. On June 15, 2006, Reclamation and the State and federal water contractors filed a complaint in federal district court against SWRCB challenging the cease and desist order. DWR and SWRCB agreed to toll the date for DWR to file to allow time for the parties to negotiate a settlement of the issues. Reclamation and the water contractors have also entered into tolling agreements pending negotiations. Negotiations between the parties resulted in a letter from the SWRCB Executive Director that clarified the cease and desist order and extended DWR's time to file an action against the order to May 1, 2007.

In January 2007, SWRCB began workshops to review the southern Delta agricultural water quality objectives that are the subject of the cease and desist order and the litigation. This review is consistent with the Executive Director's letter to DWR regarding these objectives. The review is expected to require about 2 years to complete, after which SWRCB may consider modification of the objective in its Water Quality Control Plan and in DWR and Reclamation's water rights.

There was no action on this case in 2008.

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 a number of 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.* (Regional Council of Rural Counties (RCRC) and South and

Central Delta); and *Municipal Water District of Orange County v. Resources Agency*. In 2004, the parties to the third suit settled, based on an agreement that emphasizes the importance of the CALFED Science Program and provides notice to the Water District of Orange County about CALFED stakeholder participation opportunities. The other two cases were coordinated in the Sacramento County Superior Court.

The remaining parties claimed the CALFED programmatic environmental impact statement/environmental impact report (EIS/EIR) violated CEQA, the 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 California Supreme Court agreed to hear the case. DWR argued that CEQA does not require a lead agency to analyze a suggested alternative to its proposed project if the proposal would fail to achieve the project's fundamental purpose. EIRs for general projects, like the broad CALFED 30-year plan, are a general analysis, whereas EIRs for detailed projects like subdivisions require a more in-depth analysis.

The issue of whether the federal agencies violated NEPA is pending in federal district court.

The Supreme Court heard oral arguments on April 2, 2008, in Los Angeles, California, and issued its decision June 5, 2008. The Court of Appeal decision in this case upheld the CALFED programmatic EIR on all but three issues. The Court of Appeal found that the EIR had to look at an alternative of reduced exports, even though the project objectives made it clear that all parties had to benefit, and it also required a detailed level of review of some of the programs that would make it extremely difficult to prepare a programmatic EIR. The Supreme Court reversed all three areas and upheld the programmatic EIR

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 SWP water to pay more to DWR, while those contractors requiring less pumping would pay less.

The plaintiffs' motion to file an amended complaint adding causes of action for: (1) making the plaintiffs whole; (2) alleging defendants could not profit at the plaintiffs' expense; (3) breaching the agreement of good faith and fair dealing implicit with every contract; and (4) contending defendants received money which should have been paid to the plaintiffs, was granted on September 14, 2006. The plaintiffs have also expanded the list of desired remedies to include a court ordered trust, injunction, equitable lien, and attorney fees. In addition,

the amended complaint joined two other State water contractors.

After a hearing on October 13, 2006, the court granted DWR's motion to bifurcate the case into two separate phases, i.e., liability and damages. The court has agreed to entertain motions for protective orders seeking to stay discovery on damages until conclusion of the liability phase. Pretrial discovery on the issues of contract interpretation and liability commenced in April 2007. Depositions of DWR employees were taken.

On December 19, 2007, DWR filed its motion for summary judgment and plaintiffs (*Kern County, et al.*) and intervenors (*Metropolitan Water District, et al.*) also filed motions for summary judgment. The hearing on the motions took place April 28, 2008. At the Case Management Conference on May 9, the court confirmed its tentative ruling denying all of the parties' motion for summary judgment.

The trial started on November 5, 2008, and concluded on December 12. There were no closing arguments following the presentation of evidence; the parties will instead file post-trial briefs. The plaintiffs' post-trial brief is due on February 25, 2009, and DWR and the intervenors' post-trial briefs are due on April 24, 2009. DWR and the intervenors will share draft briefs in order to ensure a coordinated and effective response to the plaintiffs' arguments. May 26, 2009, is the deadline for the plaintiffs' response brief. The court will have 90 days from the filing of the last brief to issue a decision.

Oroville Relicensing

DWR is engaged in a multiyear process to seek a new license from FERC for its hydroelectric generation facilities at Oroville. The existing FERC license, which was granted in 1957, expired on January 31, 2007. DWR is using a collaborative approach to relicensing (Alternative Licensing Procedures or ALP) that involves working cooperatively with federal and State resource agencies, Native American tribes, local public agencies, nongovernmental organizations, and other interested parties to achieve consensus on the FERC license and environmental documentation. DWR has reached agreements with many of these stakeholders on environmental and operational studies, project design, proposed improvements or modifications, environmental mitigation, and enhancement measures. DWR has also reached agreement with the federal agencies that have "mandatory conditioning authority" in the relicensing process. These are the U.S. Forest Service and Bureau of Land Management, with respect to the use of federal lands, and the USFWS and NOAA Fisheries, with respect to certain fishery issues. DWR must also obtain water quality certification from the SWRCB under Section 401 of the Clean Water Act.

DWR filed its application with FERC in 2005, and subsequently executed a settlement agreement with more than 50 parties, including DFG, the U.S. Department of the Interior, and NOAA Fisheries, on environmental and recreation resource issues. DWR filed the final settlement agreement with FERC on March 24, 2006. FERC's final EIS was released on May 18, 2007, and a public hearing was held the following month in Oroville. DWR has received comments on the draft EIR and is drafting responses to them. DWR has also reached a tentative agreement with water districts for the Butte County rice growers and is negotiating a final agreement. The Habitat Expansion Agreement for Central Valley Spring-Run Chinook Salmon and California Central Valley Steelhead has been executed, along with the Coordination Agreement for Habitat Expansion between DWR and Pacific Gas & Electric Company.

As the original license for the Oroville Facilities expired on January 31, 2007, FERC issued an annual license on February 1, 2008, under the same terms and conditions.

Both Butte County and Plumas County have filed suit challenging DWR's approval of the EIR for the Oroville Facilities Relicensing. The counties claim that the EIR, findings, and mitigation and monitoring plan are not in accordance with requirements of the California Environmental Quality Act (CEQA), and request that the court vacate the approval. Gathering the documents which will make up the administrative record is continuing. DWR has been granted a 60-day extension to finish this process and certify the record by agreement of the parties.

Other Cases

The *California Department of Water Resources v. Federal Energy Regulatory Commission* (U.S. Court of Appeals for the Ninth Circuit (No. 05-74488)) case involved 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 a time-of-use methodology. The Court of Appeal subsequently ruled in favor of FERC, finding that FERC adequately considered time-of-use pricing methods.

State of California acting by and through the Department of Water Resources v. Whitaker Contractors, Inc., a California corporation; Whitaker Contractors, Inc. a California corporation v. State of California acting by and through the Department of Water Resources (OAH No. A-0031-07) is an arbitration case involving a breach of contract claim against Whitaker Contractors, Inc. (WCI). The dispute arises out of a public works construction project known as the Tehachapi East Afterbay Completion Project, which is part of the SWP. The work encompassed in WCI's contract is an integral part of a larger project which will minimize on-peak power consumption for a series of large pumping plants on the California Aqueduct. WCI's contract work consisted of a bypass structure, flow barrier, control building, Alamo headworks improvements, and sitework. The work required precise scheduling of a 20-day suspension of water deliveries. The timing and short duration of the outage were critical to minimize risk of interrupted water deliveries to consumers. Throughout its performance of the contract, WCI repeatedly failed to perform work according to contract requirements (e.g., installation of noncompliant concrete) and failed to meet completion dates. DWR terminated WCI's contract for default. WCI has cross-complained for breach of contract, fraud, negligent misrepresentation, rescission, quantum meruit, and unjust enrichment. An arbitrator has been selected by the parties, and this matter is in the beginning steps of preparing for arbitration. Discovery, consisting of document requests, has commenced and is continuing. The arbitration hearing is expected to begin in April 2009.

Colorado River

Imperial Irrigation District v. All Interested Persons and eight related cases (Judicial Council Coordination Proceeding No. 4353, Sacramento County Superior Court) 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) transfer of conserved agricultural water

from the Imperial Irrigation District to San Diego County Water Agency 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.

At the May 29, 2008, status conference, the court permitted any party "to brief and be heard on any issue which is timely before the court." It also ordered the parties seeking validation and those opposing it to brief the court on the validation action's scope, formulating it as limited solely to the "target agency's" (IID) actions, or more broadly as including the predicate acts of all signatories to any applicable contracts.

On July 24, 2008, Judge Candee held a status conference to discuss and define the validation action's scope, but he has not yet issued an order. The primary issues from the conference were whether the IID/DWR and QSA contracts are void *ab initio* and upon the court's review of the scope of the validation proceeding, whether either contract violates the constitutional debt limitation provision.

The primary issue is the constitutional debt limitation which has become the subject of a September 30, 2008, Governors Office Action Request (GOAR) authored by DFG, with DWR comments. The Department of Finance and the Governor's Office have reviewed and approved the GOAR; the administration recommends an amendment to the Joint Powers Agreement. The gist of the constitutional argument—found in Article XVI, Section 6—is that the Legislature may not create a debt or liability exceeding $300,000 without a 2/3 legislative vote and a majority vote of the people.

One of the petitioners, Cuatro del Mar, asserts that the State's open-ended obligation for environmental mitigation costs violates that provision. DWR believes that, notwithstanding Article 9.2 of the Joint Powers Agreement, which states that the contracting parties may not rely on the Legislature's failure to appropriate funds as a defense, the Legislature must still appropriate funds and that until it does, the debt limitation violation is not ripe, because a contractual provision does not trump a legislatively required act. And no obligation can exist until money is actually appropriated.

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) in Ventura County. This petition for writ of mandate challenged Castaic Lake's approval of a project to store up to 24,000 af of allocated 2002 Table A water, in the Semitropic Groundwater Storage Program, before the end of 2004. As reported in Bulletin 132-06, the CEQA process followed by DWR and Castaic Lake was upheld by the 2nd District Court of Appeal and the time for appeal to the California Supreme Court has run out. The plaintiffs alleged the approval of the project violated CEQA, the Urban Water Management Planning Act, and the Public Trust Doctrine. The plaintiffs alleged that DWR should have been the lead agency in the preparation of an EIR. The Friends of the Santa Clara River had also filed a Reverse Validation Action in Sacramento County, which sought to set aside the agreement. Following the resolution of the CEQA case in Ventura County, plaintiffs filed a motion to dismiss the Sacramento case.

CWIN and the Planning and Conservation League (PCL) also challenged a new EIR 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 January 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* 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.

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 Monterey Plus EIR. Other issues raised by CWIN and PCL are that the EIR is inadequate under CEQA for a number of reasons, including violation of the Urban Water Management Planning Act and the Public Trust Doctrine, and it represents a prejudicial abuse of discretion.

The two cases were consolidated and a hearing on the merits was held on March 19, 2007. On May 22, 2007, the judge ruled in favor of Castaic Lake and the respondents in all but one aspect. He found that Castaic Lake could be the lead agency and did not have to wait for DWR to complete the Monterey Plus EIR to proceed. However, the judgement found that the 2004 EIR had one defect. It failed to show the analytic route as to how and why various allocations of SWP water are relevant and would occur. He required Castaic Lake to set aside its approval of the EIR and to comply with CEQA either through a new EIR or other environmental documentation, including an addendum. Plaintiffs have filed an appeal from the trial court decision. Castaic Lake has filed a cross-appeal. The parties have agreed to suspend actions on attorney fees until after a Court of Appeal decision.

Briefing was completed in 2008, but the court has not yet set a date for oral argument.

Environmental Review Acts

The National Environmental Policy Act (NEPA) (Title 42 United States Code Sections 4321–4347 [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 processes. 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 (EIS), including a discussion of mitigation measures and alternatives, for federal actions that could significantly affect environmental quality.

CEQA is patterned after NEPA. Under CEQA, agencies are required to (1) disclose, through an environmental impact report (EIR), the significant impacts a proposed project would have on the environment, and (2) identify 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 of Water Resources conducts many projects in cooperation with federal agencies. In these cases, both CEQA and NEPA must be followed.

NEPA requires that mitigation measures and alternatives be disclosed to the public in the EIS, but it does not generally require federal agencies to adopt such mitigation measures or alternatives. CEQA 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 they cannot. When a project is subject to both CEQA and NEPA, both laws encourage agencies to cooperate in planning the project and preparing joint environmental documents.

The environmental review process allows citizens to learn about a proposed project and its potential significant effects and to participate in the decision-making process by providing feedback on agency information. The review process requires agencies to:

- describe the proposed project and the purpose or need for it;
- identify the lead and cooperating agencies involved in the project;
- invite interested parties to participate in the process;
- determine the scope of study with input from responsible agencies and the public;
- prepare and distribute a draft EIS or EIR;
- respond to comments received on the draft;
- prepare the final EIS or EIR;
- make findings and adopt feasible alternatives or mitigation measures to avoid significant effects, if applicable;
  adopt a monitoring plan to ensure compliance with mitigation measures; and
- prepare a list of permits required to implement the project if it 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 or addressed in the EIS or EIR.

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 and identify additional alternatives, environmental effects, methods of assessment, and mitigation measures during the scoping phase and continue to participate in the review process for the draft environmental document. Thus, the CEQA process may lead to changes in a project through the development, consideration, and adoption of alternatives or enforceable mitigation measures to avoid or reduce any potential significant adverse effects on the environment.

If the project is approved, the lead agency publishes a document discussing all the factors considered in reaching its decision to proceed with the proposed action. It also discusses whether all practical means to avoid or minimize environmental harm have been adopted, and if not, the reasons they were not.

Chapter 7
Water Supply Development and Reliability

Oroville Dam and Spillway.

Significant Events in 2008

The Department of Water Resources (DWR), and the Bureau of Reclamation (Reclamation) initiated preparation of an environmental impact statement/environmental impact report (EIS/EIR) for the Franks Tract Project.

The State Water Resources Control Board (SWRCB) approved the Lower Yuba River Accord on March 25, 2008, setting the flow schedules for the river and authorizing accord-based water transfers through 2015. In addition, DWR completed the execution of 22 agreements for dry-year supplies for participating State Water Project (SWP) and Central Valley Project (CVP) contractors under the accord and completed the first year of water transfers pursuant to the accord. In total, 166,086 af was transferred to DWR and participating SWP and CVP contractors under the accord in 2008.

Information in this chapter was contributed by the State Water Project Analysis Office, the Division of Integrated Regional Water Management, the Division of Statewide Integrated Water Management, 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 long-term water contract annual Table A water allocations delivered to SWP water contractors. Staff is engaged in planning activities to develop additional water supplies and storage capacity.

Developing new water supplies and storage projects that are economically, environmentally, and technically sound, while satisfying institutional requirements and political concerns, presents significant challenges. Many concerns center on 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 rest of the Central Valley and Southern California.

DWR works with the State and federal governments, local agencies, and public interest stakeholder groups to ensure water supply reliability now and in the future. To meet SWP water contractors' needs for sufficient water supplies, DWR is engaged in planning, developing, and providing local assistance with the objective of augmenting future SWP water supplies.

Supply Development and Reliability

Some of the activities DWR is engaged in to augment future SWP supplies include:

- implementing programs to transfer water, such as the Dry Year Water Purchase Program, 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;
- constructing a groundwater monitoring network and a subsidence monitoring network to detect potential impacts caused by pumping associated with groundwater substitution transfers;
- managing the Feather River watershed above Lake Oroville to reduce sedimentation in the lake and preserve storage capacity; and
- investigating and evaluating storage projects.

Water Conveyance Through the SWP

DWR encourages and facilitates temporary transfers of water using SWP conveyance facilities for long-term SWP water contractors and other agencies to help meet local, State, and environmental water supply needs. As a practical matter, SWP facilities are often needed to convey transfer water from the existing place of use 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 will be injured; (2) there will be no unreasonable effect on fish, wildlife, or other instream beneficial uses; and (3) there will be no unreasonable effect on the overall economy or the environment of the county from which the water is being transferred (California Water Code [CWC] Section 1810). Water transfers can involve transfers and

exchanges among SWP long-term water contractors, between SWP water contractors and non-SWP entities, or between two or more non-SWP entities.

For information regarding specific transfers or exchanges, please see Chapter 9, Water Contracts and Deliveries.

Transfer and Exchange Evaluations

An important element of any water transfer is determining what quantity of water, if any, is transferable.

The transferability of water depends on many factors including the source of the water being transferred, what is being done to make water available, when the water can be made available, and the type of water right the existing user holds. Several CWC provisions authorize temporary transfers of water rights issued by the State Water Resources Control Board (SWRCB) and put conditions on those transfers to protect those not involved in them. Short-term transfers, of less than one year, are authorized under Sections 1725–1732. Long-term transfers, for periods greater than one year, are authorized by Sections 1735–1737. Other CWC sections specify conditions under which water can be transferred and legal protections for those transferring water.

Several CWC provisions (e.g., Sections 1702, 1706, 1725, and 1736), are intended to protect other legal users of water and fish and wildlife from the possible adverse effects of a water transfer. These provisions reflect the concept that changes can be made to water supply as long as there is no injury to others as a result of the change (the "no injury rule"). The no injury rule in State water law is intended to protect other water right holders from a water user's expansion of water use beyond what has been used historically under that water user's existing water rights. Hence, under the no injury rule, only "new water" is transferable (i.e., water added to the downstream water supply only as a result of the transfer). To protect other users, a transfer would not be authorized to the extent that it would reduce the amount or timing of water that would have been available to downstream users, regardless of the water priority of those users.

CWC Section 1810(d) requires DWR to consider potential impacts of a transfer to legal users, to instream uses, and to the economy of the area from which the water would be transferred. DWR must also determine whether to allow use of its surplus water conveyance capacity for a transfer. DWR reviews each request to transfer water through SWP facilities to assure that only new water will be transferred.

Transfer water is typically developed through four methods: surplus water released from storage facilities, substitution of groundwater for transferred surface water, idling agricultural land, and undertaking conservation activities that develop new water. Transfers may result in direct impacts and third party impacts (on parties not involved in the transfer). Certain CWC provisions were enacted to limit potential impacts. For example, additional groundwater pumping from a groundwater substitution program can potentially affect other groundwater users in the area. CWC Section 1745.10 generally requires that transfers of surface water where groundwater will be pumped to make up for the transferred surface water: (1) be consistent with a groundwater management plan adopted pursuant to State law for the affected area or (2) do not create or contribute to conditions of long-term overdraft in the affected groundwater basin.

Injury can also occur due to stream depletion induced by pumping wells near a stream. The amount of water depleted from the stream as a result of the increased pumping must be deducted from the amount of water transferred or the groundwater pumping is

not truly an addition to the surface water supply, and the net surface water flows will not increase as assumed. Consequently, to evaluate possible impacts from groundwater substitution transfers, DWR requires that users proposing to transfer water through groundwater substitution provide the information required to estimate the effects on the surface water system. Each type of transfer has its own set of potential impacts that must be evaluated to protect parties not involved in the transfer.

With the exception of short-term transfers done under CWC Section 1725, which go through the SWRCB, water transfers are subject to compliance with the California Environmental Quality Act (CEQA), and, possibly, the National Environmental Policy Act (NEPA). The CEQA/NEPA and SWRCB processes provide opportunities for public review and comment on water transfer proposals.

Staff in the State Water Project Analysis Office, Division of Operations and Maintenance, Division of Integrated Regional Water Management, and the Office of the Chief Counsel evaluate proposed water transfers to determine whether they will impact the SWP, other water users, the environment, or the area from which the water will be transferred.

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 2007 conditions and for projected conditions through a report entitled *The State Water Project Delivery Reliability Report 2007*. The 2007 report was finalized in August 2008, and the next draft update of this biennial report is expected in 2009.

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 2007* for projected conditions is based on four climate change scenarios. 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 2007. In order to provide a conservative estimate of water delivery reliability, no planned facility improvements to the SWP are assumed. Lastly, the level of demand for SWP water, the amount, and the pattern of demand, were derived from historical data and information received from SWP water contractors.

The probability that a given amount of SWP annual Table A water will be delivered from the Delta for conditions both in year 2007 and projected to exist in year 2027 is shown in Figure 7-1. The following can be deduced for year 2027 conditions:

- In 75 percent of the years, annual SWP Table A water delivery is estimated to be at or above the range of 1.86 to 2.08 million acre-feet (maf) per year (45 to 50 percent of 4.13 maf).
- In 50 percent of the years, delivery is estimated to be at or above the range of 2.97 to 3.21 maf per year (72 to 78 percent of 4.13 maf).
- In 25 percent of the years, delivery is estimated to be at or above the range of 3.69 to 3.82 maf per year (89 to 92 percent of 4.13 maf).

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 referenced above.

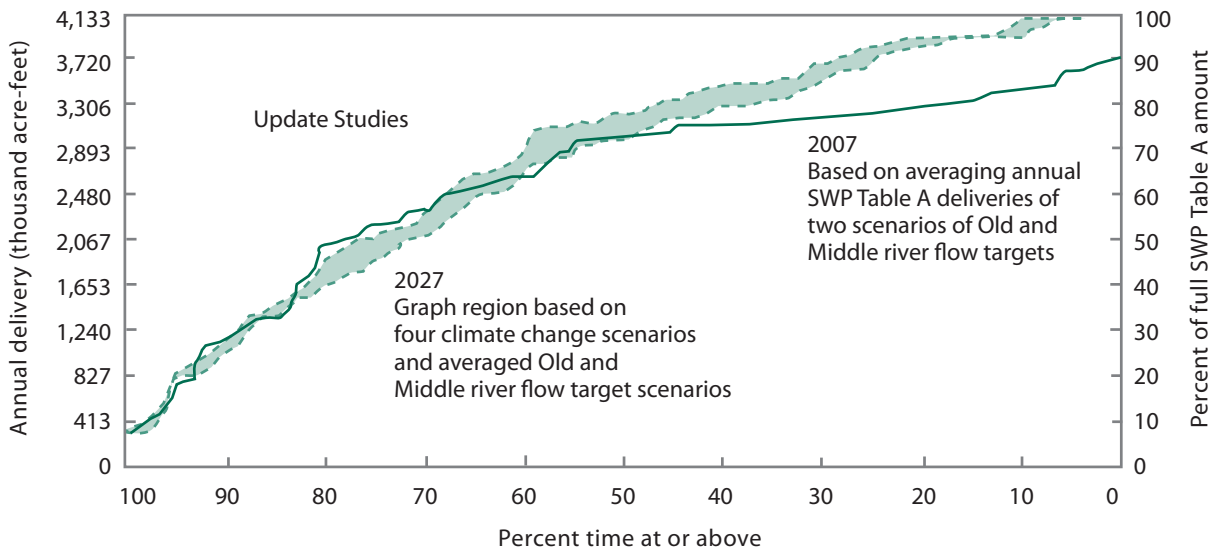

Figure 7-1 SWP Table A Water Delivery Probability for Years 2007 and 2027

SWP Future Water Supply Program

The Future Water Supply (FWS) Program coordinates DWR's efforts to implement the Sacramento Valley Water Management Program (SVWMP). The FWS Program also provides technical support within DWR for the Lower Yuba River Accord (Yuba Accord) and monitored and assessed conditions of the Sacramento Valley groundwater basin that affect the yield of the SWP. These activities emphasize coordination with local agencies, which have become increasingly active in developing groundwater management programs and asserting control over water supply development and management. To develop water management alternatives that benefit all water rights holders in the Sacramento Valley, DWR provides technical assistance to local agencies through the FWS Program. DWR's goal for FWS efforts is to ensure that SWP supplies are enhanced or, at the least, are not adversely affected by groundwater management activities, including water transfers, in the Sacramento Valley.

The FWS Program's Upper Feather River watershed management component evaluates the state of the Feather River watershed above Lake Oroville and identifies actions that can be taken within the watershed to increase base-flow runoff, attenuate flood flows, and reduce sedimentation. The initial effort explored ways to improve local water supplies without adversely affecting SWP supply or operations. Activities included installing monitoring equipment; gathering pertinent data on stream flows, water quality, erosion, land use, and environmental effects; and collaborating with local stakeholders on watershed restoration activities. The data were used to formulate reports and studies for future action. The work received strong local support.

Sacramento Valley Water Management Program

DWR, the Bureau of Reclamation (Reclamation), water users in the Sacramento River Basin (upstream water users), and water contractors of the SWP and CVP (downstream water users)

have been working to implement the SVWMP since the Sacramento Valley Water Management Agreement (SVWMA) became effective in March 2003. For more information on issues surrounding the SVWMA, see Bulletins 132-02, 132-03, and 132-04.

Efforts to implement the SVWMP continued in 2008, primarily on the programmatic environmental impact statement (EIS)/ environmental impact report (EIR). Many stakeholders, however, were frustrated by lack of progress.

The conditions under which the SVWMA had been developed had changed over the years, resulting in additional challenges to program implementation. In the spring of 2008, representatives for upstream users provided the following list of changed circumstances for consideration, some of which could cause the SVWMA to be renegotiated:

- The SVWMA became effective in March 2003, more than 5 years previous. The SVWMP projects were intended to be in place by June 1, 2005, and to run for 10 years.
- Events had occurred that affected obligations in the SVWMA, including Operations Criteria and Plan (OCAP) litigation, Delta Vision, and SWRCB actions. These had to be addressed in the developing EIS/EIR.
- Sufficient bond funding to build the SVWMP projects was not authorized.
- Numerous milestones in the agreement had been missed.
- The negotiated price of water in the SVWMA was no longer realistic in light of the market conditions.
- Outside interests had initiated litigation even before individual projects had been fully defined.

The SVWMA Management Committee, charged with implementing the SVWMP, met in June. Representatives from water users both upstream and downstream of the Delta, DWR, and Reclamation voiced their commitment to continue efforts to implement the SVWMA. They also emphasized the importance of pursuing short-term water transfers (with conjunctive water management projects similar to those proposed to be included in the SVWMP) due to developing drought conditions.

In August, Reclamation awarded a contract to CH2M Hill consultants to complete the SVWMP EIS/EIR. The effort started with the selection of a groundwater model to use in the environmental analysis. In December, the technical committee made their recommendation to the SVWMA Management Committee to use a particular groundwater model. At that time, several management committee participants requested that the model be subjected to a peer review, which led to additional delays in the effort to develop the SVWMP EIS/EIR.

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 SWP and upper Feather River 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.

Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

The Delta and Suisun Marsh are located where California's two major river systems, the Sacramento and San Joaquin, converge to flow westward to meet incoming seawater tides flowing through the San Francisco Bay. The watershed of the San Francisco Bay/ Sacramento-San Joaquin Delta Estuary (Bay-Delta Estuary) is a critical source of water supply for much of California. The watershed is a source of drinking water for two-thirds of the State's population; it supplies some of the State's most productive agricultural areas; and it provides water for fish, wildlife, and other public trust uses of water within and upstream of the estuary.

Water originating in the Bay-Delta watershed is delivered to areas within the watershed and to areas south and west of the estuary. The primary water distribution systems that release stored water into the Delta and directly divert water from the Delta are the SWP, operated by DWR, and the federal CVP, operated by Reclamation. Numerous other water storage and diversion projects influence inflows and outflows from the Bay-Delta Estuary.

The SWRCB regulates both the quality of water in the Bay-Delta Estuary and the diversion and use of water released into and diverted from the estuary for water supply. The SWRCB coordinates its regulatory authorities under State laws governing water quality and water rights, ensuring that water quality is protected for all beneficial uses when water is diverted from the Bay-Delta Estuary.

Under its authority to protect beneficial uses of water, SWRCB adopted the 2006 *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (WQCP) on December 13, 2006 (Resolution No. 2006-0098). The WQCP established objectives for flow, salinity, dissolved oxygen levels, and other parameters necessary for protection of various beneficial uses such as municipal and industrial, agricultural, and fish and wildlife. The SWRCB implements these objectives in part or in whole, depending on the circumstances, through conditions on water right permits and licenses. In 1999, the SWRCB adopted Water Right Decision 1641 (D-1641) (later modified by Order WR 2000-02) to implement the objectives of the 1995 WQCP. SWP licenses and permits were amended to include the terms and conditions outlined in D-1641.

The SWRCB may initiate a water right proceeding to allocate responsibility to meet the objectives and protect the beneficial uses among water right holders who divert water from the watersheds of the Bay-Delta Estuary. It may also establish terms and conditions on the use of affected water rights. SWRCB prepares appropriate documentation under CEQA, in addition to the documentation included with the 2006 WQCP.

Water Code Section 13240 requires that the WQCP be periodically reviewed. Federal Clean Water Act Section 303(c) (33 U.S.C. Section 1313(c)) requires a triennial review of State water quality "standards," as defined in the act. A workshop on October 8, 2008, formally began this review process.

The WQCP review and amendment process will consist of two distinct phases. The first phase will include review of the 2006 WQCP to identify particular elements that may need amendment, new elements that may need to be added, or revision of the entire WQCP. The second phase will include staff preparation of any needed SWRCB amendments or revision of the entire WQCP. This will be followed by SWRCB adoption of some or all of the amendments or revisions.

Pursuant to this workplan, the SWRCB has already initiated a separate, but parallel, process to review two specific elements of the 2006 WQCP: the southern Delta salinity objectives and the San Joaquin River flow objectives. This separate salinity objective review will be limited to the issue of the quality of water necessary to protect water supply for beneficial agricultural use.

For more information about the SWRCB, see Chapter 4, Water Quality Programs.

SWRCB Bay-Delta Proceedings—2008 Activities

In 2008, SWRCB proceedings examined a number of issues in the Bay-Delta Estuary relating to water quality, protection of beneficial use for agriculture and fish and wildlife, salinity issues, and pelagic organism decline, among others, which have the potential to affect Delta water supply and reliability.

Pelagic Organism Decline

On January 22, 2008, SWRCB convened another in a series of workshops started in 2007 for Consideration of the Pelagic Organism Decline (POD) in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. During this workshop, the Interagency Ecological Program's (IEP) POD Management Team submitted to SWRCB its *Pelagic Organism Decline Progress Report: 2007 Synthesis of Results.* DWR, the Department of Fish and Game (DFG), U.S. Geological Survey, Reclamation, the U.S. Environmental Protection Agency, and CALFED were the major contributors to this report. The abundance indices calculated by the IEP suggested recent marked declines in pelagic fish species in the upper San Francisco Estuary (the Delta and Suisun Bay). These species include delta smelt, which is listed under both the State and federal Endangered Species Acts, and the longfin smelt, which has been proposed for protection under those acts. Although several species show evidence of long-term declines, the recent low levels were unexpected given the relatively moderate winter-spring flows of the past several years.

In 2005, the IEP formed the POD Management Team to evaluate the potential causes of decline. The major findings through 2007 were synthesized using two conceptual modeling approaches. A basic conceptual model was developed that included the following major components: (1) previous abundance levels—how continued low abundance of adults leads to juvenile production; (2) habitat—how water quality variables affect estuarine species; (3) top-down effects—how predation and water project entrainment affect mortality rates; and (4) bottom-up effects—food web interactions in Suisun Bay and the west Delta. The POD work team will provide preliminary results from these studies whenever possible, but peer-reviewed products will not be available for some time to come.

For more information on POD, see Chapter 3, Environmental Programs.

Strategic Workplan for the Bay-Delta Estuary

On July 16, 2008, the SWRCB adopted the *Strategic Workplan for Activities in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (workplan). Although the

workplan contains many water quality related elements, two of these elements are specifically related to water quality control planning efforts: (1) a review of southern Delta salinity and San Joaquin River flow objectives to protect water supply for agricultural beneficial use, and (2) a comprehensive review of the 2006 WQCP and its implementation through water rights and other requirements to protect fish and wildlife beneficial uses and the public trust.

According to the workplan, the SWRCB anticipates that it will consider adoption of draft changes to the WQCP by December 2011. The timeline may change as a result of changes to the Bay-Delta Conservation Plan (BDCP) timeline or other issues.

San Joaquin River Flow Objectives

On September 17, 2008, the SWRCB held its first workshop out of a series of workshops to receive information regarding the San Joaquin River flow objectives for fish and wildlife beneficial uses in the Bay-Delta Estuary. This workshop provided an overview of various critical issues and public processes concerning the San Joaquin River flow objectives and an update on southern Delta salinity. The items discussed at this workshop included: (1) background and information regarding the DFG San Joaquin River Salmon Escapement Model, and (2) background and information regarding the Vernalis Adaptive Management Plan (VAMP) study.

The SWRCB will use this information to define and more narrowly focus the scope of subsequent workshops on issues relating to San Joaquin River flow objectives.

WQCP Review

The SWRCB convened a workshop on October 8, 2008, and received comments from agencies and members of the public regarding periodic review of the 2006 WQCP. SWRCB's strategic plan supports State and federal law requiring a comprehensive review of the WQCP. SWRCB is continuing a focused review of southern Delta salinity and San Joaquin River flow objectives as it conducts this review.

The BDCP environmental review may include some of the analyses needed for the comprehensive WQCP review. Additionally, SWRCB information-gathering activities may affect the scope of the WQCP review and may include a series of evidentiary hearings on a number of critical issues concerning the Delta's ecology.

South Delta Salinity Objectives

On November 4, 2008, SWRCB convened a workshop to discuss southern Delta salinity objectives for agriculture in the Delta. SWRCB staff presented and discussed the progress to date and planned next steps for the reevaluation these objectives.

For more information about salinity objectives and compliance monitoring in the South Delta, see Chapter 4, Water Quality Programs.

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 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 CALFED Bay-Delta Program mission is to develop and implement a long-term comprehensive plan to restore ecological health and improve water management for beneficial uses of the Bay-Delta. DWR supports this effort to develop and manage the State's water resources to meet SWP water delivery commitments and to benefit both the public and the environment.

The CALFED Bay-Delta Program is envisioned as a 30-year plan and is implemented through 11 major program elements. DWR is the State lead agency for the storage program element, which consists of surface storage studies and groundwater programs and projects.

Storage Program

The storage program is a comprehensive program with potential benefit for the SWP consisting of actions related to surface and groundwater storage. The Division of Statewide Integrated Water Management and the Division of Integrated Regional Water Management have been working with CALFED agencies to enhance storage and conjunctive-use programs that support local project development via loans and grants. The storage program is part of an ongoing evaluation of how storage, both groundwater conjunctive use and surface storage, can help meet California's urban, agricultural, and environmental water supply reliability, ecosystem restoration, and water quality needs.

Surface Storage Investigations

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.

In-Delta Storage Program. The In-Delta Storage Program 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).

In 2007, further study of the In-Delta Storage Program was suspended, and no further work was done on the project in 2008.

Los Vaqueros Reservoir Expansion Project. Contra Costa Water District (Contra Costa) owns and operates the 100,000 af Los Vaqueros Reservoir just southwest of the Sacramento-San Joaquin Delta. The Los Vaqueros Reservoir Expansion Project involves analysis of increasing reservoir storage by as much as 175,000 af, for a potential storage capacity up to 275,000 af.

The project objectives are to: (1) develop water supplies for environmental water management; (2) increase water supply reliability within the San Francisco Bay Area; and (3) to the extent possible, improve the quality of water deliveries to municipal and industrial customers without impairing the project's ability to meet the first two objectives.

Contra Costa ratepayers voted to support further studies of the Los Vaqueros Reservoir Expansion Project in a March 2004 advisory vote. In 2006, Reclamation, in coordination with DWR and Contra Costa, completed a report entitled *Initial Economic Evaluation for Plan Formulation*. Also in 2006, Contra Costa filed a Notice of Preparation under CEQA to prepare an EIR. An environmental scoping report was completed and released in the summer of 2007. Contra Costa is the lead agency under CEQA and, in 2008, in coordination with Reclamation and DWR, Contra Costa will continue with the feasibility study and environmental documentation.

Shasta Lake Water Resources Investigation. Reclamation, in coordination with other agencies, is conducting a feasibility study

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 more than 750 plant and wildlife species. It is also the hub of California's two largest water distribution systems—the Central Valley Project (CVP), operated by the Bureau of Reclamation, and the State Water Project (SWP), 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 is consensus that the Bay-Delta Estuary is important as both a reliable source of water and as fish and wildlife habitat, there was none for resolving conflicts regarding methods of management, conservation, increasing system capacity, and protecting the region's ecology.

In June 1994, in a 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 SWP and the CVP 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, *Principles for Agreement on Bay-Delta Standards between the State of California and the Federal Government* (Bay-Delta Accord) signed in December 1994 by both parties, detailed interim measures for both environmental protection and regulatory stability.

The Bay-Delta Accord laid the foundation for the CALFED Bay-Delta Program, which began in May 1995. The *CALFED Bay-Delta Program, Final Programmatic Environmental Impact Statement/Environmental Impact Report* was released in July 2000, followed by the *Programmatic Record of Decision* in August 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 CALFED Bay-Delta Program progress, using sound science, assuring public involvement and outreach, and coordinating and integrating related government programs.

The CALFED Bay-Delta Program is designed to address the complex issues that surround the Bay-Delta and is a cooperative interagency effort involving 25 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. 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.

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 DWR 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 budget does not include funding for DWR to continue participating in this study. However, in 2007, Reclamation continued work on the feasibility study and an EIS and completed a Plan Formulation Report for federal review. The report was released to the public in March 2008.

North-of-the-Delta Offstream Storage Investigation. DWR and Reclamation are working in partnership with local, 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 could provide opportunities to increase water storage in an environmentally sensitive manner. The stored water could then be made available to enhance water management flexibility in the Sacramento Valley and the Bay-Delta Estuary, 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 flexibility to support environmental enhancement actions and adapt to climate change.

DWR and Reclamation completed a supporting document entitled *A Conceptual Framework for Modeling of Physical River Processes and Riparian Habitat on the Sacramento River, California* in 2007, and released a Plan Formulation Report in September 2008. The NODOS Investigation is ongoing.

Upper San Joaquin River Basin Storage Investigation. DWR and Reclamation, in coordination with other State and federal agencies, are evaluating opportunities for increased storage in the upper San Joaquin River watershed. The objectives of the Upper San Joaquin River Basin Storage Investigation (USJRBSI) are to: (1) increase water supply reliability and operational flexibility in the Friant Division, other San Joaquin Valley areas, and other regions, and (2) enhance water temperature and flow conditions in the San Joaquin River in support of San Joaquin River restoration efforts. Other opportunities include additional hydropower generation, reduction of flood damages, water quality improvements, and recreation site development.

In 2008, Reclamation and DWR continued with the feasibility study and NEPA/CEQA processes following reformulation of the study in 2007 prompted by the San Joaquin River Restoration Settlement Agreement. The study team refined, evaluated, and compared project alternative plans; estimated project costs and benefits; and analyzed the environmental impacts of each project. This work was documented in a study progress report, the Plan Formulation Report, which was completed in October 2008 and submitted for federal-level review.

A publicly available Plan Formulation Report is anticipated in early 2009.

Conveyance Program

The Conveyance Program consists of projects proposed in the North and South Delta. These projects are discussed briefly below, but for more information about the North and South Delta, see Chapter 2, Delta Resources.

North Delta

The North Delta Program is composed of studies related to a through-Delta facility (TDF), Delta Cross Channel (DCC) Reoperation, a flow-control facility in the Franks Tract region, and a project to improve flood management and the ecosystem along the Mokelumne River.

In 2008, DWR, in cooperation with federal and State agencies, led the implementation of the Delta regional salmon out-migration study. The study purpose was to evaluate juvenile salmon survival and route selection during out-migration through the Delta as part of an effort to address fishery concerns regarding proposed CALFED projects, such as improving operational procedures for the DCC. A CALFED Science Program Peer Review of the proposed study plan resulted in modifications of the original proposal to ensure sound scientific findings would be obtained. DWR and Reclamation initiated preparation of an EIS/EIR for the Franks Tract Project, which involves installation of operable barriers in river channels around the Franks Tract region to reduce sea water intrusion and enhance conditions for sensitive fish species.

DWR and Reclamation completed project scoping meetings to obtain input on issues that should be addressed in the EIS/EIR and for preparation of life history descriptions for several fish species in the Delta, including green sturgeon and delta smelt. DWR and Reclamation also gathered most of the required baseline data for the EIS/EIR.

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

The 60-day public comment period for the NDFCERP draft EIR began January 28, 2008, with an announcement of the availability of the draft.

A public meeting was held in February in Walnut Grove. Both written comments (twelve letters) and oral comments (from three individuals at the hearing) were received.

The draft EIR along with a Notice of Completion (NOC) was provided to the State Clearinghouse for distribution to interested State agencies, and an NOC was filed with the county clerks' offices of San Joaquin and Sacramento counties. The NOC was also published in the *Sacramento Bee* newspaper. Several emails announcing the release of the draft EIR were sent on the North Delta email reflector to more than 150 stakeholders.

The draft EIR was also made available online at DWR's North Delta website, and copies were delivered to the Sacramento, Thornton, Walnut Grove, and Elk Grove public libraries. Approximately 150 comments were received during the public comment period, which closed March 28, 2008.

South Delta

Actions in the South Delta include the South Delta Improvement Program (SDIP), implementing flood control/ecosystem improvements in the lower San Joaquin River, potential interties between the SWP California Aqueduct and the CVP Delta-Mendota Canal, and continuation of DWR's Temporary Barriers Program.

SDIP, a component of the CALFED Bay-Delta Program, as recommended in the Record of Decision, is a two-stage project. Stage 1 proposes to reduce the movement of San Joaquin River watershed Central Valley fall-run and late fall-run juvenile Chinook salmon into the South Delta via Old River and to maintain adequate water levels and water quality for agricultural diversions in the South Delta. Stage 2 would increase water deliveries and delivery reliability to SWP and CVP contractors south of the Delta and increase the maximum permitted level of diversion through the existing intake gates at Clifton Court Forebay.

The SDIP Final EIR/EIS (2006) evaluated alternatives and proposed proceeding with SDIP Stage 1. This component involves constructing permanent operable gates and channel dredging in the South Delta. DWR is proposing installation of these permanent gates to replace temporary structures currently installed and removed each year under DWR's Temporary Barriers Program.

In 2007, Reclamation and DWR were developing a project description and biological assessment for the Operations Criteria and Plan (OCAP) that included operation of the SDIP permanent operable gates. OCAP covers the operation of the CVP and SWP. Most planning and permitting efforts were either slowed or suspended in 2007, and permitting could not move forward without OCAP biological opinions. Additionally, limited design work and modeling were completed. Planning and permitting efforts continued to be slowed or suspended during 2008.

Any action regarding SDIP Stage 2 will require further study and public input. Stage 2 planning continued to be suspended in 2008.

Environmental Water Account

The 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 the EWA rests with the National Marine Fisheries Service, U.S. Fish and Wildlife Service (USFWS), and DFG (the management agencies), and with Reclamation and DWR (the project agencies).

The EWA Operating Principles Agreement was originally executed between the five State and federal agencies in 2000, and in 2004, it was extended through December 31, 2007. The agreement was not extended past 2007, although federal authorization continues through 2010. In July 2004, the agencies began the process of developing a long-term EWA EIS/EIR. Because of changes in the environmental setting and the perceived need to provide an evaluation of the effects associated with extending EWA operations through 2011, DWR and Reclamation released a draft supplemental EIS/EIR to the final EWA EIS/EIR in October 2007 and a final supplemental EIS/EIR in March 2008. No action has been taken to extend the EWA based on this document. DWR has not purchased any water for the EWA since 2007, although prepaid annual water deliveries of 60,000 af to DWR will continue through 2015 under the Lower Yuba River Accord and its accompanying EIS/EIR and will be used to help offset Delta export pumping reductions for fishery purposes.

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

Lower Yuba River Accord

Yuba County Water Agency (Yuba) has pursued a negotiated settlement to resolve flow issues on the Yuba River

associated with operation of the Yuba River Development Project. The result, the Lower Yuba River Accord (Yuba Accord), is structured to protect and enhance lower Yuba River fisheries and local water supply reliability. Additionally, Yuba has a goal to provide revenues for local flood control and water supply projects, and Reclamation and DWR have goals to obtain water for the EWA to use for protection and recovery of Delta fisheries and for improvements in statewide water supply reliability, including supplemental water for the CVP and SWP.

The Yuba Accord includes three major elements, all of which must be in place for the Yuba Accord to become effective: (1) the fisheries agreement, under which Yuba County Water Agency (Yuba) would revise the operations of the Yuba River Development Project to provide for higher flows in the lower Yuba River under certain conditions to improve fisheries protection and enhancement and local water-supply reliability; (2) the conjunctive use agreements between Yuba and water districts within Yuba County for implementing a conjunctive use and water use efficiency program; and (3) a water purchase agreement between Yuba and DWR, pursuant to which DWR will have rights to beneficially use water made available by Yuba through the fisheries agreement, the conjunctive use agreements, and additional water releases from the Yuba project. Yuba asserts it would not and could not make these flows available from the Yuba project in the absence of the Yuba Accord and without the revenues provided to Yuba under the *Agreement for the Long-Term Purchase of Water from Yuba County Water Agency by the Department of Water Resources*.

Once the agreements are implemented, they will collectively provide significant environmental and economic benefits, including:

- higher instream flow requirements to protect lower Yuba River Chinook salmon, steelhead, and other fish species, ranging from 260,000 af in a dry year to more than 574,000 af in a wet year (an increase of 25,000 af in a dry year to more than 170,000 af in a wet year);
- improved water supply reliability for DWR and Reclamation, including a commitment of 60,000 af per year for the EWA and up to an additional 140,000 af in dry years for the SWP and CVP;
- a $6 million long-term lower Yuba River fisheries monitoring, study, and enhancement program;
- improved water supply reliability for Yuba County farmers, along with a conjunctive water use program to improve water use efficiency for local farmers; and
- a secure funding source for Yuba and local irrigation districts to finance conjunctive water use and water use efficiency activities, levee strengthening, and other water management actions in Yuba County.

In 2007, DWR signed an 18-year agreement with Yuba for the purchase of water for the EWA and for dry year water supplies to 22 SWP and CVP contractors. DWR purchased a total of 480,000 af of water from Yuba for delivery at the rate of 60,000 af annually from 2008 to 2015 to help offset Delta export pumping reductions to benefit at-risk fish species and improve water supply reliability.

In 2008, 18 of the 21 participating SWP water contractors and the San Luis & Delta-Mendota Water Authority received 106,086 af of dry year water under the accord, and DWR received 60,000 af to help offset Delta export pumping reductions to benefit Delta fisheries.

See Chapter 9, Water Contracts and Deliveries, for additional details.

Chapter 8
Water Supply

The California Aqueduct in the Antelope Valley area of Southern California.

Significant Events in 2008

Water year 2007–2008 proved to be dry, with much less than average precipitation and spring runoff. The State received precipitation at 78 percent of average in 2007–2008, compared to 65 percent of average in 2006–2007.

Statewide river runoff totaled 60 percent of average in the 2007–2008 water year. Runoff in the Sacramento River Region (four-rivers) and San Joaquin River Region (six-rivers) was 55 percent and 58 percent of average, respectively. Feather River unimpaired inflow to Lake Oroville was 2.2 million acre feet (maf) (48 percent of average) for the water year, compared with 2.5 maf (55 percent of average) the previous year.

The Sacramento Valley Water Year Hydrologic Classification (Sacramento Valley 40-30-30 Index) and the San Joaquin Valley Water Year Hydrologic Classification (San Joaquin Valley 60-20-20 Index) were both "critical", based on observed data for water year 2007–2008.

Information in this chapter was contributed by the Division of Flood Management and the Division of Operations and Maintenance.

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 2007–2008

Precipitation and Snowpack

California experienced lower than average rainfall and spring runoff during water year 2007–2008. Figure 8-1 presents water year precipitation for the entire State. The Northern Sierra 8-Station Precipitation Index finished the water year with 34.9 inches of precipitation, which was 70 percent of average.

November was a dry month for California, except for the far north coast, which had near average precipitation. At the end of the month, an unusually strong subtropical low brought locally heavy rains to the southern portion of the State. Despite parts of Southern California receiving significantly above average rainfall during November, drought conditions persisted across the region. Temperatures were generally above average during November, except for the coastal regions. During the first week of December, several storms moved across California, bringing significant rain and snow to the Sierra. These storms increased soil moisture of the State's watersheds, but provided little runoff for the major water supply reservoirs.

Table 8-1 presents monthly precipitation totals for water year 2007–2008 at various gauges located throughout the State. Note the dry conditions in March and April.

On January 1, 2008, the Northern Sierra 8-Station Precipitation Index (see sidebar, Precipitation and Water Supply Indices) had a seasonal total of 11.9 inches, which is about 67 percent of the seasonal average to date and about 24 percent of average for an entire water year (50.0 inches). The monthly totals for the Northern Sierra 8-Station Precipitation Index for water year 2007–2008 are presented in Table 8-2. At this time there was a continuing development of moderate La Niña conditions (cooler than average sea-surface temperatures) across the tropical Pacific. Conditions in January 2008 suggested that La Niña conditions could continue into spring. La Niña events influence the position and strength of the jet stream over the Pacific Ocean, which in turn affects winter precipitation and temperature patterns across California, the United States, and other locations in the world.

January brought significant amounts of precipitation to California, including heavy snowfall in the mountains. Many locations had above average rainfall by the end of January. Snow water content was more than twice as much as last year at this time. The large water supply reservoirs received some inflow from the January storms. The amounts, however, were reduced because much of the precipitation fell as snow. Monthly statewide snowpack for the 2007–2008 water year is shown in Table 8-3. As of February 1, water year 2008 statewide hydrologic conditions were as follows: precipitation, 110 percent of average to date; runoff, 55 percent of average to date; and reservoir storage, 85 percent of average for the date. The long-term, dry hydrologic conditions still prevailed. The water year type was declared to be "dry" for both the Sacramento and San Joaquin Valley Water Year Hydrologic Classification based on the February 1 Water Supply Index forecast.

Figure 8-1 Statewide Precipitation by Hydrologic Region, 2007–2008 Water Year, as Percent of Average

Table 8-1 Monthly Precipitation Totals at Various Locations in California during Water Year 2007–2008

	Monthly Precipitation (in inches)												
	2007			2008									
Station	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	WY Total
Mount Shasta City	3.59	0.63	7.93	10.72	3.93	0.51	0.53	1.27	0.02	0.00	0.22	0.00	29.35
% of avg	*153*	*14*	*135*	*167*	*70*	*12*	*19*	*75*	*2*	*0*	*71*	*0*	*81*
Eureka Woodley Island	4.92	2.33	7.30	9.70	2.73	3.16	2.12	0.04	0.24	0.02	0.47	0.05	33.08
% of avg	*165*	*42*	*114*	*149*	*53*	*61*	*74*	*2*	*39*	*18*	*196*	*7*	*87*
Blue Canyon (DWR-2)	5.69	2.03	11.24	15.92	9.25	3.44	0.91	1.70	0.01	0.04	0.00	0.00	50.23
% of avg	*152*	*26*	*107*	*128*	*95*	*40*	*18*	*63*	*1*	*19*	*0*	*0*	*80*
Sacramento WB City	0.93	0.98	3.35	7.42	1.83	0.12	0.01	0.04	0.00	0.00	0.00	0.00	14.68
% of avg	*101*	*48*	*105*	*198*	*56*	*5*	*1*	*9*	*0*	*0*	*0*	*0*	*82*
San Francisco WB AP	2.01	0.96	3.16	8.86	1.87	0.33	0.14	0.03	0.00	0.00	0.01	0.00	17.37
% of avg	*190*	*41*	*85*	*201*	*57*	*12*	*10*	*7*	*0*	*0*	*17*	*0*	*87*
Yosemite Headquarters	1.24	0.00	4.33	7.55	9.67	0.21	0.00	0.97	0.09	0.23	0.00	0.03	24.32
% of avg	*72*	*0*	*66*	*113*	*154*	*4*	*0*	*69*	*16*	*82*	*0*	*5*	*66*
Fresno WB AP	0.20	0.09	2.31	3.32	1.73	0.02	0.00	0.30	0.00	0.01	0.00	0.00	7.98
% of avg	*42*	*8*	*131*	*165*	*83*	*1*	*0*	*107*	*0*	*100*	*0*	*0*	*73*
Grant Grove	1.31	0.33	6.34	10.57	10.64	1.18	0.03	1.05	0.00	0.27	0.00	0.10	31.82
% of avg	*67*	*6*	*81*	*141*	*147*	*16*	*1*	*90*	*0*	*450*	*0*	*19*	*73*
Los Angeles-WSO Airport	0.69	0.50	1.59	4.67	2.17	0.03	0.03	0.11	0.00	0.00	0.00	0.00	9.79
% of avg	*182*	*35*	*76*	*173*	*74*	*2*	*3*	*79*	*0*	*0*	*0*	*0*	*77*
San Diego NWS-Lindbergh	0.37	0.97	0.80	3.34	1.21	0.26	0.00	0.23	0.02	0.00	0.00	0.00	7.20
% of avg	*88*	*86*	*42*	*163*	*63*	*16*	*0*	*110*	*29*	*0*	*0*	*0*	*69*

Table 8-2 Northern Sierra 8-Station Precipitation Index for Water Year 2007–2008

	Month	Precipitation (inches)	Percent of Monthly Average Precipitation
2007	October	3.6	120
	November	1.2	19
	December	7.2	86
2008	January	12.6	140
	February	6.9	86
	March	1.6	23
	April	0.7	18
	May	1.1	52
	June	0.0	0
	July	0.0	0
	August	0.1	33
	September	0.0	0
	Total	**34.9**	**70**

Table 8-3 Statewide Snowpack for Water Year 2007–2008

	Date	Snow Water Equivalent (inches)	Percent of Average	Percent of April 1 Average[a]
2007	October 1	0	0	0
	November 1	0	0	0
	December 1	0	0	0
2008	January 1	6	59	21
	February 1	21	116	72
	March 1	29	116	102
	April 1	27	95	95
	May 1	15	67	52
	June 1	2	---	6

[a] April 1 is the average date of peak statewide snowpack. Data is based on snow sensor information.

See Table 8-4 for water year 2007–2008 unimpaired runoff.

On April 1, 2008, the Northern Sierra 8-Station Precipitation Index had a seasonal total of 33.1 inches, which is about 79 percent of the seasonal average to date and about 66 percent of average for an entire water year (50.0 inches). The water year 2008 October through March seasonal total of 33.1 inches was the 32nd driest year out of 89 years on record. March 2008, with a precipitation total of 1.6 inches (23 percent of average), was the sixth driest March of 89 years on record. Statewide, March precipitation was about 20 percent of average. The resulting monthly storage for significant statewide reservoirs is shown in Table 8-5.

Spring 2008 turned out to be extremely dry. For water year 2008, the Northern Sierra 8-Station Precipitation Index seasonal total as of June 1 was 34.9 inches less than last year's seasonal total of 35.6 inches at this time. April 2008 was the sixth driest April on record. For the eight stations, the water year 2008 combined March through May total precipitation was only 3.4 inches, the driest on record (since 1921). The water year 2008 8-Station Precipitation Index October through May total of 34.9 inches is the 22nd driest year out of 88 years on record.

For the May 1 Water Supply Index forecast, the water year classification in both the Sacramento Valley and the San Joaquin Valley dropped to "critical".

Even though the April 1 snow water content was slightly above average, based on snow course data, the statewide April through July runoff was less than 65 percent of average. The consequence of the low runoff during water years 2008 and 2007 (when the water year runoff was 53 percent of average) was an end-of-September 2008 reservoir storage of 72 percent of average. Just 2 years earlier, the reservoir storage was 123 percent of average.

Runoff and Storage

Statewide river runoff totaled 60 percent of average in the 2007–2008 water year (see Table 8-4). The Sacramento Valley Water

Table 8-4 Unimpaired Runoff for Water Year 2007–2008 (million acre-feet)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	WY
SRR runoff	0.47	0.38	0.64	1.47	1.52	1.43	1.29	1.58	0.60	0.34	0.30	0.25	10.27
% average	*90*	*42*	*36*	*57*	*57*	*50*	*54*	*69*	*47*	*57*	*72*	*61*	*55*
SJR runoff	0.03	0.03	0.06	0.23	0.29	0.35	0.60	1.10	0.61	0.14	0.03	0.02	3.49
% average	*50*	*19*	*21*	*52*	*63*	*58*	*72*	*78*	*55*	*31*	*27*	*32*	*58*
TLR runoff	0.02	0.02	0.04	0.10	0.16	0.21	0.34	0.61	0.41	0.14	0.04	0.02	2.12
% average	*45*	*33*	*32*	*58*	*83*	*79*	*86*	*84*	*65*	*48*	*38*	*38*	*69*
Feather River runoff	0.09	0.07	0.12	0.23	0.24	0.36	0.36	0.42	0.14	0.09	0.07	0.05	2.24
% average	*78*	*36*	*29*	*39*	*40*	*50*	*55*	*65*	*43*	*57*	*64*	*57*	*48*
Statewide % average	**90**	**32**	**36**	**68**	**68**	**52**	**60**	**79**	**56**	**47**	**59**	**57**	**60**

SRR: Sacramento River Region
Sacramento River above Bend Bridge, Feather River at Oroville, Yuba River near Smartville, American River below Folsom
SJR: San Joaquin River Region
Stanislaus River below Goodwin, Tuolumne River below La Grange, Merced River below Merced Falls, San Joaquin River below Millerton Lake
TLR: Tulare Lake Region
Kings River below Pine Flat, Kaweah River below Terminus, Tule River below Lake Success, Kern River at Isabella
WY: Water Year (October 1–September 30)

Table 8-5 Reservoir Storage for Water Year 2007–2008 (thousand acre-feet and percent of average)

Reservoir	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Shasta	1,801	1,730	1,784	2,179	2,641	2,991	2,954	2,807	2,402	1,906	1,571	1,384
% of avg	*65*	*62*	*62*	*70*	*78*	*80*	*74*	*71*	*65*	*57*	*53*	*49*
Oroville	1,446	1,275	1,227	1,330	1,449	1,677	1,707	1,766	1,521	1,296	1,128	1,097
% of avg	*67*	*58*	*55*	*56*	*57*	*61*	*58*	*58*	*52*	*49*	*47*	*49*
Folsom	284	237	222	278	371	451	537	617	473	348	300	270
% of avg	*57*	*51*	*46*	*54*	*67*	*72*	*74*	*74*	*57*	*49*	*48*	*48*
San Luis	812	1,039	1,313	1,542	1,775	1,691	1,464	1,103	667	432	270	237
% of avg	*73*	*83*	*94*	*95*	*101*	*90*	*79*	*66*	*49*	*42*	*30*	*24*
Pardee	164	166	171	176	174	180	174	190	187	180	174	163
% of avg	*95*	*95*	*97*	*99*	*96*	*99*	*96*	*100*	*97*	*95*	*95*	*90*
New Melones	1,428	1,436	1,451	1,498	1,531	1,488	1,410	1,351	1,285	1,201	1,131	1,099
% of avg	*110*	*109*	*108*	*107*	*106*	*100*	*95*	*90*	*85*	*83*	*82*	*83*
Don Pedro	1,240	1,222	1,222	1,291	1,368	1,364	1,385	1,345	1,348	1,224	1,110	1,053
% of avg	*96*	*93*	*92*	*93*	*95*	*93*	*94*	*88*	*84*	*80*	*78*	*77*
Millerton	171	160	181	218	264	285	257	403	333	215	228	199
% of avg	*91*	*73*	*65*	*64*	*76*	*79*	*71*	*99*	*80*	*66*	*99*	*98*
Pine Flat	190	199	216	269	346	356	415	530	414	182	129	121
% of avg	*54*	*53*	*52*	*56*	*65*	*63*	*68*	*73*	*60*	*35*	*33*	*35*
Kaweah	12	14	20	32	40	43	93	169	133	36	14	11
% of avg	*112*	*109*	*127*	*156*	*169*	*110*	*128*	*145*	*130*	*71*	*70*	*89*
Success	3	4	6	9	20	13	23	32	14	8	5	4
% of avg	*36*	*36*	*47*	*47*	*79*	*38*	*51*	*58*	*26*	*21*	*26*	*32*
Isabella	109	107	107	115	131	152	191	252	251	203	144	122
% of avg	*68*	*71*	*70*	*68*	*73*	*78*	*85*	*86*	*82*	*75*	*68*	*66*
Statewide % avg	**85**	**85**	**80**	**85**	**85**	**85**	**85**	**80**	**75**	**75**	**75**	**70**

Year Hydrologic Classification (Sacramento Valley 40-30-30 Index) and the San Joaquin Valley Water Year Hydrologic Classification (San Joaquin Valley 60-20-20 Index), calculated using all observed data, were both critical (see sidebar, Precipitation and Water Supply Indices).

From a water supply perspective, the most closely monitored period is April through July. April concluded with 60 percent of normal runoff statewide due in part to about 55 percent of average runoff in the Sacramento River basin. May ended with statewide runoff volumes at 79 percent of average for the month.

From May 1 to the end of July, the statewide average reservoir storage dropped from 83 percent to 74 percent due to an extraordinarily dry spring (see Table 8-5).

Water Year 2008–2009 October through December Water Conditions

The last three months of calendar year 2008 mark the beginning of new water year 2008–2009.

By the end of December, statewide precipitation was about 90 percent of average as the Sacramento River and San Joaquin River basins both were less than

Precipitation and Water Supply Indices

Northern Sierra 8-Station Precipitation Index

In the northern Sierra Nevada, precipitation is indexed by averaging rain gauge totals at eight representative stations creating what is known as the Northern Sierra 8-Station Precipitation Index. The eight stations are: Mount Shasta City, Shasta Dam, Mineral, Quincy, Brush Creek, Sierraville Ranger Station, Blue Canyon, and Pacific House. The 8-Station Index provides a representative sample of the major watersheds (upper Sacramento, Feather, Yuba, and American rivers) and serves as a wetness index for the Sacramento River hydrologic region.

Sacramento River Runoff

Sacramento River runoff is the sum of unimpaired flow in million acre-feet (maf) at the Sacramento River above Bend Bridge, Feather River at Oroville (inflow to Lake Oroville), Yuba River near Smartville, and American River below Folsom Lake. The Sacramento Valley unimpaired runoff represents the natural water production of the Sacramento River basin, unaltered by upstream diversions, storage, or export of water to or import of water from other basins.

Also known as the "Sacramento River Index," this index was previously used to determine year type classifications under State Water Resources Control Board (SWRCB) Water Right Decision 1485. It was also previously referred to as the "4 River Index" or "4 Basin Index."

Eight River Index

This index is the sum of the unimpaired runoff from eight rivers—four in the Sacramento Valley and four in the San Joaquin Valley: Stanislaus River below Goodwin Dam, Tuolumne River below La Grange, Merced River below Merced Falls, and San Joaquin River below Millerton Lake.

This index determines the duration of the fish and wildlife salinity and flow standards at Chipps Island or Port Chicago from February through June.

Sacramento Valley 40-30-30 Index

SWRCB Water Right Decision 1641 (D-1641) applies the Sacramento Valley Water Year Hydrologic Classification (Sacramento Valley 40-30-30 Index), a water supply forecasting tool, to derive the water year type for the Sacramento Valley. Previously, the Sacramento River Index was used to classify types of water years. SWRCB first introduced the Sacramento Valley 40-30-30 Index in the 1991 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan), and continued using it with the 1995 Bay-Delta Plan. D-1641 implements portions of the 1995 Bay-Delta Plan with respect to the operation of the State Water Project and the Central Valley Project. The Sacramento Valley 40-30-30 Index is used to determine the Sacramento Valley water year type for the purpose of implementing water quality objectives defined in D-1641. It also provides an estimate of the potential water supply originating in the basin from rainfall and snowmelt runoff, groundwater accretion, and reservoir carryover storage. The Sacramento Valley 40-30-30 Index incorporates seasonal differences in water contribution for the year

and includes the prior year's conditions in order to establish a more reliable index of water availability. The 40-30-30 factors represent the percentage weight given to the following:

(1) 40%—the current year's April through July Sacramento Valley unimpaired runoff;

(2) 30%—the current year's October through March Sacramento Valley unimpaired runoff; and

(3) 30%—the previous year's index with a cap of 10 maf (to account for required flood control reservoir releases during wet years).

The water year type is determined by the index value on a scale specific to the Sacramento Valley (as defined in D-1641).

Classification	Index (maf)
Wet	Equal to or greater than 9.2
Above Normal	Greater than 7.8 and less than 9.2
Below Normal	Equal to or less than 7.8 and greater than 6.5
Dry	Equal to or less than 6.5 and greater than 5.4
Critical	Equal to or less than 5.4

Year types are set by the first-of-the-month forecasts beginning in February, and the Sacramento Valley 40-30-30 Index May 1 forecast determines the final water year type for implementing water quality and flow requirements contained in D-1641. The D-1641 objectives are conditioned by water year type and generally become less stringent during dryer years.

San Joaquin Valley 60-20-20 Index

D-1641 uses a similar method to determine the water year type for the San Joaquin Valley. The San Joaquin Valley Water Year Hydrologic Classification (San Joaquin Valley 60-20-20 Index) uses (1) the current year's April through July San Joaquin Valley unimpaired runoff (60 percent); (2) the current year's October through March San Joaquin Valley unimpaired runoff (20 percent); and (3) the previous year's San Joaquin Valley 60-20-20 Index (20 percent, with a cap of 4 maf to account for required flood control reservoir releases during wet years).

The water year type is determined by the index value on a scale specific to the San Joaquin Valley (as defined in D-1641).

Classification	Index (maf)
Wet	Equal to or greater than 3.8
Above Normal	Greater than 3.1 and less than 3.8
Below Normal	Equal to or less than 3.1 and greater than 2.5
Dry	Equal to or less than 2.5 and greater than 2.1
Critical	Equal to or less than 2.1

The San Joaquin Valley 60-20-20 Index May 1 forecast determines the water year type for D-1641 San Joaquin River Vernalis flow standards.

85 percent of average and the Tulare Lake Region was almost 95 percent of average. Statewide runoff was 39 percent of average for the first three months of water year 2008–2009.

State Water Project Storage

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

The San Luis Reservoir is the second of the two primary SWP conservation facilities. This Central California joint use facility derives its inflow from pumping at the Gianelli Pumping-Generating Plant. San Luis is an off-stream storage 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 SWP dams and reservoirs regulate the stored water supply in delivery patterns that are designed to fit local water demands.

Water Year 2007–2008 Storage Totals

At the end of the 2007–2008 water year, water storage in major SWP reservoirs and the State's share of joint-use reservoirs was 1.95 maf or 36 percent of maximum storage, compared to 2.72 maf or 50 percent of maximum storage at the end of water year 2006–2007. The average end-of-month total storage for the 2007–2008 water year in major SWP reservoirs was 2.59 maf. End-of-water-year storage on September 30, 2008, at Lake Oroville was 1.10 maf, which was about 0.47 maf less than the previous water year. The State's share of San Luis Reservoir storage at the end of the 2007–2008 water year was 199,746 acre-feet (af), compared with 445,112 af in the previous water year. The combined storage in southern reservoirs was 570,653 af on September 30, 2008, compared with 618,703 af at the end of the 2006–2007 water year.

Calendar Year 2008 Storage Totals

The total storage in major SWP reservoirs was about 1.79 maf at the end of calendar year 2008, compared with 2.45 maf in 2007. The State's share of San Luis Reservoir storage was 258,147 af on December 31, 2008, compared with 663,928 af at the same time in 2007. The combined storage in the southern reservoirs was 552,394 af on December 31, 2008, compared with 556,671 af at the same time in 2007.

Lake Oroville

Lake Oroville has a maximum water storage capacity of 3,537,580 af. Runoff from the upper 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 2007–2008 Inflow

Lake Oroville inflow for the 2007–2008 water year totaled about 1.945 maf, which was 45 percent of the 30-year average (4.25 maf). Maximum daily inflow occurred on January 5, 2008, at 19,233 af. Minimum daily inflow occurred on December 11, 2007, at 117 af. Peak monthly total inflow occurred in May at 301,695 af, 15.5 percent of the water year total. Figure 8-2 shows monthly Lake Oroville inflow for calendar years 2006, 2007, and 2008. 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 1976–1977 at 1,555,774 af. Figure 8-3 shows cumulative Lake Oroville inflow for calendar years 1983, 1977, and 2008.

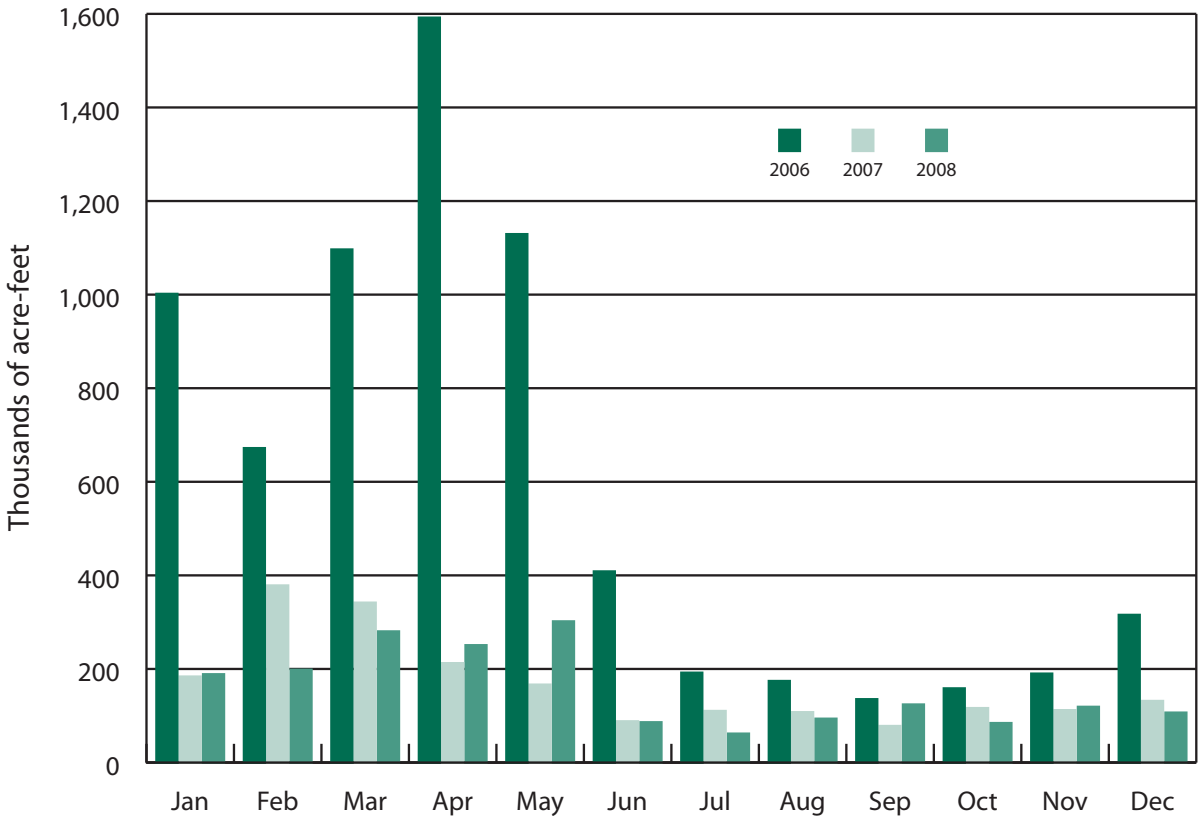

Figure 8-2 **Monthly Inflow into Lake Oroville from the Feather River, 2006–2008 Calendar Years**

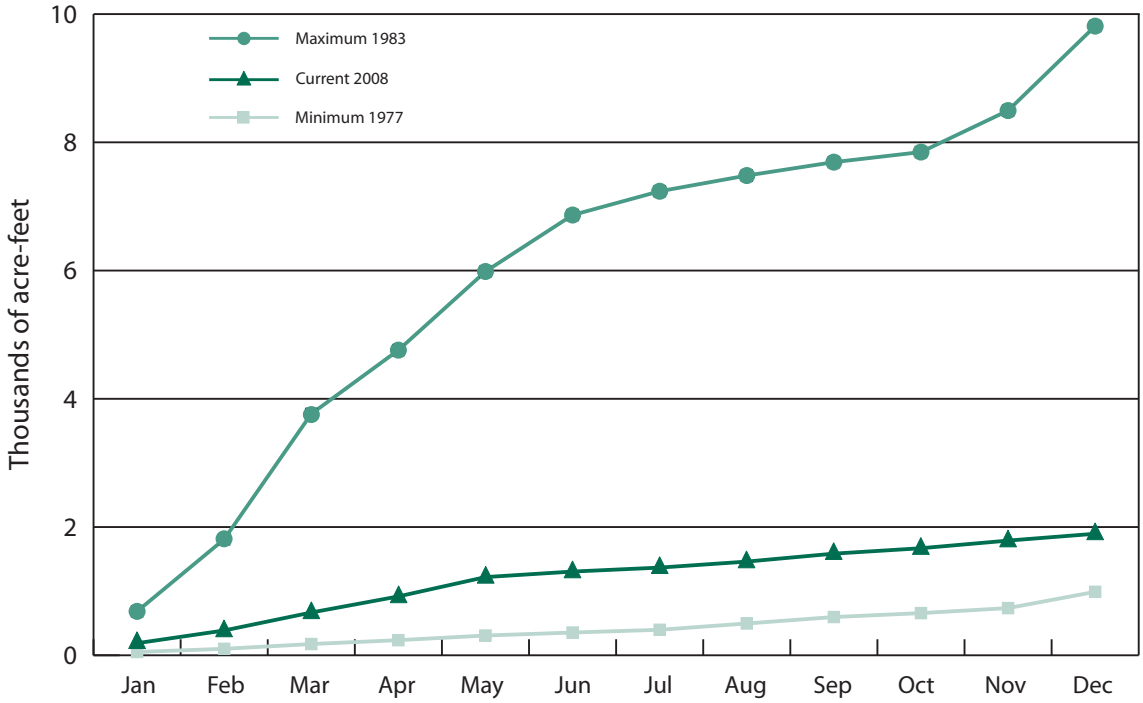

Figure 8-3 **Cumulative Maximum, Minimum, and Current Lake Oroville Inflow, Calendar Years 1983, 1977, and 2008, Respectively**

Calendar Year 2008 Inflow and Storage

Total Lake Oroville inflow during the calendar year was 1,895,456 af. Minimum storage occurred on December 20, 2008, at 964,990 af, 27 percent of its capacity. Maximum storage occurred on May 26, 2008, at 1,781,717 af, 50 percent of its capacity. End-of-year Lake Oroville storage was 981,102 af. Figure 8-4 compares end-of-month storage in Lake Oroville for the 2007 and 2008 calendar years.

2007–2008 Water Year San Luis Reservoir Operations

San Luis Reservoir is operated jointly by DWR and the Bureau of Reclamation per operating procedures 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 February 28, 2008, at 1,776,149 af, 88 percent of its normal maximum operating capacity. At the beginning of the water year, San Luis Reservoir contained 645,424 af, 32 percent of its capacity. SWP storage share at the beginning of the water year was 445,114 af. The highest end-of-month SWP share of water storage for the 2007–2008 water year occurred on March 31, 2008, at 917,293 af. (See Figure 8-5.)

2007–2008 Water Year Lake del Valle Operations

Lake del Valle, which is located off the South Bay Aqueduct, functions primarily as a storage facility for water delivery into Santa Clara and Alameda counties. At the beginning of the water year, Lake del Valle held 32,724 af, which was about 42 percent of its maximum capacity of 77,106 af. Its highest storage during the 2007–2008

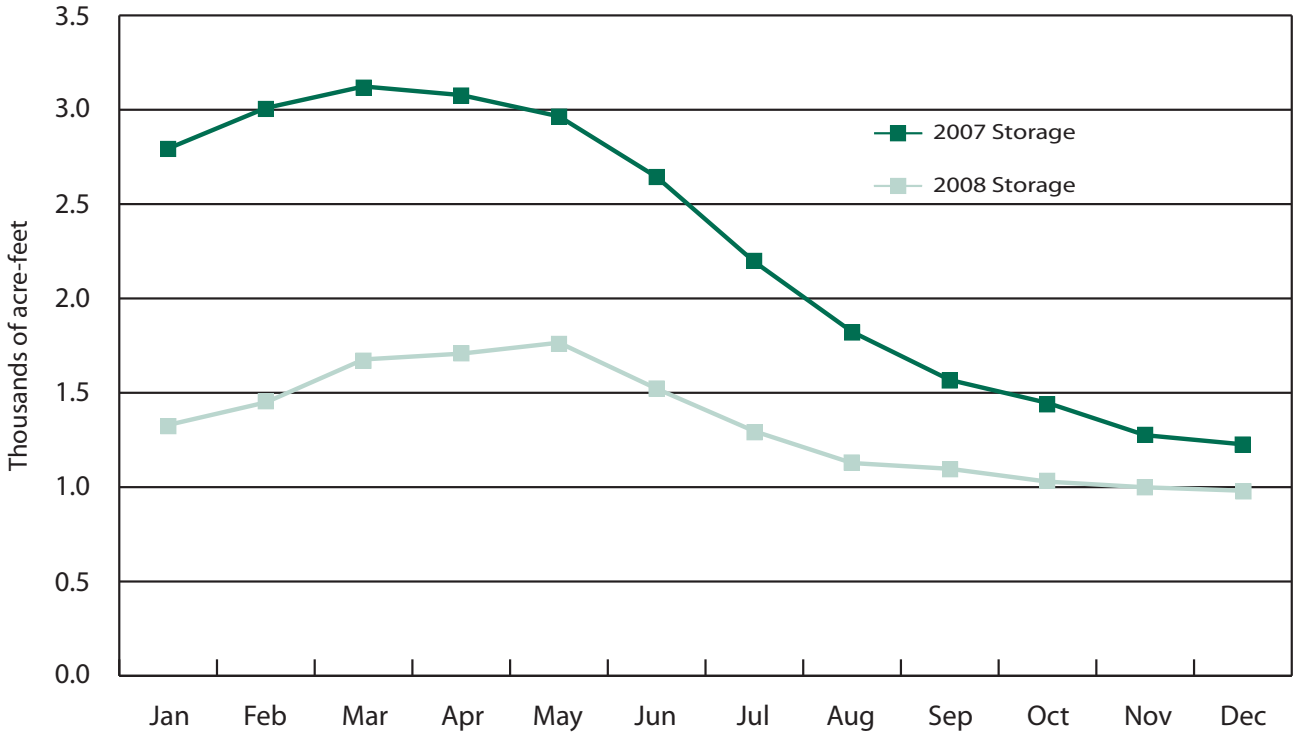

Figure 8-4 End-of-Month Storage in Lake Oroville, 2007 and 2008 Calendar Years

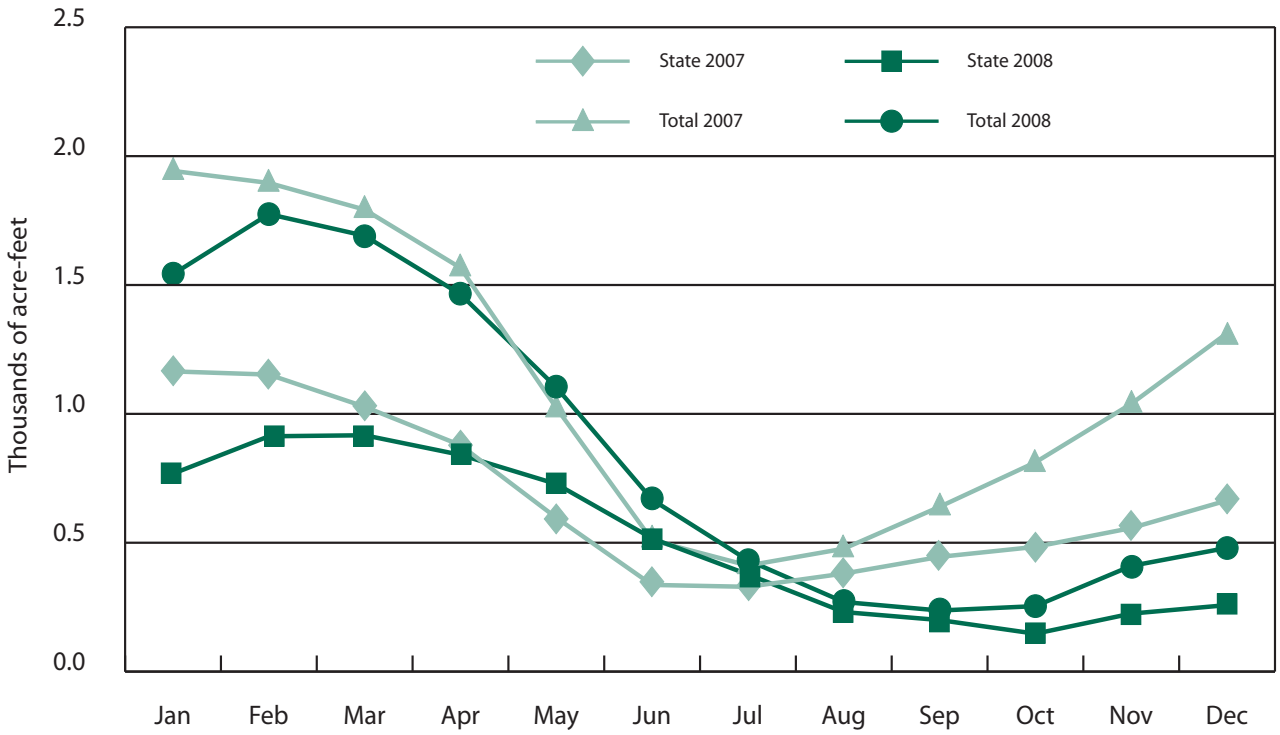

Figure 8-5 End-of-Month Storage in San Luis Reservoir, 2007 and 2008 Calendar Years

water year occurred on February 6, 2008, at 42,094 af. Its lowest storage occurred on January 3, 2008, at 29,417 af.

By the end of the water year, on September 30, 2008, storage in Lake del Valle was 38,170 af, 47 percent of its maximum capacity of 77,106 af. There were no releases to Arroyo Valle, and releases for the water year to the South Bay Aqueduct from Lake del Valle totaled 14,235 af.

2007–2008 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 618,703 af, which is 89.8 percent of their combined normal maximum operating capacity of 689,021 af. At the end of the water year, the reservoirs held 570,653 af, 82.8 percent of combined normal maximum operating capacity.

Diversions from the Delta

SWP diverts water from the Sacramento-San Joaquin Delta, through the Banks and Barker Slough pumping plants, for delivery to SWP water contractors' storage facilities. In 2008, the SWP diverted 1,175,776 af at Banks Pumping Plant. There was no Cross Valley Canal or Central Valley Project (CVP) water wheeled at Banks Pumping Plant by DWR during 2008. The CVP diverted 1,813,533 af at the Jones Pumping Plant and 129,145 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 2008 at the Banks Pumping Plant. Figure 8-7 shows the monthly amounts of water diverted from the Delta in 2008 by the SWP and CVP. The CVP

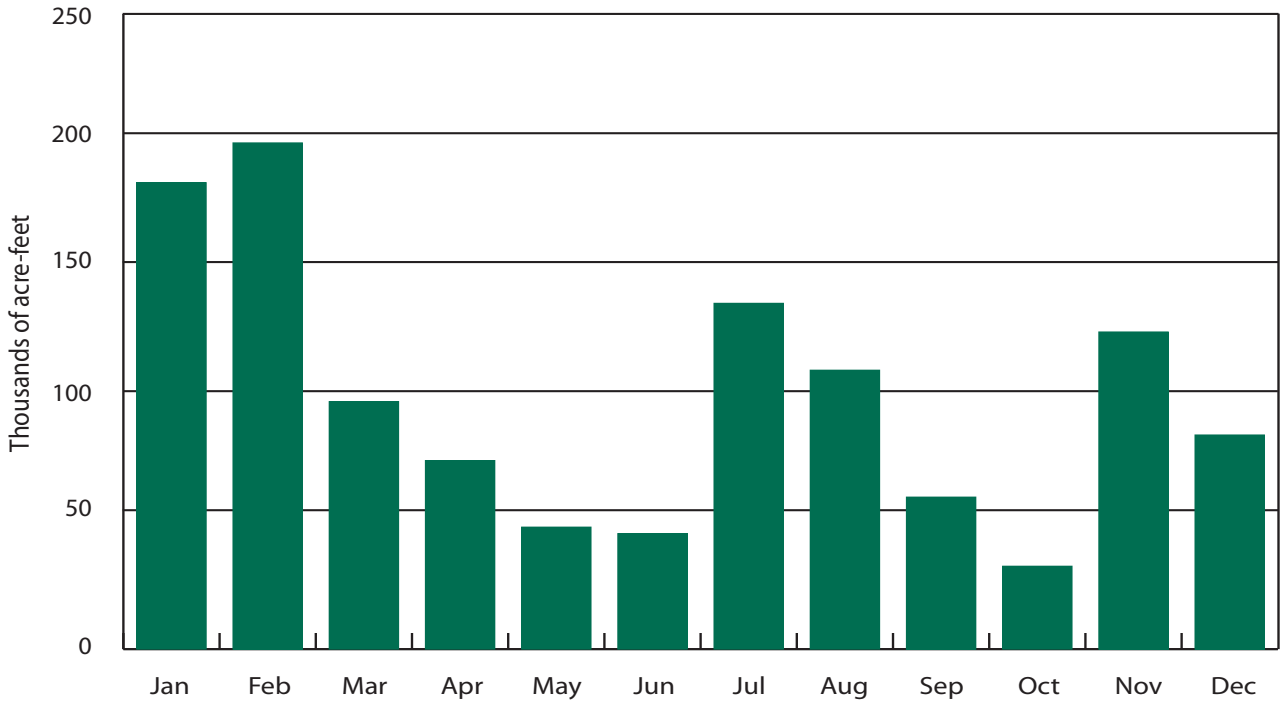

Figure 8-6 Water Pumped at Banks Pumping Plant, 2008 Calendar Year

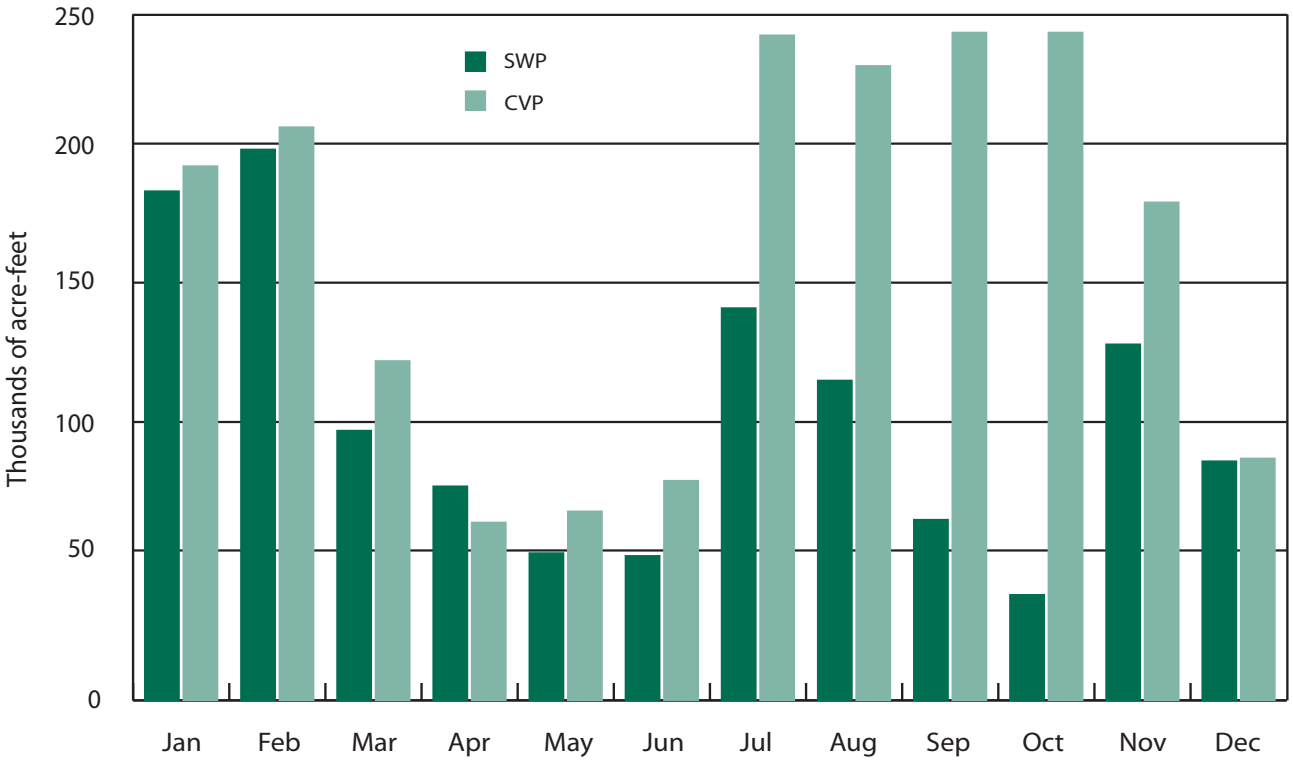

Figure 8-7 Sacramento-San Joaquin Delta Exports by State Water Project and Central Valley Project, 2008 Calendar Year

diverts water to similar areas from the Delta through Jones 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 2008, the North Bay Aqueduct received 55,678 af of project water from the Barker Slough Pumping Plant.

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 calendar year 2008. Monthly total amount pumped at Dos Amigos Plant peaked in July, 2008, at 364,499 af for the calendar year.

Maximum daily Delta exports occurred on January 11, 2008, at 17,891 af. Combined SWP and CVP monthly Delta exports in 2008 varied from a low of 115,031 af in May, to a high of 402,228 af in February. In 2008, Delta exports totaled approximately 3.12 maf.

In 2008, water pumped through the Edmonston Pumping Plant for delivery to Southern California totaled 1,255,828 af. Figure 8-9 shows the amount of water pumped each month in 2008.

For more information, see the water supply information website at http://cdec.water.ca.gov/water_supply.html.

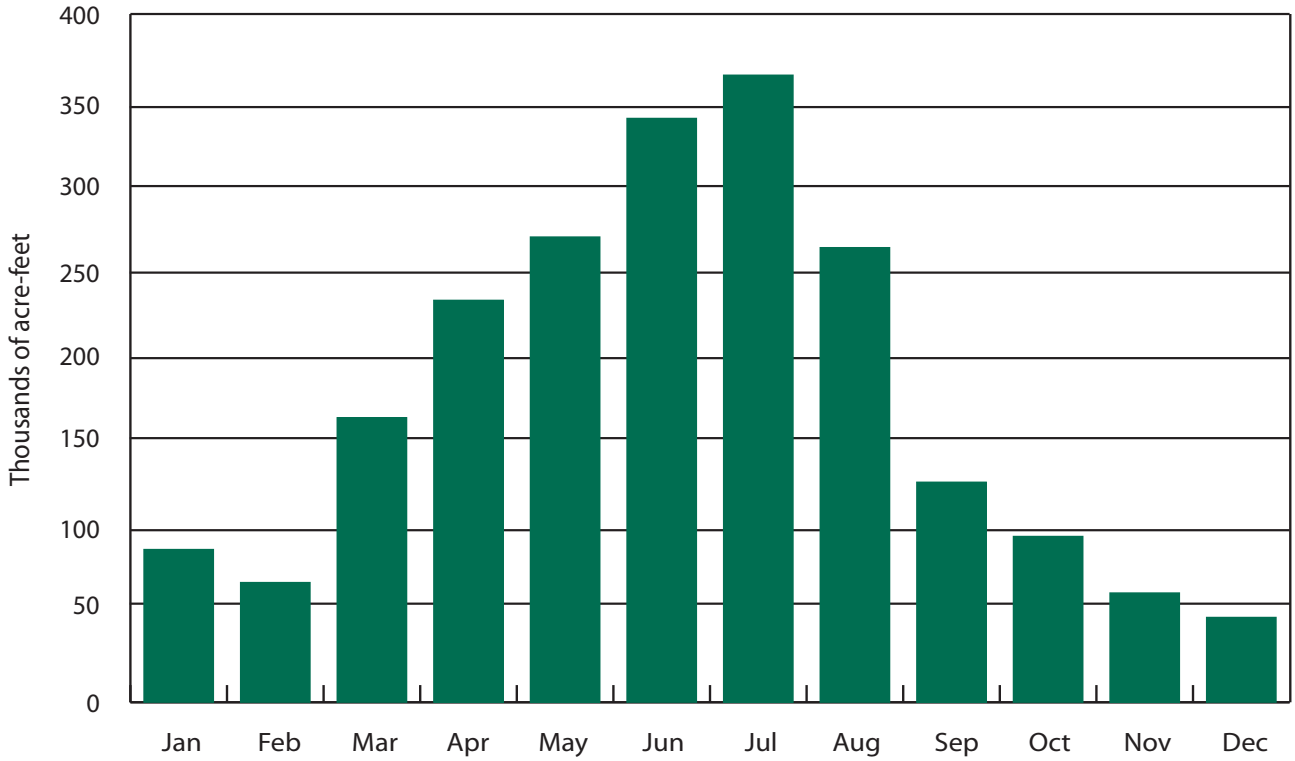

Figure 8-8 Water Pumped at Dos Amigos Pumping Plant, 2008 Calendar Year

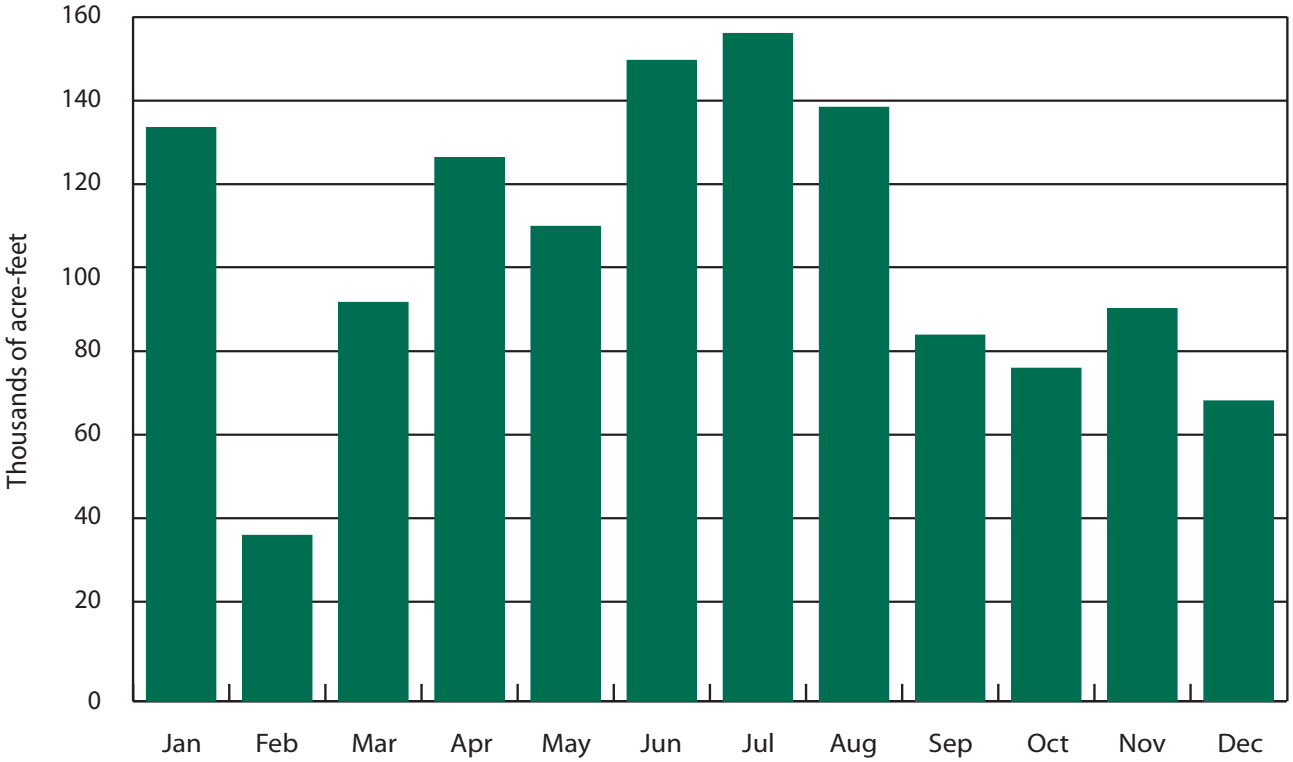

Figure 8-9 Water Pumped at Edmonston Pumping Plant, 2008 Calendar Year

Chapter 9
Water Contracts and Deliveries

At 3,355 feet, Silverwood Lake is the State Water Project's highest reservoir.

Significant Events in 2008

The Sacramento and San Joaquin river regions in 2008 were both classified "critical." As a result, the Department of Water Resources (DWR) only approved 35 percent of the State Water Project (SWP) contractors' Table A requests, which totaled 1,458,334 acre-feet (af).

Significant areas of California experienced water deficiencies because 2008 was the second consecutive year of critically dry conditions. To assist in easing the water shortages, DWR executed 34 agreements with 8 SWP contractors for *Storage and Conveyance of 2008 Transfer Water* under Article 55 of their long-term water supply contracts with DWR. DWR delivered 48,453 af to the participating SWP contractors.

Pursuant to the *Agreement for the Long-term Purchase of Water from Yuba County Water Agency*, Yuba County Water Agency (Yuba) delivered Component 1 water, totaling 60,000 af, Component 2 water totaling 30,000 af, Component 3 water totaling 40,000 af, and Component 4 water totaling 36, 086 af. Yuba delivered a total of 166,086 af. Yuba's deliveries comprised 117, 211 af of storage releases and 48,875 af of groundwater substitution. In addition, 11,419 af of 2007 Lower Yuba River Accord (Yuba Accord) pilot water transfers for the Environmental Water Account (EWA) was pumped through the Banks Pumping Plant.

To meet water demands in their service areas, six SWP contractors recovered 226,504 af, a record amount of water, from various water banking programs.

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

The long-term water supply contracts between the Department of Water Resources (DWR) and 29 public agencies and local water districts provide for water service from the State Water Project (SWP) and are the basis for the SWP's construction and ongoing operations. The State provides SWP financing, capital construction, improvements, and all operations and maintenance of SWP facilities and the agencies and districts have contractually agreed to repay all associated costs.

The contracts also set forth the maximum amount of water a contractor may request each year from the SWP, and the maximum water amounts written within the contracts in a list format are known as Table A. "Table A" or "Table A water" represents a portion or all of the annual Table A requested by SWP water contractors and approved for delivery by DWR based on hydrologic conditions, current reservoir storage, and combined requests from the SWP water contractors. Under certain conditions, DWR is not able to deliver the quantity of water requested by contractors. In these years, a proportional amount is allocated and delivered according to the long-term water supply contracts by prorating the amount in proportion to each SWP water contractor's maximum Table A amount. Table A amounts may also be used as a factor to allocate other available water supplies to each contractor. Approved Table A amounts may also be referred to in this chapter as "approved amounts," "approved water," or "allocated water." Long-term water supply contracts can be found at http://www.water.ca.gov/swpao/wsc.cfm.

The long-term water supply contracts are amended as needed. During 2008, no water supply contract amendments were executed or became effective; however, an amendment to the contract between Antelope Valley-East Kern Water Agency (AVEK) and DWR is pending execution and is more fully described in this chapter.

DWR also enters into agreements with SWP water 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. These agreements are listed in this chapter.

The State Water Project Analysis Office (SWPAO) developed a numbering system for contracts, amendments, and agreements executed by DWR. These numbers, referred to as SWPAO numbers, are designated in Chapter 9 text as "SWPAO #XXXXX" and are located in parentheses after each contract, amendment, or agreement description. 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 long-term water supply contracts signed by DWR,public agencies, and local water districts, have been previously amended to incorporate mutually desired changes. Most amendments fall under the following general categories:

(1) permanent transfers of Table A amounts from one SWP contractor to another;

State Water Project Long-term Water Supply Contracts

The first water supply contract was signed with the Metropolitan Water District of Southern California (Metropolitan) 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 the Governor 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 (af), 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 af, and the contracts are in effect for the longest of the following periods: (1) the project repayment period, which extends to 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.

(2) allocation of costs and benefits for the addition or enlargement of SWP facilities;
(3) purchase of excess capacity in the California Aqueduct; and
(4) provisions to implement Monterey Agreement principles.

2008 Amendments to Long-term Water Supply Contracts

No water supply contract amendments were executed or became effective during 2008.

Increase Table A

Antelope Valley-East Kern Water Agency. Amendment No. 22 to the water supply contract between AVEK and DWR is pending execution. The amendment will provide

for increased capacity and an increase of 1,700 af to Table A amounts by adding the use of Reach 22B because of the annexation of 517 acres into AVEK's service area. (SWPAO #08060)

Monterey Amendments

The Monterey Amendments increase the reliability of existing water supplies, 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 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.water.ca.gov/swpao/bulletin.cfm.

Plumas County Flood Control and Water Conservation District (Plumas) and Empire-West Side Irrigation District (Empire) remain the only long-term SWP water contractors who have not signed the Monterey Amendments.

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 was released in October 2007 and is available online at http://www.water.ca.gov/environmentalservices/docs/mntry_plus/DEIR%20-%20Volume%201/01%20Intro.pdf. The final EIR is expected to be released in early 2010. The settlement agreement is discussed in detail in Chapter 9, Water Contracts and Deliveries, of Bulletin 132-04 (available online at http://www.water.ca.gov/swpao/bulletin.cfm).

Miscellaneous Agreements with Long-term SWP Water Contractors

2008 Water Conveyance and Exchange Agreements

Water conveyance and exchange agreements that were executed or pending execution with long-term SWP water contractors during 2008 are described below.

Antelope Valley-East Kern Water Agency

A letter agreement pending execution among DWR, AVEK, and Kern County Water Agency (Kern) provides for conveyance of up to 8,393 af of pre-1914, non-SWP water acquired by AVEK through Tejon Ranchcorp and Nickel Farms LLC. The non-SWP water will be conveyed to AVEK either by in-lieu exchange of Kern's Table A water for a like amount of Nickel's water or by direct pump-in to the California Aqueduct for conveyance under Article 55 of AVEK's long-term water supply contract. A total of 2,520 af was delivered under this agreement during 2008. (SWPAO #08061)

Castaic Lake Water Agency

An agreement executed February 4, 2008, among DWR, Castaic Lake Water Agency (Castaic Lake), and Kern provides for the long-term annual conveyance of up to 11,000 af of non-SWP Kern River water from Buena Vista Water Storage District (Buena Vista), a member unit of Kern, to Castaic Lake. The Kern River water will be provided to Castaic Lake either by a change in point of delivery of a portion of Kern's Table A water in exchange for a like amount of Buena Vista's water or by direct pump-in to the California Aqueduct. The Kern River water was conveyed under Article 55 of Castaic Lake's long-term water supply contract. A total of 11,000 af was delivered under this agreement during 2008. (SWPAO #07008)

Coachella Valley Water District

A change in point of delivery agreement is pending execution among DWR, Coachella Valley Water District (Coachella), and Kern for conveyance of up to 10,000 af of either: (a) a portion of Kern's Table A; or (b) non-SWP water from Kern's service area to Coachella under Article 55 of Coachella's long-term water supply contract. Coachella will take delivery of this water via its exchange agreement for Colorado River water with Metropolitan Water District of Southern California (Metropolitan). The agreement, upon execution, will be effective until December 31, 2010. A total of 3,000 af was conveyed during 2008 pursuant to this agreement. (SWPAO #07022)

County of Kings

A long-term change in point of delivery agreement executed May 6, 2008, among DWR, County of Kings (Kings), and Westlands Water District (Westlands) provides for Kings' approved SWP water supplies to be conveyed to specified Westlands' turnouts in the California Aqueduct. This agreement defines the Westlands turnouts to be used during the term of the agreement, January 1, 2007, through December 31, 2035. Kings requested the water for use on Westlands' agricultural lands within Kings' service area. During 2008, DWR conveyed 4 af of Turn-Back Pool A water and 1,330 af of Kings Table A water through Westlands turnouts pursuant to this agreement. (SWPAO #07010)

Crestline-Lake Arrowhead Water Agency

A point of delivery agreement executed April 17, 2008, among DWR, Crestline-Lake Arrowhead Water Agency (Crestline), and San Bernardino Valley Municipal Water District (San Bernardino) provides for an emergency water supply totaling 7,600 af to Lake Arrowhead Water Community Services District (Lake Arrowhead) effective from January 1, 2007 through December 31, 2020, or until all water has been delivered pursuant to this agreement. Prior to 2008,710 af was supplied to Crestline by San Bernardino pursuant to this agreement. During 2008, Crestline received 411 af from San Bernardino. (SWPAO #07025)

A letter agreement dated December 17, 2008, and executed December 22, 2008, among DWR, Crestline, and San Bernardino provides for an exchange of up to 1,000 af of Crestline's 2008 Table A water to San Bernardino by December 31, 2008, and for San Bernardino to return the same amount to Crestline from its future Table A supply by December 31, 2011. This agreement is a 1:1 af exchange only, with no monetary consideration. During 2008, 1,000 af of Crestline's Table A water was conveyed to San Bernardino. (SWPAO #08063)

Desert Water Agency

A letter agreement dated October 3, 2008, and executed October 10, 2008, between DWR and Desert Water Agency (Desert) to provide for conveyance of up to 8,350 af of non-SWP water from Kern's service area under Article 55 of Desert's long-term water supply contract. The non-SWP water was acquired by Desert from water stored in Kern's service area by North Kern Water Storage District (North Kern), a member unit of Kern. A total of 8,350 was conveyed by DWR in 2008 for Desert. (SWPAO #08055)

Dudley Ridge Water District

A letter agreement dated May 22, 2008, and executed June 3, 2008, among DWR, Dudley Ridge Water District (Dudley Ridge), and Kern provides for the transfer of up to 9,000 af of Dudley Ridge's 2008 Table A water to be delivered to Kern on behalf of a landowner who farms in both the Dudley Ridge and Kern service areas. During 2008 2,800 af was delivered under this agreement. (SWPAO #08012)

A letter agreement dated July 23, 2008, and executed August 1, 2008, between DWR and

Dudley Ridge approved the transfer of up to 300 af of its 2008 Table A water to Westlands for Kettleman Hills Fruit Growers who own lands in both Dudley Ridge and Westlands. An amendment dated September 22, 2008, and executed September 30, 2008, approved an additional 300 af, for a total of up to 600 af. During 2008, a total of 400 af was delivered under this agreement. (SWPAO #08051 and #08051-A)

Empire-West Side Irrigation District

A contract executed April 21, 2008, between DWR and Empire provides for delivery of unscheduled water to Empire in 2008 at times when SWP water is not needed for fulfilling Table A deliveries or for meeting project operational commitments. No unscheduled water was available for delivery to Empire during 2008. (SWPAO #08002)

Kern County Water Agency

A letter agreement dated March 12, 2008, and executed November 10, 2008, between DWR and Kern, provided for the delivery of up to 1,000 af of City of Tracy's 2006–2007 Central Valley Project (CVP) water to Kern for Semitropic Water Storage District (Semitropic) to use in-lieu or for direct recharge of the local groundwater basin. In exchange, 100 af was returned to Tracy in 2007 and a total of 800 af in future years. No water was returned to Tracy during 2008 pursuant to this agreement. (SWPAO #07011)

A letter agreement dated September 4, 2007, and executed November 4, 2008, between DWR and Kern, provided for the delivery of up to 53,300 af of 2007–2008 CVP water to Kern from Kern-Tulare Water District (Kern-Tulare) and Rag Gulch Water District (Rag Gulch), both Cross Valley Canal (CVC) contractors, in exchange for a like amount of Kern's Table A water. The CVP water was delivered pursuant to Article 55 of Kern's long-term water supply contract. The agreement is effective from March 1, 2007, through February 29, 2008. No water was conveyed under this agreement during 2008. (SWPAO #07016)

A letter agreement pending execution between DWR and Kern provides for the conveyance of up to 50,000 af of Westlands' 2008–2009 CVP water by DWR to Semitropic in exchange for a like amount of water to be returned by December 31, 2019. The Bureau of Reclamation (Reclamation) will make Westlands' water available at O'Neill Forebay and DWR will convey the water to Semitropic in Kern's service area. No water was moved under this agreement in 2008. (SWPAO #08007)

A letter agreement dated September 8, 2008, is pending execution between DWR, Kern, and Oak Flat Water District (Oak Flat) to facilitate a multi-part return of water previously banked in Kern's service area by Westlands. Kern would provide up to 650 af of its 2008 Table A to be delivered to Oak Flat as transfer water from Westlands, who in turn would provide its water stored in Semitropic by exchange to Kern. DWR conveyed 650 af to Oak Flat in 2008. (SWPAO #08053)

A letter agreement dated December 12, 2008, is pending execution between DWR and Kern to provide for the return by exchange of 100 af of the City of Tracy's CVP water previously delivered to Semitropic in Kern's service area under the Semitropic Banking and Exchange Program. DWR conveyed 100 af of Kern's Table A water during 2008 to O'Neill pursuant to this agreement. (SWPAO #08056)

A letter agreement dated December 12, 2008, is pending execution between DWR and Kern to provide for the conveyance of up to 21,320 af of 2008 CVP water under Article 55 to Kern from two CVC contractors, Kern-Tulare and Rag Gulch, in exchange for a like amount of Kern's Table A water. During 2008, Kern-Tulare provided 5,400 af and Rag Gulch provided 1,320 af of CVP water to Kern pursuant to this agreement. (SWPAO #08058)

An agreement dated and executed May 4, 2008, among DWR, Kern, and Westlands provided approval for Kern to make available to Westlands up to 15,000 af of Kern's 2008 Table A water in exchange for the same amount of water previously stored and acquired by Westlands from Westside Mutual Water Company in Kern Water Bank. Up to 13,000 af of Kern's Table A water will be conveyed to Westlands' turnouts. An additional 2,000 af will be conveyed to O'Neill for Water Quality Management under Westlands' agreement, SWPAO #08052, Article 8. Actual water conveyed during 2008 to Westlands service area was 12,719 af and 1,430 af was made available to the SWP at O'Neill. (SWPAO #08067)

Littlerock Creek Irrigation District

A letter agreement dated October 16, 2008, and executed October 23, 2008 among DWR, Littlerock Creek Irrigation District (Littlerock), and AVEK provides for the conveyance of up to 805 af of Littlerock's 2008 Table A water to AVEK by December 31, 2008. AVEK will return an equal amount of its allocation of Table A water by December 31, 2018. This agreement is a 1:1 af exchange only with no monetary consideration. During 2008, DWR delivered a total of 805 af of Littlerock's Table A water to AVEK's service area. (SWPAO #08059)

Mojave Water Agency

A letter agreement dated December 7, 2007, and executed on March 10, 2008, among DWR, Mojave Water Agency (Mojave), and Solano County Water Agency (Solano) provided for the delivery of up to 2,000 af of Solano's approved 2005 SWP water supplies to Mojave. In exchange, Mojave will provide up to 1,000 af of its future SWP water supplies to Solano during a dry year. All water is to be returned to Solano by December 31, 2015. No water was returned to Solano under this letter agreement during 2008. (SWPAO #05019)

Palmdale Water District

An agreement dated April 8, 2008, and executed July 23, 2008, among DWR, Kern, West Kern Water District (West Kern), a member unit of Kern, and Palmdale Water District (Palmdale) provides for the delivery of 5,000 af of West Kern's portion of Kern's 2007 Table A water to Palmdale, effective September 1, 2007. By December 31, 2017, Palmdale will return of 10,000 af of Palmdale's Table A water to Kern on a 2:1 basis. This exchange allowed Palmdale to acquire an additional water supply of 4,926 af from Kern for DWR delivery during 2007. No water was provided to be returned during 2008 to Kern. (SWPAO #07029)

An agreement dated and executed July 8, 2008, among DWR, Palmdale, and County of Butte (Butte) provides approval for the delivery of up to 8,750 af of Butte's 2008 Table A water and possibly a portion of its 2009 Table A allocation to Palmdale. Approval for delivery of Butte's 2009 Table A water to Palmdale is contingent upon final 2008 allocations and 2009 Table A allocations available through December 31, 2009. Butte provided 8,749 af of its Table A for conveyance by DWR to Palmdale during 2008. (SWPAO #08011)

San Gorgonio Pass Water Agency

A letter agreement pending execution among DWR, San Gorgonio Pass Water Agency (San Gorgonio), and San Bernardino provides for an exchange of up to 1,000 af of San Gorgonio's 2008 Table A water to San Bernardino by December 31, 2008, and for San Bernardino to return the same amount to San Gorgonio from its future Table A supply by December 31, 2011. This agreement is a 1:1 af exchange only, with no monetary consideration. During 2008, 1,000 af was conveyed to San Bernardino. (SWPAO #08064)

San Luis Obispo County Flood Control and Water Conservation District

An agreement executed July 22, 2008 among DWR, Santa Barbara County Flood Control and Water Conservation District (Santa Barbara), and San Luis Obispo County Flood Control and Water Conservation District (San Luis Obispo) provides approval for the delivery of up to 5,200 af of San Luis Obispo's 2008 Table A water and possibly a portion of its 2009 Table A allocation to Santa Barbara. Approval for delivery of San Luis Obispo's 2009 Table A water to Santa Barbara is contingent upon final 2008 allocations and 2009 Table A allocations available through December 31, 2009. The amount transferred to Santa Barbara from San Luis Obispo during 2008 was 5,110 af. (SWPAO #08047)

Santa Barbara County Flood Control and Water Conservation District

A letter agreement dated May 21, 2008, and executed July 24, 2008, among DWR, Santa Barbara, and Kern approved the transfer of up to 1,000 af of Santa Barbara's 2008 Table A water to be delivered to Kern. In exchange, Kern will provide up to 500 af from its future allocation of Table A water by May 1, 2013, to Santa Barbara. During 2008, Santa Barbara transferred 600 af of its Table A water to Kern. (SWPAO #08008)

Santa Clara Valley Water District

A long-term letter agreement dated September 12, 2008, is pending execution among DWR, Santa Clara Valley Water District (Santa Clara), and Kern to provide for the conveyance of a portion of Santa Clara's 2008 CVP water to Semitropic pursuant to Article 55 of Santa Clara's long-term water supply contract. Kern's Table A water will be exchanged for recovery of Santa Clara's stored CVP supplies in future years through December 31, 2035. This agreement also acknowledges DWR conveyance of CVP water in 2005 and 2006 to Semitropic. During 2008, 3,681 af was conveyed for storage and no water was recovered by Santa Clara through exchange of Kern's Table A from Semitropic pursuant to this agreement. (SWPAO #06012)

A letter agreement among DWR, Santa Clara, and Kern, dated September 11, 2008, and executed on November 4, 2008, provides for a one-time transfer of up to 10,500 af of Kern's 2008 SWP Table A water to Santa Clara. The purpose of this transfer is to facilitate a CVP water transfer between Orange Cove Irrigation District (Orange Cove) and San Luis Water District (San Luis), both CVP contractors. Specifically, Kern would take delivery of Orange Cove's CVP water for use in Kern's service area, and a like amount of Kern's SWP water would be released to Santa Clara, which in turn, would release its CVP water to San Luis. In 2008, a total of 8,885 af was delivered to Santa Clara. (SWPAO #08054)

Tulare Lake Basin Water Storage District

A letter agreement dated June 17, 2008, and executed June 26, 2008, between DWR and Tulare Lake Basin Water Storage District (Tulare) approved the transfer of up to 7,000 af of Tulare's 2008 Table A water to Westlands. The transfer was made on behalf of two landowners, Hansen Ranches for up to 6,000 af, and Newton Farms for up to 1,000 af, both of which farm in Tulare's and Westlands' service areas. DWR petitioned for and received approval from the State Water Resources Control Board (SWRCB) for a temporary change in place of use. During 2008, a total of 1,355 af of Tulare's Table A water was delivered to Westlands. (SWPAO #08003)

A letter agreement dated October 3, 2008 and executed November 10, 2008 between DWR and Tulare approved the transfer of up to 2,000 af of Tulare's 2008 Table A water to Westlands on behalf of Westlake Farms Inc., which farms in both Tulare's and Westlands'

service areas. During 2008, a total of 1,500 af was delivered to Westlands for use on lands within the SWP place of use, the Kings County portion of Westlands' service area. (SWPAO #08004)

A letter dated June 23, 2008, from DWR to Tulare approved a change in point of delivery of a portion of Tulare's 2008 and 2009 SWP water to Dudley Ridge's turnouts on behalf of Sandridge Partners, a landowner who farms within both water service areas. A total of 1,902 af was delivered to Dudley Ridge in 2008. (SWPAO #08048)

A long-term change in point of delivery agreement pending execution among DWR, Tulare, and Dudley Ridge will provide for the delivery of Dudley Ridge's SWP water supplies through Tulare's turnout and for subsequent delivery into Dudley Ridge's service area effective January 1, 2008, through December 31, 2035. No water was conveyed under this pending agreement during 2008. (SWPAO #08062)

Water Conveyance and Exchange Agreements Prior to 2008

Activity during 2008 pursuant to agreements with SWP water contractors executed prior to 2008 is described below.

Castaic Lake Water Agency

By a letter dated June 2, 1994, DWR recognized the long-term agreement *Wheeling of SWP Water and other Allocated Water to Castaic Lake Water Agency* between Castaic Lake and of Metropolitan for the conveyance of Castaic Lake's SWP water supplies through Metropolitan's Foothill Feeder. Metropolitan will convey Castaic Lake's water to the Rio Vista Water Treatment Plant in Castaic's service area. During 2008, DWR delivered to Metropolitan's turnout facility 21,095 af of Castaic Lake's approved SWP water supplies: 7,302 af was Article 56(c) water and 13,793 af was Table A water. (SWPAO #94001)

County of Kings

A long-term change in point of delivery agreement, executed March 10, 2006, among DWR, Kings, and Tulare will provide for the delivery of up to 200 af of Kings' annual Table A water and other SWP water supplies to Westlands' service area. The water is conveyed to GWF Energy, LLC, for use within the SWP place of use, Kings County service area. During 2008, 12 af was delivered to Westlands' turnouts. (SWPAO #02031)

A long-term change in point of delivery agreement, executed March 24, 2004, among DWR, Kings, and Westlands provides the delivery of up to 5,000 af of Kings' annual Table A water through Westlands' turnouts for use at Lemoore Naval Air Station. The agreement is effective from January 1, 2004, through December 31, 2035. During 2008, DWR delivered a total of Kings' 2,089 af to Westlands' turnouts, which included 351 af of Article 12E water and 1,738 af of Table A water. (SWPAO #04005)

Dudley Ridge Water District

A long-term change in point of delivery agreement executed February 13, 2004, among DWR, Dudley Ridge, and Kern provides for a portion of Dudley Ridge's SWP water to be delivered to Cawelo Water District, a member unit of Kern. The water will be returned to Dudley by an in-lieu exchange of Kern's SWP water supplies. During 2008, a total of 982 af was returned to Dudley Ridge. (SWPAO #03053)

A letter agreement dated September 13, 2006 and executed October 2, 2006, among DWR, Dudley Ridge, and San Gabriel Valley Municipal Water District (San Gabriel) provided for delivery of a portion of Dudley Ridge's 2005 and 2006 approved SWP water supplies to San Gabriel's service area for groundwater recharge. In future years,

through December 31, 2016, San Gabriel will return a like amount of its Table A water to Dudley Ridge. During 2008, a total of 3,500 af of San Gabriel's water was returned to Dudley Ridge. (SWPAO #05017)

A multiyear exchange agreement is pending execution among DWR, Dudley Ridge and San Gabriel for conveyance of Dudley Ridge's approved SWP water supplies to San Gabriel effective January 1, 2008 through December 31, 2020. San Gabriel will provide for the return of its approved SWP water in future years through December 31, 2030. Dudley Ridge provided 632 af of its Table A water for conveyance to San Gabriel during 2008. (SWPAO #08001)

Kern County Water Agency

A long-term point of delivery agreement executed on June 8, 2000, between DWR and Kern provides approval for the delivery to Western Hills Water District (Western Hills)of a portion of Kern's annual Table A water. In exchange, Kern will take a like amount of banked local water from the Pioneer Groundwater Bank. The SWRCB approved Western Hills' service area to be included within the authorized SWP place of use on April 21, 2000. During 2008, a total of 1,094 af of Kern's Table A water was delivered to Western Hills. (SWPAO #01001)

A long-term letter agreement dated July 19, 2006, and executed September 25, 2006, between DWR and Kern provides for the delivery of up to 25,000 af of Westlands' CVP water to be delivered to Kern for storage in Semitropic effective November 1, 2005 through April 15, 2006. Reclamation provided the CVP water at O'Neill for DWR to convey Westlands' CVP water to Kern's service area. The agreement will terminate upon the return of all water to Westlands or by December 31, 2035. An amendment to the agreement dated June 10, 2008, and executed July 3, 2008, approved the delivery of up to 5,156 af of 2008 SWP water supplies to the Fresno County portion of Westlands' service area, which is outside the SWP place of use. No water was returned to Westlands pursuant to this agreement during 2008. (SWPAO #05020 and #05020A)

Mojave Water Agency

A long-term change in point of delivery agreement executed November 13, 1997, among AVEK, Mojave, and DWR and effective through December 31, 2019, allows for delivery of up to 2,250 af of Mojave's annual Table A amount to AVEK. Mojave does not have conveyance facilities to provide service to a solar energy generating station located within its service area. AVEK does have conveyance capability and has agreed to provide water service on Mojave's behalf. During 2008, DWR delivered 1,867 af of Mojave's SWP Table A water to AVEK's turnouts. (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 (Napa), and Solano County Water Agency (Solano) approved the delivery of up to 628 af of Napa's annual Table A water to the City of Vallejo Water Treatment Plant in Solano's service area of the North Bay Aqueduct (NBA). This water is further conveyed to the City of American Canyon, a member agency of Napa. During 2008, a total of 52 af of Napa's water was delivered to Solano's turnouts. (SWPAO #00029)

Solano County Water Agency

A letter agreement dated July 17, 1997, and executed November 13, 1997, among DWR, Solano and Mojave provided for the transfer of up to 10,000 af of Solano's 1997 Table A water to Mojave and the future return by exchange of Mojave's Table A water on a 2:1 basis. The original termination date of December 31, 2007,

was extended by a subsequent agreement, SWPAO #05019, to allow termination in 2009. During 2008, 1,000 af of Mojave's Table A was conveyed to Solano's service area to complete this agreement. (SWPAO #97022)

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 NBA. During 2008, a total of 7,936 af of settlement water was delivered to the three cities via the NBA. (SWPAO #03017)

Turnout Agreements

Kern County Water Agency.

On January 17, 2008, DWR executed an agreement with Kern for construction, operation, and maintenance of the Cross Valley Canal Turnout, located at Milepost 238.04 of the California Aqueduct. With a design capacity of 500 cubic feet per second (cfs), this turnout structure (along with other modifications to the CVC) is necessary to increase the capacity of the CVC from approximately 900 cfs to approximately 1,400 cfs.

Agreements and Activities Related to the Monterey Amendments

Turn-Back Water Pool Program

Pursuant to Article 56(d) of the Monterey Amendments, the Turn-Back Water Pool Program was initiated through "Notice to State Water Project Contractors No. 08-02," dated February 19, 2008. All SWP water contractors who have signed the Monterey Amendments were permitted to participate in the program. The program allowed SWP water contractors to offer a portion of their approved 2008 Table A water for sale in a Turn-Back pool for use by interested SWP water contractors. Based on Table A supply and demand, the Turn-Back Water Pool water was allocated among the purchasing contractors.

Initial offers for sales of Pool A and Pool B of the Turn-Back Water Pool Program occurred in February and March 2008, respectively, and 3,202 af was purchased under Pool A. No offers to sell were made under Pool B. Pool A Turn-Back water sold for $13.94 per af (50 percent of the Delta Water Rate). The 2008 Turn-Back Water Pool Program closed on June 1, 2008. Notices to State Water Project Contractors describing the Turn-Back Water Pool Program are available online at http://www.water.ca.gov/swpao/notices.cfm.

Table 9-1 lists SWP water contractors who participated in Pool A of the Turn-Back Water Pool Program.

Table 9-1 2008 Turn-Back Water Pool Program (Acre-feet)

Contractor	Sold	Purchased
	Pool A	
Ventura	3,202	
Alameda County		37
AVEK		125
Coachella		107
Desert		44
Dudley Ridge		51
Kern		883
Kings		8
Metropolitan		1,689
Napa		21
Oak Flat		5
Palmdale		19
Santa Barbara		40
Santa Clara		88
Tulare		85
Total	**3,202**	**3,202**

Storage of Water Outside SWP Contractor Service Area

Pursuant to Article 56(c) of the Monterey Amendments, six SWP water contractors have separate agreements with DWR to convey approved water supplies outside their service areas for storage in existing and operational groundwater storage programs and for future recovery of water to use within their service areas. These types of agreements, effective or pending execution during 2008, are listed in Table 9-2. The change in point of delivery agreements include provisions for conveyance to and from storage, recovery methods by exchange and/or pump-in to the California Aqueduct. During 2008, a total of 2,949 af was conveyed to storage and 226,504 af was recovered from storage and conveyed to the participating contractors' service areas.

Storage and Conveyance of 2008 Transfer Water

Significant areas of California experienced water deficiencies because 2008 was the second consecutive year of dry hydrologic conditions. To reduce the possibility of adverse economic impacts and hardship associated with water shortages, DWR assisted 8 SWP contractors by executing 34 agreements for "Storage and Conveyance of 2008 Transfer Water" under Article 55 of their long-term water supply contracts. All agreements were executed between April 15, 2008, and August 20, 2008.

The 34 agreements were effective only during 2008 and fell into two buyer-seller groups. The first group consisted of eight SWP contractors and four sellers. The second group consisted of Metropolitan, acting on behalf of its member agency San Diego County Water Agency, and two sellers. Each of the six sellers petitioned the SWRCB and each was granted a temporary change in the place and purpose of use under Water Code Section 1725 et seq. Four sellers, Western Canal Water District, Richvale Irrigation District, Butte Water District, and Sutter Extension Water District, provided transfer water through cropland idling. Cropland idling consists mostly of fallowing rice acreage in addition to land that would be fallowed in a normal rotation pattern. South Sutter Water District provided transfer water by substituting groundwater pumping for reservoir releases. South Feather Water and Power Agency (South Feather) provided transfer water by making reservoir releases from its reservoirs above Lake Oroville, earlier than its planned operation. South Feather is obliged to provide replacement water in an amount equal to the difference between the amounts of water that would have flowed into Lake Oroville absent the agreement as well as under the agreement prior to DWR conveying any future water transfers from South Feather.

Due to restrictions on SWP operations in the Delta, including court-ordered restrictions on pumping, all the transfers were completed between July and September. The six Sacramento Valley sellers made available 62,229 af of transfer water and 48,453 af was actually delivered after deductions for Delta carriage water losses of 20 percent and conveyance losses of 3 percent. Napa had no Delta or conveyance losses because its point of diversion is north of the Delta. Table 9-3 details the activity of each seller and Table 9-4 details the activity of each buyer.

Article 21 Water Program

Pursuant to the Monterey Amendments, Article 21 water replaces surplus, wet weather, and Article 12(d) water. The Article 21 Water Program allows an SWP water contractor to take delivery of water over the approved and scheduled Table A amounts for the current year. Article 21 water is only available for delivery on a short-term basis as determined by DWR when water is still available after operational

Table 9-2 Storage of Water Outside SWP Contractor Service Area in 2008 (Acre-feet)

Contractor	Contract Status	Storage Provider	To Storage In 2008	From Storage In 2008	Return By
Alameda-Zone 7					
SWPAO #98020[a]	Executed	Semitropic	0	3,566	2035
SWPAO #99018	Executed	Semitropic	0	3,434	2035
SWPAO #00037	Executed	Semitropic	0	0	2010
SWPAO #01035	Executed	Semitropic	0	0	2011
SWPAO #02010	Executed	Semitropic	0	0	2012
SWPAO #03008	Executed	Semitropic	0	0	2013
SWPAO #04017	Pending	Semitropic	0	0	2035
SWPAO #06010	Pending	Cawelo	0	0	2035
Alameda County					
SWPAO #96018[a]	Executed	Semitropic	0	580	2035
SWPAO #97026[a]	Executed	Semitropic	0	9,000	2035
SWPAO #98015	Executed	Semitropic	0	420	2035
SWPAO #99017	Executed	Semitropic	0	0	2009
SWPAO #00030	Executed	Semitropic	0	0	2035
SWPAO #07005	Pending	Semitropic	0	0	2035
Castaic Lake					
SWPAO #02015	Executed	Semitropic	0	0	2012
SWPAO #03060	Executed	Semitropic	0	0	2014
SWPAO #05016	Executed	Rosedale-Rio Bravo	0	0	2035
Dudley Ridge					
SWPAO #98003[a]	Executed	Kern Water Bank	0	55	2008
SWPAO #99003[a]	Executed	Kern Water Bank	0	1,189	2009
SWPAO #00033[a]	Executed	Kern Water Bank	0	896	2010
SWPAO #01024[a]	Executed	Kern Water Bank	0	1,560	2011
SWPAO #02007[a]	Executed	Kern Water Bank	0	662	2012
SWPAO #07001	Executed	Kern Water Bank	0	15,898	2035
SWPAO #08050	Pending	Kern Water Bank	0	0	2035
Metropolitan					
SWPAO #95010	Executed	Semitropic	0	124,745	2035
SWPAO #01013	Executed	Arvin-Edison	0	37,602	2035
SWPAO #03019	Executed	Kern-Delta	0	8,402	2035
SWPAO #03057	Pending	Mojave	0	8,495	2015
Santa Clara					
SWP Water					
SWPAO #97020	Executed	Semitropic	0	10,000	2035
SWPAO #98016	Executed	Semitropic	0	0	2035
SWPAO #99016	Executed	Semitropic	0	0	2035
SWPAO #06031	Executed	Semitropic	0	0	2035
SWPAO #06011	Pending	Semitropic	2,949	0	2035
Non-SWP Water					
SWPAO #06032	Executed	Semitropic	0	0	2035
SWPAO #06012	Executed	Semitropic	0	3,313	2035
Total			**2,949**	**226,504**	

[a]Agreements completed in 2008.

Table 9-3 2008 Transfer Water Seller Activity (Acre-feet)

Sellers	Buyers	SWPAO #	AF Available from Seller[a]	Estimated Losses	Net AF Delivered[b]
Richvale ID	AVEK	08013	530	119	411
	Dudley Ridge	08023	107	24	83
	Kern	08024	1,073	240	833
	Metropolitan	08025	5,134	1,150	3,984
	Napa	08026	141	0	141
	Palmdale	08027	257	58	199
	San Bernardino	08028	257	58	199
	Tulare	08029	51	11	40
	Total		**7,550**	**1,660**	**5,890**
South Feather W&PA	AVEK	08039	702	157	545
	Dudley Ridge	08040	141	32	109
	Kern County	08041	1,422	319	1,103
	Metropolitan	08042	6,799	1,523	5,276
	Napa	08043	187	0	187
	Palmdale	08044	340	76	264
	San Bernardino	08045	340	76	264
	Tulare	08046	68	15	53
	Total		**9,999**	**2,198**	**7,801**
South Sutter WD	AVEK	08031	470	105	365
	Dudley Ridge	08032	95	21	74
	Kern	08033	952	213	739
	Metropolitan	08034	4,553	1,020	3,533
	Napa	08035	125	0	125
	Palmdale	08036	228	51	177
	San Bernardino	08037	228	51	177
	Tulare	08038	46	10	36
	Total		**6,697**	**1,471**	**5,226**
Western Canal WD	AVEK	08016	1,047	235	812
	Dudley Ridge	08017	211	47	164
	Kern	08018	2,119	475	1,644
	Metropolitan	08015	10,135	2,270	7,865
	Napa	08019	279	0	279
	Palmdale	08020	507	114	393
	San Bernardino	08021	507	114	393
	Tulare	08022	101	23	78
	Total		**14,906**	**3,278**	**11,628**
Butte WD	Metropolitan (for San Diego)	08009	**Total 10,006**	**2,241**	**7,765**
Sutter Extension WD	Metropolitan (for San Diego)	08010	**Total 13,071**	**2,928**	**10,143**
Total 2008 Transfer Water			**62,229**	**13,776**	**48,453**

[a] Seller's gross af available for pumping after deductions for stream depletion losses.
[b] Buyer's net af after rounding calculations.

Table 9-4 2008 Transfer Water Buyer Activity (Acre-feet)

Buyers	Sellers	SWPAO #	AF Available from Seller[a]	Estimated Losses	Net AF Delivered[b]
AVEK	Richvale ID	08013	530	119	411
	South Feather W&PA	08039	702	157	545
	South Sutter WD	08031	470	105	365
	Western Canal WD	08016	1,047	235	812
	Total		**2,749**	**616**	**2,133**
Dudley Ridge	Richvale ID	08023	107	24	83
	South Feather W&PA	08040	141	32	109
	South Sutter WD	08032	95	21	74
	Western Canal WD	08017	211	47	164
	Total		**554**	**124**	**430**
Kern	Richvale ID	08024	1,073	240	833
	South Feather W&PA	08041	1,422	319	1,103
	South Sutter WD	08033	952	213	739
	Western Canal WD	08018	2,119	475	1,644
	Total		**5,566**	**1,247**	**4,319**
Metropolitan	Richvale ID	08025	5,134	1,150	3,984
	South Feather W&PA	08042	6,799	1,523	5,276
	South Sutter WD	08034	4,553	1,020	3,533
	Western Canal WD	08015	10,135	2,270	7,865
	Total		**26,621**	**5,963**	**20,658**
Napa	Richvale ID	08026	141	0	141
	South Feather W&PA	08043	187	0	187
	South Sutter WD	08035	125	0	125
	Western Canal WD	08019	279	0	279
	Total		**732**	**0**	**732**
Palmdale	Richvale ID	08027	257	58	199
	South Feather W&PA	08044	340	76	264
	South Sutter WD	08036	228	51	177
	Western Canal WD	08020	507	114	393
	Total		**1,332**	**299**	**1,033**
San Bernardino	Richvale ID	08028	257	58	199
	South Feather W&PA	08045	340	76	264
	South Sutter WD	08037	228	51	177
	Western Canal WD	08021	507	114	393
	Total		**1,332**	**299**	**1,033**
Tulare	Richvale ID	08029	51	11	40
	South Feather W&PA	08046	68	15	53
	South Sutter WD	08038	46	10	36
	Western Canal WD	08022	101	23	78
	Total		**266**	**59**	**207**
Metropolitan (for San Diego)	Butte WD	08009	**Total 10,006**	**2,241**	**7,765**
Metropolitan (for San Diego)	Sutter Extension WD	08010	**Total 13,071**	**2,928**	**10,143**
Total 2008 Transfer Water			**62,229**	**13,776**	**48,453**

[a] Seller's gross af available for pumping after deductions for stream depletion losses.

[b] Buyer's net af after rounding calculations.

requirements for SWP water deliveries, water quality, and Delta requirements are met.

Guidelines for the Article 21 Water Program for 2008 are described in the December 27, 2007, "Notice to State Water Project Contractors, No. 07-09," available online at http://www.water.ca.gov/swpao/notices.cfm. Seventeen participants signed the notice, which indicated their acceptance of the criteria, procedures, and charges for the program. During 2008, Article 21 water was only available to SWP contractors north of the Delta due to water conditions and storage amounts in San Luis Reservoir. A total of 2,729 af of Article 21 water was made available for Napa County to receive 1,219 af and Solano County to receive 1,510 af.

Flexible Storage Program

Pursuant to Article 54 of the Monterey Amendments, the flexible storage program provides SWP water contractors participating in the repayment of the capital costs of Castaic Lake and Lake Perris the option to withdraw water in excess of approved deliveries. The program objective is to provide additional flexibility to benefit local water management activities. Participating SWP water contractors are given 5 years to replace stored water withdrawn with approved SWP or non-SWP water.

Flexible storage allows for withdrawal of up to 160,000 af at Castaic Lake and 65,000 af at Lake Perris. SWP water contractors participating in the Castaic Lake flexible storage program include Metropolitan, Ventura County Watershed Protection District (Ventura), and Castaic Lake. Each contractor is allowed to withdraw up to a maximum amount of 153,940 af, 1,377 af, and 4,683 af, respectively. Metropolitan is the only SWP water contractor allowed to withdraw water from Lake Perris, up to a maximum of 65,000 af.

Metropolitan was the only participant in the flexible storage program in 2008 at Castaic Lake and Lake Perris. At the beginning of 2008, Metropolitan owed 15,350 af to Castaic Lake storage. During 2008, Metropolitan withdrew 69,252 af from storage in Castaic Lake, provided 10,000 af to storage, and ended 2008 owing 74,602 af to storage. Lake Perris storage had no water owed from prior years; however, Metropolitan withdrew 4,124 af, provided no water to storage during 2008, and ended 2008 owing 4,124 af to Lake Perris storage.

Extended Carryover Program

Pursuant to Article 56 of the Monterey Amendments, SWP water contractors can elect to store SWP water outside of their service areas and carry it over to the following year for use within their service areas. Qualified contractors can request Table A water be 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 SWP water contractors requesting storage in proportion to their annual Table A water for that year. Thirteen SWP water contractors took delivery of 104,144 af of approved 2007 Table A water carried over into 2008, as extended carryover.

Kern River Intertie

DWR may accept floodwaters into the California Aqueduct under the *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.

The intertie was authorized by the U.S. Army Corps of Engineers (Corps) as a Small Flood Control Project under the Flood Control Act of 1948, and construction was completed by the Corps in 1977.

Floodwaters from the Kern River, and other water that flows into the Kern River downstream from Lake Isabella, which is determined to be in excess of the needs of the Kern River Interests (Buena Vista Water Storage District, North Kern Water Storage District, Tulare Lake Basin Water Storage District, and Hacienda Water District) are diverted into the California Aqueduct under this agreement to alleviate flooding in Kern and Tulare counties. No flood flows were introduced into the California Aqueduct during 2008.

Environmental Water Account

The 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. Three management agencies: the National Marine Fisheries Service (NOAA Fisheries), U.S. Fish and Wildlife Service (USFWS), and the Department of Fish and Game (DFG); and two project agencies: Reclamation and DWR are responsible for implementing the EWA.

The EWA Operating Principles Agreement was originally executed among the five State and federal agencies in 2000, and in 2004 it was extended through December 31, 2007. The agreement was not extended past 2007, although federal authorization continues through 2010. DWR has not purchased any water for the EWA since 2007, although prepaid annual deliveries of 60,000 af to DWR will continue through 2015 under the Lower Yuba River Accord and its accompanying environmental impact statement (EIS)/environmental impact report (EIR).

In 2008, Yuba County Water Agency (Yuba) provided 60,000 af pursuant to the *Agreement for the Long-term Purchase of Water from Yuba County Water Agency* that was used by DWR to partially offset Delta export pumping reductions for fishery purposes.

The EWA no longer accrues any operational assests in the absence of an Operating Principles Agreement.

Miscellaneous Agreements with Other Agencies

In addition to negotiating agreements with long-term SWP water contractors to provide for specified water deliveries, DWR also enters into agreements with other agencies to provide water conveyance service.

Reclamation-Joint Point of Diversion

A joint point of diversion (JPOD) allows Reclamation to make up for curtailed water exports from C.W. "Bill" Jones (Jones) Pumping Plant associated with improving conditions for fish in the Delta, or may allow replacing water exports foregone during maintenance and repair of Jones and Banks pumping plants and/or CVP and SWP conveyance facilities between the Delta and O'Neill Forebay. The current agreement with Reclamation is effective from March 1, 2008, through February 28, 2010. Reclamation did not schedule CVP water to be pumped for diversion through DWR facilities during 2008 under this agreement. (SWPAO #08308)

Reclamation and Byron-Bethany Irrigation District–Musco Family Olive Company

A pending agreement among DWR, Byron-Bethany Irrigation District (Byron-Bethany), and Reclamation provides for the conveyance of up to 800 af of Byron-Bethany's CVP water to Reach 2A of the California Aqueduct for use by Musco Family Olive Company (Musco). A total of 487 af was delivered in 2008 under this pending agreement. Starting with SWPAO #04300, Byron-Bethany will execute conveyance agreements for CVP water to be delivered to Musco. (SWPAO #04300)

Reclamation and Cross Valley Canal Contractors

Through long-term, three-party contracts with Reclamation and DWR, eight CVP water contractors began to receive CVP water via the California Aqueduct through Reach 12E. The following eight CVP water contractors are defined as CVC contractors: County of Fresno (Fresno), County of Tulare (Tulare), Hills Valley Irrigation District (Hills Valley), Kern-Tulare Water District (Kern-Tulare), Lower Tule River Irrigation District (Lower Tule), Pixley Irrigation District (Pixley), Rag Gulch Water District (Rag Gulch), and the Tri-Valley Water District (Tri-Valley). Fresno, Tulare, Lower Tule, and Pixley executed contracts in 1975. Hills Valley, Kern-Tulare, Rag Gulch, and Tri-Valley executed contracts in 1976. All eight original contracts terminated on December 31, 1995. In 1995, amendments were executed that extended the termination date to February 29, 1996 for all contracts. Interim Renewal (IR) contracts have been executed during the ensuing years to extend the termination date as follows:

- March 1, 1996, through February 28, 1998 (IR 1);
- March 1, 1998, through February 29, 2000 (IR 2);
- March 1, 2000, through November 30, 2000 (IR 3);
- December 1, 2000, through February 28, 2001 (IR 4);
- March 1, 2001, through February 28, 2002 (IR 5);
- March 1, 2002, through February 28, 2003 (IR 6);
- March 1, 2003, through February 29, 2004 (IR 7);
- March 1, 2004, through February 28, 2005 (IR 8);
- March 1, 2005, through February 28, 2006 (IR 9);
- March 1, 2006, through February 28, 2007 (IR 10);
- March 1, 2007, through February 29, 2008 (IR 11); and
- March 1, 2008, through February 28, 2010 (IR 12).

In accordance with the terms of IR 12, during the period July through October 2008, DWR delivered a total of 5,118 af of 2008–2009 CVP water to the CVC contractors as follows: Tulare, 2,123 af; Hills Valley, 1,338 af; Tri-Valley 457 af; and Fresno, 1,200 af. There were no point of delivery agreements executed with CVC Contractors during 2008 for CVP water.

Reclamation and Kern National Wildlife Refuge–U.S. Fish and Wildlife Service

A letter agreement dated September 28, 2004, and executed January 24, 2005, between DWR and Reclamation provides for DWR to deliver CVP water to the Kern National Wildlife Refuge during the period from May 1, 2002, through May 31, 2009. By Amendment #2, dated June 17, 2008, and executed August 1, 2008, the completion date of the agreement was extended to May 31, 2012. Under the terms of the agreement, DWR would deliver up to 30,500 af of CVP water from the end of Reach 7 to the Buena Vista Water

Storage District (Buena Vista) turnouts in Reaches 10A and 12E of the California Aqueduct. DWR conveyed 21,193 af of CVP water to Kern National Wildlife Refuge during 2008. (SWPAO #03317)

Reclamation and San Joaquin Valley National Cemetery–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 850 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 205 af was delivered to the National Cemetery from Reach 2B of the California Aqueduct in 2008 under this pending agreement. (SWPAO #03312)

Westlands Water District

An agreement dated and executed August 8, 2008, between DWR and Westlands Water District (Westlands) provided for the introduction and conveyance of up to 20,000 af of local groundwater into the California Aqueduct within Westlands' service area. From June 16, 2008, through September 30, 2008, Westlands introduced 14,309 af of local water and DWR conveyed and delivered 14,024 af within the San Luis Canal portion (Reaches 4-7) of the California Aqueduct to Westlands' turnouts. Westlands made available, as mitigation to the SWP, 1,430 af of previously acquired water at O'Neill Forebay for allocation to SWP contractors. (SWPAO #08052)

Water Deliveries

Table A Deliveries

Each year, by October 1, the SWP water contractors submit initial requests for Table A deliveries allocated to them for use in the subsequent calendar year. Initial Table A allocation amounts for the coming year are made by DWR in December. They are based on operations studies that assume 90 percent exceedence of historical water supply (where exceedence refers to the possibility that water supply in the coming year will be exceeded by the historical water supply), current reservoir storage, and total requests by the SWP water contractors. Forecasts for the year are updated as hydrologic conditions change. Table A amounts are increased or decreased depending on both actual and projected hydrologic conditions, though decreases are rare as the 90 percent exceedence criterion is fairly conservative.

On October 1, 2007, SWP water contractors submitted initial requests for 2008 totaling 4.17 million acre-feet (maf).

DWR approved 1.04 maf on November 22, 2007, resulting in initial Table A amounts of 25 percent of most SWP water contractor requests. DWR increased the 2008 Table A amounts to 1.46 maf, or 35 percent on February 1, 2008.

Notices to State Water Project Contractors informing them of increases or decreases in Table A amounts are online at http://www.water.ca.gov/swpao/notices.cfm.

2008 SWP Deliveries

The SWP delivers water for a variety of beneficial uses. In addition to delivering Table A water to SWP water contractors, the SWP:

- conveys water to other public and local 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 2008, 2,838,128 af was delivered to 29 SWP water contractors and 20 other agencies, categorized as follows:

- 1,128,059 af of Table A water;
- 2,729 af of Article 21 water;
- 106,181af of 2007 carryover water;
- 226,504 af recovered from water banks;
- 73,376 af of flexible storage withdrawal from Castaic Lake and Lake Perris;
- 2,778 af of SWP water for recreation and fish and wildlife;
- 1,129,766 af of non-SWP water delivered to satisfy settlement agreements and agreements with SWP water contractors for local water supplies;
- 89,708 af of 2008 Transfer/Dry Year Purchase Program; and
- 79,027 af delivered to satisfy agreements between the SWP and CVP.

Figure 9-1 shows amounts of water delivered to various locations during 2008.

Specific information about water deliveries made to SWP water contractors and other agencies during 2008, and historical deliveries from 1962 through 2008, 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 2008, by Service Area (Table 9-5);
- Total Amounts of Water Delivered in 2008, by Month (Table 9-6); and
- Total Amounts of Annual Table A Water and Water Conveyed, by Type, 1962–2008 (Table 9-7).

Please note that the water delivery figures listed are accurate at the time of this Bulletin 132 publication, but small volumes of water may be reclassified over time pursuant to long-term water supply contract provisions. If your research requires more current data than was available at the time of publication, please consult the most recent edition of Bulletin 132 and/or contact DWR staff in the State Water Project Analysis Office.

2008 Water Deliveries to Long-term SWP Water Contractors

Table 9-5 shows amounts delivered in 2008. The following information is arranged by column number.

Table A Water Delivered

Columns 1 through 5 show a detailed breakdown of Table A water delivered for SWP water contractors in 2008.

Turn-Back Pool Water

Column 4 shows 3,202 af of Turn-Back Pool Water delivered to SWP water contractors in 2008.

2007 Carryover Table A Water Delivered During 2008

Column 6 shows a total of 106,181 af was carried over from 2007 for delivery in 2008.

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 water contractors' long-term contracts and amendments state the criteria for carrying over Table A water from one year to the next under Articles 12(e), 14(b), and 56(c).

Total Table A Water Delivered

Column 7 shows all Table A water delivered in 2008—a total of 1,234,240 af.

Article 21

Column 8 shows 2,729 af of 2008 Article 21 water was delivered to SWP water contractors.

Note: Total water delivered: 2,838,128 af

Figure 9-1 Water Delivered in 2008 and Delivery Locations of Long-term Water Supply Contractors and Feather River Area Districts with Water Rights Agreements with DWR

Other SWP Water

Column 9 shows 81,312 af of Other SWP water. Other SWP water includes flexible withdrawal water from Castaic Lake and Lake Perris, and settlement water.

Total SWP Water Delivered

Column 10 shows 1,318,281 af of total SWP water was delivered in 2008. This includes total Table A water, 2007 Table A carryover water, Article 21 water, and other SWP water consisting of settlement and flexible withdrawal water.

Non-SWP Water Deliveries

Columns 11 and 12 include deliveries of non-SWP water to long-term water contractors. Column 11 shows 226,504 af of water bank recovery water. Column 12 shows 153,517 af of other non-SWP water. Other non-SWP water is local and permit water that a SWP water contractor has a water right to, dry year purchase water, or water purchased from, exchanged with, or transferred from non-SWP agencies. In 2008, non-SWP water deliveries totaled 380,021 af.

Total Deliveries

Column 13 shows total amounts of water delivered to SWP water contractors. In 2008, the SWP delivered 1,698,302 af of water to 29 long-term contractors.

Water Delivered in 2008 by Month

During 2008, the SWP provided water service to 49 agencies, including 29 SWP water contractors. Those agencies and the amounts of water delivered to them by month are listed in Table 9-6 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 Table A water, current year Table A amounts, transfer and exchange of 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 Water Contractors" section in this chapter.

Non-SWP Water

In 2008, 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.

Water Rights Water. Water in this category is transported through SWP facilities to long-term SWP water contractors and other agencies according to terms of various settlement agreements. Some water simply passes through SWP transportation facilities; some is stored in SWP reservoirs for release later. In 2008, 1,129,766 af of water in this category was delivered to the Feather River, Delta, South Bay, North Bay, and Southern California areas, and is summarized below.

Feather River Area. Nine non-SWP agencies in the Feather River area received 1,086,744 af:

- Last Chance Creek Water District, 9,183 af;
- Thermalito Irrigation District, 2,014 af;
- South Feather Water and Power Agency, formerly Oroville-Wyandotte Irrigation District, 6,144 af;
- Western Canal Water District, 324,938 af;
- Joint Water Districts Board, 710,990 af;
- Oswald Water District, 1,454 af;
- Tudor Mutual Water Company, 3,278 af;
- Garden Highway Mutual Water Company, 17,923 af; and
- Plumas Mutual Water Company, 11,320 af.

Delta. In the Delta, 27,099 af of Byron-Bethany water, pursuant to the May 28, 2003, *Agreement Between the Department of Water Resources of the State of California and the Byron-Bethany Irrigation District Regarding the Diversion of Water from the Delta* was delivered.

North Bay Area. In the North Bay area, 8,049 af of Vallejo permit water and 7,936 af of water pursuant to the May 19, 2003, *Settlement Agreement among DWR, Solano County Water Agency, and the Cities of Fairfield, Vacaville, and Benicia* were delivered.

South Bay Area. In the South Bay area, a total of 3,671 af of local water was delivered to Alameda-Zone 7 and Alameda County. These two South Bay Aqueduct (SBA) SWP water contractors hold water rights to runoff from the Lake del Valle watershed.

Southern California. In Southern California, 547 af of local runoff from the Houston Creek watershed was 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 46 years is contained in Table 9-7. The following discussion of conveyed Table A water is arranged according to column numbers.

Annual Table A Water

Columns 1 through 7 of Table 9-7 show the amount of SWP water contractors' annual Table A water by area for years 1962 through 2008 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 SWP water 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.

Table A Water. Column 8 shows amounts of Table A water delivered each year from 1962 through 2008. In 2008, a total of 1,234,240 af of Table A water was delivered.

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 2008. Article 21 and unscheduled water is water in excess of that required to meet all demands for the year's Table A water and water to be stored in SWP reservoirs. In 2008, a total of 2,729 af of Article 21 was delivered. No unscheduled water was delivered.

Other Water. Column 10 includes amounts of water classified as other water delivered in 2008, including non-SWP water conveyed through SWP facilities and regulated delivery of local supply. In 2008, a total of 488,818 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. Column 11 also includes Delta diversions. In 2008, a total of 1,086,744 af in this category was delivered to agencies in the Feather River area, and 22,819 af was delivered to Byron-Bethany in the Delta.

Recreation Water. Column 12 shows water conveyed for recreational use or to provide water to improve water quality for fish and

wildlife. In 2008, a total of 2,778 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 SBA, 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 9-5 Water Delivered to Long-term Contractors through 2008, by Service Area (Acre-feet)[a]

SWP Contractor	Table A Water Deliveries					SWP					Non-SWP		Total
	2008 Table A not Transfered, Exchanged,or Stored (1)	2008 Table A Transfered or Exchanged (2)	2008 Table A Stored (3)	2008 Turn-Back Pool s (4)	Total 2008 Table A (5)	2007 Carryover (6)	Total (7)	2008 Article 21 (8)	Other SWP (9)	Total SWP Water (10)	Water Bank Recovery (11)	Other Non-SWP Water (12)	(13)
Feather River													
County of Butte	451	8,749			9,200		9,200			9,200			9,200
Plumas County FC&WCD	243				243		243			243			243
City of Yuba City	1,923				1,923		1,923			1,923			1,923
North Bay													
Napa County FC&WCD	3,636			21	3,657	7,363	11,020	1,219		12,239		1,053	13,292
Solano County WA	10,436				10,436	12,389	22,825	1,510	7,936	32,271		8,049	40,320
South Bay													
Alameda County FC&WCD, Zone 7	13,633				13,633	15,400	29,033			29,033	7,000	8,337	44,370
Alameda County WD	4,206			37	4,243	8,659	12,902			12,902	10,000	487	23,389
Santa Clara Valley WD	8,184		2,949	88	11,221	21,188	32,409			32,409	10,000	16,751	59,160
San Joaquin Valley													
Castaic Lake WA					0		0			0			-
County of Kings	3,187			8	3,195	541	3,736			3,736		100	3,836
Dudley Ridge WD	8,428	3,832		51	12,311	5,949	18,260			18,260		1,046	19,306
Empire West Side ID					0	915	915			915		32	947
Kern County WA	158,782	14,351		883	174,016	2,896	176,912			176,912	20,260	21,756	218,928
Oak Flat WD	1,919			5	1,924		1,924			1,924		61	1,985
Tulare Lake Basin WSD	29,447	2,855		85	32,387	281	32,668			32,668		1,236	33,904
Central Coastal													
San Luis Obispo County FC&WCD	3,402	5,110			8,512		8,512			8,512			8,512
Santa Barbara County FC&WCD	10,711	600		40	11,351	2,532	13,883			13,883			13,883
Southern California													
Antelope Valley-East Kern WA	31,082			125	31,207	10,381	41,588			41,588		6,170	47,758
Castaic Lake WA	18,710				18,710	12,146	30,856			30,856		12,022	42,878
Coachella Valley WD	42,385			107	42,492		42,492			42,492		4,299	46,791
Crestline-Lake Arrowhead WA	159	1,000			1,159	689	1,848			1,848		547	2,395
Desert WA	17,500			44	17,544		17,544			17,544		8,884	26,428
Littlerock Creek ID		805			805		805			805		25	830
Metropolitan WDSC	644,304			1,689	645,993		645,993		73,376	719,369	170,749	59,076	957,689
Mojave WA	16,793	1,000			17,793	108	17,901			17,901	8,495		17,901
Palmdale WD	4,226			19	4,245		4,245			4,245		1,261	5,506
San Bernardino Valley MWD	26,151	4,411			30,562	4,444	35,006			35,006		2,139	37,145
San Gabriel Valley MWD	6,580	3,500			10,080		10,080			10,080			10,080
San Gorgonio Pass WA	4,419	1,000			5,419	300	5,719			5,719		186	5,905
Ventura County FCD	3,798				3,798		3,798			3,798			3,798
Totals	**1,074,695**	**47,213**	**2,949**	**3,202**	**1,128,059**	**106,181**	**1,234,240**	**2,729**	**81,312**	**1,318,281**	**226,504**	**153,517**	**1,698,302**

[a] Please note that the water delivery figures listed are accurate at the time of this Bulletin 132 publication, but small volumes of water may be reclassified over time pursuant to long-term water supply contract provisions. If your research requires more current data than was available at the time of publication, please consult the most recent publication of Bulletin 132 available and/or contact DWR staff in the State Water Project Analysis Office.

Table 9-6 Total Amounts of Water Delivered in 2008, by Month (Acre-feet)

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2008 Total Deliveries
FEATHER RIVER AREA													
SWP Agencies													
City of Yuba City													
Table A	0	0	0	0	0	0	958	939	0	0	26	0	1,923
County of Butte													
Table A	4	2	5	57	7	6	103	77	154	32	3	1	451
Transfer Table A to Palmdale*	0	0	0	0	0	24	1,640	1,662	1,482	1,467	1,361	1,113	8,749
Agency Total (*excluded from total)	4	2	5	57	7	6	1,061	1,016	154	32	29	1	2,374
Plumas County Flood Control and Water Conservation District													
Table A	0	0	0	0	32	47	55	55	45	9	0	0	243
Recreation/Fish and Wildlife (SWP)													
Recreation/Fish and Wildlife	0	1	0	0	1	0	0	1	0	0	1	0	4
Non-SWP Agencies													
Garden Highway Water Company													
Regulated delivery of local supply	0	3	0	2,101	2,636	3,614	3,407	2,040	1,064	3,058	0	0	17,923
Joint Water Districts Board													
Regulated delivery of local supply	11,680	0	0	60,670	116,940	112,375	111,750	88,800	38,855	48,060	67,060	54,800	710,990
Last Chance Creek Water District													
Regulated delivery of local supply	0	0	0	63	2,638	2,108	1,323	2,224	419	365	26	17	9,183
Oswald WD													
Regulated delivery of local supply	0	0	20	234	157	275	254	160	272	36	16	30	1,454
Plumas Mutual Water Company													
Regulated delivery of local supply	0	0	554	2,147	1,967	2,541	1,989	325	1,674	88	0	35	11,320
South Feather Water & Power Agency													
Regulated delivery of local supply	7	0	28	595	869	875	964	980	960	544	197	125	6,144
Thermalito Irrigation District													
Regulated delivery of local supply	4	6	63	17	283	291	308	314	287	188	147	106	2,014
Tudor Mutual Water Company													
Regulated delivery of local supply	0	0	29	796	449	551	620	339	485	8	0	1	3,278
Western Canal Water District													
Regulated delivery of local supply	3,967	0	0	15,978	55,622	57,673	57,217	43,850	9,756	31,680	28,539	20,156	324,438
SWP	4	3	5	57	40	53	1,116	1,072	199	41	30	1	2,621
Non-SWP	15,658	9	694	82,601	181,561	180,303	177,832	139,032	53,772	84,027	95,985	75,270	1,086,744
Feather River Area Total	***15,662***	***12***	***699***	***82,658***	***181,601***	***180,356***	***178,948***	***140,104***	***53,971***	***84,068***	***96,015***	***75,271***	***1,089,365***

Table 9-6 Total Amounts of Water Delivered in 2008, by Month (Acre-feet)

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2008 Total Deliveries
NORTH BAY AREA													
SWP Agencies													
Napa County Flood Control and Water Conservation District													
Table A	0	0	0	0	0	0	0	210	557	839	972	1,006	3,584
Table A point of delivery through Solano*	5	5	5	0	0	0	16	13	4	4	0	0	52
Article 56(c) carryover	686	686	632	882	882	1,437	829	829	500	0	0	0	7,363
Article 21	303	247	0	202	467	0	0	0	0	0	0	0	1,219
Dry Year Purchase	0	0	0	0	0	0	442	273	338	0	0	0	1,053
Pool A	0	0	0	0	0	21	0	0	0	0	0	0	21
Solano Permit to Napa	0	0	0	0	0	0	200	200	100	0	0	0	500
Agency Total (*excluded from total)	989	933	632	1,084	1,349	1,458	1,271	1,312	1,395	839	972	1,006	13,240
Solano County Water Agency													
Table A	23	110	39	658	210	832	1,014	2,064	2,459	2,135	892	0	10,436
Table A point of delivery from Napa	5	5	5	0	0	0	16	13	4	4	0	0	52
Article 56(c) carryover	0	0	0	1,178	0	3,938	2,730	1,562	1,204	1,320	457	0	12,389
Mojave Table A Exchanged to Solano	0	0	0	0	0	0	500	500	0	0	0	0	1,000
Article 21	0	0	0	0	1,510	0	0	0	0	0	0	0	1,510
Settlement	1,376	253	175	1,133	2,247	0	0	0	0	0	1,116	1,636	7,936
Vallejo Permit	0	20	50	10	236	640	1,307	1,335	1,099	1,354	1,259	239	7,549
Vallejo Permit to Napa*	0	0	0	0	0	0	200	200	100	0	0	0	500
Agency Total (*excluded from total)	1,404	388	269	2,979	4,203	5,410	5,567	5,474	4,766	4,813	3,724	1,875	40,872
SWP	2,393	1,301	851	4,053	5,316	6,207	5,089	5,178	4,724	4,298	3,437	2,642	45,489
Non-SWP	0	20	50	10	236	661	1,507	1,535	1,199	1,354	1,259	239	8,070
North Bay Area Total	***2,393***	***1,321***	***901***	***4,063***	***5,552***	***6,868***	***7,038***	***6,986***	***6,261***	***5,652***	***4,696***	***2,881***	***54,612***
SOUTH BAY AREA													
SWP Agencies													
Alameda County Flood Control and Water Conservation District, Zone 7													
Table A	0	0	0	0	0	2,799	4,017	1,699	1,203	1,355	1,185	1,375	13,633
Semitropic Recovery	0	0	0	0	0	0	0	2,000	2,000	1,500	1,000	500	7,000
Article 56(c) carryover	1,771	1,028	1,606	4,112	4,812	2,071	0	0	0	0	0	0	15,400
Dry Year Purchase	0	0	0	0	0	0	104	444	291	0	34	0	873
Local	255	875	144	113	477	171	175	221	218	175	187	173	3,184
Transfer from Byron-Bethany Irrigation District	0	0	0	0	0	0	1,140	1,080	1,060	1,000	0	0	4,280
Agency Total	2,026	1,903	1,750	4,225	5,289	5,041	5,436	5,444	4,772	4,030	2,406	2,048	44,370

Table 9-6 Total Amounts of Water Delivered in 2008, by Month (Acre-feet)

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2008 Total Deliveries
Alameda County Water District													
Table A	0	0	0	0	0	0	3,547	169	0	347	0	143	4,206
Pool A	0	0	0	0	0	37	0	0	0	0	0	0	37
Article 56(c) carryover	1,432	0	714	1,585	1,838	2,757	333	0	0	0	0	0	8,659
Semitropic Recovery	0	0	0	0	270	202	277	3,248	2,264	2,160	1,359	220	10,000
Local	178	309	0	0	0	0	0	0	0	0	0	0	487
Agency Total (*excluded from total)	1,610	309	714	1,585	2,108	2,996	4,157	3,417	2,264	2,507	1,359	363	23,389
Santa Clara Valley Water District													
Table A	0	0	0	0	0	0	533	180	1,450	2,466	1,261	2,294	8,184
Table A to Semitropic	0	0	2,949	0	0	0	0	0	0	0	0	0	2,949
Pool A	0	0	0	0	0	88	0	0	0	0	0	0	88
Article 56(c) carryover	5,283	5,449	2,917	1,641	2,423	2,936	539	0	0	0	0	0	21,188
Dry Year Purchase	0	0	0	0	0	0	127	551	351	0	56	0	1,085
General Conveyance	0	0	0	0	0	0	2,852	6,033	0	0	0	0	8,885
General Conveyance to Semitropic	0	625	732	0	0	0	0	0	0	0	0	0	1,357
General Conveyance to Kern Water Bank	0	2,324	0	0	0	0	0	0	0	0	0	0	2,324
Semitropic Recovery	0	0	0	0	631	470	374	421	2,563	3,060	2,410	71	10,000
Transfer from Browns Valley Irrigation District	0	0	0	0	0	0	0	0	3,100	0	0	0	3,100
Agency Total	5,283	5,449	2,917	1,641	3,054	3,494	4,425	7,185	7,464	5,526	3,727	2,365	52,530
Non-SWP Agencies													
Byron-Bethany Irrigation District													
Regulated delivery of local supply	99	186	0	3,545	3,645	4,270	4,152	3,035	2,675	1,070	142	0	22,819
Recreation/Fish and Wildlife (SWP)													
Lake del Valle	2	3	10	15	18	20	24	25	20	24	3	2	166
SWP	8,486	6,477	5,237	7,338	9,974	11,360	9,851	8,712	10,122	10,888	7,305	4,603	100,353
Non-SWP	532	1,370	144	3,658	4,122	4,441	8,319	10,369	7,053	2,245	329	173	42,755
South Bay Area Total	***9,020***	***7,850***	***5,391***	***11,011***	***14,114***	***15,821***	***18,194***	***19,106***	***17,195***	***13,157***	***7,637***	***4,778***	***143,274***
SAN JOAQUIN VALLEY AREA													
SWP Agencies													
County of Kings													
Table A	0	0	0	0	0	107	0	0	0	0	0	0	107
Table A point of delivery through Westlands*	1	1	0	242	374	1,708	381	358	8	3	2	2	3,080
Pool A	0	0	0	0	0	0	0	4	0	0	0	0	4
Pool A through Westlands*	0	0	0	0	0	0	0	4	0	0	0	0	4

Table 9-6 Total Amounts of Water Delivered in 2008, by Month (Acre-feet)

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2008 Total Deliveries
Article 12(e)	0	0	190	0	0	0	0	0	0	0	0	0	190
Article 12(e) carryover through Westlands*	110	104	137	0	0	0	0	0	0	0	0	0	351
Dry Year Purchase		0	0	0	0	0	12	34	0	0	0	0	46
Dry Year Purchase through Westlands*	0	0	0	0	0	0	0	21	33	0	0	0	54
Agency Total (*excuded from total)	0	0	190	0	0	107	12	59	33	0	0	0	401
Dudley Ridge Water District													
Table A	0	0	0	0	0	0	2,508	3,508	233	2,111	62	6	8,428
Tulare's Table delivered in Dudley's Area	0	0	0	0	1,310	592	0	0	0	0	0	0	1,902
Table A Transfer to Kern*	0	0	0	0	0	1,000	1,000	0	0	800	0	0	2,800
Table A Exchange from Kern	0	0	0	0	0	0	982	0	0	0	0	0	982
Table A Exchange to San Gabriel*	0	0	0	0	0	0	0	0	0	0	632	0	632
Table A Exchange from San Gabriel	0	0	0	0	0	2,147	1,353	0	0	0	0	0	3,500
Pool A	0	0	0	0	0	0	0	0	51	0	0	0	51
Article 56(c)	5	1,155	1,198	38	0	2,534	1,019	0	0	0	0	0	5,949
Dry Year Purchase	0	0	0	0	0	0	230	491	325	0	0	0	1,046
Transfer Table A to Westlands *	0	0	0	0	0	0	300	0	0	100	0	0	400
Kern Water Bank Recovery	0	0	259	2,254	2,805	3,600	3,600	3,600	3,600	542	0	0	20,260
Agency Total (* xcluded from total)	5	1,155	1,457	2,292	4,115	8,873	9,692	7,599	4,209	2,653	62	6	42,118
Empire West Side Irrigation District													
Article 12(e) carryover	0	0	915	0	0	0	0	0	0	0	0	0	915
Dry Year Purchase	0	0	0	0	0	0	5	27	0	0	0	0	32
Agency Total	0	0	915	0	0	0	5	27	0	0	0	0	947
Kern County Water Agency													
Table A	0	0	200	0	0	49,076	76,519	31,491	402	0	0	0	157,688
Table A Transfer to Oak Flat*	0	0	0	0	0	0	350	300	0	0	0	0	650
Table A Transfer from Dudley	0	0	0	0	0	1,000	1,000	0	0	800	0	0	2,800
Table A Exchange to Westlands*	0	0	0	0	10,151	0	1,998	0	570	0	0	0	12,719
Table A Exchange to Dudley*	0	0	0	0	0	0	982	0	0	0	0	0	982
Table A Exchange from Santa Barbara	0	0	0	0	0	0	600	0	0	0	0	0	600
Dry Year Purchase	0	0	0	0	0	0	2,840	7,443	4,753	0	0	0	15,036
Table A point of delivery to Western Hills *	17	8	40	81	131	151	190	169	125	90	51	41	1,094
Pool A	0	0	0	0	0	0	883	0	0	0	0	0	883
Article 56(c) carryover	2,896	0	0	0	0	0	0	0	0	0	0	0	2,896
Transfer from Kern-Tulare	0	0	0	0	0	0	0	0	5,400	0	0	0	5,400
Transfer from Rag Gulch	0	0	0	0	0	0	0	0	1,320	0	0	0	1,320

Table 9-6 Total Amounts of Water Delivered in 2008, by Month (Acre-feet)

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2008 Total Deliveries
Deliveries to Water Banks													
Santa Clara Table A to Semitropic	0	0	2,949	0	0	0	0	0	0	0	0	0	2,949
Santa Clara General Conveyance to Semitropic	0	625	732	0	0	0	0	0	0	0	0	0	1,357
Santa Clara General Conveyance to Kern Water Bank	0	2,324	0	0	0	0	0	0	0	0	0	0	2,324
City of Tracy to Semitropic	0	0	0	0	0	0	0	0	0	0	0	0	0
Westlands Water District to Semitropic	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Bank Delivery Subtotal	0	2,949	3,681	0	0	0	0	0	0	0	0	0	6,630
Agency Total (*excuded from total)	2,896	2,949	3,881	0	0	50,076	81,842	38,934	11,875	800	0	0	193,253
Oak Flat Water District													
Table A	0	0	65	413	440	559	94	90	208	44	4	2	1,919
Table A Transfer from Kern	0	0	0	0	0	0	350	300	0	0	0	0	650
Pool A	0	0	0	0	0	5	0	0	0	0	0	0	5
Dry Year Purchase	0	0	0	0	0	0	7	31	21	0	2	0	61
Agency Total	0	0	65	413	440	564	451	421	229	44	6	2	2,635
Tulare Lake Basin Water Storage District													
Table A	0	0	1,778	1,998	3,580	3,588	10,017	6,564	5	15	0	0	27,545
Table A delivered in Dudley's Area*	0	0	0	0	1,310	592	0	0	0	0	0	0	1,902
Transfer Table A to Westlands*	0	0	0	0	0	0	1,923	755	0	0	0	177	2,855
Pool A	0	0	0	0	0	0	0	85	0	0	0	0	85
Article 12(e) carryover	185	34	62	0	0	0	0	0	0	0	0	0	281
Dry Year Purchase	0	0	0	0	0	0	383	853	0	0	0	0	1,236
Agency Total (*excuded from total)	185	34	1,840	1,998	3,580	3,588	10,400	7,502	5	15	0	0	29,147
Recreation/Fish and Wildlife (SWP)													
Department of Fish and Game, O'Neill	76	17	0	15	8	81	61	60	77	82	46	55	578
Parks and Recreation, O'Neill	0	0	1	1	1	1	0	2	2	2	0	1	11
Agency Total	76	17	1	16	9	82	61	62	79	84	46	56	589
Non-SWP Agencies													
Western Hills Water District													
Table A point of delivery from Kern	17	8	40	81	131	151	190	169	125	90	51	41	1,094
CVP Water Annual Contractors													
Plain View WD/Musco Family Olive Company	32	44	31	33	42	46	48	53	48	53	37	20	487
U.S. Dept. of Veterans Affairs, S.J.V. National Cemetery	1	1	14	20	37	30	30	25	24	13	5	5	205
Agency Total	33	45	45	53	79	76	78	78	72	66	42	25	692
Cross Valley Canal Contractors													
Tri-Valley	0	0	0	0	0	0	58	107	292	0	0	0	457

Table 9-6 Total Amounts of Water Delivered in 2008, by Month (Acre-feet)

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2008 Total Deliveries
Fresno County Public Works	0	0	0	0	0	0	152	272	776	0	0	0	1,200
Hills Valley Irrigation District	0	0	0	0	0	0	169	309	860	0	0	0	1,338
County of Tulare	0	0	0	0	0	0	123	0	1,072	928	0	0	2,123
Kern-Tulare Water District:													
Transfer to Kern*	0	0	0	0	0	0	0	0	5,400	0	0	0	5,400
Rag Gulch Water District:													
Transfer to Kern*	0	0	0	0	0	0	0	0	1,320	0	0	0	1,320
Agency Total (*excuded from total)	0	0	0	0	0	0	502	688	3,000	928	0	0	5,118
U.S. Bureau of Reclamation													
Westlands Water District:													
Table A point of delivery from County of Kings	1	1	0	242	374	1,708	381	358	8	3	2	2	3,080
Pool A from County of Kings	0	0	0	0	0	0	0	4	0	0	0	0	4
Article 12(e) from County of Kings	110	104	137	0	0	0	0	0	0	0	0	0	351
Dry Year Purchase from County of Kings	0	0	0	0	0	0	0	21	33	0	0	0	54
Table A Transfer from Dudley	0	0	0	0	0	0	300	0	0	100	0	0	400
Table A Exchange from Kern	0	0	0	0	10,151	0	1,998	0	570	0	0	0	12,719
Table A Transfer from Tulare Lake Basin WSD	0	0	0	0	0	0	1,923	755	0	0	0	177	2,855
Kern National Wildlife Refuge	489	2,266	0	0	276	0	0	1,562	3,949	3,640	4,857	4,154	21,193
Recreation	0	0	1	1	1	0	1	0	2	2	0	1	9
Fish and wildlife	62	14	0	13	6	67	49	49	64	66	38	45	473
Agency Total	662	2,385	138	256	10,808	1,775	4,652	2,728	4,593	3,811	4,897	4,379	41,084
SWP	3,290	1,319	7,794	5,042	18,800	65,149	107,013	55,344	10,055	3,789	167	284	278,046
Non-SWP	584	2,325	46	67	362	143	872	2,923	14,165	4,702	4,937	4,225	35,351
San Joaquin Valley Area Total	***3,874***	***6,593***	***8,572***	***5,109***	***19,162***	***65,292***	***107,885***	***58,267***	***24,220***	***8,491***	***5,104***	***4,509***	***317,078***
CENTRAL COASTAL AREA													
SWP Agencies													
San Luis Obispo County Flood Control and Water Conservation District													
Table A	272	267	288	307	371	396	371	304	229	234	131	232	3,402
Transfer Table to Santa Barbara	0	0	0	0	0	0	0	2,000	1,625	532	459	494	5,110
Agency Total	272	267	288	307	371	396	371	304	229	234	131	232	3,402
Santa Barbara County Flood Control and Water Conservation District													
Table A	0	0	594	1,381	1,369	2,551	2,439	750	745	705	0	177	10,711
Table Transfer from San Luis Obispo	0	0	0	0	0	0	0	2,000	1,625	532	459	494	5,110
Table Exchange to Kern*	0	0	0	0	0	0	600	0	0	0	0	0	600

Table 9-6 Total Amounts of Water Delivered in 2008, by Month (Acre-feet)

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2008 Total Deliveries
Article 56(c)	962	897	673	0	0	0	0	0	0	0	0	0	2,532
Pool A	0	0	0	0	0	0	0	0	40	0	0	0	40
Agency Total (*excuded from total)	962	897	1,267	1,381	1,369	2,551	2,439	2,750	2,410	1,237	459	671	18,393
SWP	1,234	1,164	1,555	1,688	1,740	2,947	2,810	3,054	2,639	1,471	590	903	21,795
Non-SWP	0	0	0	0	0	0	0	0	0	0	0	0	0
Central Coastal Area Total	***1,234***	***1,164***	***1,555***	***1,688***	***1,740***	***2,947***	***2,810***	***3,054***	***2,639***	***1,471***	***590***	***903***	***21,795***
SOUTHERN CALIFORNIA AREA													
SWP Agencies													
Antelope Valley-East Kern Water Agency													
Table A	0	0	0	0	3,762	6,642	7,046	5,559	4,892	3,181	0	0	31,082
Table A point of delivery from Mojave Water Agency	34	41	81	133	112	156	185	150	179	82	44	670	1,867
Table A Exchange from Littlerock Creek Irrigation District	0	0	0	0	0	0	0	0	0	805	0	0	805
Article 56(c) carryover	1,376	1,212	2,625	3,815	1,353	0	0	0	0	0	0	0	10,381
Dry Year Purchase	0	0	0	0	0	0	954	1,525	1,110	61	0	0	3,650
General Conveyance	0	0	0	0	0	0	0	0	0	0	1,864	656	2,520
Pool A	0	0	0	0	0	125	0	0	0	0	0	0	125
Agency Total	1,410	1,253	2,706	3,948	5,227	6,923	8,185	7,234	6,181	4,129	1,908	1,326	50,430
Castaic Lake Water Agency													
Table A	0	0	0	0	0	3,036	4,467	3,345	2,977	3,398	1,189	298	18,710
Article 56(c) carryover	1,948	1,681	3,237	1,523	2,881	876	0	0	0	0	0	0	12,146
Dry Year Purchase	0	0	0	0	0	0	121	525	334	0	42	0	1,022
General Conveyance	0	0	0	2,000	1,300	1,100	1,100	1,100	1,100	1,100	1,100	1,100	11,000
Agency Total	1,948	1,681	3,237	3,523	4,181	5,012	5,688	4,970	4,411	4,498	2,331	1,398	42,878
Coachella Valley Water District													
Table A	8,073	11,101	11,101	0	0	0	0	0	0	12,110	0	0	42,385
Dry Year Purchase	0	0	0	0	0	0	154	667	427	0	51	0	1,299
General Conveyance	0	0	0	0	0	0	0	0	0	0	0	3,000	3,000
Pool A	0	0	0	0	0	0	0	0	0	0	0	107	107
Agency Total	8,073	11,101	11,101	0	0	0	154	667	427	12,110	51	3,107	46,791
Crestline-Lake Arrowhead Water Agency													
Table A	0	0	0	0	0	53	106	0	0	0	0	0	159
Table A Transfer from San Bernardino Valley MWD	50	33	44	55	87	73	33	27	9	0	0	0	411
Exchange Table A to San Bernardino*	0	0	0	0	0	0	0	0	0	0	0	1,000	1,000

Table 9-6 Total Amounts of Water Delivered in 2008, by Month (Acre-feet)

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2008 Total Deliveries
Article 56(c) extended carryover	0	0	0	0	0	0	61	187	146	129	84	82	689
Local	105	90	75	83	119	74	0	0	0	0	0	1	547
Agency Total (*excuded from total)	50	33	44	55	87	126	200	214	155	129	84	82	1,259
Desert Water Agency													
Table A	3,333	4,583	4,584	0	0	0	0	0	0	5,000	0	0	17,500
Dry Year Purchase	0	0	0	0	0	0	64	276	172	0	22	0	534
General Conveyance	0	0	0	0	0	0	0	1,263	2,775	2,426	0	1,886	8,350
Pool A	0	0	0	0	0	0	0	0	0	0	0	44	44
Agency Total	3,333	4,583	4,584	0	0	0	64	1,539	2,947	7,426	22	1,930	26,428
Littlerock Creek Irrigation District													
Table A Exchange to AVEK*	0	0	0	0	0	0	0	0	0	805	0	0	805
Dry Year Purchase	0	0	0	0	0	0	0	0	0	25	0	0	25
Agency Total (*excuded from total)	0	0	0	0	0	0	0	0	0	830	0	0	830
Metropolitan Water District of Southern California													
Table A	7,593	13,747	71,484	87,683	72,671	114,167	97,317	80,499	37,198	11,270	32,531	22,144	648,304
Pool A	0	0	0	0	0	0	0	0	0	0	1,689	0	1,689
Dry Year Purchase	0	0	0	0	0	0	21,014	21,983	11,724	3,533	822	0	59,076
Recovery from Arvin-Edison Water Bank	8,715	5,758	4,710	1,054	604	783	979	1,577	1,819	3,102	5,956	2,545	37,602
Recovery from Kern-Delta Water Bank	0	909	909	909	909	893	387	629	629	1,275	953	0	8,402
Recovery from Mojave Water Bank	3,255	0	5,240	0	0	0	0	0	0	0	0	0	8,495
Recovery from Semitropic Bank	42,014	18,541	2,421	794	631	470	530	2,050	7,642	16,641	19,971	13,040	124,745
Flexible Withdrawal from Castaic Lake	6,229	0	0	0	0	0	0	3,023	30,000	30,000	0	0	69,252
Flexible Withdrawal from Lake Perris	0	0	0	0	0	0	0	0	0	0	0	4,124	4,124
Agency Total	67,806	38,955	84,764	90,440	74,815	116,313	120,227	109,761	89,012	65,821	61,922	41,853	961,689
Mojave Water Agency													
Table A	634	582	810	1,586	2,591	2,859	640	684	228	1,916	2,396	0	14,926
Table A point of delivery through AVEK*	34	41	81	133	112	156	185	150	179	82	44	670	1,867
Article 56(c) extended carryover	108	0	0	0	0	0	0	0	0	0	0	0	108
Mojave Water Exchanged to Solano*	0	0	0	0	0	0	500	500	0	0	0	0	1,000
Agency Total (*excuded from total)	742	582	810	1,586	2,591	2,859	640	684	228	1,916	2,396	0	15,034
Palmdale Water District													
Table A	203	72	14	669	1,529	1,739	0	0	0	0	0	0	4,226
Table A Transfer from Butte	0	0	0	0	0	24	1,640	1,662	1,482	1,467	1,361	1,113	8,749
Pool A	0	0	0	0	19	0	0	0	0	0	0	0	19
Dry Year Purchase	0	0	0	0	0	0	402	479	370	0	10	0	1,261

Table 9-6 Total Amounts of Water Delivered in 2008, by Month (Acre-feet)

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2008 Total Deliveries
Agency Total	203	72	14	669	1,548	1,763	2,042	2,141	1,852	1,467	1,371	1,113	14,255
San Bernardino Valley Municipal Water District													
Table A	0	0	735	2,109	2,211	1,963	1,406	1,467	3,624	6,040	4,530	2,066	26,151
Table A Transfer to Crestline *	50	33	44	55	87	73	33	27	9	0	0	0	411
Table A Exchange from Crestline	0	0	0	0	0	0	0	0	0	0	0	1,000	1,000
Table A Exchange from San Gorgonio	0	0	0	0	0	0	0	0	0	0	0	1,000	1,000
Dry Year Purchase	0	0	0	0	0	0	506	927	657	0	43	0	2,133
Article 56(c) carryover	2,033	1,405	1,006	0	0	0	0	0	0	0	0	0	4,444
General Conveyance	3	3	0	0	0	0	0	0	0	0	0	0	6
Agency Total (*excuded from total)	2,033	1,405	1,741	2,109	2,211	1,963	1,912	2,394	4,281	6,040	4,573	4,066	34,728
San Gabriel Valley Municipal Water District													
Table A	0	3	1	0	0	1,813	0	0	1,505	2,940	318	0	6,580
Table A Exchange from Dudley	0	0	0	0	0	0	0	0	0	0	632	0	632
Table A Exchange to Dudley*	0	0	0	0	0	2,147	1,353	0	0	0	0	0	3,500
Agency Total (*excuded from total)	0	3	1	0	0	1,813	0	0	1,505	2,940	950	0	7,212
San Gorgonio Pass Water Agency													
Table A	0	263	266	522	519	450	335	413	479	480	499	193	4,419
Table A Exchange to San Bernardino*	0	0	0	0	0	0	0	0	0	0	0	1,000	1,000
Dry Year Purchase	0	0	0	0	0	0	22	95	62	0	7	0	186
Article 12(e) carryover	229	71	0	0	0	0	0	0	0	0	0	0	300
Agency Total (*excuded from total)	229	334	266	522	519	450	357	508	541	480	506	193	4,905
Ventura County Watershed Protection District													
Table A	155	155	154	154	154	154	154	154	154	154	1,250	1,006	3,798
Agency Total	155	155	154	154	154	154	154	154	154	154	1,250	1,006	3,798
Recreation/Fish and Wildlife (SWP)													
Castaic Lagoon	6	2	3	35	22	21	25	32	22	28	0	0	196
Lake Perris	141	141	141	141	141	141	141	141	141	141	156	141	1,707
Pyramid Lake	1	0	0	3	3	7	8	4	4	3	2	1	36
Silverwood Lake	1	4	3	6	8	8	13	11	10	8	4	4	80
Agency Total	149	147	147	185	174	177	187	188	177	180	162	146	2,019
SWP	86,131	60,304	109,569	101,191	90,207	136,453	137,843	125,601	106,344	103,764	74,397	49,578	1,181,382
Non-SWP	108	93	75	2,083	1,419	1,174	1,307	3,259	4,443	3,551	3,035	6,643	27,190
Southern California Area Total	***86,239***	***60,397***	***109,644***	***103,274***	***91,626***	***137,627***	***139,810***	***130,454***	***111,871***	***107,315***	***77,526***	***56,221***	***1,212,004***

Table 9-6 Total Amounts of Water Delivered in 2008, by Month (Acre-feet)

Contracting Agency and Type of Service	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	2008 Total Deliveries
SWP WATER													
SWP Long Term Water Supply Contracts													
Table A	20,347	30,940	95,193	97,993	91,373	195,444	214,418	140,911	59,063	56,960	47,346	31,656	1,081,644
Transfer Table A	50	33	44	55	87	1,097	5,246	4,744	3,116	2,899	1,820	1,784	20,975
Exchange Table A	0	0	0	0	10,151	2,147	5,433	500	570	805	632	2,000	22,238
Pool A	0	0	0	0	19	276	883	93	91	0	1,689	151	3,202
Article 12(e) carryover	524	209	1,304	0	0	0	0	0	0	0	0	0	2,037
Article 56(c) carryover	18,500	13,513	14,608	14,774	14,189	16,549	5,511	2,578	1,850	1,449	541	82	104,144
Article 21	303	247	0	202	1,977	0	0	0	0	0	0	0	2,729
Water Bank Recovery	53,984	25,208	13,539	5,011	5,850	6,418	6,147	13,525	20,517	28,280	31,649	16,376	226,504
Flexible Storage Withdrawal	6,229	0	0	0	0	0	0	3,023	30,000	30,000	0	4,124	73,376
Agency Total	99,937	70,150	124,688	118,035	123,646	221,931	237,638	165,374	115,207	120,393	83,677	56,173	1,536,849
Other Water Supply Contracts													
Solano Settlement	1,376	253	175	1,133	2,247	0	0	0	0	0	1,116	1,636	7,936
Recreation/Fish and Wildlife	227	168	158	216	202	279	272	276	276	288	212	204	2,778
SWP Total	***101,540***	***70,571***	***125,021***	***119,384***	***126,095***	***222,210***	***237,910***	***165,650***	***115,483***	***120,681***	***85,005***	***58,013***	***1,547,563***
NON-SWP WATER													
Non-SWP Water Supply Contracts													
Dry Year Purchase	0	0	0	0	0	0	27,387	36,645	20,968	3,619	1,089	0	89,708
Local	16,295	1,469	913	86,342	185,802	184,818	182,159	142,288	56,665	85,272	96,314	75,444	1,113,781
Vallejo Permit	0	20	50	10	236	640	1,507	1,535	1,199	1,354	1,259	239	8,049
Subtotal	*16,295*	*1,489*	*963*	*86,352*	*186,038*	*185,458*	*211,053*	*180,468*	*78,832*	*90,245*	*98,662*	*75,683*	*1,211,538*
CVP/Reclamation													
Water transfer to SWP contractor	0	0	0	0	0	0	1,140	1,080	10,880	1,000	0	0	14,100
Annual Contract	33	45	45	53	79	76	78	78	72	66	42	25	692
Conveyance	3	2,952	732	2,000	1,300	1,100	3,952	8,396	3,875	3,526	2,964	6,642	37,442
Cross Valley Canal Contractors	0	0	0	0	0	0	502	688	3,000	928	0	0	5,118
Kern National Wildlife Refuge	489	2,266	0	0	276	0	0	1,562	3,949	3,640	4,857	4,154	21,193
Recreation/Fish and Wildlife	62	14	1	14	7	67	50	49	66	68	38	46	482
Subtotal	*587*	*5,277*	*778*	*2,067*	*1,662*	*1,243*	*5,722*	*11,853*	*21,842*	*9,228*	*7,901*	*10,867*	*79,027*
Non-SWP Total	***16,882***	***6,766***	***1,741***	***88,419***	***187,700***	***186,701***	***216,775***	***192,321***	***100,674***	***99,473***	***106,563***	***86,550***	***1,290,565***
Grand Total	***118,422***	***77,337***	***126,762***	***207,803***	***313,795***	***408,911***	***454,685***	***357,971***	***216,157***	***220,154***	***191,568***	***144,563***	***2,838,128***

Table 9-7 Total Amounts of Annual Table A Water and Water Conveyed, by Type, 1962–2008 (Acre-feet)

Year	Annual Table A 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 9-7 Total Amounts of Annual Table A Water and Water Conveyed, by Type, 1962–2008 (Acre-feet)

(continued)

Year	Annual Table A 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)	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
2006	11,124	69,856	222,619	1,170,000	70,486	2,582,800	4,126,885	2,973,351	621,339	119,403	1,112,551	1,936	4,828,580	0	(119,981)	4,708,599
2007	11,520	70,231	222,619	1,170,000	70,486	2,584,450	4,129,306	2,081,217	309,973	449,935	1,217,990	2,581	4,061,696	0	(81,845)	3,979,851
2008	39,120	70,606	222,619	1,170,000	70,486	2,593,100	4,165,931	1,234,240	2,729	488,818	1,109,563	2,778	2,838,128	0	127,559	2,965,687
Total	**308,944**	**1,060,764**	**6,680,133**	**38,903,476**	**1,504,802**	**72,619,459**	**121,077,578**	**70,776,306**	**8,636,330**	**9,970,866**	**36,348,917**	**141,410**	**122,848,479**	**1,834,310**	**1,289,836**	**128,810,753**

[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; and 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

Transmission tower and lines.

Significant Events in 2008

In 2008, the California Independent System Operator (CAISO) announced the postponement of its Market Redesign and Technology Upgrade (MRTU) implementation until 2009.

The Department of Water Resources (DWR) also entered into the Second Phase Agreement for the Lodi Energy Center with Northern California Power Agency and various public agencies to develop a new combined cycle natural gas generation facility.

In July 2008, DWR certified the final environmental impact report (EIR) for the Oroville Facilities and filed a copy with the State Water Resources Control Board (SWRCB). Butte and Plumas counties challenged the adequacy of the final EIR in court a month later.

Information for this chapter was provided by the State Water Project Analysis Office, the SWP Power and Risk Office, and the Hydropower License and Compliance Office.

Long-term State Water Project (SWP) water contractors depend on the SWP to provide economical sources of power to deliver affordable water. Consequently, 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 surplus power, 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 water 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 power facilities and enters into long-term contracts and short-term arrangements with other electric utilities and with the California Independent System Operator (CAISO) for transmission access and for power purchases and sales. DWR's generators and pumps also provide spinning and nonspinning reserves to CAISO ancillary services markets. In addition, DWR's power resources program takes advantage of SWP water storage and conveyance capacities to control pump loads and generation in a cost-effective manner.

Major Electric Utility Industry Developments

During 2008, CAISO announced its Market Redesign and Technology Upgrade (MRTU) implementation would be postponed until 2009 and continued to refine the MRTU tariff.

In November of 2008, the Governor signed Executive Order S-14-08 that raises California's renewable energy goals to 33 percent by 2020 and improves processes for licensing renewable projects. This complements Senate Bill 107, signed in 2006, which requires retail sellers to have 20 percent of their retail sales supplied by eligible renewable energy resources by December 2010.

In response to California's renewable energy goals, the Renewable Energy Transmission Initiative, initiated in 2007, continued into Phase 2 and included conceptual plans for major upgrades to California transmission systems to deliver renewable energy resources to consumers.

DWR Participation in Electric Utility Industry Activities

In preparation for MRTU, DWR continued to participate in CAISO's stakeholder processes to help ensure that the MRTU tariff, CAISO Business Practice Manuals, and MRTU functional simulations are compatible with operations of wholesale market participants including the SWP. DWR's participation in

CAISO stakeholder processes focused on the following primary elements:

- Market Initiatives Roadmap;
- Real Time Market Bid Cost Recovery cost allocation;
- Exceptional Dispatch Market Power Mitigation and capacity payment option;
- MRTU treatment of Integrated Balancing Authority Area (IBAA);
- Reserve Scarcity Pricing and related cost allocation;
- CAISO MRTU Tariff modifications to defined Applicable Reliability Criteria;
- Payment Acceleration;
- Convergence Bidding;
- Proxy Demand Response and Participating Load Refinement;
- CAISO grid management charge; and
- Locational Marginal Pricing (LMP) forecasting and Congestion Revenue Rights (CRR) allocation and auction processes.

In addition to participating in the stakeholder processes, DWR prepared for MRTU by developing risk policies, guidelines, and strategies for procuring an optimized CRR portfolio such that revenues generated would hedge against 2009 congestion costs. DWR worked with CAISO and transmission providers to minimize the potential negative impact of CAISO's "Parameter Tuning" on the scheduling priorities of DWR's comprehensive agreement with Pacific Gas & Electric Company (PG&E).

Besides CAISO stakeholder processes, DWR participated in other electric utility stakeholder processes and FERC proceedings to help ensure that various market requirements or cost allocation mechanisms were appropriately structured. This included the following major processes and litigations (with FERC docket number given in parenthesis, if applicable):

- CAISO Treatment of Participating Load within Demand Response (ER06-615-018, AD07-7, RM07-19, ER07-1257, EL08-85, ER08-585, ER08-1203, ER09-169);
- comparable compensation and voluntary dispatch of SWP Participating Load under Exceptional Dispatch (EL08-88, ER08-1178);
- locational marginal price cap and price floor (ER09-213, ER09-241);
- CAISO's Parameter Tuning under MRTU (ER06-615-023, ER09-240);
- CAISO metering adequacy and related penalty refunds (ER08-1565);
- PG&E's petition for declaratory order for incentive rate treatment for the Northwest/Canada transmission project. This rate treatment includes recovery of abandoned project cost, 100 percent of construction work in progress (CWIP), and 150-basis point adder to return on equity (EL08-24);
- PG&E's TO11 proposed increase to transmission revenue requirement and rates (ER08-1318);
- Southern California Edison (SCE) Company's TO4 proposed increase to transmission revenue requirement and rates (ER08-1343);
- SCE's filing with FERC for proposed rate design changes to existing transmission contracts, affecting SWP Mojave Siphon Contract B59387 and Firm Transmission Agreement B53443 (ER08-1353);
- San Diego Gas & Electric Company's TO3-Cycle 2 filing under the approved TO3 formula, and final True-up of TO2, proposed to increase the rates for retail and wholesale customers of CAISO (ER08-1407);
- Startrans LLC's filing with FERC for transmission revenue requirement requested approval under section 205 of the Federal Power Act (FPA) for purchase of two transmission lines, Mead-Adelanto Project and Mead-Phoenix Project, owned by the City of Vernon (EL08-413);
- Startrans LLC's filing with FERC requesting approval under section 203 of the FPA to purchase and operate two transmission lines, Mead-Adelanto

Project and Mead-Phoenix Project (EC08-33);
- SCE's filing proposed to recover rate incentives and 100 percent of CWIP costs and increases in return on equity for transmission projects in the Devers Palo Verde II, Tehachapi, and Rancho Vista transmission projects (ER08-375);
- SCE's proposal to update its CWIP transmission revenue requirement and the associated rates for the Devers Palo Verde II, Tehachapi, and Rancho Vista transmission projects that would affect CAISO transmission access charge/ wheeling access charge rates. The filing also requested increase in return on equity (ER09-187);
- SCE's FERC filing proposed annual update to its transmission revenue balancing account adjustment (ER09-167); and
- PG&E's FERC filing proposed annual update to its transmission revenue balancing account adjustment and reliability services (ER09-34).

DWR participates in litigation before the Ninth Circuit Court or DC Circuit Court on electric utility matters when successful resolution is not reached before FERC. In 2008, this included FERC Cir. No. 06-74506 in which DWR and the State Water Contractors challenged the FERC order denying the integration of time-of-use consideration into CAISO's rate design for transmission access charges.

Bulk Electric System Reliability Standards

Background

The Energy Policy Act of 2005 gave FERC legal jurisdiction over the reliability of the bulk electric system in the United States. The North American Electric Reliability Corporation (NERC) was chosen by FERC as the Electric Reliability Organization (ERO) and is now empowered to oversee development of reliability standards and to assess the adequacy of the owners and users of the bulk electric system to operate in a reliable manner. Compliance with NERC reliability standards is mandatory. Noncompliance with any NERC reliability standard requirement can result in significant financial penalties and/or sanctions.

NERC has delegated enforcement of its reliability standard requirements to eight regional entities. In DWR's region, the Western Electricity Coordinating Council (WECC) is the entity assessing and enforcing compliance with the reliability standards.

The standards developed by NERC fall under these categories:

- BAL—Resource and Demand Balancing;
- COM—Communications;
- CIP—Critical Infrastructure Protection;
- EOP—Emergency Preparedness and Operations;
- FAC—Facilities Design, Connections, and Maintenance;
- INT—Interchange Scheduling and Coordination;
- IRO—Interconnection Reliability Operations and Coordination;
- MOD—Modeling, Data, and Analysis;
- NUC—Nuclear;
- PER—Personnel Performance, Training, and Qualifications;
- PRC—Protection and Control;
- TOP—Transmission Operations;
- TPL—Transmission Planning; and
- VAR—Voltage and Reactive.

NERC Reliability Compliance—Program Goals

DWR is committed to providing an effective reliability compliance program. In addition, DWR strives to achieve a culture of compliance that supports its key business objectives of safety and reliability.

DWR established its compliance program to ensure strict compliance with NERC's

mandatory reliability standards. These standards include specific impacts on operations, maintenance, physical security, and cyber security. The compliance program may perform program audits and reviews to ensure successful and ongoing compliance. Audits and reviews are done by the governance side of the compliance program and include only staff that are independent of any responsibility for meeting the reliability standards. Consultants or contractors can be used for providing the objectivity that is required.

Compliance program attributes include:

- senior management involvement and support in fostering a culture of compliance as well as having a continuous role in participating, evaluating, and authorizing the program;
- DWR participation in industry groups that develop, review, approve, and implement reliability standards, North American Energy Standards Board (NAESB) business practice standards, and WECC regional criteria and guidelines;
- identification of employees, designated as Business Owners and Subject Matter Experts, who have responsibility, authority, and accountability for compliance with the reliability standards;
- employee training as required to adhere to the reliability standards and to foster support and awareness of the compliance program and employees' responsibilities;
- encouraging internal communication, along with an easy mechanism to alert program staff to any issues that have caused, or are likely to cause, DWR to be potentially noncompliant with the standards; and
- responsiveness in addressing, correcting, or mitigating issues identified during the development and implementation of the compliance program.

DWR's Compliance Responsibility

All owners, operators, and users of the bulk electric system must formally register with NERC and fully comply with all applicable reliability standards and associated requirements. DWR is currently registered with NERC for 6 of 15 functional areas, as follows:

- Transmission Owner (TO);
- Load Serving Entity (LSE);
- Generation Owner (GO);
- Generation Operator (GOP);
- Purchasing and Selling Entity (PSE); and
- Resource Planner (RP).

DWR organizations that are responsible for the registered functional areas reside within the following offices:

- Plant Asset Management Office;
- State Water Project Operations Control Office;
- Power Planning and Contract Management Office;
- Field Division Offices;
- Operations Support Office; and
- State Water Project Power and Risk Office.

All management and staff in these organizations are required to support DWR's compliance efforts.

DWR has initiated the work needed to meet the compliance requirements of the reliability standards. The first self-certification occurred in January 2008 involving operations, maintenance, and engineering functions. This process required DWR to certify its compliance with the requirements of each standard or provide a violation report supported by a mitigation plan to resolve outstanding items. Financial penalties or reductions in operating flexibility may result if DWR violates NERC's reliability standards.

Oroville Facilities Relicensing

On January 26, 2005, DWR filed an application with FERC requesting a new license for the Oroville Facilities P-2100. The existing 50-year term hydropower license expired January 31, 2007, and, until a new license is issued, FERC is issuing annual licenses.

FERC issued the final environmental impact statement (EIS) on May 18, 2007. On July 6, 2007, DWR submitted to the National Marine Fisheries Service (NOAA Fisheries) the combined biological assessment and essential fish habitat assessment evaluating the effects of the proposed project on federally listed anadromous fish species and their designated critical habitats protected under the Endangered Species Act (ESA). DWR certified the final environmental impact report (EIR) on July 22, 2008, and filed it with the State Water Resources Control Board (SWRCB) on the same day. A month later, Butte and Plumas counties filed a lawsuit challenging the adequacy of the final EIR.

During 2008, primary achievements included:

- certification and issuance of the final EIR;
- submission of a Revised Final Historic Properties Management Plan as requested by FERC and a programmatic agreement;
- withdrawal and resubmission of the application for Section 401 water quality certification with the SWRCB, thereby reinitiating the one-year clock for SWRCB to take action;
- continuation of formal consultation with NOAA Fisheries on ESA-listed anadromous fish, including green sturgeon;
- collection of documents in response to Butte County's Public Records Act request—county was advised of their availability;
- settlement conferences with Butte and Plumas counties related to the final EIR challenge; and
- initiation of administrative record preparation for the California Environmental Quality Act (CEQA) lawsuit.

The following is a partial list of SWP facilities that will be subject to the new license terms and conditions:

- Oroville Dam and Lake Oroville;
- Hyatt Pumping-Generating Plant;
- Thermalito Pumping-Generating Plant;
- Thermalito Diversion Dam Powerplant;
- Thermalito Diversion Dam;
- Feather River 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 nameplate 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 kilowatt hours (kWh) of energy in a median water year, while the 3 megawatts (MW) from the Thermalito Diversion Dam Powerplant adds another 24 million kWh per 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.

Figure 10-1 Names, Locations, and Nameplate Capacities of Primary Power Facilities

Coal

Since July 1983, under the *Participation Agreement Reid Gardner Unit No. 4* between DWR and Nevada Power Company (NPC) (which in 2008 began doing business under the name NV Energy (NVE)), DWR has received energy from Reid Gardner Powerplant, a coal-fired facility in Nevada. Reid Gardner Powerplant consists of four units. DWR owns 67.8 percent of Unit 4, and NVE owns the remainder of Unit 4, as well as all of Units 1, 2, and 3. Under this agreement, DWR receives up to 235 MW from Unit 4, subject to NVE's limited right to interrupt DWR's energy deliveries. Whenever NVE interrupts DWR's scheduled energy, DWR receives payment based on NVE's combustion turbine costs.

Major work at the plant in 2008 included an overhaul of Unit 4's turbine. The Reid Gardner agreement expires in July 2013 and will not be renewed.

Future SWP Power Facilities

To meet future SWP power requirements, DWR evaluates new power and transmission resources. Factors considered include:

- 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 Powerplant and a third unit at Warne Powerplant.

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 on an hourly to multiyear basis, as needed.

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 Powerplant, 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 project between DWR and the Bureau of Reclamation (Reclamation). DWR's share of the facility is 222 MW, and Reclamation's share is 202 MW.

Purchases

DWR obtains a significant amount of energy through long-term and short-term purchase agreements.

Long-Term Purchase Agreements. The output of the 165 MW hydroelectric Pine Flat Powerplant, owned and operated by Kings River Conservation District, supplies the SWP with about 400 million kWh of energy in median water years. DWR also contracts for the energy output of five hydroelectric plants totaling 30 MW owned and operated by Metropolitan Water District of Southern California (Metropolitan).

In 2008, Metropolitan notified DWR that it will recall the energy output from the 5.1 MW Yorba Linda Powerplant, one of the five

contracted hydroelectric plants. The recall will become effective in 2018.

In March 2008, DWR entered into the Second Phase Agreement for funding the planning and development activities of the Lodi Energy Center with Northern California Power Agency and various public agencies to develop a new combined cycle natural gas generation facility from which DWR would have the right to purchase a portion of the capacity and energy. The facility is planned to be operational in 2012.

Short-Term Purchase Agreements. DWR also purchases energy from member utilities and energy marketers of the WSPP (formerly the Western Systems Power Pool until its official name change in 2007). In addition to the standard WSPP transactions, DWR can purchase surplus energy from Metropolitan's Colorado River Aqueduct system according to the terms of the 1988 Coordination Agreement between DWR and Metropolitan. This agreement also provides for monthly surplus firm and economy energy sales from DWR to Metropolitan and energy exchanges between DWR and Metropolitan.

Energy Exchanges

Under an energy exchange agreement with Sacramento Municipal Utility District (SMUD), DWR provides SMUD with energy during peak periods from June through August. In return, SMUD provides DWR with energy during off-peak periods from January through March and from October through December.

Load Management

DWR operates its pumps 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. By taking advantage of this scheduling flexibility, whenever not restricted by operating requirements, SWP pump load and generation are optimized to reduce the net cost of power needed for SWP water deliveries.

Sales or Exchanges of Excess Power

When generation from SWP power resources exceeds requirements, DWR sells or exchanges the excess power through contracts with utilities and marketers.

Demand Response

Through a contract with PG&E, DWR reduces demand on the CAISO electric grid by dropping SWP pump load when called upon.

Contractual Transmission Agreements

Although able to acquire transmission independently, DWR depends on other sources for transmission services. PG&E, CAISO, and SCE are the primary providers of transmission service between SWP power resources and pumping loads and with interconnected utilities for power purchases, sales, and exchanges.

Under the Comprehensive Agreement with PG&E, DWR receives 1,300 MW of firm transmission service over the PG&E transmission system to serve SWP pump loads and power resources in Northern and Central California. Upon implementation of CAISO's MRTU, transmission service to DWR under the Comprehensive Agreement will be limited to point-to-point service. DWR will obtain non-point-to-point service under CAISO's wheeling transmission service.

In Southern California, DWR receives transmission service for SWP loads and resources through CAISO. Additionally, DWR has interconnection and wholesale distribution service agreements with SCE for service over SCE's distribution facilities from the CAISO interchange points to SWP loads and resources.

Under the Participation Agreement with NVE, DWR receives 235 MW of firm transmission service over NVE'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 El Dorado Substation and Vincent Substation.

SWP Power Operation in 2008

Tables 10-1 through 10-4, at the end of this chapter, present historical information about SWP power operation for calendar year 2008, including energy consumed, generated, exchanged, purchased, and sold.

Energy Consumed

In 2008, energy used at the 28 SWP pumping and generating plants totaled 5.74 million megawatt hours (MWh). According to the terms and conditions of various water conveyance contracts and exchange agreements, some water belonging to the Central Valley Project (CVP) 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 power generating plants to operate the SWP in 2008, excluding transmission losses.

Energy Generated

Table 10-2 shows the amounts of energy generated at SWP facilities in 2008, as well as energy purchased for SWP operations.

Hydroelectric and Coal

The Hyatt-Thermalito power complex in Oroville generated 1.97 million MWh of energy in 2008.

Energy generated at SWP aqueduct recovery plants—Gianelli, Alamo, Devil Canyon, Mojave Siphon, and Warne—totaled 1.24 million MWh.

The SWP share of energy generated at the coal-fired Reid Gardner Unit 4 in Nevada totaled 1.30 million MWh.

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 Developments

Through the West Branch Cooperative Development Agreement with LADWP, DWR receives energy based on the amount of water scheduled through the West Branch. In 2008, LADWP provided 576,593 MWh for DWR's share of energy generated at Castaic Powerplant.

DWR's share of Gianelli Pumping-Generating Plant used 137,181 MWh and generated 139,835 MWh of energy.

Energy Exchanges

As detailed previously in this chapter, DWR exchanged energy with SMUD in 2008 under the terms of an existing energy exchange agreement.

Purchases and Costs

Table 10-3 shows amounts of energy, transmission, and other services purchased in 2008 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 3.95 million MWh of energy at a cost of $232.92 million. Other SWP-related costs, including transmission, operation, maintenance, and CAISO ancillary services totaled $129.55 million. This amount includes $4.94 million for debt service and $3.78 million for operations and maintenance costs at Pine Flat Powerplant. It also includes $1.96 million for transmission at Reid Gardner Unit 4 and $68.46 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 Powerplant. In 2008, the power plant provided 245,605 MWh of energy to the SWP at a total cost of $1.84 million.

Under the Metropolitan Small Hydro contract, DWR purchased 146,781 MWh of energy in 2008 from five small hydroelectric power plants on the Metropolitan system at a cost of $8.34 million.

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 make up the difference. In 2008, the SWP purchased short-term energy from 26 marketers, in addition to 11 public electric utilities.

Sales of Excess Power

DWR sold 2.40 million MWh of energy to 17 utilities and 25 power marketers for total revenues of $189.25 million in 2008. DWR also received $27.30 million in revenues for capacity, exchanges, and other energy-related services, including $16.95 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 the associated energy consumption and generation through 2035. 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. The forecast also includes losses in reservoirs and aqueducts, recreation water, and water to replace storage in reservoirs south of the Delta.

Actual SWP power requirements may vary significantly from the forecast amounts. 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 in the amount of water available for delivery and for generation. 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.

Table 10-1 Energy Used at Pumping Plants and Power Plants in 2008, 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)	0.215	0.178	0.043	0.087	0.165	0.202	0.319	0.383	0.258	0.044	0.049	0.035	1.977
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	0.814	0.623	0.423	1.102	1.438	1.507	1.398	1.404	1.413	1.096	1.018	0.838	13.074
Barker Slough Pumping Plant	0.447	0.248	0.172	0.785	1.113	1.571	1.561	1.532	1.319	1.145	0.902	0.513	11.308
South Bay Pumping Plant	6.707	2.975	3.078	6.285	8.159	10.103	11.432	12.883	11.234	10.730	2.786	0.035	86.408
Del Valle Pumping Plant	0.029	0.026	0.026	0.077	0.028	0.097	0.013	0.013	0.014	0.095	0.026	0.029	0.471
Banks Pumping Plant	52.213	56.279	27.747	21.073	13.821	13.091	38.645	31.522	17.447	9.656	35.348	24.140	340.983
Gianelli Pumping-Generating Plant (SWP share)	37.286	52.652	5.710	0.619	0.119	0.050	4.851	1.600	2.692	6.834	16.113	8.655	137.181
Dos Amigos Pumping Plant (SWP share)	9.233	7.072	11.187	18.274	19.380	33.227	35.029	30.998	10.405	9.182	5.982	5.171	195.140
Buena Vista Pumping Plant	29.825	9.670	24.013	33.794	31.793	41.426	43.694	37.220	23.142	20.042	21.199	16.563	332.383
Teerink Pumping Plant	36.015	11.202	26.183	35.424	31.707	42.291	44.409	38.636	23.853	21.709	24.731	18.940	355.101
Chrisman Pumping Plant	80.530	23.831	57.117	77.401	67.382	90.923	95.246	84.322	51.948	47.423	54.614	41.922	772.659
Edmonston Pumping Plant	296.642	85.810	206.175	281.736	245.162	331.280	346.066	306.639	187.888	173.086	202.266	155.735	2,818.486
Alamo Powerplant (station service)	0.004	0.026	0.002	0.001	0.002	0.001	0.003	0.001	0.029	0.019	0.025	0.053	0.164
Pearblossom Pumping Plant	34.276	17.761	39.406	36.184	34.058	45.363	44.522	43.079	30.453	28.121	18.090	6.673	377.984
Pine Flat Powerplant (station service)	0.250	0.179	0.012	0.000	0.000	0.000	0.000	0.115	0.209	0.217	0.223	0.296	1.499
Mojave Siphon Powerplant (station service)	0.004	0.038	0.003	0.002	0.004	0.000	0.001	0.001	0.016	0.027	0.043	0.066	0.207
Devil Canyon Powerplant (station service)	0.002	0.014	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.005	0.000	0.136	0.159
Oso Pumping Plant	21.218	2.944	7.467	17.361	13.392	18.110	19.800	16.239	7.904	7.709	15.706	15.582	163.432
Warne Powerplant (station service)	0.033	0.138	0.119	0.013	0.007	0.122	0.093	0.197	0.128	0.166	0.094	0.227	1.336
Las Perillas Pumping Plant	0.139	0.174	0.358	0.600	1.038	1.555	1.729	1.509	0.857	0.614	0.106	0.104	8.784
Badger Hill Pumping Plant	0.317	0.414	0.910	1.533	2.624	3.975	4.208	3.722	2.151	1.572	0.270	0.227	21.923
Devil's Den Pumping Plant	0.881	0.822	1.084	1.186	1.218	2.052	1.963	2.096	1.846	1.068	0.432	0.642	15.291
Bluestone Pumping Plant	0.828	0.771	1.017	1.112	1.140	1.923	1.828	1.947	1.728	0.989	0.414	0.599	14.295
Polonio Pass Pumping Plant	0.893	0.835	1.099	1.198	1.232	2.067	1.990	2.127	1.846	1.073	0.450	0.668	15.476
Greenspot Pumping Plant	0.439	0.468	0.472	0.702	0.769	0.794	0.840	0.912	1.224	1.156	0.739	0.527	9.043
Crafton Hills Pumping Plant	0.584	0.612	0.594	0.949	1.000	1.018	1.075	1.164	1.524	1.488	0.881	0.673	11.561
Cherry Valley Pumping Plant	0.015	0.014	0.013	0.031	0.039	0.026	0.044	0.047	0.042	0.041	0.029	0.020	0.361
Subtotal	*609.838*	*275.774*	*414.430*	*537.528*	*476.791*	*642.773*	*700.758*	*620.308*	*381.570*	*345.308*	*402.536*	*299.070*	*5,706.686*
Deviation Adjustments	8.588	0.644	(0.697)	7.519	6.729	9.306	4.316	5.442	(2.358)	(4.294)	1.213	1.797	38.207
Total Energy Required for SWP	**618.426**	**276.419**	**413.733**	**545.048**	**483.521**	**652.079**	**705.074**	**625.750**	**379.212**	**341.014**	**403.749**	**300.867**	**5,744.892**

Table 10-2 Energy Generated and Purchased in 2008, 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 Powerplant	43.957	39.175	27.425	117.732	126.136	174.430	142.014	121.723	57.624	46.719	48.319	55.998	1,001.252
Gianelli Pumping-Generating Plant (SWP share)	0.173	0.000	7.205	18.934	24.564	40.103	24.739	15.483	4.243	3.782	0.171	0.438	139.835
Alamo Powerplant	6.210	3.099	7.024	6.818	6.292	8.188	7.934	8.169	2.575	3.817	3.387	1.147	64.659
Mojave Siphon Powerplant	3.746	1.775	4.339	3.955	3.400	4.843	5.009	4.656	3.308	2.935	1.760	0.526	40.254
Devil Canyon Powerplant	65.995	38.057	70.760	66.387	58.188	79.824	81.329	74.235	55.191	49.962	25.402	13.401	678.732
Reid Gardner Unit 4	110.756	118.680	101.677	46.354	0.000	71.422	158.193	163.169	107.549	149.033	130.533	144.240	1,301.606
Warne Powerplant	34.255	6.158	13.911	26.602	20.243	37.585	41.382	33.749	16.880	17.468	32.932	33.451	314.616
Subtotal	*265.091*	*206.945*	*232.341*	*286.783*	*238.824*	*416.395*	*460.600*	*421.184*	*247.371*	*273.716*	*242.504*	*249.201*	*3,540.954*
Energy Sources from Long-Term Agreements													
Castaic Powerplant	75.564	26.907	11.909	55.740	49.726	62.585	68.552	56.762	29.807	28.856	46.466	63.720	576.593
Metropolitan Small Hydro Generation	8.632	8.947	11.781	11.982	12.518	18.128	16.511	16.537	14.221	10.619	9.355	7.550	146.781
Pine Flat Powerplant (Kings River Conservation Dist.)	0.000	0.000	18.679	23.836	47.648	87.186	62.642	5.614	0.000	0.000	0.000	0.000	245.605
Power Exchange Delivered to Other Entities	0.000	0.000	0.000	0.000	0.000	(27.000)	(27.854)	(27.900)	0.000	0.000	0.000	0.000	(82.754)
Power Exchange Received from Other Entities	27.342	25.578	27.216	0.000	0.000	0.000	0.000	0.000	0.000	27.342	26.586	27.342	161.406
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 Metropolitan for CRA[a] Pumping	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 from Metropolitan for CRA[a]	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 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 (Firm and Power Contractors)	382.884	182.596	275.441	299.598	343.832	299.116	364.456	407.111	337.689	210.380	265.891	186.706	3,555.700
Subtotal	*494.422*	*244.028*	*345.025*	*391.156*	*453.724*	*440.015*	*484.307*	*458.124*	*381.717*	*277.197*	*348.298*	*285.319*	*4,603.331*
Total Resources	759.513	450.973	577.366	677.939	692.548	856.410	944.906	879.308	629.088	550.913	590.801	534.519	8,144.284
Less Energy Sales	(141.087)	(174.554)	(163.633)	(132.891)	(209.027)	(204.331)	(239.832)	(253.558)	(249.876)	(209.899)	(187.052)	(233.652)	(2,399.392)
Total Energy Provided to the SWP	**618.426**	**276.419**	**413.733**	**545.048**	**483.521**	**652.079**	**705.074**	**625.750**	**379.212**	**341.014**	**403.749**	**300.867**	**5,744.892**

[a] Contractual Resource Arrangement.

Table 10-3 Energy, Transmission, and Related Purchases in 2008, by Service Area

Purchase Category	Energy (MWh)	Energy Cost (Dollars)	Total Cost (Dollars)
Energy Purchases			
Northern California Area	282,889	4,332,420	4,332,420
Southern California Area	457,561	26,687,679	26,687,679
Energy Marketers	3,207,067	201,904,566	201,904,566
Subtotal	*3,947,517*	*232,924,664*	*232,924,664*
Transmission and Related Purchases			129,546,660
Miscellaneous Fees			2067
Subtotal			*129,548,727*
Total	**3,947,517**	**232,924,664**	**362,473,391**

Table 10-4 Energy Sold in 2008 and Revenue from Sales, by Service Area

Region	Energy Sold (MWh)	Revenue from Energy Sales (Dollars)	Revenue from Exchanges, Capacity, and Other Energy-Related Services (Dollars)	Total Sales (Dollars)
Pacific Northwest Area	782	61,472		61,472
Northern California Area	115,048	8,113,691	25,949,107	34,062,798
Southern California Area	533,381	45,410,417	582,500	45,992,917
Southeast Area	174,896	17,951,163	771,428	18,722,591
Energy Marketers	1,575,285	117,718,187		117,718,187
Total	**2,399,392**	**189,254,930**	**27,303,035**	**216,557,965**

Chapter 11
Facilities Maintenance

Oroville Dam Spillway.

Significant Events in 2008

A Director's Safety Review Board was convened for Castaic Dam and Crafton Hills Dam. The Safety Review Board found all facilities safe for continued operation.

The Devil Canyon Second Afterbay reservoir perimeter road was resurfaced.

Devil Canyon Second Afterbay was drained to remove sediment from the reservoir, to sandblast and recoat emergency release gates, and to fill cracks in the reservoir liner located in the northwest section of the reservoir.

Both penstocks for Hyatt Powerplant were inspected in the spring of 2008. These penstocks are routinely inspected every 3 years. The penstocks were found to be in good condition and safe for continued operation.

Oroville Dam flood control spillway radial gate No. 4 failed to open in 2007 during a routine full open test. Oroville Field Division engineering staff redesigned the seal inflation system and, in 2008, retrofitted the gate with new seals, piping, and control valves.

Seven of the 15 Thermalito Afterbay groundwater pumps, originally installed in the late 1960s, were replaced in the summer of 2008. All of the pumps have been experiencing decreasing efficiency over the past few years of operation, but the seven wells selected for replacement were seen as the most critical. Other wells may be replaced in the future.

In the spring of 2008, the Feather River Fish Hatchery fresh water supply pipeline from the Thermalito Diversion Dam was dewatered for inspection for the first time since construction. With the exception of some minor repairs, the pipeline was found to be in good condition and safe for continued use.

In May 2008, a 120-inch bypass conduit was installed at the Mojave Siphon Powerplant. The bypass conduit allowed uninterrupted water delivery to Silverwood Lake during the power plant's maintenance downtime.

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, by 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 semiannually 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 (CWC) requirements, consulting engineers and geologists are retained to evaluate SWP dam facilities every 5 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 (Sisk, O'Neill, Los Banos Detention, and Little Panoche Detention) are used jointly with the Bureau of Reclamation (Reclamation) and are not under DSOD jurisdiction. 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 2008, DSOD, along with O&M staff, inspected Frenchman, Antelope, and Grizzly Valley dams in the Upper Feather River area; Oroville, Bidwell Bar, Parish Camp Saddle, 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 Powerplant Second Afterbay, Perris, and Crafton Hills dams in the Southern Field Division.

Joint-Use Facility Inspection

Every 6 years, Reclamation conducts a Comprehensive Facility Review (CFR) of the four joint-use facility dams in the San Luis Field Division. The next CFR is scheduled to be conducted from February to March of 2009. Periodic Facility Reviews (PFRs) are also conducted by Reclamation every 6 years using an alternate schedule spaced in between the CFR schedule. PFRs were conducted for the joint-use facilities in May and June of 2006. No PFRs were conducted in 2008.

Independent Reviews

California Water Code Reviews

To comply with the CWC and the California Code of Regulations (CCR), 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 5 years to review the operational performance of DWR-owned dams and more frequently 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 as safe for continued operation and making recommendations. Based on these recommendations, DWR prepares action plans.

In 2008, a Director's Safety Review Board was convened for Castaic Dam and Crafton Hills Dam. The Safety Review Board found all facilities safe for continued operation.

FERC Reviews

These reviews and the FERC Part 12D safety inspections, which may be conducted by one or more consultants, are scheduled every 5 years. As a supplement to the 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.

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 Arroyo Pasajero watershed. Over a vast amount of time, 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 floodwater, include the West Side Detention Basin (designed to store floodwater and sediment west of the California Aqueduct), an evacuation culvert to release floodwater east of the California Aqueduct, and drain inlets to release floodwater into the California Aqueduct.

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 California Aqueduct, led DWR to adjust operating procedures to minimize runoff entering the California Aqueduct. The volume of runoff and sediment transported by the Arroyo Pasajero is roughly 400 percent greater than was originally estimated during the detention basin design in the mid-1960s.

DWR and DWR/Reclamation Alternative Long-term Solution

Construction to restore the storage capacity of the West Side Detention Basin started in August 2004, and many of the designed improvements were completed by the summer of 2005. These improvements restored the storage capacity to the detention basin and added control over releases of floodwater into the California Aqueduct and onto private farmland. The intended 50-year level of protection is achieved by raising levees, adding a control structure equipped with a rubber dam, installing flood gates, and acquiring flood easements.

One project component yet to be implemented is to armor the railroad embankment to reduce damages when it's overtopped by floodwater. DWR signed an agreement with the railroad, whereby DWR would fund the improvements and the railroad would agree to design, build, and maintain the improvements. In 2008, DWR also settled the litigation involving the acquisition of necessary easements and fee property interest for the project. With the litigation settled, DWR can now transfer the deeds to Reclamation, as required by the joint-use agreement.

Related Activities

Planning for a restoration project similar to the West Side Detention Basin restoration project began in 2006 for the Cantua Creek Stream Group detention basins. The project goal is to improve aqueduct flood protection and water quality.

A draft reconnaissance study for the Cantua Creek Stream Group Improvement Project identified actions such as raising embankments, making modifications to structures, and acquiring flood easements to provide a 50-year level of protection for the California Aqueduct at the Cantua Creek Stream Group. Improving water quality in the aqueduct was a significant goal of the study, since currently, several of the existing drain inlets are not gated and sediment-laden floodwater flows directly into the aqueduct with little detention and decanting. It is widely understood that increasing flood storage and detention of this floodwater prior to releasing it into the aqueduct would provide a significant benefit to water quality in the aqueduct. As of 2008, DWR continued to work on the study, refining the proposed measures that will be moved to feasibility-level analyses.

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 2008. The table includes information about incidents resulting in outages exceeding 14 days.

Table 11-1 Outages for Maintenance and Repair of Facilities in 2008, by Month 1 of 5

Month	Facility	Units Taken Out of Service
January	Hyatt Powerplant	Unit 6 from January 27 to May 9 to recoat spiral case and inspect wicket gates
	Thermalito Pumping-Generating Plant	Unit 1 from January 18 to May 14 to replace relays, inspect turbine, and troubleshoot governor
	Banks Pumping Plant	Unit 1 from January 3 to February 20 for annual maintenance
	Gianelli Pumping-Generating Plant	Units 1 and 2 from January 28 to February 15 to repair penstock
	Dos Amigos Pumping Plant	Unit 4 from January 22 to March 4 for biennial maintenance
	Teerink Pumping Plant	Unit 3 from January 2 to June 5 to rewind motor and recoat discharge line
	Teerink Pumping Plant	Units 1 and 2 from January 14 to February 22 to recoat discharge line
	Chrisman Pumping Plant	Unit 2 from January 22 to February 6 to install backfill control panel
	Edmonston Pumping Plant	Unit 5 from January 7 to April 4 to rewedge stator
	Devil Canyon Powerplant	Unit 2 from January 8 to May 2 for annual maintenance, to clean and paint stator, and to replace lower guide bearing cooling system
	Oso Pumping Plant	Unit 1 from January 21 to February 15 to replace discharge line drain valve
February	Banks Pumping Plant	Unit 8 from February 3 to March 4 to replace defective relay
	Banks Pumping Plant	Unit 11 from February 12 to April 4 to replace recirculation valve and repair liner
	Teerink Pumping Plant	Unit 6 from February 25 to March 28 to recoat discharge line
	Teerink Pumping Plant	Unit 1 from February 27 to April 25 to repair burnt brush rigging and resurface damaged slip rings
	Pearblossom Pumping Plant	Unit 5 from February 4 to February 29 to repair amortisseur bar
	Oso Pumping Plant	Unit 8 from February 11 to February 29 to replace elbow fill and pump drain valves
	Warne Powerplant	Unit 1 from February 19 to March 20 for annual maintenance and to remove silt from Pyramid Lake
	Warne Powerplant	Unit 2 from February 28 to March 20 to remove silt from Pyramid Lake
March	Banks Pumping Plant	Unit 9 from March 16 to April 1 to repair motor field ground
	Banks Pumping Plant	Unit 8 from March 26 to May 3 for annual maintenance

Table 11-1 Outages for Maintenance and Repair of Facilities in 2008, by Month 2 of 5

Month	Facility	Units Taken Out of Service
	Gianelli Pumping-Generating Plant	Units 3 and 4 from March 3 to September 5 for biennial maintenance and to weld-repair scroll case and draft tube
	Buena Vista Pumping Plant	Unit 10 from March 3 to expected completion date in 2009 to rewind motor and refurbish pump and discharge valve
	Edmonston Pumping Plant	Unit 8 from March 3 to March 21 to replace motor cool water piping
	Mojave Siphon Powerplant	Unit 3 from March 27 to May 1 for annual maintenance and to install turbine bypass line
	Oso Pumping Plant	Unit 5 from March 10 to May 28 to repair lower motor guide bearing journal, adjust lower guide bearing, and rebalance motor
	Oso Pumping Plant	Unit 2 from March 17 to expected completion date in 2010 to overhaul motor
	Cordelia-Napa Pumping Plant	Units 1 through 4 from March 17 to April 4 to install tee in line for new terminal tank
April	Thermalito Pumping-Generating Plant	Unit 2 from April 7 to June 26 for annual maintenance, to replace relays, and work on transformer KY2
	Banks Pumping Plant	Unit 6 from April 14 to May 2 to replace air release vent valve and lines
	Dos Amigos Pumping Plant	Unit 5 from April 14 to May 20 for biennial maintenance
	Bluestone Pumping Plant	Unit 4 from April 16 to November 13 to repair damaged discharge valve, repair discharge manifold corrosion, work on transformers KYA and KYB, and work in switchyard
	Teerink Pumping Plant	Unit 8 from April 1 to May 22 to recoat discharge line
	Pearblossom Pumping Plant	Unit 9 from April 7 to April 25 to work on transformer KYD
	Pearblossom Pumping Plant	Units 1 through 3 from April 28 through May 27 to repair discharge valves and work on transformer KYA
	Oso Pumping Plant	Unit 7 from April 5 to July 7 to repair thrust bearing oil line and clean oil-contaminated motor
	Warne Powerplant	Unit 2 from April 14 to May 21 for annual maintenance and to replace two needles
	Reid Gardner Powerplant	Unit 4 from April 11 to June 8 for annual maintenance
May	Thermalito Diversion Dam Powerplant	Unit 1 from May 7 to May 23 to repair ground fault on 13.2 kV cable
	Banks Pumping Plant	Unit 10 from May 2 to May 16 to repair motor housing cooling water and discharge valve hydraulic oil line leaks
	Banks Pumping Plant	Unit 2 from May 4 to June 5 for annual maintenance, to work on discharge line, and to remove Unit 3 discharge valve
	Banks Pumping Plant	Unit 3 from May 16 to expected completion date in 2009 to rewind motor, overhaul unit, and work on discharge line

Table 11-1 Outages for Maintenance and Repair of Facilities in 2008, by Month 3 of 5

Month	Facility	Units Taken Out of Service
	Banks Pumping Plant	Unit 1 from May 16 to June 5 to work on discharge line and to remove Unit 3 discharge valve
	Gianelli Pumping-Generating Plant	Unit 7 from May 12 to June 17 to repair cracked stator rim studs
	Teerink Pumping Plant	Unit 4 from May 27 to June 27 to recoat discharge line
	Devil Canyon Powerplant	Unit 3 from May 19 to June 12 for annual maintenance
June	Buena Vista Pumping Plant	Unit 8 from June 19 to July 12 to repair stator ground fault
July	Thermalito Pumping-Generating Plant	Unit 3 from July 14 to September 22 for annual maintenance and to replace relays
	Badger Hill Pumping Plant	Unit 4 from July 7 to July 24 to replace motor bearings and adjust impeller
September	Hyatt Powerplant	Unit 2 from September 8 to expected completion date in 2009 for contractor warranty work and to inspect lower guide bearing
	Hyatt Powerplant	Unit 6 from September 15 to December 12 for annual maintenance and contractor warranty work
	South Bay Pumping Plant	Unit 5 from September 5 to October 15 to repair and adjust excitation system
	Dos Amigos Pumping Plant	Unit 6 from September 8 to October 16 for biennial maintenance
	Polonio Pass Pumping Plant	Unit 1 from September 4 to September 29 to repair excitation system
	Teerink Pumping Plant	Unit 2 from September 3 to October 2 to clean rotor and repair speed switch
	Chrisman Pumping Plant	Unit 5 from September 22 to expected completion date in 2010 to overhaul motor and pump and to weld-repair and recoat pump case and stay vanes
	Alamo Powerplant	Unit 1 from September 15 to October 6 for annual maintenance and to work in switchyard
	Pearblossom Pumping Plant	Unit 7 from September 14 to October 3 to repair mechanical seal and upper motor guide bearing oil cooler
	Pearblossom Pumping Plant	Unit 4 from September 17 to October 10 to replace burnt neutral current transformers and bus bar
	Devil Canyon Powerplant	Unit 1 from September 16 to October 8 for annual maintenance
	Warne Powerplant	Unit 1 from September 23 to October 24 for annual maintenance and to work on transformer KY1 and station service transformer K1B
October	Thermalito Pumping-Generating Plant	Unit 4 from October 9 to expected completion date in 2010 to refurbish unit and replace relays
	Las Perillas Pumping Plant	Unit 4 from October 24 to November 15 to replace pump packing and bypass line valves and to work in switchyard
	Las Perillas Pumping Plant	Units 5 and 6 from October 27 to November 15 to replace pump packing and bypass line valves and to work in switchyard

Table 11-1 Outages for Maintenance and Repair of Facilities in 2008, by Month 4 of 5

Month	Facility	Units Taken Out of Service
	Las Perillas Pumping Plant	Units 1 through 3 from October 27 to November 15 to work in switchyard
	Badger Hill Pumping Plant	Unit 4 from October 24 to November 15 to replace pump packing and bypass line valves, work in switchyard, and remove aqueduct sediment
	Badger Hill Pumping Plant	Units 1 through 3 from October 27 to November 15 to remove sediment in aqueduct and head works
	Badger Hill Pumping Plant	Units 5 and 6 from October 27 to November 15 to replace pump packing and bypass line valves, work in switchyard, and remove sediment in aqueduct and head works
	Devil's Den Pumping Plant	Units 1 through 6 from October 27 to November 17 to dewater forebay to remove sediment and repair concrete, to repair discharge manifold corrosion, work on transformers KYA and KYB, and work in switchyard
	Bluestone Pumping Plant	Unit 3 from October 26 to November 18 to adjust unit breaker, repair discharge manifold corrosion, work on transformers KYA and KYB, and work in switchyard
	Bluestone Pumping Plant	Units 1, 2, 5, and 6 from October 28 to November 12 to repair discharge manifold corrosion, work on transformers KYA and KYB, and work in switchyard
	Polonio Pass Pumping Plant	Units 1 through 5 from October 28 to November 13 to repair discharge manifold corrosion, work on transformers KYA and KYB, and work in switchyard
	Buena Vista Pumping Plant	Unit 8 from October 26 to expected completion date in 2009 to rewind motor
	Mojave Siphon Powerplant	Unit 2 from October 6 to October 29 for annual maintenance
	Cordelia-Napa Pumping Plant	Unit 2 from October 28 to expected completion date in 2009 to replace mechanical seal
	Pine Flat Powerplant	Unit 1 from October 15 to December 5 for annual maintenance
	Pine Flat Powerplant	Unit 2 from October 29 to December 19 to work on draft tube and bypass guard valve
November	South Bay Pumping Plant	Units 1 through 3 and 5 through 9 from November 14 to expected completion date in 2009 to work on plant expansion
	Del Valle Pumping Plant	Units 1 through 4 from November 18 to December 3 to repair main breaker and valves
	Gianelli Pumping-Generating Plant	Unit 5 from November 3 to November 20 for biennial maintenance and to work on penstock
	Gianelli Pumping-Generating Plant	Unit 6 from November 3 to November 20 for biennial maintenance, to work on penstock, and to recoat scroll case
	Dos Amigos Pumping Plant	Unit 5 from November 3 to November 21 to drain and refill vane oil
	Polonio Pass Pumping Plant	Unit 6 from October 27 to November 13 to repair discharge manifold corrosion, work on transformers KYA and KYB, and work in switchyard

Table 11-1 Outages for Maintenance and Repair of Facilities in 2008, by Month 5 of 5

Month	Facility	Units Taken Out of Service
	Pearblossom Pumping Plant	Units 4 and 5 from November 3 to December 3 to repair discharge valves and work on discharge line
	Pearblossom Pumping Plant	Unit 6 from November 3 to expected completion date in 2009 for annual maintenance, to repair cracked amortisseur bars, repair discharge valve, and work on discharge line
	Devil Canyon Powerplant	Unit 4 from November 3 to November 26 for annual maintenance and to work on transformer KY
	Oso Pumping Plant	Unit 3 from November 10 to November 24 for annual maintenance
December	Hyatt Powerplant	Unit 4 from December 15 to expected completion date in 2009 for contractor warranty work and to perform lead abatement of bolts
	South Bay Pumping Plant	Unit 4 from November 14 to expected completion date in 2009 to refurbish motor and work on plant expansion
	Las Perillas Pumping Plant	Unit 3 from December 2 to expected completion date in 2009 to rewind motor
	Badger Hill Pumping Plant	Unit 3 from December 2 to expected completion date in 2009 to rewind motor
	Bluestone Pumping Plant	Unit 3 from December 1 to expected completion date in 2009 to repair unit breaker
	Pearblossom Pumping Plant	Unit 2 from December 9 to expected completion date in 2009 for annual maintenance, to repair cracked amortisseur windings, and to recoat suction elbow
	Oso Pumping Plant	Unit 5 from December 2 to expected completion date in 2009 to remove water from discharge valve hydraulic reservoir and replace damaged o-ring
	Oso Pumping Plant	Unit 5 from December 8 to expected completion date in 2009 to overhaul motor and pump

Chapter 12
Engineering, Construction, and Real Estate

Tisdale Weir.

Significant Events in 2008

In 2008, as a result of calls from the Governor and Legislature to protect the Delta, the Delta Habitat Conservation and Conveyance Program (DHCCP) was established, prompting studies to assess potential habitat restoration and water conveyance options.

Engineering, construction, and real estate work to enhance, expand, repair, and protect the State Water Project (SWP) and other facilities within the State continued. Other significant projects included South Bay Aqueduct Enlargement, expansion of South Bay Pumping Plant, Tehachapi East Afterbay construction, East Branch Enlargement, Edmonston Pumping Plant refurbishment, Hyatt Powerplant Pump-Turbine refurbishment, and the East Branch Extension Phase I Improvements and Phase II projects.

The Department of Water Resources (DWR) has spent a net total of $252.4 million to acquire rights-of-way, recreation, and mitigation land for the SWP, from its inception to December 31, 2008.

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, the 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, the 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 west through 2005, 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 the San Gorgonio Pass service area in San Bernardino and Riverside counties. The East Branch Extension Phase I became operational in 2003.

Design Activities

In 2008, work to enhance, expand, repair, and protect SWP water delivery facilities continued. Engineering activities supported more efficient water deliveries within the confines of legal constraints, environmental restraints, and power availability. Significant projects included SBA enlargement, South Bay Pumping Plant expansion, Tehachapi East Afterbay construction, East Branch Enlargement, and feasibility studies for the East Branch Extension Phase I Improvements and Phase II projects. The feasibility study for the East Branch Extension Phase II was completed in June 2008, and the environmental impact report (EIR) was released for public review and comment in August 2008. Table 12-1 (at the end of the chapter) provides a list of completed and ongoing design work that was undertaken in 2008.

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), Bay-Delta Office, Division of Flood Management, Division of Environmental Services, Office of the Chief Counsel, Department of Fish and Game, Department of Boating and Waterways, California Department of Transportation, SWP water contractors, California water districts, levee maintenance districts (Sacramento River, San Joaquin River, and Delta), CALFED, U.S. Army Corps of Engineers, Bureau of Reclamation (Reclamation), Federal Energy Regulatory Commission, U.S. Environmental Protection Agency, 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, and conducted special studies of dams, canal embankments, and other SWP facilities.

Studies, reports, and activities continued from previous reporting periods, or initiated in 2008, include the following:

- stability analysis for Oroville, Parish Camp Saddle, Bidwell Canyon Saddle, and Thermalito dams;
- geologic faulting and seismicity studies of SWP and flood control facilities;
- Banks Pumping Plant cut slope evaluation;
- Frank's Tract Pilot Project—conceptual design;
- South Delta Improvement Project, permanent operable barriers—final design;
- fish screens at Sherman and Twitchell islands—final design;
- Delta smelt refugium at Skinner Fish Facility—final design;
- SBA reliability study;
- SBA enlargement and improvement activities;
- Gianelli Pumping-Generating Plant power transformer second containment basin;
- canal lining repair, Milepost 56.4 to 164.9;
- flood control improvements, Weir No. 2 replacement, Lower Butte Creek, Sutter Bypass;
- concrete encasement of Coastal Aqueduct pipeline for Highway 46 widening;
- habitat restoration, Colusa State Recreation Area;
- Devil's Den Pumping Plant trashrack/traveling screen modification;
- evaluation of the hydrology and capacity of the cross-drainage facilities, Buena Vista and Teerink pumping plants;
- Warne Powerplant penstock cooling water transient study;
- Castaic, Pyramid, and Perris dams—emergency release facilities;
- Castaic Dam and Perris Dam breach inundation studies;
- Pearblossom Disposal Area assessment study, Phase II;
- Hesperia Master Drainage Plan for Antelope Wash and adjacent area;
- East Branch Enlargement, Phase II preliminary design and environmental documents;
- East Branch Extension, Phase I Improvements and Phase II prefeasibility studies;
- North Bay Aqueduct alternate intake study;
- Perris outlet tower study;
- Perris Dam embankment remediation; and
- Perris Dam emergency release extension.

In 2008, DOE staff completed the following studies and activities:

- Thermalito Forebay Dam, piezometer P-66 artesian pressure study;
- Crafton Hills preliminary spillway design;
- South Feather Water and Power Agency's Miners Ranch Canal—erosion sites repair study;
- Miners Ranch erosion repair study;

- San Joaquin River Restoration Program—appraisal level design;
- feasibility of using low-pressure carbon dioxide (CO2) system at Chrisman Pumping Plant;
- feasibility study for furnishing spare parts for the Baldwin-Lima-Hamilton (BLH) pumps at Edmonston Pumping Plant;
- feasibility study for replacing the east/west elevators at Edmonston Pumping Plant;
- feasibility study to replace the heating, ventilation, and air conditioning (HVAC) system at Gianelli Pumping-Generating Plant;
- feasibility study to replace the fire alarm system at San Luis and Coalinga O&M Centers;
- feasibility study for upgrading seven BLH pumps at Edmonston Pumping Plant;
- feasibility study for replacing the HVAC, fire alarm, and paging system at Lost Hills O&M Center;
- feasibility study for replacing emergency engine generator at the San Joaquin Field Division;
- East Branch Extension, Phase II feasibility study; and
- Vista del Lago Visitors Center—erosion repair.

Environmental Activities

Since the inception of SWP, environmental 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 specific 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 for each contract. In 2008, two projects required continuing environmental review and are described below.

Delta Habitat Conservation and Conveyance Program

In 2008, as a result of calls from the Governor and Legislature to protect the Delta, the Delta Habitat Conservation and Conveyance Program (DHCCP) was established, prompting studies to assess potential habitat restoration and water conveyance options. DHCCP will conduct an environmental review of the Bay Delta Conservation Plan (BDCP). The lead agencies conducting the joint environmental review are DWR, Reclamation, USFWS, and NOAA Fisheries.

DHCCP will:

- analyze BDCP proposed actions and alternatives through a formal environmental impact statement (EIS)/EIR process;
- analyze options and consider areas of concern presented by the public during the EIS/EIR process; and
- develop engineering options for habitat restoration, other stressors, and water conveyance.

The environmental component of the DHCCP and includes environmental impact analysis, California Environmental Quality Act and National Environmental Policy Act document preparation, environmental surveys, mitigation, and all associated permitting requirements. Approval of the BDCP, its EIR/EIS, and associated documents is essential to obtaining required permits.

Habitat Restoration

Construction for habitat restoration at the Colusa State Recreation Area (Specification No. 08-13) began in October 2008 and is expected to be completed in December 2011. Restoration will include planting 34,000 oak trees on 140 acres of Colusa Wildlife Area land as mitigation for the Tisdale Bypass sediment removal project.

Construction Activities

DOE worked on 71 construction contracts in 2008. Projects included turbine and pump replacement, pipeline repair, trashrack upgrade at fish hatcheries, and recreational and maintenance facilities improvements at dam and reservoir sites. Table 12-2 (at the end of the chapter) 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.

Upper Feather River Division

Grizzly Valley Dam and Lake Davis

A fish containment system at the Grizzly Valley Dam outlet structure was constructed to prevent northern pike from exiting Lake Davis and entering Big Grizzly Creek (Specification No. 06-11). Construction began in June 2006 and was completed in November 2007. Contract administrative items continued throughout 2008, and acceptance is expected in early 2009.

Oroville Division

Hyatt Powerplant

Refurbishment of turbine Units 1, 3, and 5 began in February 1999 (Specification No. 98-22) and ended in 2006. The contractor continued working on its final contract submittals, including O&M manuals, throughout 2008. Acceptance is expected in late 2009.

Refurbishment of pump-turbine Units 2, 4, and 6, started in November 2001 (Specification No. 01-11), and continued throughout 2008. The work is complete except for final punch list items and submittals, which are expected to be completed in early 2009.

Lake Oroville

Construction of a new Stage III boat ramp, parking lot, and access road in Bidwell Canyon began in November 2008 (Specification No. 08-18). This new ramp will allow boating access to Lake Oroville when the water surface elevation drops below 700 feet. Completion is expected in 2009.

Thermalito Afterbay Dam

A contract (Specification 08-05) to replace and decommission seven existing wells to improve well productivity began in May 2008 and was completed in October 2008. Acceptance is expected in 2009. The work will provide more water to the fish hatchery annex and improve seepage control.

Warehouse, Civil Maintenance Building, and Shop Building

A contract (Specification No. 08-07) to replace roofing at the Oroville O&M Center began in June 2008 and is expected to be completed in 2009. Added work included replacement of a roof and chiller at the Sacramento Maintenance Yard.

Delta Facilities

Middle River, Old River, and Grant Line Canal

Work on a multiyear (2007 through 2009) contract (Specification No. 06-26) to install and remove seasonal temporary rock barriers in designated South Delta waterways (Middle River, Old River, and Grant Line Canal) began in January 2007; completion is expected in December 2009.

The temporary barriers are 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. Changed or added work per contract change order included:

- weed harvesting and mapping at Clifton Court Forebay;
- removal and replacement of flashboards at Montezuma Slough; and
- creating a delta smelt refugium at the Skinner Fish Facility.

North Bay Aqueduct

Napa Turnout Reservoir

Replacement of the Napa Turnout Reservoir began in April 2007 and continued throughout 2008. The contract (Specification No. 07-01) includes replacing the existing tank with two, 5-million gallon steel covered tanks and installing piping and appurtenances. Completion is expected in May 2009.

South Bay Aqueduct

SBA Enlargement and Improvement

The SBA Enlargement and Improvement projects will restore the first 16.38 miles of the SBA to the 300 cubic feet per second (cfs) design flow and increase the design capacity by up to 130 cfs. This work will enlarge the South Bay Pumping Plant to accommodate four additional 45 cfs units, construct a third discharge line, construct Dyer Reservoir (425 af of active storage), enlarge the canal, and modify associated structures.

Dyer Reservoir

Contract work to construct a drainage diversion at Dyer Reservoir (Specification No. 06-24) began in September 2006 and was completed in August 2007. DWR extended the contract to allow a temporary bridge to remain in place due to environmental restrictions. Acceptance is expected in early 2009.

Siphon and Check Structure Modifications

A contract (Specification No. 08-14) to modify and replace siphon and check structures began in September 2008 and is expected to be completed in 2009. Work includes construction of the concrete canal lining, check structures, new outlet and inlet transition structures, and operating roads; removal and reinstallation of an existing trashrack system; installation of a new turnout chamber, test stations, and cathodic protection; and removal of sediment and waste.

South Bay Pumping Plant

A contract (Specification No. 04-05) to furnish 45 cfs pump and motor units for Units No. 10 through 13 and one spare pump and motor for the pumping plant began in November 2004 and continued throughout 2008. Completion is expected in mid-2010.

A contract (Specification No. 04-20) to furnish valves, actuators, and hydraulic power units began in May 2005 and continued throughout 2008. Repairs to the butterfly valves are expected to extend the contract into mid-2010.

A contract (Specification No. 05-10) to furnish switchyard equipment began in September 2005 and is expected to be completed in mid-2010. Added work per contract change order will furnish equipment for the Banks Switchyard expansion to accommodate the new 69 kilovolt (kV) transmission line from Banks Pumping Plant to South Bay Pumping Plant.

A contract (Specification No. 05-05) to furnish 5-kV switchgear began in October 2005. Contract work continued throughout 2008, and delivery of the equipment is expected in early 2009. Contract completion is expected in mid-2010.

The contract (Specification No. 06-04) to construct the initial facilities for the South

Bay Pumping Plant enlargement began in August 2006. Construction continued throughout 2008 and is expected to be completed in late 2009.

A contract (Specification No. 07-02) to furnish power transformers began in April 2007 and is expected to be completed in mid-2010.

The contract (Specification No. 07-18) to complete the expanded pumping plant facilities began in December 2007. Completion is expected in mid-2010.

South Bay Pumping Plant Discharge Line and Brushy Creek Pipeline No. 3

A contract (Specification No. 06-09) to construct a South Bay Pumping Plant discharge line and the Brushy Creek Pipeline No. 3 began in December 2006 and completed in September 2008. Acceptance is expected in mid-2009.

Surge Tank No. 3

A contract (Specification No. 08-09) to construct a 120-foot tall steel surge tank began in July 2008. Work includes excavation, backfill, embankment, erosion control, wiring, grounding, and lighting. Completion is expected in 2009.

North San Joaquin Division

Banks Pumping Plant

Hillside improvements began in July 2008 under a contract (Specification 08-10) that includes removal of a retaining wall; hillside excavation; installation of slope benches, a wall, subsurface drainage, box structures, curbs, V-ditches, and fencing; seeding; and erosion control. Completion is expected in 2009.

San Luis Division

Gianelli Pumping-Generating Plant and Dos Amigos Pumping Plant

A contract (Specification No. 04-08) to refurbish the existing CO2 fire suppression system for Motor-Generator Units No. 1 through 8 and the oil purifier room at Gianelli, and Motor Units No. 1 through 6 and the oil purifier room at Dos Amigos began in July 2004. The original work was essentially complete in November 2007, but added work via contract change order continued throughout 2008. Completion is expected in 2010. The added work includes:

- replacing and refurbishing fire extinguishers in San Luis Field Division;
- installing an escape platform at Dos Amigos Pumping Plant and safety platforms at Gianelli Pumping-Generating Plant;
- repairing the CO2 systems at Edmonston, Chrisman, and Teerink pumping plants;
- replacing the fire alarm systems at San Luis O&M Center and at Coalinga O&M Center; and
- inspecting and repairing the fire sprinkler system at the San Luis O&M Center warehouse.

Gianelli Pumping-Generating Plant, Dos Amigos Pumping Plant, Coalinga O&M Subcenter, Check Sites 9 through 21, and Flowmeters at Check Sites 12 and 21

A contract (Specification No. 06-10) to replace standby engine generators began in August 2006. Work continued throughout 2008. Contract completion is expected in 2009 with the following added work:

- furnishing and installing engine generators for the Delta O&M Center, Banks Pumping Plant, the Feather River Fish Hatchery, and the Skinner Fish Facility;

- furnishing and installing a backup generator for University of California, Davis; and
- furnishing and installing an electrical panel at the Dos Amigos siphon house.

San Luis Canal

Work on a contract (Specification No. 04-03) to restore the West Side Detention Basin began in August 2004, was completed in September 2007, and was accepted in July 2008.

Restoration work included:

- earthwork;
- concrete and steel reinforcement;
- gravel road surfacing and chip sealing;
- erosion protection;
- constructing a concrete weir with inflatable rubber dam, control system, and appurtenances; and
- rehabilitating the existing drain inlets.

Work added by change orders included:

- repairing Milepost 166R and Milepost 122R canal embankments;
- sealing and paving roads at California Aqueduct Reaches 6 and 7;
- cleaning the toe drain at O'Neill Dam;
- installing security bars at the San Luis Field Division guard building; and
- installing gates at various locations in the San Joaquin Field Division.

Due to subsidence that caused buckling and cracking in the canal lining, a contract (Specification No. 07-20) to remove and replace damaged portions of the concrete lining along the California Aqueduct between Mileposts 56.40 and 164.90 began in November 2007. Completion is expected in 2009 due to the following added work:

- construction of a drainage berm at Milepost 88.3;
- repairing concrete at Devil's Den Forebay; and
- pending work for 2009—dive survey and repairs at Mileposts 89.03 and 138.96.

South San Joaquin Division

Buena Vista Pumping Plant

A contract (Specification No. 07-05) to design, manufacture, test, and deliver spare coils (17,000 horsepower [hp] and 8,500 hp) and materials began in June 2007 and is expected to be complete in June 2009.

Lost Hills O&M Subcenter

Contract work (Specification No. 07-06) began in August 2007 to connect existing water and sewer lines to the Lost Hills Utility District lines and was essentially complete in November 2007. DWR acceptance is pending completion of all administrative items.

Teerink Pumping Plant

Recoating of Discharge Lines 1 through 7 interiors began in January 2007 (Specification No. 06-25). Work continued throughout 2008 and is expected to complete in June 2009. Additional work included removing the existing coating and recoating the first 25 feet of Discharge Lines 1-7.

Tehachapi Division

Edmonston Pumping Plant

A contract (Specification No. 02-10) to replace pump Units W2, W4, W6, and W8 began in June 2003 and continued throughout 2008, with completion scheduled for March 2011. Work consists of:

- designing, fabricating, and testing a four-stage pump model and a single-stage pump model;
- 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 (Specification No. 04-09) to furnish spare impellers and diffusers began in July 2004 and was completed in March 2007 and was accepted in September 2008 due to outstanding submittals. Work consisted of the manufacture and delivery of:

- 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.

Mojave Division

Cedar Springs Dam Maintenance Station

Work began in January 2008 on a contract (Specification No. 07-25) to construct a 14,400 square foot civil maintenance and mobile equipment building to replace the outdated Cedar Springs Dam Maintenance Subcenter. Work is expected to be completed in mid-2010.

Horsethief Creek Bridge

A contract (Specification No. 07-12) to build a new one-lane railroad flat car bridge over Horsethief Creek began in September 2007 and was completed in February 2008. The bridge replaced partially blocked culverts, provided a larger area for Horsethief Creek storm water to pass under the Mojave Siphon maintenance road, improved access from Mojave Siphon Powerplant to Check 66, and protected the nearby Mojave Siphon pipelines. Acceptance is expected in mid-2009.

Mojave Siphon Powerplant

A contract (Specification No. 07-09) to furnish, install, and encase approximately 60 feet of 10-foot diameter steel pipe from the existing tee on Barrel Number 3 to the abandoned prestressed concrete cylinder pipe (Barrel Number 4) began in August 2007 and was completed in May 2008. The work also included construction of a blowoff to allow drainage of the bypass line for maintenance activities. Acceptance is expected in late 2009.

Santa Ana Division

East Branch Extension Phase I

Construction of the East Branch Extension Phase I began with the issuance of a Notice to Begin Work on February 26, 1999, for pipeline Reaches 1 and 2. Phase I of the project is being constructed to 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 took place in Yucaipa on August 23, 1999.

Below are brief descriptions of the remaining construction contracts.

Pump Stations. Work began in November 1999 on the contract (Specification No. 99-17) to design, manufacture, shop test, and deliver three 4,500 gallons per minute (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. The contract calls for electric motors, variable frequency drives (VFDs), appurtenant equipment, and associated training programs. Completion of this contract was scheduled for December 2003, but was extended to March 2006 due to a change order for additional pump units and related components for Greenspot and Crafton Hills pump stations. As of December 2008, the added units were complete except for erecting engineer services, which are expected to occur in 2009 during completion of Specification 06-21. Acceptance is expected in 2010.

The contract (Specification No. 01-05) to furnish and install the control and communications systems for Greenspot, Crafton Hills, and Cherry Valley pump stations began in October 2001, was completed in May 2004, and was accepted in August 2008.

Work on a contract (Specification No. 06-21) to install spare units at Greenspot, Crafton Hills, and Cherry Valley pump stations, and to replace the existing control valves and unit discharge isolation valves for Greenspot Pump Station Units No. 1 through 4 began in October 2006. Work continued throughout 2008 and is expected to be completed in late 2009. The work includes:

- furnishing and installing a pump, motor, VFD, programmable logic controller (PLC) cubicle, and motor control center unit breaker assembly at Cherry Valley Pump Station;
- furnishing and installing switchgear at Greenspot and Crafton Hills pump stations;
- installing PLCs, valves, piping, tubing, fittings, hangers, supports, and appurtenances at all three pump stations;
- installing DWR-furnished pumps and motors at Greenspot and Crafton Hills pump stations;
- installing a DWR-furnished VFD at Greenspot Pump Station;
- removing existing valves, piping, and appurtenances; and
- manufacturing and delivering tools and spare parts to all three pump stations.

Added work consisted of switchgear modifications to allow front access to the 5kV bus.

Valve facilities. Three separate contracts (Specification Nos. 99-20, 99-22, and 99-23) were awarded to furnish East Branch Extension valves. Work began on all three contracts in 1999 and was essentially complete for Specification Nos. 99-20 and 99-23 in July 2001 and June 2001, respectively, and in December 2000 for Specification No. 99-22. All three contracts were accepted in May 2008 after resolution of contract issues.

Lake Perris State Recreation Area

A contract (Specification No. 06-28) to modify the existing fishing dock to accommodate access for users with limited mobility began in February 2007. Work included new concrete footings, installing a 600-foot access ramp, building and installing a 50-foot dock section, and relocating two ramps and three platforms. Added work by change order included inspection and repair of an aerator and a new anchor system for the dock pedestals and columns. All work was completed in October 2007 and was accepted in March 2008.

Santa Ana Pipeline

Phase IV (Specification No. 07-23) of the excavation, inspection, and repair of four pipe sections of the Santa Ana Pipeline began in November 2007 and continued throughout 2008. Additional work included encasement of approximately 411 linear feet of the pipeline under future Southern California Regional Rail Authority tracks. Completion and acceptance are expected in 2010.

West Branch

Gorman Creek Improvement Channel

An emergency contract (Specification No. 07-03) began in January 2007 to remove and replace 1,000 feet of damaged concrete liner near Station 115, improve the liner foundation, inspect and patch approximately 11,000 feet of open channel, and remove concrete and silt from Hungry Valley Siphon. The repairs, which were required to ensure scheduled West Branch water deliveries, were completed in March 2007. However, after flow resumed, inspections found that 11,000 feet of the channel upstream of Station 115 were in need of urgent repair. The additional repairs began in September 2007 and completed in June 2008. Acceptance is expected in early 2009.

Oso Pumping Plant

Work began in December 2007 to construct a 14,400 square foot civil maintenance and mobile equipment building at Oso Pumping Plant (Specification No. 07-22). Work is expected to be completed in late 2009.

Peace Valley Pipeline

The Phase I contract (Specification No. 07-21) to excavate, inspect, and encase pipe section numbers 774, 808, and 825 of the Peace Valley Pipeline began in October 2007, was completed in December 2007 and accepted in April 2008.

Vista del Lago Visitors Center

A contract (Specification No. 08-04) to repair erosion, install a water intake system, modify the building, and improve drainage began in July 2008 and is expected to be completed in 2009.

Construction Activities in Multiple Divisions

Oroville, North San Joaquin and San Luis Field Divisions

In September 2007, work began on a contract (Specification No. 07-16) to seal and pave roads and parking areas in Oroville, Delta, and San Luis field divisions. Work was completed in February 2008, and acceptance is expected in 2009. Added work included repairs at saturated areas, revised guard rails, and scaffolding for the maintenance and inspection of a Kaplan runner.

Oroville and Tehachapi Divisions and West Branch

Work began in September 2005 to seal and pave roads in the Oroville and Southern field divisions (Specification No. 05-11). Work was completed in April 2007 and accepted in March 2008. The following work was added by change order:

- flood damage repair—Oroville Wildlife Area (Oroville Field Division);
- excavation, paving, guardrail, and drainage work, and miscellaneous work (Oroville Field Division);
- erosion repair—Angeles Tunnel north entry access road (Southern Field Division);
- removal of roadway and culverts, relocation of utilities, and regrading of flood channel—downstream of Devil Canyon Powerplant (Southern Field Division);
- road repair—Lower Quail Lake Canal and Oso Canal (Southern Field Division);
- installation and repair of irrigation system—Perris Lake State Recreation Area (Southern Field Division);
- installation of monitoring wells—Peace Valley Pipeline (Southern Field Division);
- modular office trailer—Pearblossom O&M Center (Southern Field Division); and
- roadway and culvert repair—Old Ferry Road (Delta Field Division).

Suisun Marsh Facilities and North San Joaquin and San Luis Divisions, Banks Pumping Plant, and Gianelli Pumping-Generating Plant

A contract (Specification No. 02-12) began in May 2003 to design, manufacture, deliver, and install automatic digital voltage regulators for Banks Pumping Plant, Units 1 through 7, and Gianelli Pumping-Generating Plant, Units 1 through 8, and continued throughout 2008. Contract acceptance may be delayed until completion of all contractor submittals.

Banks Pumping Plant, Dos Amigos Pumping Plant, and Coalinga O&M Subcenter

A contract (Specification No. 06-03) to replace and recoat roofs at Banks Pumping Plant, Dos Amigos Pumping Plant, and Coalinga O&M Subcenter began in March 2006, was completed in October 2006 and accepted in January 2008. The contract included added work to remove and replace roofing at the Sacramento Maintenance Facility.

Banks Pumping Plant, Skinner Fish Facility, and Roaring River Intake Structure

Contract work (Specification No. 06-12) began in August 2006 to design, manufacture, test, deliver, and install cathodic protection at Banks Pumping Plant, Skinner Fish Facility, and the Roaring River intake structure. Added work included installation of a cathodic protection system at the Travis Surge Tank, installation of insulating unions and magnesium anodes at seven liquid propane gas tanks in the Delta Field Division, installation of one union at the mobile equipment repair building; installation of magnesium anodes at six riser locations in the Delta Field Division, and improvement of the cathodic protection system at the trashrack structure at the Skinner Fish Facility. Work was completed in December 2007 and accepted in March 2008.

North San Joaquin, San Luis, South San Joaquin, and Mojave Divisions and Coastal Branch

Banks Pumping Plant and Teerink Pumping Plant. A contract (Specification No. 06-27) to furnish spare coils and materials for Banks Pumping Plant and Teerink Pumping Plant began in February 2007. The contract may be extended to furnish an additional set of pole group jumpers. Acceptance is expected in early 2010.

Various roads and parking areas. In August 2004, work began on a contract (Specification No. 04-10) to seal and pave roads in the San Luis and Southern field divisions. The contract was completed in August 2005 and accepted in January 2008.

Added work included:

- emergency repairs due to storm damage: Osito entry channel, Piru Creek embankment, Devil Canyon Powerplant access road, Smokey Bear Road, and the Angeles Tunnel south entry access road (Southern Field Division);
- installation of anode beds and repairs to cathodic protection test stations (Southern Field Division);
- providing a temporary office and a soils/concrete laboratory building—Tehachapi East Afterbay (Southern Field Division); and
- sealing and paving roads—fog seal, asphalt dikes, fill, and drain inlets (Southern Field Division).

A contract (Specification No. 06-15) to seal and pave roads in the San Luis and Southern field divisions began in July 2006, completed in February 2007 and was accepted in February 2008.

Added work included:

- repaving the Vista Del Lago Visitors Center parking area (Southern Field Division);

- road resurfacing—McCabe Road (San Luis Field Division);
- installation of drainage and headwalls, re-grading, and paving—vicinity of Ritter Siphon (Southern Field Division); and
- placement of a dumpster pad and preparing parking lot for paving—Vista Del Lago Visitors Center (Southern Field Division).

A contract (Specification No. 08-16) to seal and pave roads and parking areas at various locations in the San Luis and San Joaquin field divisions began in September 2008; completion is expected in early 2009.

West Branch, Mojave and Santa Ana Divisions

Oso Pumping Plant, Quail Lake Outlet, Peace Valley Pipeline, Pearblossom Pumping Plant, and Pearblossom O&M Subcenter.

A contract (Specification No. 08-02) to replace and recoat roofs at Oso Pumping Plant, Quail Lake Outlet, Peace Valley Pipeline, Pearblossom Pumping Plant, and Pearblossom O&M Subcenter began in May 2008. Work was completed in December 2008. Acceptance is expected in mid-2009. Added work included removal and replacement of the roof at the Devil Canyon Afterbay control building and roof repairs at Pearblossom Pumping Plant.

Various roads and parking areas

In September 2007, work began on a contract (Specification No. 07-17) to seal and pave roads and parking areas in the Southern Field Division. Work was completed in April 2008 and accepted in December 2008. Added work included fill for low areas, installation of downdrains and tire stops, and pavement markings.

In September 2008, work began on a contract (Specification No. 08-17) to seal and pave roads and parking areas at Oso Pumping Plant, Warne Powerplant, the Pyramid Dam Access Road, the Angeles Tunnel Surge Chamber, Alamo Powerplant, Pearblossom Pumping Plant, and the Devil Canyon Second Afterbay. Completion is expected in early 2009.

Warne Powerplant and Devil Canyon Powerplant

A contract (Specification No. 01-13) to furnish spare coils for Warne Powerplant and for Devil Canyon Powerplant began in October 2001. It was completed in February 2006 and accepted in July 2008. Change order work included:

- furnishing and delivering a set of surge rings with support and insulation blocks;
- substitution of stator bars in lieu of stator coils; and
- furnishing and delivering an additional set of stator windings.

Miscellaneous Construction Activities

The following non-SWP construction activities are categorized as miscellaneous.

Demonstration Aeration Facility

A contract (Specification No. 05-06) to install a demonstration aeration facility on Dock 20 at Rough and Ready Island in the Port of Stockton began in December 2005 and continued through 2008. Completion and acceptance is expected in early 2009. Work includes installing:

- two 30-inch diameter steel U-tube casings and two 20-inch diameter U-tubes;
- 24-inch steel piping and 30-inch high-density polyethylene diffuser piping;
- two vertical turbine pump-motor units;
- four fish screens with two air burst systems; and
- electrical items including a PLC, water flow meter, instrumentation, and distribution panel and meter.

Added work includes:

- decommissioning an existing meteorological tower and installing a new tower;
- modifications to the initial design;
- additional coatings;
- providing and installing a liquid oxygen storage tank and distribution system;
- removing and replacing asphalt and concrete; and
- purchasing a storage container.

Emergency Levee Erosion Repairs

The contracts listed below provided emergency levee erosion repairs and included most or all of the following work:

- fencing;
- removing trees, brush, and debris;
- levee repairs;
- placing in-stream woody material; and
- planting, seeding, and irrigation.

Sacramento River Mile 85.6R and Bear River Miles 2.4L and 10.1R. Contract work under specification No. 06-16 began in June 2006 and was completed in June 2008. Additional work included repair sites (Butte Creek Mile 14.0L, Bear River Mile 1.2L, and Butte Creek Mile 0.8L), revised construction at Bear River Mile 2.4L, erosion control at Butte Creek, placement of cobblestones for tree protection, and pole cuttings.

Cache Slough Miles 16.5L and 21.8R, Steamboat Slough Mile 16.2R, and Sacramento River Miles 20.8L, 26.5L, and 32.5R. Specification No. 06-17 began in July 2006, was completed in May 2008, and was accepted in July 2008. Additional work included repair sites (Sacramento River Miles 43.3R, 56.1R, 70.7R, 71.7R, and 73.0R; and Sutter Slough Miles 24.8L and 25.4R), extension of repairs at Sacramento River Miles 32.5R and 43.3, and placement of cobblestones for tree protection.

Sacramento River Miles 56.8R and 69.9R. Specification No. 06-18 began in July 2006 and was completed in May 2008. Additional work included transplanting and maintaining elderberry shrubs, placing of cobblestones for tree protection, modifying stakes, and pole cuttings.

Sacramento River Miles 130.8R, 141.4R, 145.9L, 154.5R, and 164.0R. Specification No. 06-19 began in July 2006 and completed in June 2008. Additional work included two new repair sites (Sacramento River Mile 99.5R and 182.0R), hydroseeding, erosion control, and modifying stakes.

Phase II Bear River Mile 1.2L and Sacramento River Miles 99.5R and 182.0R. Specification No. 07-10 began in July 2007 and is expected to be complete in 2009.

Phase II Sutter Slough Miles 24.8L and 25.4R and Sacramento River Miles 70.7R, 71.7R, and 73.0R. Specification No. 07-13 began in August 2007, and completion is expected in mid-2009. Added work includes purchasing and delivering fascine bundles, filling excavated areas at Sacramento River Mile 70.7, and furnishing and installing a stabilized construction entrance and exit at the Hood facility.

San Joaquin River Mile 42.3R, Paradise Cut Mile 3.8L, and Mormon Slough Mile 11.8R. Contract work under specification 08-15 began in August 2008 and is expected to be complete in late 2009.

Levee Road Repairs

A contract (Specification 08-08) to repair 45 miles of gravel levee roads in the Sacramento and Sutter Maintenance Yard areas began in July 2008 and was completed in November 2008. Acceptance is expected in early 2009.

Restore Habitat and Public Access

Phase I (Specification No. 06-22) of the San Joaquin River restoration at Jensen River Ranch began in November 2006, was completed in March 2007, and was accepted in March 2008. The work included:

- removing selected irrigation lines, structures, and trees;
- site work and earthwork; and
- installing a storm drain bypass and an irrigation system.

Phase II (Specification No. 07-11) of the restoration began in August 2007, was completed in December 2007, and was accepted in October 2008. Work included:

- selective demolition;
- site work;
- construction of a potable waterline, an oxbow embankment, a storm drain bypass tie-in, corrugated metal pipe culverts, fencing, and gates; and
- plantings and drip irrigation.

A contract (Specification 08-13) to restore habitat at the Colusa State Recreation Area began in October 2008 and is expected to be completed in 2011. This work to mitigate the Tisdale Bypass sediment removal project (Specification No. 07-14), includes planting and irrigating 34,000 oak trees and other plants.

Rock Conveyor System

The design, fabrication, transport, assembly, and demonstration of a rock conveyor system at the Port of Stockton began in November 2007 (Specification No. 07-24), and completed in August 2008.

Sediment Removal

In August 2007, removal of approximately 1.8 million cubic yards of sediment from Tisdale Bypass began (Specification No. 07-14). The work was complete in December 2007 and accepted in January 2008.

Real Estate Branch Activities

DWR has spent a net total of $255.1 million to acquire rights-of-way, recreation, and mitigation land for the SWP from its inception to December 31, 2008. DWR conducted the following real estate activities from January 1 through December 31, 2008:

- acquired two parcels (305.74 acres in fee) for $787,000 for the Tehachapi East Afterbay mitigation project;
- renewed five leases;
- managed leasing activities of SWP nonoperating properties, which produced an income of $43,971;
- processed 31 encroachment permit applications and executed 21;
- collected fees of $94,392 for review and inspection costs related to encroachment permit applications;
- coordinated review of 27 tentative tract map developments within 1 mile of the California Aqueduct;
- completed eight appraisals covering eight parcels and three appraisal reviews for 4 parcels;
- completed two appraisal memos on approximately 300 parcels;
- completed nine rental rate appraisals for 10 parcels;
- completed the Settlement Agreement and Mutual Release for the lawsuit *Robert Dave, II v. DWR, City of Palmdale, et al.*;
- completed four agreements for the California Irrigation Management Information System Program;
- completed Addendum No. 3 to the agreement to place a conservation easement over 168.39 acres, an agreement with Alameda-Zone 7 to release an eminent domain case, and the U.S. Department of Energy for raising their pipeline at Milepost 13.55 for the SBA project;

- completed agreement for armoring existing railroad tracks for the Arroyo Pasajero West Side Detention Basin;
- completed two utility agreements for the Caltrans Highway 46 and I-680 projects; and
- obtained a License Agreement from Western Area Power Administration and executed four other agreements for the SBA project.

In addition, DWR obtained 47 temporary permits, including:

- Franks Tract Project, 6;
- East Branch Extension, Phase II, 9;
- South Delta Temporary Barriers, 4;
- Crafton Hills Reservoir enlargement, 3;
- Santa Ana Pipeline Encasement Project, 1;
- DHCCP, 2;
- SBA Improvement and Enlargement, 11;
- South Delta Improvement Program, Permanent Barrier, 1;
- Seepage Monitoring Station Program, 2;
- Suisun Marsh Mitigation/Enhancement Project, 1;
- Quail Detention Basin, 1;
- Arroyo Pasajero Investigation Project, 1;
- Suisun Marsh Monitoring Program, Montezuma Harbor, 1;
- North Central Region – State Water Resources Compliance Project, 3; and
- Deseret Farms Monitoring Well Installation, 1.

Table 12-1 Design Activities, January 1, 2008, through December 31, 2008, by Division

Division and Facility	Design Activity	Date Design Began	Design Actual/ Estimated Completion Date
South Bay Aqueduct			
South Bay Aqueduct Enlargement (subcomponents below)			
South Bay Pumping Plant	69 kV transmission line and switchyard modifications	June 2009	February 2010
Canal	Canal modification	July 2003	December 2010
Dyer Reservoir	Construct a new 425 af reservoir	September 2003	December 2010
Patterson Reservoir	Raise embankment and refurbish liner	January 2006	May 2008
Permanent barriers—South Delta Improvements Program	New operable barriers—4 sites	September 2003	December 2012
Fish screens at Sherman and Twitchell islands	New fish screens at existing siphons—10 sites	September 2007	March 2008
Skinner Fish Facility	Delta smelt refugium culture facility	September 2007	January 2008
Port of Stockton	Rock conveyor system	July 2007	March 2008
San Luis Division			
Dos Amigos Pumping Plant	Replace trashracks and trashrake	August 2007	September 2010
Gianelli Pumping-Generating Plant	Evaluation of existing HVAC	August 2007	March 2008
South San Joaquin Division			
Teerink Pumping Plant	Recoat discharge lines interior	December 2005	May 2009
Tehachapi Division			
Edmonston Pumping Plant	Pump replacement, Units W2, W4, W6, and W8	August 2001	October 2011
Edmonston, Teerink, Chrisman, Buena Vista	Replace septic tanks and sewer piping	August 2007	April 2011
Mojave Division			
Pearblossom Administration Building	Construct new administration building	March 2008	June 2011
Tehachapi East Afterbay	AVEK turnout and mitigation	October 2006	February 2009
Santa Ana Division			
East Branch Extension—Phase I Improvements	Project planning and engineering feasibility studies for the Crafton Hills Reservoir enlargement	July 2007	April 2011
East Branch Extension—Phase II	Project planning and engineering feasibility studies	July 2008	September 2012
Perris Dam	Dam remediation	January 2007	March 2013
Perris Dam	Tower retrofit	February 2008	February 2009
Perris Dam	Emergency outlet extension	October 2006	September 2011
West Branch			
Los Robles Bridge	Seismic analysis	August 2005	June 2009
Coastal Branch			
Coastal Aqueduct	Concrete encasement of Coastal Aqueduct pipeline under State Highway 46 widening	March 2006	June 2008

Table 12-1 Design Activities, January 1, 2008, through December 31, 2008, by Division

Division and Facility	Design Activity	Date Design Began	Design Actual/ Estimated Completion Date
Miscellaneous			
Sutter Bypass	Flood control improvements—Weir No. 2 rehabilitation	July 2006	November 2010
	Flood control improvements—Willow Slough rehabilitation	July 2006	November 2010
	Motor control center replacement	August 2008	December 2012
Sycamore Creek	Sediment removal	October 2006	November 2009

Table 12-2 Construction Activities, January 1, 2008, through December 31, 2008, by Division

Sheet 1 of 4

Construction Division and Facility	Construction Contract (Specification Number)	Starting Date (NTBW[a])	Acceptance Date (Expected or Actual)	Contract Costs (In Thousands of Dollars)
Upper Feather River Division				
Grizzly Valley Dam and Reservoir	Construct Lake Davis fish containment facility (06-11)	June 2006	February 2009	1,590
Oroville Division				
Hyatt Powerplant	Refurbish pump-turbine Units 1, 3, and 5 (98-22)	February 1999	December 2009	9,864
	Refurbish pump-turbine Units 2, 4, and 6 (01-11)	November 2001	June 2010	16,996
Lake Oroville	Construct Bidwell Canyon Stage III boat ramp (08-18)	November 2008	November 2009	1,566
Thermalito Afterbay Dam	Replace wells (08-05)	May 2008	June 2009	1,754
Warehouse, Civil Maintenance Building, and Shop Building	Replace roofs (08-07)	June 2008	December 2009	464
Delta Facilities				
Middle River, Old River, and Grant Line Canal	Install and remove temporary rock barriers 2007 to 2009 (06-26)	January 2007	February 2010	10,295
North Bay Aqueduct				
Napa Turnout Reservoir	Replace reservoir (07-01)	April 2007	February 2010	11,281
South Bay Aqueduct				
South Bay Aqueduct Enlargement and Improvement				
Dyer Reservoir	Construct drainage diversion (06-24)	September 2006	January 2009	762
Siphons and Check Structures	Modify and replace siphons and check structures (08-14)	September 2008	December 2009	3,953
South Bay Pumping Plant	Furnish 45 cfs pump and motor units and one spare pump and motor (04-05)	November 2004	September 2010	7,370
	Furnish valves, actuators, and hydraulic power unit (04-20)	May 2005	September 2010	2,258
	Furnish switchyard equipment (05-10)	September 2005	September 2010	1,496
	Furnish 5 kV switchgear (05-05)	October 2005	September 2010	3,471
	Construct pumping plant enlargement—initial facilities (06-04)	August 2006	September 2010	16,604
	Furnish power transformers (07-02)	April 2007	September 2010	5,095
	Complete pumping plant enlargement (07-18)	December 2007	September 2010	11,820
South Bay Pumping Plant Discharge Line and Brushy Creek Pipeline No. 3	Construct discharge line and Brushy Creek Pipeline No. 3 (06-09)	December 2006	June 2009	27,501
Surge Tank No. 3	Construct Surge Tank No. 3 (08-09)	July 2008	December 2009	1,488
North San Joaquin Division				
Banks Pumping Plant	Improve hillside (08-10)	July 2008	December 2009	1,053
San Luis Division				
Gianelli Pumping-Generating Plant and Dos Amigos Pumping Plant	Refurbish CO_2 system (04-08)	July 2004	January 2010	1,696

Table 12-2 Construction Activities, January 1, 2008, through December 31, 2008, by Division

Sheet 2 of 4

Construction Division and Facility	Construction Contract (Specification Number)	Starting Date (NTBW[a])	Acceptance Date (Expected or Actual)	Contract Costs (In Thousands of Dollars)
Gianelli Pumping-Generating Plant, Dos Amigos Pumping Plant, Coalinga O&M Subcenter, Check Sites, and Flowmeter Sites	Replace standby engine generators (06-10)	August 2006	January 2010	2,525
San Luis Canal	Restore West Side Detention Basin (04-03)	August 2004	July 2008	7,276
	Repair canal lining, Milepost 56.40 to 164.90 (07-20)	November 2007	March 2010	5,674
South San Joaquin Division				
Buena Vista Pumping Plant	Furnish spare coils and materials (07-05)	June 2007	September 2010	4,800
Lost Hills O&M Subcenter	Water and sewer service connection (07-06)	August 2007	June 2009	316
Teerink Pumping Plant	Recoat interior of discharge lines (06-25)	January 2007	July 2009	5,865
Tehachapi Division				
Edmonston Pumping Plant	Replace pumps, Units W2, W4, W6, and W8 (02-10)	June 2003	May 2011	32,900
	Furnish spare impellers and diffusers (04-09)	July 2004	September 2008	3,859
Mojave Division				
Cedar Springs Dam Maintenance Station	Construct civil maintenance and mobile equipment building (07-25)	January 2008	March 2010	4,036
Horsethief Creek Bridge	Construct flat car bridge (07-12)	September 2007	July 2009	1,713
Mojave Siphon Powerplant	Connect penstock bypass line (07-09)	August 2007	October 2009	1,592
Santa Ana Division				
East Branch Extension Phase I				
Greenspot, Crafton Hills, and Cherry Valley Pump Stations	Furnish pumps, motors, and variable frequency drives (99-17)	November 1999	March 2010	4,748
	Furnish and install supervisory control and communications systems (01-05)	October 2001	August 2008	4,449
	Furnish and install additional units (06-21)	October 2006	March 2010	4,500
Valve facilities, various locations	Furnish ANSI ball valves (99-20)	October 1999	May 2008	1,074
	Furnish AWWA butterfly valves (99-22)	October 1999	May 2008	733
	Furnish ANSI butterfly valves (99-23)	November 1999	May 2008	1,213
Lake Perris State Recreation Area	Modify fishing dock (06-28)	February 2007	March 2008	865
Santa Ana Pipeline	Excavate, inspect, and repair, Phase IV (07-23)	November 2007	May 2010	5,808
West Branch				
Gorman Creek Improvement Channel	Repair channel (emergency) (07-03)	January 2007	February 2009	12,325
Oso Pumping Plant	Construct civil maintenance and mobile equipment building (07-22)	December 2007	March 2010	3,993
Peace Valley Pipeline	Excavate, inspect, and repair Phase I (07-21)	October 2007	April 2008	1,027
Vista del Lago Visitors Center	Repair erosion, install water intake system, modify building, and improve drainage (08-04)	July 2008	January 2010	1,520

Table 12-2 Construction Activities, January 1, 2008, through December 31, 2008, by Division

Sheet 3 of 4

Construction Division and Facility	Construction Contract (Specification Number)	Starting Date (NTBW[a])	Acceptance Date (Expected or Actual)	Contract Costs (In Thousands of Dollars)
Multiple Divisions				
Oroville, North San Joaquin, and San Luis Field Divisions	Seal and pave roads and parking areas—2007 (07-16)	September 2007	May 2009	3,078
Oroville and Tehachapi Divisions and West Branch	Seal and pave roads—2005 (05-11)	September 2005	March 2008	6,249
Suisun Marsh Facilities and North San Joaquin and San Luis Divisions				
Banks Pumping Plant and Gianelli Pumping-Generating Plant	Design, manufacture, deliver, and install digital voltage regulators (02-12)	May 2003	March 2010	2,082
Banks Pumping Plant, Dos Amigos Pumping Plant, and Coalinga O&M Subcenter	Replace and recoat roofs (06-03)	March 2006	January 2008	1,732
Banks Pumping Plant, Skinner Fish Facility, and Roaring River Intake Structure	Rehabilitate cathodic protection anodes (06-12)	August 2006	March 2008	314
North San Joaquin, San Luis, South San Joaquin, and Mojave Divisions and Coastal Branch				
Banks Pumping Plant and Teerink Pumping Plant	Furnish spare coils and materials (06-27)	February 2007	January 2010	1,680
Various roads and parking areas	Seal and pave roads—2004, San Luis and Southern Field Divisions (04-10)	August 2004	January 2008	6,148
	Seal and pave roads—2006, San Luis and Southern Field Divisions (06-15)	July 2006	February 2008	3,782
	Seal and pave roads and parking areas—2008, San Luis and San Joaquin Field Divisions (08-16)	September 2008	January 2010	3,138
West Branch and Mojave and Santa Ana Divisions				
Oso Pumping Plant, Quail Lake Outlet, Peace Valley Pipeline, Pearblossom Pumping Plant, and Pearblossom O&M Subcenter	Replace and recoat roofs (08-02)	May 2008	June 2009	997
Various roads and parking areas	Seal and pave roads and parking areas—2007, Southern Field Division (07-17)	September 2007	December 2008	2,085
	Seal and pave roads and parking areas—2008, Southern Field Division (08-17)	September 2008	March 2009	2,946
Warne and Devil Canyon Poweplants	Furnish spare coils and materials (01-13)	October 2001	July 2008	1,814
Miscellaneous Activities				
Demonstration Aeration Facility	Install demonstration aeration facility, Rough and Ready Island, Dock 20 (05-06)	December 2005	May 2009	3,841
Emergency Levee Erosion Repairs				
Sacramento River Mile 85.6R and Bear River Miles 2.4L and 10.1R	Repair levee erosion repair (06-16)	June 2006	August 2008	19,223

Table 12-2 Construction Activities, January 1, 2008, through December 31, 2008, by Division

Sheet 4 of 4

Construction Division and Facility	Construction Contract (Specification Number)	Starting Date (NTBW[a])	Acceptance Date (Expected or Actual)	Contract Costs (In Thousands of Dollars)
Cache Slough Miles 16.5L and 21.8R, Steamboat Slough Mile 16.2R, Sacramento River Miles 20.8L, 26.5L, and 32.5R	Repair levee erosion (06-17)	July 2006	July 2008	45,379
Sacramento River Miles 56.8R and 69.9R	Repair levee erosion repair (06-18)	July 2006	July 2008	8,873
Sacramento River Miles 130.8R, 141.4R, 145.9L, 154.5R, and 164.0R	Repair levee erosion repair (06-19)	July 2006	August 2008	42,270
Phase II—Bear River Mile 1.2L and Sacramento River Miles 99.5R and 182.0R	Repair levee erosion—(07-10)	July 2007	September 2009	5,326
Phase II—Sutter Slough Miles 24.8L and 25.4R and Sacramento River Miles 70.7R, 71.7R, and 73.0R	Repair levee erosion—emergency (07-13)	August 2007	September 2009	4,686
San Joaquin River Mile 42.3R, Paradise Cut Mile 3.87L, and Mormon Slough Mile 11.8R	Repair levee erosion— emergency (08-15)	August 2008	December 2009	1,845
Levee Road Repairs	Repair levee roads, Sacramento and Sutter Maintenance Yards (08-08)	July 2008	April 2009	2,291
Restore Habitat and Public Access	Restore San Joaquin River at Jensen River Ranch, Phase I (06-22)	November 2006	March 2008	1,314
	Restore San Joaquin River at Jensen River Ranch, Phase II (07-11)	August 2007	October 2008	527
	Restore habitat, Colusa State Recreation Area (08-13)	October 2008	December 2011	1,225
Rock Conveyor System	Provide rock conveyor system at the Port of Stockton (07-24)	November 2007	October 2008	950
Sediment Removal	Remove sediment, Tisdale Bypass (07-14)	August 2007	January 2008	6,252

[a] Notice to Begin Work

Chapter 13
Recreation

The beach at Lake del Valle State Recreation Area.

Significant Events in 2008

The Department of Fish and Game (DFG) expanded its fish planting activities this year at State Water Project (SWP) reservoirs. Under new Fish and Game Code Section 13007, which mandates the stocking of more trout into California reservoirs, DFG planted a total of 1,594,530 salmonids: 1,210,574 trout and 383,956 salmon. This tripled the numbers of fish planted compared to 2007.

DFG completely eradicated northern pike from Lake Davis following a treatment of rotenone in the fall of 2007. To replenish the sport fishery, DFG followed this with a large-scale restocking program of 813,700 trout, including more than 500 trophy-sized Eagle Lake and rainbow trout. Department of Water Resources (DWR) staff collected recreation use data and coordinated fishery monitoring with DFG.

For a second year in a row, several wildfires threatened the communities around Lake Oroville and affected the full-season use of some Oroville facilities' recreation sites. The Department of Parks and Recreation (DPR), DWR, and local authorities teamed up to help evacuate residents and assist the communities.

DWR extended Bidwell Canyon boat ramp down to elevation 675 feet, making Bidwell Canyon the deepest ramp on the lake.

SWP facilities supported an estimated 4.2 million recreation days of use in 2008, down slightly from the last 4 years.

Information for this chapter was provided by the Division of Integrated Regional Water Management, Public Affairs Office, Division of Environmental Services, and the State Water Project Analysis Office.

The State Water Project (SWP) is a multipurpose project that provides recreational benefits to millions of Californians. In addition to providing water supply, flood control, and habitat for fish and wildlife, the SWP offers extensive and varied recreational opportunities—tours, sightseeing, fishing, hunting, picnicking, camping, boating, water skiing, bicycling, hiking, and swimming. Under the Davis-Dolwig Act (DDA), these recreational opportunities, as well as fish and wildlife enhancements, are not allocable as water and power costs to the SWP water contractors. They are financed by Department of Water Resources' (DWR) existing authorities under the Burns-Porter Act as well as appropriations from the Legislature specifically for these purposes.

Recreation Areas

The SWP has 37 developed recreation areas, or sites, throughout California, including 18 developed fishing access sites. Figure 13-1 shows the name and location of each area.

Recreation Use

In 2008, SWP facilities supported an estimated 4.2 million recreation days of use (Table 13-1), which is slightly down from 2007 (4.7 million), 2006 (4.6 million), 2005 (4.8 million), and 2004 (4.3 million). A recreation day is defined as one individual user visiting a recreation site along the SWP within all or part of a one-day period. Recreational use at the fishing access sites and along the California Aqueduct bikeway nearly equaled that of 2007.

Most SWP recreation use is concentrated at the major reservoirs with 32 percent occurring at the lakes in the Oroville Field Division and 44 percent of the total SWP recreational use in 2008 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, approximately 199 million recreation days have been recorded at SWP recreational facilities.

Visitation at DWR's three SWP educational visitors centers totaled:

- Lake Oroville Visitors Center, 71,100 recreation days;
- Romero Overlook Visitors Center, San Luis Reservoir, 136,600 recreation days; and
- Vista del Lago Visitors Center, Pyramid Lake, 132,400 recreation days.

Overall, recreation usage of 4.2 million recreation days at the SWP reservoirs listed in Table 13-1 contributed significantly to the more than 65 million (during calendar year 2008) day-use visitors at the 278 units of the California State Park System in fiscal year (FY) 2008–2009.

Facilities

In 2008, the following activities occurred or were planned for SWP facilities.

Planning

During 2008, the following improvements to SWP facilities were planned:

Pyramid Lake State Recreation Area

The Department of Boating and Waterways (DBW) began planning at Bear Trap Boat-In Site to replace two single unit toilets and install three concrete patios with picnic tables and shade structures. Construction is planned for September 2009.

Figure 13-1 Names and Locations of SWP Recreation Areas

Table 13-1 Recreation Days Estimated[a] in 2008, by Field Division and Facility

Field Division and Facility	Number of Recreation Days (rounded)
Oroville Field Division	
Frenchman Lake	60,000 e
Antelope Lake	20,000 e
Lake Davis	24,200 e
Lake Oroville and Thermalito Forebay	768,600
Thermalito Afterbay and Oroville Wildlife Area	282,700
Feather River Fish Hatchery	137,000
Lake Oroville Visitors Center	71,100
Subtotal	*1,363,600*
Delta Field Division	
Lake del Valle	311,200
Bethany Reservoir	25,700
Fishing Access Sites:	
Niels Hansen	100 e
California Aqueduct:	
Walk-in fishing	600 e
Bikeway	100 e
White Slough Wildlife Area	11,500 e
Subtotal	*349,200*
San Luis Field Division	
San Luis Reservoir SRA, includes San Luis Reservoir, O'Neill Forebay, and Los Banos Reservoir	407,500
Romero Overlook Visitors Center	136,600
California Aqueduct:	
Walk-in fishing	12,000 e
Wildlife Areas	11,000 e
Subtotal	*567,100*
San Joaquin Field Division	
Fishing Access Sites include Kettleman City, Lost Hills, Buttonwillow, and California Aqueduct Walk-in fishing	13,900 e
Subtotal	*13,900*
Southern Field Division	
Silverwood Lake	358,000
Lake Perris	623,400
Pyramid Lake	132,400
Vista del Lago Visitors Center	118,400
Castaic Lake	667,300
Fishing Access Sites:	
Quail Lake	1,200
77th Street East	200
Longview Road	100
California Aqueduct:	
Walk-in fishing	1,900 e
Bikeway	800 e
Subtotal	*1,903,700*
Total for Recreational Sites	**3,857,400**
Total for Visitors Centers	**340,100**
Grand Total	**4,197,500**

[a] These values are provided by numerous sources and vary in their degree of accuracy. Recreation days are based on counts except where marked "e," which are based on partial data.

DBW began designing a project at Emigrant Landing, which included removing and replacing an existing pier, gangway, and several boarding floats. Construction is planned for fall 2009.

Silverwood Lake State Recreation Area

DBW designed several improvements to the Sawpit Canyon parking area which include building a new concrete boat ramp and apron, grading the parking area, placing rip rap, relocating overhead electric lines underground, installing a warning sign and boat ramp directional signs on access roads, and providing drainage. Construction is planned for 2009.

DBW began planning for demolition at Serrano Beach Boat-In Site of four existing restrooms and three dressing and storage rooms to be replaced with two single-unit restrooms, three steel structures with picnic tables and trashcans, BBQs, and a path between facilities. In addition, the plans include installation of a 60-foot steel frame dock with a pultruded fiberglass decking, and an 80-foot aluminum gangway. Construction is planned for September 2009.

New Facilities

During 2008, new facilities were completed at the following sites:

San Luis Reservoir State Recreation Area

- A raw water pump at Basalt Water Treatment Plant.
- Six new restrooms at San Luis Creek Day Use Area, Medeiros Campground, and Dinosaur Point.
- DBW upgraded four wind warning lights and installed one new warning light in the North Meadows area.

Silverwood Lake State Recreation Area

Construction started on May 5th for a new "green" visitors center funded by a Proposition 84 bond associated with the

"Campground and Day Use Improvements project" through the Department of Parks and Recreation (DPR).

Improvements to Facilities

During 2008, improvements were made at the following facilities:

Lake Oroville State Recreation Area

DWR extended the Bidwell Canyon boat ramp down toward a target of 640-foot elevation. Taking advantage of low water conditions, construction was completed to the 675-foot level, making Bidwell Canyon the deepest ramp on the lake, before water levels began to rise in the winter.

Lake del Valle State Recreation Area

- East Bay Regional Park District installed a 300,000-gallon, steel-bolted water storage tank on the west side of the lake.
- DBW replaced two courtesy docks at the boat launch.

Pyramid Lake State Recreation Area

- DWR added gabions and riprap to protect the point near the boat ramp at Vaquero.
- DWR completed a boat ramp sediment dredging project at Emigrant Landing.
- The U.S. Forest Service upgraded the water treatment plant at Emigrant Landing to meet water quality standards.
- DBW rebuilt a concrete ramp to accommodate access for users with limited mobility at Emigrant Landing and added two more dock sections with new pillars.
- DBW extended the west boarding dock near the sheriff's building at Emigrant Landing and added one additional section with one new pillar.

Castaic Lake State Recreation Area

- The County of Los Angeles Department of Parks and Recreation (LADPR) received funds for a general improvement project and built bathrooms to accommodate access for users with limited mobility and constructed a children's play area.
- LADPR received a $600,000 per year grant through 2014 for project improvements. The 2008 funds were used for shoreline stabilization of the east side of Castaic Lagoon, the addition of six new picnic tables and shelters, and repairs to the irrigation system and lighting systems.

Silverwood Lake State Recreation Area

DBW upgraded both the Chamise and Sycamore Landing boat-in day use facilities.

Recreation Activities

The SWP, with its many reservoirs and hundreds of miles of aqueducts, offers Californians many recreational opportunities. From Antelope Lake in Northern California to Lake Perris in Southern California, the SWP includes facilities for anglers, boaters, campers, hikers, cyclists, and many others. While DWR manages the routing of water through the reservoirs, the recreational facilities are operated variously by federal, State, and local agencies and their private concessionaires. Visitors to these facilities can swim, water ski, and picnic. See Figure 13-2 for the various types of recreation available along the SWP.

Oroville Recreation Plan

The Oroville Facilties, including Lake Oroville State Recreation Area, Oroville Wildlife Area, and adjacent DWR facilities, are operated in conformance with the 1993 Amended Recreation Plan that was approved by the Federal Energy Regulatory Commission (FERC) in their 1994 Order 2100-054. In 2006, DWR and its Settlement Agreement signatories submitted a new Recreation Management Plan (SARMP, March 2006) for FERC approval, which is expected sometime in 2011 or later, pending a new FERC license.

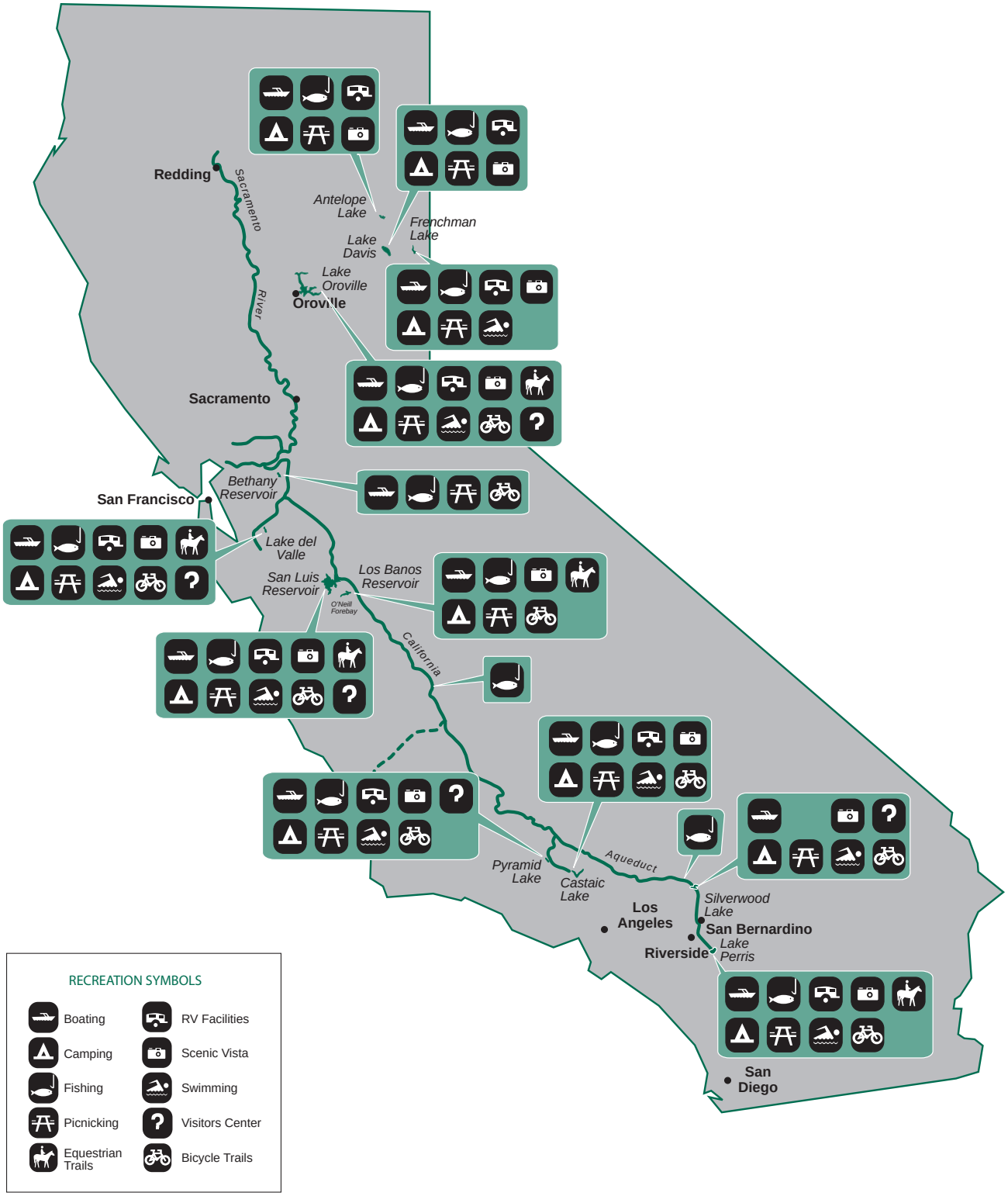

Figure 13-2 **Types of Recreation along the SWP**

Additional need-based recreation improvements identified and proposed in the SARMP are anticipated to be constructed when FERC issues new license terms and conditions. The new terms and conditions are expected to be consistent with the proposed SARMP. In the meantime, DWR and its DDA collaborating partners DPR, DBW, and the Department of Fish and Game (DFG), will continue to operate Oroville Facilities recreational installations consistent with the existing FERC license.

Fish Plantings

In 2008, DFG expanded planting fish at SWP facilities, including major SWP reservoirs. The total number of fish planted in 2008 nearly tripled over 2007, with 1.6 million fish planted (see Table 13-2). This increase was due to new Fish and Game Code Section 13007, which mandates the stocking of more trout into California reservoirs. Several SWP reservoirs received large increases due to reduced planting in 2007 in the number of fish planted, including Lake Davis fishery renewal (see next paragraph), Castaic Lake (136 percent), and Antelope Lake (166 percent). The majority of fish planted were Eagle Lake trout and coho salmon.

In 2008, following a second treatment of rotenone to eliminate northern pike, Lake Davis was restocked with 813,700 trout. This included 200 trophy-sized Eagle Lake trout and more than 300 other trophy-sized rainbow trout. DFG also placed fingerlings in the fall of 2008 for a "put and grow" program to enhance fish populations for the 2009 fishing season and beyond.

SWP Deliveries for Recreation

DWR has an agreement with DPR to provide onshore recreation water at several SWP facilities in an amount prorated to the yearly SWP Table A allocation. Per the 2008 35 percent SWP Table A allocation, maximum diversion amounts under the onshore recreation agreement were allocated at 35 percent or a total of 2,375 af as follows: 963 af at San Luis Reservoir, 140 af at Del Valle Reservoir, 816 af at Castaic Lake/Lagoon, 438 af at Lake Perris, and 18 af at Bethany Reservoir. Actual deliveries under the agreement totaled 1,084 af as follows: 11 af at San Luis Reservoir, 166 af at Del Valle Reservoir, 211 af at Castaic Lake, 696 af at Lake Perris, and 0 af at Bethany Reservoir. In addition, 80 af was delivered to DPR at Silverwood Lake and 36 af at Pyramid Lake. Further detail on these deliveries is provided in Table 9-7 of Chapter 9, Water Contracts and Deliveries.

Recreation Financing

Prior to 2001, DWR reported capital costs allocated to fish and wildlife enhancement and recreation in Bulletin 132 Appendix D, *Costs of Recreation and Fish and Wildlife Enhancement*. This report is no longer mandated by the Legislature, and those capital costs, starting with FY 2000-2001, are reported in this bulletin.

The approach to financing recreation and fish and wildlife enhancement in connection with the SWP is provided in the DDA (California Water Code (CWC) Sections 11900-11925, 1961), the Burns-Porter Act (CWC Section 12937, 1959), and CWC Sections as early as 1953 (233, 345, 346 12581, and 12582), which declare recreation at the SWP to be a benefit to all the people of California and a cost that is to be borne by them. While this intent is cited in the DDA, no specific appropriation or funding source was defined. Consequently, Assembly Bill (AB) 12 in 1966, Senate Bill (SB) 1268 in 1970, and the Environmental Water Act, AB 1441 and AB 1442 in 1989, were all enacted to provide the statutorily required State funding for this SWP purpose.

Table 13-2 Fish Planted by Department of Fish and Game in 2008 (Thousands)

Location and Size	Eagle Lake Trout	Brook Trout	Rainbow Trout	Coho Salmon	Chinook Salmon	Kokanee Salmon	Total
Antelope Lake							42.3
Catchables	22.6	7.3	12.4				
Lake Davis							813.7
Fingerlings	230.3						
Sub-Catchables	458.2						
Catchables	114.7		6.0				
Super Catchables	0.5		3.5				
Trophy	0.2		0.3				
Frenchman Reservoir							44.2
Catchables	44.2						
Lake Oroville							363.8
Fingerlings				363.8			
Thermalito Forebay							29.6
Catchables			29.6				
Lake del Valle							63.5
Fingerlings					10.0	10.1	
Catchables	16.0		26.6				
Super Catchables			0.8				
Los Banos Reservoir							32.1
Catchables	11.2		20.5				
Super Catchables			0.4				
Pyramid Lake							36.2
Catchables			32.9				
Super Catchables			3.3				
Castaic Lake							52.4
Catchables			52.4				
Castaic Lagoon							51.2
Catchables			51.2				
Silverwood Lake							24.6
Catchables			9.3				
Super Catchables	13.7		1.5				
Lake Perris							40.9
Catchables			39.4				
Super Catchables	0.9		0.5				
California Aqueduct	- - - - - No Fish Planted - - - - -						
TOTAL	**912.6**	**7.3**	**290.7**	**363.8**	**10.0**	**10.1**	**1,594.5**

Note: DFG's Hatchery Division provided this information. They use the following size classes: Fingerlings = 16.1 or more fish/lb; Sub-Catchables = 6.1 to 16 fish/lb; Catchables = 1 to 6 fish/lb; Super Catchables = 0.99 to 0.34 fish/lb; and Trophy is less than 0.32 fish/lb.

As noted above, the Legislature has appropriated monies to meet State obligations to fund fish and wildlife enhancements and recreation at the SWP intermittently in the past. AB 12 appropriated $5 million per year to DWR from tidelands oil and gas revenues, which totaled $90 million through the early 1980s when these revenues were exhausted, and SB 1268 appropriated $55 million to DPR and $5 million to DFG specifically for their responsibilities under the DDA at SWP facilities. Finally, AB 1442 appropriated a total of $172 million to reimburse DWR for SWP recreation and fish and wildlife enhancement (R&FWE) costs incurred over the roughly previous dozen years as an offset to DWR's outstanding California Water Fund repayment, and an additional $30 million for SWP R&FWE through 1994.

While no other appropriations to DWR for SWP R&FWE have been made by the Legislature, DWR has used its authority under the Burns-Porter Act to carry out and fund all SWP project purposes, including R&FWE, with State Water Resources Development System revenues.

Capital Cost Allocations

Table 13-3 shows capital costs allocated to R&FWE and overall costs of lands acquired for recreation development through 2008. Total capital costs increased by $1,865,223 since Bulletin 132-08. The majority of the increase in 2008 was $1,145,671 in the Joint costs and $719,552 in the Specific costs. 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 2008. These interest accruals are calculated through December 31, 2008, 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 R&FWE.

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 online at http://www.water.ca.gov/swpao/bulletin.cfm.

Table 13-3 Recreation and Enhancement Costs of the State Water Project (Dollars)

Facility	Joint Costs Allocated to Recreation and Enhancement						
	1952–2007 Updated	2008	Subtotal	Interest	Total	B132-08 Costs	Increase/ Decrease
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	2,717,689	32	2,717,730	0	2,719,807	2,719,775	32
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	4,625,718	0	4,625,718	0	4,625,718	4,625,717	1
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	4,580,488	38,397	4,618,885	0	4,618,885	4,580,489	38,396
Other Feather River Projects [a]							
California Water Resources Development Bond Fund	0	0	0	0	0	0	0
All Other Funds	746,131	9	746,140	0	746,140	746,131	9
Delta Facilities [a]							
California Water Resources Development Bond Fund	0	0	0	0	0	0	0
All Other Funds	12,962,061	37,547	12,999,608	0	12,999,608	12,962,061	37,547
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	3,505,006	5,760	3,510,766	0	3,510,766	3,505,007	5,759
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	4,685,182	45,571	4,730,753	0	4,730,753	4,685,183	45,570
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	5,783,767	139,162	5,922,929	0	5,922,929	5,783,767	139,162
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	4,198,169	6,514	4,204,683	0	4,204,683	4,198,169	6,514
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	87,241,811	872,679	88,114,490	0	88,114,490	87,241,811	872,679
Subtotal	*206,298,175*	*1,145,671*	*207,443,846*	*85,626,954*	*293,070,800*	*291,925,131*	*1,145,669*
	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	49,950	0	49,950	0	49,950	49,950	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	554,246	0	554,246	0	554,246	554,246	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
Antelope Dam and Lake							
California Water Resources Development Bond Fund	3,167	0	3,167	0	3,167	3,167	0
All Other Funds	201,137	0	201,137	0	201,137	201,137	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	867,243	0	867,243	0	867,243	876,035	(8,792)
California Aqueduct Delta to Dos Amigos P.P.							
California Water Resources Development Bond Fund	422,681	0	422,681	158,456	581,137	581,137	0
All Other Funds	(91,879)	0	(91,879)	0	(91,879)	(91,879)	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	3,654,780	719,552	4,374,332	0	4,374,332	3,654,780	719,552
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	(32,202)	0	(32,202)	0	(32,202)	(32,202)	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	419,088	0	419,088	0	419,088	410,296	8,792
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	951,352	0	951,352	0	951,352	951,352	0
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	370,164	0
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	4,939,976	0	4,939,976	0	4,939,976	4,939,976	0
Subtotal	*25,132,252*	*719,552*	*25,851,804*	*11,953,381*	*37,805,185*	*37,085,633*	*719,552*
Total Recreation and Enhancement Costs							
California Water Resources Development Bond Fund	88,488,543	0	88,488,543	97,580,335	186,068,878	186,068,878	0
All Other Funds	142,941,884	1,865,223	144,807,107	0	144,807,107	142,941,886	1,865,221
Total	**231,430,427**	**1,865,223**	**233,295,650**	**97,580,335**	**330,875,985**	**329,010,764**	**1,865,221**

[a]Actual capitalized planning costs for facilities not yet constructed.

Table 13-4 Calculation of Interest Accruals on California Water Resources Development Bond Fund Disbursements (in Dollars at 4.608% per Annum)

	1952–2007					2008					2009 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**
						Joint Costs Allocated to Recreation and Enhancement									
Frenchman Dam and Lake	102,997	2,719,775	104,900	2,719,468	2,097	0	32	0	0	0	102,997	2,719,807	104,900	2,719,468	2,097
Antelope Dam and Lake	1,033,261	4,625,718	1,140,322	4,478,932	113,788	0	0	0	0	0	1,033,261	4,625,718	1,140,322	4,478,932	113,788
Grizzly Valley Dam and Lake Davis	4,003,092	4,580,488	4,444,594	2,568,667	486,754	0	38,397	0	0	0	4,003,092	4,618,885	4,444,594	2,568,667	486,754
Oroville Division	5,725,216	5,783,767	7,324,529	4,570,269	1,790,491	0	139,162	0	0	0	5,725,216	5,922,929	7,324,529	4,570,269	1,790,491
Other Feather River Projects[a]	0	746,131	0	0	0	0	9	0	0	0	0	746,140	0	0	0
Delta Facilities[a]	0	12,962,061	0	0	0	0	37,547	0	0	0	0	12,999,608	0	0	0
Del Valle Dam and Lake del Valle	10,546,762	4,198,169	16,463,934	3,130,016	6,813,560	0	6,514	0	0	0	10,546,762	4,204,683	16,463,934	3,130,016	6,813,560
California Aqueduct Delta to Dos Amigos P.P.	4,467,667	4,685,182	5,267,351	4,092,435	897,406	0	45,571	0	0	0	4,467,667	4,730,753	5,267,351	4,092,435	897,406
Sisk Dam, San Luis Reservoir, O'Neill Forebay, and Los Banos Reservoir	988,910	3,505,006	1,938,244	2,725,578	169,085	0	5,760	0	0	0	988,910	3,510,766	1,938,244	2,725,578	169,085
California Aqueduct Dos Amigos P.P. to Termini	48,382,162	87,241,811	113,035,518	49,410,851	75,353,773	0	872,679	0	0	0	48,382,162	88,114,490	113,035,518	49,410,851	75,353,773
Subtotal	*75,250,067*	*131,048,108*	*149,719,392*	*73,696,216*	*85,626,954*	*0*	*1,145,671*	*0*	*0*	*0*	*75,250,067*	*132,193,779*	*149,719,392*	*73,696,216*	*85,626,954*
						Specific Costs of Acquiring Land for Recreation Development									
Frenchman Dam and Lake	3,379	49,950	3,520	49,947	160	0	0	0	0	0	3,379	49,950	3,520	49,947	160
Grizzly Valley Dam and Lake Davis	204,475	554,246	220,423	554,244	17,573	0	0	0	0	0	204,475	554,246	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
Antelope Dam and Lake	3,167	201,137	0	0	0	0	0	0	0	0	3,167	201,137	0	0	0
Oroville Division	7,809,509	3,654,780	11,028,039	649,733	3,673,041	0	719,552	0	0	0	7,809,509	4,374,332	11,028,039	649,733	3,673,041
Del Valle Dam and Lake del Valle	519,425	(32,202)	917,078	(32,200)	448,292	0	0	0	0	0	519,425	(32,202)	917,078	(32,200)	448,292
Sisk Dam, San Luis Reservoir, O'Neill Forebay, and Los Banos Reservoir	395,284	867,243	425,700	415,610	33,467	0	0	0	0	0	395,284	867,243	425,700	415,610	33,467
California Aqueduct Delta to Dos Amigos P.P.	422,681	(91,879)	603,887	(137,494)	158,456	0	0	0	0	0	422,681	(91,879)	603,887	(137,494)	158,456
California Aqueduct Dos Amigos P.P. to Termini	478,971	419,088	1,271,912	398,349	915,217	0	0	0	0	0	478,971	419,088	1,271,912	398,349	915,217
Castaic Dam and Lake	1,954,297	951,352	5,291,258	951,070	3,856,203	0	0	0	0	0	1,954,297	951,352	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	4,939,976	2,780,487	4,867,247	2,033,799	0	0	0	0	0	1,022,313	4,939,976	2,780,487	4,867,247	2,033,799
Subtotal	*13,238,476*	*11,893,776*	*23,674,520*	*8,096,564*	*11,953,381*	*0*	*719,552*	*0*	*0*	*0*	*13,238,476*	*12,613,328*	*23,674,520*	*8,096,564*	*11,953,381*
Total	**88,488,543**	**142,941,884**	**173,393,912**	**81,792,780**	**97,580,335**	**0**	**1,865,223**	**0**	**0**	**0**	**88,488,543**	**144,807,107**	**173,393,912**	**81,792,780**	**97,580,335**

[a] Actual capitalized planning costs for facilities not yet constructed.

Chapter 14
Financial Analysis

Farming in the Sacramento-San Joaquin Delta.

Significant Events in 2008

On May 1, the Department of Water Resources (DWR) delivered $632.890 million of Water System Revenue Bonds, Series AE. The proceeds were presold on April 23 to refinance Bond Anticipation Bonds and 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 the State Water Project's (SWP) current financial analysis, capital costs and requirements, revenues and expenses, and bond activities for years 2008 through 2020.

The Department of Water Resources (DWR) performs a financial analysis annually to ensure 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, 2008, 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 water 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 financial analysis, DWR projected future construction costs of $1.56 million through the year 2020 plus reimbursement of $55 million interim financing for prior expenditures will total $1.62 billion. Special capital requirements for revenue bond financing of these construction costs are projected at $175 million for a total capital requirement of $1.79 billion. This projection includes construction and financing costs for the following significant SWP facilities planned for completion by 2020:

- South Delta facilities;
- Phase II enlargement of the East Branch of the California Aqueduct;
- Phase I improvements to the East Branch Extension;
- Phase II of the East Branch Extension;
- enlargement of and improvement to the South Bay Aqueduct (SBA); and
- a new intake at Clifton Court Forebay.

Most of these capital requirements will be financed from the projected sale of $1.74 billion of revenue bonds. The remaining $54 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 5 percent per year from 2009 through 2020. Right-of-way costs are escalated at 4 percent per year from 2009 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 in the initial construction program, which concluded December 31, 1973 (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 5-million gallon tanks. Construction began in 2007 and is anticipated to be completed in March 2010.

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 cubic feet per second (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 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 Powerplant. Those 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

Table 14-3 Allocation of Capital Expenditures (Thousands of Dollars)

Facilities and Construction Divisions	Expenditures Incurred Through 2008	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	20,410	0	20,410	1,534	0	18,876	0
Oroville Division (excludes Small Hydro)	632,337	34,645	666,983	571,121	71,993	23,869	0
Delta Facilities Division	413,331	11,084	424,415	410,675	0	13,740	0
North Bay Aqueduct	106,886	398,851	505,737	505,737	0	0	0
South Bay Aqueduct	217,500	26,434	243,933	220,485	8,201	15,248	0
California Aqueduct							
North San Joaquin Division	275,784	14,952	290,736	280,689	0	10,047	0
San Luis Division	271,232	8,585	279,817	267,113	0	12,704	0
South San Joaquin Division	317,480	6,997	324,477	306,716	0	17,762	0
Tehachapi Division	341,629	26,234	367,863	347,238	0	20,625	0
Mojave Division (excludes Small Hydro)	337,071	24,699	361,771	321,878	0	39,893	0
Santa Ana Division	276,594	205,980	482,574	437,923	0	44,650	0
West Branch	553,282	19,857	573,139	539,963	0	33,175	0
Coastal Branch	502,879	4,599	507,478	507,478	0	0	0
Subtotal, California Aqueduct	*2,875,951*	*311,903*	*3,187,854*	*3,008,998*	*0*	*178,856*	*0*
Other Project Facilities							
Small Hydroelectric Power							
Generating Facilities	99,500	0	99,500	99,500	0	0	0
Off-Aqueduct Power							
Generating Facilities	484,473	9,640	494,113	494,113	0	0	0
East Branch Enlargement	456,516	445,666	902,182	902,182	0	0	0
East Branch Extension	130,402	249,034	379,436	379,436	0	0	0
Coastal Power Allocation	30,708	0	30,708	30,708	0	0	0
Agricultural Drainage Facilities	75,105	23,195	98,300	0	0	0	98,300
Planning and Preoperations	155,124	43,959	199,083	199,083	0	0	0
Unassigned/Miscellaneous	366	7,752	8,118	0	0	0	8,118
Subtotal, Project Construction Expenditures	*5,698,609*	*1,562,163*	*7,260,772*	*6,823,571*	*80,195*	*250,588*	*106,418*
Other Capital Requirements							
Davis-Grunsky Act Program	130,000	0	130,000	0	0	0	130,000
Total Capital Expenditures	**5,828,609**	**1,562,163**	**7,390,772**	**6,823,571**	**80,195**	**250,588**	**236,418**

[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.

in Line 11.) East Branch Enlargement costs for Phase I, by facility, are presented in Table 14-4. Costs for Alamo Powerplant consist of expenditures for Unit 1 facilities allocated to enlargement. Construction of Unit 2 was deferred.

Work on the environmental impact report (EIR), mapping, and preliminary design for Phase II of the enlargement began in March 2007. Construction is projected to be completed in 2017. Project costs include raising the canal embankment and concrete lining, constructing additional siphon barrels, adding bays to check structures, constructing Unit 2 at Alamo Powerplant, 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 Phases I and II of the extension of the East Branch of the California Aqueduct. The East Branch Extension extends the California Aqueduct east from the Devil Canyon Powerplant 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 of Phase I began in February 1999 and was completed in 2003. Phase I improvements include enlargement of the Crafton Hills Reservoir and construction of the Yucaipa Connector Pipeline. Construction of this phase is to be completed by mid-2011. Phase II will increase the pumping capacity to 100 percent of design capacity. Construction is anticipated to begin in 2010. All costs in Line 9 will be allocated to and repaid by the two participating contractors.

Line 10, South Bay Aqueduct Improvements and 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 SBA 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 began in 2006 and is scheduled to be completed in 2012.

Line 11, Power Generation and Transmission Facilities, does not include the East Branch Enlargement share of costs for Alamo, Mojave Siphon, and Devil Canyon powerplants 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 2009 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.

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 Powerplant	5.0
Mojave Siphon Powerplant	47.3
Devil Canyon Powerplant 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	316.7
Bottle Rock	120.9
South Geysers	49.6
Devil Canyon	36.8
Warne	84.5
Alamo	44.9
Mojave Siphon	40.5
Thermalito Diversion Dam	14.1
Subtotal	*708.0*
Transmission Lines	
Midway–Wheeler Ridge	10.7
Geysers–Lakeville	6.9
Subtotal	*17.6*
Total	**725.6**

Table 14-6 Estimated Future Costs for Planning Additional Conservation Facilities

Activity	Amount (Millions of Dollars)
SWP Future Water Supply	44.4
Other Planning Costs	8.7
Total	**53.1**

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 36).

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, 2008, 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.

Capital Financing

The SWP was constructed using three general types of financing: Burns-Porter Act, revenue bonds, and capital resources. Lines 21 through 37 of Table 14-1 present specific information about these financing sources.

Burns-Porter Act

Burns-Porter Act 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 was 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 27 percent of the

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
Water System Facilities Series AE	383.9	0.0	9.5	0.0	239.5	249.0	632.9
Subtotal	*3,064.3*	*2.6*	*264.5*	*14.8*	*4,283.1*	*4,565.0*	*7,629.3*[c]
Future East Branch Enlargement Bonds	448.7	0.0	22.1	0.0	28.1	50.2	498.9
Future East Branch Extension Bonds	211.0	0.0	10.4	0.0	13.3	23.7	234.7
Future So. Bay Aq. Enlargement Bonds	84.7	0.0	4.4	0.0	5.7	10.1	94.8
Future Water System Facilities Bonds	819.1	0.0	40.0	0.0	51.0	91.0	910.1
Total	**4,179.1**	**2.6**	**341.5**	**14.8**	**4,381.1**	**4,740.0**	**9,367.8**

[a] Actual bond issue for all except future East Branch Enlargement, future East Branch Extension, future SBA Improvements and Enlargement, and future Water System Facilities bonds.
[b] Bond financing and refunding costs include funds applied to debt service reserve requirements.
[c] Includes $3,832.3 million of refunded principal, leaving a net principal obligation of $3,797.0 million.

expenditures through 2008 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, in accordance with a continuing authorization. The California Water Fund was used to finance $508 million, or approximately 8 percent, of the construction expenditures through 2008.

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, 2008, DWR had sold $7.6 billion of revenue bonds. That amount includes $3.8 billion of refunded bonds, leaving a total principal obligation of $3.8 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 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, SBA 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 has been applied to the East Branch Enlargement project through December 31, 2008. Of this total, $417 million was used for construction expenditures and $57 million was used for bond discounts, interest costs, and debt service reserve requirements.

Line 23, East Branch Enlargement, Future Bonds, shows DWR's estimate of $499 million of bonds required to complete construction of the East Branch Enlargement Phase II.

Line 24, East Branch Extension, Current Bonds, shows that $183 million of Water System Revenue Bond proceeds has been spent through December 31, 2008.

Line 25, East Branch Extension, Future Bonds, shows DWR's estimate of $235 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 26, South Bay Aqueduct Enlargement, Current Bonds, shows that $96 million of Water System Revenue Bond proceeds had been spent through December 31, 2008.

Line 27, South Bay Aqueduct Enlargement, Future Bonds, shows DWR's estimate of $95 million of bonds required to complete construction of the SBA Enlargement and to pay for bond discounts, capitalized interest, and debt service reserve requirements.

Line 28, Water System Facilities, Current Bonds, shows that through December 31, 2008, $1.7 billion of proceeds from Water System Revenue Bonds, Series A through Series AE, was applied to SWP projects other than the East Branch Enlargement, the East Branch Extension, and the SBA Enlargement. Of this total, $1.5 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 29, Water System Facilities, Future Bonds, shows that $910 million of future water revenue bonds is needed to provide $819 million for construction of SWP water system facilities and $91 million for bond discounts, interest costs, and debt service reserve requirements.

Line 30, Subtotal, Water Revenue Bonds, is the total of Lines 22 through 29.

Line 31, 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 California Water Code Section 12938, the remaining offset bonds could be sold.

Line 32, 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 33, 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, 2008, was used to finance a total of $508 million of SWP costs.

Line 34, 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 35, Application of Capital Resources Revenues to Construction, presents the Capital Resources Revenues applied for capital expenditures.

Line 36, 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 2009 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 37, Subtotal, Other Capital Financing, is the total of Lines 31 through 36.

Line 38, Total Financing of Capital Requirements, totals Lines 21, 30, and 37.

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 2009 through 2020. Data on annual revenues and expenditures are presented in Table 14-2. A detailed discussion of each line item follows.

Project Revenues

Project revenues primarily consist 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 (LADWP) for Castaic power development;
- advances from 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 and 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 2009 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 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.

According to the original water supply 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 contracts were 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, SBA, 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 2010 water charges to be billed on July 1, 2009. 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 2010 charges included in Appendix B are as follows.

- Future capital costs in Appendix B are based on the prevailing prices as of December 31, 2008. Those costs presented in the financial analysis include allowances for price escalation.
- Pre-2009 charges in Appendix B represent charges as they should have been, according to currently known conditions. Pre-2009 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 2009 and thereafter have been adjusted for any apparent overpayments or underpayments of pre-2009 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 AE bonds. Charges in Table 14-2 apply to Series A through Series AE 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 AE bonds. Surcharge values included in Table 14-2 apply to Series B through Series AE 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 SBA Enlargement.

Line 15, Rate Management Adjustments, shows the amount of revenue reductions allocated to 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 in accordance with the December 31, 1961, agreement between California and the United States providing for DWR to

Table 14-8 Revenue Bond Proceeds Affecting Project Interest Rate (Millions of Dollars)

Project	Proceeds Included in 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 [1] - [2] + [3]	Total Principal Amount of Bonds	Percentage of Total Amount Included in Calculating Project Interest Rate [4] / [5]
	[1]	[2]	[3]	[4]	[5]	[6]
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 Hydro 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
Water System Revenue Bonds (Series AE)						
Pyramid Project	0.0	0.0	3.8[b]	3.8	5.0[b]	76
Alamo Project	0.0	0.0	3.6[b]	3.6	4.5[b]	80

[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	

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	
$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	4.621
$ 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	4.620
$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	4.615
$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	
$112,390,000 Series AD Water System Revenue Bonds	6/14/05	1,827,449	90,461	4.950	4.608
$632,890,000 Series AE Water System Revenue Bonds	5/1/08	8,884,001	436,216	4.910	
Total		**208,206,345**	**11,935,312**		
Portion allocated to Project Interest Rate		**63,890,434**	**2,943,940**	**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. (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, and SBA Enlargement Facilities are excluded from this calculation.)

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 16 are based on the assumption that the federal share will continue at this level for calendar years 2009 through 2020.

Line 17, Appropriations for Operating Costs Allocated to Recreation, shows appropriations made under the Davis-Dolwig Act (DDA). In passing the DDA, 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 2009 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 39).

Line 18, Davis-Grunsky Loan Repayments, shows the repayments by local agencies of $54.2 million of loans disbursed as of December 31, 2008. 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 (PG&E), Southern California Edison (SCE), and San Diego Gas and Electric Company (SDG&E) for power generation at the Oroville facilities. Those utilities purchased all power generation from Hyatt and Thermalito powerplants before April 1, 1983, in accordance with a power sale contract dated November 29, 1967. The 1952–2008 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 in accordance with 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 in accordance with the following four priorities of use, as specified in the Burns-Porter Act:

- SWP OMP&R 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 this 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 2009. 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, Power Resources. 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, 2008, $96.4 million had been spent for replacement costs; the balance of the replacement reserve as of that date was $18.0 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:

- 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 1952–2008 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 include:

- debt service cover payments returned to contractors;
- debt service reserve interest payments returned to contractors;
- surplus account funds returned to 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 28 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 35 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, 2008, show the total principal and interest payments, respectively, 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 AE).

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 25, 27, and 29 of Table 14-1 for the East Branch Extension, SBA Enlargement, and other water system facilities. Assumptions about the service on these future bonds are that interest costs for the water revenue bonds average 4.5 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, $212 million of reimbursement was 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 contractors for short-range and long-range planning of water needs, operations, and budgets. Unit water charges shown in Table 14-12 represent costs of water delivery by service area for calendar years 2010 and 2015. The unit rates include costs of existing and future SWP facilities accounted for in Table 14-1 and Table 14-7. The unit water charges are based on the assumption that in 2010 and 2015, the SWP will be able to deliver the entire amount of water requested by each contractor. The unit water charges included in Table 14-12 are listed both as 2010 dollars and as escalated rates reflecting assumed future inflation of 2.5 percent per year through 2015.

Table 14-12 Estimated Unit Water Charges for 2010 and 2015, by Service Area (Dollars per Acre-Foot)

Service Area and Charge	2010 (In 2010 Dollars)	2015 (In 2015 Dollars)
Feather River Area		
Capital; Operations, Maintenance, and Replacement (OM&R)	**141**	**160**
North Bay Area		
Capital; OM&R	225	255
Power	45	51
Total	**270**	**306**
South Bay Area		
Capital; OM&R	144	163
Power	52	59
Total	**196**	**222**
Coastal Area		
Capital; OM&R	781	884
Power	167	189
Total	**948**	**1,073**
San Joaquin Area		
Capital; OM&R	71	80
Power	25	28
Total	**96**	**108**
Southern California Area		
Capital; OM&R	182	206
Power	177	200
Total	**359**	**406**

Table 14-1 Capital Requirements and Financing, December 31, 2008 (Thousands of Dollars)

	Calendar Year														
Line Number/Item	**1952–2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2009–2020**	**1952–2020**
Capital Requirements															
1. Initial Project Facilities	2,202,316	0	0	0	0	0	0	0	0	0	0	0	0	0	2,202,316
2. North Bay Aqueduct	102,641	3,002	3,377	2,745	4,288	25,000	140,000	180,000	40,439	0	0	0	0	398,851	501,492
3. Delta and Suisun Marsh Facilities	262,835	1,228	7,687	593	593	593	195	195	195	195	195	195	195	12,059	274,894
4. Final 4 Units at Banks Pumping Plant	43,673	0	0	0	0	0	0	0	0	0	0	0	0	0	43,673
5. Coastal Branch Aqueduct	509,223	0	0	0	0	0	0	0	0	0	0	0	0	0	509,223
6. West Branch Aqueduct	203,684	0	0	0	0	0	0	0	0	0	0	0	0	0	203,684
7. East Branch Enlargement	456,516	6,618	38,930	79,739	84,255	84,532	84,483	62,243	4,866	0	0	0	0	445,666	902,182
8. East Branch Improvements	332,012	11,870	465	0	0	0	0	0	0	0	0	0	0	12,335	344,347
9. East Branch Extension	130,402	27,474	85,680	92,675	31,605	7,600	1,000	1,000	1,000	1,000	0	0	0	249,034	379,436
10. South Bay Aqueduct Improvements and Enlargement	113,483	43,422	20,870	0	0	0	0	0	0	0	0	0	0	64,292	177,775
11. Power Generation and Transmission Facilities	715,914	2,318	2,438	4,300	584	0	0	0	0	0	0	0	0	9,640	725,554
12. Additional Conservation Facilities	155,124	3,906	4,480	4,480	4,480	4,480	4,480	4,480	4,480	4,480	4,480	4,480	4,480	53,186	208,310
13. Agricultural Drainage Facilities	75,105	3,240	3,264	3,289	3,313	3,338	3,363	3,388	3,388	3,388	3,388	3,388	3,388	40,135	115,240
14. Other Costs	395,681	23,067	38,029	129,054	81,535	1,760	1,760	1,760	0	0	0	0	0	276,965	672,646
15. Subtotal, Project Construction Expenditures	*5,698,609*	*126,145*	*205,220*	*316,875*	*210,653*	*127,303*	*235,281*	*253,066*	*54,368*	*9,063*	*8,063*	*8,063*	*8,063*	*1,562,163*	*7,260,772*
16. Davis-Grunsky Act Program Costs	130,000	0	0	0	0	0	0	0	0	0	0	0	0	0	130,000
17. Special Capital Requirements Under Revenue Bond Financing	606,840	20,288	21,915	35,190	23,940	12,804	24,517	29,336	5,532	437	337	337	337	174,970	781,810
18. Total Capital Requirements	**6,435,449**	**146,433**	**227,135**	**352,065**	**234,593**	**140,107**	**259,798**	**282,402**	**59,900**	**9,500**	**8,400**	**8,400**	**8,400**	**1,737,133**	**8,172,582**
19. Power Facilities Capital Requirements	715,914	2,318	2,438	4,300	584	0	0	0	0	0	0	0	0	9,640	725,554
20. Water Facilities Capital Requirements	5,719,535	144,115	224,697	347,765	234,009	140,107	259,798	282,402	59,900	9,500	8,400	8,400	8,400	1,727,493	7,447,028
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	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	473,606
23. East Branch Enlargement, Future Bonds	0	10,800	43,300	88,600	93,700	94,000	93,900	69,200	5,400	0	0	0	0	498,900	498,900
24. East Branch Extension, Current Bonds	182,619	0	0	0	0	0	0	0	0	0	0	0	0	0	182,619
25. East Branch Extension, Future Bonds	0	0	83,800	102,900	35,100	8,500	1,100	1,100	1,100	1,100	0	0	0	234,700	234,700
26. So. Bay Aqueduct Enlargement, Current Bonds	96,357	0	0	0	0	0	0	0	0	0	0	0	0	0	96,357
27. So. Bay Aqueduct Enlargement, Future Bonds	0	71,600	23,200	0	0	0	0	0	0	0	0	0	0	94,800	94,800
28. Water System Facilities, Current Bonds	1,726,275	0	0	0	0	0	0	0	0	0	0	0	0	0	1,726,275
29. Water System Facilities, Future Bonds	0	114,900	65,000	163,400	110,000	24,400	150,000	217,900	48,900	3,900	3,900	3,900	3,900	910,100	910,100
30. Subtotal, Water Revenue Bonds	*2,478,857*	*197,300*	*215,300*	*354,900*	*238,800*	*126,900*	*245,000*	*288,200*	*55,400*	*5,000*	*3,900*	*3,900*	*3,900*	*1,738,500*	*4,217,357*
Other Capital Financing															
31. Initial Project Facilities Bond Proceeds	1,452,452	0	0	0	0	0	0	0	0	0	0	0	0	0	1,452,452
32. Davis-Grunsky Act Program Bond Proceeds	130,000	0	0	0	0	0	0	0	0	0	0	0	0	0	130,000
33. Application of CA Water Fund Monies (Tideland Oil Revenues)	508,056	0	0	0	0	0	0	0	0	0	0	0	0	0	508,056
34. Interim Financing	55,367	(55,367)	7,335	(7,335)	(8,707)	8,707	10,298	(10,298)	0	0	0	0	0	(55,367)	0
35. Application of Capital Resources Revenues to Construction	566,269	0	0	0	0	0	0	0	0	0	0	0	0	0	566,269
36. Revenue Transfers Applied	81,990	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	54,000	135,990
37. Subtotal, Other Capital Financing	*2,794,134*	*(50,867)*	*11,835*	*(2,835)*	*(4,207)*	*13,207*	*14,798*	*(5,798)*	*4,500*	*4,500*	*4,500*	*4,500*	*4,500*	*(1,367)*	*2,792,767*
38. Total Financing of Capital Requirements	**6,435,449**	**146,433**	**227,135**	**352,065**	**234,593**	**140,107**	**259,798**	**282,402**	**59,900**	**9,500**	**8,400**	**8,400**	**8,400**	**1,737,133**	**8,172,582**

Table 14-2 State Water Project Revenues and Expenditures, December 31, 2008 (Thousands of Dollars)

	Calendar Year														
Line Number/Item	**1952-2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2009-2020**	**1952-2020**
PROJECT REVENUES															
1. Capital resources revenues	814,701	0	0	0	0	0	0	0	0	0	0	0	0	0	814,701
Water Contractor Payments															
2. Transportation capital	3,988,105	153,270	157,563	161,239	170,314	174,226	173,274	171,629	169,249	164,203	155,645	145,982	136,748	1,933,342	5,921,447
3. Transportation minimum	3,253,867	185,659	195,242	199,023	193,266	195,198	197,150	199,122	201,113	203,124	205,155	207,207	209,279	2,390,538	5,644,405
4. Transportation variable	4,461,734	181,730	311,226	321,210	300,951	328,078	336,116	355,894	362,154	338,589	373,447	353,539	358,257	3,921,191	8,382,925
5. Off-Aqueduct power facilities	2,553,101	129,739	138,284	140,366	140,573	80,307	20,032	11,729	10,031	9,630	3,924	3,900	4,210	692,725	3,245,826
6. Delta water charge	2,330,837	119,536	121,329	121,334	121,339	121,343	121,349	121,355	121,358	121,358	121,358	121,358	121,358	1,454,375	3,785,212
7. East Branch Enlargement	725,617	44,171	44,600	49,747	57,454	65,328	74,098	83,880	90,637	92,133	91,155	92,348	90,503	876,054	1,601,671
8. East Branch Extension	75,305	16,022	15,522	22,621	31,393	36,070	36,120	36,415	36,557	37,960	37,597	37,665	37,842	381,781	457,086
9. Coastal Extension	31,870	2,931	6,174	4,090	4,093	4,383	4,966	5,026	4,961	4,700	3,686	2,903	3,902	51,815	83,685
10. South Bay Aqueduct Improvements and Enlargement	3,327	17,790	14,849	16,808	16,799	16,800	16,804	16,803	16,797	16,798	16,808	16,798	16,804	200,658	203,985
11. Tehachapi East Afterbay	2,196	6,165	6,257	6,258	6,250	6,253	6,257	6,253	6,252	6,251	6,250	6,255	6,247	74,948	77,144
12. Water revenue bond surcharge	485,685	65,793	63,292	67,657	67,730	70,978	73,492	76,930	77,628	76,585	68,418	73,140	67,703	849,346	1,335,031
13. Subtotal, water contractor payments	*17,911,644*	*922,806*	*1,074,338*	*1,110,353*	*1,110,161*	*1,098,964*	*1,059,658*	*1,085,036*	*1,096,737*	*1,071,331*	*1,083,443*	*1,061,095*	*1,052,853*	*12,826,773*	*30,738,417*
14. Revenue bond cover adjustments	(632,812)	(53,278)	(52,545)	(56,211)	(59,695)	(57,153)	(57,494)	(59,202)	(60,465)	(60,439)	(55,997)	(58,047)	(55,686)	(686,211)	(1,319,023)
15. Rate management adjustments	(309,332)	(19,985)	(40,470)	(40,470)	(40,470)	(40,470)	(40,470)	(40,470)	(40,470)	(40,470)	(40,470)	(40,470)	(40,470)	(465,155)	(774,487)
Other Revenues															
16. Federal payments for project operating costs	285,197	13,001	17,518	14,334	14,334	14,334	14,334	14,334	14,334	14,334	14,334	14,334	14,334	173,859	459,056
17. Appropriations for operating costs allocated to recreation	16,657	0	0	0	0	0	0	0	0	0	0	0	0	0	16,657
18. Davis-Grunsky loan repayments	58,756	1,360	1,389	1,252	1,283	1,132	894	887	871	890	736	691	639	12,024	70,780
19. Revenue bond proceeds	652,977	0	0	0	0	0	0	0	0	0	0	0	0	0	652,977
20. Interest earnings on operating revenues	573,823	1,000	1,000	1,000	1,500	1,500	1,500	1,500	2,000	2,000	2,000	2,000	2,000	19,000	592,823
21. Oroville-Thermalito payments	249,279	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	184,264
23. Subtotal, other revenues	*2,020,953*	*15,361*	*19,907*	*16,586*	*17,117*	*16,966*	*16,728*	*16,721*	*17,205*	*17,224*	*17,070*	*17,025*	*16,973*	*204,883*	*2,225,836*
24. Total operating revenues	**18,990,453**	**864,904**	**1,001,230**	**1,030,258**	**1,027,113**	**1,018,307**	**978,422**	**1,002,085**	**1,013,006**	**987,646**	**1,004,047**	**979,603**	**973,671**	**11,880,291**	**30,870,744**
25. Total operating revenues and capital resources revenues	**19,805,154**	**864,904**	**1,001,230**	**1,030,258**	**1,027,113**	**1,018,307**	**978,422**	**1,002,085**	**1,013,006**	**987,646**	**1,004,047**	**979,603**	**973,671**	**11,880,291**	**31,685,445**
PROJECT EXPENSES															
26. Project operations, maintenance, power, and replacement costs	10,081,261	549,681	675,442	712,697	669,108	668,756	635,415	652,494	658,026	637,398	676,900	658,664	664,632	7,859,213	17,940,474
27. Deposits to replacement reserves	108,571	0	0	0	0	0	0	0	0	0	0	0	0	0	108,571
28. Deposits to special reserves	760,124	(4,270)	2,886	(21,317)	(4,476)	(13,020)	(18,435)	(23,615)	(30,639)	(29,504)	(17,227)	(21,420)	(25,054)	(206,089)	554,036
29. Capital resources expenditures	686,932	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, 2008 (current bonds)	2,325,230	156,434	162,663	171,749	179,440	171,642	169,204	170,541	168,937	166,881	139,394	143,955	142,711	1,943,551	4,268,781
31. Interest on bonds sold through December 31, 2008 (current bonds)	5,464,759	150,028	142,713	135,084	126,511	117,520	109,624	101,772	93,637	85,424	77,122	70,211	62,844	1,272,490	6,737,249
32. Future water bond principal repayments	0	2,599	4,147	9,165	18,091	25,038	29,660	38,248	49,154	53,272	55,856	58,528	61,333	405,091	405,091
33. Future water bond interest payments	0	5,932	8,879	18,380	33,939	43,871	48,454	58,145	69,391	69,674	67,501	65,164	62,705	552,035	552,035
34. Total principal	**2,325,230**	**159,033**	**166,810**	**180,914**	**197,531**	**196,680**	**198,864**	**208,789**	**218,091**	**220,153**	**195,250**	**202,483**	**204,044**	**2,348,642**	**4,673,872**
35. Total interest	**5,464,759**	**155,960**	**151,592**	**153,464**	**160,450**	**161,391**	**158,078**	**159,917**	**163,028**	**155,098**	**144,623**	**135,375**	**125,549**	**1,824,525**	**7,289,284**
36. Subtotal, debt service	*7,789,989*	*314,993*	*318,402*	*334,378*	*357,981*	*358,071*	*356,942*	*368,706*	*381,119*	*375,251*	*339,873*	*337,858*	*329,592*	*4,173,166*	*11,963,155*
NET REVENUES															
37. Total Operating Expenses and Debt Service	**19,426,877**	**860,404**	**996,730**	**1,025,758**	**1,022,613**	**1,013,807**	**973,922**	**997,585**	**1,008,506**	**983,146**	**999,547**	**975,103**	**969,171**	**11,826,291**	**31,253,168**
38. Net system revenues	378,277	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	54,000	432,277
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	296,287
40. Revenues used for capital expenditures	81,990	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	54,000	135,990

Table 14-10 Operations, Maintenance, Power, and Replacement Costs, by Facility, Composition, and Purpose (Thousands of Dollars)

	Calendar Year														
Feature	**1962–2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021–2035**	**TOTAL**
Project Facility															
Feather River facilities	1,114,134	48,786	44,314	46,711	38,482	39,452	39,926	40,450	40,378	41,122	40,754	42,011	42,131	697,982	2,316,633
North Bay Aqueduct	67,724	3,130	4,789	3,785	3,526	3,613	3,972	4,039	4,044	4,131	4,106	4,246	4,270	68,896	184,271
Delta facilities	600,601	35,246	36,504	40,150	36,655	37,579	38,030	31,522	31,466	32,046	31,759	32,738	32,832	543,926	1,561,054
Suisun Marsh	39,428	2,767	3,941	3,211	3,253	3,335	3,375	3,420	3,413	3,476	3,445	3,552	3,562	59,006	139,184
South Bay Aqueduct	275,933	12,040	13,269	13,923	12,005	12,463	13,065	13,877	13,762	13,986	13,802	14,167	14,147	226,681	663,120
California Aqueduct															
Delta to Edmonston	3,221,793	148,215	220,848	236,467	216,906	233,266	237,544	249,715	248,197	240,549	253,601	249,993	250,478	3,949,457	9,957,029
Edmonston to Perris	2,840,309	177,357	242,509	254,628	242,720	260,649	263,942	277,614	284,928	267,619	294,449	279,635	285,005	4,463,953	10,435,317
West Branch	(30,425)	17,177	(556)	556	4,693	(1,125)	(1,680)	(5,435)	(3,972)	(1,631)	(771)	(4,006)	(4,052)	17,630	(13,597)
Coastal Branch	219,261	9,165	16,240	16,965	14,829	15,144	17,175	17,323	17,215	17,455	17,222	17,675	17,648	282,476	695,793
East Branch Enlargement	82,443	5,387	5,532	6,122	5,860	5,948	5,960	5,978	5,908	5,958	5,846	5,966	5,924	90,554	243,386
Off-Aqueduct power-generating facilities	1,295,675	73,416	71,057	76,213	76,213	44,466	140	25	25	25	25	25	25	173	1,637,503
Recreation, planning, and CVP negotiations	5,347	683	683	683	683	683	683	683	683	683	683	683	683	10,245	23,788
Water quality monitoring	396,581	15,712	15,712	12,683	12,683	12,683	12,683	12,683	11,379	11,379	11,379	11,379	11,379	170,685	719,000
Davis-Grunsky Act Program	12,305	600	600	600	600	600	600	600	600	600	600	600	600	9,000	28,505
Subtotal	*10,141,109*	*549,681*	*675,442*	*712,697*	*669,108*	*668,756*	*635,415*	*652,494*	*658,026*	*637,398*	*676,900*	*658,664*	*664,632*	*10,590,664*	*28,590,986*
Payments to/credits from PG&E under Comprehensive Agreement	(59,848)	0	0	0	0	0	0	0	0	0	0	0	0	0	(59,848)
Total OMP&R Costs	**10,081,261**	**549,681**	**675,442**	**712,697**	**669,108**	**668,756**	**635,415**	**652,494**	**658,026**	**637,398**	**676,900**	**658,664**	**664,632**	**10,590,664**	**28,531,138**
Composition															
Salaries and expenses of headquarters personnel	2,907,616	117,660	117,534	127,791	118,796	115,811	115,373	113,206	98,177	95,040	103,448	97,726	100,418	1,733,455	5,962,051
Salaries and expenses of field personnel	4,093,048	149,923	149,979	163,561	152,612	149,126	150,395	147,440	170,778	164,895	180,151	169,470	174,396	3,025,400	9,041,174
Pumping power															
Used by pumping plants	2,454,379	241,293	398,544	406,805	383,912	431,784	441,496	469,807	467,182	451,945	471,540	469,827	468,247	7,005,540	14,562,301
Produced by generation plants	(500,986)	(32,888)	(61,949)	(61,950)	(62,702)	(72,708)	(72,266)	(78,261)	(78,413)	(74,784)	(78,541)	(78,661)	(78,731)	(1,178,059)	(2,510,899)
Payments to/credits from PG&E under Comprehensive Agreement	(59,848)	0	0	0	0	0	0	0	0	0	0	0	0	0	(59,848)
Off-Aqueduct power generating facilities requirement	1,295,675	73,416	71,057	76,213	76,213	44,466	140	25	25	25	25	25	25	173	1,637,503
Oroville-Thermalito insurance premiums	12,428	277	277	277	277	277	277	277	277	277	277	277	277	4,155	19,907
Less portion of costs incurred during construction	(121,051)	0	0	0	0	0	0	0	0	0	0	0	0	0	(121,051)
Total OMP&R Costs	**10,081,261**	**549,681**	**675,442**	**712,697**	**669,108**	**668,756**	**635,415**	**652,494**	**658,026**	**637,398**	**676,900**	**658,664**	**664,632**	**10,590,664**	**28,531,138**
Project Purpose															
Water supply and power generation	9,670,704	522,977	651,538	688,793	645,204	644,852	611,511	628,590	634,122	613,494	652,996	634,760	640,728	10,220,104	27,460,373
Payments to/credits from PG&E under Comprehensive Agreement	(59,848)	0	0	0	0	0	0	0	0	0	0	0	0	0	(59,848)
Recreation and fish and wildlife enhancement	176,472	13,800	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	177,000	488,272
Flood control	6,758	304	304	304	304	304	304	304	304	304	304	304	304	4,560	14,966
Miscellaneous purposes															
Federal share, San Luis and Delta facilities	274,870	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	180,000	598,870
Other (Davis-Grunsky, drainage, City of Los Angeles)	12,305	600	600	600	600	600	600	600	600	600	600	600	600	9,000	28,505
Total OMP&R Costs	**10,081,261**	**549,681**	**675,442**	**712,697**	**669,108**	**668,756**	**635,415**	**652,494**	**658,026**	**637,398**	**676,900**	**658,664**	**664,632**	**10,590,664**	**28,531,138**

Table 14-11 Annual Debt Service on Bonds Sold through December 31, 2008 (Thousands of Dollars)

Calendar	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[a,c]		South Geysers Project Revenue Bonds[b]		Bottle Rock Project Revenue Bonds[b]		East Branch Enlargement Project Water System Revenue Bonds[a]		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 East Afterbay Facilities Water System Revenue Bonds[c]		Grand Total	
Year	*Principal*	*Interest*	*Principal*	*Interest*	*Principal*	*Interest*	*Principal*	*Interest*	*Principal*	*Interest*	*Principal*	*Interest*	*Principal*	*Interest*	*Principal*	*Interest*	*Principal*	*Interest*	*Principal*	*Interest*	*Principal*	*Interest*	*Principal*	*Interest*	*Principal*	*Interest*	*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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	0	0	117,370	177,160
1997	37,215	46,365	0	0	1,695	5,274	875	3,072	585	2,283	14,375	67,910	*54,745*	*124,904*	2,035	6,432	7,515	15,255	1,825	3,696	3,861	7,741	6,300	23,703	0	1,981	0	76	0	0	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	7,509	6,760	23,965	0	1,829	0	229	0	0	0	0	0	0	77,279	183,483
1999	38,220	43,132	0	0	1,845	5,141	960	3,004	680	2,229	18,701	68,085	*60,406*	*121,591*	2,285	6,160	9,310	11,660	2,081	3,549	4,240	7,319	7,518	25,033	0	1,808	65	2,930	0	0	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	66,900	*62,591*	*118,566*	2,420	6,040	9,870	11,194	1,950	3,448	4,470	7,097	8,974	24,651	0	1,808	915	2,928	0	0	0	0	0	0	91,190	175,732
2001	40,600	39,751	0	0	2,250	4,949	1,155	2,902	780	2,272	20,944	66,418	*65,729*	*116,292*	2,565	5,912	10,365	10,758	2,045	3,344	4,720	6,855	9,425	24,187	0	2,131	950	2,889	0	0	0	0	0	0	95,799	172,368
2002	41,740	37,984	0	0	2,460	4,618	1,280	2,758	950	2,192	23,918	63,127	*70,348*	*110,679*	2,720	5,773	11,185	10,010	2,225	3,075	5,265	6,323	9,817	23,098	335	2,311	1,245	3,481	0	0	0	0	0	0	103,140	164,750
2003	43,590	36,159	0	0	2,500	4,429	1,315	2,671	940	2,110	23,442	60,439	*71,787*	*105,808*	2,885	5,626	2,135	9,313	2,335	2,890	5,445	5,938	9,988	18,444	245	2,310	1,105	4,277	0	0	0	0	0	0	95,925	154,606
2004	45,730	34,244	0	0	2,500	4,291	1,330	2,598	970	2,059	26,396	58,987	*76,926*	*102,179*	3,055	5,470	2,210	9,213	2,425	2,758	5,610	5,633	9,883	20,582	220	2,298	2,045	4,747	0	91	0	55	0	0	102,374	153,026
2005	46,985	32,242	0	0	2,727	3,993	1,461	2,405	1,327	1,963	23,064	56,118	*75,564*	*96,721*	3,240	5,305	8,825	9,113	2,759	2,563	5,959	5,236	3,669	19,723	305	2,155	2,124	5,275	0	435	0	171	0	0	102,445	146,697
2006	48,275	30,186	0	0	2,868	3,986	1,527	2,437	1,371	1,924	28,901	59,143	*82,942*	*97,676*	3,435	5,130	9,340	8,617	2,920	2,453	6,326	4,958	11,627	20,185	240	2,235	2,222	5,731	82	669	0	287	0	0	119,134	147,940
2007	49,765	28,060	0	0	3,023	3,817	1,622	2,346	1,451	1,846	30,267	58,233	*86,128*	*94,302*	3,640	4,945	9,835	8,079	3,101	2,278	6,731	4,578	12,229	19,666	1,015	2,225	2,305	5,824	239	698	75	306	0	0	125,298	142,901
2008	**51,755**	**25,871**	**0**	**0**	**2,794**	**3,526**	**1,618**	**2,147**	**1,161**	**1,763**	**25,927**	**61,119**	***83,255***	***94,426***	**3,860**	**4,749**	**23,689**	**8,084**	**2,765**	**2,037**	**5,637**	**4,097**	**10,602**	**18,757**	**179**	**2,169**	**51**	**7,049**	**247**	**2,926**	**80**	**1,961**	**130,365**	**146,255**
2009	54,095	23,583	0	0	2,945	3,465	1,740	2,140	1,168	1,699	34,273	64,951	*94,221*	*95,838*	4,090	4,540	29,704	7,235	2,906	1,930	5,975	3,841	12,264	18,558	185	2,159	2,642	8,223	2,604	4,544	1,843	3,160	156,434	150,028
2010	55,785	21,206	0	0	3,525	3,298	2,078	2,037	1,399	1,635	31,439	63,433	*94,226*	*91,609*	4,335	4,319	31,430	5,724	3,221	1,768	6,611	3,501	12,638	17,972	2,790	2,149	2,802	8,125	2,699	4,452	1,911	3,094	162,663	142,713
2011	57,275	18,749	0	0	2,599	3,105	1,465	1,917	1,045	1,561	40,928	61,988	*103,312*	*87,320*	4,595	4,085	31,560	4,198	2,917	1,590	6,366	3,126	14,122	17,358	1,237	2,034	2,841	8,016	2,807	4,342	1,992	3,015	171,749	135,084
2012	58,615	16,199	0	0	2,761	2,924	1,574	1,815	1,060	1,491	43,041	60,013	*107,051*	*82,442*	4,875	3,837	33,421	2,478	3,116	1,388	6,845	2,682	14,862	16,668	1,294	1,980	2,970	7,891	2,932	4,219	2,074	2,926	179,440	126,511
2013	60,455	13,650	0	0	4,223	2,732	2,615	1,705	2,191	1,419	48,912	57,885	*118,396*	*77,391*	5,165	3,574	5,705	668	4,831	1,169	11,125	2,202	15,273	15,916	1,587	1,920	4,346	7,761	3,072	4,082	2,165	2,837	171,665	117,520
2014	57,985	11,222	0	0	4,835	2,505	3,112	1,568	2,404	1,299	54,632	55,540	*122,968*	*72,134*	5,475	3,303	215	393	4,169	906	8,619	1,612	16,255	15,138	2,130	1,842	3,940	7,576	3,182	3,965	2,251	2,755	169,204	109,624
2015	53,775	8,806	0	0	5,242	2,252	3,099	1,406	2,745	1,169	62,667	52,940	*127,528*	*66,573*	5,805	3,015	810	382	3,815	682	2,527	1,146	17,895	14,312	2,281	1,740	4,244	7,408	3,304	3,844	2,332	2,670	170,541	101,772
2016	46,215	6,588	0	0	5,681	1,970	3,196	1,242	3,110	1,019	66,821	49,780	*125,023*	*60,599*	6,150	2,710	1,020	338	2,221	477	2,939	1,012	18,908	13,386	2,344	1,625	4,455	7,213	3,447	3,705	2,430	2,572	168,937	93,637
2017	38,145	4,652	0	0	6,379	1,664	3,558	1,072	3,299	849	68,301	46,383	*119,682*	*54,620*	6,520	2,388	1,185	283	1,432	357	3,574	853	20,677	12,404	2,255	1,506	5,685	7,002	3,602	3,549	2,539	2,462	167,151	85,424
2018	25,435	3,011	0	0	4,889	1,322	2,848	883	2,563	669	60,269	42,867	*96,004*	*48,752*	6,910	2,045	50	218	688	282	1,220	662	20,970	11,331	1,559	1,389	5,565	6,725	3,769	3,377	2,659	2,341	139,394	77,122
2019	16,975	1,804	0	0	4,602	1,078	2,780	741	2,256	540	71,368	39,835	*97,981*	*43,998*	7,325	1,682	50	215	736	247	1,251	600	22,981	10,248	1,013	1,309	5,876	6,453	3,951	3,196	2,791	2,213	143,955	70,161
2020	17,405	956	0	0	5,610	837	3,365	597	2,863	420	65,382	36,226	*94,625*	*39,036*	7,765	1,298	55	213	870	211	1,463	538	22,692	9,061	1,865	1,257	6,295	6,159	4,156	2,998	2,925	2,073	142,711	62,844
2021	8,595	318	0	0	2,789	548	1,741	424	1,317	271	72,241	32,940	*86,683*	*34,501*	8,230	890	1,010	210	972	167	2,457	463	24,490	7,927	2,260	1,162	6,807	5,844	4,356	2,791	3,073	1,927	140,338	55,882
2022	1,885	60	0	0	5,556	408	5,218	337	1,378	205	70,186	29,323	*84,223*	*30,333*	8,725	458	1,060	160	909	118	2,420	341	25,450	6,702	3,070	1,048	7,093	5,504	4,578	2,573	3,233	1,774	140,761	49,011
2023	85	7	0	0	1,122	128	594	75	764	134	77,829	25,783	*80,394*	*26,127*	0	0	550	105	589	71	2,006	217	21,444	5,426	2,303	890	7,252	5,147	4,802	2,344	3,389	1,612	122,729	41,939
2024	35	3	0	0	716	70	404	45	534	95	78,384	21,854	*80,073*	*22,067*	0	0	310	77	460	40	1,567	104	23,418	4,360	2,420	771	7,571	4,784	5,041	2,111	3,555	1,447	124,415	35,761
2025	0	0	0	0	144	35	102	25	247	68	73,954	17,838	*74,447*	*17,966*	0	0	65	61	60	15	59	14	28,513	3,188	2,007	647	7,798	4,405	5,288	1,861	3,728	1,270	121,965	29,427
2026	0	0	0	0	151	28	108	20	259	55	69,205	14,158	*69,723*	*14,261*	0	0	180	58	63	12	61	11	10,125	1,764	2,115	542	13,963	4,015	6,581	1,596	4,538	1,084	107,349	23,343
2027	0	0	0	0	405	20	289	14	353	42	80,397	10,715	*81,444*	*10,791*	0	0	250	49	170	8	165	8	10,812	1,260	2,085	432	18,001	3,317	7,485	1,267	5,098	857	125,510	17,989
2028	0	0	0	0	0	0	0	0	230	24	63,793	6,733	*64,023*	*6,757*	0	0	360	37	0	0	0	0	7,096	727	3,160	327	23,769	2,417	8,771	893	5,900	602	113,079	11,760
2029	0	0	0	0	0	0	0	0	245	13	72,793	3,584	*73,038*	*3,597*	0	0	375	19	0	0	0	0	7,759	379	3,340	168	24,786	1,228	9,174	454	6,183	307	124,655	6,152
2030	0	0	0	0	0	0	0	0	0	0	0	0	*0*	*0*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0	0	0	0	0	*0*	*0*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0	0	0	0	0	*0*	*0*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**1,582,400**	**2,386,523**	**244,995**	**246,522**	**108,421**	**198,934**	**61,099**	**103,107**	**50,405**	**83,857**	**1,618,372**	**1,819,967**	***3,665,692***	***4,838,910***	**139,165**	**283,872**	**443,269**	**571,063**	**74,540**	**116,813**	**156,929**	**229,444**	**499,780**	**634,794**	**45,839**	**52,157**	**181,728**	**170,650**	**96,169**	**66,981**	**66,764**	**45,778**	**5,369,875**	**7,010,461**

[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

The California State Fair featured the Department of Water Resources' exhibit, "California's World Class Delta."

Significant Events in 2008

Public Affairs Office (PAO) news releases and media contacts promoted vital messages on key issues. News releases, interviews, and news advisories were issued describing State Water Project (SWP) actions, snow surveys, Delta pumping, water supply developments, drought workshops, conservation advice and outreach, water system modernization proposals, and climate change adaptations.

To modernize California's aging water infrastructure, the Governor and a U.S. Senator proposed a $9.3 billion plan in July, but legislative approval was not attained.

The Governor proclaimed a statewide drought on June 4, and issued an Executive Order directing the Department of Water Resources (DWR) to act swiftly to assist local agencies with conservation and water use reduction measures. On June 17, Director Snow appointed Wendy Martin, a veteran environmental official, as DWR's Drought Coordinator. At a Statewide Drought Summit in September, Director Snow announced the creation of a Drought Water Bank, a program designed to facilitate water transfers, effective in 2009.

During 2008, the SWP tours program welcomed 28 foreign tours with 181 visitors to selected SWP facilities. Tour groups came from all over the United States and 19 other countries: Armenia, Australia, China, England, Ethiopia, France, Georgia, Iran, Japan, Kazakhstan, South Korea, Kyrgyzstan, Moldova, the Netherlands, New Zealand, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan. The Delta Tour Program, for DWR employees, continued with three Delta tours completed during 2008.

Information for this chapter was provided by the Public Affairs Office.

The Department of Water Resources'(DWR) Public Affairs Office (PAO) functions as an information link between DWR and the public, most often involving the news media. PAO provides information about DWR's mission, programs, and activities. Written communication, websites, and publications are often used. So too are sophisticated graphics, artwork, video, photography, exhibits, tours, visitors centers' exhibits and displays, and special events.

News Topics

Selected highlights below provide a sampling of PAO 2008 media outreach on DWR's diverse water policy programs and activities.

Snow Surveys

DWR conducts five monthly Sierra snow surveys starting in late December or early January, and continuing until late April or early May. By carefully measuring snow depth and water content, water analysts assess the snowpack's potential for producing snowmelt runoff for California's water supply.

DWR encourages media coverage of its monthly snow survey to help raise public awareness about snowpack conditions and water supply prospects. The monthly surveys are closely tracked by news media outlets throughout California, especially during drought years. The PAO promotes the survey events and facilitates distribution of the snow survey findings.

Though the 2008 snow season began with heavy January snows, later months were far drier. March and April 2008 were the driest in the Northern Sierra since 1921.

The final snow survey for 2008, conducted on May 1, indicated that the statewide Sierra snow water content surveyed was 67 percent of average. Snow depth and water content had declined since April, when water content figures were just below 100 percent of normal. Director Snow commented: "Today's conditions further underscore the need for immediate action to solve California's water supply and delivery problems."

Drought Conditions

On June 4, the Governor issued an Executive Order declaring a statewide drought in California. Director Snow participated with the Governor at a Capitol press conference. In the following days, both conducted numerous interviews with print and electronic media outlets about the drought and the State's response to it.

On June 12, the Governor issued a drought emergency declaration for nine Central Valley counties after the Bureau of Reclamation (Reclamation) announced cutting Central Valley Project (CVP) allocations. Director Snow and other DWR staff were on hand to service media and legislative inquiries.

On June 17, Wendy Martin, a senior environmental official, was appointed by Director Snow as DWR Statewide Drought Coordinator. In this capacity, Martin directed many of the key activities outlined by the Governor in his drought executive order. Martin and members of her drought team throughout 2008 engaged in strategic planning, compiling data on drought impacts on water supply and demand and information on changing water supply conditions, performed outreach and liaison activities on drought with the

water community, and developed drought scenarios, assessments of economic impacts, and a timeline of drought-related events.

To help raise public and water agency awareness of drought conditions and water conservation planning, DWR provided an updated Urban Drought Guidebook and issued a 110-page DWR Drought Update Report.

On September 4, State, federal, and local officials gathered at a Statewide Drought Summit to discuss California's widening drought and ways to alleviate effects of the dry conditions. Director Snow announced creation of a 2009 Drought Water Bank.

On September 17, the Drought Water Bank was discussed in detail at two online "webinars" for the benefit of potential buyers and sellers of drought-related water transfers.

On November 20, DWR and other water agencies webcast a workshop on current and new actions to help achieve the Governor's goal of a 20 percent reduction in California's per capita water use by 2020.

In early December, Director Snow presented an overview of California drought impacts at the Fall Association of California Water Agencies (ACWA) Conference. While water supply and delivery was a prime focus, Snow also took note of extensive wildfires in California's arid landscape.

By late December 2008, 20 water agencies in California had implemented some form of mandatory rationing, while 69 agencies had put in place some form of voluntary conservation, water delivery restrictions, or incentivized pricing to encourage reductions in consumption.

Delta Pumping

Delta pumping was frequently in the news during 2008.

In December 2007, U.S. District Judge Oliver Wanger imposed restrictions on water deliveries from the Delta to protect the endangered delta smelt. Throughout 2008, the Wanger decision significantly decreased water deliveries to farms, homes, cities, and industries by both the State Water Project (SWP) and the CVP from their pumping plants in the South Delta. In December 2008, the U.S. Fish and Wildlife Service (USFWS) released a new biological opinion for delta smelt that replaced Judge Wanger's interim restraints. DWR analysis indicated that compliance with terms and conditions in the biological opinion would reduce SWP deliveries by 25 to 30 percent in an average year.

A series of news releases and DWR officials availability to the media helped the news media stay aware of DWR's adjustments to pumping volume and timing necessitated by the need to safeguard protected fish species.

Delta Conveyance

On June 19, DWR released its initial assessment of a dual water conveyance system in response to the Governor's Blue Ribbon Task Force seeking Delta solutions.

On July 17, Director Snow responded to a Public Policy Institute of California report concluding that a modern canal to better convey water through or around the Delta would be the least expensive option and most promising strategy to assure reliable water supply and improve the Delta's ecosystem.

Flood Protection

Effective January 2008, the Reclamation Board was renamed the Central Valley Flood Control Board, pursuant to legislation signed

into law by the Governor in 2007. The board quickly moved to begin a comprehensive State flood control plan for the Central Valley, to be effective by 2012.

On January 8, DWR released an independent report it requested on flood risks for the Central Valley. While the report validated flood funding already allocated by the Governor and corrective levee actions by DWR, it found that the region's flood control system needed further improvement.

On January 14, the Governor and Director Snow took part with federal officials in ground breaking ceremonies for Folsom Dam expansion and reoperation. The $683 million project will double flood protection for the Sacramento metropolitan region.

In mid-September, DWR released new advisory floodplain maps for Sacramento and San Joaquin valleys, cities, and counties.

On October 14, DWR announced a reorganization of flood programs to enhance flood management. A new Deputy Director for Integrated Water Management was named, with responsibility for oversight of the Division of Planning and Local Assistance, Office of Water Use Efficiency and Transfers, the FloodSAFE Program, Division of Flood Management, and the Division of Safety of Dams.

Climate Change Activities

During 2008, climate change was a significant topic of analysis in discussions and meetings associated with planning for the 2009 update of DWR's *California Water Plan*, a periodic report on California water supply and demand.

In October, DWR released a Climate Change White Paper entitled "*Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water*." The report focused on the need for California water managers to adapt to impacts of climate change. These trends include earlier snowmelt, an increase in peak flood flows, predictions of longer droughts, and a rise in sea level.

In November, DWR and the Water Education Foundation cosponsored a Climate Change Summit in Long Beach. This event brought together experts from city, State, and local water agencies, State government, and water managers for State and federal water systems to discuss effective adaptations to changing climate conditions affecting water policy and management.

Special Events

Kennedy Memorial Tribute

A special tribute to the life and leadership of former DWR Director David N. Kennedy was presented at the Spring 2008 ACWA conference. Kennedy was DWR Director for 15 years, from 1983 to 1998, longer than any other DWR Director. Speakers at the event included former Governor Pete Wilson and former DWR Director William Gianelli. A DWR documentary, produced by PAO's Film/Video Unit, showed highlights of Kennedy's DWR tenure, which included an estimated $1.5 billion in SWP construction and expansion. He led DWR during the major floods of 1986, 1997, and 1998, and the longest statewide drought in modern California history, from 1987 to 1992. Kennedy died at age 71 on December 23, 2007.

Community Relations

2008 California State Fair

For the 2008 California State Fair, DWR created, displayed, and staffed an impressive graphic exhibit entitled "*California's World Class Delta*." The display featured the many environmental and water aspects of the largest estuary on the West Coast, an agriculturally rich region that also functions as a major water supply source for California.

The 6,000 square-foot exhibit was created by staff from the PAO and the State Fair. The purpose of the exhibit was to educate fairgoers about the importance of the Sacramento-San Joaquin Delta including community, tourism, history, agriculture, ecosystem, water supply, and flood control. The display posed three questions: Where is it? Why should I visit? Why is it important to me?

The exhibit won First Place for Green Programming and Best of Division for Agricultural from the International Association for Fair Expositions, First Place from the Western Fair Association, Second Place from the National Association of Government Communicators, and Second Place from Blue Pencil & Gold Screen Awards.

California Lakes and Reservoirs Appreciation Week, July 1–7

In 2008, partnering with the Department of Boating and Waterways, California State Parks, and other recreation providers, DWR held its fourth annual California Lakes and Reservoirs Appreciation Week. It was established by Assembly Concurrent Resolution No. 71 for the purpose of raising awareness about the importance of recognizing the benefits of California's more than 200 lakes and reservoirs and the need to protect them. The week was celebrated by participating State, federal, and local agencies with give-aways and promotional materials. Billboards around Lake Oroville and the Delta announced the week during June, ads were placed in several magazines, and public service announcements (PSAs) were played by Southern California radio stations (English and Spanish) during the week.

SWP Publications

The 30-plus brochures in the series about the SWP are distributed statewide to educate the public and others about the SWP, including its history and recreation activities. In 2008, the California SWP and Oroville-Thermalito brochures were revised.

E-News

PAO continued to distribute daily electronic news articles and commentaries on water-related issues. These online "news clips" keep DWR managers and staff up to speed on water issues and programs relevant to DWR programs and water management activities, events, and practices elsewhere.

DWR NEWS/People

DWR's quarterly magazine, *DWR NEWS/People*, drew attention to DWR programs and activities, while recognizing the team and individual achievements of DWR employees.

The Winter 2008 magazine included a special edition tribute to former DWR Director David N. Kennedy, who died in December 2007. Other articles included the Tisdale Bypass Cleanout, the Calaveras River Fish Migration Barriers Assessment report, and succession planning beginning at DWR.

In the Spring 2008 issue, Deputy Director Jerry Johns provided an overview of significant DWR events in 2007, such as the release of the Blue Ribbon Task Force's Delta Vision report and the Wanger decision regarding the delta smelt. Major articles appeared, as well, on the Governor's signing of major flood protection legislation, the Lancaster Project Headquarters, water transfers, hydrographic surveys, South Bay Aqueduct enlargement, Folsom Dam project groundbreaking, Pyramid Lake recreation facilities reopening, and an update on SWP monitoring of invasive quagga mussels.

The Summer 2008 issued featured a cover article on the Governor's June issuance of an Executive Order directing DWR to respond to California's water shortage emergencies. Other articles included *DWR Scientists*

Discover New Insect Species and *DWR's Lake Davis Restocked with Trophy Trout.*

Climate change impacts on California water were the major focus of the Fall 2008 edition, with four articles addressing various aspects of climate change. The issue ran a feature article on the Skinner Fish Facility and its Delta fish protection mission. A profile of the Metropolitan Water District of Southern California appeared as one of the magazine's continuing series of articles on SWP contractor agencies.

Community Outreach

DWR held nine Aquatic Adventure Camps at DWR recreation facilities throughout California. Two were held at Lake del Valle, two were held at Lake Perris, one was held at Oroville (Oroville/Chico), and four were held at Castaic Lake. The Aquatic Adventure Camps were formed in 2001 by the SWP Recreation Coordinating Committee for the purpose of addressing fatalities at DWR recreation sites. The program is two weeks long and is a partnership with the local community to address water safety, boating, and the environment.

DWR in partnership with the Departments of California State Parks, Boating and Waterways, Fish and Game, and Forestry and Fire Protection participated in the Catch A Special Thrill (C.A.S.T.) program. It is a one-day outdoor fishing event that provides disabled and disadvantaged children an opportunity to learn to fish. For many disabled children, this is the first opportunity to fish because of limitations caused by their disabilities. In 2008, C.A.S.T. events were held at Oroville, Lake del Valle, and Lake Perris. DWR also participated in the C.A.S.T. event held at Millerton Lake.

SWP Visitors Centers

The SWP visitors centers have exhibits, films, and photos that tell the story of the State Water Project and the importance of water to our everyday lives. Figure 15-1 shows the locations of SWP visitors centers.

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 develop and promote high-quality materials and provide them free of charge to schools, educators, and water districts. Program achievements in 2008 are described below.

Public Events and Outreach

Public outreach included providing a display of DWR's Interactive Children's Exhibits at the following:

- Urban Creeks Council's Creek Week event held at the Sacramento Discovery Center (April);
- Jack Splash Event, Oroville (May);
- Get WET, Reclamation event, Sacramento (May);
- Castaic Lake Fishing Event (May);
- Hooked On Fishing, Oroville (June); and
- Salmon Festival, Sacramento (October).

PAO staff assisted at DWR booths at the following events:

- International Sportsmen's Expo, Sacramento (January);
- Earth Day event, Yuba City (April);
- California State Fair (August and September);
- Oroville Salmon Festival (September); and
- Pittsburg Seafood Festival (September).

Outreach to Teachers and Educators

In 2008, the PAO staff were actively involved in presenting DWR's School Education

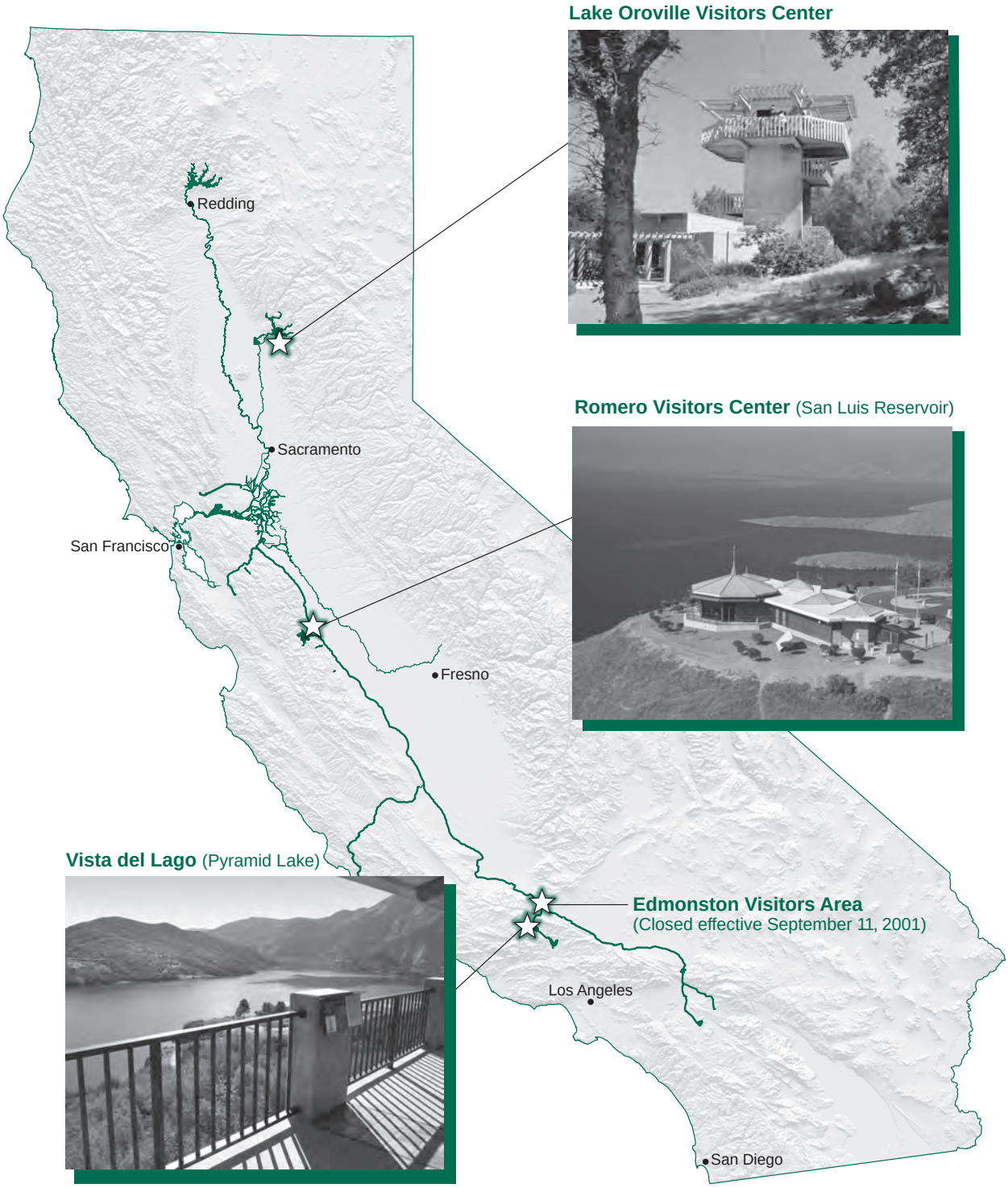

Figure 15-1 Visitors Centers on the SWP

Program and materials to teachers at the following events:

- the California Association of Bilingual Education Conference in San Jose (March); and
- the California Science Teachers Association Conference, San Jose (October).

Publications and Materials

Additional 2008 program achievements included providing curriculum materials and children's videos to California teachers and water agencies through the *Water Facts & Fun* online ordering catalog and promotional events. In order to provide materials, the following items were purchased or reprinted:

- 10,000 *Water Facts & Fun* catalogs;
- Two Fabric Hamburger Displays;
- 15,000 *Water Fun* Workbook;
- 5,000 *Water Fun* Teachers Guides;
- 5,000 Hamburger activity sheets for students;
- 400 California Science Standards Related to Water;
- 10,000 Water Conservation Pledge sheets;
- 10,000 Water Supply and Uses posters;
- 5,000 *Water: Who Needs It?* video activity packets;
- 5,000 California Waterways maps;
- 2,000 Delta Studies brochures; and
- 300 *Project WET* (Water Education for Teachers) books, which were provided to preservice teachers who participated in Project WET training workshops.

Collaboration/Partnerships

Where possible, DWR's School Education Program seeks to partner with other entities with similar interests and goals to pool resources in educating California's youth on the importance of our water resources.

The following are the collaborative efforts achieved for 2008:

- facilitated DWR's Water Education Committee meetings, one hosted by the Coachella Valley Water District March 12–13, 2008, and the other hosted by the East Bay Municipal Utilities District October 8–9, 2008;
- participated on the Project WET Advisory Committee and the California Environmental Education Interagency Network (CEEIN) committee; and
- participated on the Creek Week Planning Committee providing artwork for a poster, brochures, and a bookmark for the Creek Week Celebration event.

Collaborative efforts also included providing support for the following:

- the Environmentality Challenge for fifth grade students, in conjunction with the State of California and the Walt Disney Corporation;
- the California Department of Education's California Regional Environmental Education Community (CREEC) Network; and
- the Delta Studies Institute for teachers, cosponsored with the San Joaquin County Office of Education.

Appendix B

Data and Computations

Used to

Determine 2010 Water Charges

Appendix B
Data and Computations Used to Determine 2010 Water Charges

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Appendix B
Data and Computations Used to Determine 2010 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 2010. The information is based on established data about the SWP, both known and projected, as of June 2009; however, small volumes of water may be reclassified over time pursuant to long-term water supply contract provisions. If research requires more current data than was available at the time of production of Bulletin 132, please contact the State Water Project Analysis Office. Where applicable, the projected data values shown in this appendix are shaded and the bill year data are in **bold** type.

The computational procedures and interrelationships between tabulations in this appendix are outlined on *Figures B-1 and B-2*. All tables referenced on 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. 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

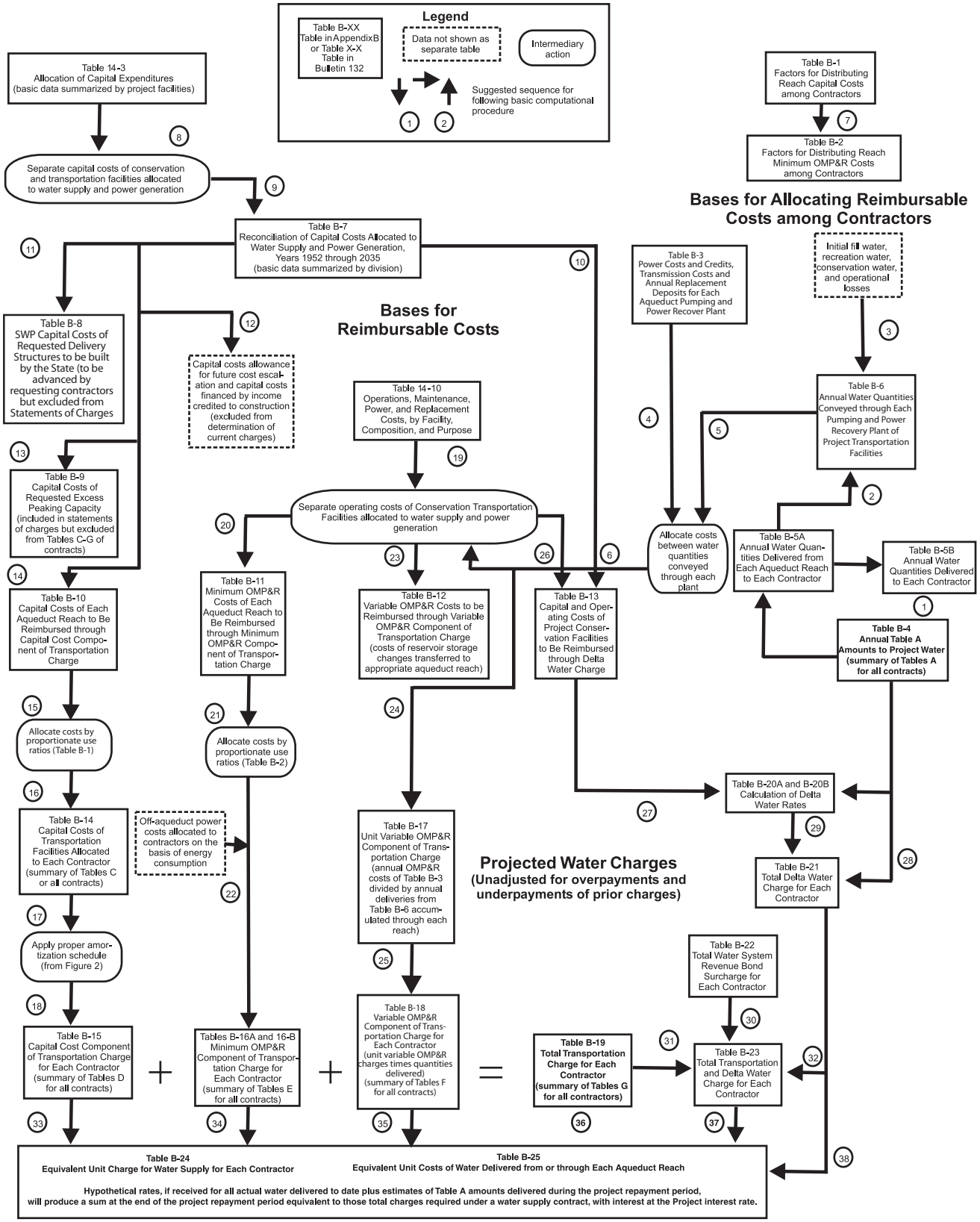

Figure B-1. Relationships of Data Used to Substantiate Statements of Charges

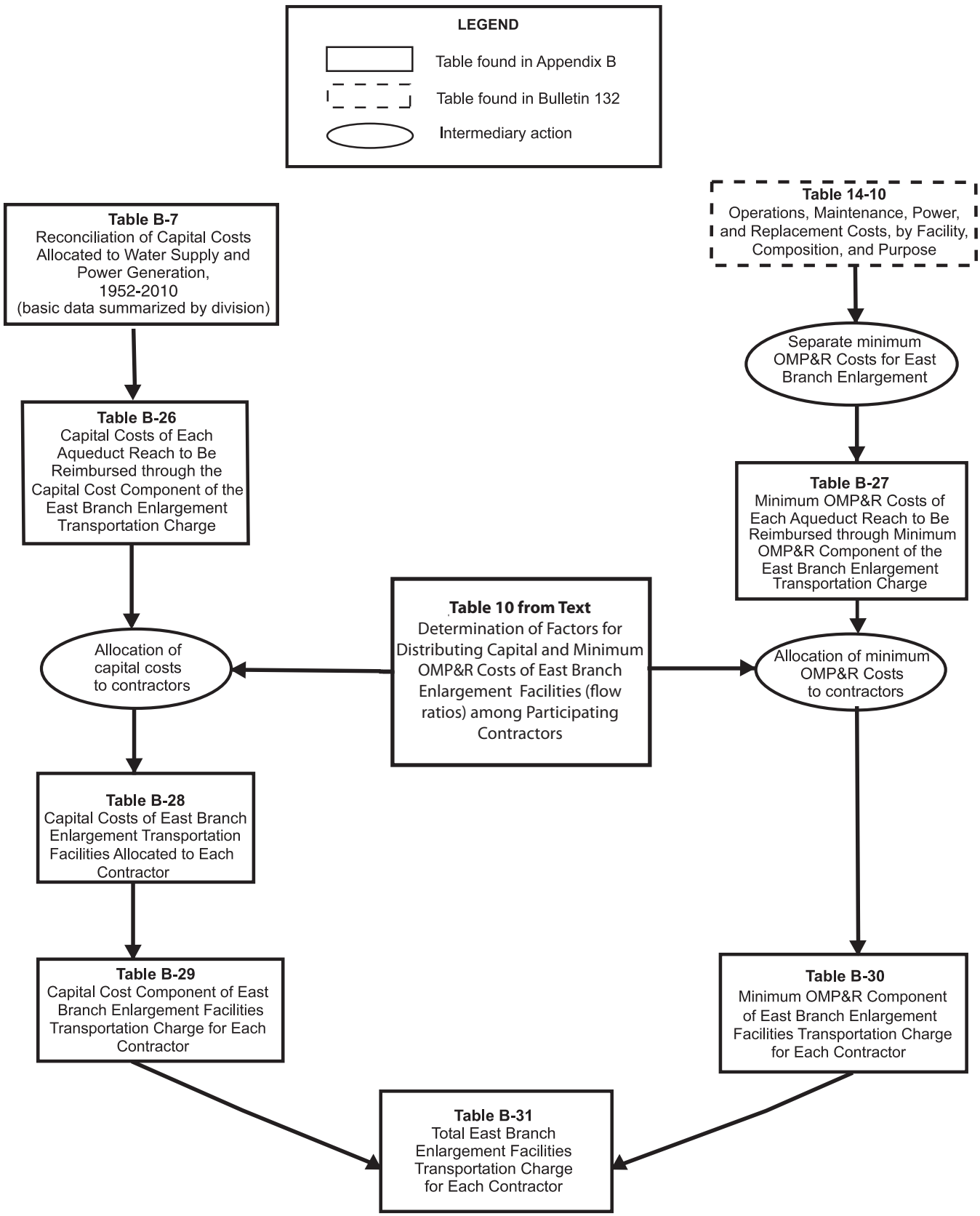

Figure B-2. Relationships of Data Used to Substantiate East Branch Enlargement Charges

- 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
- The 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, Bottlerock Powerplant, and South Geysers Powerplant)

The standard provisions provide for a Delta Water Charge and a Transportation Charge for project water.

The Delta Water Charge is a unit charge applied to each acre-foot of SWP water the contractors are entitled to receive, in accordance with 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(s). 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. Contractors' shares of reimbursable operating costs are repaid in the year such costs are incurred by the State.

The East Branch Enlargement Transportation Charge is paid by the seven Southern California contractors participating in the enlargement. San Bernardino Valley Municipal Water District advanced funds to pay the district's allocated capital costs for the East Branch Enlargement. The remaining six contractors pay an allocated share of the debt service on revenue bonds sold to finance the enlargement. Each contractor also will pay an allocated share of the minimum operation, maintenance, power, and replacement (OMP&R) costs of the East Branch Enlargement.

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 are repaid by those contractors using electrical power for delivery of their Table A water downstream of the Tehachapi Afterbay.

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 powerplant reach and charged to aqueduct pumping plants
3. Hyatt-Thermalito Diversion Dam powerplant 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 powerplants
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

Composition and Timing of Water Charges

As shown on *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 2010.

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 2009, included in those tables are the redetermined amounts, and do not equal the amounts actually paid by contractors.

As provided under the Water System Revenue Bond Amendment to the water supply contracts, differences between actual payments under the Transportation capital cost component and amounts computed in this redetermination are accumulated with interest and amortized during the remaining years of the contract repayment period. All computations for adjustments are included in the attachments accompanying each contractor's Statement of Charges and are reflected in revised copies of Table C through Table G of the contract, which are also furnished to each long-term water supply contractor in the annual Statements of Charges.

These redeterminations exclude four charges associated with water service other than the Delta Water Charge and the Transportation Charge. The excluded charges (and the manner in which they are treated in this appendix) are outlined below.

(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.

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 water delivery.

Bases for Allocating Reimbursable Costs among Contractors

This section describes 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 "Project Water Charges" section.

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.

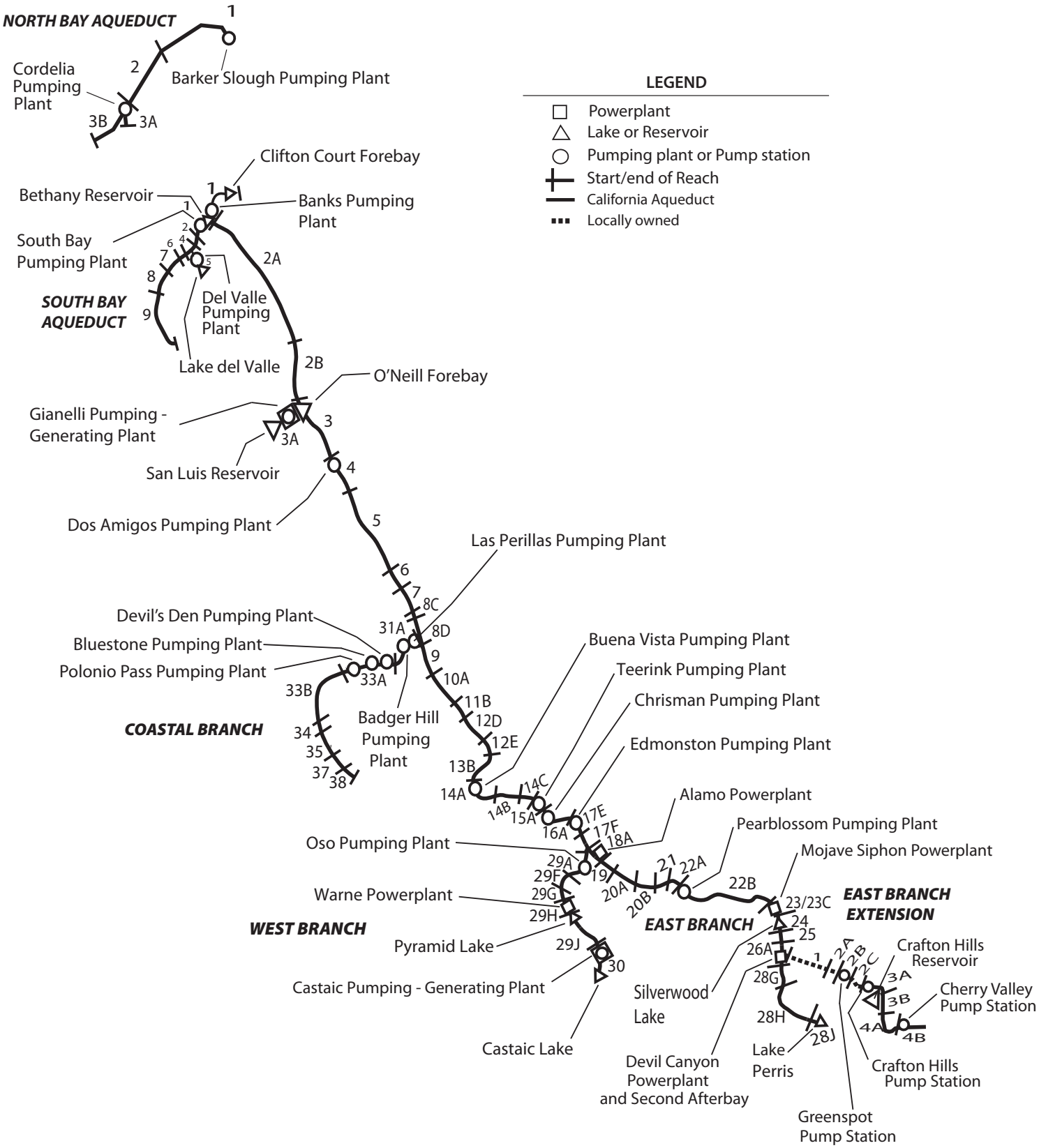

Figure B-4. Repayment Reaches and Descriptions

North Bay Aqueduct

1 Barker Slough through Fairfield /Vacaville Turnout
2 Fairfield/Vacaville Turnout to Cordelia Forebay
3A Cordelia Forebay through Benicia and Vallejo Turnouts
3B Cordelia Forebay through 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

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
37 Guadalupe Turnout to SPRR crossing near Casmalia
38 SPRR crossing near Casmalia through terminous at Tank 5 (Outlet Vault)

Tehachapi Division

17E Edmonston Pumping Plant to Porter Tunnel
17F Porter Tunnel to Junction, West Branch

Mojave Division

18A Junction, West Branch through Alamo Powerplant
19 Alamo Powerplant to Fairmont
19C Buttes Junction through Buttes Reservoir
20A Fairmont through 70th Street West
20B 70th Street West to Palmdale
21 Palmdale to Littlerock Creek
22A Littlerock Creek to Pearblossom Pumping Plant
22B Pearblossom Pumping Plant to West Fork Mojave River
23 West Fork Mojave River to Silverwood Lake
23C Mojave Siphon Powerplant
24 Cedar Springs Dam and Silverwood Lake

Santa Ana Division

25 Silverwood Lake to South Portal, San Bernardino Tunnel
26A South Portals San Bernardino Tunnel through Devil Canyon Powerplant and Second Afterbay
28G Devil Canyon Powerplant and Second Afterbay to Barton Road
28H Barton Road to Lake Perris
28J Perris Dam and Lake Perris

East Branch Extension

1 Devil Canyon Powerplant to Junction, Foothill Pipeline near Cone Camp Road
2A Junction, Foothill Pipeline near Cone Camp Road to Greenspot Pump Station
2B Greenspot Pump Station to Morton Canyon Valve Vault
2C Morton Canyon Valve Vault to Crafton Hills Pump Station
3A Crafton Hills Pump Station to Carter Street Valve Vault
3B Carter Street Valve Vault to Garden Air Creek, South of San Bernardino/Riverside County Line
4A Garden Air Creek to Cherry Valley Pump Station
4B Cherry Valley Pump Station to Terminus at Noble Creek

West Branch, California Aqueduct

29A Junction, California Aqueduct through Oso Pumping Plant
29F Oso Pumping Plant through Quail Embankment
29G Quail Embankment through Warne Powerplant
29H Pyramid Dam and Lake
29J Pyramid Lake through Castaic Powerplant
30 Castaic Dam and Lake

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 the Monterey Amendment was implemented in 1995.

Table B-1 presents the reach ratios currently applicable to reimbursable capital costs.

Table B-2 presents corresponding ratios for allocating 2010 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. Variable costs are the following:

- Costs of capacity and energy used exclusive of associated power transmission and station service charges (transmission and station service costs that are independent and vary with power usage are 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

Table 1. Summary of Permanent Aqueduct Capacity Transfers

Contractor		Capacity Transfer		
Seller	Buyer	Amount (af)	Effective Year	**Transfer Description**
Transfers under Monterey Amendment				
Kern	Mojave	25,000	1998	Purchased capacity upstream from Reach 31A
Kern	Castaic Lake	41,000	2000	Purchased capacity upstream from Reach 16A
Kern	Palmdale	4,000	2000	Purchased capacity upstream from Reach 11B
Kern	Alameda-Zone 7	7,000	2000	Purchased capacity upstream from Reach 10A
Kern	Alameda-Zone 7	15,000	2000	Purchased capacity upstream from Reach 10A
Kern	Alameda-Zone 7	10,000	2001	Purchased capacity upstream from Reach 11B
Kern	Solano	5,756	2001	Purchased capacity upstream from Reach 11B and Reach 31A
Kern	Napa	4,025	2001	Purchased capacity upstream from Reach 11B and Reach 31A
Kern	Alameda-Zone 7	2,219	2004	Purchased capacity upstream from Reach 11B
Subtotal under Article 53		*114,000*		
Transfers outside of Monterey Amendment				
Tulare	Dudley Ridge	3,973	2002	Purchased capacity upstream from Reach 8D
Tulare	AVEK	3,000	2002	Purchased capacity upstream from Reach 8D
Tulare	Alameda-Zone 7	400	2003	Purchased capacity upstream from Reach 8D
Tulare	Kings	5,000	2004	Purchased capacity upstream from Reach 8D
Tulare	Coachella	9,900	2004	Purchased capacity upstream from Reach 8D
MWDSC	Coachella	88,100	2005	Purchased capacity upstream from Reach 28J
MWDSC	Desert	11,900	2005	Purchased capacity upstream from Reach 28J
Tulare	Kings	305	2006	Purchased capacity upstream from Reach 31A
Tulare	Desert	1,750	2010	Purchased capacity upstream from Reach 17F
Tulare	Coachella	5,250	2010	Purchased capacity upstream from Reach 17F
Kern	Desert	4,000	2010	Purchased capacity upstream from Reach 17F and Reach 31A
Kern	Coachella	12,000	2010	Purchased capacity upstream from Reach 17F and Reach 31A
Subtotal outside of Article 53		*145,578*		

costs, for 1999 and thereafter, are to be paid on an annual basis, as the costs are incurred.); and

- Beginning in 2005, a portion of transmission expenditures that will depend on and vary with water and power usage. These costs will be included as part of the variable component. Costs reflect the revised 2008 transmission rate structure from Pacific Gas and Electric.

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, later renamed to Article 21 program, is based on individual annual contracts; costs for Article 21 water actually delivered are included in *Table B-3*.

Water Conveyance

Tables B-4, B-5A, B-5B, and B-6 present water conveyance quantities that form the basis for allocating costs.

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 2009 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 Article 21 water deliveries in 1994 and after.

Table B-5B presents a summary of actual and projected annual allocated water quantities for each contractor. The quantities also include amounts of nonproject water and surplus water delivered prior to May 1, 1973, and actual deliveries of Article 21 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 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.

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.
(2) Water lost and projected to be lost through evaporation and seepage from San Luis Reservoir and from

Table 2. Project Purpose Cost Allocation Factors (Percentages)

	Water Supply and Power Generation		All Other Purposes (Nonreimburseable)	
Project Facilities	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				
Peripheral Canal Related	86.0	86.0	14.0	14.0
Remaining of Delta Facilities	96.6	96.7	3.4	3.3
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 Powerplants and switchyards.
[b]Percentage indicated consists of 48.0 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 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 previously 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, the 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 (following initial fill).

In years of net storage withdrawal from San Luis Reservoir, a portion of the minimum OMP&R cost of the reservoir is transferred to the variable OMP&R cost of Banks Pumping Plant. That transfer is equal to the variable OMP&R cost per acre-foot of delivery through Banks Pumping Plant for that year, multiplied by the acre-feet of deliveries derived from San Luis Reservoir storage for that year. *Table B-6* also includes amounts of nonproject water and surplus water delivered prior to May 1, 1973, and actual deliveries of Article 21 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 in accordance with 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, 2008; 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 in accordance with amendments to contracts with Metropolitan Water District of Southern California (Metropolitan), San Gabriel Valley Municipal Water District, and Antelope Valley-East Kern Water Agency, including the following:

- 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 cubic feet per second 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 Powerplant to Barton Road total about $6.7 million (see Bulletin 132-72, page 98).

Table B-10 presents the actual and projected annual capital costs of each aqueduct reach that will eventually be returned to the State, with interest, through contractors' payments of the capital cost component of the Transportation Charge and payment of debt service under the Devil Canyon-Castaic contracts.

Annual Operating Costs

Annual operating costs allocable to water supply and power generation are returned to the State through the minimum OMP&R components of the Delta Water Charge and the Transportation Charge 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
(7) reservoir storage; and
(8) Escalation of projected operating costs at five percent per year for 2010 and 2011 plus
(9) Escalation of projected operating costs at one percent per year for 2012-2035.

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.

To derive Table B-12 costs, the following adjustments are made to Table B-3 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 the 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 in accordance with 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 the 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 Castaic Lake Water Agency also prepaid capital costs (see Table B-14 footnotes). Table B-14 includes costs of the 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 Powerplant and Castaic Powerplant include the capital costs reimbursable under the Devil Canyon-Castaic contract.

Table B-15 summarizes capital cost components of the Transportation Charge for each contractor for each year of the project repayment period. 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

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 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]
Kern County Water Agency	
Agricultural Use	1968 [e]
Municipal and Industrial Use	1968 [e]
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
Palmdale Water District	1964
Plumas County Flood Control and Water Conservation District	1970
San Bernadino 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 Watershed Protection 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 4. Minimum OMP&R Costs of Reach 31A Assigned Directly to Kern County Water Agency

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	219,334
1994	364,196
1995	272,341
1996	322,123
Total	3,997,767

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 Powerplant and Castaic Powerplant, in accordance with terms of the Devil Canyon-Castaic contract.

Table B-16A summarizes the minimum OMP&R components of the Transportation Charge for each year of the project repayment period. Those estimated components, subsequently adjusted for prior overpayments or underpayments, are included in Table E of the respective contracts.

The total amounts included in Table B-16A are determined by applying the proportionate-use ratios in Table B-2 to the reach costs in Table B-11.

Table B-16A excludes Off-Aqueduct Power Facility charges, 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 Powerplant and Castaic Powerplant.

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, the costs related to this settlement are to be allocated among all SWP contractors in proportion to their maximum Table A amounts. 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 Monterey Amendment litigation costs will be slightly less than $16 million.

Table B16-B summarizes annual Off-Aqueduct Power Facility charges allocated to each water contractor, adjusted for prior overpayments or underpayments. 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 2008.

Table 5. Summary of 2008 Off-Aqueduct Power Facility Charges and Credits

Charges by Item	(Dollars)
Reid Gardner Powerplant	110,883,702
Bottle Rock Powerplant	12,330,060
South Geysers Powerplant	6,016,782
Subtotal	*129,230,544*
Credits by Item	
Power Sales	(15,492,544)
Net Total Charge	**113,737,842**

Table 6 shows projected Off-Aqueduct Power Facility charges and an amount equal to 25 percent of annual bond service for 2009 through 2029.

Annual Off-Aqueduct Power Facility charges 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.

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.

Table 6. Projected Charges for Off-Aqueduct Power Facilities

Year	Total Annual Cost (Dollars)	25% Bond Cover (Dollars)
2009	129,982,499	11,313,223
2010	**138,284,438**	**13,445,507**
2011	140,365,563	12,830,559
2012	140,572,520	12,871,950
2013	80,307,154	7,168,276
2014	20,031,632	3,978,330
2015	11,728,667	2,340,784
2016	10,031,042	2,001,260
2017	9,630,194	1,921,090
2018	3,923,893	779,830
2019	3,900,232	775,098
2020	4,210,331	837,117
2021	6,625,037	1,320,059
2022	6,283,217	1,251,695
2023	4,448,698	884,791
2024	3,221,588	639,369
2025	366,934	68,438
2026	506,607	96,373
2027	837,997	162,651
2028	495,688	99,138
2029	491,938	98,388

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 7. Kilowatt-Hour per Acre-Foot Factors for Allocating Off-Aqueduct Power Facility Costs

	kWh per acre-foot[a]	
Pumping Plant	At Plant	Cumulative from Delta
Barker Slough	223	223
Cordelia-Benicia	434	657
Cordelia-Vallejo	178	401
Cordelia-Napa	563	786
Harvey O. Banks (Delta)	296	296
South Bay (including Del Valle)	869	1,165
Dos Amigos	138	434
Buena Vista	242	676
Teerink	295	971
Chrisman	639	1,610
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.

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. Following are 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-22 and B-23.

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

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
2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	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	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
2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	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**

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.

In accordance with provisions of the Devil Canyon-Castaic contract, Table B-19 and Table G include amounts of debt service and operating cost payments due from the six contractors located down-aqueduct from Devil Canyon and Castaic powerplants.

Delta Water Charges

Table B-20A presents the calculation of the Delta Water Rate for the initial Conservation Facilities applicable in 2010 in accordance with 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 2010 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.

The projected Delta Water Charges from 2010 - 2035 include the following assumptions:

(1) *Escalation of projected operating costs at five percent per year for 2010 and 2011.*
(2) *Escalation of projected operating costs at one percent per year for 2012-2035.*

Water System Revenue Bond Surcharge

Table B-22 summarizes the Water System Revenue Bond Surcharge (WSRB) to the Delta Water Charge and the transportation capital cost component for each contractor. The surcharge shown in Table B-22 includes the financing costs of the WSRB surcharge, series B through AE. This surcharge is levied according to an amendment to the water supply contracts, which was signed by all long-term water supply contractors.

Total Water Charges

Table B-23 summarizes the total annual charges to each contractor (the sum of the Transportation Charge in Table B-19, the

Delta Water Charge in Table B-21, and the Water System Revenue Bond Surcharge in Table B-22). The charges do not reflect past payments by contractors and are unadjusted for prior overpayments or underpayments.

Equivalent Total Water Charges

Table B-24 presents the Transportation Charge and Delta Water Charge in terms of the equivalent unit charge for each acre-foot of 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 Article 21 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 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 Article 21 water deliveries in 1994 and afterwards.

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. These projections will be redetermined in future bulletins to include the following:

- A reallocation of costs of constructing the present east branch facilities between Alamo Powerplant and Silverwood Lake;
- A reallocation of costs of Silverwood Lake to reflect additional use as a result of East Branch Enlargement operation;
- A reallocation of costs of San Bernardino Tunnel to reflect redistribution of flow capacities

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 Powerplant
19	Alamo Powerplant to Fairmont
20A	Fairmont through 70th Street West
20B	70th Street West to Palmdale
21	Palmdale to Littlerock Creek
22A	Littlerock Creek to Pearblossom Pumping Plant
22B	Pearblossom Pumping Plant to West Fork Mojave River
23B	West Fork Mojave River to Silverwood Lake (excluding Mojave Siphon Powerplant facilities)
23C	Mojave Siphon Powerplant facilities
24	Cedar Springs Dam and Silverwood Lake
25	Silverwood Lake to South Portal, San Bernardino Tunnel
26A	South Portal, San Bernardino Tunnel through Devil Canyon Powerplant
26B	Devil Canyon Powerplant Bypass

Share of 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	0.00398358	0.00000000	0.77871512	1.00000000
20B	0.02271252	0.09798832	0.00843608	0.08825438	0.00398358	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

necessary for the East Branch Enlargement facilities; and
- Actual enlargement construction costs.

These costs will be recovered with interest from the seven Southern California water contractors participating in the enlargement, in accordance with 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 East Branch Enlargement participating contractors. Currently, this table includes only minimum OMP&R costs attributable to the East Branch Enlargement. In accordance with 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, in accordance with 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 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).

East Branch Extension Phase I Facility Charges

The East Branch Extension-Phase I charges recover associated costs for East Branch Extension facilities beginning at Devil Canyon Powerplant Afterbay and extending to the terminus at Noble Creek in the vicinity of Beaumont, Riverside County. These costs will be recovered from two contractors—San Bernardino and San Gorgonio—in accordance with their amended Water Supply contracts. The factors for distributing costs are shown in *Table 11*. *Table 12* shows the debt service for 2010.

Short-Term Agreements

DWR and the long-term water supply contractors execute short-term agreements that affect the contractors' charges. DWR executed a five-year agreement in 1997 with 16 municipal and industrial contractors, who agreed to pay for allocated shares of Municipal Water Quality Investigations costs. In 2002 and 2006, additional amendments were executed to extend 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. Feasibility study costs are included in Table B-16A.

Contractors have agreed to participate in several Delta Improvement programs that started in 2007 and that will possibly extend into the future.

The first contract pertains to the Bay Delta Conservation Plan (BDCP) agreed to in the Memorandum of Agreement for Supplemental Funding for Certain Ecosystem Actions and Support for Implementation of Near-Term Water Supply, Water Quality, Ecosystem, and Levee Actions (MOA). The BDCP comprises two elements: fishery costs and consultation costs. These costs were added to the contractors' transportation minimum component for bill years 2007, 2008, and 2009.

The second contract pertains to the non-BDCP costs of the MOA, comprising the Delta Vision and Pelagic Organism Decline research costs. These costs were added to the contractors' conservation minimum component for bill years 2007 and 2008.

The third contract pertains to the Delta Habitat Conservation and Conveyance Program (DHCCP), agreed to in funding agreements between the Department and participating contractors to provide funding for the preliminary planning phase of an improved Delta water conveyance facility. This program will assess potential habitat restoration and water conveyance options in the Delta. Charges associated with the DHCCP are billed directly to those participating contractors as a separate line item in the Statements of Charges and are not reflected in the tables in this appendix.

Table 11. Factors for Distributing Capital and Minimum OMP&R Costs of the East Branch Extension Facilities

Reach Number	Reach Description	San Bernardino Municipal Water District	San Gorgonio Pass Water Agency	Total
Capital				
all	Average of the contractors' participation of EBX facilities	0.458417	0.541583	1.000000
Minimum				
1	Devil Canyon Powerplant to Junction, Foothill Pipeline near Cone Camp Road	0.557330	0.442670	1.000000
2A	Junction Foothill Pipeline near Cone Camp Rd to Greenspot Pump Station	0.557330	0.442670	1.000000
2B	Greenspot Pump Station to Morton Canyon Valve Vault	0.777778	0.222222	1.000000
2C	Morton Canyon Valve Vault to Crafton Hills Pump Station	0.777778	0.222222	1.000000
3A	Crafton Hills Pump Station to Carter Street Valve Vault	0.557330	0.442670	1.000000
3B	Carter Street Valve Vault to Garden Air Creek, South of San Bernardino County Line	0.557330	0.442670	1.000000
4A	Garden Air Creek to Cherry Valley Pump Station		1.000000	1.000000
4B	Cherry Valley Pump Station to Terminus at Noble Creek		1.000000	1.000000

Table 12. East Branch Extension Facilities Debt Service for 2010

Contractor	Share of Participation (%)	Total Debt Service Charge (Dollars)
San Bernardino	45.84170	**6,190,754**
San Gorgonio	54.15830	**7,313,881**
Total	100.00000	**13,504,635**

Tables B-1 through B-31

Note: Where applicable, the projected data values shown in this appendix are shaded and the bill year data are in **bold** type.

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 South Bay	
	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
CA-AQ								
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 Watershed Protection District	
CA-AQ									
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 South Bay	
	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	0.00000000	1.00000000
2	Altamont Turnout thru Patterson Reservoir			0.33978741	0.19516252	0.46505007	0.00000000	1.00000000
4	Patterson Reservoir to Del Valle Junction			0.31610985	0.20216089	0.48172926	0.00000000	1.00000000
5	Del Valle Junction thru Lake Del Valle			0.53312173	0.12972254	0.33715573	0.00000000	1.00000000
6	Del Valle Junction thru South Livermore Turnout			0.32478705	0.19906896	0.47614399	0.00000000	1.00000000
7	South Livermore Turnout thru Vallecitos Turnout			0.14604872	0.25176680	0.60218448	0.00000000	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				0.00870534	0.02074442		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	0.00531733	0.00980983	0.03025305	0.02543543	0.03261537	0.00133233	0.01285782
2A	Bethany Reservoir to Orestimba Creek	0.00556981	0.01027565	0.03168684	0.02659870	0.03414599	0.00139498	0.01346188
2B	Orestimba Creek to O'Neill Forebay	0.00557592	0.01028692	0.03172335	0.02665601	0.03419490	0.00139691	0.01348076
3	O'Neill Forebay to Dos Amigos Pumping Plant	0.00557485	0.01028496	0.03171783	0.02665921	0.03419176	0.00139677	0.01347939
4	Dos Amigos Pumping Plant to Panoche Creek	0.00557373	0.01028290	0.03171204	0.02666258	0.03418846	0.00139662	0.01347796
5	Panoche Creek to Five Points	0.00557233	0.01028034	0.03170479	0.02666678	0.03418434	0.00139644	0.01347618
6	Five Points to Arroyo Pasajero	0.00557023	0.01027645	0.03169382	0.02667315	0.03417810	0.00139613	0.01347348
7	Arroyo Pasajero to Kettleman City	0.00556955	0.01027521	0.03169031	0.02667520	0.03417610	0.00139603	0.01347261
8C	Kettleman City thru Milham Avenue	0.00551372	0.01017222	0.03136877	0.02634469	0.03380788	0.00138116	0.01332837
8D	Milham Avenue thru Avenal Gap	0.00562589	0.01037913	0.03200831	0.02690402	0.03450513	0.00140957	0.01360292
9	Avenal Gap thru Twisselman Road			0.03419277	0.02770641	0.03521313	0.00152205	0.01436858
10A	Twisselman Road thru Lost Hills			0.03472327	0.02816135	0.03576131	0.00154611	0.01459450
11B	Lost Hills to 7th Standard Road			0.03802285	0.03096415	0.03916894	0.00169534	0.01599647
12D	7th Standard Road thru Elk Hills Road			0.03985259	0.03253097	0.04105953	0.00177834	0.01677542
12E	Elk Hills Road thru Tupman Road			0.03990292	0.03258594	0.04111240	0.00178084	0.01679824
13B	Tupman Road to Buena Vista Pumping Plant			0.04315064	0.03533496	0.04446575	0.00192755	0.01817703
14A	Buena Vista Pumping Plant thru Santiago Creek			0.04521241	0.03691094	0.04659659	0.00202119	0.01905555
14B	Santiago Creek thru Old River Road			0.04585272	0.03317634	0.04726126	0.00205100	0.01933309
14C	Old River Road to Wheeler Ridge Pumping Plant			0.04701675	0.03195823	0.04846654	0.00210443	0.01983272
15A	Wheeler Ridge Pumping Plant to Chrisman Pumping Plant			0.04769844	0.03242145	0.04917216	0.00213568	0.02012499
16A	Chrisman Pumping Plant to Edmonston Pumping Plant			0.04927486	0.03349277	0.05080262	0.00220758	0.02079870
17E	Edmonston Pumping Plant to Porter Tunnel			0.05123570	0.03482530	0.05283127	0.00229715	0.02163762
17F	Porter Tunnel to Junction, West Branch, Calif. Aqueduct			0.05133785	0.03489473	0.05293668	0.00230175	0.02168089
18A	Junction, West Branch, Calif. Aqueduct thru Alamo Pwp.			0.13492411		0.11343564	0.00605029	0.05154511
19	Alamo Powerplant to Fairmont			0.13492060		0.11343396	0.00605043	0.05154576
19C	Buttes Junction thru Buttes Reservoir			1.00000000				
20A	Fairmont thru 70th Street West			0.06855702		0.12212506	0.00651522	0.05550243
20B	70th Street West to Palmdale			0.02284441		0.12811683	0.00683511	0.05822670
21	Palmdale to Littlerock Creek			0.02327543		0.13055246	0.00696606	0.05933989
22A	Littlerock Creek to Pearblossom Pumping Plant			0.01190663		0.13241285	0.00706574	0.06018798
22B	Pearblossom Pumping Plant to West Fork Mojave River			0.00195128		0.13374659	0.00713697	0.06079440
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	0.05400251		0.01800084
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 appy to 2010 and after, and reflect permanent capacity water transfer that have been signed as of February 1, 2009.

TABLE B-2. Factors for Distributing Reach Minimum OMP&R Costs among Contractors

	SAN JOAQUIN VALLEY AREA										
							Kern County Water Agency				
Reach No.	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
CA-AQ											
1	0.00101484	0.00145898	0.02319955	0.01821809	0.00088464	0.00254083	0.02734722	0.27098116	0.00247153	0.00166718	0.02623181
2A	0.00106147	0.00152594	0.00868283	0.01903498	0.00092430	0.00266148	0.02862476	0.28312053	0.00258405	0.00174190	0.02740806
2B	0.00106363	0.00152909	0.00869853	0.01908632	0.00092679	0.00266440	0.02866944	0.28389122	0.00258995		0.02748195
3	0.00106373	0.00152923	0.00869869	0.01909164	0.00092704	0.00266388	0.02866790	0.28397255	0.00259035		0.02748961
4	0.00106381	0.00152938	0.00869885	0.01909724	0.00092732	0.00266334	0.02866629	0.28405805	0.00259078		0.02749767
5	0.00106393	0.00152955	0.00869906	0.01910423	0.00092766	0.00266267	0.02866425	0.28416480	0.00259131		0.02750774
6	0.00106411	0.00152984	0.00869940	0.01911480	0.00092817	0.00266166	0.02866118	0.28432634	0.00259212		0.02752295
7	0.00106417	0.00152994	0.00869951	0.01911820	0.00092834	0.00266133	0.02866019	0.28437812	0.00259238		0.02752783
8C	0.00105128	0.00151132	0.00859843	0.01885824	0.00091573	0.00263466	0.02834313	0.28049521	0.00255955		0.02715356
8D	0.00107350	0.00154329	0.00877848	0.01926721		0.00268825	0.02893074	0.28658413	0.00165702		0.00870335
9	0.00079392	0.00109556	0.00782173				0.03125794	0.29107651			
10A	0.00080693	0.00111332	0.00794777				0.03175839	0.27992156			
11B	0.00064656	0.00094676	0.00352637				0.03485458	0.21642296			
12D							0.03657930	0.18370552			
12E							0.03663405	0.18259198			
13B							0.01403926	0.14112056			
14A							0.00595539	0.10858464			
14B							0.00604538	0.09993238			
14C							0.00620536	0.07881491			
15A							0.00629881	0.06528273			
16A							0.00651333	0.03407092			
17E							0.00199437				
31A	0.00628695	0.00977801	0.02617705			0.05037550		0.36716813	0.00176551		

	SOUTHERN CALIFORNIA AREA (continued)								
Reach No.	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 Watershed Protection District	Total
CA-AQ									
1	0.00049043	0.01817795	0.00458436	0.02356219	0.00648527	0.00397273	0.41536220	0.00427812	1.00000000
2A	0.00051372	0.01902410	0.00480149	0.02467003	0.00679126	0.00415951	0.43505448	0.00448126	1.00000000
2B	0.00051428	0.01905574	0.00480710	0.02470405	0.00679995	0.00416524	0.43555138	0.00448617	1.00000000
3	0.00051420	0.01905527	0.00480629	0.02470140	0.00679903	0.00416479	0.43547430	0.00448533	1.00000000
4	0.00051410	0.01905478	0.00480545	0.02469860	0.00679804	0.00416433	0.43539325	0.00448443	1.00000000
5	0.00051398	0.01905419	0.00480438	0.02469511	0.00679682	0.00416375	0.43529205	0.00448332	1.00000000
6	0.00051378	0.01905328	0.00480278	0.02468985	0.00679497	0.00416286	0.43513893	0.00448162	1.00000000
7	0.00051371	0.01905299	0.00480225	0.02468816	0.00679437	0.00416258	0.43508984	0.00448108	1.00000000
8C	0.00050857	0.01883788	0.00475331	0.02442512	0.00672350	0.00411823	0.44215929	0.00443618	1.00000000
8D	0.00051890	0.01923004	0.00485031	0.02492774	0.00686130	0.00420296	0.45122139	0.00452642	1.00000000
9	0.00055978	0.01835160	0.00523370	0.02691663	0.00740628	0.00453829	0.48706211	0.00488301	1.00000000
10A	0.00056846	0.01863532	0.00531530	0.02734229	0.00752261	0.00461006	0.49471271	0.00495874	1.00000000
11B	0.00062247	0.02040116	0.00582242	0.02998127	0.00824463	0.00505501	0.54219821	0.00542985	1.00000000
12D	0.00065243	0.02137987	0.00602014	0.03144872	0.00864575	0.00530242	0.56857790	0.00569110	1.00000000
12E	0.00065325	0.02140632	0.00602775	0.03149289	0.00865745	0.00530985	0.56934784	0.00569828	1.00000000
13B	0.00070640	0.02314479	0.00651843	0.03408724	0.00936757	0.00574726	0.61605057	0.00616199	1.00000000
14A	0.00074015	0.02424737	0.00682993	0.03574292	0.00981992	0.00602639	0.64580025	0.00645636	1.00000000
14B	0.00075063	0.02458823	0.00692670	0.03626978	0.00996262	0.00611520	0.65518693	0.00654774	1.00000000
14C	0.00076970	0.02520953	0.00710257	0.03721431	0.01021972	0.00627443	0.67209689	0.00671391	1.00000000
15A	0.00078087	0.02557347	0.00720559	0.03776665	0.01037013	0.00636755	0.68199026	0.00681122	1.00000000
16A	0.00080666	0.02641582	0.00744376	0.03903797	0.01071695	0.00658192	0.70479984	0.00703630	1.00000000
17E	0.00083874	0.02746328	0.00774003	0.04062181	0.01114880	0.00684894	0.73320076	0.00731623	1.00000000
17F	0.00084042	0.02751799	0.00775546	0.04070313	0.01117109	0.00686265	0.73466655	0.00733081	1.00000000
18A	0.00220874	0.04945876	0.01657848	0.10699014	0.02936220	0.01803879	0.47140774		1.00000000
19	0.00220870	0.04945751	0.01657804	0.10699277	0.02936239	0.01803923	0.47141061		1.00000000
19C									1.00000000
20A	0.00237787	0.05324421	0.01784728	0.11521174	0.03161525	0.01942494	0.50757898		1.00000000
20B	0.00249455	0.05585607	0.01872278	0.12086783	0.03316690	0.02037859	0.53249023		1.00000000
21	0.00254183	0.05691567		0.12318381	0.03380017	0.02076901	0.54265567		1.00000000
22A		0.05772584		0.12494639	0.03428290	0.02106619	0.55040548		1.00000000
22B		0.05830722		0.12620561	0.03462835	0.02127845	0.55595113		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)

Calendar Year	NORTH BAY AQUEDUCT Reach 1 Barker Slough Pumping P.	NORTH BAY AQUEDUCT Reach 3A Cordelia Pumping P. Solano	NORTH BAY AQUEDUCT Reach 3B Cordelia Pumping P. Napa (b)	SOUTH BAY AQUEDUCT Reach 1 (c) South Bay & Del Valle Pumping P.	CALIFORNIA AQUEDUCT Reach 1 Banks Pumping P.	CALIFORNIA AQUEDUCT Reach 4 Dos Amigos Pumping P.	CALIFORNIA AQUEDUCT Reach 14A Buena Vista Pumping P.	CALIFORNIA AQUEDUCT Reach 15A Teerink Pumping P.
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
1961	0	0	0	0	0	0	0	0
1962	0	0	0	37,731	0	0	0	0
1963	0	0	0	56,414	0	0	0	0
1964	0	0	0	71,745	0	0	0	0
1965	0	0	0	138,653	0	0	0	0
1966	0	0	0	189,402	0	0	0	0
1967	0	0	0	220,327	28,554	0	0	0
1968	0	0	7,128	339,261	1,286,777	227,505	0	0
1969	0	0	8,557	274,851	817,304	119,303	0	0
1970	0	0	13,666	439,983	330,508	193,720	2,940	0
1971	0	0	10,626	413,657	559,946	205,206	134,340	7,921
1972	0	0	14,430	615,164	1,072,833	541,628	305,868	159,125
1973	0	0	14,453	477,134	880,234	469,676	469,104	472,187
1974	0	0	17,508	502,473	959,269	536,361	514,168	553,285
1975	0	0	14,801	373,706	1,315,916	536,495	607,981	664,738
1976	0	0	20,867	580,607	878,728	572,326	658,261	645,377
1977	0	0	22,640	534,087	631,578	178,904	139,856	138,714
1978	0	0	21,670	559,981	3,833,011	653,606	966,756	926,444
1979	0	0	16,240	614,117	3,394,344	994,921	805,839	788,539
1980	0	0	19,936	523,445	1,981,918	818,368	857,033	846,757
1981	0	0	23,863	639,976	1,975,220	1,640,814	1,197,553	1,189,437
1982	0	0	12,078	484,808	3,405,761	1,148,258	1,159,605	1,212,973
1983	0	0	2,339	77,394	1,264,426	140,742	276,289	264,076
1984	0	0	4,797	289,827	1,390,432	555,409	551,468	508,111
1985	0	0	10,220	456,051	2,830,593	1,283,981	1,336,378	1,378,587
1986	0	0	15,484	827,079	7,180,656	2,282,364	2,290,023	2,343,903
1987	0	0	27,223	901,077	3,924,603	1,996,638	1,851,663	1,885,638
1988	18,112	19,927	23,868	932,456	5,377,272	2,072,091	2,100,427	2,142,121
1989	30,783	45,783	26,501	1,211,118	10,887,880	3,334,006	3,427,675	3,553,496
1990	53,484	67,109	40,793	1,881,178	9,523,541	4,754,649	5,990,489	6,327,687
1991	11,254	10,442	5,983	365,808	3,463,154	723,518	1,263,736	1,445,729
1992	14,484	13,070	9,398	327,309	2,700,240	808,067	1,071,702	1,121,273
1993	(12,340)	(8,753)	(5,393)	(159,836)	(333,548)	(609,139)	(461,719)	(459,965)
1994	54,407	39,608	29,189	823,317	4,438,900	1,938,280	2,325,005	2,375,321
1995	20,699	20,620	11,791	253,482	4,009,296	1,076,372	924,147	887,105
1996	59,545	47,288	23,483	645,189	9,531,541	3,449,781	2,444,752	2,341,848
1997	69,837	52,935	21,955	963,877	7,625,930	3,064,281	2,847,907	2,788,387
1998	(11,058)	(9,488)	(4,554)	(124,695)	296,016	(362,362)	(316,705)	(304,065)
1999	30,114	25,288	10,024	516,703	4,988,797	2,287,161	1,553,244	1,241,104
2000	58,651	42,587	15,094	861,671	8,025,528	3,046,708	2,966,168	3,038,567
2001	360,761	250,331	214,209	4,068,696	24,175,475	9,882,002	14,868,284	15,252,650
2002	191,948	105,385	61,953	2,258,767	17,221,057	6,949,418	8,493,564	8,803,124
2003	181,608	118,767	98,077	2,567,656	21,542,492	9,051,535	10,696,186	11,139,389
2004	246,316	136,402	105,066	2,452,187	21,375,211	9,167,278	12,084,098	12,682,850
2005	279,237	144,265	146,323	2,745,626	29,060,263	12,814,765	12,402,303	12,757,307
2006	245,509	171,670	198,361	2,653,454	25,213,754	10,420,393	11,348,284	12,269,861
2007	396,347	239,684	158,846	3,903,306	21,512,733	11,109,297	16,196,141	17,629,844
2008	337,693	176,076	222,021	2,733,929	11,295,140	6,020,903	10,472,636	11,209,622
2009	374,392	120,706	259,290	5,228,400	18,945,653	7,539,358	12,751,305	14,388,997
2010	**786,653**	**386,585**	**1,032,427**	**5,763,619**	**33,936,632**	**17,413,015**	**22,286,744**	**25,880,224**
2011	657,003	770,451	819,430	5,871,320	34,632,495	17,770,063	22,743,728	26,410,891
2012	393,081	179,466	443,430	4,731,150	37,470,225	18,910,437	21,670,623	21,003,723
2013	394,914	179,466	450,177	4,936,360	41,239,575	20,421,024	24,347,310	23,762,310
2014	589,368	179,466	586,131	5,446,826	42,358,758	20,799,597	24,827,517	24,257,220
2015	596,349	179,466	607,464	6,151,522	46,067,229	21,674,757	26,346,333	25,822,485
2016	602,355	179,466	627,549	6,120,884	43,062,396	21,676,083	26,348,829	25,825,059
2017	608,400	179,466	648,180	6,151,522	41,895,438	21,160,932	25,451,127	24,899,901
2018	614,445	179,466	669,318	6,151,522	46,299,201	21,719,919	26,425,737	25,904,307
2019	620,568	179,466	690,846	6,151,522	44,096,598	21,736,689	26,453,778	25,933,206
2020	626,457	179,466	712,023	6,151,522	42,748,290	21,725,340	26,434,551	25,913,394
2021	627,432	179,466	715,533	6,151,522	43,363,047	21,662,082	26,324,337	25,799,826
2022	627,432	179,466	715,533	6,151,522	44,083,416	21,716,448	26,419,146	25,897,521
2023	627,432	179,466	715,533	6,151,522	44,250,960	21,708,141	26,404,833	25,882,779
2024	627,432	179,466	715,533	6,151,522	41,588,625	21,680,880	26,358,150	25,834,653
2025	627,432	179,466	715,533	6,151,522	44,049,720	21,708,297	26,404,833	25,882,740
2026	627,432	179,466	715,533	6,151,522	48,707,412	21,771,009	26,511,459	25,992,681
2027	627,432	179,466	715,533	6,151,522	42,103,854	21,685,950	26,365,833	25,842,570
2028	627,432	179,466	715,533	6,151,522	46,042,464	21,714,381	26,415,597	25,893,855
2029	627,432	179,466	715,533	6,151,522	42,045,861	21,657,363	26,316,459	25,791,675
2030	627,432	179,466	715,533	6,151,522	43,758,234	21,657,909	26,316,888	25,792,143
2031	627,432	179,466	715,533	6,151,522	44,226,663	21,674,718	26,345,241	25,821,354
2032	627,432	179,466	715,533	6,151,522	44,057,832	21,701,979	26,394,186	25,871,820
2033	627,432	179,466	715,533	6,151,522	46,284,810	21,699,210	26,390,247	25,867,764
2034	627,432	179,466	715,533	6,151,522	43,712,409	21,667,776	26,334,750	25,810,551
2035	627,432	179,466	715,533	6,151,522	35,612,655	21,046,545	25,254,177	24,696,906
TOTAL	18,912,856	7,293,922	19,990,775	203,649,137	1,408,513,735	673,395,131	817,467,167	818,909,622

(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)							
	Reach 16A Chrisman Pumping P.	Reach 17E Edmonston Pumping P.	Reach 18A Alamo Powerplant	Reach 22B Pearblossom Pumping Plant	Reach 23 Mojave Siphon Powerplant	Reach 26A Devil Canyon Powerplant	Reach 2B (EBX) Greenspot Pumping Plant	Reach 3A (EBX) Crafton Hills Pumping P.
	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
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	348,235	1,179,787	0	81,484	0	(3,112)	0	0
1973	829,325	2,961,697	0	586,209	0	(956,197)	0	0
1974	993,796	3,522,973	0	566,546	0	(963,572)	0	0
1975	1,340,518	4,675,938	0	587,227	0	(1,125,945)	0	0
1976	1,360,502	4,740,176	0	871,540	0	(1,567,312)	0	0
1977	291,196	977,258	0	275,980	0	(1,262,960)	0	0
1978	1,728,268	6,104,186	0	1,758,473	0	(3,345,147)	0	0
1979	1,612,105	5,564,009	0	1,770,844	0	(3,381,969)	0	0
1980	1,808,192	6,269,482	0	1,769,468	0	(3,508,195)	0	0
1981	2,731,775	9,388,367	0	2,049,947	0	(3,743,153)	0	0
1982	2,557,070	9,355,533	0	1,614,895	0	(3,149,352)	0	0
1983	545,887	1,827,188	0	301,180	0	(5,905,161)	0	0
1984	1,044,264	3,507,659	0	633,223	0	(7,865,341)	0	0
1985	2,994,227	10,459,919	0	1,140,057	0	(10,664,136)	0	0
1986	5,062,706	17,643,403	(1,080,970)	2,482,042	0	(12,235,312)	0	0
1987	4,119,308	14,361,151	(1,062,392)	1,822,523	0	(10,871,342)	0	0
1988	4,724,696	16,562,202	(810,907)	2,373,442	0	(14,772,519)	0	0
1989	7,936,397	27,756,045	(822,973)	4,130,250	0	(19,098,882)	0	0
1990	14,254,357	50,152,078	(845,641)	6,810,694	0	(21,336,948)	0	0
1991	3,363,863	12,019,190	(351,262)	1,306,263	0	(5,781,948)	0	0
1992	2,503,167	8,677,102	(997,736)	1,116,809	0	(9,903,370)	0	0
1993	(1,018,142)	(3,558,718)	(84,856)	(370,935)	0	(7,956,659)	0	0
1994	5,337,101	18,723,854	(93,031)	2,529,462	0	(12,122,861)	0	0
1995	1,948,905	6,847,537	(1,297,179)	951,513	0	(10,256,635)	0	0
1996	5,156,434	18,332,558	(2,959,744)	2,725,712	(941,959)	(13,155,960)	0	0
1997	6,217,434	22,057,503	(2,876,697)	3,431,693	(1,932,337)	(13,519,660)	0	0
1998	(673,122)	(2,350,976)	(2,244,105)	(439,496)	(1,385,473)	(10,955,475)	0	0
1999	3,232,010	12,564,772	(2,811,928)	1,779,376	(2,482,354)	(14,772,635)	0	0
2000	6,993,104	25,232,758	(5,129,549)	3,969,325	(4,429,149)	(25,856,637)	0	0
2001	34,362,260	126,969,965	(3,298,048)	19,044,251	(3,649,034)	(19,498,071)	0	0
2002	19,884,736	73,074,996	(4,926,146)	10,767,871	(5,255,302)	(24,635,887)	0	0
2003	25,395,240	93,471,977	(3,431,664)	14,896,580	(6,760,773)	(28,000,328)	0	0
2004	28,967,905	106,508,267	(6,227,543)	16,646,955	(7,691,607)	(31,217,777)	75,708	66,415
2005	28,986,891	102,884,711	(6,140,331)	18,267,341	(6,778,759)	(30,592,888)	68,161	47,906
2006	26,736,475	98,356,120	(4,091,143)	18,491,176	(6,391,206)	(34,897,387)	145,736	159,676
2007	38,437,208	141,214,996	(3,065,445)	20,270,753	(6,098,250)	(29,208,525)	268,907	256,246
2008	24,433,016	89,202,622	(3,426,928)	11,901,882	(3,300,797)	(16,968,293)	286,727	366,574
2009	31,322,028	128,526,872	(3,573,369)	13,348,089	(3,719,941)	(14,140,755)	254,770	300,191
2010	**54,903,244**	**189,146,389**	**(6,435,600)**	**28,270,547**	**(8,665,200)**	**(26,735,000)**	**547,781**	**683,626**
2011	56,029,017	193,119,797	(6,435,600)	28,864,429	(8,665,200)	(26,735,000)	560,104	699,005
2012	49,094,682	183,287,247	(6,791,294)	30,530,448	(7,885,506)	(30,571,150)	587,664	733,399
2013	55,711,227	208,352,157	(7,501,752)	34,313,760	(8,751,765)	(33,330,375)	587,664	733,399
2014	56,898,231	212,848,740	(7,358,532)	32,644,014	(8,865,213)	(31,323,600)	587,664	733,399
2015	60,652,605	227,070,987	(7,555,320)	33,092,202	(8,845,812)	(31,819,400)	587,664	733,399
2016	60,658,845	227,094,582	(7,574,602)	33,643,233	(9,168,930)	(32,320,200)	587,664	733,399
2017	58,439,784	218,688,405	(7,542,982)	33,346,131	(9,146,571)	(31,964,375)	587,664	733,399
2018	60,848,931	227,814,678	(7,525,808)	33,391,410	(9,006,588)	(32,091,700)	587,664	733,399
2019	60,918,195	228,077,070	(7,571,378)	33,435,090	(8,946,297)	(32,162,250)	587,664	733,399
2020	60,870,693	227,897,202	(7,555,506)	33,497,841	(9,076,884)	(32,245,175)	587,664	733,399
2021	60,598,239	226,865,067	(7,502,682)	33,405,723	(9,098,547)	(32,069,850)	587,664	733,399
2022	60,832,629	227,752,941	(7,508,448)	33,510,516	(9,134,826)	(32,134,000)	587,664	733,399
2023	60,797,217	227,618,820	(7,512,106)	33,401,472	(8,974,659)	(32,191,325)	587,664	733,399
2024	60,681,816	227,181,669	(7,577,082)	33,466,797	(8,850,684)	(32,238,900)	587,664	733,399
2025	60,797,178	227,618,703	(7,548,190)	33,456,930	(8,941,947)	(32,192,525)	587,664	733,399
2026	61,060,818	228,617,415	(7,619,366)	33,451,002	(8,598,993)	(32,346,300)	587,664	733,399
2027	60,700,809	227,253,585	(7,567,658)	33,476,079	(8,641,710)	(32,294,550)	587,664	733,399
2028	60,823,815	227,719,635	(7,567,596)	33,688,200	(9,042,606)	(32,364,525)	587,664	733,399
2029	60,578,739	226,791,240	(7,510,990)	33,209,046	(8,913,672)	(31,945,400)	587,664	733,399
2030	60,579,831	226,795,335	(7,541,494)	33,453,225	(8,819,451)	(32,221,950)	587,664	733,399
2031	60,649,953	227,060,886	(7,517,376)	33,517,107	(9,114,381)	(32,155,400)	587,664	733,399
2032	60,770,931	227,519,214	(7,599,154)	33,556,380	(8,734,278)	(32,414,175)	587,664	733,399
2033	60,761,220	227,482,476	(7,534,922)	33,592,143	(9,055,656)	(32,228,075)	587,664	733,399
2034	60,623,979	226,962,528	(7,503,488)	33,307,053	(8,830,065)	(31,983,100)	587,664	733,399
2035	57,952,869	216,843,900	(7,555,010)	33,302,724	(8,719,140)	(32,065,025)	587,664	733,399
TOTAL	1,891,104,835	7,019,245,825	(254,663,523)	1,049,084,146	(291,311,522)	(1,303,341,631)	16,311,830	20,181,215

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) Reach 4B (EBX) Cherry Valley Pumping P.	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	GRAND TOTAL
	[17]	[18]	[19]	[20]	[21]	[22]	[23]
1961	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	37,731
1963	0	0	0	0	0	0	56,414
1964	0	0	0	0	0	0	71,745
1965	0	0	0	0	0	0	138,653
1966	0	0	0	0	0	0	189,402
1967	0	0	0	0	0	0	248,881
1968	0	0	0	0	118,578	0	1,979,249
1969	0	0	0	0	76,920	0	1,296,935
1970	0	0	0	0	134,749	0	1,115,566
1971	0	0	0	0	168,689	0	1,500,385
1972	0	157,005	0	(385,696)	213,251	0	4,300,002
1973	0	238,650	0	(1,193,216)	120,014	0	5,369,270
1974	0	286,640	0	(1,823,397)	119,505	0	5,785,555
1975	0	421,687	0	(2,835,302)	92,012	0	6,669,772
1976	0	278,869	0	(2,512,021)	146,530	0	6,674,450
1977	0	17,319	0	(1,701,284)	84,225	0	327,513
1978	0	215,573	0	(2,361,377)	190,745	0	11,252,189
1979	0	122,134	0	(2,752,003)	203,143	0	9,752,263
1980	0	86,893	0	(2,728,494)	182,996	0	8,927,799
1981	0	382,330	0	(2,854,192)	189,573	0	14,811,510
1982	0	444,009	(973,898)	(3,476,126)	182,427	0	13,978,041
1983	0	59,561	(1,314,237)	(3,904,690)	18,936	0	(6,346,070)
1984	0	135,658	(2,285,362)	844,120	117,585	0	(568,150)
1985	0	739,708	(8,476,552)	(19,162,735)	155,931	0	(15,517,771)
1986	0	1,037,512	(6,269,528)	(11,462,662)	317,622	0	10,434,322
1987	0	914,642	(6,757,040)	(11,630,562)	266,825	0	1,749,955
1988	0	951,580	(7,448,747)	(12,677,211)	237,272	0	1,826,082
1989	0	1,543,985	(8,790,866)	(14,657,167)	309,851	0	20,823,882
1990	0	3,032,334	(11,692,826)	(19,863,014)	466,262	0	49,616,226
1991	0	778,874	(5,250,121)	(8,731,129)	17,608	0	4,660,962
1992	0	541,093	(5,955,563)	(9,599,392)	111,742	0	(7,440,605)
1993	0	(244,261)	(4,607,075)	(9,740,511)	(122,190)	0	(29,754,040)
1994	0	1,039,474	(6,228,273)	(10,867,596)	226,378	(1,127)	10,567,408
1995	0	342,312	(3,827,718)	(7,403,219)	261,423	0	(5,229,549)
1996	0	908,180	(5,026,221)	(8,969,945)	321,137	0	14,933,619
1997	0	990,932	(5,184,788)	(9,027,058)	322,753	208,816	18,123,700
1998	0	(66,088)	(1,888,975)	(4,963,075)	(56,675)	(87,016)	(25,947,387)
1999	0	666,901	(5,526,541)	(9,954,674)	156,194	234,077	(6,262,367)
2000	0	1,216,343	(9,464,490)	(17,958,033)	231,346	380,555	(6,759,453)
2001	0	6,445,378	(7,987,833)	(13,981,232)	1,086,309	2,152,324	210,718,677
2002	0	3,834,216	(10,286,902)	(18,455,024)	545,459	1,320,943	89,954,176
2003	0	4,519,298	(10,281,922)	(17,307,974)	641,112	1,482,405	130,019,661
2004	7,027	5,385,468	(12,033,953)	(20,022,179)	661,852	1,718,113	141,094,059
2005	2,519	4,130,683	(8,251,156)	(13,698,272)	829,541	1,669,939	161,776,375
2006	19,624	3,489,643	(7,208,025)	(12,038,160)	850,765	1,672,305	147,816,885
2007	14,485	7,564,612	(11,322,469)	(21,045,663)	1,134,539	2,085,774	211,653,367
2008	11,462	5,148,827	(7,762,363)	(14,414,826)	940,317	1,416,265	130,302,504
2009	45,911	6,968,894	(8,218,734)	(19,144,074)	182,809	735,134	192,495,926
2010	**16,319**	**10,619,780**	**(12,337,500)**	**(23,730,000)**	**1,619,241**	**5,251,593**	**320,641,119**
2011	16,686	10,840,995	(12,337,500)	(23,730,000)	1,649,498	5,349,720	328,901,332
2012	17,507	8,889,582	(13,134,975)	(20,273,575)	1,737,060	4,232,358	305,255,582
2013	17,507	10,367,214	(15,310,950)	(23,767,025)	1,737,060	4,232,358	343,121,615
2014	17,507	10,819,731	(15,884,600)	(24,788,325)	1,986,660	5,915,637	353,276,196
2015	17,507	12,304,383	(17,826,675)	(28,168,200)	1,986,660	5,915,637	375,591,242
2016	17,507	12,101,700	(17,589,650)	(27,713,250)	1,986,660	5,915,637	372,815,216
2017	17,507	11,236,173	(16,382,200)	(25,702,575)	1,986,660	5,915,637	361,207,623
2018	17,507	12,279,189	(17,768,175)	(28,102,975)	1,986,660	5,915,637	377,043,744
2019	17,507	12,293,385	(17,793,700)	(28,141,550)	1,986,660	5,915,637	375,212,105
2020	17,507	12,249,120	(17,763,125)	(28,044,500)	1,986,660	5,915,637	373,561,576
2021	17,507	12,163,554	(17,643,450)	(27,850,025)	1,986,660	5,915,637	372,932,141
2022	17,507	12,227,631	(17,705,475)	(27,992,350)	1,986,660	5,915,637	374,879,969
2023	17,507	12,252,708	(17,759,375)	(28,051,725)	1,986,660	5,915,637	374,742,560
2024	17,507	12,177,594	(17,648,875)	(27,880,200)	1,986,660	5,915,637	371,689,263
2025	17,507	12,231,999	(17,728,100)	(28,004,400)	1,986,660	5,915,637	374,650,058
2026	17,507	12,350,208	(17,869,900)	(28,270,075)	1,986,660	5,915,637	380,672,190
2027	17,507	12,182,469	(17,657,075)	(27,891,525)	1,986,660	5,915,637	372,473,451
2028	17,507	12,157,509	(17,630,550)	(27,835,800)	1,986,660	5,915,637	376,929,199
2029	17,507	12,228,333	(17,741,400)	(27,998,200)	1,986,660	5,915,637	371,423,874
2030	17,507	12,137,775	(17,621,925)	(27,793,225)	1,986,660	5,915,637	373,408,115
2031	17,507	12,144,795	(17,610,600)	(27,806,575)	1,986,660	5,915,637	374,151,205
2032	17,507	12,183,366	(17,676,500)	(27,895,700)	1,986,660	5,915,637	374,650,721
2033	17,507	12,165,777	(17,637,500)	(27,853,875)	1,986,660	5,915,637	376,848,439
2034	17,507	12,211,680	(17,687,550)	(27,956,550)	1,986,660	5,915,637	373,584,793
2035	17,507	11,038,131	(16,099,925)	(25,265,275)	1,986,660	5,915,637	352,958,352
TOTAL	554,202	370,581,649	(628,169,428)	(1,062,966,540)	62,905,439	164,198,550	11,021,847,390

Tables B-4 through B-31

Note: Where applicable, the projected data values shown in this appendix are shaded and the bill year data are in **bold** type.

TABLE B-4. Maximum Contractual Table A Amounts

(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	**29,025**	**47,506**	**76,531**	**80,619**	**42,000**	**100,000**	**222,619**	**25,000**	**45,486**	**70,486**
2011	29,025	47,556	76,581	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2012	29,025	47,606	76,631	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2013	29,025	47,656	76,681	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2014	29,025	47,706	76,731	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2015	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2016	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2017	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2018	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2019	29,025	47,756	76,781	80,619	42,000	100,000	222,619	25,000	45,486	70,486
2020	29,025	47,756	76,781	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	1,080,965	2,049,856	3,130,821	3,720,815	2,459,248	6,510,783	12,690,846	1,189,430	2,218,494	3,407,924

(a) Table A quantities for the South Bay area were supplied by non-Project water for the period June 1962 through November 1967. Actual delivery quantities of Project water are shown for 1967.

(b) District's Table A quantities exclude amounts during the period 1968 through 1987 that were supplied by non-Project water.

TABLE B-4. Maximum Contractual Table A Amounts

(in acre-feet)

Calendar Year	SAN JOAQUIN VALLEY AREA								
			Kern County Water Agency						
	Dudley Ridge Water District	Empire West Side Irrigation District	Municipal and Industrial	Agricultural	Total	County of Kings	Oak Flat Water District	Tulare Lake 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**	**848,130**	**982,730**	**9,305**	**5,700**	**88,922**	**1,147,000**
2011	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2012	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2013	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2014	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2015	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2016	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2017	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2018	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2019	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2020	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2021	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2022	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2023	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2024	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2025	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2026	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2027	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2028	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2029	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2030	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2031	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2032	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2033	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2034	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
2035	57,343	3,000	134,600	848,130	982,730	9,305	5,700	88,922	1,147,000
TOTAL	3,361,478	199,000	7,693,900	51,855,303	59,549,203	403,050	352,822	5,991,823	69,857,376

TABLE B-4. Maximum Contractual Table A Amounts

(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**	**138,350**	**5,800**	**55,750**	**2,300**	**75,800**	**21,300**	**102,600**	**28,800**
2011	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2012	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2013	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2014	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2015	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2016	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2017	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2018	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2019	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2020	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2021	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2022	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2023	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2024	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2025	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2026	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2027	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2028	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2029	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2030	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2031	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2032	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2033	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2034	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2035	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
TOTAL	7,432,000	4,545,098	4,782,511	321,556	2,626,000	127,210	3,760,043	1,127,720	5,909,177	1,641,322

TABLE B-4. Maximum Contractual Table A Amounts

(in acre-feet)

Calendar Year	SOUTHERN CALIFORNIA AREA				FEATHER RIVER AREA				South Bay Area Future Contractor	GRAND TOTAL
	San Gorgonio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Watershed Protection 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	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	8,650	1,911,500	20,000	2,584,450	9,600	1,200	720	11,520	0	4,129,306
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**	**2,616,100**	**9,600**	**27,500**	**2,160**	**39,260**	**0**	**4,171,996**
2011	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,240	39,340	0	4,172,126
2012	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,320	39,420	0	4,172,256
2013	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,410	39,510	0	4,172,396
2014	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,500	39,600	0	4,172,536
2015	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,600	39,700	0	4,172,686
2016	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
2017	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
2018	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
2019	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
2020	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
2021	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
2022	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
2023	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
2024	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
2025	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
2026	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
2027	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
2028	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
2029	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
2030	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
2031	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
2032	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
2033	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
2034	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
2035	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,172,786
TOTAL	748,350	109,260,272	988,000	143,269,259	449,900	826,280	106,474	1,382,654	0	233,738,880

TABLE B-5A. Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(in acre-feet)

Calendar Year	Grizzly Valley Pipeline PC	NORTH BAY AQUEDUCT						SOUTH BAY AQUEDUCT					
		Reach 1	Reach 3A NC	Reach 3A	Reach 3B NC (a)	Reach 3B	Total	Reach 1		Reach 2 AC	Reach 4 AC	Reach 5	
									AC				AC
	FC&WCD	SCWA	FC&WCD	SCWA	FC&WCD	SCWA		ACWD	FC&WCD	FC&WCD	FC&WCD	ACWD	FC&WCD
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
1962	0	0	0	0	0	0	0	8,412	141	353	0	0	0
1963	0	0	0	0	0	0	0	10,914	814	917	0	0	0
1964	0	0	0	0	0	0	0	19,238	248	1,425	0	0	0
1965	0	0	0	0	0	0	0	15,280	637	1,830	138	0	0
1966	0	0	0	0	0	0	0	0	2,475	2,537	499	0	0
1967	0	0	0	0	0	0	0	0	1,527	2,391	862	0	0
1968	0	0	0	0	1,214	0	1,214	0	1,608	3,799	721	0	5
1969	0	0	0	0	2,687	0	2,687	0	1,165	3,459	1,851	0	160
1970	70	0	0	0	3,618	0	3,618	0	1,345	4,558	3,182	0	164
1971	64	0	0	0	2,521	0	2,521	0	546	1,908	2,403	0	160
1972	505	0	0	0	3,647	0	3,647	0	1,066	4,605	2,041	1,489	2,777
1973	679	0	0	0	3,792	0	3,792	0	430	1,123	1,193	0	229
1974	648	0	0	0	4,870	0	4,870	0	177	0	975	0	162
1975	405	0	0	0	6,840	0	6,840	0	137	1,783	1,864	0	120
1976	382	0	0	0	7,122	0	7,122	0	265	7,204	3,384	0	817
1977	303	0	0	0	8,226	0	8,226	0	210	4,491	2,213	0	524
1978	278	0	0	0	6,034	0	6,034	0	422	2,426	3,754	0	2,034
1979	329	0	0	0	6,561	0	6,561	0	197	4,283	5,567	0	3,937
1980	295	0	0	0	6,707	0	6,707	0	77	3,883	6,686	1,508	0
1981	355	0	0	0	9,001	0	9,001	0	1,250	4,648	5,273	5,752	1,157
1982	305	0	0	0	1,213	0	1,213	0	473	3,043	4,406	0	630
1983	262	0	0	0	2,287	0	2,287	0	179	2,712	1,714	0	50
1984	272	0	0	0	2,923	0	2,923	0	165	4,219	2,219	0	55
1985	254	0	0	0	4,039	0	4,039	0	213	5,199	2,060	0	63
1986	317	1,400	0	0	3,519	0	4,919	0	200	6,052	2,062	0	212
1987	452	1,550	0	0	7,693	0	9,243	0	218	7,538	2,372	0	285
1988	523	1	0	9,725	5,392	0	15,118	0	222	8,302	4,681	0	189
1989	486	10	0	17,246	6,195	0	23,451	0	222	8,051	6,562	0	418
1990	548	3,275	0	15,856	6,940	0	26,071	0	256	8,160	8,347	0	593
1991	420	3,117	0	3,855	1,380	0	8,352	0	162	3,676	3,269	0	359
1992	485	5,553	0	9,220	4,001	0	18,774	0	217	5,177	2,188	0	154
1993	444	14,709	0	14,471	5,286	0	34,466	0	190	5,843	8,430	1,650	5,964
1994	492	10,343	0	14,913	6,792	0	32,048	0	132	4,482	5,427	0	822
1995	308	5,452	0	15,893	5,182	0	26,527	0	278	6,236	7,195	0	955
1996	360	12,930	0	17,069	4,893	0	34,892	0	277	6,151	5,119	0	388
1997	231	16,029	0	17,501	4,341	0	37,871	0	138	6,647	6,501	1,323	1,582
1998	0	11,562	0	18,204	5,359	0	35,125	0	106	3,748	2,493	0	1,277
1999	0	15,191	0	19,562	5,304	0	40,057	0	148	5,048	8,227	0	1,444
2000	0	15,490	0	21,525	4,958	0	41,973	0	110	7,464	9,761	0	946
2001	0	14,849	0	19,737	9,345	0	43,931	0	105	7,822	4,879	0	3,010
2002	0	18,841	0	19,719	6,875	0	45,435	0	93	7,758	11,619	0	2,446
2003	0	17,260	9	16,691	7,637	0	41,597	0	108	7,916	11,348	0	2,887
2004	0	20,951	135	21,551	7,999	500	51,136	0	72	11,754	9,737	0	3,763
2005	0	18,290	160	19,029	7,509	500	45,488	0	1,430	11,520	10,100	0	1,826
2006	0	16,573	208	18,443	7,581	500	43,305	0	830	11,546	4,097	0	2,123
2007	0	19,187	180	27,613	10,777	500	58,257	0	179	10,066	2,563	0	3,107
2008	243	21,436	52	19,384	13,240	500	54,612	0	238	11,424	2,206	0	1,899
2009	836	27,957	0	7,777	12,475	500	48,709	0	653	9,231	5,260	0	6,978
2010	**2,160**	**22,745**	**0**	**10,603**	**24,625**	**0**	**57,973**	**0**	**221**	**9,860**	**22,946**	**0**	**3,495**
2011	2,240	19,745	0	10,603	24,625	0	54,973	0	221	9,160	22,934	0	3,495
2012	2,320	19,745	0	10,603	24,625	0	54,973	0	221	9,660	22,940	0	3,495
2013	2,410	19,745	0	10,603	24,625	0	54,973	0	221	9,860	22,946	0	3,495
2014	2,500	19,745	0	10,603	24,625	0	54,973	0	221	9,860	22,946	0	3,495
2015	2,600	37,153	0	10,603	25,825	0	73,581	0	221	18,653	22,946	0	3,495
2016	2,700	37,153	0	10,603	26,450	0	74,206	0	221	18,653	22,946	0	3,495
2017	2,700	37,153	0	10,603	27,075	0	74,831	0	221	18,653	22,946	0	3,495
2018	2,700	37,153	0	10,603	27,700	0	75,456	0	221	18,653	22,946	0	3,495
2019	2,700	37,153	0	10,603	28,325	0	76,081	0	221	18,653	22,946	0	3,495
2020	2,700	37,153	0	10,603	28,925	0	76,681	0	221	18,653	22,946	0	3,495
2021	2,700	37,153	0	10,603	29,025	0	76,781	0	221	18,653	22,946	0	3,495
2022	2,700	37,153	0	10,603	29,025	0	76,781	0	221	18,653	22,946	0	3,495
2023	2,700	37,153	0	10,603	29,025	0	76,781	0	221	18,653	22,946	0	3,495
2024	2,700	37,153	0	10,603	29,025	0	76,781	0	221	18,653	22,946	0	3,495
2025	2,700	37,153	0	10,603	29,025	0	76,781	0	221	18,653	22,946	0	3,495
2026	2,700	37,153	0	10,603	29,025	0	76,781	0	221	18,653	22,946	0	3,495
2027	2,700	37,153	0	10,603	29,025	0	76,781	0	221	18,653	22,946	0	3,495
2028	2,700	37,153	0	10,603	29,025	0	76,781	0	221	18,653	22,946	0	3,495
2029	2,700	37,153	0	10,603	29,025	0	76,781	0	221	18,653	22,946	0	3,495
2030	2,700	37,153	0	10,603	29,025	0	76,781	0	221	18,653	22,946	0	3,495
2031	2,700	37,153	0	10,603	29,025	0	76,781	0	221	18,653	22,946	0	3,495
2032	2,700	37,153	0	10,603	29,025	0	76,781	0	221	18,653	22,946	0	3,495
2033	2,700	37,153	0	10,603	29,025	0	76,781	0	221	18,653	22,946	0	3,495
2034	2,700	37,153	0	10,603	29,025	0	76,781	0	221	18,653	22,946	0	3,495
2035	2,700	37,153	0	10,603	29,025	0	76,781	0	221	18,653	22,946	0	3,495
TOTAL	79,781	1,173,894	744	640,662	966,775	3,000	2,785,075	53,844	28,097	694,521	794,026	11,722	147,541

(a) For the period 1968 through 1987, deliveries are non-Project water pumped through an interim facility.

TABLE B-5A. Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(in acre-feet)

Calendar Year	SOUTH BAY AQUEDUCT (b) (Continued)					CALIFORNIA AQUEDUCT NORTH SAN JOAQUIN DIVISION						
	Reach 6	Reach 7	Reach 8	Reach 9		Reach 1	Reach 2A					
	AC				Total	KCWA		KCWA		AC		
	FC&WCD	ACWD	ACWD	SCVWD		(AG)	OFWD (c)	(M&I)	(AG)	FC&WCD	TLBWSD	SCVWD
	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]
1962	0	0	0	0	8,906	0	0	0	0	0	0	0
1963	0	0	0	0	12,645	0	0	0	0	0	0	0
1964	0	0	0	0	20,911	0	0	0	0	0	0	0
1965	0	1,127	0	15,014	34,026	0	0	0	0	0	0	0
1966	0	14,864	0	34,538	54,913	0	0	0	0	0	0	0
1967	0	12,882	0	39,101	56,763	0	0	0	0	0	0	0
1968	0	24,817	0	70,105	101,055	0	3,084	0	0	0	0	0
1969	0	813	0	62,264	69,712	0	3,016	0	0	0	0	0
1970	0	0	0	80,311	89,560	0	5,911	0	0	0	0	0
1971	0	5,961	0	87,606	98,584	0	7,212	0	0	0	0	0
1972	0	26,182	0	100,266	138,426	0	8,166	0	0	0	0	0
1973	0	2,521	0	88,582	94,078	0	3,214	0	0	0	0	0
1974	0	0	4	88,000	89,318	0	3,471	0	0	0	0	0
1975	714	393	593	88,000	93,604	0	3,576	0	0	0	0	0
1976	5,461	13,774	7,526	88,000	126,431	0	4,112	0	0	0	0	0
1977	5,206	11,284	7,556	76,220	107,704	0	1,472	0	0	0	0	0
1978	2,348	854	5,009	95,727	112,574	0	3,906	0	0	0	0	0
1979	5,341	3,430	7,444	91,991	122,190	0	6,149	0	0	0	0	0
1980	6,144	2,824	6,702	88,000	115,824	0	5,700	0	0	0	0	0
1981	7,262	7,595	8,570	88,000	129,507	0	4,300	0	0	0	0	0
1982	4,571	1,776	4,540	88,000	107,439	0	3,838	0	0	0	0	0
1983	111	0	3,157	86,733	94,656	0	3,822	0	0	0	0	0
1984	126	0	3,338	88,000	98,122	0	5,700	0	0	0	0	0
1985	7,537	11,203	7,813	88,000	122,088	0	5,433	0	0	0	0	0
1986	2,083	5,311	7,068	88,000	110,988	0	5,107	0	0	0	0	0
1987	12,993	15,488	9,902	88,000	136,796	0	5,625	0	0	0	0	0
1988	12,436	24,259	9,205	87,961	147,255	0	4,412	0	0	0	0	0
1989	10,974	17,340	8,702	90,000	142,269	0	6,091	0	0	0	300	0
1990	15,678	22,149	9,554	91,800	156,537	0	2,922	0	0	0	0	200
1991	1,945	9,155	3,493	28,200	50,259	0	141	0	0	0	0	0
1992	6,933	12,621	6,532	42,839	76,661	0	2,239	0	0	0	0	0
1993	13,208	1,792	6,829	62,065	105,971	0	2,858	0	0	0	0	0
1994	9,679	3,379	19,532	57,115	100,568	0	3,071	0	0	0	0	0
1995	15,427	21	17,772	28,756	76,640	0	5,169	0	0	0	0	0
1996	6,968	1,871	11,591	44,850	77,215	0	4,904	0	0	0	0	0
1997	12,654	1,876	10,864	60,601	102,186	0	5,238	0	0	0	0	0
1998	8,347	3,817	11,478	39,610	70,876	0	4,401	0	0	0	0	0
1999	13,133	5,326	16,226	52,945	102,497	0	4,871	0	0	0	0	0
2000	16,396	4,498	18,100	78,258	135,533	0	4,508	0	0	0	0	0
2001	13,593	0	18,004	47,922	95,335	0	3,592	638	0	0	0	0
2002	17,058	5,112	20,616	58,875	123,577	0	4,885	773	0	0	0	0
2003	16,684	5,037	12,753	75,981	132,714	0	4,266	917	0	7	0	0
2004	21,260	4,968	14,916	59,458	125,928	0	4,629	786	0	38	0	0
2005	16,597	4,139	10,160	52,364	108,136	0	4,194	1,046	0	299	0	0
2006	19,870	2,708	12,924	64,174	118,272	0	4,242	1,103	0	321	0	0
2007	23,205	8,255	15,107	71,690	134,172	0	3,567	0	1,031	320	0	0
2008	25,363	4,421	18,481	52,530	116,562	8,885	1,985	1,094	650	56	0	0
2009	20,778	1,083	36,989	69,158	150,130	0	2,064	0	933	0	0	0
2010	**16,604**	**7,002**	**12,415**	**65,000**	**137,543**	**0**	**5,300**	**600**	**465**	**0**	**0**	**0**
2011	14,904	7,004	15,415	65,000	138,133	0	5,300	600	465	0	0	0
2012	15,604	7,004	15,675	65,000	139,599	0	5,300	600	465	0	0	0
2013	16,604	7,004	20,524	65,000	145,654	0	5,300	600	465	0	0	0
2014	16,604	7,004	20,586	80,000	160,716	0	5,300	600	465	0	0	0
2015	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
2016	15,700	9,004	20,586	90,000	180,605	0	5,700	600	465	0	0	0
2017	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
2018	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
2019	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
2020	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
2021	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
2022	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
2023	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
2024	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
2025	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
2026	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
2027	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
2028	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
2029	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
2030	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
2031	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
2032	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
2033	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
2034	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
2035	16,604	9,004	20,586	90,000	181,509	0	5,700	600	465	0	0	0
TOTAL	806,183	531,028	905,971	5,355,610	9,328,543	8,885	323,263	21,957	14,704	1,041	300	200

(b) For the period June 1962 through November 1967, deliveries were supplied by non-Project water.

(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)										
	SAN LUIS										
	Reach 3						Reach 3A	Reach 4			
				KCWA			KCWA	KCWA			
	MWDSC	DRWD	SCVWD	(M&I)	(AG)	TLBWSD	(AG)	(M&I)	(AG)	DRWD	TLBWSD
	[26]	[27]	[28]	[29]	[30]	[31]	[32]	[33]	[34]	[35]	[36]
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	602	0	0	0	0	0	0	12,647	1,898	0
1990	0	0	0	0	0	0	0	0	0	0	1,500
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	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	3,500	14,446	0
1996	0	0	0	0	0	0	0	1,125	4,162	0	0
1997	11,100	0	0	0	0	0	0	0	0	0	0
1998	(11,100)	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	1,300
2000	0	0	0	3,320	68,960	0	0	1,517	878	0	0
2001	0	0	30,000	8,790	131,452	0	0	0	0	0	0
2002	0	0	0	21,000	47,024	0	0	0	0	0	0
2003	29,596	0	0	0	151,044	0	0	0	1,351	0	0
2004	0	0	0	0	35,213	0	9,664	0	0	0	0
2005	50,000	0	8,804	0	109,712	277	0	0	7,000	0	0
2006	0	0	0	0	19,575	0	0	0	0	0	0
2007	0	0	0	0	71,567	0	0	0	0	0	0
2008	0	0	0	0	94,562	0	0	0	10,721	0	907
2009	0	0	0	0	103,950	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	79,596	602	38,804	33,110	833,059	277	9,664	2,642	40,259	16,344	3,707

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 5							Reach 6				
		KCWA							KCWA			
	DRWD	(M&I)	(AG)	MWDSC	CLWA	TLBWSD	OFWD	CK	(M&I)	(AG)	MWDSC	TLBWSD
	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]	[46]	[47]	[48]
1962	0	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	1,550	0	0	0	0	0	0
1989	0	0	18,831	0	0	0	0	0	0	8,260	0	0
1990	0	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0	0
1992	10,823	0	0	0	0	0	0	0	0	0	0	0
1993	27,200	0	28,200	0	5,095	1,624	2,000	0	0	31,200	0	0
1994	0	0	0	0	0	0	0	0	0	0	0	0
1995	0	0	21,776	0	0	0	0	0	0	3,932	0	0
1996	0	1,125	81,507	0	0	4,000	0	0	0	0	0	0
1997	0	9,080	154,940	0	0	3,500	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	20,400	33,340	0	3,000
1999	0	0	0	21,500	0	8,000	0	0	0	33,776	11,000	23,000
2000	0	8,130	57,647	0	0	0	0	0	1,457	35,847	0	3,000
2001	0	0	0	0	0	2,457	0	0	0	0	0	600
2002	0	0	0	0	0	3,000	0	0	0	0	0	0
2003	0	0	0	0	0	3,900	0	0	0	0	0	0
2004	0	0	0	0	0	3,850	0	3,250	0	0	0	0
2005	0	0	0	0	0	1,000	0	6,954	0	0	0	0
2006	0	0	0	0	0	3,000	0	2,659	0	0	0	0
2007	0	0	0	0	0	3,600	0	3,119	0	0	0	0
2008	0	0	0	0	0	448	0	2,159	0	0	0	0
2009	0	0	0	0	0	0	0	2,169	0	0	0	600
2010	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5,200**	**0**	**0**	**0**	**0**
2011	0	0	0	0	0	0	0	5,200	0	0	0	0
2012	0	0	0	0	0	0	0	5,200	0	0	0	0
2013	0	0	0	0	0	0	0	5,200	0	0	0	0
2014	0	0	0	0	0	0	0	5,200	0	0	0	0
2015	0	0	0	0	0	0	0	5,200	0	0	0	0
2016	0	0	0	0	0	0	0	5,200	0	0	0	0
2017	0	0	0	0	0	0	0	5,200	0	0	0	0
2018	0	0	0	0	0	0	0	5,200	0	0	0	0
2019	0	0	0	0	0	0	0	5,200	0	0	0	0
2020	0	0	0	0	0	0	0	5,200	0	0	0	0
2021	0	0	0	0	0	0	0	5,200	0	0	0	0
2022	0	0	0	0	0	0	0	5,200	0	0	0	0
2023	0	0	0	0	0	0	0	5,200	0	0	0	0
2024	0	0	0	0	0	0	0	5,200	0	0	0	0
2025	0	0	0	0	0	0	0	5,200	0	0	0	0
2026	0	0	0	0	0	0	0	5,200	0	0	0	0
2027	0	0	0	0	0	0	0	5,200	0	0	0	0
2028	0	0	0	0	0	0	0	5,200	0	0	0	0
2029	0	0	0	0	0	0	0	5,200	0	0	0	0
2030	0	0	0	0	0	0	0	5,200	0	0	0	0
2031	0	0	0	0	0	0	0	5,200	0	0	0	0
2032	0	0	0	0	0	0	0	5,200	0	0	0	0
2033	0	0	0	0	0	0	0	5,200	0	0	0	0
2034	0	0	0	0	0	0	0	5,200	0	0	0	0
2035	0	0	0	0	0	0	0	5,200	0	0	0	0
TOTAL	38,023	18,335	362,901	21,500	5,095	39,929	2,000	155,510	21,857	146,355	11,000	30,200

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					
	KCWA							KCWA					
	(M&I)	(AG)	CLWA	DRWD	TLBWSD	MWDSC	CK	(M&I)	(AG)	DRWD	TLBWSD	EWSID	CK
	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]
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	25,100	1,978	900
1969	0	0	0	0	0	0	0	0	0	0	7,081	56	100
1970	0	0	0	0	0	0	0	0	0	0	0	3,942	0
1971	0	0	0	0	0	0	0	0	0	0	80,906	5,990	3,700
1972	0	0	0	0	0	0	0	0	0	0	144,843	5,795	1,400
1973	0	0	0	0	0	0	0	0	0	0	26,317	3,000	1,500
1974	0	0	0	0	0	0	0	0	0	0	32,603	3,000	1,500
1975	0	0	0	0	0	0	0	0	0	0	41,536	3,000	1,600
1976	0	0	0	0	0	0	0	0	0	0	26,595	3,000	1,600
1977	0	0	0	0	0	0	0	0	0	0	12,984	738	1,530
1978	0	0	0	0	0	0	0	0	0	0	3,934	454	2,070
1979	0	0	0	0	0	0	0	0	0	0	74,758	1,739	2,000
1980	0	0	0	0	0	0	0	0	0	0	35,140	894	2,200
1981	0	0	0	0	0	0	0	0	0	0	50,888	5,859	2,300
1982	0	0	0	0	0	0	0	0	0	0	4,405	361	1,536
1983	0	0	0	0	0	0	0	0	0	0	1,001	0	3,550
1984	0	0	0	0	0	0	0	0	0	0	3,677	0	3,100
1985	0	0	0	0	0	0	0	0	0	0	68,638	5,197	3,400
1986	0	0	0	0	0	0	0	0	0	0	40,017	1,170	3,700
1987	0	0	0	0	0	0	0	0	0	0	30,359	2,525	4,000
1988	0	0	0	0	0	0	0	0	0	0	46,281	3,475	4,000
1989	0	5,262	0	0	0	0	0	0	0	2,391	63,703	3,000	4,000
1990	0	0	0	0	0	0	0	0	0	0	23,504	1,279	2,000
1991	0	0	0	0	0	0	0	0	0	0	1,697	221	0
1992	0	0	0	0	0	0	0	0	0	280	15,982	1,354	1,806
1993	18,157	10,043	0	0	0	0	0	0	0	0	57,112	2,741	4,000
1994	0	0	2,100	0	0	0	0	0	0	0	21,510	1,666	2,116
1995	10,875	20,595	0	0	0	0	0	989	10,527	0	40,934	1,631	4,000
1996	3,424	69,704	0	0	0	0	0	0	1,500	95	84,130	1,868	4,000
1997	27,079	32,463	0	0	0	0	0	0	1,500	0	9,467	0	0
1998	3,998	62,081	0	200	0	0	0	0	1,000	90	8,956	542	15
1999	7,923	19,500	0	0	4,470	500	0	0	400	86	90,334	3,176	4,000
2000	0	45,137	1,200	0	20,500	20,000	0	0	400	166	63,842	1,799	3,600
2001	0	0	0	0	0	0	0	0	0	14	23,300	1,360	1,560
2002	0	0	0	0	12,067	0	0	0	0	0	34,009	1,405	2,854
2003	0	0	0	0	15,103	0	0	0	0	0	25,317	1,436	3,692
2004	0	0	0	0	0	0	0	0	0	0	30,546	3,562	5,803
2005	0	0	0	0	4,000	0	6,904	0	0	0	42,450	3,834	4,057
2006	0	0	0	0	6,000	0	2,500	0	0	0	34,367	3,282	1,105
2007	0	16,214	0	0	2,545	0	0	0	0	0	31,305	2,084	657
2008	0	1,998	0	400	1,500	0	1,330	0	0	0	14,146	947	240
2009	0	0	0	0	0	0	0	0	0	0	11,401	3,902	1,538
2010	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**38,369**	**3,000**	**3,800**
2011	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2012	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2013	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2014	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2015	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2016	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2017	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2018	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2019	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2020	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2021	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2022	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2023	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2024	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2025	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2026	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2027	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2028	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2029	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2030	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2031	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2032	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2033	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2034	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
2035	0	0	0	0	0	0	0	0	0	0	35,569	3,000	3,800
TOTAL	71,456	282,997	3,300	600	66,185	20,500	10,734	989	15,327	3,122	2,412,669	171,262	195,529

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			
	KCWA				SLOC			KCWA		
	(M&I)	(AG)	DRWD	CK	FC&WCD	TLBWSD	DRWD	(M&I)	(AG)	TLBWSD
	[62]	[63]	[64]	[65]	[66]	[67]	[68]	[69]	[70]	[71]
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	26,360	0	0	0	0	0	30,951	0
1969	0	0	31,375	0	0	0	0	0	24,489	0
1970	0	0	40,407	0	0	3,408	0	0	46,114	1,855
1971	0	0	41,053	0	0	41,579	0	0	58,356	0
1972	0	0	42,443	0	0	113,550	0	0	75,464	0
1973	0	1,500	22,057	0	0	24,147	0	0	54,583	0
1974	0	0	33,390	0	0	39,686	0	0	63,814	0
1975	0	0	40,555	0	0	44,722	0	0	50,021	0
1976	0	0	41,421	0	0	32,216	0	0	53,465	0
1977	0	0	11,153	0	0	5,097	0	0	24,668	0
1978	0	0	51,747	0	0	8,119	0	0	72,231	0
1979	0	0	38,544	0	0	80,363	0	0	74,524	0
1980	0	0	41,000	0	0	40,304	0	0	79,946	0
1981	0	0	41,000	0	0	32,550	0	0	76,508	0
1982	0	0	41,000	214	0	14,146	0	0	76,877	0
1983	0	0	42,900	0	0	5	0	2,217	84,573	0
1984	0	0	45,100	0	0	2,066	0	4,100	85,732	0
1985	0	0	46,251	0	0	41,153	0	0	67,696	0
1986	0	0	50,249	0	0	39,338	0	0	79,943	0
1987	0	0	46,288	0	0	62,725	0	0	97,732	0
1988	0	0	47,994	0	0	48,035	0	1,100	83,858	0
1989	0	0	52,158	0	0	63,947	0	0	91,134	0
1990	0	161	36,296	0	0	32,066	0	0	83,108	0
1991	0	0	927	0	0	483	0	13,683	601	0
1992	0	0	12,667	0	0	30,746	0	28	40,183	0
1993	0	0	23,221	0	0	65,732	197	5,945	53,597	0
1994	0	1,726	28,793	0	0	40,852	0	0	44,994	0
1995	2,959	27,270	45,240	0	0	57,435	0	0	64,076	0
1996	0	1,455	52,722	0	100	148,745	0	2,236	89,291	0
1997	0	0	57,496	0	100	9,402	4,900	0	72,013	0
1998	0	20,000	49,435	0	0	8,721	0	0	57,530	0
1999	0	9,000	58,290	0	0	162,631	0	0	72,734	0
2000	0	0	57,920	0	0	113,952	0	2,000	71,562	0
2001	0	6,089	40,155	0	0	58,369	0	0	54,198	0
2002	0	7,522	48,179	0	0	47,426	0	0	60,957	0
2003	0	8,350	45,732	0	0	61,521	0	0	54,724	0
2004	0	4,979	45,823	0	0	55,625	0	0	54,330	0
2005	0	0	58,627	1,891	0	92,552	0	0	53,206	0
2006	0	0	61,410	3,266	0	64,840	0	0	56,909	0
2007	0	7,740	39,974	1,921	0	49,633	0	0	66,018	0
2008	0	21,242	18,974	107	0	16,903	0	0	63,315	0
2009	0	21,483	19,436	0	0	14,754	0	0	24,475	14,000
2010	**0**	**0**	**57,343**	**0**	**0**	**50,553**	**0**	**0**	**66,200**	**0**
2011	0	0	57,343	0	0	53,353	0	0	66,200	0
2012	0	0	57,343	0	0	53,353	0	0	66,200	0
2013	0	0	57,343	0	0	53,353	0	0	66,200	0
2014	0	0	57,343	0	0	53,353	0	0	66,200	0
2015	0	0	57,343	0	0	53,353	0	0	66,200	0
2016	0	0	57,343	0	0	53,353	0	0	66,200	0
2017	0	0	57,343	0	0	53,353	0	0	66,200	0
2018	0	0	57,343	0	0	53,353	0	0	66,200	0
2019	0	0	57,343	0	0	53,353	0	0	66,200	0
2020	0	0	57,343	0	0	53,353	0	0	66,200	0
2021	0	0	57,343	0	0	53,353	0	0	66,200	0
2022	0	0	57,343	0	0	53,353	0	0	66,200	0
2023	0	0	57,343	0	0	53,353	0	0	66,200	0
2024	0	0	57,343	0	0	53,353	0	0	66,200	0
2025	0	0	57,343	0	0	53,353	0	0	66,200	0
2026	0	0	57,343	0	0	53,353	0	0	66,200	0
2027	0	0	57,343	0	0	53,353	0	0	66,200	0
2028	0	0	57,343	0	0	53,353	0	0	66,200	0
2029	0	0	57,343	0	0	53,353	0	0	66,200	0
2030	0	0	57,343	0	0	53,353	0	0	66,200	0
2031	0	0	57,343	0	0	53,353	0	0	66,200	0
2032	0	0	57,343	0	0	53,353	0	0	66,200	0
2033	0	0	57,343	0	0	53,353	0	0	66,200	0
2034	0	0	57,343	0	0	53,353	0	0	66,200	0
2035	0	0	57,343	0	0	53,353	0	0	66,200	0
TOTAL	2,959	138,517	3,166,680	7,399	200	3,253,922	5,097	31,309	4,311,700	15,855

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								
	KCWA			AC					
	(M&I)	(AG)	DRWD	FC&WCD	CLWA	SCVWD	ACWD	MWDSC	TLBWSD
	[72]	[73]	[74]	[75]	[76]	[77]	[78]	[79]	[80]
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	2,842
1970	0	158	0	0	0	0	0	0	4,315
1971	0	9,973	0	0	0	0	0	0	0
1972	0	5,876	0	0	0	0	0	0	0
1973	0	22,948	0	0	0	0	0	0	0
1974	10,019	22,719	0	0	0	0	0	0	0
1975	2,791	72,121	0	0	0	0	0	0	0
1976	74	50,444	0	0	0	0	0	0	0
1977	201	34,451	0	0	0	0	0	0	0
1978	0	161,889	0	0	0	0	0	0	0
1979	285	153,245	0	0	0	0	0	0	0
1980	3,780	131,836	0	0	0	0	0	0	0
1981	341	133,500	0	0	0	0	0	0	0
1982	4,700	164,832	0	0	0	0	0	0	0
1983	0	146,493	0	0	0	0	0	0	0
1984	6,910	150,302	0	0	0	0	0	0	0
1985	6,495	153,473	0	0	0	0	0	0	0
1986	5,065	198,099	0	0	0	0	0	0	0
1987	900	226,521	0	0	0	0	0	0	0
1988	9,529	212,495	0	0	0	0	0	0	0
1989	21,038	251,979	0	0	0	0	0	0	0
1990	25,189	47,472	0	0	0	0	0	0	0
1991	1,142	6,820	0	0	0	0	0	0	0
1992	3,685	89,390	0	0	0	0	0	0	0
1993	775	233,862	0	0	0	0	0	44,496	0
1994	5,227	126,792	0	0	0	0	0	0	0
1995	366	229,448	0	0	0	0	0	50,000	0
1996	6,666	199,854	0	0	0	45,000	6,200	95,000	0
1997	3,577	157,385	900	0	0	35,000	10,000	125,000	0
1998	2,603	163,587	0	1,970	0	23,800	3,780	39,500	0
1999	1,657	190,787	0	22,910	0	30,000	16,100	75,850	0
2000	16,880	274,000	0	23,940	0	23,730	13,380	0	0
2001	160	98,175	0	5,000	0	0	0	0	0
2002	7,645	163,998	0	14,287	24,000	3,311	2,083	0	0
2003	2,648	172,243	0	6,500	0	33,000	18,800	70,940	0
2004	65,751	122,099	0	5,740	32,522	0	8,000	0	0
2005	22,087	210,578	0	0	0	55,448	28,422	31,210	0
2006	0	237,623	5,000	5,740	0	64,036	27,447	0	0
2007	0	203,794	3,000	717	0	3,692	1,029	0	0
2008	1,702	128,897	2,800	0	0	4,306	0	0	0
2009	0	124,387	12,000	0	0	0	0	0	0
2010	**0**	**233,110**	**0**	**4,700**	**0**	**20,000**	**20,583**	**122,927**	**0**
2011	0	233,110	0	4,700	0	20,000	17,581	129,572	0
2012	0	233,110	0	4,700	0	20,000	17,321	129,572	0
2013	0	233,110	0	4,700	0	20,000	12,472	129,572	0
2014	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2015	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2016	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2017	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2018	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2019	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2020	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2021	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2022	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2023	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2024	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2025	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2026	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2027	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2028	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2029	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2030	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2031	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2032	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2033	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2034	0	233,110	0	4,700	0	10,000	12,410	129,572	0
2035	0	233,110	0	4,700	0	10,000	12,410	129,572	0
TOTAL	239,888	11,545,405	23,700	209,004	56,522	621,323	476,218	3,894,223	7,157

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 11B			Reach 12D		Reach 12E					
	KCWA			KCWA			AC				
	(M&I)	(AG)	DRWD	(M&I)	(AG)	ACWD	FC&WCD	CLWA	SCVWD	DRWD	MWDSC
	[81]	[82]	[83]	[84]	[85]	[86]	[87]	[88]	[89]	[90]	[91]
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	24,776	0	0	0	0	0	0	0	0	0
1969	0	64,682	0	0	0	0	0	0	0	0	0
1970	0	72,279	0	0	0	0	0	0	0	0	0
1971	0	63,773	0	0	0	0	0	0	0	0	0
1972	0	72,358	0	0	0	0	0	0	0	0	0
1973	0	67,544	0	0	0	0	0	0	0	0	0
1974	0	87,476	0	0	0	0	0	0	0	0	0
1975	0	85,675	0	0	0	0	0	0	0	0	0
1976	0	85,067	0	0	0	0	0	0	0	0	0
1977	3,981	29,603	0	0	0	0	0	0	0	0	0
1978	0	88,753	0	0	0	0	0	0	0	0	0
1979	484	108,379	0	0	0	0	0	0	0	0	0
1980	3,112	103,207	0	0	0	0	0	0	0	0	0
1981	494	104,395	0	0	0	0	0	0	0	0	0
1982	798	99,081	0	0	0	0	0	0	0	0	0
1983	2,069	94,117	0	0	0	0	0	0	0	0	0
1984	2,349	124,819	0	0	0	0	0	0	0	0	0
1985	10,666	118,646	0	0	0	0	0	0	0	0	0
1986	8,673	124,836	0	0	0	0	0	0	0	0	0
1987	13,074	111,877	0	0	0	0	0	0	0	0	0
1988	13,509	114,031	0	0	0	0	0	0	0	0	0
1989	9,986	127,058	0	0	0	0	0	0	0	0	0
1990	9,319	104,107	0	0	0	0	0	0	0	0	0
1991	6,099	118	0	0	0	0	0	0	0	0	0
1992	7,419	35,093	0	0	0	0	0	0	0	0	0
1993	2,696	72,645	0	0	0	0	0	0	0	0	5,504
1994	3,506	71,202	0	0	0	0	0	0	0	0	0
1995	1,154	97,072	0	0	0	0	0	0	0	1,000	0
1996	1,185	96,250	0	0	0	0	0	0	0	4,131	0
1997	1,111	104,823	0	0	0	0	0	0	0	8,012	1,486
1998	1,311	72,646	0	0	0	0	0	0	0	5,925	24,234
1999	2,127	92,262	0	0	0	0	0	0	0	1,321	62,162
2000	3,793	89,622	1,500	21	0	0	0	0	0	953	149,731
2001	636	73,105	0	41	0	0	0	0	0	0	0
2002	1,457	91,123	0	760	6	0	0	0	0	0	0
2003	1,379	87,174	0	2,431	152	0	0	0	0	0	45,989
2004	1,299	97,722	0	3,419	768	0	0	0	0	1,600	0
2005	824	93,554	0	2,841	644	1,878	3,419	20,000	2,619	1,154	15,384
2006	0	98,417	0	2,513	1,556	0	10,000	20,000	0	0	5,065
2007	0	4,030	0	0	2,164	0	0	8,200	0	0	0
2008	263	93,417	0	1,514	3,000	0	0	0	0	0	0
2009	0	94,494	0	4,500	1,324	0	0	0	0	0	0
2010	**15,000**	**40,750**	**0**	**6,500**	**0**	**0**	**14,000**	**0**	**0**	**0**	**0**
2011	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2012	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2013	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2014	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2015	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2016	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2017	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2018	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2019	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2020	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2021	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2022	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2023	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2024	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2025	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2026	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2027	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2028	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2029	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2030	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2031	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2032	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2033	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2034	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
2035	15,000	40,750	0	6,500	0	0	14,000	0	0	0	0
TOTAL	504,773	4,600,808	1,500	187,040	9,614	1,878	377,419	48,200	2,619	24,096	309,555

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 12E		Reach 13B							Reach 14A		Reach 14B	
	KCWA		KCWA		AC					KCWA		KCWA	
	(M&I)	(AG)	(M&I)	(AG)	FC&WCD	SCVWD	MWDSC	DRWD	TLBWSD	(M&I)	(AG)	(M&I)	(AG)
	[92]	[93]	[94]	[95]	[96]	[97]	[98]	[99]	[100]	[101]	[102]	[103]	[104]
1962	0	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	0
1964	0	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	0
1966	0	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	0
1968	0	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	0
1970	0	9,279	0	4,891	0	0	0	0	0	0	0	0	3
1971	0	28,056	0	0	0	0	0	0	0	0	23,844	0	49,929
1972	0	62,342	0	17,388	0	0	0	0	0	0	26,621	0	77,034
1973	0	13,082	0	9,297	0	0	0	0	0	0	15,328	0	47,040
1974	2,651	4,248	8,038	4,246	0	0	0	0	0	0	7,794	0	32,356
1975	0	10,787	8,538	7,059	0	0	0	0	0	0	10,306	0	27,736
1976	37,519	20,555	5,626	8,855	0	0	0	0	0	0	268	0	35,296
1977	20,280	1,737	0	5,024	0	0	0	0	0	0	8,299	0	13,539
1978	47,133	15,011	21,773	7,601	0	0	0	0	0	0	34,029	0	72,351
1979	50,740	61,567	5,663	17,766	0	0	0	0	0	3,012	27,356	0	59,413
1980	32,039	22,252	0	22,515	0	0	0	0	0	4,312	16,876	0	40,513
1981	59,917	58,470	7,844	14,037	0	0	0	0	0	4,511	13,007	8	42,753
1982	36,139	75,587	0	25,553	0	0	0	0	0	3,735	24,240	184	57,739
1983	0	10,950	0	3,491	0	0	0	0	0	1,168	20,302	0	57,922
1984	63,941	39,929	12,117	26,178	0	0	0	0	0	137	35,369	10	79,179
1985	69,839	84,117	0	67,711	0	0	0	0	0	206	33,103	0	72,855
1986	62,109	51,540	0	66,551	0	0	0	0	0	180	26,384	0	70,864
1987	95,297	86,223	5,609	40,374	0	0	0	0	0	610	30,098	9	67,710
1988	86,390	123,249	9,298	47,167	0	0	0	0	0	622	32,778	19	75,968
1989	83,965	146,544	5,504	57,114	0	0	0	0	0	721	29,292	7	82,201
1990	82,164	38,973	7,645	20,423	0	0	0	0	0	673	26,800	13	81,076
1991	8,842	303	0	0	0	0	0	0	0	768	0	0	0
1992	47,181	57,048	789	17,449	0	0	0	0	0	673	16,238	464	41,143
1993	84,822	285,554	12,798	88,157	0	0	0	0	0	629	17,832	0	62,493
1994	66,188	77,839	2,494	33,148	0	0	0	0	0	2,513	16,760	3,000	54,011
1995	107,130	181,097	8,751	110,685	0	0	0	0	3,500	3	21,234	0	67,391
1996	89,257	134,138	28,063	64,849	0	0	0	0	0	0	26,978	0	85,936
1997	32,061	128,329	43,803	49,312	0	0	0	0	0	0	23,035	0	79,790
1998	28,258	88,998	29,444	40,085	0	0	5,500	0	0	0	15,706	0	58,132
1999	110,161	255,343	12,969	92,998	0	0	0	0	0	0	21,153	0	67,576
2000	78,285	89,702	4,066	98,136	0	0	0	0	0	0	19,264	0	70,585
2001	5,256	46,205	4,044	29,881	0	0	0	1,733	0	1	12,451	0	49,602
2002	39,104	96,231	15,951	55,493	0	0	0	736	0	0	11,161	0	52,762
2003	64,196	87,339	35,239	91,739	0	0	1,865	350	0	0	13,685	0	44,576
2004	52,303	95,893	1,922	73,801	0	0	0	1,657	0	0	13,030	0	52,012
2005	43,835	340,281	21,781	269,631	2,321	9,014	192	14,540	0	0	15,663	0	56,739
2006	82,207	296,230	11,787	196,116	0	0	0	5,670	0	0	17,779	0	65,142
2007	0	1,179	0	72,240	0	0	0	2,161	0	0	21,435	0	67,955
2008	0	76,351	200	9,785	0	2,324	0	0	0	0	20,087	0	63,497
2009	4,000	84,107	0	57,343	0	0	0	0	0	0	11,827	0	77,672
2010	**90,556**	**126,713**	**18,500**	**74,454**	**0**	**0**	**0**	**0**	**0**	**0**	**23,200**	**0**	**71,688**
2011	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2012	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2013	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2014	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2015	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2016	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2017	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2018	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2019	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2020	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2021	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2022	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2023	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2024	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2025	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2026	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2027	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2028	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2029	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2030	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2031	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2032	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2033	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2034	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
2035	90,556	126,713	18,500	74,454	0	0	0	0	0	0	23,200	0	71,688
TOTAL	4,127,665	6,681,203	812,756	3,859,893	2,321	11,338	7,557	26,847	3,500	24,474	1,360,612	3,714	4,124,379

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
	[105]	[106]	[107]	[108]	[109]	[110]	[111]	[112]	[113]	[114]	[115]
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	0	21,979	0	0	39,870	167	18,353	0	11	1,051	11,804
2006	1,413	20,193	5,440	0	46,244	279	22,570	0	0	1,021	18,438
2007	0	24,947	1,881	0	47,390	0	204	0	0	1,176	22,916
2008	0	27,847	0	0	33,029	3,834	18,426	0	0	1,238	9,096
2009	0	46,145	0	0	43,767	3,201	23,495	0	4,061	1,482	20,008
2010	**0**	**34,200**	**0**	**0**	**51,300**	**3,444**	**24,000**	**0**	**2,002**	**1,320**	**14,567**
2011	0	34,200	0	0	51,300	3,444	24,000	0	2,002	1,320	14,567
2012	0	34,200	0	0	51,300	3,444	24,000	0	2,002	1,320	14,567
2013	0	34,200	0	0	51,300	3,444	24,000	0	2,002	1,320	14,567
2014	0	34,200	0	0	51,300	3,444	24,000	0	2,002	1,320	14,567
2015	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2016	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2017	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2018	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2019	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2020	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2021	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2022	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2023	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2024	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2025	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2026	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2027	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2028	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2029	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2030	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2031	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2032	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2033	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2034	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
2035	0	34,200	0	0	51,300	3,444	24,000	0	2,186	1,320	82,555
TOTAL	2,447	1,893,449	20,232	24	2,632,726	182,089	1,125,272	2,000	75,214	49,760	2,601,687

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	LCID	PWD	AVEKWA	AVEKWA	LCID	MWDSC (d)
	[117]	[118]	[119]	[120]	[121]	[122]	[123]	[124]	[125]	[126]	[127]	[128]
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	338	0	0	0	0	0
1973	0	0	0	0	0	0	290	0	0	0	0	(14,800)
1974	0	0	0	0	0	0	400	0	0	0	0	(16,400)
1975	0	0	420	0	0	0	520	0	0	0	0	(18,000)
1976	0	0	471	0	416	0	589	0	0	0	0	(19,600)
1977	0	0	773	0	271	0	111	0	0	0	0	0
1978	0	0	5,549	0	934	0	208	0	0	0	0	(25,384)
1979	0	0	7,555	0	930	0	133	0	0	0	0	(25,063)
1980	0	0	7,605	0	655	0	191	0	0	3	0	(27,884)
1981	0	0	10,333	0	966	0	1,270	0	0	46	0	(31,105)
1982	0	0	7,313	0	8	0	0	0	0	174	0	(34,326)
1983	0	0	6,253	0	20	0	38	0	0	268	0	(37,547)
1984	0	0	9,558	0	2	0	1	0	0	550	0	(40,768)
1985	1,510	0	11,613	32	217	0	0	16	0	1,786	0	(43,989)
1986	3,041	0	13,808	45	0	0	163	10	0	1,735	0	(47,210)
1987	2,389	0	15,493	1,624	151	0	1,080	1,366	0	2,273	5	(50,931)
1988	366	0	17,117	1,261	281	0	419	143	0	3,210	0	(54,652)
1989	381	0	23,481	7,848	112	0	971	780	0	3,591	0	(58,373)
1990	282	0	25,843	8,292	84	0	1,747	34	0	3,988	0	(61,200)
1991	84	1,391	4,282	3,830	131	0	522	0	0	2,427	0	(18,360)
1992	185	1,310	18,518	3,850	650	0	251	0	0	3,859	0	(27,624)
1993	164	1,514	23,662	7,597	996	0	734	0	0	5,098	0	0
1994	299	1,399	25,250	8,119	124	0	1,098	0	0	4,657	0	0
1995	328	1,227	22,385	6,633	0	0	480	0	0	4,679	0	0
1996	354	1,316	26,979	11,080	0	0	494	0	0	5,458	0	0
1997	313	1,272	27,999	11,548	0	0	444	0	0	5,549	0	0
1998	195	0	25,985	8,557	0	0	404	0	0	4,468	0	0
1999	377	0	32,409	12,901	36	0	342	0	0	5,684	0	0
2000	0	0	37,819	9,060	80	0	0	0	5,002	5,890	0	0
2001	0	0	33,216	10,427	282	0	0	0	0	4,989	0	0
2002	0	0	36,311	18,496	1,662	0	0	0	0	5,404	0	0
2003	0	0	39,532	11,547	2,289	0	0	0	0	6,063	0	7,625
2004	0	0	40,408	12,139	1,774	0	0	23	0	6,095	0	0
2005	0	0	41,496	11,678	1,336	0	0	34	0	5,184	0	5,942
2006	0	0	53,878	12,487	1,415	0	0	5	0	6,653	0	0
2007	0	0	47,639	19,609	1,349	0	0	25	0	7,711	0	0
2008	0	0	33,919	14,256	792	25	0	0	0	4,756	0	0
2009	1,509	0	47,365	11,246	3,889	0	995	0	0	7,200	0	0
2010	**0**	**0**	**44,309**	**21,300**	**1,494**	**0**	**2,300**	**0**	**0**	**6,021**	**0**	**0**
2011	0	0	44,309	21,300	1,494	0	2,300	0	0	6,021	0	0
2012	0	0	44,309	21,300	1,494	0	2,300	0	0	6,021	0	0
2013	0	0	44,309	21,300	1,494	0	2,300	0	0	6,021	0	0
2014	0	0	44,309	21,300	1,494	0	2,300	0	0	6,021	0	0
2015	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2016	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2017	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2018	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2019	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2020	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2021	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2022	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2023	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2024	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2025	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2026	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2027	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2028	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2029	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2030	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2031	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2032	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2033	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2034	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
2035	0	0	48,445	21,300	1,634	0	2,300	0	0	6,580	0	0
TOTAL	11,777	9,429	2,021,127	777,962	63,636	25	74,033	2,436	5,002	287,733	5	(639,649)

(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 DIVISION	
	Reach 22B				Reach 23	Reach 24				Reach 26A	
	MWA	CVWD (e)	DWA (e)	AVEKWA (f)	MWA	CLAWA	MWA	MWDSC (e)	SBVMWD	MWDSC (e)	SBVMWD (g)
	[129]	[130]	[131]	[132]	[133]	[134]	[135]	[136]	[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	55	0	0	0	0	464	0	0	0	0	1,275
1973	0	5,800	9,000	0	0	389	0	0	0	444	32,426
1974	0	6,400	10,000	0	14	627	0	0	0	84,981	16,605
1975	0	7,000	11,000	0	0	825	0	0	0	169,960	13,865
1976	0	7,600	12,000	0	0	1,002	0	0	0	215,312	12,273
1977	22	0	0	0	58	1,109	0	0	0	64,823	24,833
1978	0	10,084	15,300	0	0	1,209	0	0	0	297,708	4,055
1979	4,000	10,063	15,000	0	0	1,260	0	0	0	260,903	18
1980	4,000	10,884	17,000	0	0	1,239	0	0	0	300,345	0
1981	4,000	12,105	19,000	0	0	1,485	0	0	0	395,678	16,021
1982	10,500	13,326	21,000	0	0	1,238	0	0	0	214,566	8,409
1983	0	14,547	23,000	0	0	911	0	0	0	175,288	5,994
1984	0	15,768	25,000	0	0	1,128	0	0	0	122,311	5,556
1985	0	16,989	27,000	0	0	1,422	0	0	0	147,599	7,390
1986	0	18,210	29,000	0	0	1,506	0	0	0	215,265	6,421
1987	17	19,431	31,500	214	0	1,849	0	0	0	175,012	18,751
1988	9	20,652	34,000	0	0	2,006	0	0	0	247,101	21,386
1989	0	21,873	36,500	89	200	2,170	0	0	0	326,217	20,782
1990	0	23,100	38,100	10	0	1,827	0	0	0	399,387	18,831
1991	0	6,930	11,430	0	0	849	2,032	0	0	107,182	3,661
1992	42	10,427	17,197	0	0	519	9,334	0	0	219,524	3,358
1993	0	0	0	0	0	439	10,000	0	0	98,291	4,361
1994	14,634	0	0	0	0	785	819	0	0	192,979	9,135
1995	7,495	0	0	0	0	409	0	0	0	107,299	696
1996	6,111	0	0	0	0	485	0	0	0	73,438	6,064
1997	9,038	0	0	0	0	651	0	0	0	157,215	9,654
1998	2,580	0	0	0	0	187	0	0	0	36,770	1,878
1999	6,705	0	0	0	0	1,132	0	0	0	139,752	12,874
2000	10,019	0	0	0	0	1,194	0	0	0	326,647	0
2001	3,048	0	0	0	0	1,057	0	0	0	284,007	0
2002	2,976	0	0	497	0	2,189	0	0	0	301,700	8,601
2003	13,150	0	0	0	0	1,563	0	17,249	0	464,719	5,000
2004	11,953	0	0	253	0	2,006	0	0	0	428,316	40,000
2005	12,169	0	0	0	0	807	341	14,058	0	361,976	15,834
2006	32,993	0	0	0	0	641	0	0	0	404,594	20,000
2007	44,933	0	0	588	0	1,768	0	0	710	370,971	10,022
2008	24,158	0	0	0	0	689	0	0	411	206,520	4,187
2009	27,585	0	0	0	0	4,297	0	0	350	102,652	6,700
2010	**51,930**	**0**	**0**	**0**	**0**	**3,340**	**0**	**0**	**600**	**307,073**	**20,000**
2011	58,590	0	0	0	0	3,460	0	0	600	307,073	20,000
2012	60,090	0	0	0	0	3,600	0	0	600	307,073	20,000
2013	65,590	0	0	0	0	3,720	0	0	600	307,073	20,000
2014	65,590	0	0	0	0	3,936	0	0	600	307,073	20,000
2015	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2016	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2017	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2018	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2019	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2020	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2021	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2022	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2023	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2024	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2025	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2026	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2027	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2028	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2029	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2030	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2031	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2032	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2033	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2034	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
2035	74,480	0	0	0	0	5,800	0	0	600	307,073	20,000
TOTAL	2,118,062	251,189	402,027	1,651	272	185,189	22,526	31,307	17,071	16,181,350	916,916

(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 was water stored under DWR's Ground Water Demonstation 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	CVWD(e	DWA(e	MWDSC	CVWD	DWA	MWDSC	CVWD	DWA	MWDSC
	[141]	[142]	[143]	[144]	[145]	[146]	[147]	[148]	[149]	[150]
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	18,942	0	0	0	0	0	0
1974	612	0	0	0	0	0	0	0	0	0
1975	5,450	0	0	0	0	0	0	0	0	251
1976	6,071	0	0	0	0	0	55	0	0	2,000
1977	8,996	0	0	0	0	0	43	0	0	2,442
1978	7,771	0	0	0	0	0	48	0	0	64,054
1979	290	0	0	0	0	0	1,290	0	0	94,353
1980	1,085	0	0	0	0	0	3,013	0	0	91,532
1981	3,619	0	0	0	0	0	4,365	0	0	149,405
1982	12,599	0	0	0	0	0	3,961	0	0	155,629
1983	734	0	0	0	0	0	6,645	0	0	41,616
1984	7,656	0	0	0	0	0	109,743	0	0	5,672
1985	5,028	0	0	0	0	0	182,781	0	0	6,538
1986	9,454	0	0	0	0	0	131,439	0	0	30,071
1987	10,630	0	0	0	0	0	144,743	0	0	26,315
1988	8,948	0	0	0	0	0	199,641	0	0	22,209
1989	12,839	0	0	0	0	0	247,430	0	0	51,462
1990	16,649	0	0	0	0	0	257,796	0	0	36,060
1991	5,399	0	0	0	0	0	38,832	0	0	5,958
1992	7,908	0	0	0	0	0	85,341	0	0	12,223
1993	14,397	23,100	38,100	0	0	0	61,841	0	0	4,588
1994	15,230	14,102	23,257	0	0	0	134,262	0	0	4,725
1995	12,922	23,100	38,100	0	0	0	117,762	0	0	21,099
1996	15,989	62,219	102,622	0	0	0	144,906	0	0	12,418
1997	18,175	58,100	53,100	0	0	0	107,853	0	0	47,777
1998	9,310	78,100	58,100	0	6,582	7,708	77,473	1,027	4,839	50,411
1999	21,729	50,480	58,100	0	0	0	206,689	0	0	8,163
2000	0	42,323	58,234	0	0	0	379,713	0	0	7,864
2001	0	9,100	15,010	0	0	0	260,984	0	0	33,414
2002	0	16,755	27,640	0	0	0	340,635	0	0	41,552
2003	0	14,443	23,819	0	0	0	246,485	0	0	50,776
2004	0	15,465	21,190	0	0	0	357,995	0	0	20,437
2005	0	34,356	49,089	0	0	0	242,245	0	0	114,499
2006	0	121,100	50,000	0	0	0	342,734	0	0	32,242
2007	0	66,007	27,253	0	7,221	2,981	271,874	0	0	48,923
2008	0	40,171	24,643	0	6,620	1,785	175,460	0	0	10,432
2009	0	49,738	20,337	0	580	239	116,239	0	0	143,408
2010	**0**	**138,350**	**55,750**	**0**	**0**	**0**	**119,066**	**0**	**0**	**237,859**
2011	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2012	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2013	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2014	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2015	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2016	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2017	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2018	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2019	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2020	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2021	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2022	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2023	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2024	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2025	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2026	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2027	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2028	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2029	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2030	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2031	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2032	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2033	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2034	0	138,350	55,750	0	0	0	119,066	0	0	237,859
2035	0	138,350	55,750	0	0	0	119,066	0	0	237,859
TOTAL	239,490	4,315,759	2,138,094	18,942	21,003	12,713	8,098,032	1,027	4,839	7,634,852

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 EBX1				Reach EBX2C	Reach EBX3A	Reach EBX4B	Reach EBX4B-G
	CVWD	MWDSC	SBVMWD	SGPWD	SBVMWD	SBVMWD	SGPWD	SGPWD
	[151]	[152]	[153]	[154]	[155]	[156]	[157]	[158]
1962	0	0	0		0	0	0	0
1963	0	0	0		0	0	0	0
1964	0	0	0		0	0	0	0
1965	0	0	0		0	0	0	0
1966	0	0	0		0	0	0	0
1967	0	0	0		0	0	0	0
1968	0	0	0		0	0	0	0
1969	0	0	0		0	0	0	0
1970	0	0	0		0	0	0	0
1971	0	0	0		0	0	0	0
1972	0	0	0		0	0	0	0
1973	0	0	0		0	0	0	0
1974	0	0	0		0	0	0	0
1975	0	0	0		0	0	0	0
1976	0	0	0		0	0	0	0
1977	0	0	0		0	0	0	0
1978	0	0	0		0	0	0	0
1979	0	0	0		0	0	0	0
1980	0	0	0		0	0	0	0
1981	0	0	0		0	0	0	0
1982	0	0	0		0	0	0	0
1983	0	0	0		0	0	0	0
1984	0	0	0		0	0	0	0
1985	0	0	0		0	0	0	0
1986	0	0	0		0	0	0	0
1987	0	0	0		0	0	0	0
1988	0	0	0		0	0	0	0
1989	0	0	0		0	0	0	0
1990	0	0	0		0	0	0	0
1991	0	0	0		0	0	0	0
1992	0	0	0		0	0	0	0
1993	0	0	0		0	0	0	0
1994	0	0	0		0	0	0	0
1995	0	0	0		0	0	0	0
1996	0	0	0		0	0	0	0
1997	0	0	0		0	0	0	0
1998	0	0	0		0	0	0	0
1999	0	0	0		0	0	0	0
2000	0	5,466	18,399	15,140	0	0	0	0
2001	0	0	26,488	2,360	0	0	0	0
2002	0	1,427	37,069	24,851	0	0	0	0
2003	0	74,496	16,703	21,934	1,793	2,617	116	0
2004	0	120,338	13,229	12,541	1,430	2,371	841	0
2005	8,163	153,700	12,715	13,984	966	2,035	692	0
2006	0	147,432	11,832	16,284	885	2,614	807	3,471
2007	0	94,208	38,151	4,024	3,130	5,103	177	3,758
2008	0	16,745	25,038	7,212	686	8,823	1,042	3,863
2009	0	0	25,452	11,520	499	2,009	6,097	0
2010	**0**	**95,000**	**82,000**	**28,800**	**0**	**0**	**2,004**	**15,296**
2011	0	95,000	82,000	28,800	0	0	2,004	15,296
2012	0	95,000	82,000	28,800	0	0	2,004	15,296
2013	0	95,000	82,000	28,800	0	0	2,004	15,296
2014	0	95,000	82,000	28,800	0	0	2,004	15,296
2015	0	95,000	82,000	28,800	0	0	2,004	15,296
2016	0	95,000	82,000	28,800	0	0	2,004	15,296
2017	0	95,000	82,000	28,800	0	0	2,004	15,296
2018	0	95,000	82,000	28,800	0	0	2,004	15,296
2019	0	95,000	82,000	28,800	0	0	2,004	15,296
2020	0	95,000	82,000	28,800	0	0	2,004	15,296
2021	0	95,000	82,000	28,800	0	0	2,004	15,296
2022	0	95,000	82,000	28,800	0	0	2,004	15,296
2023	0	95,000	82,000	28,800	0	0	2,004	15,296
2024	0	95,000	82,000	28,800	0	0	2,004	15,296
2025	0	95,000	82,000	28,800	0	0	2,004	15,296
2026	0	95,000	82,000	28,800	0	0	2,004	15,296
2027	0	95,000	82,000	28,800	0	0	2,004	15,296
2028	0	95,000	82,000	28,800	0	0	2,004	15,296
2029	0	95,000	82,000	28,800	0	0	2,004	15,296
2030	0	95,000	82,000	28,800	0	0	2,004	15,296
2031	0	95,000	82,000	28,800	0	0	2,004	15,296
2032	0	95,000	82,000	28,800	0	0	2,004	15,296
2033	0	95,000	82,000	28,800	0	0	2,004	15,296
2034	0	95,000	82,000	28,800	0	0	2,004	15,296
2035	0	95,000	82,000	28,800	0	0	2,004	15,296
TOTAL	8,163	3,083,812	2,357,076	878,650	9,389	25,572	61,876	408,788

TABLE B-5A. Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (continued)									
	WEST BRANCH									
	Reach 29F	Reach 29H		Reach 30						
	AVEKWA	CLWA	VCFCD	CVWD	DWA	MWDSC (h)	VCFCD	SBVMWD	CLWA	SBC FC&WCD
	[159]	[160]	[161]	[162]	[163]	[164]	[165]	[166]	[167]	[168]
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	53	0	0	0	0	71,938	0	0	0	0
1973	20	0	0	0	0	155,297	0	0	0	0
1974	36	0	0	0	0	209,136	0	0	0	0
1975	26	0	0	0	0	374,280	0	0	0	0
1976	24	0	0	0	0	420,684	0	0	0	0
1977	0	0	0	0	0	122,447	0	0	0	0
1978	0	0	0	0	0	171,139	0	0	0	0
1979	0	0	0	0	0	145,591	0	0	7	0
1980	0	0	0	0	0	164,721	0	0	1,210	0
1981	0	0	0	0	0	277,503	0	0	5,761	0
1982	0	0	0	0	0	351,362	0	0	9,516	0
1983	0	0	0	0	0	157,519	0	0	9,476	0
1984	0	0	0	0	0	260,624	0	0	11,477	0
1985	0	0	0	0	0	390,696	0	0	12,401	0
1986	0	0	0	0	0	379,275	0	0	13,928	0
1987	0	0	0	0	0	417,285	0	0	16,167	0
1988	0	0	0	0	0	488,265	0	0	18,904	0
1989	0	0	0	0	0	589,962	0	0	21,719	0
1990	0	0	4,836	0	0	764,380	0	0	22,139	0
1991	0	0	988	0	0	257,835	0	0	3,846	1,240
1992	0	0	0	0	0	420,849	0	0	14,812	0
1993	6	0	0	0	0	437,470	0	0	13,787	0
1994	0	0	0	0	0	475,900	0	0	14,919	0
1995	0	0	0	0	0	139,882	0	0	17,747	0
1996	0	0	0	0	0	267,618	0	0	18,448	0
1997	11	0	0	10,240	16,890	271,379	1,850	0	22,842	0
1998	7	0	0	0	0	187,277	1,850	0	19,782	0
1999	0	0	0	0	0	327,001	1,850	0	28,813	0
2000	0	0	2,200	0	0	632,991	1,850	0	31,085	0
2001	0	0	0	0	0	444,764	1,850	0	30,701	0
2002	0	0	3,148	0	0	723,605	1,850	26,399	42,080	0
2003	0	6,768	3,150	0	0	678,964	1,850	0	44,967	0
2004	0	0	4,047	0	0	797,294	1,203	0	47,463	0
2005	0	0	0	0	0	538,839	1,665	0	36,747	0
2006	0	0	0	0	0	574,679	1,850	0	40,017	0
2007	0	0	1,890	0	0	711,831	1,110	0	45,919	0
2008	0	0	1,980	0	0	485,156	1,818	0	42,878	0
2009	0	0	2,186	0	0	594,826	5,065	0	64,013	0
2010	**0**	**0**	**3,150**	**0**	**0**	**829,575**	**16,850**	**0**	**34,200**	**0**
2011	0	0	3,150	0	0	822,930	16,850	0	34,800	0
2012	0	0	3,150	0	0	822,930	16,850	0	35,400	0
2013	0	0	3,150	0	0	822,930	16,850	0	36,000	0
2014	0	0	3,150	0	0	822,930	16,850	0	36,000	0
2015	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2016	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2017	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2018	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2019	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2020	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2021	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2022	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2023	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2024	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2025	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2026	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2027	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2028	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2029	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2030	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2031	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2032	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2033	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2034	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
2035	0	0	3,150	0	0	1,022,930	16,850	0	95,200	0
TOTAL	183	6,768	106,325	10,240	16,890	40,483,089	463,761	26,399	2,899,171	1,240

(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)							TOTAL	GRAND TOTAL
	COASTAL BRANCH								
	Reach 31A					Reach 33A			
			KCWA						
	DRWD	CK	(M&I)	(AG)	CLWA	SLOC FC&WCD	SBC FC&WCD		
	[170]	[171]	[172]	[173]	[174]	[175]	[176]	[177]	[178]
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	0	0	71,657	7,382	0	0	192,188	294,457
1969	0	0	0	52,094	9,970	0	0	195,705	268,104
1970	0	0	0	71,910	11,739	0	0	276,211	369,459
1971	0	0	0	98,481	12,490	0	0	553,081	654,250
1972	0	0	0	107,850	13,905	0	0	895,006	1,037,584
1973	0	0	0	69,227	9,418	0	0	638,930	737,479
1974	0	0	0	68,474	9,700	0	0	783,984	878,820
1975	0	0	0	74,516	10,700	0	0	1,129,728	1,230,577
1976	0	0	0	78,358	11,700	0	0	1,245,662	1,379,597
1977	0	0	0	35,504	5,075	0	0	465,442	581,675
1978	0	0	0	81,242	11,362	0	0	1,339,268	1,458,154
1979	0	0	0	104,017	19,138	0	0	1,537,075	1,666,155
1980	0	0	0	97,497	13,882	0	0	1,413,363	1,536,189
1981	0	0	0	97,054	12,700	0	0	1,779,479	1,918,342
1982	0	0	0	83,076	12,700	0	0	1,641,571	1,750,528
1983	0	0	0	87,859	12,659	0	0	1,089,626	1,186,831
1984	0	0	0	119,098	12,741	0	0	1,489,814	1,591,131
1985	0	0	0	110,124	12,099	0	0	1,863,544	1,989,925
1986	0	0	0	118,298	13,301	0	0	1,882,290	1,998,514
1987	0	0	0	116,259	11,821	0	0	1,984,570	2,131,061
1988	0	0	0	109,435	11,534	0	0	2,221,538	2,384,434
1989	0	0	0	102,156	14,645	0	0	2,686,838	2,853,044
1990	0	0	0	103,362	6,440	0	0	2,398,121	2,581,277
1991	0	0	0	780	716	0	0	489,489	548,520
1992	0	0	0	73,748	5,887	0	0	1,374,775	1,470,695
1993	0	0	0	90,764	4,157	0	0	2,173,352	2,314,233
1994	0	0	200	77,536	9,422	0	0	1,727,504	1,860,612
1995	0	0	0	85,050	9,486	0	0	1,926,835	2,030,310
1996	0	0	0	100,578	14,052	0	0	2,429,928	2,542,395
1997	0	0	0	97,020	4,870	1,099	7,439	2,263,966	2,404,254
1998	0	0	0	86,879	311	3,592	18,618	1,657,381	1,763,382
1999	0	0	0	92,095	4,086	3,743	20,137	2,755,025	2,897,579
2000	0	0	0	85,215	8,395	3,962	22,741	3,390,079	3,567,585
2001	0	0	0	63,448	1,238	4,283	18,946	2,034,350	2,173,616
2002	0	0	0	65,055	2,737	4,355	27,636	2,738,943	2,907,955
2003	0	0	0	65,691	4,001	4,453	26,968	3,151,625	3,325,936
2004	0	0	0	66,498	3,776	4,165	29,705	3,055,465	3,232,529
2005	4,684	0	0	68,190	2,709	4,251	23,344	3,597,829	3,751,453
2006	0	0	0	85,214	2,735	4,209	23,275	3,526,551	3,688,128
2007	0	49	0	93,954	6,071	3,776	27,740	2,761,880	2,954,309
2008	0	0	17,059	68,385	0	3,404	18,391	2,015,486	2,186,903
2009	0	192	0	31,932	0	5,842	24,406	2,152,886	2,352,561
2010	**0**	**305**	**0**	**85,600**	**0**	**4,830**	**45,486**	**3,496,832**	**3,694,508**
2011	0	305	0	85,600	0	4,830	45,486	3,501,210	3,696,556
2012	0	305	0	85,600	0	4,830	45,486	3,503,190	3,700,082
2013	0	305	0	85,600	0	4,830	45,486	3,504,561	3,707,598
2014	0	305	0	85,600	0	25,000	45,486	3,514,885	3,733,074
2015	0	305	0	85,600	0	25,000	45,486	3,858,246	4,115,936
2016	0	305	0	85,600	0	25,000	45,486	3,858,246	4,115,757
2017	0	305	0	85,600	0	25,000	45,486	3,858,246	4,117,286
2018	0	305	0	85,600	0	25,000	45,486	3,858,246	4,117,911
2019	0	305	0	85,600	0	25,000	45,486	3,858,246	4,118,536
2020	0	305	0	85,600	0	25,000	45,486	3,858,246	4,119,136
2021	0	305	0	85,600	0	25,000	45,486	3,858,246	4,119,236
2022	0	305	0	85,600	0	25,000	45,486	3,858,246	4,119,236
2023	0	305	0	85,600	0	25,000	45,486	3,858,246	4,119,236
2024	0	305	0	85,600	0	25,000	45,486	3,858,246	4,119,236
2025	0	305	0	85,600	0	25,000	45,486	3,858,246	4,119,236
2026	0	305	0	85,600	0	25,000	45,486	3,858,246	4,119,236
2027	0	305	0	85,600	0	25,000	45,486	3,858,246	4,119,236
2028	0	305	0	85,600	0	25,000	45,486	3,858,246	4,119,236
2029	0	305	0	85,600	0	25,000	45,486	3,858,246	4,119,236
2030	0	305	0	85,600	0	25,000	45,486	3,858,246	4,119,236
2031	0	305	0	85,600	0	25,000	45,486	3,858,246	4,119,236
2032	0	305	0	85,600	0	25,000	45,486	3,858,246	4,119,236
2033	0	305	0	85,600	0	25,000	45,486	3,858,246	4,119,236
2034	0	305	0	85,600	0	25,000	45,486	3,858,246	4,119,236
2035	0	305	0	85,600	0	25,000	45,486	3,858,246	4,119,236
TOTAL	4,684	8,171	17,259	5,681,180	351,750	620,454	1,471,982	173,470,227	185,663,626

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	50,910	37,652	82,945	171,507	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	27,636	31,991
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	7,789	35,516	43,305	54,527	43,079	128,210	225,816	4,209	23,275	27,484
2007	10,957	47,300	58,257	40,157	24,391	75,382	139,930	3,776	27,740	31,516
2008	13,292	41,320	54,612	41,186	22,902	59,160	123,248	3,404	18,391	21,795
2009	12,475	36,234	48,709	42,900	38,072	69,158	150,130	5,842	24,406	30,248
2010	**24,625**	**33,348**	**57,973**	**71,826**	**40,000**	**85,000**	**196,826**	**4,830**	**45,486**	**50,316**
2011	24,625	30,348	54,973	69,414	40,000	85,000	194,414	4,830	45,486	50,316
2012	24,625	30,348	54,973	70,620	40,000	85,000	195,620	4,830	45,486	50,316
2013	24,625	30,348	54,973	71,826	40,000	85,000	196,826	4,830	45,486	50,316
2014	24,625	30,348	54,973	71,826	40,000	90,000	201,826	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	79,715	42,000	100,000	221,715	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	967,519	1,817,556	2,785,075	3,060,153	1,980,661	6,029,894	11,070,708	620,654	1,473,222	2,093,876

(a) For the period 1968 through 1987, deliveries are non-Project water pumped through an interim facility.
(b) For the period June 1962 through November 1967, deliveries were supplied by non-Project water.

TABLE B-5B. Annual Water Quantities Delivered to Each Contractor

(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	1,101,653	1,224,137	3,600	4,508	201,294	1,495,877
2001	41,902	1,360	21,460	632,831	654,291	1,560	3,592	84,726	787,431
2002	48,915	1,405	90,917	734,542	825,459	2,854	4,885	96,502	980,020
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	127,719	716,220	843,939	9,053	4,629	90,021	1,000,284
2005	79,005	3,834	92,581	1,305,400	1,397,981	19,806	4,194	140,279	1,645,099
2006	72,080	3,282	99,302	1,163,568	1,262,870	9,530	4,242	108,207	1,460,211
2007	45,135	2,084	0	701,862	701,862	5,746	3,567	87,083	845,477
2008	22,174	947	25,666	744,094	769,760	3,836	1,985	33,904	832,606
2009	31,436	3,902	11,701	747,334	759,035	3,899	2,064	40,755	841,091
2010	**57,343**	**3,000**	**134,600**	**831,680**	**966,280**	**9,305**	**5,300**	**88,922**	**1,130,150**
2011	57,343	3,000	134,600	831,680	966,280	9,305	5,300	88,922	1,130,150
2012	57,343	3,000	134,600	831,680	966,280	9,305	5,300	88,922	1,130,150
2013	57,343	3,000	134,600	831,680	966,280	9,305	5,300	88,922	1,130,150
2014	57,343	3,000	134,600	831,680	966,280	9,305	5,300	88,922	1,130,150
2015	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2016	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2017	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2018	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2019	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2020	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2021	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2022	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2023	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2024	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2025	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2026	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2027	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2028	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2029	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2030	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2031	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2032	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2033	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2034	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
2035	57,343	3,000	134,600	831,680	966,280	9,305	5,700	88,922	1,130,550
TOTAL	3,311,295	171,262	6,306,743	49,678,909	55,985,652	377,343	325,263	5,833,701	66,004,516

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	26,113	21,934
2004	59,731	83,761	15,465	2,006	21,190	0	13,176	12,162	57,030	12,541
2005	59,831	59,456	42,519	807	49,089	0	13,561	11,712	31,550	13,984
2006	80,384	62,752	121,100	641	50,000	0	34,014	12,492	35,331	16,284
2007	80,203	60,190	73,228	1,768	30,234	0	46,109	19,634	57,116	4,024
2008	48,563	42,878	46,791	689	26,428	25	25,396	14,256	39,145	7,212
2009	82,523	64,013	50,318	4,297	20,576	995	29,067	12,755	35,010	11,520
2010	**68,393**	**34,200**	**138,350**	**3,340**	**55,750**	**2,300**	**53,250**	**21,300**	**102,600**	**28,800**
2011	68,393	34,800	138,350	3,460	55,750	2,300	59,910	21,300	102,600	28,800
2012	68,393	35,400	138,350	3,600	55,750	2,300	61,410	21,300	102,600	28,800
2013	68,393	36,000	138,350	3,720	55,750	2,300	66,910	21,300	102,600	28,800
2014	68,393	36,000	138,350	3,936	55,750	2,300	66,910	21,300	102,600	28,800
2015	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2016	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2017	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2018	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2019	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2020	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2021	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2022	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2023	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2024	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2025	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2026	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2027	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2028	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2029	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2030	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2031	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2032	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2033	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2034	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
2035	141,400	95,200	138,350	5,800	55,750	2,300	75,800	21,300	102,600	28,800
TOTAL	5,058,233	3,370,806	4,607,381	185,189	2,574,563	74,063	2,200,049	792,175	3,352,423	1,118,140

(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 Watershed Protection 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	2,898,961
2000	0	1,522,412	4,050	1,806,449	901	586	0	1,487	0	3,569,072
2001	0	1,023,169	1,850	1,188,690	1,065	513	0	1,578	0	2,175,194
2002	0	1,408,919	4,998	1,707,251	1,181	419	0	1,600	0	2,909,555
2003	116	1,701,615	5,000	1,936,350	1,324	551	0	1,875	0	3,327,811
2004	841	1,724,380	5,250	2,007,533	1,434	1,440	0	2,874	0	3,235,403
2005	692	1,528,045	1,665	1,812,911	1,894	527	0	2,421	0	3,753,874
2006	4,278	1,512,186	1,850	1,931,312	5,342	468	0	5,810	0	3,693,938
2007	3,935	1,499,688	3,000	1,879,129	2,327	956	0	3,283	0	2,957,592
2008	4,905	894,313	3,798	1,154,399	1,923	451	243	2,617	0	2,189,277
2009	6,097	957,125	7,251	1,281,547	8,710	795	836	10,341	0	2,362,066
2010	**17,300**	**1,711,500**	**20,000**	**2,257,083**	**4,800**	**4,373**	**2,160**	**11,333**	**0**	**3,703,681**
2011	17,300	1,711,500	20,000	2,264,463	4,800	4,447	2,240	11,487	0	3,705,803
2012	17,300	1,711,500	20,000	2,266,703	4,800	4,537	2,320	11,657	0	3,709,419
2013	17,300	1,711,500	20,000	2,272,923	4,800	4,644	2,410	11,854	0	3,717,042
2014	17,300	1,711,500	20,000	2,273,139	4,800	4,644	2,500	11,944	0	3,742,518
2015	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,600	39,700	0	4,153,036
2016	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,152,857
2017	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,154,386
2018	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,155,011
2019	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,155,636
2020	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,156,236
2021	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,156,336
2022	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,156,336
2023	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,156,336
2024	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,156,336
2025	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,156,336
2026	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,156,336
2027	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,156,336
2028	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,156,336
2029	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,156,336
2030	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,156,336
2031	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,156,336
2032	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,156,336
2033	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,156,336
2034	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,156,336
2035	17,300	1,911,500	20,000	2,616,100	9,600	27,500	2,700	39,800	0	4,156,336
TOTAL	470,664	79,255,898	570,086	103,629,670	252,797	607,137	79,781	939,715	0	186,523,560

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	Opera-tional Losses	Water Supply Delivery	Total	Initial Fill Water	Opera-tional Losses	Water Supply Delivery	Total	Initial Fill Water	Opera-tional 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	16,700	16,700	0	0	7,637	7,637
2004	0	2,181	51,136	53,317	0	0	21,686	21,686	0	0	8,499	8,499
2005	0	935	45,488	46,423	0	0	19,189	19,189	0	0	8,009	8,009
2006	0	1,005	43,305	44,310	0	0	18,651	18,651	0	0	8,081	8,081
2007	0	1,189	58,257	59,446	0	0	27,793	27,793	0	0	11,277	11,277
2008	0	845	54,612	55,457	0	0	19,436	19,436	0	255	13,740	13,995
2009	0	51	48,709	48,760	0	0	7,777	7,777	0	5	12,975	12,980
2010	**0**	**51**	**57,973**	**58,024**	**0**	**0**	**10,603**	**10,603**	**0**	**5**	**24,625**	**24,630**
2011	0	51	54,973	55,024	0	0	10,603	10,603	0	5	24,625	24,630
2012	0	51	54,973	55,024	0	0	10,603	10,603	0	5	24,625	24,630
2013	0	51	54,973	55,024	0	0	10,603	10,603	0	5	24,625	24,630
2014	0	51	54,973	55,024	0	0	10,603	10,603	0	5	24,625	24,630
2015	0	51	73,581	73,632	0	0	10,603	10,603	0	5	25,825	25,830
2016	0	51	74,206	74,257	0	0	10,603	10,603	0	5	26,450	26,455
2017	0	51	74,831	74,882	0	0	10,603	10,603	0	5	27,075	27,080
2018	0	51	75,456	75,507	0	0	10,603	10,603	0	5	27,700	27,705
2019	0	51	76,081	76,132	0	0	10,603	10,603	0	5	28,325	28,330
2020	0	51	76,681	76,732	0	0	10,603	10,603	0	5	28,925	28,930
2021	0	51	76,781	76,832	0	0	10,603	10,603	0	5	29,025	29,030
2022	0	51	76,781	76,832	0	0	10,603	10,603	0	5	29,025	29,030
2023	0	51	76,781	76,832	0	0	10,603	10,603	0	5	29,025	29,030
2024	0	51	76,781	76,832	0	0	10,603	10,603	0	5	29,025	29,030
2025	0	51	76,781	76,832	0	0	10,603	10,603	0	5	29,025	29,030
2026	0	51	76,781	76,832	0	0	10,603	10,603	0	5	29,025	29,030
2027	0	51	76,781	76,832	0	0	10,603	10,603	0	5	29,025	29,030
2028	0	51	76,781	76,832	0	0	10,603	10,603	0	5	29,025	29,030
2029	0	51	76,781	76,832	0	0	10,603	10,603	0	5	29,025	29,030
2030	0	51	76,781	76,832	0	0	10,603	10,603	0	5	29,025	29,030
2031	0	51	76,781	76,832	0	0	10,603	10,603	0	5	29,025	29,030
2032	0	51	76,781	76,832	0	0	10,603	10,603	0	5	29,025	29,030
2033	0	51	76,781	76,832	0	0	10,603	10,603	0	5	29,025	29,030
2034	0	51	76,781	76,832	0	0	10,603	10,603	0	5	29,025	29,030
2035	0	51	76,781	76,832	0	0	10,603	10,603	0	5	29,025	29,030

(a) For the period 1968 through 1987, deliveries are non-SWP water pumped through an interim facility.

TABLE B-6. Annual Water Quantities Conveyed through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(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)	3,474,523	5,182	3,582,368	(15,487)	3,566,881
2001	0	2,784	1,301	95,335	196	99,616	0	222,144	(17,529)	1,872,823	1,978	2,079,416	86,928	2,166,344
2002	0	2,534	(13,938)	123,577	146	112,319	0	225,032	36,404	2,815,000	4,672	3,081,108	(151,719)	2,929,389
2003	0	2,920	(1,399)	132,714	131	134,366	0	226,713	(49,580)	3,193,449	11,362	3,381,944	328,334	3,710,278
2004	0	2,982	(7,240)	125,928	150	121,820	0	40,711	(4,079)	2,979,217	1,337	3,017,186	146,888	3,164,074
2005	0	2,823	(3,565)	108,136	154	107,548	0	120,419	(163,243)	3,665,023	1,270	3,623,469	571,155	4,194,624
2006	0	2,989	(9,645)	118,272	169	111,785	0	14,842	(129,767)	3,571,009	1,208	3,457,292	95,679	3,552,971
2007	0	2,840	14,928	134,172	146	152,086	0	64,160	133,124	2,435,696	830	2,633,810	(387,186)	2,246,624
2008	0	2,215	880	116,562	166	119,823	0	130,066	(3,350)	1,423,292	1,080	1,551,088	(397,953)	1,153,135
2009	0	3,501	(4,822)	150,130	400	149,209	0	126,801	26,215	2,128,311	8,660	2,289,987	204,961	2,494,948
2010	**0**	**3,401**	**179**	**137,543**	**400**	**141,523**	**0**	**122,363**	**14,170**	**3,634,375**	**8,660**	**3,779,568**	**6,618**	**3,786,186**
2011	0	3,351	193	138,133	400	142,077	0	118,654	188	3,639,343	8,660	3,766,845	137,242	3,904,087
2012	0	3,351	0	139,599	400	143,350	0	128,100	(67,943)	3,642,789	8,660	3,711,606	(260,827)	3,450,779
2013	0	3,351	0	145,654	400	149,405	0	128,264	9,749	3,650,215	8,660	3,796,888	145,525	3,942,413
2014	0	3,351	0	160,716	400	164,467	0	130,280	16,625	3,675,601	8,660	3,831,166	(186,678)	3,644,488
2015	0	3,351	0	181,509	400	185,260	0	130,445	32,003	4,039,755	8,660	4,210,863	(31,516)	4,179,347
2016	0	3,351	0	180,605	400	184,356	0	128,415	(28,401)	4,038,851	8,660	4,147,525	205,134	4,352,659
2017	0	3,351	0	181,509	400	185,260	0	128,602	61,309	4,039,755	8,660	4,238,326	119,885	4,358,211
2018	0	3,351	0	181,509	400	185,260	0	128,369	(80,817)	4,039,755	8,660	4,095,967	(194,534)	3,901,433
2019	0	3,351	0	181,509	400	185,260	0	128,613	50,179	4,039,755	8,660	4,227,207	77,224	4,304,431
2020	0	3,351	0	181,509	400	185,260	0	128,690	(366)	4,039,755	8,660	4,176,739	(8,687)	4,168,052
2021	0	3,351	0	181,509	400	185,260	0	128,769	10,725	4,039,755	8,660	4,187,909	(1,095)	4,186,814
2022	0	3,351	0	181,509	400	185,260	0	128,846	(3,483)	4,039,755	8,660	4,173,778	(185,907)	3,987,871
2023	0	3,351	0	181,509	400	185,260	0	128,818	(18,971)	4,039,755	8,660	4,158,262	115,791	4,274,053
2024	0	3,351	0	181,509	400	185,260	0	128,625	11,289	4,039,755	8,660	4,188,329	79,858	4,268,187
2025	0	3,351	0	181,509	400	185,260	0	130,380	(12,518)	4,039,755	8,660	4,166,277	(247,205)	3,919,072
2026	0	3,351	0	181,509	400	185,260	0	128,700	24,308	4,039,755	8,660	4,201,423	246,850	4,448,273
2027	0	3,351	0	181,509	400	185,260	0	128,692	(17,799)	4,039,755	8,660	4,159,308	(12,304)	4,147,004
2028	0	3,351	0	181,509	400	185,260	0	128,783	12,291	4,039,755	8,660	4,189,489	15,430	4,204,919
2029	0	3,351	0	181,509	400	185,260	0	128,671	(9,046)	4,039,755	8,660	4,168,040	(10,778)	4,157,262
2030	0	3,351	0	181,509	400	185,260	0	128,777	20,756	4,039,755	8,660	4,197,948	124,586	4,322,534
2031	0	3,351	0	181,509	400	185,260	0	128,134	(97,726)	4,039,755	8,660	4,078,823	(259,831)	3,818,992
2032	0	3,351	0	181,509	400	185,260	0	128,005	84,999	4,039,755	8,660	4,261,419	138,527	4,399,946
2033	0	3,351	0	181,509	400	185,260	0	127,876	(94,652)	4,039,755	8,660	4,081,639	(184,372)	3,897,267
2034	0	3,351	0	181,509	400	185,260	0	127,725	69,593	4,039,755	8,660	4,245,733	120,375	4,366,108
2035	0	3,351	0	181,509	400	185,260	0	127,379	(242,659)	4,039,755	8,660	3,933,135	(587,531)	3,345,604

(b) For the period June 1962 through November 1967, deliveries were supplied by non-SWP water.

TABLE B-6. Annual Water Quantities Conveyed through Each Pumping and Power Recovery Plant of Project Transportation Facilities

(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	Opera-tional Losses	Reservoir Storage Changes	Deliveries: Water Supply	Deliveries: Recrea-tion	Total	Initial Fill Water	Opera-tional Losses	Reservoir Storage Changes	Deliveries: Water Supply	Deliveries: Recrea-tion	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	3,273,337	4,222	3,419,516	0	37,514	7,726	1,814,685	4,216	1,864,141
2001	0	150,830	(18,830)	1,614,503	1,218	1,747,721	0	31,361	(18,830)	1,318,835	1,211	1,332,577
2002	0	92,905	50,342	2,627,073	3,968	2,774,288	0	41,565	50,342	1,831,874	3,961	1,927,742
2003	0	85,360	(48,181)	2,893,333	10,656	2,941,168	0	43,352	(48,181)	1,909,192	10,645	1,915,008
2004	0	25,865	3,161	2,807,825	652	2,837,503	0	41,551	3,161	2,102,371	649	2,147,732
2005	0	62,569	(159,678)	3,423,490	581	3,326,962	0	35,019	(159,678)	1,846,180	559	1,722,080
2006	0	(12,341)	(120,122)	3,501,308	504	3,369,349	0	30,271	(120,122)	2,077,130	504	1,987,783
2007	0	47,736	118,196	2,225,039	312	2,391,283	0	43,400	118,196	1,976,564	305	2,138,465
2008	0	103,375	(4,230)	1,311,503	361	1,411,009	0	39,056	(4,230)	1,275,016	327	1,310,169
2009	0	69,037	31,037	1,872,660	7,210	1,979,944	0	43,607	31,037	1,461,803	7,010	1,543,457
2010	**0**	**69,678**	**13,991**	**3,490,467**	**7,210**	**3,581,346**	**0**	**44,253**	**13,991**	**2,341,988**	**7,010**	**2,407,242**
2011	0	69,740	(5)	3,494,845	7,210	3,571,790	0	44,263	(5)	2,342,723	7,010	2,393,991
2012	0	70,279	(67,943)	3,496,825	7,210	3,506,371	0	40,817	(67,943)	2,344,963	7,010	2,324,847
2013	0	70,217	9,749	3,498,196	7,210	3,585,372	0	40,755	9,749	2,351,183	7,010	2,408,697
2014	0	70,525	16,625	3,508,520	7,210	3,602,880	0	41,063	16,625	2,351,399	7,010	2,416,097
2015	0	70,654	32,003	3,851,481	7,210	3,961,348	0	41,192	32,003	2,694,360	7,010	2,774,565
2016	0	70,354	(28,401)	3,851,481	7,210	3,900,644	0	40,892	(28,401)	2,694,360	7,010	2,713,861
2017	0	70,586	61,309	3,851,481	7,210	3,990,586	0	41,124	61,309	2,694,360	7,010	2,803,803
2018	0	70,740	(80,817)	3,851,481	7,210	3,848,614	0	41,278	(80,817)	2,694,360	7,010	2,661,831
2019	0	70,564	50,179	3,851,481	7,210	3,979,434	0	41,102	50,179	2,694,360	7,010	2,792,651
2020	0	70,628	(366)	3,851,481	7,210	3,928,953	0	41,166	(366)	2,694,360	7,010	2,742,170
2021	0	70,711	10,725	3,851,481	7,210	3,940,127	0	41,249	10,725	2,694,360	7,010	2,753,344
2022	0	70,705	(3,483)	3,851,481	7,210	3,925,913	0	41,243	(3,483)	2,694,360	7,010	2,739,130
2023	0	70,696	(18,971)	3,851,481	7,210	3,910,416	0	41,234	(18,971)	2,694,360	7,010	2,723,633
2024	0	70,575	11,289	3,851,481	7,210	3,940,555	0	41,113	11,289	2,694,360	7,010	2,753,772
2025	0	70,638	(12,518)	3,851,481	7,210	3,916,811	0	41,176	(12,518)	2,694,360	7,010	2,730,028
2026	0	70,650	24,308	3,851,481	7,210	3,953,649	0	41,188	24,308	2,694,360	7,010	2,766,866
2027	0	70,563	(17,799)	3,851,481	7,210	3,911,455	0	41,101	(17,799)	2,694,360	7,010	2,724,672
2028	0	70,703	12,291	3,851,481	7,210	3,941,685	0	41,241	12,291	2,694,360	7,010	2,754,902
2029	0	70,630	(9,046)	3,851,481	7,210	3,920,275	0	41,168	(9,046)	2,694,360	7,010	2,733,492
2030	0	70,694	20,756	3,851,481	7,210	3,950,141	0	41,232	20,756	2,694,360	7,010	2,763,358
2031	0	70,566	(97,726)	3,851,481	7,210	3,831,531	0	41,104	(97,726)	2,694,360	7,010	2,644,748
2032	0	70,168	84,999	3,851,481	7,210	4,013,858	0	40,706	84,999	2,694,360	7,010	2,827,075
2033	0	70,373	(94,652)	3,851,481	7,210	3,834,412	0	40,911	(94,652)	2,694,360	7,010	2,647,629
2034	0	69,865	69,593	3,851,481	7,210	3,998,149	0	40,403	69,593	2,694,360	7,010	2,811,366
2035	0	69,205	(242,659)	3,851,481	7,210	3,685,237	0	39,743	(242,659)	2,694,360	7,010	2,498,454

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	Opera-tional Losses	Reservoir Storage Changes	Deliveries: Water Supply	Deliveries: Recrea-tion	Total	Initial Fill Water	Opera-tional Losses	Reservoir Storage Changes	Deliveries: Water Supply	Deliveries: Recrea-tion	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	1,691,120	4,216	1,790,146	0	49,690	7,726	1,651,057	4,216	1,712,689
2001	0	71,588	(18,830)	1,233,862	1,211	1,287,831	0	54,742	(18,830)	1,202,670	1,211	1,239,793
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)	1,825,617	10,645	1,895,054	0	57,291	(48,181)	1,789,015	10,645	1,808,770
2004	0	122,559	3,161	2,032,528	649	2,158,897	0	60,847	3,161	1,992,344	649	2,057,001
2005	0	99,523	(159,678)	1,751,799	559	1,692,203	0	53,502	(159,678)	1,711,929	559	1,606,312
2006	0	128,022	(120,122)	1,967,163	504	1,975,567	0	46,463	(120,122)	1,920,919	504	1,847,764
2007	0	139,502	118,196	1,884,571	305	2,142,574	0	59,454	118,196	1,837,181	305	2,015,136
2008	0	97,209	(4,230)	1,201,187	327	1,294,493	0	51,709	(4,230)	1,168,158	327	1,215,964
2009	0	39,977	31,037	1,351,696	7,010	1,429,720	0	39,727	31,037	1,308,056	7,010	1,385,830
2010	**0**	**40,623**	**13,991**	**2,212,900**	**7,010**	**2,274,524**	**0**	**40,373**	**13,991**	**2,161,600**	**7,010**	**2,222,974**
2011	0	40,633	(5)	2,213,635	7,010	2,261,273	0	40,383	(5)	2,162,335	7,010	2,209,723
2012	0	37,187	(67,943)	2,215,875	7,010	2,192,129	0	36,937	(67,943)	2,164,575	7,010	2,140,579
2013	0	37,125	9,749	2,222,095	7,010	2,275,979	0	36,875	9,749	2,170,795	7,010	2,224,429
2014	0	37,433	16,625	2,222,311	7,010	2,283,379	0	37,183	16,625	2,171,011	7,010	2,231,829
2015	0	37,562	32,003	2,565,272	7,010	2,641,847	0	37,312	32,003	2,513,972	7,010	2,590,297
2016	0	37,262	(28,401)	2,565,272	7,010	2,581,143	0	37,012	(28,401)	2,513,972	7,010	2,529,593
2017	0	37,494	61,309	2,565,272	7,010	2,671,085	0	37,244	61,309	2,513,972	7,010	2,619,535
2018	0	37,648	(80,817)	2,565,272	7,010	2,529,113	0	37,398	(80,817)	2,513,972	7,010	2,477,563
2019	0	37,472	50,179	2,565,272	7,010	2,659,933	0	37,222	50,179	2,513,972	7,010	2,608,383
2020	0	37,536	(366)	2,565,272	7,010	2,609,452	0	37,286	(366)	2,513,972	7,010	2,557,902
2021	0	37,619	10,725	2,565,272	7,010	2,620,626	0	37,369	10,725	2,513,972	7,010	2,569,076
2022	0	37,613	(3,483)	2,565,272	7,010	2,606,412	0	37,363	(3,483)	2,513,972	7,010	2,554,862
2023	0	37,604	(18,971)	2,565,272	7,010	2,590,915	0	37,354	(18,971)	2,513,972	7,010	2,539,365
2024	0	37,483	11,289	2,565,272	7,010	2,621,054	0	37,233	11,289	2,513,972	7,010	2,569,504
2025	0	37,546	(12,518)	2,565,272	7,010	2,597,310	0	37,296	(12,518)	2,513,972	7,010	2,545,760
2026	0	37,558	24,308	2,565,272	7,010	2,634,148	0	37,308	24,308	2,513,972	7,010	2,582,598
2027	0	37,471	(17,799)	2,565,272	7,010	2,591,954	0	37,221	(17,799)	2,513,972	7,010	2,540,404
2028	0	37,611	12,291	2,565,272	7,010	2,622,184	0	37,361	12,291	2,513,972	7,010	2,570,634
2029	0	37,538	(9,046)	2,565,272	7,010	2,600,774	0	37,288	(9,046)	2,513,972	7,010	2,549,224
2030	0	37,602	20,756	2,565,272	7,010	2,630,640	0	37,352	20,756	2,513,972	7,010	2,579,090
2031	0	37,474	(97,726)	2,565,272	7,010	2,512,030	0	37,224	(97,726)	2,513,972	7,010	2,460,480
2032	0	37,076	84,999	2,565,272	7,010	2,694,357	0	36,826	84,999	2,513,972	7,010	2,642,807
2033	0	37,281	(94,652)	2,565,272	7,010	2,514,911	0	37,031	(94,652)	2,513,972	7,010	2,463,361
2034	0	36,773	69,593	2,565,272	7,010	2,678,648	0	36,523	69,593	2,513,972	7,010	2,627,098
2035	0	36,113	(242,659)	2,565,272	7,010	2,365,736	0	35,863	(242,659)	2,513,972	7,010	2,314,186

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	Opera-tional Losses	Reservoir Storage Changes	Deliveries: Water Supply	Deliveries: Recrea-tion	Total	Initial Fill Water	Opera-tional Losses	Reservoir Storage Changes	Deliveries: Water Supply	Deliveries: Recrea-tion	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	1,627,123	4,216	1,682,137	0	8,983	(10,472)	958,997	449	957,957
2001	0	39,544	(18,830)	1,187,300	1,211	1,209,225	0	14,526	3,478	709,985	452	728,441
2002	0	60,037	50,342	1,680,514	3,961	1,794,854	0	15,190	8,398	883,432	490	907,510
2003	0	53,320	(48,181)	1,771,048	10,645	1,786,832	0	13,676	(20,787)	1,035,349	355	1,028,593
2004	0	57,962	3,161	1,970,391	649	2,032,163	0	15,581	17,207	1,120,384	171	1,153,343
2005	0	40,949	(159,678)	1,693,409	559	1,575,239	0	2,561	(50,014)	1,116,158	84	1,068,789
2006	0	52,291	(120,122)	1,898,070	504	1,830,743	0	13,170	8,653	1,281,524	98	1,303,445
2007	0	65,423	118,196	1,836,977	305	2,020,901	0	17,957	(5,091)	1,076,227	103	1,089,196
2008	0	50,959	(4,230)	1,145,898	327	1,192,954	0	14,592	5,383	614,066	80	634,121
2009	0	38,177	31,037	1,281,536	7,010	1,357,760	0	20,769	(8,036)	615,446	1,630	629,809
2010	**0**	**38,823**	**13,991**	**2,134,156**	**7,010**	**2,193,980**	**0**	**21,406**	**13,922**	**1,250,381**	**1,630**	**1,287,339**
2011	0	38,833	(5)	2,134,891	7,010	2,180,729	0	21,416	(75)	1,257,161	1,630	1,280,132
2012	0	35,387	(67,943)	2,137,131	7,010	2,111,585	0	20,962	(41,797)	1,258,801	1,630	1,239,596
2013	0	35,325	9,749	2,143,351	7,010	2,195,435	0	20,835	4,742	1,264,421	1,630	1,291,628
2014	0	35,633	16,625	2,143,567	7,010	2,202,835	0	21,002	2,759	1,264,637	1,630	1,290,028
2015	0	35,762	32,003	2,486,528	7,010	2,561,303	0	21,066	22,604	1,348,398	1,630	1,393,698
2016	0	35,462	(28,401)	2,486,528	7,010	2,500,599	0	20,829	(21,084)	1,348,398	1,630	1,349,773
2017	0	35,694	61,309	2,486,528	7,010	2,590,541	0	20,895	33,266	1,348,398	1,630	1,404,189
2018	0	35,848	(80,817)	2,486,528	7,010	2,448,569	0	20,998	(50,078)	1,348,398	1,630	1,320,948
2019	0	35,672	50,179	2,486,528	7,010	2,579,389	0	20,924	31,508	1,348,398	1,630	1,402,460
2020	0	35,736	(366)	2,486,528	7,010	2,528,908	0	20,947	(3,398)	1,348,398	1,630	1,367,577
2021	0	35,819	10,725	2,486,528	7,010	2,540,082	0	20,946	(1,117)	1,348,398	1,630	1,369,857
2022	0	35,813	(3,483)	2,486,528	7,010	2,525,868	0	20,940	(3,434)	1,348,398	1,630	1,367,534
2023	0	35,804	(18,971)	2,486,528	7,010	2,510,371	0	20,939	(18,638)	1,348,398	1,630	1,352,329
2024	0	35,683	11,289	2,486,528	7,010	2,540,510	0	20,881	21,309	1,348,398	1,630	1,392,218
2025	0	35,746	(12,518)	2,486,528	7,010	2,516,766	0	20,965	(11,624)	1,348,398	1,630	1,359,369
2026	0	35,758	24,308	2,486,528	7,010	2,553,604	0	20,930	13,030	1,348,398	1,630	1,383,988
2027	0	35,671	(17,799)	2,486,528	7,010	2,511,410	0	20,861	(6,161)	1,348,398	1,630	1,364,728
2028	0	35,811	12,291	2,486,528	7,010	2,541,640	0	20,961	4,006	1,348,398	1,630	1,374,995
2029	0	35,738	(9,046)	2,486,528	7,010	2,520,230	0	20,955	(913)	1,348,398	1,630	1,370,070
2030	0	35,802	20,756	2,486,528	7,010	2,550,096	0	20,930	8,528	1,348,398	1,630	1,379,486
2031	0	35,674	(97,726)	2,486,528	7,010	2,431,486	0	20,956	(31,057)	1,348,398	1,630	1,339,927
2032	0	35,276	84,999	2,486,528	7,010	2,613,813	0	20,865	43,953	1,348,398	1,630	1,414,846
2033	0	35,481	(94,652)	2,486,528	7,010	2,434,367	0	20,854	(37,929)	1,348,398	1,630	1,332,953
2034	0	34,973	69,593	2,486,528	7,010	2,598,104	0	20,769	28,588	1,348,398	1,630	1,399,385
2035	0	34,313	(242,659)	2,486,528	7,010	2,285,192	0	20,892	(49,219)	1,348,398	1,630	1,321,701

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	Opera-tional Losses	Reservoir Storage Changes	Deliveries: Water Supply	Deliveries: Recrea-tion	Total	Initial Fill Water	Opera-tional Losses	Reservoir Storage Changes	Deliveries: Water Supply	Deliveries: Recrea-tion	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)	864,999	449	831,680	0	4,896	(10,472)	854,980	449	849,853
2001	0	(9,304)	3,478	635,316	452	629,942	0	7,403	3,478	632,420	452	643,753
2002	0	3,810	8,398	805,892	490	818,590	0	9,300	8,398	802,419	490	820,607
2003	0	2,814	(20,787)	962,488	355	944,870	0	(6,586)	(20,787)	941,713	355	914,695
2004	0	(15,558)	17,207	1,047,521	171	1,049,341	0	5,034	17,207	1,035,315	171	1,057,727
2005	0	(18,967)	(50,014)	1,043,564	84	974,667	0	827	(50,014)	1,025,453	84	976,350
2006	0	(21,986)	8,653	1,187,627	98	1,174,392	0	(845)	8,653	1,154,634	98	1,162,540
2007	0	(13,055)	(5,091)	975,802	103	957,759	0	3,060	(5,091)	956,281	103	954,353
2008	0	723	5,383	549,984	80	556,170	0	8,380	5,383	530,642	80	544,485
2009	0	15,419	(8,036)	517,691	1,430	526,504	0	11,949	(8,036)	490,106	1,430	495,449
2010	**0**	**16,056**	**13,922**	**1,157,068**	**1,430**	**1,188,476**	**0**	**12,586**	**13,922**	**1,105,138**	**1,430**	**1,133,076**
2011	0	16,066	(75)	1,163,848	1,430	1,181,269	0	12,596	(75)	1,105,258	1,430	1,119,209
2012	0	15,612	(41,797)	1,165,488	1,430	1,140,733	0	12,142	(41,797)	1,105,398	1,430	1,077,173
2013	0	15,485	4,742	1,171,108	1,430	1,192,765	0	12,015	4,742	1,105,518	1,430	1,123,705
2014	0	15,652	2,759	1,171,324	1,430	1,191,165	0	12,182	2,759	1,105,734	1,430	1,122,105
2015	0	15,716	22,604	1,182,078	1,430	1,221,828	0	12,246	22,604	1,107,598	1,430	1,143,878
2016	0	15,479	(21,084)	1,182,078	1,430	1,177,903	0	12,009	(21,084)	1,107,598	1,430	1,099,953
2017	0	15,545	33,266	1,182,078	1,430	1,232,319	0	12,075	33,266	1,107,598	1,430	1,154,369
2018	0	15,648	(50,078)	1,182,078	1,430	1,149,078	0	12,178	(50,078)	1,107,598	1,430	1,071,128
2019	0	15,574	31,508	1,182,078	1,430	1,230,590	0	12,104	31,508	1,107,598	1,430	1,152,640
2020	0	15,597	(3,398)	1,182,078	1,430	1,195,707	0	12,127	(3,398)	1,107,598	1,430	1,117,757
2021	0	15,596	(1,117)	1,182,078	1,430	1,197,987	0	12,126	(1,117)	1,107,598	1,430	1,120,037
2022	0	15,590	(3,434)	1,182,078	1,430	1,195,664	0	12,120	(3,434)	1,107,598	1,430	1,117,714
2023	0	15,589	(18,638)	1,182,078	1,430	1,180,459	0	12,119	(18,638)	1,107,598	1,430	1,102,509
2024	0	15,531	21,309	1,182,078	1,430	1,220,348	0	12,061	21,309	1,107,598	1,430	1,142,398
2025	0	15,615	(11,624)	1,182,078	1,430	1,187,499	0	12,145	(11,624)	1,107,598	1,430	1,109,549
2026	0	15,580	13,030	1,182,078	1,430	1,212,118	0	12,110	13,030	1,107,598	1,430	1,134,168
2027	0	15,511	(6,161)	1,182,078	1,430	1,192,858	0	12,041	(6,161)	1,107,598	1,430	1,114,908
2028	0	15,611	4,006	1,182,078	1,430	1,203,125	0	12,141	4,006	1,107,598	1,430	1,125,175
2029	0	15,605	(913)	1,182,078	1,430	1,198,200	0	12,135	(913)	1,107,598	1,430	1,120,250
2030	0	15,580	8,528	1,182,078	1,430	1,207,616	0	12,110	8,528	1,107,598	1,430	1,129,666
2031	0	15,606	(31,057)	1,182,078	1,430	1,168,057	0	12,136	(31,057)	1,107,598	1,430	1,090,107
2032	0	15,515	43,953	1,182,078	1,430	1,242,976	0	12,045	43,953	1,107,598	1,430	1,165,026
2033	0	15,504	(37,929)	1,182,078	1,430	1,161,083	0	12,034	(37,929)	1,107,598	1,430	1,083,133
2034	0	15,419	28,588	1,182,078	1,430	1,227,515	0	11,949	28,588	1,107,598	1,430	1,149,565
2035	0	15,542	(49,219)	1,182,078	1,430	1,149,831	0	12,072	(49,219)	1,107,598	1,430	1,071,881

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									
	Devil Canyon Powerplant						Greenspot Pumping Plant			
	Initial Fill Water	Opera-tional Losses	Reservoir Storage Changes	Deliveries: Water Supply	Deliveries: Recrea-tion	Total	Initial Fill Water	Opera-tional Losses	Water Supply Delivery	Total
	[75]	[76]	[77]	[78]	[79]	[80]	[81]	[82]	[83]	[84]
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	37	0	0	1,275	0	1,312	0	0	0	0
1973	40,848	14,745	0	51,812	0	107,405	0	0	0	0
1974	74,666	8,367	(4,925)	102,198	0	180,306	0	0	0	0
1975	10,000	1,995	(6,719)	189,526	0	194,802	0	0	0	0
1976	4,168	5,180	(9,182)	235,711	23	235,900	0	0	0	0
1977	0	8,082	(5,235)	101,137	469	104,453	0	0	0	0
1978	14,820	3,754	21,686	373,636	481	414,377	0	0	0	0
1979	12,302	5,620	(27,107)	356,854	485	348,154	0	0	0	0
1980	0	9,468	12,714	395,975	742	418,899	0	0	0	0
1981	0	8,401	(23,448)	569,088	807	554,848	0	0	0	0
1982	0	6,012	44,469	399,799	1,798	452,078	0	0	0	0
1983	0	8,597	5,188	230,277	1,078	245,140	0	0	0	0
1984	0	12,861	(850)	250,938	1,414	264,363	0	0	0	0
1985	0	14,325	(8,791)	349,336	956	355,826	0	0	0	0
1986	0	9,486	8,339	392,650	1,378	411,853	0	0	0	0
1987	0	7,923	(11,335)	375,451	1,118	373,157	0	0	0	0
1988	0	11,090	2,238	499,285	861	513,474	0	0	0	0
1989	0	13,116	(5,487)	658,730	1,301	667,660	0	0	0	0
1990	0	13,439	(4,622)	728,723	1,281	738,821	0	0	0	0
1991	0	10,836	18,308	161,032	340	190,516	0	0	0	0
1992	0	9,157	(9,084)	328,354	371	328,798	0	0	0	0
1993	0	5,602	5,593	244,678	364	256,237	0	0	0	0
1994	0	10,915	(11,045)	393,690	357	393,917	0	0	0	0
1995	0	11,268	2,331	320,978	358	334,935	0	0	0	0
1996	0	9,496	13,015	417,656	494	440,661	0	0	0	0
1997	0	8,087	(19,685)	451,874	416	440,692	0	0	0	0
1998	0	6,700	16,643	332,198	310	355,851	0	0	0	0
1999	0	9,784	(4,177)	497,787	341	503,735	0	0	0	0
2000	0	7,407	(11,040)	853,786	375	850,528	0	0	0	0
2001	0	9,324	8,183	631,363	374	649,244	0	0	0	0
2002	0	10,315	9,682	800,230	413	820,640	0	0	0	0
2003	0	9,198	(18,298)	922,901	260	914,061	0	0	4,526	4,526
2004	0	11,166	15,150	1,033,309	85	1,059,710	0	0	3,798	3,798
2005	0	4,500	(63,441)	1,010,247	0	951,306	0	0	3,686	3,686
2006	0	8,208	7,571	1,153,993	0	1,169,772	0	0	7,775	7,775
2007	0	8,216	(5,872)	953,803	0	956,147	0	0	12,168	12,168
2008	0	10,599	7,759	533,221	0	551,579	0	0	14,408	14,408
2009	0	7,709	(8,036)	485,459	1,250	486,382	0	0	8,594	8,594
2010	**0**	**8,339**	**11,922**	**1,101,198**	**1,250**	**1,122,709**	**0**	**0**	**17,300**	**17,300**
2011	0	8,348	(75)	1,101,198	1,250	1,110,721	0	0	17,300	17,300
2012	0	8,482	(22,894)	1,101,198	1,250	1,088,036	0	0	17,300	17,300
2013	0	8,499	16,733	1,101,198	1,250	1,127,680	0	0	17,300	17,300
2014	0	8,522	(4,585)	1,101,198	1,250	1,106,385	0	0	17,300	17,300
2015	0	8,499	2,964	1,101,198	1,250	1,113,911	0	0	17,300	17,300
2016	0	8,483	(1,269)	1,101,198	1,250	1,109,662	0	0	17,300	17,300
2017	0	8,502	9,828	1,101,198	1,250	1,120,778	0	0	17,300	17,300
2018	0	8,484	(19,777)	1,101,198	1,250	1,091,155	0	0	17,300	17,300
2019	0	8,492	17,408	1,101,198	1,250	1,128,348	0	0	17,300	17,300
2020	0	8,483	(17,305)	1,101,198	1,250	1,093,626	0	0	17,300	17,300
2021	0	8,486	(398)	1,101,198	1,250	1,110,536	0	0	17,300	17,300
2022	0	8,486	13,735	1,101,198	1,250	1,124,669	0	0	17,300	17,300
2023	0	8,482	(8,417)	1,101,198	1,250	1,102,513	0	0	17,300	17,300
2024	0	8,462	689	1,101,198	1,250	1,111,599	0	0	17,300	17,300
2025	0	8,489	4,591	1,101,198	1,250	1,115,528	0	0	17,300	17,300
2026	0	8,475	(3,819)	1,101,198	1,250	1,107,104	0	0	17,300	17,300
2027	0	8,479	745	1,101,198	1,250	1,111,672	0	0	17,300	17,300
2028	0	8,481	(5,355)	1,101,198	1,250	1,105,574	0	0	17,300	17,300
2029	0	8,481	2,909	1,101,198	1,250	1,113,838	0	0	17,300	17,300
2030	0	8,480	296	1,101,198	1,250	1,111,224	0	0	17,300	17,300
2031	0	8,475	(1,976)	1,101,198	1,250	1,108,947	0	0	17,300	17,300
2032	0	8,449	18,821	1,101,198	1,250	1,129,718	0	0	17,300	17,300
2033	0	8,449	(23,419)	1,101,198	1,250	1,087,478	0	0	17,300	17,300
2034	0	8,443	21,651	1,101,198	1,250	1,132,542	0	0	17,300	17,300
2035	0	8,451	(31,434)	1,101,198	1,250	1,079,465	0	0	17,300	17,300

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)													
	Santa Ana Division (continued)								West Branch, California Aqueduct					
	Crafton Hills Pumping Plant				Cherry Valley Pumping Plant				Oso Pumping Plant					
	Initial Fill Water	Opera-tional Losses	Water Supply Delivery	Total	Initial Fill Water	Opera-tional Losses	Water Supply Delivery	Total	Initial Fill Water	Opera-tional Losses	Reservoir Storage Changes	Deliveries: Water Supply	Deliveries: Recrea-tion	Total
	[85]	[86]	[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	0	0
1962	0	0	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	0	0
1964	0	0	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	0	0
1966	0	0	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	0	0
1968	0	0	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	0	0
1970	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	2,444	133	0	0	0	2,577
1972	0	0	0	0	0	0	0	0	63,883	6,557	(6,405)	71,991	6,481	142,507
1973	0	0	0	0	0	0	0	0	124,461	16,995	4,029	155,317	1,075	301,877
1974	0	0	0	0	0	0	0	0	160,860	12,702	(4,146)	209,172	2,064	380,652
1975	0	0	0	0	0	0	0	0	93,352	23,008	7,704	374,306	3,288	501,658
							0							
1976	0	0	0	0	0	0	0	0	56,954	15,845	(136,116)	420,708	1,429	358,820
1977	0	0	0	0	0	0	0	0	0	4,407	(98,685)	122,447	(20)	28,149
1978	0	0	0	0	0	0	0	0	45,105	9,061	52,774	171,139	176	278,255
1979	0	0	0	0	0	0	0	0	0	25,355	(18,781)	145,598	0	152,172
1980	0	0	0	0	0	0	0	0	0	24,576	(140,168)	165,931	481	50,820
1981	0	0	0	0	0	0	0	0	0	15,254	59,637	283,264	3,179	361,334
1982	0	0	0	0	0	0	0	0	0	23,824	61,685	360,878	2,126	448,513
1983	0	0	0	0	0	0	0	0	0	23,601	(74,308)	166,995	6,111	122,399
1984	0	0	0	0	0	0	0	0	0	12,461	(138,146)	272,101	3,750	150,166
1985	0	0	0	0	0	0	0	0	0	28,257	142,219	403,097	3,728	577,301
1986	0	0	0	0	0	0	0	0	0	22,387	25,288	393,203	1,777	442,655
1987	0	0	0	0	0	0	0	0	0	18,164	(10,252)	433,452	5,698	447,062
1988	0	0	0	0	0	0	0	0	0	20,461	(30,848)	507,169	3,389	500,171
1989	0	0	0	0	0	0	0	0	0	27,914	(40,463)	611,681	6,083	605,215
1990	0	0	0	0	0	0	0	0	0	33,666	(9,176)	791,355	7,491	823,336
1991	0	0	0	0	0	0	0	0	0	16,460	70,754	263,909	4,166	355,289
1992	0	0	0	0	0	0	0	0	0	8,238	(75,008)	435,661	1,572	370,463
1993	0	0	0	0	0	0	0	0	0	2,674	(124,283)	451,263	1,233	330,887
1994	0	0	0	0	0	0	0	0	0	18,688	(91,606)	490,819	2,488	420,389
1995	0	0	0	0	0	0	0	0	0	21,775	14,330	157,629	1,242	194,976
1996	0	0	0	0	0	0	0	0	0	30,121	26,848	286,066	2,363	345,398
1997	0	0	0	0	0	0	0	0	0	30,468	1,892	323,212	1,569	357,141
1998	0	0	0	0	0	0	0	0	0	26,851	(122,848)	208,916	1,222	114,141
1999	0	0	0	0	0	0	0	0	0	25,690	5,679	357,664	2,883	391,916
2000	0	0	0	0	0	0	0	0	0	33,658	18,198	668,126	3,767	723,749
2001	0	0	0	0	0	0	0	0	0	24,551	(22,308)	477,315	759	480,317
2002	0	0	0	0	0	0	0	0	0	44,692	41,944	797,082	3,471	887,189
2003	0	0	2,733	2,733	0	0	111	111	0	39,495	(27,394)	735,699	10,290	758,090
2004	0	0	3,212	3,212	0	0	841	841	0	41,947	(14,046)	850,007	478	878,386
2005	0	0	2,727	2,727	0	0	692	692	0	38,154	(109,664)	577,251	475	506,216
2006	0	0	6,892	6,892	0	0	807	807	0	38,534	(128,775)	616,546	406	526,711
2007	0	0	9,038	9,038	0	0	177	177	0	46,921	123,287	760,750	202	931,160
2008	0	0	13,728	13,728	0	0	1,042	1,042	0	36,204	(9,613)	531,832	247	558,670
2009	0	0	8,106	8,106	0	0	6,097	6,097	0	17,358	39,073	666,090	5,380	727,901
2010	**0**	**0**	**17,300**	**17,300**	**0**	**0**	**2,004**	**2,004**	**0**	**17,367**	**69**	**883,775**	**5,380**	**906,591**
2011	0	0	17,300	17,300	0	0	2,004	2,004	0	17,367	70	877,730	5,380	900,547
2012	0	0	17,300	17,300	0	0	2,004	2,004	0	14,375	(26,146)	878,330	5,380	871,939
2013	0	0	17,300	17,300	0	0	2,004	2,004	0	14,440	5,007	878,930	5,380	903,757
2014	0	0	17,300	17,300	0	0	2,004	2,004	0	14,581	13,866	878,930	5,380	912,757
2015	0	0	17,300	17,300	0	0	2,004	2,004	0	14,646	9,399	1,138,130	5,380	1,167,555
2016	0	0	17,300	17,300	0	0	2,004	2,004	0	14,583	(7,317)	1,138,130	5,380	1,150,776
2017	0	0	17,300	17,300	0	0	2,004	2,004	0	14,749	28,043	1,138,130	5,380	1,186,302
2018	0	0	17,300	17,300	0	0	2,004	2,004	0	14,800	(30,739)	1,138,130	5,380	1,127,571
2019	0	0	17,300	17,300	0	0	2,004	2,004	0	14,698	18,671	1,138,130	5,380	1,176,879
2020	0	0	17,300	17,300	0	0	2,004	2,004	0	14,739	3,032	1,138,130	5,380	1,161,281
2021	0	0	17,300	17,300	0	0	2,004	2,004	0	14,823	11,842	1,138,130	5,380	1,170,175
2022	0	0	17,300	17,300	0	0	2,004	2,004	0	14,823	(49)	1,138,130	5,380	1,158,284
2023	0	0	17,300	17,300	0	0	2,004	2,004	0	14,815	(333)	1,138,130	5,380	1,157,992
2024	0	0	17,300	17,300	0	0	2,004	2,004	0	14,752	(10,020)	1,138,130	5,380	1,148,242
2025	0	0	17,300	17,300	0	0	2,004	2,004	0	14,731	(894)	1,138,130	5,380	1,157,347
2026	0	0	17,300	17,300	0	0	2,004	2,004	0	14,778	11,278	1,138,130	5,380	1,169,566
2027	0	0	17,300	17,300	0	0	2,004	2,004	0	14,760	(11,638)	1,138,130	5,380	1,146,632
2028	0	0	17,300	17,300	0	0	2,004	2,004	0	14,800	8,285	1,138,130	5,380	1,166,595
2029	0	0	17,300	17,300	0	0	2,004	2,004	0	14,733	(8,133)	1,138,130	5,380	1,150,110
2030	0	0	17,300	17,300	0	0	2,004	2,004	0	14,822	12,228	1,138,130	5,380	1,170,560
2031	0	0	17,300	17,300	0	0	2,004	2,004	0	14,668	(66,669)	1,138,130	5,380	1,091,509
2032	0	0	17,300	17,300	0	0	2,004	2,004	0	14,361	41,046	1,138,130	5,380	1,198,917
2033	0	0	17,300	17,300	0	0	2,004	2,004	0	14,577	(56,723)	1,138,130	5,380	1,101,364
2034	0	0	17,300	17,300	0	0	2,004	2,004	0	14,154	41,005	1,138,130	5,380	1,198,669
2035	0	0	17,300	17,300	0	0	2,004	2,004	0	13,371	(193,440)	1,138,130	5,380	963,441

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)											
	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
	[99]	[100]	[101]	[102]	[103]	[104]	[105]	[106]	[107]	[108]	[109]	[110]
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	797,082	3,471	877,555	0	10,071	35,623	793,934	305	839,933
2003	0	28,167	(27,394)	735,699	10,290	746,762	0	9,075	(17,034)	725,781	356	718,178
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	23,453	(128,775)	616,546	406	511,630	0	4,173	(121,607)	616,546	396	499,508
2007	0	29,978	123,287	760,750	202	914,217	0	(1,664)	117,880	758,860	196	875,272
2008	0	36,744	(9,613)	531,832	247	559,210	0	498	(14,279)	529,852	211	516,282
2009	0	15,448	39,073	666,090	5,380	725,991	0	9,723	39,073	663,904	2,330	715,030
2010	**0**	**15,457**	**69**	**883,775**	**5,380**	**904,681**	**0**	**9,732**	**69**	**880,625**	**2,330**	**892,756**
2011	0	15,457	70	877,730	5,380	898,637	0	9,732	70	874,580	2,330	886,712
2012	0	12,465	(26,146)	878,330	5,380	870,029	0	6,180	(26,146)	875,180	2,330	857,544
2013	0	12,530	5,007	878,930	5,380	901,847	0	6,245	5,007	875,780	2,330	889,362
2014	0	12,671	13,866	878,930	5,380	910,847	0	6,386	13,866	875,780	2,330	898,362
2015	0	12,736	9,399	1,138,130	5,380	1,165,645	0	6,451	9,399	1,134,980	2,330	1,153,160
2016	0	12,673	(7,317)	1,138,130	5,380	1,148,866	0	6,388	(7,317)	1,134,980	2,330	1,136,381
2017	0	12,839	28,043	1,138,130	5,380	1,184,392	0	6,554	28,043	1,134,980	2,330	1,171,907
2018	0	12,890	(30,739)	1,138,130	5,380	1,125,661	0	6,605	(30,739)	1,134,980	2,330	1,113,176
2019	0	12,788	18,671	1,138,130	5,380	1,174,969	0	6,503	18,671	1,134,980	2,330	1,162,484
2020	0	12,829	3,032	1,138,130	5,380	1,159,371	0	6,544	3,032	1,134,980	2,330	1,146,886
2021	0	12,913	11,842	1,138,130	5,380	1,168,265	0	6,628	11,842	1,134,980	2,330	1,155,780
2022	0	12,913	(49)	1,138,130	5,380	1,156,374	0	6,628	(49)	1,134,980	2,330	1,143,889
2023	0	12,905	(333)	1,138,130	5,380	1,156,082	0	6,620	(333)	1,134,980	2,330	1,143,597
2024	0	12,842	(10,020)	1,138,130	5,380	1,146,332	0	6,557	(10,020)	1,134,980	2,330	1,133,847
2025	0	12,821	(894)	1,138,130	5,380	1,155,437	0	6,536	(894)	1,134,980	2,330	1,142,952
2026	0	12,868	11,278	1,138,130	5,380	1,167,656	0	6,583	11,278	1,134,980	2,330	1,155,171
2027	0	12,850	(11,638)	1,138,130	5,380	1,144,722	0	6,565	(11,638)	1,134,980	2,330	1,132,237
2028	0	12,890	8,285	1,138,130	5,380	1,164,685	0	6,605	8,285	1,134,980	2,330	1,152,200
2029	0	12,823	(8,133)	1,138,130	5,380	1,148,200	0	6,538	(8,133)	1,134,980	2,330	1,135,715
2030	0	12,912	12,228	1,138,130	5,380	1,168,650	0	6,627	12,228	1,134,980	2,330	1,156,165
2031	0	12,758	(66,669)	1,138,130	5,380	1,089,599	0	6,473	(66,669)	1,134,980	2,330	1,077,114
2032	0	12,451	41,046	1,138,130	5,380	1,197,007	0	6,166	41,046	1,134,980	2,330	1,184,522
2033	0	12,667	(56,723)	1,138,130	5,380	1,099,454	0	6,382	(56,723)	1,134,980	2,330	1,086,969
2034	0	12,244	41,005	1,138,130	5,380	1,196,759	0	5,959	41,005	1,134,980	2,330	1,184,274
2035	0	11,461	(193,440)	1,138,130	5,380	961,531	0	5,176	(193,440)	1,134,980	2,330	949,046

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
	[111]	[112]	[113]	[114]	[115]	[116]	[117]	[118]
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	210	0	0	210
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)	120,313	119,884	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	1,994	115,433	117,427	0	2,034	27,484	29,518
2007	0	3,355	131,590	134,945	0	293	31,516	31,809
2008	0	3,696	107,239	110,935	0	(30)	21,795	21,765
2009	0	802	62,372	63,174	0	212	30,248	30,460
2010	**0**	**802**	**136,221**	**137,023**	**0**	**212**	**50,316**	**50,528**
2011	0	802	136,221	137,023	0	212	50,316	50,528
2012	0	802	136,221	137,023	0	212	50,316	50,528
2013	0	802	136,221	137,023	0	212	50,316	50,528
2014	0	802	156,391	157,193	0	212	70,486	70,698
2015	0	802	156,391	157,193	0	212	70,486	70,698
2016	0	802	156,391	157,193	0	212	70,486	70,698
2017	0	802	156,391	157,193	0	212	70,486	70,698
2018	0	802	156,391	157,193	0	212	70,486	70,698
2019	0	802	156,391	157,193	0	212	70,486	70,698
2020	0	802	156,391	157,193	0	212	70,486	70,698
2021	0	802	156,391	157,193	0	212	70,486	70,698
2022	0	802	156,391	157,193	0	212	70,486	70,698
2023	0	802	156,391	157,193	0	212	70,486	70,698
2024	0	802	156,391	157,193	0	212	70,486	70,698
2025	0	802	156,391	157,193	0	212	70,486	70,698
2026	0	802	156,391	157,193	0	212	70,486	70,698
2027	0	802	156,391	157,193	0	212	70,486	70,698
2028	0	802	156,391	157,193	0	212	70,486	70,698
2029	0	802	156,391	157,193	0	212	70,486	70,698
2030	0	802	156,391	157,193	0	212	70,486	70,698
2031	0	802	156,391	157,193	0	212	70,486	70,698
2032	0	802	156,391	157,193	0	212	70,486	70,698
2033	0	802	156,391	157,193	0	212	70,486	70,698
2034	0	802	156,391	157,193	0	212	70,486	70,698
2035	0	802	156,391	157,193	0	212	70,486	70,698

TABLE B-7. Reconciliation of Capital Costs Allocated to Water Supply and Power Generation

(Thousands of Dollars)

Item	Project Costs Allocated to Water Supply and Power Generation							Capital Costs Allocated to Other Purposes	Total State Water Project Capital Cost
	Misc. Income Credited to Construc-tion (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 & Lake	180	0	0	0	601	0	781	2,876	3,657
Grizzly Valley Dam & Lake Dav	65	0	0	0	59	0	124	9,381	9,505
Antelope Dam & Lake	1	0	0	0	0	0	1	5,863	5,864
Abbey Bridge Dam & Reservoir	0	0	0	0	0	0	0	520	520
Dixie Refuge Dam & Reservoir	0	0	0	0	0	0	0	236	236
Total, Upper Feather Division	246	0	0	0	660	0	906	18,876	19,782
Oroville Division									
Multipurpose Facilities	37,243	0	0	0	429,084	0	466,327	96,903	563,230
Specific Power Facilities	230	0	0	0	104,564	0	104,794	(1,041)	103,753
Total, Oroville Division	37,473	0	0	0	533,648	0	571,121	95,862	666,983
California Aqueduct									
North San Joaquin Division	1,210	0	0	0	81,266	0	82,476	3,115	85,591
San Luis Division	13,152	0	0	0	105,290	0	118,442	4,535	122,977
Total, California Aque	14,362	0	0	0	186,556	0	200,918	7,650	208,568
Delta Facilities	37,311	0	0	0	328,119	0	365,430	13,740	379,170
Planning and Pre-Operation	5,302	0	0	0	57,086	0	62,388	0	62,388
TOTAL, CONSERVATION FA	94,694	0	0	0	1,106,069	0	1,200,763	136,128	1,336,891
TRANSPORTATION FACILITIES									
Upper Feather Division									
Grizzly Valley Pipeline	(17)	0	304	0	0	341	628	0	628
North Bay Aqueduct	396,957	0	676	0	0	108,104	505,737	0	505,737
South Bay Aqueduct	90,502	0	1,743	0	0	128,239	220,484	23,449	243,933
California Aqueduct									
North San Joaquin Division	7,268	0	123	0	0	190,822	198,213	6,932	205,145
San Luis Division	9,216	0	0	0	0	139,454	148,670	8,169	156,840
South San Joaquin Division	3,864	0	3,979	2,093	0	296,779	306,715	17,762	324,477
Tehachapi Division	(1,149)	0	0	5,230	0	343,156	347,237	20,625	367,863
Mojave Division	(690)	0	1,012	0	0	321,556	321,878	39,893	361,771
Santa Ana Division	(10,601)	0	6,050	5,331	0	437,144	437,924	44,650	482,574
West Branch	39,488	0	461	37	0	499,977	539,963	33,175	573,138
Coastal Branch	9,389	0	176	0	0	497,913	507,478	0	507,478
Total, California Aque	56,785	0	11,801	12,691	0	2,726,802	2,808,079	171,206	2,979,285
TOTAL, TRANSPORTATION FACILI	544,227	0	14,524	12,691	0	2,963,486	3,534,928	194,655	3,729,583
East Branch Enlargement	0	0	0	0	0	902,182	902,182	0	902,182
East Branch Extention	0	0	0	0	0	379,436	379,436	0	379,436
Coastal Power Allocation	0	0	0	0	0	30,708	30,708	0	30,708
Agricultural Drainage Facilities	0	0	0	0	0	0	0	98,300	98,300
Off-Aqueduct Power Generation F	0	0	0	0	0	494,113	494,113	0	494,113
Small Hydro Power Generation Fa	0	0	0	0	14,095	85,405	99,500	0	99,500
Land Purchase - Kern Water Ban	0	0	0	0	34,686	0	34,686	0	34,686
Unassigned / Miscellaneous	0	0	0	0	0	0	0	8,118	8,118
Davis-Grunsky	0	0	0	0	0	0	0	130,000	130,000
TOTAL THROUGH 2015	638,921	0	14,524	12,691	1,154,850	4,855,330	6,676,317	567,201	7,243,518

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 (Published Appendix B 132-09 ,blue binder). Mojave Division total reduced by $85,405,000 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)						
	1952-2006	2007	2008	2009	2010	2011	Total
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
FEATHER RIVER AREA							
County of Butte	136,546	25,229	62,665	10,000	15,000	0	249,440
Plumas County Flood Control and Water Conservation District	3,691	2,808	2,224	1,000	1,000	0	10,723
Thermalito Irrigation District (b)	43,939	0	0	0	0	0	43,939
Subtotal	184,176	28,037	64,889	11,000	16,000	0	304,102
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	403,126	12,357	0	0	0	0	415,483
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	1,730,885	12,357	0	0	0	0	1,743,242
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
County of Kings	0	0	0	5,000	25,000	0	30,000
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	3,099,748	42,830	112,761	45,000	60,000	0	3,360,339
Oak Flat Water District	50,272	30,091	17,280	5,000	10,000	0	112,643
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	3,836,535	72,921	130,041	55,000	95,000	0	4,189,497
SOUTHERN CALIFORNIA AREA							
Antelope Valley-East Kern Water Agency	434,436	25,385	19,609	90,000	65,000	0	634,430
Castaic Lake Water Agency	375,593	0	0	0	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	20,000	25,000	0	256,765
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	74,669	14,412	10,446	20,000	25,000	0	144,527
The Metropolitan Water District of Southern California	4,814,078	0	0	0	0	0	4,814,078
Ventura County Watershed Protection District	79,699	0	0	0	0	0	79,699
Subtotal	7,202,824	39,797	30,055	130,000	115,000	0	7,517,676
TOTAL	13,723,385	153,112	224,985	196,000	226,000	0	14,523,482

(a) Approximate only, not to be construed as invoice amounts.

(b) Not an SWP water supply contractor.

(c) Not an 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)		Net Over or Underpayment With Interest (c)
				Jan-Jun	Jul-Dec	
	[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)													
									(1,532,433)				(10,104,646)	(11,637,079)
28J	3. Advance Payments Applied to Incremental Costs Amendment 5 (f)													
	0	1,240,000	1,483,180	2,469,325	(927,035)	1,729,160	3,215,258	2,967,475	1,690,000	(9,488,722)				4,378,641
	4. Interest Credits-Amendment 5 (g)													
										(2,721,803)				(2,721,803)
	5. Net Required Advance of Funds													
	0	9,296,000	10,578,143	3,992,577	7,383,616	5,155,896	4,301,303	(1,277,332)	(14,233,829)	(12,210,525)			(10,461,314)	2,524,535
	SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT													
	Incremental Costs													
25			25,730	44,053	38,075	17,959	5,900	6,835						138,552
	Total Unadjusted Incremental Costs for Past Payments													
			25,730	44,053	38,075	17,959	5,900	6,835						138,552
	Current 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													
			0	184,422	49,052	44,911	61,588	(20,263)	(180,465)				(h (86,133)	53,112
	ANTELOPE VALLEY-EAST KERN WATER AGENCY													
	Incremental Costs													
29A				1,645	6,326	13,376	10,048	2,018	308	96		190		34,007
29F						1,700	1,700							3,400
	Total Unadjusted Incremental Costs for Past Payments													
				1,645	6,326	15,076	11,748	2,018	308	96		190		37,407
	Current Adjustment													
	1. Advance Payments Applied to Incremental Costs (d)													
				85,495	52,625	101,648	34,062	(12,794)	(189,120)	0		0	(34,509)	37,407
	2. Interest Credit													
									(16,234)				(100,360)	(116,594)
	3. Net Required Advance of Funds												(h	
				85,495	52,625	101,648	34,062	(12,794)	(205,354)	0		0	(134,869)	(79,187)

(d) Actual payments are shown for 1965 through 1976 with 1981 adjusted to reflect overpayments and underpayments without interest for prior years.
(e) Interest for overpayments and underpayments under provisions of Amendment 2 of the contract.
(f) Actual payments are shown for 1965 through 1973 with 1974 adjusted to reflect overpayments and underpayments without interest for prior years.
(g) Interest for overpayments and underpayments under provisions of Amendment 5 of the contract.
(h) Amounts in excess of incremental costs, under the provisions of the contract, reduce the Transportation Charge capital cost component of the Agency's Statement of Charges for January 1981.

TABLE B-10. Capital Costs of Each Aqueduct Reach to be Reimbursed through Capital Cost Component of Transportation Charge

(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	71,950	35,515	33,879	32,613	173,957	162,161	25,329	35,716	24,347
2000	24	29,992	8,327	11,711	4,156	54,186	100,654	15,688	24,144	19,652
2001	20	10,597	3,904	3,892	1,954	20,347	436,756	4,272	118,836	4,207
2002	14	27,018	18,971	15,254	4,614	65,857	3,068,535	5,648	329,244	64,425
2003	0	14,733	9,243	4,658	46,313	74,947	4,465,569	200,125	199,457	360,387
2004	0	23,929	2,214	2,341	145,290	173,774	1,257,335	861,088	472,064	99,547
2005	0	89,345	190	9	33,932	123,476	1,224,471	859,812	702,502	(83)
2006	5	33,251	1,820	145	881,188	916,404	2,851,417	630,461	1,082,608	762
2007	0	80,438	12,158	35	3,227,794	3,320,425	3,098,406	603,553	1,690,586	3,071
2008	4	87,455	15,639	68	7,883,736	7,986,898	5,602,386	546,151	2,111,306	3,471
2009	0	110,088	38,280	10,001	427,187	585,556	11,782,813	1,116,834	3,487,124	13,686
2010	**0**	**360,389**	**27,509**	**379**	**175,254**	**563,531**	**5,321,482**	**687,464**	**2,200,714**	**15,500**
2011	0	263,084	27,084	0	128,366	418,534	202,903	39,055	153,749	11,643
2012	0	218,663	27,084	0	106,822	352,569	168,373	31,272	122,616	9,681
2013	0	34,341	27,084	0	17,430	78,855	40,899	2,538	7,680	2,440
2014	0	34,341	27,084	0	17,430	78,855	40,899	2,538	7,680	2,440
2015	0	34,341	27,084	0	17,430	78,855	40,899	2,538	7,680	2,440
2016	0	34,341	27,084	0	17,430	78,855	40,899	2,538	7,680	2,440
2017	0	34,341	27,084	0	17,430	78,855	40,899	2,538	7,680	2,440
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	341,134	43,292,914	33,338,042	4,621,975	26,851,111	108,104,042	58,674,185	7,381,537	18,016,768	11,809,699

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	1,533	3,304	12,727	31,634	296,751	2,208,776	88,951	90,639	2,388,366
2000	2,406	4,944	5,331	10,755	183,574	(706,517)	57,503	40,185	(608,829)
2001	91,721	68,849	404,226	1,190,653	2,319,520	371,407	91,792	8,926	472,125
2002	229,409	453,259	1,107,580	2,977,939	8,236,039	388,781	44,543	22,639	455,963
2003	67,216	509,964	477,926	1,409,228	7,689,872	178,162	22,779	13,565	214,506
2004	3,193	3,100	39,326	3,276,907	6,012,560	892,410	15,333	77,640	985,383
2005	5,340	5,267	4,842	731,498	3,533,649	294,112	40,105	98,484	432,701
2006	1,395	1,626	1,753	16,522	4,586,544	350,060	18,112	179,782	547,954
2007	7,895	9,338	10,113	18,074	5,441,036	375,363	74,592	132,714	582,669
2008	7,857	9,740	10,734	19,983	8,311,628	849,240	59,866	97,728	1,006,834
2009	11,442	15,077	16,386	33,869	16,477,231	1,971,745	100,768	526,222	2,598,735
2010	**51,320**	**54,581**	**56,229**	**88,477**	**8,475,767**	**1,582,062**	**235,632**	**2,789,882**	**4,607,576**
2011	37,303	40,549	42,211	68,238	595,651	1,121,877	176,565	94,056	1,392,498
2012	29,520	32,766	34,428	57,058	485,714	762,286	147,635	79,592	989,513
2013	786	4,032	5,694	15,786	79,855	89,301	33,776	22,662	145,739
2014	786	4,032	5,694	15,786	79,855	89,301	33,776	22,662	145,739
2015	786	4,032	5,694	15,786	79,855	89,301	33,776	22,662	145,739
2016	786	4,032	5,694	15,786	79,855	89,301	33,776	22,662	145,739
2017	786	4,032	5,694	15,786	79,855	89,301	33,776	22,662	145,739
2018	0	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0	0
2021	0	0	0	0	0	0	0	0	0
2022	0	0	0	0	0	0	0	0	0
2023	0	0	0	0	0	0	0	0	0
2024	0	0	0	0	0	0	0	0	0
2025	0	0	0	0	0	0	0	0	0
2026	0	0	0	0	0	0	0	0	0
2027	0	0	0	0	0	0	0	0	0
2028	0	0	0	0	0	0	0	0	0
2029	0	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0	0
2035	0	0	0	0	0	0	0	0	0
TOTAL	1,113,054	5,109,587	7,157,087	18,977,162	128,239,079	119,529,553	43,672,577	27,619,944	190,822,074

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	158,902	100,061	41,691	1,901,382	2,220,223	5,706	25,179	23,510
2000	101,618	373,699	78,036	36,186	1,139,073	1,728,612	3,922	23,591	29,281
2001	(10,513)	(47,112)	519,031	(3,546)	61,595	519,455	2,280	17,030	21,196
2002	12,237	24,434	6,079,343	3,454	(2,453,483)	3,665,985	3,627	44,010	20,221
2003	8,864	79,647	(5,377,004)	7,923	2,183,795	(3,096,775)	2,130	18,793	16,716
2004	(16,126)	(14,365)	(50,563)	(2,487)	(459,225)	(542,766)	22,520	5,980	3,879
2005	261	11,349	129,456	3,526	995,247	1,139,839	26,301	11,586	6,317
2006	1,421	34,227	(6,467)	2,176	(268,902)	(237,545)	6,370	4,261	2,733
2007	2	123,863	79,652	14,201	46,751	264,469	13,939	27,377	16,540
2008	4,103	(20,439)	47,606	11,960	1,161,103	1,204,333	9,606	18,656	12,300
2009	0	2,286,315	40,681	12,123	51,297	2,390,416	693	23,947	16,129
2010	**0**	**3,487,141**	**151,684**	**49,123**	**125,301**	**3,813,249**	**693**	**92,052**	**53,129**
2011	0	1,348,176	113,208	36,298	99,650	1,597,332	693	68,445	40,304
2012	0	151,795	93,953	29,880	86,813	362,441	693	56,632	33,885
2013	0	25,269	18,171	4,620	36,290	84,350	693	10,136	8,626
2014	0	25,269	18,171	4,620	36,290	84,350	693	10,136	8,626
2015	0	25,269	18,171	4,620	36,290	84,350	693	10,136	8,626
2016	0	25,269	18,171	4,620	36,290	84,350	693	10,136	8,626
2017	0	25,269	18,171	4,620	36,290	84,350	693	10,136	8,626
2018	0	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0	0
2021	0	0	0	0	0	0	0	0	0
2022	0	0	0	0	0	0	0	0	0
2023	0	0	0	0	0	0	0	0	0
2024	0	0	0	0	0	0	0	0	0
2025	0	0	0	0	0	0	0	0	0
2026	0	0	0	0	0	0	0	0	0
2027	0	0	0	0	0	0	0	0	0
2028	0	0	0	0	0	0	0	0	0
2029	0	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0	0
2035	0	0	0	0	0	0	0	0	0
TOTAL	20,824,725	38,915,654	24,162,713	6,124,651	49,426,585	139,454,328	948,053	13,434,079	11,353,210

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	47,359	17,022	13,362	34,410	31,539	260,623	24,634	14,826	264,538
2000	43,459	21,186	32,480	40,180	25,119	168,825	15,243	11,006	151,512
2001	42,731	14,471	22,325	34,996	8,027	71,645	4,537	3,988	66,918
2002	87,805	19,626	7,157	78,600	47,505	276,160	22,632	34,980	164,596
2003	22,946	9,280	8,935	18,115	15,308	136,433	6,671	9,686	110,492
2004	5,493	3,291	4,188	7,001	5,787	52,563	5,588	1,490	50,520
2005	7,309	6,323	12,572	6,301	6,351	21,570	12,561	47	9,057
2006	2,693	2,435	3,990	2,337	5,789	9,283	3,865	3,293	9,064
2007	17,873	16,518	28,138	15,248	21,622	63,927	27,409	6,027	38,359
2008	12,635	12,301	18,121	10,666	18,644	52,562	17,165	7,607	37,036
2009	16,779	17,229	23,683	13,993	20,013	76,756	22,043	5,587	46,980
2010	**59,678**	**54,229**	**97,687**	**50,993**	**57,013**	**474,482**	**96,046**	**5,587**	**376,520**
2011	44,808	41,404	72,036	38,168	44,188	430,987	70,395	5,587	358,490
2012	37,367	34,986	59,199	31,750	37,770	409,220	57,558	5,587	349,468
2013	8,080	9,726	8,677	6,490	12,510	51,310	7,036	5,587	36,432
2014	8,080	9,726	8,677	6,490	12,510	51,310	7,036	5,587	36,432
2015	8,080	9,726	8,677	6,490	12,510	51,310	7,036	5,587	36,432
2016	8,080	9,726	8,677	6,490	12,510	51,310	7,036	5,587	36,432
2017	8,080	9,726	8,677	6,490	12,510	51,310	7,036	5,587	36,432
2018	0	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0	0
2021	0	0	0	0	0	0	0	0	0
2022	0	0	0	0	0	0	0	0	0
2023	0	0	0	0	0	0	0	0	0
2024	0	0	0	0	0	0	0	0	0
2025	0	0	0	0	0	0	0	0	0
2026	0	0	0	0	0	0	0	0	0
2027	0	0	0	0	0	0	0	0	0
2028	0	0	0	0	0	0	0	0	0
2029	0	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0	0
2035	0	0	0	0	0	0	0	0	0
TOTAL	10,650,182	12,812,869	11,588,899	8,569,337	16,412,671	67,975,046	9,442,041	7,250,248	48,338,421

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	361,516	1,124,224	662,144	12,166	674,310	113,232	49,150	5,329	171,935
2000	372,997	938,801	408,352	14,333	422,685	120,267	90,145	936	83,478
2001	167,694	477,838	266,815	10,891	277,706	65,580	186,973	2,223	343,775
2002	286,748	1,093,667	247,986	9,586	257,572	35,787	(139,334)	1,374	(111,675)
2003	159,978	535,483	189,022	12,339	201,361	84,434	(19,049)	0	(11,367)
2004	322,068	490,368	372,622	4,637	377,259	19,723	17,430	0	18,763
2005	43,850	170,145	2,264,414	6,561	2,270,975	26,984	18,894	0	25,122
2006	20,961	77,074	5,866,351	9,730	5,876,081	9,673	6,483	0	7,570
2007	116,748	409,725	3,918,187	36,957	3,955,144	67,527	44,493	0	54,472
2008	87,886	315,185	716,578	38,534	755,112	41,758	30,439	0	34,898
2009	110,736	394,568	7,399,178	49,720	7,448,898	58,815	40,777	0	44,184
2010	**652,479**	**2,070,588**	**9,864,590**	**86,720**	**9,951,310**	**154,266**	**151,780**	**0**	**192,191**
2011	563,445	1,778,950	6,433,245	73,895	6,507,140	249,334	113,304	0	140,889
2012	518,889	1,633,004	1,055,897	67,477	1,123,374	232,777	94,049	0	115,215
2013	58,648	223,951	198,429	42,217	240,646	39,459	18,267	0	14,170
2014	58,648	223,951	198,429	42,217	240,646	39,459	18,267	0	14,170
2015	58,648	223,951	198,429	42,217	240,646	39,459	18,267	0	14,170
2016	58,648	223,951	198,429	42,217	240,646	39,459	18,267	0	14,170
2017	58,648	223,951	198,429	42,217	240,646	39,459	18,267	0	14,170
2018	0	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0	0
2021	0	0	0	0	0	0	0	0	0
2022	0	0	0	0	0	0	0	0	0
2023	0	0	0	0	0	0	0	0	0
2024	0	0	0	0	0	0	0	0	0
2025	0	0	0	0	0	0	0	0	0
2026	0	0	0	0	0	0	0	0	0
2027	0	0	0	0	0	0	0	0	0
2028	0	0	0	0	0	0	0	0	0
2029	0	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0	0
2035	0	0	0	0	0	0	0	0	0
TOTAL	78,003,952	296,779,008	287,971,977	55,184,347	343,156,324	51,870,119	24,224,307	759,941	18,992,704

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	58,392	37,660	17,874	1,006,721	2,208,657	123,472	3,792,422	224,119	843,638
2000	75,230	44,857	20,181	724,837	1,251,684	83,871	2,495,486	129,156	1,285,637
2001	121,907	77,799	54,526	550,843	342,965	26,780	1,773,371	73,031	447,282
2002	(82,663)	(7,369)	(43,431)	270,386	269,139	71,793	264,007	54,815	1,753,554
2003	(7,564)	(3,238)	(3,009)	382,025	146,659	30,255	599,146	86,731	350,997
2004	12,619	13,744	5,414	262,810	48,570	12,285	411,358	13,577	275,709
2005	18,863	25,068	6,373	63,039	104,794	144,227	433,364	16,919	120,247
2006	5,730	6,603	19,169	79,402	298,377	621,795	1,054,802	25,105	18,960
2007	42,401	50,846	37,428	267,247	943,154	139,528	1,647,096	34,567	71,910
2008	27,475	29,224	37,561	476,293	3,140,165	2,084,463	5,902,276	29,695	83,883
2009	36,188	36,489	17,611	2,778,662	67,278	1,637,834	4,717,838	46,925	1,004,826
2010	**147,192**	**184,497**	**54,611**	**7,985,159**	**149,862**	**41,335**	**9,060,893**	**46,925**	**1,944,100**
2011	108,715	133,194	41,786	6,265,109	371,603	41,335	7,465,269	46,925	1,244,427
2012	89,460	107,520	35,368	919,554	357,278	41,335	1,992,556	46,925	153,414
2013	13,678	6,476	10,108	98,554	50,532	41,335	292,579	46,925	34,797
2014	13,678	6,476	10,108	98,554	50,532	41,335	292,579	46,925	34,797
2015	13,678	6,476	10,108	98,554	50,532	41,335	292,579	46,925	34,797
2016	13,678	6,476	10,108	98,554	50,532	41,335	292,579	46,925	34,797
2017	13,678	6,476	10,108	98,554	50,532	41,335	292,579	46,925	34,797
2018	0	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0	0
2021	0	0	0	0	0	0	0	0	0
2022	0	0	0	0	0	0	0	0	0
2023	0	0	0	0	0	0	0	0	0
2024	0	0	0	0	0	0	0	0	0
2025	0	0	0	0	0	0	0	0	0
2026	0	0	0	0	0	0	0	0	0
2027	0	0	0	0	0	0	0	0	0
2028	0	0	0	0	0	0	0	0	0
2029	0	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0	0
2035	0	0	0	0	0	0	0	0	0
TOTAL	18,228,327	8,975,218	13,191,515	144,692,642	69,392,860	56,633,614	406,961,247	61,184,275	49,545,560

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	84,683	45,293	324,223	1,521,956	296,520	37,641	1,080,682	125,373	51,213
2000	64,095	41,331	114,224	1,634,443	212,174	33,747	238,676	116,588	13,241
2001	20,193	13,635	88,656	642,797	43,281	6,448	104,127	110,850	10,737
2002	53,787	12,619	196,949	2,071,724	171,190	30,767	252,912	60,146	7,881
2003	1,096,665	2,482,179	179,466	4,196,038	50,519	9,141	103,160	57,712	51,000
2004	1,736,308	856,587	24,559	2,906,740	47,768	6,780	27,718	107,695	215,925
2005	2,049,633	410,004	270,861	2,867,664	273,455	12,746	54,353	6,596	52,365
2006	2,303,744	409,854	2,577,308	5,334,971	662,888	23,640	134,771	4,647	2,305,597
2007	10,422	1,113,839	3,687,510	4,918,248	121,819	60,464	2,019,430	292,020	30,253
2008	801,744	894,144	681,189	2,490,655	2,075,582	57,073	174,482	1,002,600	39,118
2009	12,324,797	24,394	7,469,332	20,870,274	1,498,782	1,025,258	116,209	622,581	59,432
2010	**23,362**	**24,394**	**11,076,307**	**13,115,088**	**361,278**	**986,101**	**198,792**	**93,781**	**59,432**
2011	23,362	24,394	102,075,807	103,414,915	345,477	88,175	420,533	80,956	59,432
2012	23,362	24,394	67,467,707	67,715,802	533,714	75,338	406,208	74,538	59,432
2013	23,362	24,394	43,207	172,685	30,717	24,816	99,462	49,278	59,432
2014	23,362	24,394	43,207	172,685	30,717	24,816	99,462	49,278	59,432
2015	23,362	24,394	43,207	172,685	30,717	24,816	99,462	49,278	59,432
2016	23,362	24,394	43,207	172,685	30,717	24,816	99,462	49,278	59,432
2017	23,362	24,394	43,207	172,685	30,717	24,816	99,462	49,278	59,432
2018	0	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0	0
2021	0	0	0	0	0	0	0	0	0
2022	0	0	0	0	0	0	0	0	0
2023	0	0	0	0	0	0	0	0	0
2024	0	0	0	0	0	0	0	0	0
2025	0	0	0	0	0	0	0	0	0
2026	0	0	0	0	0	0	0	0	0
2027	0	0	0	0	0	0	0	0	0
2028	0	0	0	0	0	0	0	0	0
2029	0	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0	0
2035	0	0	0	0	0	0	0	0	0
TOTAL	44,910,505	30,095,806	251,407,718	437,143,864	43,055,753	34,382,027	129,411,727	66,072,230	78,374,350

(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								Total	
	Reach 30	Subtotal	Reach 31A	Reach 33A	Reach 33B	Reach 34	Reach 35	Reach 37	Reach 38	Subtotal		
	[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	118,013	1,709,442	288,236	2,906,010	4,398,935	2,616,574	356,318	36,680	51,648	10,654,401	24,085,344	24,556,054
2000	187,926	802,352	132,435	228,901	2,965,936	2,746,120	17,830	0	0	6,091,222	13,504,772	13,742,556
2001	23,847	299,290	103,281	(7,057)	568,968	3,960	(1,112)	0	0	668,040	5,130,622	7,470,509
2002	62,684	585,580	98,021	147,827	105,972	77,266	13,119	0	0	442,205	8,836,703	17,138,613
2003	34,282	305,814	42,075	43,753	31,706	25,734	6,272	0	0	149,540	3,105,113	10,869,932
2004	16,535	422,421	26,667	13,644	21,479	3,142	1,942	0	0	66,874	5,117,637	11,303,971
2005	594,037	993,552	29,322	(260,207)	38,485	694	510	0	0	(191,196)	8,117,044	11,774,169
2006	173,407	3,304,950	8,507	503,441	45,279	86,265	99,586	0	0	743,078	16,701,365	22,204,318
2007	83,716	2,607,702	45,689	686,427	105,319	131,327	116,075	0	0	1,084,837	15,469,890	24,231,351
2008	124,251	3,473,106	47,925	829,853	90,627	161,330	156,081	0	0	1,285,816	16,433,317	32,731,847
2009	201,454	3,523,716	60,400	152,392	140,244	67,134	41,649	0	0	461,819	42,406,264	59,469,051
2010	**2,736,688**	**4,436,072**	**274,161**	**338,997**	**140,244**	**67,134**	**41,649**	**0**	**0**	**862,185**	**47,916,961**	**56,956,259**
2011	7,718,366	8,712,939	197,716	272,264	140,244	67,134	41,649	0	0	719,007	131,588,050	132,602,235
2012	161,530	1,310,760	162,726	241,719	140,244	67,134	41,649	0	0	653,472	75,780,922	76,619,205
2013	111,007	374,712	16,995	114,501	140,244	67,134	41,649	0	0	380,523	1,915,185	2,073,895
2014	111,007	374,712	16,995	114,501	140,244	67,134	41,649	0	0	380,523	1,915,185	2,073,895
2015	111,007	374,712	16,995	114,501	140,244	67,134	41,649	0	0	380,523	1,915,185	2,073,895
2016	111,007	374,712	16,995	114,501	140,244	67,134	41,649	0	0	380,523	1,915,185	2,073,895
2017	111,007	374,712	16,995	114,501	140,244	67,134	41,649	0	0	380,523	1,915,185	2,073,895
2018	0	0	0	0	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0	0	0	0	0
2021	0	0	0	0	0	0	0	0	0	0	0	0
2022	0	0	0	0	0	0	0	0	0	0	0	0
2023	0	0	0	0	0	0	0	0	0	0	0	0
2024	0	0	0	0	0	0	0	0	0	0	0	0
2025	0	0	0	0	0	0	0	0	0	0	0	0
2026	0	0	0	0	0	0	0	0	0	0	0	0
2027	0	0	0	0	0	0	0	0	0	0	0	0
2028	0	0	0	0	0	0	0	0	0	0	0	0
2029	0	0	0	0	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0	0	0	0	0
2035	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	148,680,874	499,976,961	21,496,254	137,991,110	172,825,544	82,125,065	50,794,955	16,067,297	16,612,628	497,912,853	2,812,206,659	3,048,890,914

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	404.834	227.562	204.821	251.154	1.088.371	2.965.219	426.872	532.042	303.263
1999	416	670.029	327.821	296.605	287.458	1.581.913	3.702.183	472.880	429.328	445.225
2000	505	920.521	254.697	658.245	415.396	2.248.859	3.819.294	542.815	442.132	568.185
2001	319	1.072.685	229.863	455.912	181.531	1.939.991	2.909.756	272.872	290.315	391.072
2002	3.627	1.589.004	416.962	411.818	399.597	2.817.381	3.869.173	343.572	469.189	545.654
2003	3.393	1.783.606	547.609	572.440	357.560	3.261.215	2.389.777	371.033	585.108	972.983
2004	3.455	1.609.867	638.155	743.769	822.219	3.814.010	3.390.275	516.658	758.433	710.738
2005	3.452	1.072.884	323.214	776.154	415.287	2.587.539	3.341.475	264.930	431.378	817.576
2006	3.984	798.243	235.787	591.697	419.784	2.045.511	3.199.646	360.262	708.551	614.144
2007	3.432	1.025.079	997.021	713.641	200.805	2.936.546	4.648.797	449.796	755.909	804.092
2008	3.890	845.499	275.687	509.425	558.464	2.189.075	4.278.797	581.244	638.108	915.083
2009	2.766	905.203	539.316	614.981	342.838	2.402.338	4.157.766	466.895	736.233	577.664
2010	**2,927**	**998.580**	**583.807**	**677.437**	**393.496**	**2,653.320**	**4,677.782**	**537.022**	**826.164**	**925.642**
2011	3.138	1.023.432	611.360	694.378	387.730	2.716.900	4.694.780	527.837	832.992	1.066.317
2012	2.973	985.495	583.943	668.888	378.435	2.616.761	4.555.211	515.691	806.448	865.106
2013	3.003	995.350	589.782	675.577	382.219	2.642.928	4.600.763	520.848	814.512	873.757
2014	3.033	1.005.304	595.680	682.332	386.041	2.669.357	4.646.771	526.056	822.657	882.495
2015	3.064	1.015.357	601.637	689.156	389.902	2.696.052	4.693.239	531.317	830.884	891.320
2016	3.094	1.025.510	607.653	696.047	393.801	2.723.011	4.740.171	536.630	839.193	900.233
2017	3.125	1.035.766	613.730	703.008	397.739	2.750.243	4.787.573	541.996	847.585	909.236
2018	3.156	1.046.123	619.867	710.038	401.716	2.777.744	4.835.448	547.416	856.060	918.328
2019	3.188	1.056.584	626.066	717.138	405.733	2.805.521	4.883.803	552.890	864.621	927.511
2020	3.220	1.067.150	632.326	724.309	409.791	2.833.576	4.932.641	558.419	873.267	936.786
2021	3.252	1.077.822	638.649	731.553	413.889	2.861.913	4.981.967	564.003	882.000	946.154
2022	3.285	1.088.600	645.036	738.868	418.028	2.890.532	5.031.787	569.644	890.820	955.616
2023	3.317	1.099.486	651.486	746.257	422.208	2.919.437	5.082.105	575.340	899.728	965.172
2024	3.351	1.110.481	658.001	753.719	426.430	2.948.631	5.132.926	581.093	908.725	974.824
2025	3.384	1.121.586	664.581	761.257	430.694	2.978.118	5.184.255	586.904	917.813	984.572
2026	3.418	1.132.802	671.227	768.869	435.001	3.007.899	5.236.098	592.773	926.991	994.418
2027	3.452	1.144.130	677.939	776.558	439.351	3.037.978	5.288.459	598.701	936.261	1.004.362
2028	3,487	1,155,571	684,719	784,323	443,745	3,068,358	5,341,343	604,688	945,623	1,014,405
2029	3.521	1.167.127	691.566	792.167	448.182	3.099.042	5.394.757	610.735	955.080	1.024.549
2030	3.557	1.178.798	698.481	800.088	452.664	3.130.031	5.448.704	616.842	964.630	1.034.795
2031	3.592	1.190.586	705.466	808.089	457.191	3.161.332	5.503.191	623.011	974.277	1.045.143
2032	3.628	1.202.492	712.521	816.170	461.762	3.192.945	5.558.223	629.241	984.019	1.055.594
2033	3.664	1.214.517	719.646	824.332	466.380	3.224.875	5.613.805	635.533	993.860	1.066.150
2034	3.701	1.226.662	726.843	832.575	471.044	3.257.124	5.669.944	641.889	1.003.798	1.076.812
2035	3,738	1,238,928	734,111	840,901	475,754	3,289,694	5,726,643	648,307	1,013,836	1,087,580
TOTAL	182,716	46,021,597	24,133,488	27,820,025	21,046,430	119,021,540	223,868,824	25,004,452	38,277,081	38,712,487

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	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]
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	5,577,354	11,409,135	1,449,411	5,364,368	18,222,914
1999	49,762	34,829	427,062	2,030,675	7,591,944	11,447,913	1,386,863	1,307,529	14,142,305
2000	135,073	87,815	185,985	641,403	6,422,702	12,634,679	841,499	628,451	14,104,629
2001	112,969	188,974	197,745	1,048,180	5,411,883	17,560,131	1,386,564	755,978	19,702,673
2002	144,094	171,650	501,729	2,781,794	8,826,855	14,445,490	858,144	622,417	15,926,051
2003	80,246	99,524	248,998	991,370	5,739,039	16,697,426	1,744,927	763,193	19,205,546
2004	159,262	181,125	206,700	458,734	6,381,925	14,146,768	1,259,327	707,679	16,113,774
2005	143,875	202,953	135,954	225,719	5,563,860	12,584,283	1,902,110	866,692	15,353,085
2006	140,961	121,579	77,959	387,666	5,610,768	13,944,161	1,923,245	1,261,795	17,129,201
2007	59,921	127,296	63,961	257,966	7,167,738	10,634,825	2,023,387	909,617	13,567,829
2008	149,502	142,265	219,278	291,204	7,215,481	15,677,336	1,602,536	864,202	18,144,074
2009	101,197	119,614	291,136	431,919	6,882,424	14,753,494	1,855,368	1,809,171	18,418,033
2010	**119,462**	**137,682**	**165,822**	**470,635**	**7,860,211**	**17,354,061**	**2,077,054**	**1,318,361**	**20,749,476**
2011	114,307	135,263	159,472	489,516	8,020,484	17,191,192	2,094,373	5,932,552	25,218,117
2012	112,772	132,162	207,532	468,663	7,663,585	16,597,245	2,029,021	3,050,228	21,676,494
2013	113,899	133,483	209,607	473,350	7,740,219	16,763,218	2,049,312	3,080,731	21,893,261
2014	115,038	134,818	211,703	478,083	7,817,621	16,930,850	2,069,805	3,111,538	22,112,193
2015	116,189	136,166	213,820	482,864	7,895,799	17,100,158	2,090,503	3,142,653	22,333,314
2016	117,351	137,528	215,958	487,693	7,974,757	17,271,160	2,111,408	3,174,080	22,556,648
2017	118,524	138,903	218,118	492,570	8,054,505	17,443,871	2,132,522	3,205,821	22,782,214
2018	119,709	140,292	220,299	497,495	8,135,047	17,618,310	2,153,847	3,237,879	23,010,036
2019	120,906	141,695	222,502	502,470	8,216,398	17,794,493	2,175,385	3,270,258	23,240,136
2020	122,115	143,112	224,727	507,495	8,298,562	17,972,438	2,197,139	3,302,960	23,472,537
2021	123,337	144,543	226,974	512,570	8,381,548	18,152,163	2,219,111	3,335,990	23,707,264
2022	124,570	145,989	229,244	517,696	8,465,366	18,333,684	2,241,302	3,369,350	23,944,336
2023	125,816	147,448	231,537	522,873	8,550,019	18,517,021	2,263,715	3,403,043	24,183,779
2024	127,074	148,923	233,852	528,101	8,635,518	18,702,191	2,286,352	3,437,074	24,425,617
2025	128,345	150,412	236,191	533,382	8,721,874	18,889,213	2,309,216	3,471,444	24,669,873
2026	129,628	151,916	238,552	538,716	8,809,092	19,078,105	2,332,308	3,506,159	24,916,572
2027	130,924	153,435	240,938	544,103	8,897,183	19,268,886	2,355,631	3,541,220	25,165,737
2028	132,234	154,970	243,347	549,544	8,986,154	19,461,575	2,379,187	3,576,633	25,417,395
2029	133,556	156,519	245,781	555,040	9,076,017	19,656,191	2,402,979	3,612,399	25,671,569
2030	134,891	158,085	248,239	560,590	9,166,776	19,852,753	2,427,009	3,648,523	25,928,285
2031	136,240	159,666	250,721	566,196	9,258,445	20,051,280	2,451,279	3,685,008	26,187,567
2032	137,603	161,262	253,228	571,858	9,351,028	20,251,793	2,475,792	3,721,858	26,449,443
2033	138,979	162,875	255,760	577,577	9,444,539	20,454,311	2,500,550	3,759,077	26,713,938
2034	140,369	164,504	258,318	583,353	9,538,987	20,658,854	2,525,555	3,796,668	26,981,077
2035	141,772	166,149	260,901	589,186	9,634,374	20,865,443	2,550,811	3,834,634	27,250,888
TOTAL	4,919,758	6,771,203	10,255,001	29,638,179	377,446,985	780,228,188	100,063,239	118,363,163	998,654,590

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	5,520,206	1,242,589	534,931	654,538	8,643,109	115,748	457,845	429,433
1999	612,879	5,669,986	1,193,463	522,593	657,297	8,656,218	105,183	418,129	430,683
2000	591,568	5,852,308	1,035,719	529,152	876,859	8,885,606	104,047	447,085	494,575
2001	35,212	7,166,227	851,559	372,881	679,653	9,105,532	58,459	554,751	604,547
2002	476,832	5,204,899	677,473	257,291	741,107	7,357,602	55,276	729,164	416,883
2003	354,387	6,143,656	770,542	317,614	636,209	8,222,408	63,141	683,583	658,622
2004	337,537	7,007,469	711,524	355,968	609,199	9,021,697	37,087	493,048	354,250
2005	573,511	6,044,131	976,888	398,633	795,318	8,788,481	28,943	410,634	305,584
2006	880,258	6,063,592	1,579,543	630,601	950,451	10,104,445	48,806	539,936	804,483
2007	866,049	7,337,231	2,067,283	789,637	920,034	11,980,234	205,858	1,020,343	551,948
2008	1.037.815	10.569.298	2.352.172	720.702	1.143.602	15.823.589	80.484	503.686	693.712
2009	1.907.748	9.981.790	2.033.372	735.840	1.026.800	15.685.550	116.945	752.445	727.519
2010	**1,331,589**	**8,838,751**	**3,762,410**	**1,274,657**	**1,098,646**	**16,306,053**	**124,386**	**797,368**	**771,787**
2011	1.216.479	8.672.785	2.359.199	1.896.631	2.135.187	16.280.281	131.886	846.305	815.857
2012	1,500,125	9,256,086	2,745,510	1,315,400	1,434,413	16,251,534	125,650	806,693	779,438
2013	1,515,126	9,348,647	2,772,965	1,328,554	1,448,757	16,414,049	126,907	814,760	787,233
2014	1,530,277	9,442,134	2,800,695	1,341,839	1,463,245	16,578,190	128,176	822,908	795,105
2015	1,545,580	9,536,555	2,828,702	1,355,258	1,477,877	16,743,972	129,457	831,137	803,056
2016	1,561,036	9,631,921	2,856,989	1,368,810	1,492,656	16,911,412	130,752	839,448	811,087
2017	1,576,646	9,728,240	2,885,559	1,382,498	1,507,583	17,080,526	132,059	847,843	819,197
2018	1,592,413	9,825,522	2,914,414	1,396,323	1,522,658	17,251,330	133,380	856,321	827,389
2019	1,608,337	9,923,777	2,943,559	1,410,287	1,537,885	17,423,845	134,714	864,884	835,663
2020	1,624,420	10,023,015	2,972,994	1,424,389	1,553,264	17,598,082	136,061	873,533	844,020
2021	1,640,664	10,123,245	3,002,724	1,438,633	1,568,796	17,774,062	137,422	882,268	852,460
2022	1,657,071	10,224,478	3,032,751	1,453,020	1,584,484	17,951,804	138,796	891,091	860,985
2023	1,673,642	10,326,723	3,063,079	1,467,550	1,600,329	18,131,323	140,184	900,002	869,595
2024	1,690,378	10,429,990	3,093,710	1,482,225	1,616,333	18,312,636	141,586	909,002	878,290
2025	1,707,282	10,534,290	3,124,647	1,497,048	1,632,496	18,495,763	143,001	918,092	887,073
2026	1,724,355	10,639,633	3,155,893	1,512,018	1,648,821	18,680,720	144,432	927,273	895,944
2027	1,741,598	10,746,029	3,187,452	1,527,138	1,665,309	18,867,526	145,876	936,546	904,904
2028	1,759,014	10,853,489	3,219,327	1,542,410	1,681,962	19,056,202	147,335	945,911	913,953
2029	1.776.604	10.962.024	3.251.520	1.557.834	1.698.782	19.246.764	148.808	955.370	923.092
2030	1.794.370	11.071.644	3.284.035	1.573.412	1.715.770	19.439.231	150.296	964.924	932.323
2031	1.812.314	11.182.361	3.316.876	1.589.146	1.732.927	19.633.624	151.799	974.573	941.646
2032	1.830.437	11.294.184	3.350.044	1.605.038	1.750.257	19.829.960	153.317	984.319	951.063
2033	1,848,742	11,407,126	3,383,545	1,621,088	1,767,759	20,028,260	154,850	994,162	960,573
2034	1,867,229	11,521,198	3,417,380	1,637,299	1,785,437	20,228,543	156,399	1,004,104	970,179
2035	1,885,901	11,636,410	3,451,554	1,653,672	1,803,291	20,430,828	157,963	1,014,145	979,881
TOTAL	59,283,832	417,385,266	107,961,206	51,441,489	71,751,943	707,823,736	6,986,136	40,399,443	37,783,109

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	4,752,549	309,440	248,178	4,694,822
1999	1,148,513	387,544	191,828	413,328	526,178	5,016,993	330,019	215,683	4,819,889
2000	903,620	395,504	311,857	639,090	547,063	5,995,820	377,102	166,351	5,283,547
2001	872,289	416,327	896,677	522,102	661,889	4,697,934	(136,951)	(96,779)	6,011,807
2002	1,308,591	380,623	294,544	959,934	861,880	5,980,801	43,586	259,233	5,600,232
2003	823,607	341,841	234,753	702,980	621,861	6,261,246	(119,301)	29,847	7,070,180
2004	615,289	250,322	178,835	641,806	600,585	7,342,992	(129,454)	(160,553)	9,048,051
2005	905,193	215,180	122,256	857,066	475,185	6,395,460	(111,970)	(139,641)	5,764,497
2006	509,639	204,696	64,534	772,199	526,311	5,188,567	(142,364)	(149,741)	8,247,017
2007	642,614	391,567	314,207	755,991	517,661	5,997,312	501,829	(94,577)	10,945,318
2008	1,016,455	452,447	267,135	469,369	754,960	10,838,886	(146,043)	(118,876)	12,572,970
2009	779,198	352,186	236,154	715,007	614,098	8,520,010	521,745	212,165	8,380,322
2010	**827,196**	**374,133**	**249,759**	**758,679**	**647,960**	**8,934,156**	**552,398**	**224,158**	**9,152,298**
2011	872,381	393,820	263,014	805,255	686,037	8,934,922	585,778	236,401	9,461,668
2012	834,522	377,114	252,138	767,243	655,859	8,884,327	558,840	226,483	9,088,077
2013	842,867	380,885	254,660	774,916	662,417	8,973,170	564,428	228,748	9,178,958
2014	851,295	384,694	257,206	782,665	669,041	9,062,902	570,073	231,036	9,270,747
2015	859,808	388,541	259,778	790,492	675,732	9,153,531	575,773	233,346	9,363,455
2016	868,407	392,426	262,376	798,397	682,489	9,245,066	581,531	235,680	9,457,089
2017	877,091	396,350	265,000	806,381	689,314	9,337,517	587,347	238,036	9,551,660
2018	885,861	400,314	267,650	814,444	696,207	9,430,892	593,220	240,417	9,647,177
2019	894,720	404,317	270,327	822,589	703,169	9,525,201	599,152	242,821	9,743,649
2020	903,667	408,360	273,030	830,815	710,201	9,620,453	605,144	245,249	9,841,085
2021	912,704	412,444	275,760	839,123	717,303	9,716,657	611,195	247,702	9,939,496
2022	921,831	416,568	278,518	847,514	724,476	9,813,824	617,307	250,179	10,038,891
2023	931,049	420,734	281,303	855,989	731,721	9,911,962	623,480	252,680	10,139,280
2024	940,360	424,941	284,116	864,549	739,038	10,011,082	629,715	255,207	10,240,673
2025	949,763	429,191	286,957	873,195	746,428	10,111,192	636,012	257,759	10,343,079
2026	959,261	433,483	289,827	881,927	753,893	10,212,304	642,372	260,337	10,446,510
2027	968,854	437,817	292,725	890,746	761,432	10,314,427	648,796	262,940	10,550,975
2028	978,542	442,196	295,652	899,653	769,046	10,417,572	655,284	265,570	10,656,485
2029	988,328	446,618	298,609	908,650	776,736	10,521,747	661,837	268,225	10,763,050
2030	998,211	451,084	301,595	917,736	784,504	10,626,965	668,455	270,908	10,870,680
2031	1,008,193	455,595	304,611	926,914	792,349	10,733,235	675,140	273,617	10,979,387
2032	1,018,275	460,151	307,657	936,183	800,272	10,840,567	681,891	276,353	11,089,181
2033	1,028,458	464,752	310,733	945,545	808,275	10,948,973	688,710	279,116	11,200,073
2034	1,038,742	469,400	313,841	955,000	816,358	11,058,462	695,597	281,907	11,312,074
2035	1,049,130	474,094	316,979	964,550	824,521	11,169,047	702,553	284,727	11,425,194
TOTAL	47,367,814	20,883,828	15,052,640	38,291,959	34,598,121	410,404,627	25,256,013	12,746,259	424,768,197

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 20A	Reach 20B
	[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	130,711	120,271
1973	1,243,941	4,142,935	1,777,260	49,949	1,827,209	36,207	146,739	161,838	148,631
1974	1,343,972	4,369,772	2,298,091	16,259	2,314,350	30,525	90,404	115,571	88,200
1975	1,537,862	5,090,233	2,403,430	35,193	2,438,623	40,588	122,584	137,684	118,898
1976	1,727,428	5,001,677	2,776,194	126,653	2,902,847	118,610	201,215	182,927	151,555
1977	1,961,081	6,065,390	3,845,464	83,936	3,929,400	93,565	226,906	180,884	112,589
1978	1,922,950	5,738,596	2,954,313	42,637	2,996,950	91,815	200,759	215,673	120,584
1979	1,798,566	5,960,033	3,539,402	45,997	3,585,399	99,670	307,386	261,205	194,104
1980	2,231,456	7,463,378	4,749,245	54,806	4,804,051	116,487	446,175	290,719	237,250
1981	2,762,773	7,646,858	5,485,957	64,886	5,550,843	316,590	585,003	325,112	292,081
1982	2,961,383	8,475,944	6,349,080	55,997	6,405,077	447,739	638,615	275,763	330,502
1983	4,302,165	11,303,322	14,153,033	96,397	14,249,430	345,229	564,698	368,139	326,767
1984	5,077,824	14,043,628	18,448,383	77,201	18,525,584	267,497	563,588	413,443	329,933
1985	5,683,454	14,964,899	18,134,698	137,928	18,272,626	298,932	475,028	450,444	388,327
1986	5,780,666	16,593,102	19,297,129	109,938	19,407,067	703,413	350,906	347,690	315,566
1987	5,636,043	17,063,245	17,398,908	98,355	17,497,263	1,261,056	558,996	818,475	357,971
1988	5,150,238	15,704,693	17,697,838	138,405	17,836,243	1,242,139	560,911	585,014	400,005
1989	5,458,633	16,336,263	17,641,151	88,488	17,729,639	1,049,615	283,065	366,590	345,614
1990	6,440,643	18,959,051	19,995,760	99,868	20,095,628	1,298,537	229,083	469,502	202,412
1991	5,805,189	18,565,503	19,903,346	131,558	20,034,904	1,432,360	665,443	1,025,089	516,257
1992	6,471,964	19,838,439	18,194,788	279,610	18,474,398	1,167,898	738,238	666,181	696,623
1993	7,583,165	23,092,943	19,051,939	199,640	19,251,579	1,868,745	606,763	1,232,409	818,675
1994	7,142,378	19,069,838	17,354,702	204,963	17,559,665	1,699,479	763,493	1,145,700	957,350
1995	6,540,575	19,680,665	19,360,033	191,516	19,551,549	1,284,146	614,314	1,941,939	2,411,412
1996	7,065,052	20,408,184	19,041,451	237,846	19,279,297	1,163,708	576,674	1,335,804	1,713,145
1997	7,387,904	21,710,020	19,724,881	176,120	19,901,001	1,330,450	730,628	1,401,562	2,043,179
1998	7,530,927	20,885,007	23,227,152	182,754	23,409,906	1,513,656	309,052	7,568,901	508,030
1999	8,731,913	22,735,883	19,705,186	157,805	19,862,991	3,124,995	719,928	5,383,577	1,657,385
2000	12,455,173	28,120,834	23,272,225	240,107	23,512,332	1,852,290	638,938	1,303,866	1,356,076
2001	15,791,400	30,854,452	24,057,353	618,585	24,675,938	2,441,515	2,554,317	1,846,741	1,530,438
2002	11,486,583	28,377,330	20,804,471	473,059	21,277,530	1,411,611	797,991	757,079	582,008
2003	11,661,206	29,033,566	21,009,594	285,995	21,295,589	3,805,061	680,153	716,883	625,386
2004	14,830,887	34,103,145	26,803,203	249,701	27,052,904	1,910,323	1,387,005	1,337,059	1,052,564
2005	13,866,626	29,095,013	16,579,814	1,495,418	18,075,232	5,650,287	1,392,659	1,458,065	791,355
2006	13,852,806	30,466,889	15,024,763	292,169	15,316,932	4,384,480	1,319,548	1,214,256	2,935,454
2007	8,073,380	29,823,451	14,795,653	1,037,835	15,833,488	4,134,023	1,106,389	1,276,370	1,783,177
2008	11,059,138	38,444,323	23,250,893	346,078	23,596,971	2,233,243	1,214,962	1,264,881	832,693
2009	13,463,617	35,391,411	21,206,231	508,145	21,714,376	3,580,301	872,734	1,116,999	2,038,005
2010	**13,724,581**	**37,138,859**	**23,625,216**	**1,070,656**	**24,695,872**	**3,802,629**	**942,813**	**1,203,449**	**1,708,227**
2011	13,858,100	37,891,424	25,244,347	1,094,258	26,338,605	4,058,266	984,009	1,269,353	1,813,465
2012	13,818,920	37,175,304	23,592,184	899,930	24,492,114	3,851,869	942,517	1,208,566	1,871,764
2013	13,957,109	37,547,058	23,828,106	908,930	24,737,036	3,890,388	951,942	1,220,652	1,890,482
2014	14,096,680	37,922,528	24,066,387	918,019	24,984,406	3,929,292	961,461	1,232,858	1,909,387
2015	14,237,647	38,301,753	24,307,051	927,199	25,234,250	3,968,585	971,076	1,245,187	1,928,481
2016	14,380,024	38,684,772	24,550,121	936,471	25,486,592	4,008,271	980,787	1,257,639	1,947,765
2017	14,523,824	39,071,619	24,795,622	945,836	25,741,458	4,048,353	990,595	1,270,215	1,967,243
2018	14,669,062	39,462,334	25,043,579	955,294	25,998,873	4,088,837	1,000,501	1,282,917	1,986,916
2019	14,815,753	39,856,959	25,294,014	964,847	26,258,861	4,129,725	1,010,506	1,295,746	2,006,785
2020	14,963,910	40,255,528	25,546,955	974,495	26,521,450	4,171,023	1,020,611	1,308,704	2,026,853
2021	15,113,549	40,658,083	25,802,424	984,240	26,786,664	4,212,733	1,030,817	1,321,791	2,047,121
2022	15,264,685	41,064,665	26,060,448	994,083	27,054,531	4,254,860	1,041,125	1,335,009	2,067,592
2023	15,417,332	41,475,311	26,321,053	1,004,024	27,325,077	4,297,409	1,051,536	1,348,359	2,088,268
2024	15,571,505	41,890,064	26,584,263	1,014,064	27,598,327	4,340,383	1,062,052	1,361,842	2,109,151
2025	15,727,220	42,308,962	26,850,106	1,024,205	27,874,311	4,383,787	1,072,672	1,375,461	2,130,242
2026	15,884,492	42,732,055	27,118,607	1,034,447	28,153,054	4,427,624	1,083,399	1,389,215	2,151,545
2027	16,043,337	43,159,375	27,389,793	1,044,791	28,434,584	4,471,901	1,094,233	1,403,108	2,173,060
2028	16,203,770	43,590,969	27,663,691	1,055,239	28,718,930	4,516,620	1,105,175	1,417,139	2,194,791
2029	16,365,808	44,026,878	27,940,328	1,065,791	29,006,119	4,561,786	1,116,227	1,431,310	2,216,739
2030	16,529,466	44,467,147	28,219,731	1,076,449	29,296,180	4,607,404	1,127,389	1,445,623	2,238,906
2031	16,694,761	44,911,820	28,501,929	1,087,214	29,589,143	4,653,478	1,138,663	1,460,079	2,261,295
2032	16,861,709	45,360,938	28,786,948	1,098,086	29,885,034	4,700,013	1,150,050	1,474,680	2,283,908
2033	17,030,326	45,814,546	29,074,817	1,109,067	30,183,884	4,747,013	1,161,550	1,489,427	2,306,747
2034	17,200,629	46,272,692	29,365,566	1,120,157	30,485,723	4,794,483	1,173,166	1,504,321	2,329,815
2035	17,372,635	46,735,419	29,659,221	1,131,359	30,790,580	4,842,428	1,184,897	1,519,364	2,353,113
TOTAL	655,264,970	1,769,803,116	1,247,973,774	35,199,075	1,283,172,849	165,642,644	51,726,734	75,162,759	83,440,133

TABLE B-11. Minimum OMP&R Costs of Each Aqueduct Reach to be Reimbursed through Minimum OMP&R Component of Transportation Charge

Calendar Year	CALIFORNIA AQUEDUCT (continued)								
	MOJAVE DIVISION (continued)						SANTA ANA DIVISION		
	Reach 21	Reach 22A	Reach 22B	Reach 23	Reach 24	Subtotal	Reach 25	Reach 26A	Reach 28G
	[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	75,768	80,436	1,036,831	51,520	362,153	2,030,064	26	578	109
1973	60,641	66,539	1,283,816	65,475	353,262	2,323,148	20,541	679,328	136,352
1974	65,007	77,667	1,477,946	96,340	334,302	2,375,962	24,380	799,400	155,262
1975	135,462	77,825	1,630,554	111,141	419,450	2,794,186	29,337	885,021	110,729
1976	106,314	131,007	1,598,071	107,787	304,638	2,902,124	51,356	1,103,139	138,575
1977	98,757	86,279	1,882,080	71,228	48,359	2,800,647	62,584	1,412,740	127,543
1978	109,271	71,763	2,211,965	72,179	637,401	3,731,410	67,186	1,159,950	166,919
1979	203,078	121,586	2,104,832	76,960	202,566	3,571,387	84,462	1,235,189	142,586
1980	156,794	117,274	2,670,387	147,009	688,605	4,870,700	72,651	1,532,535	158,340
1981	181,062	119,602	3,030,407	134,895	47,750	5,032,502	35,662	1,575,444	160,053
1982	186,109	125,429	3,248,883	299,712	623,755	6,176,507	26,852	1,822,250	205,350
1983	219,943	140,523	3,899,769	223,626	384,292	6,472,986	19,017	1,663,599	244,720
1984	266,919	146,866	4,783,997	59,337	1,104,149	7,935,729	11,319	2,325,661	240,496
1985	799,514	125,780	5,330,501	261,135	811,346	8,941,007	17,764	2,707,662	451,600
1986	242,158	178,847	6,190,812	156,053	515,945	9,001,390	31,012	2,768,728	439,048
1987	298,190	236,263	5,731,239	151,796	732,607	10,146,593	19,362	2,847,390	278,094
1988	331,099	149,876	6,910,472	253,833	970,052	11,403,401	36,576	3,087,873	271,868
1989	194,047	138,825	5,963,386	349,544	1,242,144	9,932,830	30,881	3,190,809	230,953
1990	273,748	49,174	6,905,442	436,785	1,891,053	11,755,736	25,518	3,330,913	437,812
1991	478,555	231,223	7,488,366	263,723	1,561,051	13,662,067	32,172	3,847,589	843,388
1992	585,072	168,251	7,076,997	317,042	622,116	12,038,418	55,819	4,043,878	281,864
1993	509,309	207,818	7,765,751	359,632	1,708,915	15,078,017	72,464	5,638,325	382,195
1994	873,215	241,679	7,691,548	1,220,795	1,245,936	15,839,195	105,373	5,139,991	617,136
1995	355,198	179,930	6,994,639	842,041	746,371	15,369,990	96,781	4,357,648	1,308,828
1996	790,618	136,397	8,590,347	889,842	(78,782)	15,117,753	156,395	4,051,744	1,001,063
1997	640,177	189,241	8,138,580	1,586,227	3,355,446	19,415,490	177,217	4,585,198	493,841
1998	297,621	115,100	8,887,728	1,924,868	1,134,837	22,259,793	142,703	4,856,225	379,997
1999	1,386,051	188,209	9,396,593	2,027,481	1,190,817	25,075,036	189,880	5,975,512	493,493
2000	927,744	131,218	9,874,001	1,712,002	1,546,242	19,342,377	353,640	4,268,954	844,558
2001	1,073,430	477,906	7,673,139	1,893,241	20,269	19,510,996	298,329	2,428,255	1,668,195
2002	1,156,868	281,007	11,301,673	1,698,465	950,743	18,937,445	509,492	3,447,917	1,254,119
2003	478,622	286,681	13,497,568	2,134,198	(372,217)	21,852,335	371,352	3,872,563	558,483
2004	1,069,664	424,243	10,713,929	2,173,935	1,114,083	21,182,805	431,158	5,575,446	1,254,238
2005	629,917	317,254	8,117,197	2,427,793	2,035,003	22,819,530	453,636	5,852,648	1,523,835
2006	971,064	752,467	10,219,711	1,924,745	622,435	24,344,160	397,654	5,157,227	650,697
2007	1,041,359	580,016	11,340,640	3,265,984	1,493,838	26,021,796	440,691	7,673,225	869,227
2008	551,571	708,385	14,797,517	2,355,158	1,095,729	25,054,139	524,733	6,753,983	649,785
2009	1,157,538	964,747	15,362,555	2,841,743	3,110,151	31,044,773	431,147	6,360,681	753,761
2010	**2,485,815**	**570,699**	**15,645,784**	**2,587,571**	**3,888,058**	**32,835,045**	**459,838**	**7,107,838**	**807,474**
2011	817,159	603,326	15,014,157	2,758,295	3,447,672	30,765,702	491,951	8,422,285	861,330
2012	1,501,705	720,053	15,494,240	2,756,495	3,516,780	31,863,989	465,589	7,369,903	815,597
2013	1,516,722	727,254	15,649,183	2,784,060	3,551,947	32,182,630	470,245	7,443,602	823,753
2014	1,531,890	734,526	15,805,675	2,811,901	3,587,467	32,504,457	474,947	7,518,038	831,991
2015	1,547,209	741,872	15,963,731	2,840,020	3,623,342	32,829,503	479,697	7,593,219	840,311
2016	1,562,681	749,290	16,123,369	2,868,420	3,659,575	33,157,797	484,494	7,669,151	848,714
2017	1,578,307	756,783	16,284,602	2,897,104	3,696,171	33,489,373	489,338	7,745,842	857,201
2018	1,594,091	764,351	16,447,448	2,926,075	3,733,132	33,824,268	494,232	7,823,301	865,773
2019	1,610,031	771,995	16,611,923	2,955,336	3,770,464	34,162,511	499,174	7,901,534	874,431
2020	1,626,132	779,714	16,778,042	2,984,889	3,808,168	34,504,136	504,166	7,980,549	883,175
2021	1,642,393	787,512	16,945,822	3,014,738	3,846,250	34,849,177	509,208	8,060,355	892,007
2022	1,658,817	795,387	17,115,281	3,044,885	3,884,713	35,197,669	514,300	8,140,958	900,927
2023	1,675,405	803,341	17,286,433	3,075,334	3,923,560	35,549,645	519,443	8,222,368	909,936
2024	1,692,159	811,374	17,459,298	3,106,088	3,962,795	35,905,142	524,637	8,304,592	919,035
2025	1,709,081	819,488	17,633,891	3,137,148	4,002,423	36,264,193	529,883	8,387,637	928,226
2026	1,726,172	827,683	17,810,230	3,168,520	4,042,447	36,626,835	535,182	8,471,514	937,508
2027	1,743,433	835,959	17,988,332	3,200,205	4,082,872	36,993,103	540,534	8,556,229	946,883
2028	1,760,868	844,319	18,168,215	3,232,207	4,123,701	37,363,035	545,939	8,641,791	956,352
2029	1,778,476	852,762	18,349,897	3,264,529	4,164,938	37,736,664	551,399	8,728,209	965,915
2030	1,796,261	861,290	18,533,396	3,297,175	4,206,587	38,114,031	556,913	8,815,491	975,575
2031	1,814,224	869,903	18,718,730	3,330,146	4,248,653	38,495,171	562,482	8,903,646	985,330
2032	1,832,366	878,602	18,905,918	3,363,448	4,291,139	38,880,124	568,107	8,992,683	995,184
2033	1,850,690	887,388	19,094,977	3,397,082	4,334,051	39,268,925	573,788	9,082,609	1,005,135
2034	1,869,196	896,262	19,285,927	3,431,053	4,377,391	39,661,614	579,526	9,173,436	1,015,187
2035	1,887,888	905,224	19,478,786	3,465,364	4,421,165	40,058,229	585,321	9,265,170	1,025,339
TOTAL	62,786,645	29,419,690	701,413,156	114,683,358	136,972,273	1,421,247,392	19,417,455	342,337,168	43,593,401

TABLE B-11. Minimum OMP&R Costs of Each Aqueduct Reach to be Reimbursed through Minimum OMP&R Component of Transportation Charge

Calendar Year	CALIFORNIA AQUEDUCT (continued)								
	SANTA ANA DIVISION (continued)			SANTA ANA DIVISION - EAST BRANCH EXTENSION					
	Reach 28H	Reach 28J	Subtotal	Reach 1	Reach 2A	Reach 2B	Reach 2C	Reach 2D	Reach 3A
	[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	30	0	743	0	0	0	0	0	0
1973	79	0	836,300	0	0	0	0	0	0
1974	34,693	854,637	1,868,372	0	0	0	0	0	0
1975	69,082	723,814	1,817,983	0	0	0	0	0	0
1976	100,400	635,853	2,029,323	0	0	0	0	0	0
1977	92,647	825,880	2,521,394	0	0	0	0	0	0
1978	68,363	835,082	2,297,500	0	0	0	0	0	0
1979	92,812	265,525	1,820,574	0	0	0	0	0	0
1980	129,897	1,120,131	3,013,554	0	0	0	0	0	0
1981	111,722	333,550	2,216,431	0	0	0	0	0	0
1982	135,463	1,518,759	3,708,674	0	0	0	0	0	0
1983	124,651	412,806	2,464,793	0	0	0	0	0	0
1984	190,924	769,068	3,537,468	0	0	0	0	0	0
1985	182,242	871,492	4,230,760	0	0	0	0	0	0
1986	256,526	982,332	4,477,646	0	0	0	0	0	0
1987	218,717	1,118,529	4,482,092	0	0	0	0	0	0
1988	200,811	1,176,659	4,773,787	0	0	0	0	0	0
1989	281,861	1,130,035	4,864,539	0	0	0	0	0	0
1990	308,144	1,538,449	5,640,836	0	0	0	0	0	0
1991	632,912	1,630,321	6,986,382	0	0	0	0	0	0
1992	5,636,464	1,102,519	11,120,544	0	0	0	0	0	0
1993	570,563	994,721	7,658,268	0	0	0	0	0	0
1994	415,603	1,022,412	7,300,515	0	0	0	0	0	0
1995	704,154	894,338	7,361,749	0	0	0	0	0	0
1996	1,041,697	1,316,493	7,567,392	0	0	0	0	0	0
1997	949,188	953,590	7,159,034	0	0	0	0	0	0
1998	991,426	(67,444)	6,302,907	0	0	0	0	0	0
1999	1,964,137	1,057,137	9,680,159	0	0	0	0	0	0
2000	1,004,569	1,092,200	7,563,921	0	0	0	0	0	0
2001	811,163	5,712,243	10,918,185	0	0	0	0	0	0
2002	424,938	2,155,408	7,791,874	0	0	0	0	0	0
2003	381,490	1,359,473	6,543,361	1,022	84,351	375,154	2,329	0	627,038
2004	447,010	3,673,072	11,380,924	10,740	40,841	509,089	2,039	0	276,019
2005	686,402	(831,053)	7,685,468	9,849	15,079	526,273	4,153	0	496,547
2006	320,005	5,130,746	11,656,329	9,240	11,378	521,499	10,436	1,597	390,883
2007	673,858	2,676,617	12,333,618	176,727	15,723	1,156,583	9,929	3,377	709,992
2008	685,021	3,307,871	11,921,393	71,949	37,552	795,131	5,489	(7)	1,128,519
2009	633,096	2,448,707	10,627,392	73,730	42,609	743,357	8,437	1,675	647,950
2010	**679,834**	**5,739,455**	**14,794,439**	**79,563**	**44,569**	**796,010**	**8,963**	**1,773**	**700,103**
2011	725,079	4,101,406	14,602,051	84,915	46,424	851,011	9,599	1,900	745,344
2012	686,129	4,137,488	13,474,706	80,197	44,979	804,761	9,090	1,800	704,777
2013	692,991	4,178,863	13,609,454	80,999	45,429	812,809	9,181	1,818	711,825
2014	699,921	4,220,652	13,745,549	81,809	45,883	820,937	9,273	1,836	718,943
2015	706,920	4,262,858	13,883,005	82,627	46,342	829,146	9,365	1,854	726,132
2016	713,989	4,305,487	14,021,835	83,453	46,806	837,437	9,459	1,873	733,394
2017	721,129	4,348,542	14,162,052	84,288	47,274	845,812	9,554	1,892	740,728
2018	728,340	4,392,027	14,303,673	85,131	47,746	854,270	9,649	1,911	748,135
2019	735,624	4,435,947	14,446,710	85,982	48,224	862,813	9,746	1,930	755,616
2020	742,980	4,480,307	14,591,177	86,842	48,706	871,441	9,843	1,949	763,172
2021	750,410	4,525,110	14,737,090	87,710	49,193	880,155	9,942	1,968	770,804
2022	757,914	4,570,361	14,884,460	88,587	49,685	888,957	10,041	1,988	778,512
2023	765,493	4,616,065	15,033,305	89,473	50,182	897,846	10,141	2,008	786,297
2024	773,148	4,662,225	15,183,637	90,368	50,684	906,825	10,243	2,028	794,160
2025	780,879	4,708,848	15,335,473	91,272	51,191	915,893	10,345	2,048	802,102
2026	788,688	4,755,936	15,488,828	92,184	51,703	925,052	10,449	2,069	810,123
2027	796,575	4,803,495	15,643,716	93,106	52,220	934,302	10,553	2,090	818,224
2028	804,541	4,851,530	15,800,153	94,037	52,742	943,645	10,659	2,110	826,406
2029	812,586	4,900,046	15,958,155	94,978	53,269	953,082	10,765	2,132	834,671
2030	820,712	4,949,046	16,117,737	95,927	53,802	962,613	10,873	2,153	843,017
2031	828,919	4,998,537	16,278,914	96,887	54,340	972,239	10,982	2,174	851,447
2032	837,208	5,048,522	16,441,704	97,856	54,883	981,961	11,092	2,196	859,962
2033	845,580	5,099,007	16,606,119	98,834	55,432	991,781	11,202	2,218	868,561
2034	854,036	5,149,997	16,772,182	99,823	55,986	1,001,699	11,314	2,240	877,247
2035	862,576	5,201,497	16,939,903	100,821	56,546	1,011,716	11,428	2,263	886,020
TOTAL	41,484,961	172,185,226	619,018,211	2,680,926	1,551,773	27,981,299	306,563	58,863	24,732,670

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 - EAST BRANCH EXTENSION (cont)				WEST BRANCH						
	Reach 3B	Reach 4A	Reach 4B	Subtotal	Reach 29A	Reach 29F	Reach 29G	Reach 29H	Reach 29J	Reach 30	Subtotal
	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]
1961	0	0	0	0	0	0	0	0	0	0	0
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	719,255	159,249	199,145	234,196	88,198	420,789	1,820,832
1973	0	0	0	0	779,949	339,363	122,664	264,850	119,743	621,431	2,248,000
1974	0	0	0	0	883,312	158,366	112,458	350,160	(4,525)	723,949	2,223,720
1975	0	0	0	0	1,049,990	176,676	194,724	801,457	75,870	841,991	3,140,708
1976	0	0	0	0	1,220,429	215,588	202,591	624,614	98,268	(650,944)	1,710,546
1977	0	0	0	0	1,268,813	116,939	218,129	684,679	184	634,581	2,923,325
1978	0	0	0	0	1,174,708	342,479	267,308	415,641	17,764	3,088,954	5,306,854
1979	0	0	0	0	1,366,942	285,575	284,188	972,584	29,850	958,068	3,897,207
1980	0	0	0	0	1,698,215	224,472	455,619	874,259	288,303	222,549	3,763,417
1981	0	0	0	0	1,783,405	123,264	615,047	2,305,110	8,794	1,093,897	5,929,517
1982	0	0	0	0	1,919,979	190,500	702,265	2,208,264	414,230	978,624	6,413,862
1983	0	0	0	0	2,739,814	149,333	888,475	745,939	579,882	3,698,681	8,802,124
1984	0	0	0	0	3,463,038	81,260	2,358,495	537,207	719,282	755,136	7,914,418
1985	0	0	0	0	3,866,946	295,836	3,047,591	975,729	614,735	1,753,355	10,554,192
1986	0	0	0	0	3,791,427	457,604	2,893,171	1,480,015	1,032,216	1,338,657	10,993,090
1987	0	0	0	0	3,423,494	213,106	2,933,342	944,604	459,398	1,406,519	9,380,463
1988	0	0	0	0	3,447,403	255,113	3,017,463	883,714	446,468	1,452,589	9,502,750
1989	0	0	0	0	4,025,641	405,583	2,738,143	1,398,165	865,738	1,505,029	10,938,299
1990	0	0	0	0	4,088,481	383,655	3,232,445	3,153,869	777,713	847,500	12,483,663
1991	0	0	0	0	3,862,056	304,143	3,550,063	639,527	763,037	1,191,090	10,309,916
1992	0	0	0	0	4,286,050	327,802	3,892,480	1,014,551	872,953	2,259,032	12,652,868
1993	0	0	0	0	3,969,075	343,304	4,515,385	1,670,952	852,208	1,157,876	12,508,800
1994	0	0	0	0	3,649,861	293,376	3,359,381	1,879,417	872,624	1,674,576	11,729,235
1995	0	0	0	0	4,137,046	883,315	4,750,275	1,588,080	754,904	(421,879)	11,691,741
1996	0	0	0	0	4,511,858	966,044	3,593,671	4,208,195	877,111	1,574,098	15,730,977
1997	0	0	0	0	4,543,506	1,030,809	2,429,066	3,755,901	1,597,361	1,521,491	14,878,134
1998	0	0	0	0	4,871,761	464,376	3,473,405	2,398,630	1,996,114	1,291,185	14,495,471
1999	0	0	0	0	4,786,456	4,240,162	4,924,176	1,742,086	1,000,370	1,879,688	18,572,938
2000	0	0	0	0	5,444,926	720,779	4,278,318	1,682,284	171,261	1,654,767	13,952,335
2001	0	0	0	0	5,909,548	1,538,029	5,138,146	4,407,097	240,853	(959,470)	16,274,203
2002	0	0	0	0	5,353,620	1,472,250	4,093,563	4,423,979	(47,277)	3,409,148	18,705,283
2003	360	93,305	33,614	1,217,173	4,587,813	1,293,539	3,837,649	3,375,831	(581,707)	998,016	13,511,141
2004	337	13,434	71,444	923,943	9,074,626	1,388,487	3,621,246	5,178,150	(560,708)	1,534,731	20,236,532
2005	9,036	27,330	216,418	1,304,685	5,820,618	2,427,357	9,078,566	267,033	2,664,715	(387,885)	19,870,404
2006	322	21,081	63,589	1,030,025	6,936,277	2,301,115	5,125,852	3,584,299	891,931	(4,108,616)	14,730,858
2007	80,468	54,296	182,590	2,389,685	6,715,062	2,085,055	11,385,859	5,639,816	855,714	13,433,016	40,114,522
2008	79,938	101,911	195,779	2,416,261	8,102,394	777,357	16,207,082	6,602,907	100,436	1,470,249	33,260,425
2009	41,856	47,094	124,109	1,730,817	7,140,602	1,633,507	8,236,401	3,991,367	862,446	7,858,446	29,722,769
2010	**45,867**	**51,437**	**134,773**	**1,863,058**	**7,653,354**	**1,401,563**	**7,272,934**	**4,109,333**	**867,519**	**3,238,436**	**24,543,139**
2011	48,786	54,751	143,391	1,986,121	8,134,486	1,475,016	7,223,512	4,314,411	927,452	3,363,105	25,437,982
2012	45,958	51,605	135,432	1,878,599	7,719,242	1,518,396	7,653,392	4,179,754	894,664	4,868,196	26,833,644
2013	46,418	52,121	136,786	1,897,386	7,796,435	1,533,580	7,729,926	4,221,551	903,611	4,916,878	27,101,981
2014	46,882	52,642	138,154	1,916,359	7,874,399	1,548,915	7,807,225	4,263,767	912,647	4,966,047	27,373,000
2015	47,351	53,169	139,536	1,935,522	7,953,143	1,564,405	7,885,298	4,306,404	921,773	5,015,707	27,646,730
2016	47,824	53,700	140,931	1,954,877	8,032,674	1,580,049	7,964,151	4,349,468	930,991	5,065,864	27,923,197
2017	48,302	54,237	142,340	1,974,427	8,113,001	1,595,849	8,043,792	4,392,963	940,301	5,116,523	28,202,429
2018	48,785	54,780	143,764	1,994,171	8,194,131	1,611,808	8,124,230	4,436,893	949,704	5,167,688	28,484,454
2019	49,273	55,327	145,201	2,014,112	8,276,072	1,627,926	8,205,472	4,481,262	959,201	5,219,365	28,769,298
2020	49,766	55,881	146,653	2,034,253	8,358,833	1,644,205	8,287,527	4,526,074	968,793	5,271,559	29,056,991
2021	50,264	56,440	148,120	2,054,596	8,442,421	1,660,647	8,370,402	4,571,335	978,481	5,324,274	29,347,560
2022	50,766	57,004	149,601	2,075,141	8,526,846	1,677,253	8,454,106	4,617,048	988,266	5,377,517	29,641,036
2023	51,274	57,574	151,097	2,095,892	8,612,114	1,694,026	8,538,647	4,663,219	998,148	5,431,292	29,937,446
2024	51,787	58,150	152,608	2,116,853	8,698,235	1,710,966	8,624,034	4,709,851	1,008,130	5,485,605	30,236,821
2025	52,305	58,731	154,134	2,138,021	8,785,218	1,728,076	8,710,274	4,756,950	1,018,211	5,540,461	30,539,190
2026	52,828	59,319	155,675	2,159,402	8,873,070	1,745,357	8,797,377	4,804,519	1,028,393	5,595,866	30,844,582
2027	53,356	59,912	157,232	2,180,995	8,961,800	1,762,810	8,885,351	4,852,564	1,038,677	5,651,824	31,153,026
2028	53,889	60,511	158,805	2,202,804	9,051,418	1,780,438	8,974,204	4,901,090	1,049,064	5,708,343	31,464,557
2029	54,428	61,116	160,393	2,224,834	9,141,933	1,798,243	9,063,946	4,950,101	1,059,555	5,765,426	31,779,204
2030	54,973	61,727	161,997	2,247,082	9,233,352	1,816,225	9,154,586	4,999,602	1,070,150	5,823,080	32,096,995
2031	55,522	62,344	163,617	2,269,552	9,325,686	1,834,387	9,246,132	5,049,598	1,080,852	5,881,311	32,417,966
2032	56,078	62,968	165,253	2,292,249	9,418,942	1,852,731	9,338,593	5,100,094	1,091,660	5,940,124	32,742,144
2033	56,638	63,598	166,905	2,315,169	9,513,132	1,871,259	9,431,979	5,151,095	1,102,577	5,999,525	33,069,567
2034	57,205	64,233	168,574	2,338,321	9,608,263	1,889,971	9,526,299	5,202,606	1,113,603	6,059,521	33,400,263
2035	57,777	64,876	170,260	2,361,707	9,704,346	1,908,871	9,621,562	5,254,632	1,124,739	6,120,116	33,734,266
TOTAL	1,546,619	1,856,604	4,818,775	65,534,092	370,416,942	72,897,739	350,908,798	199,071,342	46,743,619	196,634,567	1,236,673,007

TABLE B-11. Minimum OMP&R Costs of Each Aqueduct Reach to be Reimbursed through Minimum OMP&R Component of Transportation Charge

Calendar Year	CALIFORNIA AQUEDUCT (continued)							GRAND TOTAL
	COASTAL BRANCH						Total	
	Reach 31A (a)	Reach 33A	Reach 33B	Reach 34	Reach 35	Subtotal		
	[76]	[77]	[78]	[79]	[80]	[81]	[82]	[83]
1961	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	42,918
1963	0	0	0	0	0	0	0	168,358
1964	0	0	0	0	0	0	0	184,729
1965	0	0	0	0	0	0	0	378,874
1966	0	0	0	0	0	0	0	408,397
1967	0	0	0	0	0	0	0	634,505
1968	0	0	0	0	0	0	2,160,548	2,745,160
1969	509,728	0	0	0	0	509,728	3,324,718	4,074,939
1970	609,988	0	0	0	0	609,988	3,983,062	4,676,282
1971	699,052	0	0	0	0	699,052	5,614,013	6,185,714
1972	697,576	0	0	0	0	697,576	12,353,356	12,998,869
1973	641,626	0	0	0	0	641,626	14,590,688	15,194,233
1974	669,279	0	0	0	0	669,279	16,598,762	17,372,561
1975	806,429	0	0	0	0	806,429	19,569,999	20,517,423
1976	840,927	0	0	0	0	840,927	19,002,859	20,027,213
1977	872,169	0	0	0	0	872,169	23,267,885	24,213,489
1978	934,119	0	0	0	0	934,119	24,818,739	26,012,786
1979	871,688	0	0	0	0	871,688	23,421,881	24,675,598
1980	1,047,396	4,790	0	30	75	1,052,291	30,105,348	32,038,398
1981	1,037,469	4,790	0	30	75	1,042,364	33,884,524	35,516,366
1982	1,015,555	4,790	0	30	75	1,020,450	39,515,188	41,611,655
1983	1,146,269	4,957	0	30	77	1,151,333	54,543,263	56,802,781
1984	1,427,192	5,051	0	31	78	1,432,352	63,947,633	67,105,188
1985	1,849,827	5,051	0	31	78	1,854,987	69,700,009	73,272,898
1986	1,714,723	5,051	0	31	78	1,719,883	73,437,761	76,707,917
1987	1,689,141	4,324	0	26	67	1,693,558	71,443,424	75,217,576
1988	1,964,428	4,509	0	28	70	1,969,035	72,349,117	76,060,618
1989	1,768,942	4,509	0	28	70	1,773,549	73,894,076	78,662,348
1990	2,274,772	0	0	0	0	2,274,772	86,130,115	91,361,385
1991	2,187,841	0	0	0	0	2,187,841	86,877,284	90,982,870
1992	2,465,364	0	0	0	0	2,465,364	94,167,321	99,235,524
1993	2,811,441	0	0	0	0	2,811,441	100,019,568	107,299,130
1994	3,894,639	0	0	0	0	3,894,639	92,336,811	99,944,106
1995	3,481,049	0	0	0	0	3,481,049	98,887,435	105,659,504
1996	5,144,684	0	0	0	0	5,144,684	105,119,193	112,018,784
1997	2,523,741	(33)	0	0	0	2,523,708	107,647,058	113,385,326
1998	4,302,712	1,878,365	1,386	160,400	88,026	6,430,889	120,649,996	127,316,519
1999	4,191,336	1,957,943	16,646	184,325	87,373	6,437,623	125,163,153	134,337,426
2000	2,888,849	2,533,780	20,786	253,538	109,328	5,806,281	121,288,315	129,960,381
2001	3,116,674	2,241,988	14,426	153,879	58,875	5,585,842	136,627,821	143,980,014
2002	3,188,749	2,690,311	49,511	189,457	81,857	6,199,885	124,573,000	136,220,863
2003	3,368,377	2,816,811	44,211	200,986	85,015	6,515,400	127,396,519	136,400,166
2004	3,578,700	2,717,359	69,895	240,426	109,830	6,716,210	146,731,934	156,931,324
2005	3,876,141	2,992,810	120,379	292,354	137,878	7,419,562	130,411,460	138,566,311
2006	2,598,196	3,515,440	55,166	283,740	138,780	6,591,322	131,370,161	139,030,424
2007	3,581,948	4,215,692	6,754	299,117	142,561	8,246,072	160,310,695	170,418,411
2008	5,674,346	5,408,932	8,829	390,027	175,087	11,657,221	180,318,396	189,726,842
2009	3,766,924	4,058,385	24,087	325,139	158,161	8,332,696	172,667,817	181,955,345
2010	**4,520,267**	**4,579,304**	**25,494**	**343,970**	**166,949**	**9,635,984**	**182,561,925**	**193,078,383**
2011	4,542,974	4,645,251	27,327	368,354	178,039	9,761,945	188,282,228	199,022,750
2012	4,319,489	4,471,923	25,892	349,279	169,393	9,335,976	182,982,360	193,265,679
2013	4,362,684	4,516,643	26,151	352,772	171,087	9,429,337	184,812,192	195,198,342
2014	4,406,311	4,561,809	26,413	356,300	172,798	9,523,631	186,660,313	197,150,324
2015	4,450,374	4,607,427	26,677	359,863	174,526	9,618,867	188,526,916	199,121,831
2016	4,494,878	4,653,501	26,944	363,461	176,271	9,715,055	190,412,185	201,113,047
2017	4,539,827	4,700,037	27,213	367,096	178,034	9,812,207	192,316,305	203,124,178
2018	4,585,225	4,747,037	27,485	370,767	179,814	9,910,328	194,239,467	205,155,414
2019	4,631,077	4,794,507	27,760	374,475	181,612	10,009,431	196,181,863	207,206,970
2020	4,677,388	4,842,452	28,038	378,219	183,429	10,109,526	198,143,680	209,279,038
2021	4,724,162	4,890,877	28,318	382,002	185,263	10,210,622	200,125,118	211,371,831
2022	4,771,403	4,939,786	28,601	385,822	187,115	10,312,727	202,126,369	213,485,552
2023	4,819,117	4,989,183	28,887	389,680	188,987	10,415,854	204,147,632	215,620,405
2024	4,867,309	5,039,075	29,176	393,577	190,876	10,520,013	206,189,110	217,776,610
2025	4,915,982	5,089,466	29,468	397,512	192,785	10,625,213	208,250,999	219,954,375
2026	4,965,141	5,140,361	29,763	401,487	194,713	10,731,465	210,333,513	222,153,922
2027	5,014,793	5,191,764	30,060	405,502	196,660	10,838,779	212,436,841	224,375,454
2028	5,064,941	5,243,682	30,361	409,557	198,627	10,947,168	214,561,213	226,619,212
2029	5,115,590	5,296,119	30,664	413,653	200,613	11,056,639	216,706,826	228,885,406
2030	5,166,746	5,349,080	30,971	417,789	202,619	11,167,205	218,873,893	231,174,257
2031	5,218,414	5,402,571	31,281	421,967	204,645	11,278,878	221,062,635	233,486,004
2032	5,270,598	5,456,596	31,594	426,187	206,692	11,391,667	223,273,263	235,820,864
2033	5,323,304	5,511,162	31,910	430,449	208,759	11,505,584	225,505,992	238,179,070
2034	5,376,537	5,566,274	32,229	434,753	210,846	11,620,639	227,761,054	240,560,866
2035	5,430,302	5,621,937	32,551	439,101	212,955	11,736,846	230,038,666	242,966,472
TOTAL	217,304,839	166,923,429	1,183,304	13,107,277	6,287,621	404,806,470	8,506,733,463	9,003,384,704

(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."

Tables B-12 through B-31

Note: Where applicable, the projected data values shown in this appendix are shaded and the bill year data are in **bold** type.

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 Reach 1 Barker Slough Pumping Plant	Reach 3A Cordelia Pumping Plant (Solano)	Reach 3B Cordelia Pumping Plant (Napa) (b)	Total	SOUTH BAY AQUEDUCT Reach 1 South Bay & Del Valle Pumping Plants (c)	CALIFORNIA AQUEDUCT Reach 1 Banks Pumping Plant	Reach 4 Dos Amigos Pumping Plant	Reach 14A Buena Vista Pumping Plant
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
1962	0	0	0	0	36,970	0	0	0
1963	0	0	0	0	57,711	0	0	0
1964	0	0	0	0	74,134	0	0	0
1965	0	0	0	0	142,609	0	0	0
1966	0	0	0	0	192,605	0	0	0
1967	0	0	0	0	223,117	13,881	0	0
1968	0	0	6,989	6,989	336,671	452,630	202,947	0
1969	0	0	8,551	8,551	257,579	293,741	135,425	0
1970	0	0	13,598	13,598	396,358	346,215	211,197	1
1971	0	0	10,609	10,609	381,662	574,015	225,188	138,001
1972	0	0	14,434	14,434	598,702	933,292	502,196	241,714
1973	0	0	14,449	14,449	493,490	688,030	381,232	306,268
1974	0	0	17,473	17,473	565,575	783,562	447,772	358,739
1975	0	0	14,779	14,779	349,758	1,341,019	518,816	550,860
1976	0	0	20,856	20,856	571,361	1,638,453	641,115	755,747
1977	0	0	22,635	22,635	512,996	1,013,307	284,828	298,300
1978	0	0	21,692	21,692	586,355	2,339,502	607,042	732,036
1979	0	0	16,237	16,237	605,136	3,554,256	1,008,564	818,816
1980	0	0	19,945	19,945	523,369	2,083,336	1,129,152	1,051,629
1981	0	0	23,842	23,842	567,692	3,952,931	1,939,189	1,336,867
1982	0	0	12,157	12,157	605,780	3,082,031	1,363,705	1,200,226
1983	0	0	2,342	2,342	82,222	879,916	343,597	341,584
1984	0	0	4,822	4,822	271,543	1,695,568	885,941	678,307
1985	0	0	10,188	10,188	451,020	3,171,920	1,613,745	1,397,490
1986	0	0	15,501	15,501	807,984	6,601,752	2,627,407	2,405,224
1987	0	0	27,223	27,223	886,956	5,753,132	2,523,544	2,240,552
1988	17,813	0	24,020	41,833	909,300	6,280,898	2,611,297	2,562,330
1989	29,819	43,846	26,519	100,184	1,161,160	9,748,180	3,910,492	3,964,188
1990	52,210	67,109	40,775	160,094	1,834,626	10,467,177	4,501,309	5,785,069
1991	10,429	10,118	5,252	25,799	378,966	1,923,595	490,766	903,923
1992	13,319	13,070	9,406	35,795	311,251	3,211,086	1,168,304	1,255,567
1993	(11,941)	(8,753)	(5,392)	(26,086)	(158,214)	532,899	345,215	(124,821)
1994	46,538	39,910	29,105	115,553	799,370	5,658,038	2,298,300	2,504,629
1995	20,014	20,620	11,791	52,425	247,645	4,017,881	1,513,362	919,965
1996	57,320	47,288	23,483	128,091	718,807	8,112,547	3,969,388	2,430,979
1997	67,416	52,935	21,955	142,306	1,038,568	6,900,694	2,845,506	2,589,077
1998	(10,647)	(9,488)	(4,554)	(24,689)	(121,313)	238,073	(314,172)	(245,259)
1999	31,618	25,288	10,570	67,476	514,166	5,319,699	2,316,189	1,587,062
2000	58,651	42,587	15,094	116,332	861,671	8,025,528	3,046,708	2,966,168
2001	360,761	250,331	214,209	825,301	4,068,696	24,182,487	9,885,380	14,868,284
2002	191,948	105,385	61,953	359,286	2,258,767	17,207,932	6,949,418	8,493,564
2003	181,608	118,767	98,077	398,452	2,567,656	21,542,492	9,051,535	10,696,186
2004	246,316	136,402	105,066	487,784	2,452,187	21,375,154	9,167,252	12,084,098
2005	279,237	144,265	146,323	569,825	2,745,626	29,059,637	12,814,469	12,402,303
2006	208,754	287,013	145,028	640,795	2,690,955	25,655,625	11,136,200	11,825,610
2007	430,204	292,170	249,929	972,303	4,077,287	27,301,503	10,998,532	16,007,485
2008	378,320	208,667	323,697	910,684	3,908,325	15,140,750	6,123,792	10,798,830
2009	374,000	120,706	259,190	753,896	5,260,673	17,608,066	7,130,835	12,076,719
2010	**785,962**	**386,585**	**1,032,217**	**2,204,764**	**5,601,531**	**32,632,948**	**16,971,148**	**21,682,609**
2011	656,394	770,451	819,264	2,246,109	5,708,335	33,460,237	17,387,253	22,256,665
2012	392,717	179,466	443,340	1,015,523	4,705,045	36,775,489	18,858,954	21,858,131
2013	394,548	179,466	450,086	1,024,100	4,909,122	39,646,499	19,924,500	23,765,954
2014	588,822	179,466	586,012	1,354,300	5,416,772	40,638,775	20,254,852	24,162,688
2015	595,936	179,466	607,346	1,382,748	6,117,579	44,195,292	21,073,613	25,584,733
2016	601,941	179,466	627,430	1,408,837	6,087,111	41,934,069	21,402,882	26,159,494
2017	607,986	179,466	648,060	1,435,512	6,117,579	39,932,583	20,423,298	24,457,674
2018	614,030	179,466	669,197	1,462,693	6,117,579	45,663,802	21,736,099	26,748,674
2019	620,152	179,466	690,724	1,490,342	6,117,579	42,141,171	21,037,777	25,522,703
2020	626,041	179,466	711,900	1,517,407	6,117,579	41,346,280	21,296,955	25,973,662
2021	627,016	179,466	715,410	1,521,892	6,117,579	41,829,010	21,174,723	25,760,399
2022	627,016	179,466	715,410	1,521,892	6,117,579	42,667,866	21,304,723	25,987,336
2023	627,016	179,466	715,410	1,521,892	6,117,579	42,989,845	21,380,971	26,121,040
2024	627,016	179,466	715,410	1,521,892	6,117,579	40,113,338	21,190,796	25,789,479
2025	627,016	179,466	715,410	1,521,892	6,117,579	42,712,013	21,346,216	26,059,852
2026	627,016	179,466	715,410	1,521,892	6,117,579	46,833,183	21,208,415	25,816,724
2027	627,016	179,466	715,410	1,521,892	6,117,579	40,893,642	21,353,441	26,072,513
2028	627,016	179,466	715,410	1,521,892	6,117,579	44,396,888	21,217,456	25,835,085
2029	627,016	179,466	715,410	1,521,892	6,117,579	40,751,763	21,277,314	25,939,719
2030	627,016	179,466	715,410	1,521,892	6,117,579	42,109,275	21,116,974	25,659,784
2031	627,016	179,466	715,410	1,521,892	6,117,579	43,803,049	21,787,574	26,839,443
2032	627,016	179,466	715,410	1,521,892	6,117,579	41,766,099	20,824,045	25,155,130
2033	627,016	179,466	715,410	1,521,892	6,117,579	45,809,855	21,795,805	26,856,038
2034	627,016	179,466	715,410	1,521,892	6,117,579	41,591,740	20,872,916	25,238,726
2035	627,016	179,466	715,410	1,521,892	6,117,579	36,578,048	21,995,972	27,234,379
TOTAL	18,923,476	7,472,456	20,126,544	46,522,476	203,885,026	1,383,915,189	669,767,351	809,742,951

(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 the period 1968 through 1987 are for an interim facility.
(c) The relatively minor costs of Del Valle Pumping Plant have been combined with those of South Bay Pumping Plant to simplify the allocation procedures.

TABLE B-12. Variable OMP&R Costs to be Reimbursed through Variable OMP&R Component of Transportation Charge

(in dollars)

Calendar Year	CALIFORNIA AQUEDUCT (continued)						
	Reach 15A Wheeler Ridge Pumping Plant	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)
	[9]	[10]	[11]	[12]	[13]	[14]	[15]
1962	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0
1971	17,664	0	0	0	0	0	0
1972	97,004	180,602	542,625	0	25,568	0	0
1973	278,923	441,598	1,548,428	0	231,389	0	0
1974	367,266	618,864	2,164,223	0	354,093	0	0
1975	595,252	1,149,731	4,010,395	0	604,161	0	0
1976	756,175	1,561,385	5,443,936	0	932,444	0	0
1977	337,889	703,802	2,360,624	0	358,028	0	0
1978	658,404	1,186,696	4,180,131	0	1,551,015	0	0
1979	791,488	1,581,250	5,475,688	0	1,881,587	0	0
1980	1,047,495	2,102,439	7,028,235	0	1,762,063	0	0
1981	1,319,739	2,838,773	9,351,931	0	2,296,771	0	0
1982	1,213,660	2,424,920	8,352,207	0	1,498,620	0	0
1983	304,715	540,330	1,582,582	0	341,957	0	384,275
1984	602,408	1,129,131	3,448,759	0	622,123	0	0
1985	1,397,098	2,781,953	9,261,674	0	1,195,768	0	0
1986	2,432,322	4,999,949	16,956,023	(1,013,756)	2,359,599	0	0
1987	2,223,371	4,456,059	14,684,476	(1,026,193)	1,831,238	0	131,606
1988	2,560,462	5,126,229	16,819,159	(744,374)	2,375,784	0	0
1989	3,974,290	8,369,623	28,090,313	(766,443)	4,102,557	0	686,468
1990	6,019,952	13,630,073	48,369,421	(834,673)	6,504,876	0	89,075
1991	1,031,345	2,426,220	8,641,086	(269,625)	996,352	0	0
1992	1,314,358	2,642,161	8,854,347	(934,311)	1,167,670	0	156,847
1993	(102,311)	(582,580)	(2,649,876)	(56,908)	(253,503)	0	(34,870)
1994	2,516,185	5,276,189	18,302,830	(58,712)	2,572,826	0	0
1995	841,178	1,677,210	5,571,517	(1,242,189)	1,025,717	0	467,095
1996	2,231,167	4,723,600	16,483,976	(2,644,648)	2,487,165	(857,876)	1,959,474
1997	2,417,154	5,424,334	19,413,834	(2,488,338)	3,037,087	(1,680,469)	0
1998	(219,762)	(488,690)	(1,683,606)	(1,969,187)	(402,338)	(1,217,950)	(144,207)
1999	1,295,067	3,326,334	12,889,920	(2,811,928)	1,795,375	(2,482,354)	(4)
2000	3,038,567	6,993,106	25,232,756	(5,129,549)	3,969,325	(4,429,149)	(4)
2001	15,252,650	34,362,262	126,969,963	(3,298,048)	19,044,251	(3,649,034)	(3)
2002	8,803,124	19,884,738	73,074,994	(4,926,146)	10,767,871	(5,255,302)	(2)
2003	11,139,389	25,395,242	93,471,975	(3,431,664)	14,896,580	(6,760,773)	(1)
2004	12,682,850	28,967,907	106,508,265	(6,227,543)	16,646,955	(7,691,607)	0
2005	12,757,307	28,986,888	102,884,712	(6,140,331)	18,267,341	(6,778,759)	0
2006	12,221,482	27,669,314	101,493,156	(18,246,652)	18,993,458	(6,387,729)	0
2007	16,776,090	37,597,250	137,710,764	(6,494,577)	22,076,636	(7,474,378)	0
2008	11,153,609	24,909,827	87,949,096	(3,700,091)	12,696,998	(3,204,911)	0
2009	13,603,747	29,564,206	121,311,437	(3,491,877)	13,124,659	(3,679,825)	0
2010	**25,179,047**	**53,387,420**	**183,988,872**	**(6,250,841)**	**27,523,438**	**(8,451,544)**	**0**
2011	25,854,496	54,827,460	189,060,503	(6,320,118)	28,438,745	(8,557,188)	0
2012	21,231,244	49,645,034	185,504,662	(6,896,511)	31,192,988	(8,092,129)	3,105,998
2013	23,199,735	54,367,952	203,409,260	(7,343,734)	33,690,726	(8,610,119)	2,188,242
2014	23,608,471	55,347,736	207,121,977	(7,213,698)	32,100,269	(8,735,874)	0
2015	25,074,010	58,865,429	220,441,850	(7,309,746)	32,015,606	(8,565,252)	0
2016	25,666,265	60,284,256	225,816,711	(7,566,886)	33,762,479	(9,232,657)	4,228,307
2017	23,913,510	56,084,754	209,907,833	(7,243,286)	31,986,627	(8,775,984)	0
2018	26,274,664	61,743,134	231,346,383	(7,682,198)	34,350,367	(9,313,246)	6,569,801
2019	25,010,302	58,713,245	219,866,033	(7,279,517)	32,117,021	(8,596,700)	0
2020	25,474,661	59,825,284	224,078,052	(7,449,547)	33,116,023	(8,994,387)	0
2021	25,254,871	59,298,468	222,081,943	(7,385,151)	32,962,102	(8,997,500)	151,523
2022	25,488,751	59,859,014	224,205,726	(7,403,382)	33,129,745	(9,052,150)	3,498,893
2023	25,626,610	60,189,258	225,456,944	(7,490,270)	33,447,282	(9,016,085)	2,121,563
2024	25,284,833	59,370,361	222,354,404	(7,338,594)	32,417,281	(8,581,072)	0
2025	25,563,475	60,038,023	224,883,952	(7,487,271)	33,304,197	(8,926,224)	3,438,553
2026	25,313,041	59,438,279	222,612,280	(7,423,430)	32,621,984	(8,397,546)	0
2027	25,576,542	60,069,237	225,002,053	(7,477,105)	33,173,552	(8,585,050)	1,472,019
2028	25,331,854	59,483,132	222,781,847	(7,421,213)	33,098,872	(8,901,346)	0
2029	25,439,604	59,741,023	223,758,456	(7,392,180)	32,762,212	(8,813,002)	804,642
2030	25,151,242	59,050,283	221,141,853	(7,371,539)	32,745,775	(8,647,163)	0
2031	26,368,633	61,968,510	232,200,908	(7,564,901)	33,919,436	(9,260,623)	6,088,435
2032	24,632,317	57,808,388	216,439,700	(7,242,261)	31,912,329	(8,303,736)	0
2033	26,385,765	62,009,588	232,356,728	(7,622,230)	34,199,565	(9,260,198)	3,331,764
2034	24,718,098	58,013,436	217,215,587	(7,230,096)	32,074,178	(8,507,707)	0
2035	26,779,946	62,955,996	235,948,854	(7,707,613)	34,236,699	(9,009,677)	4,153,037
TOTAL	809,150,760	1,866,963,625	6,921,085,347	(268,061,081)	1,040,039,564	(289,734,275)	44,848,526

(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 withc 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 a 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

(in dollars)

Calendar Year	CALIFORNIA AQUEDUCT (continued)						
	Reach 26A	EBX Reach 2B	EBX Reach 3A	EBX Reach 4B	Reach 28J	Reach 29A	Reach 29G
	Devil Canyon Powerplant	Greenspot Pumping Plant	Crafton Hills Pumping Plant	Cherry Valley Pumping Plant	Lake Perris (d	Oso Pumping Plant	Warne Powerplant
	[16]	[17]	[18]	[19]	[20]	[21]	[22]
1962	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0
1972	(3,024)	0	0	0	0	102,315	0
1973	(436,768)	0	0	0	0	158,587	0
1974	(521,656)	0	0	0	0	193,311	0
1975	(1,071,023)	0	0	0	0	350,436	0
1976	(1,519,156)	0	0	0	0	362,767	0
1977	(1,175,966)	0	0	0	0	111,135	0
1978	(3,038,194)	0	0	0	0	125,183	0
1979	(3,419,581)	0	0	0	0	138,384	0
1980	(3,318,152)	0	0	0	0	236,768	0
1981	(3,842,971)	0	0	0	0	444,280	0
1982	(2,736,072)	0	0	0	0	539,245	(783,626)
1983	(5,478,830)	0	0	0	0	71,197	(495,041)
1984	(7,326,265)	0	0	0	(10,080)	240,134	(2,027,345)
1985	(10,477,567)	0	0	0	(56,570)	874,069	(5,930,176)
1986	(11,484,996)	0	0	0	0	1,269,590	(5,579,301)
1987	(10,814,483)	0	0	0	53,242	1,325,936	(6,304,539)
1988	(14,495,967)	0	0	0	0	1,421,097	(6,993,235)
1989	(18,532,961)	0	0	0	89,890	2,013,335	(8,235,085)
1990	(20,911,839)	0	0	0	147,163	2,857,409	(11,011,065)
1991	(4,884,013)	0	0	0	0	534,818	(3,600,495)
1992	(9,513,281)	0	0	0	(61,233)	717,740	(5,508,780)
1993	(7,502,549)	0	0	0	0	68,719	(4,525,955)
1994	(11,662,318)	0	0	0	147,989	1,203,006	(5,813,538)
1995	(9,742,248)	0	0	0	0	247,869	(1,934,202)
1996	(12,358,465)	0	0	0	0	895,929	(4,248,531)
1997	(13,293,791)	0	0	0	111,776	897,657	(4,797,589)
1998	(10,183,555)	0	0	0	0	(25,895)	(740,480)
1999	(14,772,635)	0	0	0	(4)	677,032	(5,526,541)
2000	(25,856,637)	0	0	0	(4)	1,216,343	(9,464,490)
2001	(19,498,071)	0	0	0	(3)	6,445,378	(7,987,833)
2002	(24,635,887)	0	0	0	(2)	3,834,216	(10,286,902)
2003	(28,000,328)	0	0	0	(1)	4,519,298	(10,281,922)
2004	(31,217,777)	0	0	0	0	5,385,468	(12,033,953)
2005	(30,592,888)	0	0	0	0	4,130,683	(8,251,156)
2006	(34,523,432)	145,699	159,676	3,702	0	3,833,868	(8,780,170)
2007	(27,812,496)	197,660	165,349	11,537	0	6,779,538	(10,607,268)
2008	(16,281,692)	312,103	394,885	3,078	0	4,870,056	(7,707,653)
2009	(14,113,920)	254,770	300,191	45,911	0	6,377,118	(7,540,612)
2010	**(26,222,760)**	**547,781**	**683,626**	**16,319**	**0**	**10,352,514**	**(12,052,396)**
2011	(26,505,782)	560,104	699,005	16,686	0	10,566,319	(12,050,465)
2012	(30,940,970)	587,664	733,399	17,507	3,146,088	8,954,739	(13,260,297)
2013	(32,547,657)	587,664	733,399	17,507	0	10,082,418	(14,921,881)
2014	(31,176,747)	587,664	733,399	17,507	780,212	10,418,749	(15,327,988)
2015	(31,456,247)	587,664	733,399	17,507	0	11,994,285	(17,405,877)
2016	(32,073,676)	587,664	733,399	17,507	235,610	11,968,713	(17,425,277)
2017	(31,405,957)	587,664	733,399	17,507	0	10,779,907	(15,742,316)
2018	(32,387,072)	587,664	733,399	17,507	3,731,220	12,394,176	(17,964,994)
2019	(31,388,371)	587,664	733,399	17,507	0	11,888,623	(17,235,811)
2020	(32,468,433)	587,664	733,399	17,507	3,156,924	12,004,925	(17,437,684)
2021	(31,800,189)	587,664	733,399	17,507	72,588	11,830,458	(17,188,343)
2022	(31,463,388)	587,664	733,399	17,507	0	12,014,872	(17,426,137)
2023	(32,152,929)	587,664	733,399	17,507	1,506,880	12,042,548	(17,483,602)
2024	(31,937,247)	587,664	733,399	17,507	0	12,070,352	(17,522,597)
2025	(31,778,982)	587,664	733,399	17,507	0	12,028,895	(17,462,555)
2026	(32,173,744)	587,664	733,399	17,507	714,376	12,018,255	(17,418,032)
2027	(31,990,276)	587,664	733,399	17,507	0	12,092,139	(17,555,395)
2028	(32,236,422)	587,664	733,399	17,507	984,722	11,860,865	(17,228,571)
2029	(31,582,879)	587,664	733,399	17,507	0	12,100,958	(17,585,804)
2030	(31,931,228)	587,664	733,399	17,507	0	11,801,502	(17,161,718)
2031	(31,930,707)	587,664	733,399	17,507	358,165	12,663,529	(18,394,980)
2032	(31,595,871)	587,664	733,399	17,507	0	11,565,650	(16,807,049)
2033	(32,634,676)	587,664	733,399	17,507	4,704,436	12,571,898	(18,257,942)
2034	(31,097,942)	587,664	733,399	17,507	0	11,594,927	(16,821,040)
2035	(32,710,594)	587,664	733,399	17,507	6,420,643	13,039,541	(19,056,908)
TOTAL	(1,284,642,200)	16,122,045	20,004,306	517,399	26,234,027	368,145,776	(611,193,142)

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 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	
	[23]	[24]	[25]	[26]	[27]	[28]	[29]
1962	0	0	0	0	0	0	36,970
1963	0	0	0	0	0	0	57,711
1964	0	0	0	0	0	0	74,134
1965	0	0	0	0	0	0	142,609
1966	0	0	0	0	0	0	192,605
1967	0	0	0	0	0	13,881	236,998
1968	0	0	0	118,676	0	774,253	1,117,913
1969	0	0	0	78,350	0	507,516	773,646
1970	0	0	0	136,429	0	693,842	1,103,798
1971	0	0	0	166,296	0	1,121,164	1,513,435
1972	0	(211,144)	0	237,638	0	2,648,786	3,261,922
1973	0	(1,057,564)	0	120,913	0	2,661,036	3,168,975
1974	0	(1,547,884)	0	118,582	0	3,336,872	3,919,920
1975	0	(2,455,461)	0	94,848	0	5,689,034	6,053,571
1976	0	(2,827,557)	0	141,260	0	7,886,569	8,478,786
1977	0	(3,734,462)	0	71,311	0	628,796	1,164,427
1978	0	(1,542,479)	0	179,925	0	6,979,261	7,587,308
1979	0	(2,773,323)	0	192,126	0	9,249,255	9,870,628
1980	0	(3,408,863)	0	168,458	0	9,882,560	10,425,874
1981	0	(2,834,322)	0	169,177	0	16,972,365	17,563,899
1982	0	(3,463,971)	0	168,390	0	12,859,335	13,477,272
1983	65,741	(3,260,764)	(3,176,515)	17,920	0	(7,537,336)	(7,452,772)
1984	0	(2,336,089)	(2,151,129)	112,679	0	(4,435,858)	(4,159,493)
1985	0	(15,698,638)	0	146,843	0	(10,322,391)	(9,861,183)
1986	0	(11,072,448)	0	297,886	0	10,799,251	11,622,736
1987	68,410	(11,562,269)	(41,897)	245,082	0	5,787,267	6,701,446
1988	54,038	(12,292,638)	(211,526)	214,519	0	5,288,073	6,239,206
1989	14,390	(14,514,469)	126,791	282,180	0	23,323,739	24,585,083
1990	0	(20,116,506)	245,180	416,832	0	46,159,453	48,154,173
1991	439,068	(6,579,194)	0	3,610	0	2,057,456	2,462,221
1992	0	(9,493,502)	(935,650)	101,665	0	(5,857,012)	(5,509,966)
1993	(13,291)	(9,266,007)	(446,527)	(111,306)	0	(24,723,671)	(24,907,971)
1994	20,518	(10,547,914)	(86,993)	206,258	0	12,537,293	13,452,216
1995	0	(4,049,615)	0	243,434	0	(443,026)	(142,956)
1996	0	(8,457,232)	0	296,170	0	15,023,643	15,870,541
1997	0	(8,727,328)	(897)	298,483	208,816	13,156,006	14,336,880
1998	(931,305)	(3,360,851)	(2,108,804)	(51,634)	(87,016)	(23,936,638)	(24,082,640)
1999	(4)	(9,954,674)	(4)	159,358	234,077	(5,948,035)	(5,366,393)
2000	(4)	(17,958,033)	(4)	231,346	380,555	(7,737,472)	(6,759,469)
2001	(3)	(13,981,232)	(3)	1,086,309	2,152,324	205,835,058	210,729,055
2002	(2)	(18,455,024)	(2)	545,459	1,320,943	87,322,990	89,941,043
2003	(1)	(17,307,974)	(1)	641,112	1,482,405	127,053,549	130,019,657
2004	0	(20,022,179)	0	661,852	1,718,113	138,004,855	140,944,826
2005	0	(13,698,272)	0	829,541	1,669,939	158,341,414	161,656,865
2006	0	(14,679,220)	0	851,191	1,529,589	132,901,367	136,233,117
2007	0	(19,258,969)	0	1,311,758	2,138,250	207,424,664	212,474,254
2008	0	(13,099,181)	0	1,171,187	1,814,553	133,345,236	138,164,245
2009	0	(17,775,236)	0	180,488	730,018	175,706,695	181,721,264
2010	**0**	**(23,407,551)**	**0**	**1,609,764**	**5,229,559**	**303,419,953**	**311,226,248**
2011	0	(23,405,326)	0	1,639,843	5,327,274	313,255,711	321,210,155
2012	0	(20,690,515)	2,997,738	1,726,893	4,214,600	310,670,706	316,391,274
2013	0	(23,404,064)	0	1,726,893	4,214,600	330,727,894	336,661,116
2014	0	(24,165,224)	0	1,976,524	5,897,898	337,027,190	343,798,262
2015	0	(27,724,118)	0	1,976,524	5,897,898	355,996,570	363,496,897
2016	0	(27,679,083)	1,153,942	1,976,524	5,897,898	367,848,141	375,344,089
2017	0	(24,892,682)	0	1,976,524	5,897,898	338,638,953	346,192,044
2018	0	(28,653,434)	4,943,495	1,976,524	5,897,898	388,713,863	396,294,135
2019	0	(27,475,730)	0	1,976,524	5,897,898	353,533,738	361,141,659
2020	0	(27,753,366)	0	1,976,524	5,897,898	361,382,341	369,017,327
2021	0	(27,348,822)	0	1,976,524	5,897,898	356,909,072	364,548,543
2022	0	(27,774,336)	7,223	1,976,524	5,897,898	364,257,748	371,897,219
2023	0	(27,840,355)	50,219	1,976,524	5,897,898	366,162,911	373,802,382
2024	0	(27,908,059)	1,576,015	1,976,524	5,897,898	356,092,282	363,731,753
2025	0	(27,809,072)	138,589	1,976,524	5,897,898	365,262,653	372,902,124
2026	0	(27,775,948)	0	1,976,524	5,897,898	362,600,829	370,240,300
2027	0	(27,959,096)	1,810,105	1,976,524	5,897,898	363,161,313	370,800,784
2028	0	(27,419,785)	0	1,976,524	5,897,898	360,996,376	368,635,847
2029	0	(27,980,080)	1,247,154	1,976,524	5,897,898	359,681,892	367,321,363
2030	0	(27,283,956)	0	1,976,524	5,897,898	355,594,076	363,233,547
2031	0	(29,300,433)		1,976,524	5,897,898	378,759,030	386,398,501
2032	0	(26,728,977)	0	1,976,524	5,897,898	348,638,756	356,278,227
2033	0	(29,084,170)	9,693,603	1,976,524	5,897,898	392,068,821	399,708,292
2034	0	(26,792,892)	0	1,976,524	5,897,898	350,082,923	357,722,394
2035	0	(30,215,165)	31,997,480	1,976,524	5,897,898	411,853,630	419,493,101
TOTAL	(282,445)	(1,051,854,727)	46,827,582	62,739,522	164,032,355	10,744,368,455	10,994,775,969

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	14,463,274	(4,850,000)	0	0	0	0	9,613,274
1961	18,729,965	(431,527)	0	0	0	0	18,298,438
1962	9,099,967	(479,280)	0	0	0	0	8,620,687
1963	73,098,107	(478,743)	(14,000)	0	0	0	72,605,364
1964	62,629,003	(751,330)	(14,000)	0	0	107,780	61,971,453
1965	71,048,877	(763,541)	(14,000)	0	0	551,850	70,823,186
1966	125,376,541	(748,649)	(14,000)	0	0	1,081,023	125,694,915
1967	94,481,603	(812,145)	(13,446)	0	0	1,189,212	94,845,224
1968	39,986,145	(431,574)	1,303,821	(951,000)	0	793,399	40,700,791
1969	5,367,865	(259,015)	2,890,772	(11,007,000)	0	601,867	(2,405,511)
1970	4,208,411	(203,733)	4,818,634	(14,650,000)	(1,500,000)	516,659	(6,810,029)
1971	3,956,703	(193,631)	6,026,480	(14,650,000)	(1,500,000)	408,754	(5,951,694)
1972	4,662,254	(196,361)	5,393,011	(14,650,000)	(1,500,000)	287,374	(6,003,722)
1973	4,090,078	(136,997)	6,135,774	(14,650,000)	(1,500,000)	203,384	(5,857,761)
1974	6,852,718	(137,503)	6,944,723	(17,950,000)	(1,500,000)	201,907	(5,588,155)
1975	8,343,833	(234,567)	7,697,390	(14,650,000)	(1,500,000)	146,188	(197,156)
1976	6,189,617	(204,944)	7,067,037	(14,650,000)	(1,500,000)	205,234	(2,893,056)
1977	21,554,452	(150,214)	10,547,977	(14,650,000)	(1,500,000)	857,419	16,659,634
1978	8,031,393	(64,566)	12,851,158	(14,650,000)	(1,500,000)	2,131,286	6,799,271
1979	9,751,861	0	9,547,014	(14,650,000)	(1,500,000)	2,131,884	5,280,759
1980	11,345,574	0	13,258,298	(14,650,000)	(1,500,000)	3,638,851	12,092,723
1981	11,921,267	0	10,326,538	(14,650,000)	(1,500,000)	4,597,474	10,695,279
1982	17,479,060	0	16,154,872	(14,650,000)	(1,500,000)	4,594,682	22,078,614
1983	12,763,378	0	22,251,331	(34,705,000)	(8,735,000)	3,751,993	(4,673,298)
1984	9,367,268	0	22,700,224	(14,650,000)	(10,348,000)	2,979,126	10,048,618
1985	12,538,173	0	23,462,283	(14,650,000)	(8,198,000)	2,069,024	15,221,480
1986	21,586,489	0	26,479,379	(14,650,000)	(9,107,000)	1,602,419	25,911,287
1987	32,734,633	0	23,479,839	(14,650,000)	(9,451,000)	1,762,179	33,875,651
1988	33,028,679	0	25,832,491	(14,650,000)	(8,677,000)	1,808,899	37,343,069
1989	11,075,132	0	28,442,946	(14,650,000)	(8,102,000)	2,678,007	19,444,085
1990	28,764,328	0	37,430,776	(14,650,000)	(8,498,000)	1,436,712	44,483,816
1991	37,462,303	0	76,586,450	(14,650,000)	(9,487,000)	1,727,664	91,639,417
1992	29,169,134	0	32,280,228	(14,650,000)	(8,526,000)	1,707,822	39,981,184
1993	22,366,872	0	36,884,103	(14,650,000)	(8,768,000)	1,708,490	37,541,465
1994	14,709,626	0	41,193,693	(14,650,000)	(7,484,000)	2,134,392	35,903,711
1995	15,120,857	0	46,162,374	(14,650,000)	(4,976,939)	2,042,481	43,698,773
1996	10,990,965	0	50,885,567	(14,650,000)	(5,503,289)	2,448,692	44,171,935
1997	15,265,626	0	51,788,497	(14,650,000)	(5,740,515)	1,699,730	48,363,338
1998	3,851,858	0	54,726,293	(14,650,000)	(8,155,000)	1,193,198	36,966,349
1999	6,829,249	0	56,769,613	(14,650,000)	(9,198,000)	9,686	39,760,548
2000	9,878,905	0	56,145,907	(14,650,000)	(9,797,482)	13,491	41,590,821
2001	8,342,559	0	74,649,368	(14,650,000)	(14,328,482)	23,866	54,037,311
2002	14,586,957	0	69,826,887	(14,650,000)	(20,826,560)	24,426	48,961,710
2003	16,606,963	0	77,537,203	(14,650,000)	(29,982,088)	9,833	49,521,911
2004	14,615,630	0	91,596,929	(14,650,000)	(35,845,422)	7,548	55,724,685
2005	(5,828,296)	0	99,785,031	(14,650,000)	(22,004,805)	0	57,301,930
2006	7,504,342	0	100,730,282	(14,650,000)	(21,005,765)	0	72,578,859
2007	8,001,154	0	88,015,394	(14,650,000)	(16,759,447)	0	64,607,101
2008	24,924,442	0	105,707,792	(14,650,000)	(19,295,181)	0	96,687,053
2009	12,303,227	0	113,567,395	(15,908,666)	(21,845,636)	0	88,116,321
2010	**20,571,654**	**0**	**103,645,603**	**(15,953,842)**	**(21,889,946)**	**0**	**86,373,469**
2011	11,871,935	0	122,279,795	(15,953,762)	(22,002,250)	0	96,195,718
2012	6,521,252	0	104,944,025	(15,954,379)	(22,131,737)	0	73,379,161
2013	1,560,203	0	107,482,666	(15,954,212)	(22,353,054)	0	70,735,603
2014	1,175,735	0	108,683,431	(15,953,988)	(22,576,585)	0	71,328,593
2015	1,175,735	0	104,332,570	(15,954,546)	(22,802,351)	0	66,751,408
2016	1,175,735	0	101,821,766	(15,953,901)	(23,030,374)	0	64,013,226
2017	1,175,735	0	102,960,430	(15,954,231)	(23,260,678)	0	64,921,256
2018	397,980	0	105,785,096	(15,953,993)	(23,493,285)	0	66,735,798
2019	397,980	0	105,620,385	(15,954,110)	(23,728,217)	0	66,336,038
2020	397,980	0	105,016,334	(15,954,212)	(23,965,500)	0	65,494,602
2021	397,980	0	106,886,491	(15,954,382)	(24,205,155)	0	67,124,934
2022	397,980	0	108,397,681	(15,954,073)	(24,447,206)	0	68,394,382
2023	397,980	0	109,467,807	(15,954,027)	(24,691,678)	0	69,220,082
2024	397,980	0	108,720,197	(15,954,042)	(24,938,595)	0	68,225,540
2025	397,980	0	111,971,960	(15,953,664)	(25,187,981)	0	71,228,295
2026	397,980	0	116,017,546	(15,954,123)	(25,439,861)	0	75,021,542
2027	397,980	0	111,042,690	(15,953,987)	(25,694,259)	0	69,792,424
2028	397,980	0	114,374,343	(15,953,791)	(25,951,202)	0	72,867,330
2029	397,980	0	112,993,038	(15,954,040)	(26,210,714)	0	71,226,264
2030	397,980	0	115,847,408	(14,650,000)	(26,472,821)	0	75,122,567
2031	397,980	0	117,327,459	(14,650,000)	(26,737,549)	0	76,337,890
2032	397,980	0	118,066,129	(14,650,000)	(27,004,925)	0	76,809,184
2033	397,980	0	119,493,693	(14,650,000)	(27,274,974)	0	77,966,699
2034	397,980	0	119,074,641	(14,650,000)	(27,547,724)	0	77,274,897
2035	397,980	0	115,522,852	(14,650,000)	(27,823,201)	0	73,447,631
TOTAL	1,143,076,714	(11,528,320)	4,533,588,364	(1,029,552,970)	(1,011,007,433)	57,085,905	3,681,662,260

(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 2008 reflected in the Delta Water Charge.

Tables B-14 through B-31

Note: Where applicable, the projected data values shown in this appendix are shaded and the bill year data are in **bold** type.

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	17,423	21,572	38,995	27,302	24,121	63,057	114,480	883,110	10,563,359	11,446,469
1999	67,602	106,355	173,957	74,165	73,552	208,296	356,013	928,738	9,596,058	10,524,796
2000	16,252	37,932	54,184	27,445	28,844	80,346	136,635	488,160	5,529,102	6,017,262
2001	6,598	13,750	20,348	140,394	270,055	1,856,845	2,267,294	72,358	539,206	611,564
2002	19,917	45,940	65,857	805,478	1,189,615	5,876,842	7,871,935	63,183	376,338	439,521
2003	54,235	20,712	74,947	1,156,874	1,331,274	4,619,175	7,107,323	(2,583)	77,174	74,591
2004	153,240	20,534	173,774	594,188	572,133	4,645,206	5,811,527	8,906	46,169	55,075
2005	60,512	62,965	123,477	611,638	587,727	2,132,275	3,331,640	(10,430)	(175,947)	(186,377)
2006	891,752	24,652	916,404	1,001,707	956,030	2,294,761	4,252,498	62,673	679,307	741,980
2007	3,256,329	64,096	3,320,425	1,171,554	1,138,088	2,730,695	5,040,337	96,663	970,050	1,066,713
2008	7,915,690	71,209	7,986,899	1,811,108	1,738,325	4,162,949	7,712,382	118,986	1,168,225	1,287,211
2009	474,553	111,003	585,556	3,617,898	3,443,226	8,240,045	15,301,169	66,828	430,901	497,729
2010	**292,741**	**270,790**	**563,531**	**1,812,078**	**1,769,805**	**4,309,480**	**7,891,363**	**127,873**	**676,503**	**804,376**
2011	216,822	201,712	418,534	102,508	124,166	366,924	593,598	82,750	545,699	628,449
2012	182,099	170,470	352,569	82,020	99,572	296,624	478,216	66,858	494,613	561,471
2013	38,022	40,833	78,855	12,634	14,491	50,708	77,833	32,264	340,132	372,396
2014	38,022	40,833	78,855	12,634	14,491	50,708	77,833	32,264	340,132	372,396
2015	38,022	40,833	78,855	12,634	14,491	50,708	77,833	32,264	340,132	372,396
2016	38,022	40,833	78,855	12,634	14,491	50,708	77,833	32,264	340,132	372,396
2017	38,022	40,833	78,855	12,634	14,491	50,708	77,833	32,264	340,132	372,396
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	52,825,993	51,675,977	104,501,970	21,451,060	23,610,173	75,976,122	121,037,355	39,734,408	448,527,229	488,261,637

Note: Allocated capital costs as a result of permanent water transfers 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									
	Dudley Ridge Water District	Empire West Side Irrigation District (b)	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	Municipal and (c) Industrial	Agri-cultural				
	[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	70,737	(121,004)	23,083	122,934	18,622	1,474,568	3,742	1,278	144,963	1,738,923
1999	81,197	4,192	26,645	142,983	21,661	1,715,933	4,285	3,846	166,160	2,166,902
2000	21,089	1,073	9,822	45,704	6,013	547,927	1,096	(1,081)	42,826	674,469
2001	17,776	907	7,862	36,078	5,062	432,671	927	781	36,153	538,217
2002	74,205	3,811	16,014	132,974	20,050	1,498,693	3,898	727	151,445	1,901,817
2003	(51,255)	(2,679)	(5,522)	(76,239)	(13,107)	(824,213)	(2,740)	337	(105,557)	(1,080,975)
2004	7,704	394	2,497	17,036	2,079	183,122	404	1,518	15,697	230,451
2005	28,566	1,472	5,735	52,684	7,562	539,367	1,504	561	58,404	695,855
2006	5,453	279	1,244	22,131	1,466	109,381	286	617	11,110	151,967
2007	15,586	783	4,630	38,683	4,346	349,110	801	757	31,460	446,156
2008	39,371	2,027	8,284	68,632	10,476	759,393	2,071	1,524	80,443	972,221
2009	88,030	4,548	16,177	162,185	23,243	1,637,693	4,652	3,471	180,208	2,120,207
2010	**150,875**	**7,747**	**36,340**	**285,861**	**40,281**	**3,043,115**	**7,924**	**3,055**	**307,873**	**3,883,071**
2011	53,793	2,728	17,999	118,504	14,730	1,247,499	2,790	2,183	109,080	1,569,306
2012	24,596	1,223	11,879	58,120	7,001	693,444	1,251	1,531	49,386	848,431
2013	4,237	210	1,489	9,915	1,251	110,800	215	208	8,500	136,825
2014	4,237	210	1,489	9,915	1,251	110,800	215	208	8,500	136,825
2015	4,237	210	1,489	9,915	1,251	110,800	215	208	8,500	136,825
2016	4,237	210	1,489	9,915	1,251	110,800	215	208	8,500	136,825
2017	4,237	210	1,489	9,915	1,251	110,800	215	208	8,500	136,825
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	6,067,979	(30,844)	1,989,568	13,914,503	1,775,292	154,181,836	309,206	275,872	12,194,124	190,677,536

(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 Table A 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	1,116,949	305,291
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	234,379	202,650	62,492	41,136	103,063	3,989	106,009	29,551	3,550,447	303,255
1999	268,224	175,939	89,312	40,069	147,294	4,812	167,592	35,399	5,481,780	235,054
2000	139,035	77,889	54,795	23,903	90,369	2,665	103,194	19,150	13,636,062	171,107
2001	130,754	44,790	50,816	15,641	83,805	2,989	102,254	20,949	19,259,619	96,254
2002	167,056	107,515	34,405	11,395	56,741	2,453	68,208	18,551	9,356,657	126,427
2003	(45,784)	(11,499)	2,940	2,123	4,849	(803)	4,179	(5,961)	3,748,606	27,216
2004	63,046	38,831	20,124	5,569	33,188	1,133	41,043	8,244	2,048,978	38,381
2005	185,021	105,426	38,605	11,966	63,668	3,220	76,145	23,687	957,047	61,072
2006	328,802	245,918	70,113	26,098	115,634	5,534	129,666	41,410	1,979,150	117,607
2007	275,615	194,974	65,853	24,981	108,605	4,871	126,845	35,590	2,102,963	123,055
2008	134,819	169,340	72,101	62,035	118,925	2,413	84,015	17,550	3,232,261	269,441
2009	583,543	353,669	203,914	68,319	336,305	9,971	386,617	74,142	1,998,951	345,237
2010	**944,747**	**520,047**	**409,287**	**105,020**	**674,990**	**16,744**	**844,576**	**122,152**	**2,156,017**	**588,617**
2011	583,640	484,785	293,041	77,254	483,279	10,449	602,392	75,882	1,560,420	425,812
2012	232,772	128,586	76,717	22,442	126,522	4,451	155,425	31,355	428,042	116,219
2013	39,155	25,651	11,375	3,659	18,759	714	22,318	5,232	78,160	20,309
2014	39,155	25,651	11,375	3,659	18,759	714	22,318	5,232	78,160	20,309
2015	39,155	25,651	11,375	3,659	18,759	714	22,318	5,232	78,160	20,309
2016	39,155	25,651	11,375	3,659	18,759	714	22,318	5,232	78,160	20,309
2017	39,155	25,651	11,375	3,659	18,759	714	22,318	5,232	78,160	20,309
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	54,691,663	34,861,797	15,877,495	5,088,199	26,185,408	981,139	31,184,057	7,192,797	169,233,795	28,142,068

(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 Watershed Protection 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	187,699	10,243,779	56,162	14,164,563	0	0	29	29	16,338	28,581,729
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	3,352,042	11,284,364	65,745	19,339,122	0	0	7	7	11,234	32,689,230
1999	6,139,881	9,063,618	54,504	21,903,478	0	0	2	2	34,616	35,159,764
2000	17,011,986	5,393,221	24,010	36,747,386	0	0	24	24	16,912	43,646,872
2001	24,646,210	2,988,800	13,047	47,455,928	0	0	20	20	68,013	50,961,384
2002	11,630,817	5,297,703	34,824	26,912,752	0	0	14	14	380,629	37,572,525
2003	4,685,429	3,954,532	(4,182)	12,361,645	0	0	0	0	590,121	19,127,652
2004	2,388,584	4,276,877	13,219	8,977,217	0	0	0	0	238,963	15,487,007
2005	843,850	6,615,039	36,031	9,020,777	0	0	0	0	214,510	13,199,882
2006	1,884,174	13,961,487	89,982	18,995,575	0	0	5	5	348,924	25,407,353
2007	2,214,885	12,376,671	69,713	17,724,621	0	0	0	0	416,653	28,014,905
2008	2,867,869	11,821,931	58,512	18,911,212	0	0	4	4	635,342	37,505,271
2009	215,660	35,002,949	125,247	39,704,524	0	0	0	0	1,259,866	59,469,051
2010	**362,938**	**36,242,828**	**174,309**	**43,162,272**	**0**	**0**	**0**	**0**	**651,646**	**56,956,259**
2011	262,517	124,328,132	155,010	129,342,613	0	0	0	0	49,735	132,602,235
2012	71,593	72,902,578	41,919	74,338,621	0	0	0	0	39,897	76,619,205
2013	12,601	1,155,654	8,581	1,402,168	0	0	0	0	5,818	2,073,895
2014	12,601	1,155,654	8,581	1,402,168	0	0	0	0	5,818	2,073,895
2015	12,601	1,155,654	8,581	1,402,168	0	0	0	0	5,818	2,073,895
2016	12,601	1,155,654	8,581	1,402,168	0	0	0	0	5,818	1,407,986
2017	12,601	1,155,654	8,581	1,402,168	0	0	0	0	5,818	2,073,895
2018	0	0	0	0	0	0	0	0	0	665,909
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	96,381,238	1,769,491,188	11,708,169	2,251,019,013	0	0	341,134	341,134	12,282,063	3,168,120,708

(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	1,443,206	13,751	36,017	49,768
1966	18,057	0	18,057	320,279	290,714	1,072,916	1,683,908	26,516	61,329	87,845
1967	41,560	0	41,560	391,134	320,885	1,187,229	1,899,248	56,451	118,225	174,675
1968	121,469	0	121,469	507,654	361,817	1,309,517	2,178,989	104,127	207,970	312,097
1969	165,236	0	165,236	609,778	397,257	1,411,239	2,418,275	122,005	242,348	364,353
1970	169,023	0	169,023	644,098	412,189	1,450,186	2,506,473	125,923	250,728	376,651
1971	171,231	0	171,231	650,924	415,305	1,457,088	2,523,318	128,362	256,289	384,651
1972	172,593	0	172,593	652,247	416,233	1,461,370	2,529,850	129,820	260,399	390,218
1973	173,593	31,353	204,946	653,586	416,883	1,464,608	2,535,078	130,802	262,956	393,758
1974	176,471	32,924	209,395	654,576	417,501	1,466,613	2,538,691	131,973	265,816	397,789
1975	184,914	36,276	221,190	656,882	418,743	1,470,336	2,545,961	133,248	268,942	402,189
1976	189,589	40,819	230,408	658,207	419,548	1,472,444	2,550,199	133,998	272,068	406,067
1977	192,530	45,078	237,608	660,877	421,313	1,478,024	2,560,214	135,711	278,710	414,421
1978	195,797	49,159	244,956	664,456	423,610	1,484,815	2,572,881	141,226	292,188	433,414
1979	199,326	53,320	252,646	669,756	426,971	1,493,720	2,590,447	142,317	297,474	439,790
1980	209,065	67,724	276,788	673,548	429,157	1,499,354	2,602,059	143,485	303,872	447,357
1981	222,528	87,377	309,905	683,697	435,488	1,514,863	2,634,048	148,742	327,440	476,182
1982	234,116	106,881	340,997	681,580	433,968	1,511,521	2,627,070	147,957	320,554	468,511
1983	262,076	151,207	413,284	682,824	434,392	1,512,899	2,630,116	148,166	317,556	465,722
1984	325,968	224,170	550,139	693,919	441,088	1,530,172	2,665,178	149,805	323,171	472,976
1985	455,691	364,186	819,877	706,331	448,265	1,548,089	2,702,686	151,610	328,656	480,266
1986	819,376	692,256	1,511,632	708,227	449,245	1,550,813	2,708,285	152,497	332,673	485,170
1987	1,360,258	1,558,749	2,919,007	710,807	450,862	1,555,321	2,716,990	154,756	348,361	503,117
1988	1,771,094	2,207,426	3,978,520	715,026	453,368	1,562,476	2,730,869	161,295	417,458	578,753
1989	1,890,890	2,432,396	4,323,286	723,910	459,184	1,578,141	2,761,235	169,399	494,091	663,490
1990	1,954,717	2,513,362	4,468,079	731,959	464,542	1,591,698	2,788,200	177,331	557,209	734,540
1991	1,977,962	2,556,601	4,534,563	749,063	476,306	1,624,504	2,849,872	188,990	639,036	828,026
1992	1,983,238	2,561,318	4,544,556	779,652	496,563	1,674,504	2,950,720	204,758	754,445	959,203
1993	1,986,275	2,564,623	4,550,898	794,008	505,611	1,698,036	2,997,655	223,986	941,012	1,164,998
1994	1,992,843	2,571,524	4,564,367	804,436	512,334	1,716,406	3,033,176	286,790	1,584,690	1,871,480
1995	1,996,698	2,576,028	4,572,726	808,910	515,474	1,728,828	3,053,212	517,259	4,094,617	4,611,877
1996	1,998,368	2,577,625	4,575,993	816,812	520,770	1,742,877	3,080,459	1,186,671	12,565,710	13,752,380
1997	1,999,484	2,578,675	4,578,160	820,861	523,416	1,749,897	3,094,174	1,808,036	20,572,449	22,380,486
1998	2,000,598	2,584,668	4,585,266	827,589	527,808	1,761,546	3,116,943	1,985,088	22,693,988	24,679,076
1999	2,001,577	2,585,880	4,587,456	829,817	529,163	1,765,088	3,124,068	2,034,690	23,287,310	25,322,000
2000	2,005,415	2,591,918	4,597,333	987,793	533,339	1,776,914	3,298,047	2,087,421	23,832,146	25,919,567
2001	2,324,784	2,780,029	5,104,813	1,120,483	534,995	1,781,529	3,437,007	2,115,456	24,149,673	26,265,129
2002	2,325,224	2,780,868	5,106,092	1,134,882	550,693	1,889,460	3,575,034	2,119,661	24,181,015	26,300,677
2003	2,326,568	2,783,677	5,110,245	1,219,551	620,730	2,235,455	4,075,736	2,123,381	24,203,172	26,326,553
2004	2,330,251	2,784,970	5,115,221	1,353,094	700,178	2,511,117	4,564,389	2,123,227	24,207,777	26,331,005
2005	2,340,796	2,786,308	5,127,104	1,412,909	734,816	2,792,348	4,940,073	2,123,766	24,210,573	26,334,339
2006	2,345,045	2,790,538	5,135,582	1,473,883	770,946	2,923,427	5,168,256	2,123,125	24,199,757	26,322,882
2007	2,408,342	2,792,214	5,200,556	1,575,178	830,678	3,066,802	5,472,658	2,127,041	24,242,199	26,369,240
2008	2,643,493	2,796,622	5,440,115	1,696,531	903,023	3,240,384	5,839,938	2,133,185	24,303,862	26,437,048
2009	3,225,682	2,801,603	6,027,284	1,886,706	1,015,572	3,509,918	6,412,197	2,140,889	24,379,500	26,520,389
2010	**3,261,316**	**2,809,407**	**6,070,723**	**2,272,987**	**1,242,919**	**4,053,985**	**7,569,890**	**2,145,302**	**24,407,951**	**26,553,253**
2011	3,283,848	2,829,252	6,113,100	2,472,278	1,362,244	4,344,542	8,179,064	2,153,923	24,453,563	26,607,486
2012	3,300,915	2,844,344	6,145,260	2,484,708	1,370,805	4,369,840	8,225,353	2,159,629	24,491,187	26,650,816
2013	3,315,597	2,857,391	6,172,989	2,319,709	1,272,199	4,026,090	7,617,998	2,164,350	24,526,116	26,690,466
2014	3,318,747	2,860,512	6,179,259	2,251,186	1,208,014	3,864,607	7,323,807	2,159,994	24,529,100	26,689,094
2015	3,321,984	2,863,721	6,185,704	2,177,468	1,120,107	3,499,165	6,796,740	2,155,339	24,540,075	26,695,415
2016	3,304,753	2,867,026	6,171,778	2,139,954	1,090,364	3,329,212	6,559,530	2,145,050	24,540,859	26,685,910
2017	3,281,483	2,870,438	6,151,921	2,067,084	1,061,340	3,218,917	6,347,340	2,117,671	24,510,909	26,628,581
2018	3,194,266	2,873,971	6,068,237	1,949,211	1,021,596	3,100,787	6,071,594	2,072,641	24,449,058	26,521,699
2019	3,144,531	2,873,971	6,018,502	1,843,722	986,156	2,999,065	5,828,943	2,054,764	24,414,680	26,469,444
2020	3,140,210	2,873,971	6,014,181	1,807,937	971,224	2,960,118	5,739,280	2,050,845	24,406,301	26,457,145
2021	3,137,679	2,873,971	6,011,650	1,800,742	968,109	2,953,216	5,722,066	2,048,407	24,400,740	26,449,146
2022	3,136,119	2,873,971	6,010,090	1,799,366	967,181	2,948,934	5,715,481	2,046,948	24,396,630	26,443,579
2023	3,134,976	2,840,453	5,975,429	1,797,957	966,531	2,945,696	5,710,184	2,045,966	24,394,073	26,440,039
2024	3,131,697	2,838,819	5,970,516	1,796,895	965,913	2,943,691	5,706,499	2,044,795	24,391,212	26,436,007
2025	3,122,085	2,835,243	5,957,328	1,794,560	964,670	2,939,968	5,699,198	2,043,520	24,388,087	26,431,607
2026	3,116,743	2,830,491	5,947,234	1,793,087	963,866	2,937,860	5,694,813	2,042,770	24,384,960	26,427,730
2027	3,113,372	2,826,058	5,939,430	1,790,100	962,101	2,932,280	5,684,481	2,041,057	24,378,319	26,419,376
2028	3,109,634	2,821,800	5,931,434	1,786,093	959,804	2,925,489	5,671,385	2,035,542	24,364,841	26,400,383
2029	3,105,598	2,817,433	5,923,031	1,780,097	956,443	2,916,584	5,653,125	2,034,452	24,359,555	26,394,007
2030	3,094,445	2,801,976	5,896,421	1,775,902	954,257	2,910,950	5,641,108	2,033,283	24,353,157	26,386,440
2031	3,079,033	2,780,917	5,859,950	1,764,423	947,925	2,895,441	5,607,789	2,028,026	24,329,589	26,357,615
2032	3,065,740	2,759,979	5,825,719	1,766,939	949,446	2,898,783	5,615,167	2,028,811	24,336,474	26,365,286
2033	3,033,691	2,712,543	5,746,233	1,765,698	949,022	2,897,405	5,612,124	2,028,602	24,339,472	26,368,075
2034	2,960,617	2,635,951	5,596,568	1,753,279	942,326	2,880,132	5,575,737	2,026,963	24,333,857	26,360,820
2035	2,812,521	2,489,695	5,302,216	1,739,437	935,149	2,862,215	5,536,800	2,025,158	24,328,373	26,353,531
TOTAL	135,911,409	134,703,654	270,615,063	88,343,390	49,857,018	163,173,090	301,373,498	86,955,197	971,256,229	1,058,211,426

(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 acqueduct capacity amoung contractors.

TABLE B-15. Capital Cost 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	Municipal and (d) Industrial	Agri-cultural				
	[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	79,571
1966	0	0	12,035	120,217	17,068	0	0	0	0	149,319
1967	0	0	26,249	233,186	34,339	0	0	0	0	293,774
1968	77,692	1,762	48,934	335,663	48,951	424,688	9,404	4,740	65,592	1,017,425
1969	77,828	5,287	57,399	391,879	52,519	872,163	10,154	5,152	248,173	1,720,555
1970	85,298	5,287	59,206	423,268	53,905	1,060,813	10,442	5,358	183,652	1,887,229
1971	97,251	5,287	60,310	444,380	54,695	1,408,950	10,608	5,771	195,432	2,282,684
1972	108,660	5,287	60,925	454,082	55,057	2,109,779	10,690	11,059	602,897	3,418,437
1973	119,526	5,287	61,351	458,302	55,231	2,433,307	10,733	6,389	233,191	3,383,316
1974	181,408	5,287	61,870	460,337	55,331	2,724,942	10,766	7,154	387,058	3,894,154
1975	220,336	5,287	62,432	462,650	55,472	3,263,734	10,808	7,370	461,854	4,549,943
1976	167,994	5,287	62,700	464,506	55,661	3,518,272	10,849	8,324	330,401	4,623,994
1977	165,163	5,287	63,342	467,209	55,947	3,855,016	10,911	7,625	315,904	4,946,404
1978	176,573	0	65,775	469,066	56,138	4,285,177	11,016	8,038	338,929	5,410,713
1979	209,410	5,287	66,090	471,827	56,473	4,705,308	11,082	8,244	381,448	5,915,169
1980	222,753	5,287	66,378	474,569	56,810	5,134,556	11,153	11,747	383,905	6,367,158
1981	222,753	5,287	67,964	490,958	58,751	5,619,393	11,561	8,862	406,929	6,892,459
1982	222,753	5,287	67,975	488,679	58,689	6,066,867	11,548	9,274	429,418	7,360,489
1983	233,076	5,287	68,311	492,919	59,358	6,576,311	11,681	7,770	51,124	7,505,836
1984	245,029	5,287	68,928	498,543	60,064	6,898,930	11,830	9,893	335,239	8,133,743
1985	256,438	5,287	69,656	506,425	61,223	7,346,407	12,065	10,099	243,885	8,511,485
1986	267,847	5,287	69,944	508,820	61,568	7,475,350	12,137	10,511	520,442	8,931,905
1987	279,257	5,287	70,449	512,489	62,096	8,242,265	12,247	10,717	542,930	9,737,736
1988	290,666	5,287	70,809	515,348	62,506	8,664,219	12,330	11,129	565,419	10,197,713
1989	302,075	5,287	71,694	519,003	63,130	8,968,609	12,497	11,541	588,441	10,542,277
1990	156,742	5,287	73,130	537,356	65,369	9,284,848	12,932	11,747	634,489	10,781,899
1991	290,182	5,287	75,772	566,393	69,944	9,284,848	13,757	11,747	634,489	10,952,420
1992	313,485	5,287	78,965	597,071	74,793	9,284,848	14,752	11,747	634,489	11,015,437
1993	313,485	5,287	80,456	609,930	76,633	9,284,848	15,120	11,747	634,489	11,031,995
1994	313,485	5,287	82,079	619,299	77,912	9,284,848	15,392	11,747	634,489	11,044,538
1995	313,485	5,287	83,371	626,034	78,865	9,284,848	15,603	11,747	634,489	11,053,730
1996	289,960	5,287	87,340	635,184	80,196	8,966,098	15,956	11,747	634,489	10,726,257
1997	289,960	5,287	90,203	638,976	80,681	8,900,413	16,128	11,747	634,489	10,667,884
1998	289,960	5,287	92,911	652,398	82,706	8,640,652	16,583	11,747	634,489	10,426,733
1999	289,960	5,287	94,208	659,302	83,752	8,640,652	16,818	11,747	634,489	10,436,216
2000	289,960	5,287	95,721	667,421	84,982	7,994,502	17,090	11,747	634,489	9,801,199
2001	289,960	5,287	96,285	670,045	85,327	7,864,795	17,167	11,747	634,489	9,675,102
2002	311,961	5,287	96,742	672,142	85,621	7,864,795	17,231	11,747	595,698	9,661,225
2003	311,961	5,287	97,685	679,971	86,802	7,864,795	17,471	11,747	593,472	9,669,191
2004	311,961	5,287	97,355	675,421	86,020	7,852,730	44,796	11,747	510,912	9,596,229
2005	311,961	5,287	97,506	676,453	86,146	7,852,730	44,823	11,747	510,912	9,597,565
2006	311,961	5,287	97,859	679,691	86,610	7,852,730	46,595	11,747	509,228	9,601,709
2007	311,961	5,287	97,937	681,074	86,702	7,852,730	46,614	11,747	509,228	9,603,280
2008	311,961	5,287	98,231	683,533	86,978	7,852,730	46,670	11,747	509,228	9,606,365
2009	311,961	5,287	98,767	687,977	87,657	7,852,730	46,809	11,747	509,228	9,612,163
2010	**335,486**	**5,287**	**99,835**	**698,685**	**89,191**	**8,060,275**	**47,124**	**11,747**	**470,719**	**9,818,350**
2011	335,486	5,287	102,286	717,959	91,907	8,060,275	47,691	11,747	470,719	9,843,357
2012	335,486	5,287	103,527	726,129	92,923	8,060,275	47,907	11,747	470,719	9,854,000
2013	335,486	5,287	104,365	730,234	93,417	8,060,275	48,016	11,747	470,719	9,859,546
2014	335,486	5,287	101,750	730,952	93,508	8,060,275	48,034	11,747	470,719	9,857,757
2015	335,486	5,287	98,557	667,428	84,320	8,060,275	48,052	11,747	470,719	9,781,871
2016	335,486	5,287	92,663	612,234	76,629	8,060,275	48,071	11,747	470,719	9,713,112
2017	335,486	5,287	78,568	500,050	59,457	8,060,275	48,090	11,747	470,719	9,569,679
2018	335,486	5,287	56,004	398,387	44,948	8,060,275	38,707	11,747	470,719	9,421,560
2019	335,486	5,287	47,539	342,171	41,380	8,060,275	37,956	11,747	470,719	9,352,560
2020	335,486	5,287	45,733	310,782	39,994	8,060,275	37,668	11,747	470,719	9,317,691
2021	335,486	5,287	44,629	289,670	39,204	8,060,275	37,502	11,747	470,719	9,294,519
2022	335,486	5,287	44,013	279,968	38,842	8,060,275	37,420	11,747	470,719	9,283,757
2023	335,486	5,287	43,588	275,748	38,668	8,060,275	37,378	11,747	470,719	9,278,895
2024	335,486	5,287	43,068	273,713	38,567	8,060,275	37,344	11,747	470,719	9,276,206
2025	335,486	5,287	42,506	271,400	38,426	8,060,275	37,302	11,747	470,719	9,273,149
2026	335,486	5,287	42,239	269,544	38,238	8,060,275	37,261	11,747	470,719	9,270,795
2027	335,486	5,287	41,597	266,841	37,951	8,060,275	37,200	11,747	470,719	9,267,103
2028	335,486	5,287	39,164	264,984	37,760	8,060,275	37,095	11,747	470,719	9,262,516
2029	335,486	5,287	38,849	262,223	37,425	8,060,275	37,028	11,747	470,719	9,259,040
2030	335,486	5,287	38,561	259,480	37,089	8,060,275	36,957	11,747	470,719	9,255,601
2031	335,486	5,287	36,974	243,092	35,148	8,060,275	36,549	11,747	470,719	9,235,277
2032	335,486	5,287	36,964	245,371	35,210	8,060,275	36,562	11,747	470,719	9,237,621
2033	335,486	5,287	36,628	241,131	34,541	8,060,275	36,429	11,747	470,719	9,232,243
2034	335,486	5,287	36,011	235,507	33,834	8,060,275	36,281	11,747	470,719	9,225,147
2035	335,486	5,287	35,282	227,625	32,675	8,060,275	36,045	11,747	470,719	9,215,142
TOTAL	18,888,734	350,704	4,812,896	33,985,570	4,315,209	480,784,376	1,796,491	727,129	31,912,731	577,573,840

(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	33,841	0	0	0	725	0	0	0	51,711	0
1964	63,637	27,438	19,535	4,368	38,197	1,142	28,427	8,202	82,782	34,973
1965	119,942	52,989	34,336	7,191	42,687	2,081	50,300	15,217	135,023	35,333
1966	218,209	101,232	62,456	12,474	76,861	3,752	90,369	27,670	232,426	61,445
1967	422,183	210,746	121,230	23,464	148,792	7,282	175,119	54,006	433,210	115,536
1968	679,489	419,650	206,886	38,538	245,799	11,777	286,729	87,265	729,615	194,465
1969	987,174	623,389	318,481	57,283	368,308	17,243	426,648	127,179	1,136,052	302,553
1970	1,289,738	780,233	450,887	84,769	520,077	23,419	592,670	171,243	1,690,922	443,566
1971	1,553,034	947,222	594,913	120,171	700,691	28,835	790,243	208,755	2,393,322	619,582
1972	1,688,468	1,056,746	670,885	137,410	795,212	31,296	897,334	226,425	2,807,612	720,754
1973	1,739,344	1,071,268	695,843	142,098	824,782	32,271	931,750	233,266	2,944,628	756,290
1974	1,757,898	1,117,908	707,053	146,284	838,765	32,592	944,212	235,613	3,034,266	776,838
1975	1,781,890	1,132,371	724,065	150,058	861,337	33,006	971,242	238,624	3,116,614	798,523
1976	1,795,495	1,144,998	735,878	152,747	878,011	33,258	991,501	240,355	3,194,699	819,292
1977	1,808,101	1,158,096	744,482	154,643	889,842	33,474	1,006,044	241,933	3,243,692	832,321
1978	1,818,598	1,177,141	750,224	155,959	897,746	33,666	1,015,894	243,300	3,273,805	840,240
1979	1,834,311	1,201,207	755,900	157,091	904,700	33,932	1,024,419	245,268	3,295,647	845,930
1980	1,852,895	1,249,146	761,770	158,201	911,931	34,236	1,033,424	247,529	3,316,194	851,450
1981	1,949,874	1,339,783	796,131	163,962	950,227	35,887	1,077,993	259,794	3,420,097	879,355
1982	1,941,548	1,371,017	789,469	163,511	945,367	35,756	1,073,287	258,797	3,412,772	877,137
1983	2,022,454	1,415,057	809,062	167,528	971,384	37,092	1,105,126	268,810	3,485,141	896,905
1984	2,129,580	1,441,699	834,299	173,418	1,005,714	38,859	1,142,630	282,045	3,593,400	926,520
1985	2,208,298	1,456,895	851,450	177,750	1,031,124	40,247	1,174,016	291,645	3,672,145	948,078
1986	2,254,872	1,465,116	863,601	180,934	1,049,588	40,914	1,205,783	297,120	3,729,014	963,621
1987	2,298,755	1,470,622	875,983	183,911	1,068,487	41,377	1,220,810	301,897	3,782,694	978,277
1988	2,316,531	1,476,188	885,228	186,176	1,082,737	41,664	1,238,833	303,993	3,823,044	989,254
1989	2,330,196	1,485,301	889,349	187,353	1,088,511	41,839	1,245,841	305,378	3,845,289	995,140
1990	2,385,922	1,508,040	912,696	192,411	1,117,670	42,713	1,280,066	311,911	3,916,996	1,014,533
1991	2,422,614	1,527,681	932,364	197,542	1,146,919	43,098	1,315,345	315,436	3,996,215	1,036,031
1992	2,467,585	1,548,921	953,174	203,932	1,179,217	43,730	1,354,100	320,331	4,100,806	1,064,576
1993	2,502,151	1,567,922	969,478	210,923	1,203,394	44,239	1,380,804	324,417	4,212,242	1,095,099
1994	2,536,846	1,585,739	983,675	220,102	1,223,549	44,786	1,399,767	328,384	4,418,688	1,151,256
1995	2,562,553	1,594,697	992,274	225,178	1,235,681	45,178	1,411,586	331,262	4,545,673	1,185,752
1996	2,588,067	1,610,700	1,001,528	229,455	1,248,048	45,584	1,424,265	334,239	4,652,614	1,214,705
1997	2,605,018	1,622,084	1,009,801	231,931	1,258,549	45,853	1,435,931	336,210	4,873,092	1,268,273
1998	2,629,728	1,635,967	1,017,249	233,300	1,268,389	46,264	1,960,702	339,238	5,029,853	1,290,351
1999	2,643,049	1,647,349	1,021,809	235,611	1,274,401	46,489	1,967,587	340,897	5,229,274	1,307,384
2000	2,658,523	2,801,091	1,027,872	237,886	1,282,974	46,762	1,977,973	404,740	5,540,513	1,320,729
2001	2,666,701	2,807,031	1,031,753	239,259	1,288,320	46,915	1,984,542	405,943	6,323,611	1,330,556
2002	2,690,994	2,810,323	1,035,116	240,168	1,293,278	47,089	1,990,839	407,217	7,443,098	1,336,151
2003	2,700,923	2,817,963	1,037,874	240,839	1,296,774	47,233	1,995,489	408,409	7,993,965	1,343,594
2004	2,698,286	2,817,879	1,092,855	240,965	1,297,145	47,185	1,996,076	408,108	8,217,673	1,345,218
2005	2,702,194	2,821,297	6,704,607	241,303	2,057,036	47,254	1,999,010	408,681	8,341,723	1,347,542
2006	2,713,747	2,830,729	6,771,093	242,038	2,069,728	47,452	2,005,045	410,362	8,400,556	1,351,296
2007	2,734,711	2,856,377	6,901,675	243,669	2,094,295	47,797	2,016,557	413,518	8,524,212	1,358,644
2008	2,752,584	2,876,215	7,030,350	245,257	2,118,232	48,107	2,027,117	416,194	8,657,891	1,366,466
2009	2,761,461	2,891,956	7,122,111	249,273	2,137,748	48,263	2,033,162	417,429	8,867,167	1,383,912
2010	**2,800,938**	**2,927,635**	**7,761,318**	**253,784**	**2,275,419**	**48,922**	**2,063,430**	**423,111**	**8,999,152**	**1,406,707**
2011	2,866,623	2,977,371	8,160,028	260,865	2,371,692	50,050	2,127,656	432,551	9,144,517	1,446,393
2012	2,908,389	3,021,863	10,551,364	266,191	2,725,741	50,771	2,174,278	438,624	9,252,103	1,475,751
2013	2,891,374	3,034,689	12,062,868	267,776	2,924,170	51,085	2,186,888	441,105	9,230,620	1,470,862
2014	2,864,475	3,003,178	12,001,675	263,673	2,909,681	49,995	2,155,899	432,631	9,205,211	1,464,156
2015	2,811,147	2,975,059	11,949,184	261,122	2,887,432	49,109	2,132,331	425,474	9,158,791	1,451,610
2016	2,715,948	2,920,717	11,847,615	256,120	2,844,684	47,493	2,086,880	412,336	9,067,385	1,427,056
2017	2,515,141	2,789,725	11,620,274	245,420	2,751,376	44,020	1,989,475	384,369	8,872,793	1,374,573
2018	2,261,113	2,504,968	11,291,613	230,646	2,622,985	39,583	1,854,092	347,640	8,582,798	1,297,310
2019	1,953,429	2,209,021	10,835,793	211,902	2,453,980	34,117	1,676,819	301,547	8,176,361	1,189,223
2020	1,650,865	1,978,384	10,286,342	184,416	2,245,878	27,941	1,469,773	250,631	7,621,491	1,048,209
2021	1,387,568	1,731,383	9,614,333	149,013	1,993,948	22,525	1,237,364	207,255	6,919,091	872,194
2022	1,252,134	1,571,898	8,706,681	131,775	1,787,087	20,064	1,112,034	186,412	6,504,801	771,021
2023	1,201,259	1,564,176	8,003,144	127,087	1,665,858	19,089	1,070,818	178,377	6,367,785	735,486
2024	1,182,704	1,505,321	7,886,613	122,900	1,637,649	18,768	1,055,907	175,567	6,278,147	714,938
2025	1,158,713	1,487,463	7,771,396	119,127	1,601,812	18,354	1,026,118	171,993	6,195,799	693,252
2026	1,145,108	1,469,220	7,667,560	116,438	1,572,708	18,102	1,004,419	169,974	6,117,714	672,484
2027	1,132,501	1,450,715	7,591,233	114,542	1,551,729	17,886	988,833	168,162	6,068,721	659,455
2028	1,122,005	1,422,888	7,554,027	113,225	1,539,575	17,694	978,538	166,646	6,038,608	651,536
2029	1,106,291	1,384,587	7,521,707	112,094	1,529,022	17,428	969,021	164,434	6,016,767	645,845
2030	1,087,708	1,307,397	7,495,129	110,984	1,518,994	17,124	959,005	161,921	5,996,219	640,326
2031	990,728	1,164,390	7,356,561	105,222	1,466,622	15,473	903,634	147,763	5,892,316	612,420
2032	999,054	1,112,901	7,369,360	105,674	1,472,311	15,604	912,656	149,395	5,899,641	614,638
2033	918,148	1,040,373	7,287,855	101,656	1,437,932	14,268	877,521	138,733	5,827,272	594,870
2034	811,023	998,149	7,175,335	95,767	1,391,811	12,501	832,078	124,748	5,719,013	565,255
2035	732,305	976,435	7,091,436	91,434	1,357,385	11,113	799,439	114,854	5,640,268	543,697
TOTAL	137,786,697	121,103,322	299,959,198	12,307,184	100,766,432	2,417,967	93,341,508	19,520,504	379,955,069	67,654,708

TABLE B-15. Capital Cost Component of Transportation Charge for Each Contractor

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA				South Bay Area Future Contractor	GRAND TOTAL
	San Gorgonio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County W.P. District	Total	City of Yuba City	County of Butte	Plumas County FC&WCD	Total		
	[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0
1963	0	690,539	0	776,816	0	0	0	0	0	1,400,876
1964	21,728	1,260,042	9,374	1,599,846	0	0	0	0	0	2,547,780
1965	21,859	2,179,810	17,760	2,714,529	0	0	405	405	0	4,287,479
1966	37,952	3,898,819	33,415	4,857,079	0	0	564	564	0	6,796,773
1967	71,260	7,691,085	68,133	9,542,045	0	0	562	562	0	11,951,864
1968	120,056	14,340,331	133,256	17,493,856	0	0	564	564	0	21,124,402
1969	187,000	21,850,137	202,534	26,603,980	0	0	3,190	3,190	0	31,275,588
1970	274,923	28,982,865	257,777	35,563,090	0	0	15,116	15,116	0	40,517,582
1971	384,903	37,229,879	316,207	45,887,758	0	0	15,942	15,942	0	51,265,583
1972	447,913	44,047,132	353,823	53,881,010	0	0	17,327	17,327	0	60,409,435
1973	470,035	46,283,635	357,228	56,482,437	0	0	17,327	17,327	0	63,016,862
1974	483,106	48,306,053	371,994	58,752,580	0	0	17,329	17,329	0	65,809,938
1975	496,565	49,268,119	376,391	59,948,805	0	0	17,331	17,331	0	67,685,419
1976	509,489	50,120,026	380,667	60,996,416	0	0	17,332	17,332	0	68,824,416
1977	517,576	50,809,655	384,975	61,824,835	0	0	17,335	17,335	0	70,000,816
1978	522,490	51,408,868	390,618	62,528,549	0	0	17,336	17,336	0	71,207,848
1979	526,011	52,212,368	399,522	63,436,305	0	0	17,338	17,338	0	72,651,694
1980	529,415	53,618,983	417,004	64,982,174	0	0	17,339	17,339	0	74,692,875
1981	546,614	56,648,010	449,669	68,517,397	0	0	17,341	17,341	0	78,847,331
1982	545,272	57,445,385	461,087	69,320,405	0	0	17,342	17,342	0	80,134,814
1983	557,430	59,017,274	477,181	71,230,445	0	0	17,343	17,343	0	82,262,746
1984	575,647	60,292,946	486,708	72,923,465	0	0	17,344	17,344	0	84,762,845
1985	588,902	61,123,708	491,961	74,056,219	0	0	17,345	17,345	0	86,587,878
1986	598,458	61,645,242	494,820	74,789,084	0	0	17,347	17,347	0	88,443,423
1987	607,471	62,073,455	496,600	75,400,339	0	0	17,348	17,348	0	91,294,538
1988	614,224	62,431,535	498,461	75,887,866	0	0	17,350	17,350	0	93,391,071
1989	617,863	62,774,747	501,420	76,308,227	0	0	17,353	17,353	0	94,615,867
1990	629,735	63,740,657	509,405	77,562,755	0	0	17,355	17,355	0	96,352,827
1991	642,915	64,655,258	515,983	78,747,400	0	0	17,358	17,358	0	97,929,640
1992	660,418	65,753,902	522,988	80,173,678	0	0	17,361	17,361	0	99,660,954
1993	679,129	66,882,231	529,216	81,601,244	0	0	17,363	17,363	0	101,364,152
1994	713,838	68,463,303	534,886	83,604,818	0	0	17,365	17,365	0	104,135,743
1995	735,201	69,349,936	537,642	84,752,612	0	0	17,366	17,366	0	108,061,523
1996	753,283	70,227,179	541,582	85,871,248	0	0	17,366	17,366	0	118,023,704
1997	813,865	71,506,673	544,296	87,551,575	0	0	17,366	17,366	0	128,289,645
1998	924,385	72,258,932	548,317	89,182,675	0	0	17,366	17,366	0	132,008,060
1999	1,112,663	72,892,733	552,010	90,271,256	0	0	17,366	17,366	0	133,758,362
2000	1,461,267	73,407,341	555,105	92,722,775	0	0	17,367	17,367	0	136,356,287
2001	2,438,239	73,717,085	556,484	94,836,438	0	0	17,368	17,368	0	139,335,857
2002	3,870,827	73,891,014	557,242	97,613,355	0	0	17,369	17,369	0	142,273,752
2003	4,555,583	74,203,116	559,292	99,201,054	0	0	17,370	17,370	0	144,400,148
2004	4,835,200	74,439,553	559,043	99,995,186	0	0	17,370	17,370	0	145,619,400
2005	4,979,810	68,331,706	559,843	100,542,006	0	0	17,370	17,370	0	146,558,457
2006	5,031,684	68,667,316	562,058	101,103,103	0	0	17,370	17,370	0	147,348,902
2007	5,149,406	69,400,721	567,680	102,309,263	0	0	17,370	17,370	0	148,972,366
2008	5,290,200	70,049,355	572,111	103,450,079	0	0	17,370	17,370	0	150,790,915
2009	5,475,883	70,716,700	575,900	104,680,964	0	0	17,371	17,371	0	153,270,368
2010	**5,490,122**	**72,498,431**	**584,169**	**107,533,137**	**0**	**0**	**17,371**	**17,371**	**0**	**157,562,723**
2011	5,514,592	74,530,094	595,922	110,478,353	0	0	17,371	17,371	0	161,238,730
2012	5,532,692	80,417,267	606,609	119,421,644	0	0	17,371	17,371	0	170,314,443
2013	5,529,599	83,167,477	609,569	123,868,082	0	0	17,371	17,371	0	174,226,451
2014	5,525,458	82,730,272	600,817	123,207,119	0	0	17,371	17,371	0	173,274,408
2015	5,517,740	81,940,677	593,070	122,152,747	0	0	16,966	16,966	0	171,629,443
2016	5,502,614	80,395,050	578,073	120,101,971	0	0	16,806	16,806	0	169,249,108
2017	5,470,305	76,887,029	544,035	115,488,535	0	0	16,809	16,809	0	164,202,866
2018	5,422,542	70,609,770	479,616	107,544,675	0	0	16,806	16,806	0	155,644,572
2019	5,355,598	63,490,560	410,338	98,298,687	0	0	14,180	14,180	0	145,982,316
2020	5,267,675	56,831,059	355,095	89,217,759	0	0	2,255	2,255	0	136,748,310
2021	5,157,695	49,183,155	296,666	78,772,189	0	0	1,429	1,429	0	126,250,997
2022	5,094,685	43,309,622	259,049	70,707,264	0	0	44	44	0	118,160,214
2023	5,072,562	41,843,114	255,644	68,104,400	0	0	43	43	0	115,508,990
2024	5,059,492	39,940,204	240,878	65,819,091	0	0	42	42	0	113,208,362
2025	5,046,033	39,089,574	236,481	64,616,114	0	0	39	39	0	111,977,437
2026	5,033,109	38,342,086	232,206	63,561,127	0	0	38	38	0	110,901,737
2027	5,025,021	37,729,305	227,897	62,725,999	0	0	36	36	0	110,036,424
2028	5,020,107	37,165,794	222,254	62,012,897	0	0	34	34	0	109,278,649
2029	5,016,587	36,392,528	213,351	61,089,661	0	0	32	32	0	108,318,894
2030	5,013,183	35,009,411	195,869	59,513,270	0	0	31	31	0	106,692,872
2031	4,995,984	32,098,627	163,203	55,912,944	0	0	30	30	0	102,973,604
2032	4,997,326	31,294,289	151,785	55,094,635	0	0	28	28	0	102,138,455
2033	4,985,168	29,792,652	135,691	53,152,139	0	0	28	28	0	100,110,842
2034	4,966,950	28,616,023	126,164	51,434,817	0	0	27	27	0	98,193,115
2035	4,953,696	27,861,001	120,912	50,293,974	0	0	25	25	0	96,701,689
TOTAL	197,194,222	3,881,370,430	28,825,031	5,342,202,272	0	0	868,358	868,358	0	7,550,844,457

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	573,814	658,274	1,232,088	1,368,665	1,312,746	3,560,310	6,241,721	481,022	888,287	1,369,309
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	461,844	661,193	1,123,037	1,064,729	1,174,897	3,502,733	5,742,359	810,087	3,051,492	3,861,579
1999	606,922	996,477	1,603,399	1,226,091	1,267,465	5,087,026	7,580,582	788,793	3,088,430	3,877,223
2000	776,470	1,492,440	2,268,910	2,181,423	1,297,836	3,760,596	7,239,855	713,585	3,445,262	4,158,847
2001	651,444	1,443,797	2,095,241	4,197,087	1,037,197	3,542,150	8,776,434	736,749	3,134,665	3,871,414
2002	1,097,804	1,872,450	2,970,254	8,259,766	1,359,846	6,065,663	15,685,275	767,766	3,586,400	4,354,166
2003	1,173,495	2,255,823	3,429,318	4,922,386	1,070,208	3,582,869	9,575,463	822,549	3,785,589	4,608,138
2004	1,625,090	2,357,356	3,982,446	2,606,340	1,292,788	3,571,253	7,470,381	827,423	3,797,803	4,625,226
2005	926,927	1,822,251	2,749,178	2,422,307	1,145,121	2,985,500	6,552,928	885,376	4,215,574	5,100,950
2006	816,383	1,398,799	2,215,182	2,411,028	1,152,333	3,155,527	6,718,888	820,607	4,402,381	5,222,988
2007	1,006,106	2,166,493	3,172,599	3,053,317	1,470,830	3,789,130	8,313,277	1,004,687	5,221,913	6,226,600
2008	1,040,705	1,459,043	2,499,748	3,240,855	1,531,834	3,979,572	8,752,261	1,397,661	6,944,925	8,342,586
2009	933,654	1,725,001	2,658,655	2,903,310	1,444,057	3,905,507	8,252,874	1,052,173	5,284,106	6,336,279
2010	**1,029,722**	**1,874,119**	**2,903,841**	**3,381,552**	**1,603,231**	**4,326,484**	**9,311,267**	**1,192,394**	**5,940,049**	**7,132,443**
2011	1,018,393	1,883,437	2,901,830	3,415,746	1,576,976	4,286,466	9,279,188	1,202,701	6,039,828	7,242,529
2012	981,192	1,807,434	2,788,626	3,201,016	1,523,069	4,134,148	8,858,233	1,140,475	5,775,627	6,916,102
2013	991,003	1,825,508	2,816,511	3,233,025	1,538,299	4,175,489	8,946,813	1,151,880	5,833,384	6,985,264
2014	1,000,913	1,843,763	2,844,676	3,265,356	1,553,682	4,217,244	9,036,282	1,163,399	5,891,719	7,055,118
2015	1,010,923	1,862,201	2,873,124	3,298,010	1,569,219	4,259,417	9,126,646	1,175,033	5,950,636	7,125,669
2016	1,021,032	1,880,822	2,901,854	3,330,990	1,584,911	4,302,011	9,217,912	1,186,784	6,010,141	7,196,925
2017	1,031,243	1,899,632	2,930,875	3,364,300	1,600,760	4,345,032	9,310,092	1,198,651	6,070,244	7,268,895
2018	1,041,554	1,918,627	2,960,181	3,397,942	1,616,767	4,388,480	9,403,189	1,210,638	6,130,945	7,341,583
2019	1,051,970	1,937,813	2,989,783	3,431,922	1,632,935	4,432,365	9,497,222	1,222,744	6,192,255	7,414,999
2020	1,062,490	1,957,190	3,019,680	3,466,241	1,649,264	4,476,689	9,592,194	1,234,972	6,254,178	7,489,150
2021	1,073,115	1,976,764	3,049,879	3,500,904	1,665,757	4,521,456	9,688,117	1,247,321	6,316,720	7,564,041
2022	1,083,846	1,996,531	3,080,377	3,535,913	1,682,415	4,566,672	9,785,000	1,259,795	6,379,887	7,639,682
2023	1,094,685	2,016,496	3,111,181	3,571,272	1,699,239	4,612,338	9,882,849	1,272,392	6,443,685	7,716,077
2024	1,105,631	2,036,661	3,142,292	3,606,985	1,716,231	4,658,461	9,981,677	1,285,117	6,508,122	7,793,239
2025	1,116,687	2,057,028	3,173,715	3,643,055	1,733,394	4,705,046	10,081,495	1,297,968	6,573,203	7,871,171
2026	1,127,855	2,077,598	3,205,453	3,679,485	1,750,728	4,752,096	10,182,309	1,310,947	6,638,936	7,949,883
2027	1,139,133	2,098,374	3,237,507	3,716,280	1,768,235	4,799,617	10,284,132	1,324,057	6,705,324	8,029,381
2028	1,150,525	2,119,358	3,269,883	3,753,442	1,785,917	4,847,613	10,386,972	1,337,297	6,772,378	8,109,675
2029	1,162,030	2,140,552	3,302,582	3,790,977	1,803,777	4,896,090	10,490,844	1,350,670	6,840,102	8,190,772
2030	1,173,650	2,161,956	3,335,606	3,828,887	1,821,814	4,945,050	10,595,751	1,364,177	6,908,502	8,272,679
2031	1,185,387	2,183,576	3,368,963	3,867,176	1,840,033	4,994,501	10,701,710	1,377,819	6,977,588	8,355,407
2032	1,197,240	2,205,412	3,402,652	3,905,847	1,858,433	5,044,445	10,808,725	1,391,597	7,047,364	8,438,961
2033	1,209,213	2,227,467	3,436,680	3,944,906	1,877,017	5,094,890	10,916,813	1,405,513	7,117,838	8,523,351
2034	1,221,305	2,249,741	3,471,046	3,984,356	1,895,788	5,145,841	11,025,985	1,419,568	7,189,015	8,608,583
2035	1,233,517	2,272,238	3,505,755	4,024,198	1,914,745	5,197,298	11,136,241	1,433,764	7,260,906	8,694,670
TOTAL	46,944,387	78,878,060	125,822,447	147,676,450	75,053,925	210,394,701	433,125,076	50,085,956	230,030,763	280,116,719

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	309,084	15,486	224,254	738,619	9,789,833	15,839	16,434	622,879	11,732,428
1995	395,441	19,918	220,899	898,339	11,190,121	20,373	21,551	799,070	13,565,712
1996	362,623	19,968	301,835	902,162	11,872,821	20,424	21,664	796,711	14,298,208
1997	366,476	20,154	186,450	942,987	10,558,144	20,613	19,344	806,084	12,920,252
1998	453,033	24,560	288,906	1,098,213	12,207,920	25,122	21,594	995,194	15,114,542
1999	377,073	20,777	272,305	964,380	10,921,764	21,250	21,550	828,713	13,427,812
2000	379,760	20,901	207,012	1,011,083	9,855,926	21,377	22,577	834,146	12,352,782
2001	472,739	26,023	233,508	1,226,867	11,416,392	26,615	31,700	1,038,500	14,472,344
2002	415,704	21,029	223,270	1,063,641	10,074,793	21,507	25,585	793,441	12,638,970
2003	486,726	24,781	242,995	1,167,691	11,185,387	25,346	30,885	929,182	14,092,993
2004	444,229	22,740	247,230	1,131,731	10,724,803	61,976	25,784	735,159	13,393,652
2005	426,203	21,876	259,539	1,041,387	10,330,289	59,521	24,298	706,516	12,869,629
2006	482,673	24,704	203,294	1,174,435	10,670,504	74,501	26,602	796,130	13,452,843
2007	508,477	25,606	250,471	1,248,659	11,645,079	80,223	25,400	830,167	14,614,082
2008	642,080	33,066	375,966	1,557,283	15,380,996	103,900	33,039	1,063,222	19,189,552
2009	629,657	32,183	281,119	1,496,766	13,988,792	98,145	29,885	1,037,685	17,594,232
2010	**660,133**	**33,732**	**326,739**	**1,548,660**	**14,455,786**	**103,543**	**32,550**	**1,007,176**	**18,168,319**
2011	796,077	37,864	339,889	1,569,168	16,505,378	115,211	32,309	1,130,140	20,526,036
2012	727,546	34,573	319,071	1,454,714	15,331,271	105,557	31,205	1,032,218	19,036,155
2013	734,821	34,919	322,262	1,469,262	15,484,584	106,613	31,517	1,042,540	19,226,518
2014	742,169	35,268	325,485	1,483,954	15,639,430	107,679	31,832	1,052,965	19,418,782
2015	749,591	35,621	328,739	1,498,794	15,795,824	108,756	32,150	1,063,495	19,612,970
2016	757,087	35,977	332,027	1,513,782	15,953,783	109,843	32,472	1,074,130	19,809,101
2017	764,658	36,337	335,347	1,528,919	16,113,320	110,942	32,797	1,084,871	20,007,191
2018	772,304	36,700	338,701	1,544,208	16,274,453	112,051	33,125	1,095,720	20,207,262
2019	780,028	37,067	342,088	1,559,651	16,437,198	113,171	33,456	1,106,677	20,409,336
2020	787,828	37,438	345,509	1,575,247	16,601,569	114,303	33,790	1,117,744	20,613,428
2021	795,706	37,812	348,964	1,591,000	16,767,585	115,446	34,128	1,128,921	20,819,562
2022	803,663	38,191	352,453	1,606,910	16,935,261	116,601	34,470	1,140,211	21,027,760
2023	811,700	38,573	355,978	1,622,979	17,104,614	117,767	34,814	1,151,613	21,238,038
2024	819,817	38,958	359,538	1,639,209	17,275,660	118,944	35,163	1,163,129	21,450,418
2025	828,015	39,348	363,133	1,655,601	17,448,417	120,134	35,514	1,174,760	21,664,922
2026	836,295	39,741	366,764	1,672,157	17,622,901	121,335	35,869	1,186,508	21,881,570
2027	844,658	40,139	370,432	1,688,878	17,799,130	122,548	36,228	1,198,373	22,100,386
2028	853,105	40,540	374,136	1,705,767	17,977,122	123,774	36,590	1,210,356	22,321,390
2029	861,636	40,946	377,878	1,722,825	18,156,893	125,012	36,956	1,222,460	22,544,606
2030	870,252	41,355	381,656	1,740,053	18,338,461	126,262	37,326	1,234,685	22,770,050
2031	878,955	41,769	385,473	1,757,453	18,521,846	127,524	37,699	1,247,031	22,997,750
2032	887,744	42,186	389,328	1,775,028	18,707,065	128,800	38,076	1,259,502	23,227,729
2033	896,622	42,608	393,221	1,792,778	18,894,135	130,088	38,457	1,272,097	23,460,006
2034	905,588	43,034	397,153	1,810,706	19,083,077	131,389	38,841	1,284,818	23,694,606
2035	914,644	43,464	401,125	1,828,813	19,273,908	132,702	39,230	1,297,666	23,931,552
TOTAL	31,904,800	1,561,255	15,329,116	68,875,154	737,005,640	3,950,213	1,486,142	50,979,526	911,091,846

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	2,825,193	1,608,731	794,991	225,121	1,311,100	51,259	1,634,886	376,180	4,794,820	1,267,565
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	3,876,512	2,050,254	1,070,517	299,639	1,765,491	73,835	3,207,848	561,246	6,076,375	1,634,942
1999	3,784,327	2,081,760	1,101,181	307,491	1,816,062	75,049	3,188,333	543,602	6,379,923	1,718,359
2000	3,715,470	3,348,620	1,033,661	291,435	1,704,714	67,483	2,993,059	588,027	5,878,653	1,572,169
2001	4,479,051	3,786,654	1,114,312	298,737	1,837,712	81,193	3,297,405	703,018	5,766,634	1,558,640
2002	3,627,124	3,482,118	1,016,363	282,170	1,676,184	62,344	2,994,391	547,486	5,630,849	1,510,649
2003	4,087,525	3,416,740	1,131,846	301,605	1,866,629	68,397	3,314,485	611,357	6,675,402	1,623,195
2004	4,494,508	4,082,494	1,459,766	327,318	1,934,128	77,663	3,466,961	684,115	7,318,491	1,790,926
2005	4,229,814	3,726,384	6,606,215	306,489	2,450,475	72,429	3,082,314	629,509	7,136,910	1,689,626
2006	4,157,437	3,399,235	8,455,257	312,607	2,832,372	75,410	3,209,488	652,218	7,024,471	1,705,883
2007	4,099,398	4,464,482	8,299,968	332,367	2,818,138	72,242	3,289,793	628,260	8,580,490	1,888,691
2008	4,925,754	5,317,579	9,285,280	373,744	3,244,798	82,160	4,129,151	746,955	9,072,579	2,057,411
2009	4,846,860	4,674,592	9,260,471	413,721	3,341,762	83,940	3,991,424	741,036	9,395,304	2,196,656
2010	**5,161,891**	**4,732,776**	**11,605,286**	**441,254**	**3,939,232**	**91,422**	**4,271,216**	**779,029**	**10,077,965**	**2,347,549**
2011	5,285,927	4,881,000	11,309,027	429,773	3,888,500	92,464	4,238,431	804,620	10,151,687	2,381,857
2012	5,028,162	4,728,702	11,044,178	427,540	3,829,324	89,768	4,143,796	764,407	9,885,433	2,326,682
2013	5,078,443	4,775,989	11,154,620	431,815	3,867,618	90,666	4,185,234	772,051	9,984,288	2,349,949
2014	5,129,228	4,823,749	11,266,166	436,133	3,906,294	91,573	4,227,086	779,772	10,084,131	2,373,448
2015	5,180,520	4,871,987	11,378,828	440,494	3,945,357	92,489	4,269,357	787,570	10,184,971	2,397,183
2016	5,232,325	4,920,707	11,492,616	444,899	3,984,810	93,413	4,312,051	795,445	10,286,821	2,421,155
2017	5,284,648	4,969,914	11,607,542	449,348	4,024,658	94,348	4,355,171	803,400	10,389,690	2,445,366
2018	5,337,495	5,019,613	11,723,618	453,842	4,064,905	95,291	4,398,723	811,434	10,493,586	2,469,820
2019	5,390,870	5,069,809	11,840,854	458,380	4,105,554	96,244	4,442,710	819,548	10,598,523	2,494,518
2020	5,444,779	5,120,507	11,959,262	462,964	4,146,609	97,206	4,487,137	827,743	10,704,507	2,519,463
2021	5,499,226	5,171,712	12,078,855	467,594	4,188,076	98,178	4,532,009	836,021	10,811,552	2,544,658
2022	5,554,219	5,223,429	12,199,644	472,270	4,229,956	99,160	4,577,329	844,381	10,919,668	2,570,104
2023	5,609,761	5,275,663	12,321,640	476,992	4,272,256	100,152	4,623,102	852,825	11,028,864	2,595,805
2024	5,665,859	5,328,420	12,444,856	481,762	4,314,978	101,153	4,669,333	861,353	11,139,154	2,621,763
2025	5,722,517	5,381,704	12,569,305	486,580	4,358,128	102,165	4,716,026	869,967	11,250,545	2,647,981
2026	5,779,742	5,435,521	12,694,998	491,446	4,401,709	103,187	4,763,187	878,666	11,363,051	2,674,461
2027	5,837,540	5,489,876	12,821,948	496,360	4,445,726	104,218	4,810,818	887,453	11,476,681	2,701,205
2028	5,895,915	5,544,775	12,950,167	501,324	4,490,184	105,261	4,858,927	896,328	11,591,447	2,728,217
2029	5,954,874	5,600,223	13,079,669	506,337	4,535,086	106,313	4,907,516	905,291	11,707,362	2,755,500
2030	6,014,423	5,656,225	13,210,466	511,400	4,580,436	107,376	4,956,591	914,344	11,824,436	2,783,055
2031	6,074,567	5,712,788	13,342,570	516,514	4,626,241	108,450	5,006,157	923,487	11,942,680	2,810,885
2032	6,135,313	5,769,915	13,475,996	521,680	4,672,503	109,535	5,056,219	932,722	12,062,108	2,838,994
2033	6,196,666	5,827,615	13,610,756	526,896	4,719,228	110,630	5,106,781	942,049	12,182,727	2,867,384
2034	6,258,633	5,885,891	13,746,864	532,165	4,766,421	111,736	5,157,849	951,470	12,304,555	2,896,058
2035	6,321,219	5,944,750	13,884,332	537,487	4,814,085	112,854	5,209,427	960,984	12,427,602	2,925,018
TOTAL	242,854,519	205,243,969	383,416,206	19,763,710	159,462,193	4,328,946	186,504,759	35,965,780	444,425,992	107,742,929

TABLE B-16A. Minimum OMP&R Component of Transportation Charge for Each Contractor

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA				South Bay Area Future Contractor	GRAND TOTAL
	San Gorgonio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County W.P. District	Total	City of Yuba City	County of Butte	Plumas County FC&WCD	Total		
	[30]	[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	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	783,691	63,898,029	473,897	80,045,463	0	0	2,279	2,279	609,966	101,233,254
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	113,585,947
1997	917,372	75,655,465	564,455	94,454,556	0	0	7,449	7,449	428,638	114,939,130
1998	1,000,558	80,540,695	608,294	102,766,206	0	0	0	0	465,095	129,072,818
1999	1,054,650	85,251,444	629,176	107,931,357	0	0	0	0	571,359	134,991,732
2000	964,725	81,710,522	628,061	104,496,599	0	0	0	0	0	130,516,993
2001	951,271	93,182,592	711,260	117,768,479	0	0	0	0	0	146,983,912
2002	922,594	85,097,806	654,785	107,504,863	0	0	0	0	0	143,153,528
2003	1,526,793	83,214,491	626,487	108,464,952	0	0	3,393	3,393	0	140,174,257
2004	1,451,626	100,902,786	771,575	128,762,357	0	0	3,455	3,455	0	158,237,517
2005	1,643,410	79,927,978	688,899	112,190,452	0	0	3,452	3,452	0	139,466,589
2006	1,441,911	79,174,663	628,886	113,069,838	0	0	3,979	3,979	0	140,683,718
2007	2,098,616	105,337,973	874,937	142,785,355	0	0	3,955	3,955	0	175,115,868
2008	2,344,317	113,490,650	986,984	156,057,362	0	0	5,345	5,345	0	194,846,854
2009	2,070,309	108,912,680	884,379	150,813,134	0	0	3,518	3,518	0	185,658,692
2010	**2,220,056**	**111,182,998**	**872,802**	**157,723,476**	**0**	**0**	**2,927**	**2,927**	**0**	**195,242,273**
2011	2,272,333	112,414,789	919,620	159,070,028	0	0	3,138	3,138	0	199,022,749
2012	2,194,554	110,303,334	897,712	155,663,592	0	0	2,973	2,973	0	193,265,681
2013	2,216,499	111,406,371	906,689	157,220,232	0	0	3,003	3,003	0	195,198,341
2014	2,238,664	112,520,434	915,756	158,792,434	0	0	3,033	3,033	0	197,150,325
2015	2,261,051	113,645,639	924,913	160,380,359	0	0	3,064	3,064	0	199,121,832
2016	2,283,661	114,782,095	934,162	161,984,160	0	0	3,094	3,094	0	201,113,046
2017	2,306,498	115,929,914	943,504	163,604,001	0	0	3,125	3,125	0	203,124,179
2018	2,329,563	117,089,213	952,939	165,240,042	0	0	3,156	3,156	0	205,155,413
2019	2,352,858	118,260,107	962,468	166,892,443	0	0	3,188	3,188	0	207,206,971
2020	2,376,387	119,442,706	972,093	168,561,363	0	0	3,220	3,220	0	209,279,035
2021	2,400,151	120,637,133	981,814	170,246,979	0	0	3,252	3,252	0	211,371,830
2022	2,424,152	121,843,506	991,632	171,949,450	0	0	3,285	3,285	0	213,485,554
2023	2,448,394	123,061,941	1,001,549	173,668,944	0	0	3,317	3,317	0	215,620,406
2024	2,472,879	124,292,560	1,011,564	175,405,634	0	0	3,351	3,351	0	217,776,611
2025	2,497,607	125,535,484	1,021,680	177,159,689	0	0	3,384	3,384	0	219,954,376
2026	2,522,583	126,790,841	1,031,897	178,931,289	0	0	3,418	3,418	0	222,153,922
2027	2,547,809	128,058,746	1,042,215	180,720,595	0	0	3,452	3,452	0	224,375,453
2028	2,573,287	129,339,336	1,052,638	182,527,806	0	0	3,487	3,487	0	226,619,213
2029	2,599,020	130,632,729	1,063,164	184,353,084	0	0	3,521	3,521	0	228,885,409
2030	2,625,010	131,939,056	1,073,796	186,196,614	0	0	3,557	3,557	0	231,174,257
2031	2,651,260	133,258,449	1,084,534	188,058,582	0	0	3,592	3,592	0	233,486,004
2032	2,677,774	134,591,033	1,095,379	189,939,171	0	0	3,628	3,628	0	235,820,866
2033	2,704,550	135,936,942	1,106,333	191,838,557	0	0	3,664	3,664	0	238,179,071
2034	2,731,595	137,296,313	1,117,396	193,756,946	0	0	3,701	3,701	0	240,560,867
2035	2,758,912	138,669,276	1,128,570	195,694,516	0	0	3,738	3,738	0	242,966,472
TOTAL	93,091,740	5,361,896,736	43,066,931	7,287,764,410	0	0	179,776	179,776	8,735,616	9,046,835,890

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	81,666	157,196	238,862	396,340	233,205	673,431	1,302,976	134,574	595,294	729,868
2002	40,384	128,219	168,603	384,774	230,122	521,729	1,136,625	91,976	586,079	678,055
2003	37,618	92,735	130,353	301,657	180,804	643,729	1,126,190	78,771	477,048	555,819
2004	50,258	128,102	178,360	447,529	209,965	546,009	1,203,503	92,779	661,706	754,485
2005	53,455	149,328	202,783	452,896	265,252	772,420	1,490,568	106,901	587,036	693,937
2006	59,239	127,708	186,947	476,295	277,304	798,098	1,551,697	109,498	605,502	715,000
2007	81,529	180,311	261,840	438,818	243,296	729,518	1,411,632	101,839	748,147	849,986
2008	223,284	350,435	573,719	954,003	491,939	1,199,098	2,645,040	217,271	1,092,498	1,309,769
2009	207,066	247,856	454,922	1,039,171	909,440	1,643,362	3,591,973	348,629	1,456,396	1,805,025
2010	**259,340**	**161,301**	**420,641**	**938,029**	**422,789**	**1,130,940**	**2,491,758**	**182,890**	**1,722,349**	**1,905,239**
2011	263,052	154,517	417,569	913,265	458,664	1,147,126	2,519,055	185,508	1,747,000	1,932,508
2012	263,146	154,573	417,719	932,693	461,412	1,147,537	2,541,642	185,574	1,747,625	1,933,199
2013	149,854	88,024	237,878	542,018	290,203	653,487	1,485,708	105,679	995,219	1,100,898
2014	37,124	21,807	58,931	134,279	71,981	187,087	393,347	135,511	246,554	382,065
2015	20,053	15,067	35,120	79,282	39,377	107,871	226,530	69,797	126,991	196,788
2016	17,567	12,887	30,454	66,920	33,679	92,262	192,861	59,697	108,615	168,312
2017	17,261	12,370	29,631	65,092	32,329	88,564	185,985	57,304	104,261	161,565
2018	7,195	5,040	12,235	26,521	13,172	36,084	75,777	23,348	42,480	65,828
2019	7,313	5,010	12,323	26,360	13,092	35,865	75,317	23,206	42,222	65,428
2020	8,061	5,408	13,469	28,455	14,133	38,715	81,303	25,050	45,578	70,628
2021	12,728	8,509	21,237	44,774	22,238	60,919	127,931	39,417	71,717	111,134
2022	12,071	8,070	20,141	42,464	21,090	57,776	121,330	37,383	68,017	105,400
2023	8,547	5,714	14,261	30,065	14,933	40,907	85,905	26,468	48,158	74,626
2024	6,189	4,138	10,327	21,772	10,814	29,623	62,209	19,167	34,874	54,041
2025	705	471	1,176	2,480	1,232	3,374	7,086	2,183	3,972	6,155
2026	973	651	1,624	3,424	1,700	4,658	9,782	3,014	5,484	8,498
2027	1,610	1,076	2,686	5,663	2,813	7,706	16,182	4,986	9,071	14,057
2028	952	637	1,589	3,350	1,664	4,558	9,572	2,949	5,366	8,315
2029	945	632	1,577	3,325	1,651	4,524	9,500	2,927	5,325	8,252
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	3,106,931	4,781,951	7,888,882	17,034,669	12,396,175	39,200,349	68,631,193	2,948,003	16,750,039	19,698,042

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							
	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				
	[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	200,485	6,563	113,854	2,948,087	7,528	11,821	287,409	3,575,747
2002	153,869	4,557	309,688	2,803,477	9,257	10,806	301,042	3,592,696
2003	125,188	3,901	301,142	2,626,386	10,030	7,904	287,531	3,362,082
2004	167,903	12,186	431,994	2,937,167	30,970	10,800	278,035	3,869,055
2005	315,142	14,807	358,007	5,609,958	76,490	11,047	540,681	6,926,132
2006	287,977	13,112	401,503	5,488,668	38,075	11,559	432,313	6,673,207
2007	186,944	8,632	238,753	3,609,498	23,929	10,076	360,688	4,438,520
2008	204,329	8,635	428,821	4,302,351	35,088	12,380	309,990	5,301,594
2009	287,938	35,762	186,735	7,388,064	36,858	12,902	373,216	8,321,475
2010	**333,458**	**17,445**	**835,878**	**6,319,054**	**55,242**	**21,020**	**517,095**	**8,099,192**
2011	338,231	17,695	847,841	6,409,496	56,033	21,321	524,496	8,215,113
2012	338,352	17,701	848,144	6,411,787	56,053	21,329	524,683	8,218,049
2013	192,681	10,080	482,992	3,651,316	31,920	12,146	298,791	4,679,926
2014	47,734	2,497	119,656	904,570	7,908	3,009	74,022	1,159,396
2015	24,586	1,286	61,630	465,912	4,073	1,667	38,126	597,280
2016	21,029	1,100	52,712	398,494	3,484	1,426	32,609	510,854
2017	20,186	1,056	50,599	382,520	3,344	1,368	31,302	490,375
2018	8,224	430	20,616	155,854	1,363	558	12,754	199,799
2019	8,175	428	20,491	154,908	1,354	554	12,676	198,586
2020	8,824	462	22,119	167,218	1,462	598	13,684	214,367
2021	13,885	726	34,805	263,119	2,300	941	21,531	337,307
2022	13,168	689	33,009	249,543	2,182	893	20,420	319,904
2023	9,324	488	23,372	176,684	1,545	632	14,458	226,503
2024	6,752	353	16,925	127,948	1,119	458	10,470	164,025
2025	769	40	1,928	14,573	127	52	1,193	18,682
2026	1,062	56	2,661	20,120	176	72	1,646	25,793
2027	1,756	92	4,402	33,282	291	119	2,723	42,665
2028	1,039	54	2,604	19,687	172	70	1,611	25,237
2029	1,031	54	2,584	19,538	171	70	1,599	25,047
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	9,851,441	451,127	21,399,433	206,474,449	908,842	622,795	18,077,563	257,785,650

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	2,680,895	1,418,179	460,256	53,460	759,169	0	213,385	445,872	1,339,699	119,363
2002	1,674,587	1,389,921	569,606	74,418	939,655	0	140,550	531,620	2,422,881	844,839
2003	1,445,146	1,353,956	411,258	44,506	678,236	0	405,376	277,984	780,631	624,561
2004	1,812,210	1,676,067	554,535	71,930	759,819	0	465,681	368,704	2,071,504	449,688
2005	2,047,638	1,443,555	1,721,141	32,667	1,987,091	0	542,366	400,828	1,568,493	566,063
2006	2,845,985	1,617,750	5,071,235	26,843	2,093,821	0	1,417,777	442,278	1,533,665	681,916
2007	2,947,746	1,837,730	3,179,082	76,755	1,312,563	0	1,993,862	700,251	2,600,977	174,696
2008	3,954,703	3,655,167	4,480,265	87,782	2,385,442	5,238	2,332,307	1,104,854	4,114,547	698,660
2009	6,696,343	5,552,339	4,833,764	412,782	1,976,619	80,813	2,770,268	1,035,850	3,454,069	1,106,661
2010	**3,524,457**	**1,890,718**	**8,432,696**	**203,579**	**3,398,069**	**118,525**	**3,233,255**	**1,097,641**	**6,253,665**	**1,755,415**
2011	3,574,901	1,951,424	8,553,389	213,912	3,446,703	120,221	3,691,281	1,113,351	6,343,171	1,780,539
2012	3,576,179	1,985,779	8,556,447	222,647	3,447,936	120,264	3,785,370	1,113,749	6,345,439	1,781,176
2013	2,036,524	1,150,007	4,872,634	131,017	1,963,494	68,487	2,349,360	634,246	3,613,532	1,014,325
2014	504,525	284,900	1,207,137	34,343	486,432	16,967	582,026	157,127	895,209	251,287
2015	537,257	388,051	621,753	26,066	250,544	8,739	339,733	80,930	461,091	129,429
2016	459,515	331,900	531,785	22,294	214,290	7,474	290,573	69,220	394,370	110,700
2017	441,095	318,596	510,468	21,400	205,700	7,175	278,926	66,445	378,562	106,263
2018	179,720	129,809	207,985	8,719	83,811	2,923	113,646	27,072	154,241	43,296
2019	178,629	129,021	206,723	8,666	83,302	2,906	112,956	26,908	153,305	43,033
2020	192,824	139,273	223,150	9,355	89,921	3,136	121,932	29,046	165,487	46,453
2021	303,410	219,148	351,128	14,720	141,492	4,935	191,860	45,705	260,396	73,094
2022	287,755	207,841	333,012	13,961	134,192	4,681	181,961	43,346	246,961	69,322
2023	203,739	147,157	235,782	9,885	95,012	3,314	128,834	30,691	174,855	49,082
2024	147,540	106,566	170,745	7,158	68,804	2,400	93,297	22,225	126,624	35,544
2025	16,805	12,138	19,448	815	7,837	273	10,626	2,531	14,422	4,048
2026	23,201	16,758	26,850	1,126	10,820	377	14,671	3,495	19,912	5,589
2027	38,378	27,720	44,414	1,862	17,897	624	24,268	5,781	32,937	9,246
2028	22,701	16,397	26,272	1,101	10,586	369	14,355	3,420	19,483	5,469
2029	22,530	16,273	26,073	1,093	10,506	366	14,246	3,394	19,336	5,428
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	96,299,364	54,398,700	98,650,825	3,518,875	85,247,725	1,271,160	33,865,474	17,578,262	59,680,267	29,770,782

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 Watershed Protection 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	49,405,276	84,868	56,980,422	0	0	0	0	62,827,875
2002	0	45,579,833	154,113	54,322,023	0	0	0	0	59,898,002
2003	3,303	41,917,356	129,134	48,071,447	0	0	0	0	53,245,891
2004	44,621	58,640,223	170,747	67,085,729	0	0	0	0	73,091,132
2005	41,448	56,220,579	61,131	66,633,000	0	0	0	0	75,946,420
2006	265,078	60,701,335	70,268	76,767,951	0	0	0	0	85,894,802
2007	244,741	60,468,513	118,130	75,655,046	0	0	0	0	82,617,024
2008	697,510	80,062,003	329,242	103,907,720	0	0	0	0	113,737,842
2009	866,621	86,148,044	631,784	115,565,957	0	0	0	0	129,739,352
2010	**1,514,351**	**92,839,553**	**1,105,683**	**125,367,607**	**0**	**0**	**0**	**0**	**138,284,437**
2011	1,536,025	93,834,892	1,121,508	127,281,317	0	0	0	0	140,365,562
2012	1,536,575	93,868,441	1,121,909	127,461,911	0	0	0	0	140,572,520
2013	875,032	53,455,194	638,893	72,802,745	0	0	0	0	80,307,155
2014	216,779	13,242,885	158,278	18,037,895	0	0	0	0	20,031,634
2015	111,655	7,636,176	81,523	10,672,947	0	0	0	0	11,728,665
2016	95,498	6,531,213	69,727	9,128,559	0	0	0	0	10,031,040
2017	91,670	6,269,406	66,932	8,762,638	0	0	0	0	9,630,194
2018	37,350	2,554,409	27,271	3,570,252	0	0	0	0	3,923,891
2019	37,123	2,538,901	27,105	3,548,578	0	0	0	0	3,900,232
2020	40,073	2,740,655	29,259	3,830,564	0	0	0	0	4,210,331
2021	63,056	4,312,445	46,039	6,027,428	0	0	0	0	6,625,037
2022	59,803	4,089,944	43,664	5,716,443	0	0	0	0	6,283,218
2023	42,342	2,895,798	30,915	4,047,406	0	0	0	0	4,448,701
2024	30,663	2,097,033	22,388	2,930,987	0	0	0	0	3,221,589
2025	3,492	238,849	2,550	333,834	0	0	0	0	366,933
2026	4,822	329,766	3,521	460,908	0	0	0	0	506,605
2027	7,976	545,479	5,824	762,406	0	0	0	0	837,996
2028	4,718	322,659	3,445	450,975	0	0	0	0	495,688
2029	4,682	320,218	3,419	447,564	0	0	0	0	491,940
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	8,477,007	1,923,871,308	7,257,038	2,419,886,787	0	0	0	0	2,773,890,554

(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-SWP 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	1.3973507	1.3973507	1.9784901	3.3758408	3.0443727	4.4417234	6.3576472	8.6695487	2.3119015	2.3119015
2001	8.2119915	8.2119915	12.6833359	20.8953274	22.9223114	31.1343029	42.6778833	55.3804905	12.7026072	12.7026072
2002	4.2246726	4.2246726	5.3443379	9.5690106	9.0113455	13.2360181	18.2782152	24.4115705	6.1333552	6.1333552
2003	4.3658918	4.3658918	7.1156312	11.4815229	12.8272299	17.1931217	19.3472882	26.0823961	6.7351080	6.7351080
2004	4.8168805	4.8168805	6.1857512	11.0026317	12.9168921	17.7337725	19.4729290	26.6477905	7.1748615	7.1748615
2005	6.1386959	6.1386959	7.3872190	13.5259149	19.0798018	25.2184977	25.3904898	33.3135671	7.9230773	7.9230773
2006	4.8205633	4.8205633	15.3886000	20.2091633	17.9467657	22.7673291	22.7522588	29.9371588	7.1849000	7.1849000
2007	7.3683975	7.3683975	10.4641790	17.8325765	22.1626801	29.5310776	30.3885074	40.4243486	10.0358412	10.0358412
2008	6.9274242	6.9274242	10.7361192	17.6635434	23.5587319	30.4861561	33.5300068	44.1678453	10.6378385	10.6378385
2009	7.6782609	7.6782609	15.5208950	23.1991559	19.9761171	27.6543780	35.0407817	43.3140396	8.2732579	8.2732579
2010	**13.5573728**	**13.5573728**	**36.4599642**	**50.0173370**	**41.9174584**	**55.4748312**	**40.7256700**	**49.7046411**	**8.9789711**	**8.9789711**
2011	11.9402988	11.9402988	72.6634915	84.6037903	33.2695899	45.2098887	41.3249154	50.5189478	9.1940324	9.1940324
2012	7.1438100	7.1438100	16.9260000	24.0698100	18.0036541	25.1474641	33.7040000	43.7994210	10.0954210	10.0954210
2013	7.1771227	7.1771227	16.9260000	24.1031227	18.2775883	25.4547110	33.7040000	44.5654147	10.8614147	10.8614147
2014	10.7111079	10.7111079	16.9260000	27.6371079	23.7974421	34.5085500	33.7040000	44.7603620	11.0563620	11.0563620
2015	8.0990466	8.0990466	16.9260000	25.0250466	23.5177700	31.6168166	33.7040000	44.6440921	10.9400921	10.9400921
2016	8.1117605	8.1117605	16.9260000	25.0377605	23.7213759	31.8331364	33.7040000	44.0866730	10.3826730	10.3826730
2017	8.1247830	8.1247830	16.9260000	25.0507830	23.9357459	32.0605289	33.7040000	43.5889022	9.8849022	9.8849022
2018	8.1375899	8.1375899	16.9260000	25.0635899	24.1587439	32.2963338	33.7040000	45.0076069	11.3036069	11.3036069
2019	8.1512111	8.1512111	16.9260000	25.0772111	24.3856689	32.5368800	33.7040000	44.1356155	10.4316155	10.4316155
2020	8.1642209	8.1642209	16.9260000	25.0902209	24.6119253	32.7761462	33.7040000	43.9388483	10.2348483	10.2348483
2021	8.1662849	8.1662849	16.9260000	25.0922849	24.6480537	32.8143386	33.7040000	44.0583432	10.3543432	10.3543432
2022	8.1662849	8.1662849	16.9260000	25.0922849	24.6480537	32.8143386	33.7040000	44.2659935	10.5619935	10.5619935
2023	8.1662849	8.1662849	16.9260000	25.0922849	24.6480537	32.8143386	33.7040000	44.3456960	10.6416960	10.6416960
2024	8.1662849	8.1662849	16.9260000	25.0922849	24.6480537	32.8143386	33.7040000	43.6336462	9.9296462	9.9296462
2025	8.1662849	8.1662849	16.9260000	25.0922849	24.6480537	32.8143386	33.7040000	44.2769216	10.5729216	10.5729216
2026	8.1662849	8.1662849	16.9260000	25.0922849	24.6480537	32.8143386	33.7040000	45.2970750	11.5930750	11.5930750
2027	8.1662849	8.1662849	16.9260000	25.0922849	24.6480537	32.8143386	33.7040000	43.8268026	10.1228026	10.1228026
2028	8.1662849	8.1662849	16.9260000	25.0922849	24.6480537	32.8143386	33.7040000	44.6939952	10.9899952	10.9899952
2029	8.1662849	8.1662849	16.9260000	25.0922849	24.6480537	32.8143386	33.7040000	43.7916817	10.0876817	10.0876817
2030	8.1662849	8.1662849	16.9260000	25.0922849	24.6480537	32.8143386	33.7040000	44.1277199	10.4237199	10.4237199
2031	8.1662849	8.1662849	16.9260000	25.0922849	24.6480537	32.8143386	33.7040000	44.5469964	10.8429964	10.8429964
2032	8.1662849	8.1662849	16.9260000	25.0922849	24.6480537	32.8143386	33.7040000	44.0427703	10.3387703	10.3387703
2033	8.1662849	8.1662849	16.9260000	25.0922849	24.6480537	32.8143386	33.7040000	45.0437608	11.3397608	11.3397608
2034	8.1662849	8.1662849	16.9260000	25.0922849	24.6480537	32.8143386	33.7040000	43.9996095	10.2956095	10.2956095
2035	8.1662849	8.1662849	16.9260000	25.0922849	24.6480537	32.8143386	33.7040000	42.7585214	9.0545214	9.0545214

(a) For the period 1968 through 1987, rates are for an interim facility.

(b) The relatively minor costs of Del Valle Pumping Plant have been combined with those of South Bay Pumping Plant to simplify the allocation procedure.

TABLE B-17. Unit Variable OMP&R Component of Transportation Charge

(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	0.9316549	3.2435564	1.6394743	4.8830307	1.8026042	6.6856349	4.2496003	10.9352352	15.5598613	26.4950965
2001	6.1193793	18.8219865	11.2725023	30.0944888	12.3601920	42.4546808	28.5680342	71.0227150	106.9263979	177.9491128
2002	2.6473913	8.7807465	4.6365438	13.4172903	5.0569039	18.4741942	11.7019905	30.1761846	43.4837175	73.6599021
2003	3.1429017	9.8780097	5.6418887	15.5198984	6.1466260	21.6665244	14.3017388	35.9682632	53.1783305	89.1465938
2004	3.2649455	10.4398070	5.7479412	16.1877482	6.2400492	22.4277973	14.5398729	36.9676702	54.0553692	91.0230394
2005	3.7410992	11.6641765	6.7111593	18.3753359	7.2747956	25.6501314	16.9141969	42.5643283	60.6903154	103.2546438
2006	3.1808000	10.3657000	5.6939000	16.0596000	6.2135000	22.2731000	14.4060000	36.6791000	53.4785000	90.1576000
2007	4.4853942	14.5212355	7.9801534	22.5013888	8.7653081	31.2666969	20.1428695	51.4095664	74.8389029	126.2484693
2008	4.6692932	15.3071317	8.4695643	23.7766960	9.2854890	33.0621851	21.3240244	54.3862094	76.7512411	131.1374505
2009	3.8078643	12.0811222	8.2615227	20.3426449	10.0642063	30.4068512	22.6016380	53.0084892	94.6609651	147.6694543
2010	**4.8621426**	**13.8411137**	**9.2582067**	**23.0993204**	**11.3783033**	**34.4776237**	**24.6981044**	**59.1757281**	**86.2115375**	**145.3872656**
2011	4.9751142	14.1691466	9.5003398	23.6694864	11.6796561	35.3491425	25.3556744	60.7048169	88.5574489	149.2622658
2012	5.3931649	15.4885859	9.3213115	24.8098974	9.5814266	34.3913240	22.9352348	57.3265588	86.8007904	144.1273492
2013	5.6956500	16.5570647	10.1080833	26.6651480	10.4404786	37.1056266	25.0451810	62.1508076	94.9024485	157.0532561
2014	5.7730474	16.8294094	10.2758776	27.1052870	10.6233875	37.7286745	25.4939922	63.2226667	96.6249129	159.8475796
2015	5.4715609	16.4116530	9.4956626	25.9073156	9.7744059	35.6817215	23.4153091	59.0970306	88.6544806	147.7515112
2016	5.5570524	15.9397254	9.7089825	25.6487079	10.0052802	35.6539881	23.9796857	59.6336738	90.8160733	150.4497471
2017	5.3027129	15.1876151	9.0773592	24.2649743	9.3220175	33.5869918	22.3092205	55.8962123	84.4180443	140.3142566
2018	5.6435691	16.9471760	9.9276539	26.8748299	10.2424475	37.1172774	24.5599934	61.6772708	93.0399258	154.7171966
2019	5.4622564	15.8938719	9.4726402	25.3665121	9.7495711	35.1160832	23.3547738	58.4708570	88.4229056	146.8937626
2020	5.5295495	15.7643978	9.6400117	25.4044095	9.9305885	35.3349980	23.7971169	59.1321149	90.1168417	149.2489566
2021	5.4978131	15.8521563	9.5608602	25.4130165	9.8449096	35.2579261	23.5875618	58.8454879	89.3140721	148.1595600
2022	5.5315663	16.0935598	9.6450866	25.7386464	9.9360811	35.6747275	23.8105342	59.4852617	90.1681881	149.6534498
2023	5.5513636	16.1930596	9.6947103	25.8877699	9.9898217	35.8775916	23.9418977	59.8194893	90.6713868	150.4908761
2024	5.5019864	15.4316326	9.5716530	25.0032856	9.8565894	34.8598750	23.6161594	58.4760344	89.4236468	147.8996812
2025	5.5423397	16.1152613	9.6720008	25.7872621	9.9652102	35.7524723	23.8817398	59.6342121	90.4409480	150.0751601
2026	5.5065609	17.0996359	9.5817647	26.6814006	9.8675857	36.5489863	23.6431756	60.1921619	89.5273562	149.7195181
2027	5.5442156	15.6670182	9.6766998	25.3437180	9.9703043	35.3140223	23.8941558	59.2081781	90.4884447	149.6966228
2028	5.5089083	16.4989035	9.5885796	26.0874831	9.8749192	35.9624023	23.6610171	59.6234194	89.5955505	149.2189699
2029	5.5244499	15.6121316	9.6274140	25.2395456	9.9169228	35.1564684	23.7635998	58.9200682	89.9883106	148.9083788
2030	5.4828192	15.9065391	9.5235174	25.4300565	9.8045126	35.2345691	23.4888395	58.7234086	88.9359989	147.6594075
2031	5.6569340	16.4999304	9.9613426	26.4612730	10.2790787	36.7403517	24.6496428	61.3899945	93.3835877	154.7735822
2032	5.4067630	15.7455333	9.3362171	25.0817504	9.6022242	34.6839746	22.9948426	57.6788172	87.0449470	144.7237642
2033	5.6590711	16.9988319	9.9675019	26.9663338	10.2857572	37.2520910	24.6659828	61.9180738	93.4462536	155.3643274
2034	5.4194519	15.7150614	9.3672435	25.0823049	9.6356636	34.7179685	23.0764056	57.7943741	87.3569834	145.1513575
2035	5.7110425	14.7655639	10.1079215	24.8734854	10.4394176	35.3129030	25.0424421	60.3553451	94.8908888	155.2462339

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	
	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]
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	14.2519509	27.5575267	0	0	-2.3717647	25.1857620
1973	0	0	4.4326545	17.7300693	0	0	-8.4298618	9.3002075
1974	0	0	3.4431782	15.7782207	0	0	-5.1043660	10.6738547
1975	0	0	3.1739313	15.4688438	0	0	-5.6510611	9.8177827
1976	0	0	3.9391330	17.8038848	0	0	-6.4449941	11.3588907
1977	0	0	3.4988957	21.2829827	0	0	-11.6274558	9.6555269
1978	0	0	4.1619043	17.3612680	0	0	-8.1314274	9.2298406
1979	0	0	5.2283922	22.8319775	0	0	-9.5825772	13.2494003
1980	0	0	4.4253989	23.7315648	0	0	-11.5446606	12.1869042
1981	0	0	4.0325337	22.7957992	0	0	-6.7528607	16.0429385
1982	0	0	3.7143664	22.0995404	0	0	-6.9141441	15.1853963
1983	0	0	1.7592652	11.9990051	0	0	-23.7923414	-11.7933363
1984	0	0	2.5203002	17.5460979	0	0	-29.2940447	-11.7479468
1985	0	0	3.5406919	24.5146535	0	0	-30.7672356	-6.2525821
1986	-2.3583180	34.1758985	6.0306655	40.2065640	0	0	-29.2499580	10.9566060
1987	-2.5482255	29.4907224	5.0997322	34.5904546	0	0	-29.7006533	4.8898013
1988	-1.3847067	28.6841141	4.7880132	33.4721273	0	0	-29.0334518	4.4386755
1989	-1.1019487	38.4996363	6.4559997	44.9556360	0	0	-28.3706997	16.5849363
1990	-1.0673268	51.9071913	9.0317647	60.9389560	0	0	-28.8797266	32.0592294
1991	-1.5206590	34.1859899	6.1338271	40.3198170	0	0	-30.3294563	9.9903607
1992	-2.6080003	19.5839837	3.6796265	23.2636102	0	0	-29.7938993	-6.5302891
1993	-0.1885524	-4.2578449	-0.9592579	-5.2171028	0	0	-30.6629489	-35.8800517
1994	-0.1279266	37.6304211	6.5139903	44.1444114	0	0	-30.4781656	13.6662458
1995	-3.4425314	16.2738280	3.4305039	19.7043319	0	0	-30.3517624	-10.6474305
1996	-5.9839345	33.4220040	6.6794995	40.1015035	-2.3423415	37.7591620	-29.5900574	8.1691046
1997	-4.7847600	34.0059735	6.8397922	40.8457657	-3.8632009	36.9825648	-30.6066647	6.3759001
1998	-5.0614104	-10.4573480	-1.2355351	-11.6928831	-3.7700558	-15.4629389	-30.6550762	-46.1180151
1999	-4.7679511	17.6372106	3.5508098	21.1880204	-4.9754645	16.2125559	-29.6766184	-13.4640625
2000	-5.3795304	21.1155661	4.6180019	25.7335679	-5.2137446	20.5198234	-30.4798154	-9.9599920
2001	-4.6442419	173.3048710	29.9688592	203.2737301	-5.7699535	197.5037766	-30.8825050	166.6212716
2002	-5.4660253	68.1938768	13.0727227	81.2665995	-6.4072093	74.8593902	-30.1161904	44.7431998
2003	-3.3577630	85.7888308	15.6946862	101.4835169	-7.2230635	94.2604534	-30.5285166	63.7319369
2004	-5.5585791	85.4644603	15.8923087	101.3567690	-7.4295016	93.9272674	-30.2125160	63.7147514
2005	-5.4922951	97.7623487	17.4740873	115.2364360	-6.5987131	108.6377229	-30.2097976	78.4279253
2006	-14.2409000	75.9167000	15.9960000	91.9127000	-5.5334000	86.3793000	-29.9165000	56.4628000
2007	-6.0171412	120.2313281	22.5520096	142.7833377	-6.2569768	136.5263609	-29.8762900	106.6500710
2008	-6.0255593	125.1118912	23.0861224	148.1980137	-6.0396864	142.1583273	-30.5346037	111.6237236
2009	-5.6737344	141.9957199	25.3523031	167.3480230	-7.5082218	159.8398012	-29.0733518	130.7664494
2010	**-4.9991494**	**140.3881162**	**23.7872258**	**164.1753420**	**-7.6475011**	**156.5278409**	**-23.8129382**	**132.7149027**
2011	-5.0272941	144.2349717	24.4351024	168.6700741	-7.7422537	160.9278204	-24.0699510	136.8578694
2012	-5.4786350	138.6487142	26.7638860	165.4126002	-7.3205567	158.0920435	-28.0975538	129.9944897
2013	-5.8079819	151.2452742	28.7682486	180.0135228	-7.7883119	172.2252109	-29.5565896	142.6686213
2014	-5.7041646	154.1434150	27.4051152	181.5485302	-7.9005200	173.6480102	-28.3116637	145.3363465
2015	-5.4210597	142.3304515	27.0841739	169.4146254	-7.7331778	161.6814476	-28.5654779	133.1159697
2016	-5.6117599	144.8379872	28.5619724	173.3999596	-8.3357471	165.0642125	-29.1261664	135.9380461
2017	-5.3717712	134.9424854	27.0596583	162.0021437	-7.9234378	154.0787059	-28.5198095	125.5588964
2018	-5.6972780	149.0199186	29.0593067	178.0792253	-8.4085077	169.6707176	-29.4107620	140.2599556
2019	-5.3986410	141.4951216	27.1699673	168.6650889	-7.7615708	160.9035181	-28.5038392	132.3996789
2020	-5.5247390	143.7242176	28.0150915	171.7393091	-8.1206237	163.6186854	-29.4846456	134.1340398
2021	-5.4769819	142.6825781	27.8848794	170.5674575	-8.1234343	162.4440232	-28.8778122	133.5662110
2022	-5.4905019	144.1629479	28.0266998	172.1896477	-8.1727759	164.0168718	-28.5719621	135.4449097
2023	-5.5549397	144.9359364	28.2953258	173.2312622	-8.1402138	165.0910484	-29.1981364	135.8929120
2024	-5.4424537	142.4572275	27.4239782	169.8812057	-7.7474610	162.1337447	-29.0022751	133.1314696
2025	-5.5527160	144.5224441	28.1742806	172.6967247	-8.0590826	164.6376421	-28.8585540	135.7790881
2026	-5.5053700	144.2141481	27.5971498	171.8112979	-7.5817630	164.2295349	-29.2170383	135.0124966
2027	-5.5451768	144.1514460	28.0637586	172.2152046	-7.7510521	164.4641525	-29.0504303	135.4137222
2028	-5.5037262	143.7152437	28.0005818	171.7158255	-8.0366219	163.6792036	-29.2739563	134.4052473
2029	-5.4821943	143.4261845	27.7157787	171.1419632	-7.9568596	163.1851036	-28.6804724	134.5046312
2030	-5.4668869	142.1925206	27.7018730	169.8943936	-7.8071315	162.0872621	-28.9968089	133.0904532
2031	-5.6102877	149.1632945	28.6947529	177.8580474	-8.3609967	169.4970507	-28.9963362	140.5007145
2032	-5.3710114	139.3527528	26.9968044	166.3495572	-7.4970670	158.8524902	-28.6922710	130.1602192
2033	-5.6528040	149.7115234	28.9317327	178.6432561	-8.3606132	170.2826429	-29.6356110	140.6470319
2034	-5.3619897	139.7893678	27.1337238	166.9230916	-7.6812229	159.2418687	-28.2401006	131.0017681
2035	-5.7161264	149.5301075	28.9631468	178.4932543	-8.1344291	170.3588252	-29.7045527	140.6542725

TABLE B-17. Unit Variable OMP&R Component of Transportation Charge

(in dollars per acre-foot)

Calendar Year	CALIFORNIA AQUEDUCT (continued)							
	Reach 2B (EBX) Greenspot Pumping Plant		Reach 3A (EBX) Crafton Hills Pumping Plant		Reach 4B (EBX) Cherry Valley Pumping Plant		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
	[29]	[30]	[31]	[32]	[33]	[34]	[35]	[36]
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	1.4212193	14.7267951
1973	0	0	0	0	0	0	1.0210537	14.3184685
1974	0	0	0	0	0	0	0.9241725	13.2592150
1975	0	0	0	0	0	0	0.9362286	13.2311411
1976	0	0	0	0	0	0	0.8622774	14.7270292
1977	0	0	0	0	0	0	0.9076172	18.6917042
1978	0	0	0	0	0	0	0.7314697	13.9308334
1979	0	0	0	0	0	0	0.9509677	18.5545530
1980	0	0	0	0	0	0	1.4272378	20.7334037
1981	0	0	0	0	0	0	1.5690769	20.3323424
1982	0	0	0	0	0	0	1.4949290	19.8801030
1983	0	0	0	0	0	0	1.2824635	11.5222034
1984	0	0	0	0	0	0	1.7818310	16.8076287
1985	0	0	0	0	0	0	2.1691578	23.1431194
1986	0	0	0	0	0	0	3.2296473	39.7638638
1987	0	0	0	0	0	0	3.1281318	35.1670797
1988	0	0	0	0	0	0	2.9887414	33.0575622
1989	0	0	0	0	0	0	3.5266078	43.1281928
1990	0	0	0	0	0	0	3.6820302	56.6565483
1991	0	0	0	0	0	0	2.1966277	37.9032766
1992	0	0	0	0	0	0	1.9058052	24.0977892
1993	0	0	0	0	0	0	0.1578038	-3.9114887
1994	0	0	0	0	0	0	3.0574815	40.8158292
1995	0	0	0	0	0	0	1.5732257	21.2895851
1996	0	0	0	0	0	0	3.1318961	42.5378346
1997	0	0	0	0	0	0	2.7928728	41.5836063
1998	0	0	0	0	0	0	-0.3008626	-5.6968002
1999	0	0	0	0	0	0	1.8929287	24.2980904
2000	0	0	0	0	0	0	1.8205294	28.3156258
2001	0	0	0	0	0	0	13.5034055	191.4525183
2002	0	0	0	0	0	0	4.9201780	78.5800801
2003	0	0	0	0	0	0	6.1428628	95.2894565
2004	0	0	0	0	0	0	6.3357925	97.3588319
2005	0	0	0	0	0	0	7.1557832	110.4104269
2006	0	0	0	0	0	0	6.2183000	96.3759000
2007	21.2286516	127.8787226	26.7511980	154.6299206	2.8777313	157.5076520	8.9116499	135.1601192
2008	21.6617785	133.2855021	28.7649443	162.0504464	2.9535821	165.0040285	9.1571318	140.2945823
2009	29.6451012	160.4115506	37.0331853	197.4447359	7.5300968	204.9748327	9.5739586	157.2434129
2010	**31.6636416**	**164.3785443**	**39.5159538**	**203.8944981**	**8.1432136**	**212.0377117**	**11.7139703**	**157.1012359**
2011	32.3759538	169.2338232	40.4049133	209.6387365	8.3263473	217.9650838	12.0382334	161.3004992
2012	33.9690000	163.9634897	42.3930000	206.3564897	8.7360000	215.0924897	10.1951880	154.3225372
2013	33.9690000	176.6376213	42.3930000	219.0306213	8.7360000	227.7666213	11.4712406	168.5244967
2014	33.9690000	179.3053465	42.3930000	221.6983465	8.7360000	230.4343465	11.8539009	171.7014805
2015	33.9690000	167.0849697	42.3930000	209.4779697	8.7360000	218.2139697	10.5385896	158.2901008
2016	33.9690000	169.9070461	42.3930000	212.3000461	8.7360000	221.0360461	10.5161213	160.9658684
2017	33.9690000	159.5278964	42.3930000	201.9208964	8.7360000	210.6568964	9.4715958	149.7858524
2018	33.9690000	174.2289556	42.3930000	216.6219556	8.7360000	225.3579556	10.8899475	165.6071441
2019	33.9690000	166.3686789	42.3930000	208.7616789	8.7360000	217.4976789	10.4457510	157.3395136
2020	33.9690000	168.1030398	42.3930000	210.4960398	8.7360000	219.2320398	10.5479380	159.7968946
2021	33.9690000	167.5352110	42.3930000	209.9282110	8.7360000	218.6642110	10.3946453	158.5542053
2022	33.9690000	169.4139097	42.3930000	211.8069097	8.7360000	220.5429097	10.5566778	160.2101276
2023	33.9690000	169.8619120	42.3930000	212.2549120	8.7360000	220.9909120	10.5809954	161.0718715
2024	33.9690000	167.1004696	42.3930000	209.4934696	8.7360000	218.2294696	10.6054246	158.5051058
2025	33.9690000	169.7480881	42.3930000	212.1410881	8.7360000	220.8770881	10.5689988	160.6441589
2026	33.9690000	168.9814966	42.3930000	211.3744966	8.7360000	220.1104966	10.5596503	160.2791684
2027	33.9690000	169.3827222	42.3930000	211.7757222	8.7360000	220.5117222	10.6245674	160.3211902
2028	33.9690000	168.3742473	42.3930000	210.7672473	8.7360000	219.5032473	10.4213622	159.6403321
2029	33.9690000	168.4736312	42.3930000	210.8666312	8.7360000	219.6026312	10.6323160	159.5406948
2030	33.9690000	167.0594532	42.3930000	209.4524532	8.7360000	218.1884532	10.3692036	158.0286111
2031	33.9690000	174.4697145	42.3930000	216.8627145	8.7360000	225.5987145	11.1266100	165.9001922
2032	33.9690000	164.1292192	42.3930000	206.5222192	8.7360000	215.2582192	10.1619762	154.8857404
2033	33.9690000	174.6160319	42.3930000	217.0090319	8.7360000	225.7450319	11.0461001	166.4104275
2034	33.9690000	164.9707681	42.3930000	207.3637681	8.7360000	216.0997681	10.1876999	155.3390574
2035	33.9690000	174.6232725	42.3930000	217.0162725	8.7360000	225.7522725	11.4569870	166.7032209

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 & 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
	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]
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
						0.0000000		
1976	0	0	-6.7213324	8.0056968	1.5685447	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	14.1498996	-26.9670098	-12.8171102	1.8861983	5.1297547	14.2513950	19.3811497
2001	-16.7349298	174.7175886	-29.2914155	145.4261731	12.3563556	31.1783420	92.6567653	123.8351073
2002	-13.2004532	65.3796269	-23.7780801	41.6015468	5.4664522	14.2471987	41.2910819	55.5382806
2003	-13.9757183	81.3137382	-23.6270529	57.6866853	6.3405497	16.2185594	47.1787976	63.3973570
2004	-14.1574752	83.2013568	-23.6679973	59.5333594	6.3551621	16.7949690	50.7266903	67.5216593
2005	-14.2938791	96.1165479	-23.7301832	72.3863646	8.0399019	19.7040785	60.5159993	80.2200777
2006	-14.2409000	82.1350000	-23.8088000	58.3262000	7.3739000	17.7396000	55.6538000	73.3934000
2007	-13.9431723	121.2169469	-25.3788169	95.8381300	9.9685265	24.4897619	67.8464811	92.3362431
2008	-14.4926467	125.8019356	-24.7223387	101.0795969	10.9212751	26.2284068	83.2554847	109.4838915
2009	-11.3207106	145.9227023	-26.7738053	119.1488970	2.8937379	14.9748601	24.1344058	39.1092659
2010	**-13.6374037**	**143.4638322**	**-26.5806111**	**116.8832211**	**11.8172935**	**25.6584072**	**103.9343137**	**129.5927209**
2011	-13.7291253	147.5713739	-26.7617896	120.8095843	12.0381104	26.2072570	105.8763458	132.0836028
2012	-15.0971692	139.2253680	-23.6414400	115.5839280	12.6771418	28.1657277	83.7626267	111.9283544
2013	-16.9773254	151.5471713	-26.7236795	124.8234918	12.6771418	29.2342065	83.7626267	112.9968332
2014	-17.4393724	154.2621081	-27.5928022	126.6693059	12.6383490	29.4677584	83.6747433	113.1425017
2015	-15.2933998	142.9967010	-24.4269659	118.5697351	12.6383490	29.0500020	83.6747433	112.7247453
2016	-15.3104453	145.6554231	-24.3872874	121.2681357	12.6383490	28.5780744	83.6747433	112.2528177
2017	-13.8317381	135.9541143	-21.9322651	114.0218492	12.6383490	27.8259641	83.6747433	111.5007074
2018	-15.7846590	149.8224851	-25.2457608	124.5767243	12.6383490	29.5855250	83.6747433	113.2602683
2019	-15.1439740	142.1955396	-24.2081181	117.9874215	12.6383490	28.5322209	83.6747433	112.2069642
2020	-15.3213467	144.4755479	-24.4527355	120.0228124	12.6383490	28.4027468	83.6747433	112.0774901
2021	-15.1022670	143.4519383	-24.0963029	119.3556354	12.6383490	28.4905053	83.6747433	112.1652486
2022	-15.3112012	144.8989264	-24.4712118	120.4277146	12.6383490	28.7319088	83.6747433	112.4066521
2023	-15.3616915	145.7101800	-24.5293797	121.1808003	12.6383490	28.8314086	83.6747433	112.5061519
2024	-15.3959542	143.1091516	-24.5890319	118.5201197	12.6383490	28.0699816	83.6747433	111.7447249
2025	-15.3431992	145.3009597	-24.5018164	120.7991433	12.6383490	28.7536103	83.6747433	112.4283536
2026	-15.3040793	144.9750891	-24.4726322	120.5024569	12.6383490	29.7379849	83.6747433	113.4127282
2027	-15.4247713	144.8964189	-24.6339989	120.2624200	12.6383490	28.3053672	83.6747433	111.9801105
2028	-15.1376123	144.5027198	-24.1588266	120.3438932	12.6383490	29.1372525	83.6747433	112.8119958
2029	-15.4514893	144.0892055	-24.6524876	119.4367179	12.6383490	28.2504806	83.6747433	111.9252239
2030	-15.0788731	142.9497380	-24.0391510	118.9105870	12.6383490	28.5448881	83.6747433	112.2196314
2031	-16.1624598	149.7377324	-25.8158143	123.9219181	12.6383490	29.1382794	83.6747433	112.8130227
2032	-14.7672487	140.1184917	-23.5501747	116.5683170	12.6383490	28.3838823	83.6747433	112.0586256
2033	-16.0420536	150.3683739	-25.6252708	124.7431031	12.6383490	29.6371809	83.6747433	113.3119242
2034	-14.7795421	140.5595153	-23.6064880	116.9530273	12.6383490	28.3534104	83.6747433	112.0281537
2035	-16.7440519	149.9591690	-26.6217602	123.3374088	12.6383490	27.4039129	83.6747433	111.0786562

Tables B-18 through B-31

Note: Where applicable, the projected data values shown in this appendix are shaded and the bill year data are in **bold** type.

TABLE B-18. Variable 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	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	22,022	94,310	116,332	378,285	239,313	755,432	1,373,030	76,788	440,747	517,535
2001	290,950	534,351	825,301	1,688,783	997,070	2,851,440	5,537,293	530,386	2,346,180	2,876,566
2002	90,998	268,287	359,285	1,074,401	642,200	1,461,863	3,178,464	241,869	1,541,397	1,783,266
2003	131,458	266,997	398,455	1,079,980	649,713	2,307,741	4,037,434	282,325	1,709,803	1,992,128
2004	144,247	343,537	487,784	1,301,725	613,444	1,584,553	3,499,722	281,237	2,005,796	2,287,033
2005	193,400	376,423	569,823	1,450,936	829,776	2,438,169	4,718,881	341,016	1,872,657	2,213,673
2006	175,202	322,087	497,289	1,317,036	752,486	2,200,051	4,269,573	308,913	1,708,232	2,017,145
2007	336,232	636,071	972,303	1,595,023	886,730	2,661,209	5,142,962	348,662	2,513,393	2,862,055
2008	458,503	543,106	1,001,609	1,829,380	977,562	2,310,040	5,116,982	385,941	2,121,004	2,506,945
2009	344,988	408,908	753,896	1,836,740	1,613,183	2,918,966	6,368,889	228,476	954,501	1,182,977
2010	1,366,068	838,696	2,204,764	2,899,438	1,250,007	3,507,624	7,657,069	625,933	5,894,655	6,520,588
2011	1,113,294	1,132,815	2,246,109	2,826,981	1,381,692	3,567,115	7,775,788	637,964	6,007,955	6,645,919
2012	619,256	223,664	842,920	823,283	501,378	977,858	2,302,519	540,614	5,091,173	5,631,787
2013	626,822	224,675	851,497	895,960	510,322	1,048,535	2,454,817	545,775	5,139,774	5,685,549
2014	849,773	331,925	1,181,698	910,556	518,294	1,065,551	2,494,401	2,828,563	5,146,400	7,974,963
2015	816,504	393,642	1,210,146	993,057	531,572	1,161,457	2,686,086	2,818,119	5,127,398	7,945,517
2016	841,986	394,249	1,236,235	940,246	509,242	1,106,632	2,556,120	2,806,320	5,105,932	7,912,252
2017	868,039	394,871	1,262,910	904,831	485,159	1,054,249	2,444,239	2,787,518	5,071,721	7,859,239
2018	894,608	395,483	1,290,091	1,025,580	548,974	1,199,528	2,774,082	2,831,507	5,151,757	7,983,264
2019	921,607	396,133	1,317,740	951,890	510,100	1,110,516	2,572,506	2,805,174	5,103,846	7,909,020
2020	948,050	396,755	1,344,805	937,285	502,671	1,091,512	2,531,468	2,801,937	5,097,957	7,899,894
2021	952,436	396,853	1,349,289	946,325	507,296	1,103,144	2,556,765	2,804,131	5,101,949	7,906,080
2022	952,436	396,853	1,349,289	963,697	516,436	1,124,247	2,604,380	2,810,166	5,112,929	7,923,095
2023	952,436	396,853	1,349,289	970,493	520,030	1,132,415	2,622,938	2,812,654	5,117,455	7,930,109
2024	952,436	396,853	1,349,289	912,165	489,511	1,060,716	2,462,392	2,793,618	5,082,821	7,876,439
2025	952,436	396,853	1,349,289	964,780	517,029	1,125,448	2,607,257	2,810,709	5,113,916	7,924,625
2026	952,436	396,853	1,349,289	1,046,354	559,432	1,227,105	2,832,891	2,835,318	5,158,691	7,994,009
2027	952,436	396,853	1,349,289	928,527	498,147	1,080,454	2,507,128	2,799,503	5,093,527	7,893,030
2028	952,436	396,853	1,349,289	997,778	534,131	1,166,821	2,698,730	2,820,300	5,131,366	7,951,666
2029	952,436	396,853	1,349,289	925,325	496,427	1,076,745	2,498,497	2,798,131	5,091,031	7,889,162
2030	952,436	396,853	1,349,289	951,638	510,024	1,109,932	2,571,594	2,805,491	5,104,422	7,909,913
2031	952,436	396,853	1,349,289	988,696	529,794	1,153,601	2,672,091	2,820,326	5,131,413	7,951,739
2032	952,436	396,853	1,349,289	943,367	505,512	1,100,677	2,549,556	2,801,466	5,097,099	7,898,565
2033	952,436	396,853	1,349,289	1,028,784	550,685	1,203,299	2,782,768	2,832,798	5,154,106	7,986,904
2034	952,436	396,853	1,349,289	940,125	503,857	1,096,487	2,540,469	2,800,704	5,095,713	7,896,417
2035	952,436	396,853	1,349,289	845,522	455,350	975,295	2,276,167	2,776,966	5,052,524	7,829,490
TOTAL	26,900,790	15,440,238	42,341,028	45,898,801	27,182,879	72,464,421	145,546,101	67,248,574	152,218,050	219,466,624

Note: 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	196,361	5,835	0	417,381	4,037,481	11,676	10,422	643,240	5,322,396
2001	782,016	25,598	0	445,105	11,597,942	29,363	45,628	1,121,076	14,046,728
2002	429,531	12,337	0	831,424	7,493,178	25,061	29,961	814,946	9,636,438
2003	455,198	14,185	0	1,094,200	9,535,804	36,469	28,732	1,045,499	12,210,087
2004	512,493	37,194	0	1,390,386	8,791,836	94,531	33,223	848,428	11,708,091
2005	954,623	44,720	0	1,081,626	16,970,523	231,021	33,230	1,633,007	20,948,750
2006	903,001	34,020	0	1,041,216	14,003,772	98,784	30,478	1,121,644	17,232,915
2007	616,652	30,262	0	1,438,396	12,038,200	83,927	35,798	1,264,552	15,507,787
2008	350,261	14,086	0	786,201	8,111,362	58,178	20,985	534,360	9,875,433
2009	379,551	47,141	0	272,370	10,126,354	47,660	17,076	491,961	11,382,113
2010	793,691	41,523	0	2,016,229	15,862,484	132,396	47,589	1,230,780	20,124,692
2011	812,501	42,507	0	2,064,451	16,242,114	135,516	48,728	1,259,949	20,605,766
2012	888,162	46,466	0	2,225,618	17,141,294	147,988	53,506	1,377,276	21,880,310
2013	949,432	49,671	0	2,382,188	18,305,918	157,930	57,566	1,472,287	23,374,992
2014	965,049	50,488	0	2,421,553	18,587,904	160,452	58,599	1,496,505	23,740,550
2015	941,093	49,235	0	2,352,734	17,967,322	156,565	62,359	1,459,357	22,988,665
2016	914,032	47,819	0	2,292,635	17,649,319	152,174	59,181	1,417,392	22,532,552
2017	870,903	45,563	0	2,181,272	16,803,285	145,175	56,344	1,350,513	21,453,055
2018	971,802	50,842	0	2,431,754	18,563,635	161,548	64,431	1,506,977	23,750,989
2019	911,402	47,682	0	2,282,673	17,528,669	151,747	59,460	1,413,315	22,394,948
2020	903,978	47,293	0	2,267,929	17,479,413	150,542	58,339	1,401,802	22,309,296
2021	909,010	47,556	0	2,278,471	17,524,756	151,359	59,020	1,409,605	22,379,777
2022	922,853	48,281	0	2,312,315	17,754,942	153,605	60,203	1,431,072	22,683,271
2023	928,559	48,579	0	2,326,504	17,855,027	154,531	60,658	1,439,919	22,813,777
2024	884,896	46,295	0	2,222,041	17,178,784	147,446	56,599	1,372,212	21,908,273
2025	924,097	48,346	0	2,315,668	17,782,389	153,807	60,266	1,433,001	22,717,574
2026	980,544	51,299	0	2,446,718	18,569,570	162,967	66,081	1,520,534	23,797,713
2027	898,394	47,001	0	2,255,410	17,411,235	149,636	57,700	1,393,143	22,212,519
2028	946,097	49,497	0	2,365,968	18,072,325	157,377	62,643	1,467,116	23,121,023
2029	895,246	46,836	0	2,247,231	17,348,370	149,126	57,500	1,388,262	22,132,571
2030	912,129	47,720	0	2,285,192	17,556,948	151,865	59,415	1,414,441	22,427,710
2031	946,156	49,500	0	2,372,098	18,203,459	157,387	61,805	1,467,207	23,257,612
2032	902,896	47,237	0	2,260,523	17,357,708	150,367	58,931	1,400,124	22,177,786
2033	974,764	50,997	0	2,439,349	18,620,539	162,029	64,637	1,511,570	23,823,885
2034	901,149	47,145	0	2,256,917	17,343,176	150,083	58,685	1,397,415	22,154,570
2035	846,702	44,297	0	2,141,029	16,812,456	141,248	51,611	1,312,983	21,350,326
TOTAL	32,942,666	1,688,906	0	76,096,669	631,739,561	4,873,642	2,063,101	53,649,722	803,054,268

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	1.764.776	(351.463)	(421.537)	24.501	(580.010)	0	286.563	191.307	(183.254)	(150.795)
2001	10.890.564	4.503.328	1.516.253	208.761	2.500.986	0	859.606	1.807.050	4.413.464	393.226
2002	3.973.403	2.000.325	749.672	163.867	1.236.702	0	335.275	1.261.314	3.200.111	1.111.913
2003	5.149.818	3.049.311	920.481	147.329	1.518.031	0	1.444.747	990.604	1.747.211	1.397.897
2004	5.109.028	3.228.755	985.382	188.423	1.350.162	0	1.316.069	1.039.446	3.577.705	799.074
2005	5.849.219	2.946.643	3.334.677	22.270	3.849.949	0	1.542.105	1.144.993	2.664.745	1.096.737
2006	6.102.493	2.589.877	6.837.659	34.725	2.823.146	0	3.109.990	948.353	2.128.056	763.604
2007	9.656.174	4.508.808	7.809.771	285.204	3.224.458	0	6.557.076	1.768.363	6.380.372	515.939
2008	6.273.717	4.394.088	5.359.876	204.160	2.973.928	3.372	3.784.126	1.873.531	5.030.662	864.313
2009	11.717.913	7.594.157	6.579.906	686.832	2.690.650	141.286	4.826.733	1.811.155	4.735.294	1.506.430
2010	9.601.564	3.997.406	18.361.107	522.803	7.398.856	322.893	8.710.938	2.990.267	13.630.837	3.822.189
2011	9.864.662	4.204.174	18.934.286	556.810	7.629.826	331.740	10.072.770	3.072.205	14.056.059	3.941.507
2012	9.482.602	4.091.671	17.984.738	569.131	7.247.193	318.892	10.122.659	2.953.218	13.354.293	3.743.841
2013	10.344.118	4.493.646	19.738.204	640.678	7.953.776	347.864	12.006.731	3.221.524	14.655.535	4.108.856
2014	10.542.331	4.560.095	20.107.284	683.479	8.102.501	354.530	12.111.237	3.283.255	14.928.496	4.185.687
2015	20.125.526	11.287.839	18.416.594	937.752	7.421.215	327.360	12.805.878	3.031.639	13.674.838	3.833.740
2016	20.480.091	11.544.727	18.807.029	957.372	7.578.546	333.127	13.106.015	3.085.049	13.964.719	3.915.016
2017	19.080.867	10.854.880	17.371.073	893.656	6.999.908	310.368	12.244.044	2.874.275	12.899.455	3.616.096
2018	21.071.416	11.859.704	19.404.965	984.090	7.819.493	342.746	13.460.047	3.174.124	14.408.318	4.039.487
2019	20.007.410	11.232.403	18.317.496	933.240	7.381.282	325.439	12.748.949	3.013.846	13.601.309	3.813.111
2020	20.322.604	11.426.172	18.557.444	948.988	7.477.973	330.566	12.980.860	3.061.326	13.779.843	3.863.060
2021	20.175.317	11.362.656	18.478.885	942.175	7.446.316	328.170	12.892.205	3.039.139	13.721.220	3.846.707
2022	20.384.641	11.464.718	18.738.803	951.298	7.551.054	331.575	13.014.980	3.070.671	13.913.791	3.900.813
2023	20.493.941	11.536.412	18.800.784	957.528	7.576.030	333.353	13.093.580	3.087.135	13.960.132	3.913.716
2024	20.143.452	11.283.115	18.418.739	940.376	7.422.079	327.652	12.840.796	3.034.339	13.676.690	3.834.186
2025	20.435.474	11.500.078	18.785.037	954.898	7.569.684	332.402	13.053.222	3.078.328	13.948.250	3.910.438
2026	20.391.881	11.471.834	18.678.979	952.531	7.526.947	331.693	12.986.868	3.071.761	13.869.812	3.888.360
2027	20.383.014	11.448.982	18.734.488	953.892	7.549.315	331.548	13.016.868	3.070.426	13.910.878	3.899.915
2028	20.321.335	11.456.739	18.594.966	949.339	7.493.093	330.545	12.979.099	3.061.135	13.807.543	3.870.871
2029	20.280.462	11.370.376	18.608.716	946.474	7.498.633	329.880	12.935.976	3.054.978	13.817.383	3.873.733
2030	20.106.022	11.320.288	18.413.064	940.106	7.419.793	327.043	12.841.429	3.028.701	13.672.479	3.833.005
2031	21.091.690	11.797.367	19.438.274	983.083	7.832.915	343.076	13.443.763	3.177.178	14.432.771	4.046.421
2032	19.704.479	11.097.304	18.007.666	921.344	7.256.432	320.511	12.573.661	2.968.214	13.371.654	3.748.614
2033	21.169.209	11.875.543	19.458.517	987.639	7.841.072	344.337	13.502.969	3.188.855	14.448.167	4.050.635
2034	19.766.217	11.133.928	18.124.095	923.603	7.303.349	321.516	12.616.954	2.977.514	13.457.725	3.772.851
2035	21.143.557	11.741.721	19.459.519	988.081	7.841.476	343.919	13.491.557	3.184.991	14.448.951	4.050.843
TOTAL	566.461.227	294.321.847	523.300.702	25.717.331	225.558.021	9.111.080	352.268.273	95.434.485	397.375.518	110.073.215

TABLE B-18. Variable OMP&R Component of Transportation Charge for Each Contractor

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA				South Bay Area Future Contractor	GRAND TOTAL
	San Gorgonio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Watershed Protection District	Total	City of Yuba City	County of Butte	Plumas County FC&WCD	Total		
	[30]	[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	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	(15,739,366)	0	(14,196,048)	0	0	0	0	0	(10,310,371)
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	(14,676,247)	7,418	(14,088,741)	0	0	0	0	0	(6,759,448)
2001	0	160,070,513	269,038	187,432,789	0	0	0	0	0	210,718,677
2002	0	60,681,496	282,777	74,996,855	0	0	0	0	0	89,954,308
2003	7,393	94,646,001	362,859	111,381,682	0	0	0	0	0	130,019,786
2004	53,585	104,912,701	408,346	122,968,676	0	0	0	0	0	140,951,306
2005	54,272	110,580,524	120,524	133,206,658	0	0	0	0	0	161,657,785
2006	453,155	85,999,999	107,904	111,898,961	0	0	0	0	0	135,915,883
2007	631,448	146,465,016	335,480	188,138,109	0	0	0	0	0	212,623,216
2008	843,828	94,784,317	461,613	126,851,531	0	0	0	0	0	145,352,500
2009	1,249,732	117,579,690	922,476	162,042,254	0	0	0	0	0	181,730,129
2010	3,543,694	199,395,191	2,421,393	274,719,138	0	0	0	0	0	311,226,251
2011	3,643,436	205,128,605	2,500,491	283,936,571	0	0	0	0	0	321,210,153
2012	2,248,905	195,789,927	2,386,149	270,293,219	0	0	0	0	0	300,950,755
2013	2,468,167	213,151,526	2,580,649	295,711,274	0	0	0	0	0	328,078,129
2014	2,514,319	216,730,588	2,620,303	300,724,105	0	0	0	0	0	336,115,717
2015	2,302,906	224,449,785	2,448,340	321,063,412	0	0	0	0	0	355,893,826
2016	2,351,728	229,290,861	2,502,183	327,916,463	0	0	0	0	0	362,153,622
2017	2,172,169	213,903,211	2,349,524	305,569,526	0	0	0	0	0	338,588,969
2018	2,426,497	236,086,174	2,571,059	337,648,120	0	0	0	0	0	373,446,546
2019	2,290,514	223,243,365	2,436,004	319,344,368	0	0	0	0	0	353,538,582
2020	2,320,519	226,625,028	2,477,482	324,171,865	0	0	0	0	0	358,257,328
2021	2,310,695	225,522,943	2,463,016	322,529,444	0	0	0	0	0	356,721,355
2022	2,343,197	228,076,812	2,485,639	326,227,992	0	0	0	0	0	360,788,027
2023	2,350,947	229,200,092	2,500,884	327,804,534	0	0	0	0	0	362,520,647
2024	2,303,174	224,283,813	2,447,858	320,956,269	0	0	0	0	0	354,552,662
2025	2,348,978	228,713,211	2,493,164	327,123,164	0	0	0	0	0	361,721,909
2026	2,335,716	227,955,427	2,487,138	325,948,947	0	0	0	0	0	361,922,849
2027	2,342,657	227,828,789	2,482,846	325,953,618	0	0	0	0	0	359,915,584
2028	2,325,211	227,254,488	2,482,978	324,927,342	0	0	0	0	0	360,048,050
2029	2,326,930	226,287,043	2,466,390	323,796,974	0	0	0	0	0	357,666,493
2030	2,302,465	224,713,637	2,453,935	321,371,967	0	0	0	0	0	355,630,473
2031	2,430,662	235,541,138	2,559,758	337,118,096	0	0	0	0	0	372,348,827
2032	2,251,772	220,072,755	2,405,549	314,699,955	0	0	0	0	0	348,675,151
2033	2,433,194	236,556,851	2,575,582	338,432,570	0	0	0	0	0	374,375,416
2034	2,266,331	221,101,072	2,413,421	316,178,576	0	0	0	0	0	350,119,321
2035	2,433,319	234,835,051	2,550,607	336,513,592	0	0	0	0	0	369,318,864
TOTAL	66,681,515	6,757,121,620	67,964,354	9,491,389,190	0	0	0	0	0	10,701,797,210

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	1,935,753	13,751	36,017	49,768
1966	18,057	0	18,057	419,362	421,628	1,412,600	2,253,589	26,516	61,329	87,845
1967	41,560	0	41,560	538,988	498,337	1,685,708	2,723,033	56,451	118,225	174,675
1968	128,588	0	128,588	663,611	603,365	1,984,791	3,251,768	115,927	229,740	345,667
1969	254,662	0	254,662	787,048	539,211	2,082,792	3,409,052	185,118	358,783	543,901
1970	277,493	0	277,493	822,778	532,434	2,202,293	3,557,505	200,110	387,595	587,705
1971	227,419	0	227,419	787,837	551,979	2,169,421	3,509,238	202,373	392,830	595,203
1972	224,922	0	224,922	829,492	678,385	2,319,944	3,827,821	209,016	406,506	615,521
1973	221,035	31,353	252,388	794,722	549,258	2,338,141	3,682,122	206,516	402,639	609,155
1974	240,442	32,924	273,366	818,510	564,459	2,505,879	3,888,849	208,503	407,005	615,508
1975	237,400	36,276	273,676	868,375	605,595	2,409,443	3,883,413	225,853	439,787	665,639
1976	271,231	40,819	312,050	959,145	734,676	2,500,026	4,193,847	228,933	447,212	676,146
1977	293,565	45,078	338,643	923,324	713,422	2,475,917	4,112,663	238,656	468,632	707,288
1978	273,807	49,159	322,966	978,668	692,451	2,785,503	4,456,622	245,286	484,166	729,452
1979	289,415	53,320	342,735	1,043,843	736,221	2,813,091	4,593,155	243,065	483,342	726,406
1980	310,779	67,724	378,502	1,161,866	866,233	3,027,715	5,055,814	269,813	536,977	806,790
1981	347,710	87,377	435,087	1,127,542	879,216	2,917,088	4,923,846	288,950	586,152	875,102
1982	438,260	106,881	545,141	1,165,439	850,343	3,261,611	5,277,394	290,002	582,655	872,657
1983	354,703	151,207	505,911	1,177,004	900,223	3,794,952	5,872,180	319,167	633,079	952,246
1984	467,232	224,170	691,403	1,469,149	1,097,338	5,737,303	8,303,789	351,573	695,455	1,047,028
1985	735,929	364,186	1,100,115	1,919,596	1,789,224	6,551,041	10,259,862	394,545	776,889	1,171,434
1986	1,084,468	692,256	1,776,724	1,746,808	1,528,587	6,862,724	10,138,119	385,497	762,577	1,148,074
1987	1,773,371	1,558,749	3,332,120	2,236,676	2,011,731	6,674,848	10,923,255	385,240	812,199	1,197,439
1988	2,231,006	2,333,097	4,564,103	2,238,316	2,210,377	6,368,341	10,817,033	420,102	978,488	1,398,590
1989	2,396,678	3,325,671	5,722,349	2,154,627	1,871,882	5,916,199	9,942,708	414,171	1,162,567	1,576,738
1990	2,745,521	3,432,532	6,178,053	2,573,931	2,261,764	6,667,922	11,503,618	487,553	1,234,234	1,721,787
1991	2,748,016	3,681,509	6,429,525	1,753,555	1,621,035	4,527,400	7,901,989	491,359	1,476,188	1,967,547
1992	2,553,906	3,528,155	6,082,061	2,074,726	2,003,168	5,385,315	9,463,210	550,978	1,490,922	2,041,900
1993	2,592,266	3,503,436	6,095,702	2,879,965	2,011,060	6,511,316	11,402,341	610,046	1,675,150	2,285,196
1994	2,717,705	3,536,653	6,254,358	2,906,713	2,642,296	7,313,960	12,862,969	767,812	2,472,977	3,240,789
1995	2,648,648	3,509,127	6,157,775	3,035,072	2,288,863	5,893,109	11,217,044	995,188	4,975,940	5,971,129
1996	2,698,584	3,890,907	6,589,491	2,584,212	2,137,277	6,674,929	11,396,418	1,837,045	13,762,994	15,600,038
1997	2,641,264	3,630,366	6,271,631	2,657,467	2,007,165	6,550,904	11,215,536	2,294,408	21,854,824	24,149,233
1998	2,538,581	3,478,567	6,017,148	2,266,421	2,066,539	6,302,733	10,635,693	2,977,590	26,690,973	29,668,563
1999	2,681,273	3,830,639	6,511,911	2,859,242	2,437,251	8,342,353	13,638,846	3,022,470	27,446,275	30,468,745
2000	2,832,666	4,307,061	7,139,727	3,922,309	2,307,626	7,041,762	13,271,698	2,960,422	28,192,423	31,152,845
2001	3,348,844	4,915,373	8,264,217	7,402,693	2,802,467	8,848,550	19,053,710	3,517,165	30,225,812	33,742,977
2002	3,554,410	5,049,824	8,604,234	10,853,823	2,782,861	9,938,715	23,575,398	3,221,272	29,894,891	33,116,164
2003	3,669,139	5,399,232	9,068,371	7,523,574	2,521,455	8,769,794	18,814,823	3,307,026	30,175,612	33,482,638
2004	4,149,846	5,613,965	9,763,811	5,708,688	2,816,375	8,212,932	16,737,995	3,324,666	30,673,082	33,997,749
2005	3,514,578	5,134,310	8,648,888	5,739,048	2,974,965	8,988,437	17,702,450	3,457,059	30,885,840	34,342,899
2006	3,395,869	4,639,132	8,035,000	5,678,242	2,953,069	9,077,103	17,708,414	3,362,143	30,915,872	34,278,015
2007	3,832,209	5,775,089	9,607,298	6,662,336	3,431,534	10,246,659	20,340,529	3,582,229	32,725,652	36,307,881
2008	4,365,985	5,149,206	9,515,191	7,720,769	3,904,358	10,729,094	22,354,221	4,134,058	34,462,289	38,596,348
2009	4,711,390	5,183,368	9,894,757	7,665,927	4,982,252	11,977,753	24,625,933	3,770,167	32,074,503	35,844,670
2010	**5,916,446**	**5,683,523**	**11,599,969**	**9,492,006**	**4,518,946**	**13,019,033**	**27,029,984**	**4,146,519**	**37,965,004**	**42,111,523**
2011	5,678,587	6,000,021	11,678,608	9,628,270	4,779,576	13,345,249	27,753,095	4,180,096	38,248,346	42,428,442
2012	5,164,509	5,030,015	10,194,525	7,441,700	3,856,664	10,629,383	21,927,747	4,026,292	37,105,612	41,131,904
2013	5,083,276	4,995,598	10,078,875	6,990,712	3,611,023	9,903,601	20,505,336	3,967,684	36,494,493	40,462,177
2014	5,206,557	5,058,007	10,264,564	6,561,377	3,351,971	9,334,489	19,247,837	6,287,467	35,813,773	42,101,240
2015	5,169,464	5,134,631	10,304,094	6,547,817	3,260,275	9,027,910	18,836,002	6,218,288	35,745,100	41,963,389
2016	5,185,338	5,154,984	10,340,321	6,478,110	3,218,196	8,830,117	18,526,423	6,197,851	35,765,547	41,963,399
2017	5,198,026	5,177,311	10,375,337	6,401,307	3,179,588	8,706,762	18,287,656	6,161,144	35,757,135	41,918,280
2018	5,137,623	5,193,121	10,330,744	6,399,254	3,200,509	8,724,879	18,324,642	6,138,134	35,774,240	41,912,374
2019	5,125,421	5,212,927	10,338,348	6,253,894	3,142,283	8,577,811	17,973,988	6,105,888	35,753,003	41,858,891
2020	5,158,811	5,233,324	10,392,135	6,239,918	3,137,292	8,567,034	17,944,245	6,112,804	35,804,014	41,916,817
2021	5,175,958	5,256,097	10,432,055	6,292,745	3,163,400	8,638,735	18,094,879	6,139,276	35,891,126	42,030,401
2022	5,184,472	5,275,425	10,459,897	6,341,440	3,187,122	8,697,629	18,226,191	6,154,292	35,957,463	42,111,756
2023	5,190,644	5,259,516	10,450,160	6,369,787	3,200,733	8,731,356	18,301,876	6,157,480	36,003,371	42,160,851
2024	5,195,953	5,276,471	10,472,424	6,337,817	3,182,469	8,692,491	18,212,777	6,142,697	36,017,029	42,159,726
2025	5,191,913	5,289,595	10,481,508	6,404,875	3,216,325	8,773,836	18,395,036	6,154,380	36,079,178	42,233,558
2026	5,198,007	5,305,593	10,503,600	6,522,350	3,275,726	8,921,719	18,719,795	6,192,049	36,188,071	42,380,120
2027	5,206,551	5,322,361	10,528,912	6,440,570	3,231,296	8,820,057	18,491,923	6,169,603	36,186,241	42,355,844
2028	5,213,547	5,338,648	10,552,195	6,540,663	3,281,516	8,944,481	18,766,659	6,196,088	36,273,951	42,470,039
2029	5,221,009	5,355,470	10,576,479	6,499,724	3,258,298	8,893,943	18,651,966	6,186,180	36,296,013	42,482,193
2030	5,220,531	5,360,785	10,581,316	6,556,427	3,286,095	8,965,932	18,808,453	6,202,951	36,366,081	42,569,032
2031	5,216,856	5,361,346	10,578,202	6,620,295	3,317,752	9,043,543	18,981,590	6,226,171	36,438,590	42,664,761
2032	5,215,416	5,362,244	10,577,660	6,616,153	3,313,391	9,043,905	18,973,448	6,221,874	36,480,937	42,702,812
2033	5,195,340	5,336,863	10,532,202	6,739,388	3,376,724	9,195,594	19,311,705	6,266,913	36,611,416	42,878,330
2034	5,134,358	5,282,545	10,416,903	6,677,760	3,341,971	9,122,460	19,142,191	6,247,235	36,618,585	42,865,820
2035	4,998,474	5,158,786	10,157,260	6,609,157	3,305,244	9,034,808	18,949,208	6,235,888	36,641,803	42,877,691
TOTAL	212,863,517	233,803,903	446,667,420	298,953,310	164,489,997	485,232,561	948,675,868	207,237,730	1,370,255,081	1,577,492,811

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	73,544	0	0	0	0	79,571
1966	0	0	12,035	137,284	0	0	0	0	149,319
1967	0	0	26,249	267,525	0	0	0	0	293,774
1968	184,475	8,901	54,573	445,315	1,543,696	13,767	11,573	208,863	2,471,162
1969	180,081	7,623	87,557	524,952	2,390,676	12,621	10,575	356,902	3,570,988
1970	202,085	14,390	94,656	573,846	2,913,173	12,786	13,111	293,610	4,117,657
1971	198,345	15,348	95,676	605,729	3,821,167	17,759	14,412	448,725	5,217,161
1972	220,891	16,216	98,769	631,452	4,990,736	15,216	20,688	1,081,360	7,075,329
1973	203,463	12,287	97,531	639,086	4,923,301	15,480	11,716	409,151	6,312,014
1974	283,340	12,256	98,440	698,081	5,225,667	15,586	12,797	597,999	6,944,167
1975	350,439	13,201	106,683	715,440	6,347,225	16,616	14,481	728,812	8,292,897
1976	305,349	13,747	108,064	774,124	6,701,091	16,990	16,153	564,938	8,500,456
1977	267,323	10,857	112,534	797,692	6,875,930	18,453	13,935	511,809	8,608,532
1978	356,205	4,441	115,500	890,777	8,329,315	18,918	17,976	505,502	10,238,633
1979	386,245	13,594	114,232	896,026	9,454,798	20,198	24,908	954,413	11,864,414
1980	407,397	11,944	125,929	888,723	10,012,714	20,745	24,290	738,788	12,230,530
1981	470,888	29,785	134,147	1,079,139	11,458,289	24,935	22,953	910,174	14,130,311
1982	465,397	12,935	135,036	1,004,492	12,291,193	22,951	22,419	747,616	14,702,039
1983	638,612	14,529	149,180	1,027,082	15,499,710	39,967	29,169	428,257	17,826,505
1984	911,198	14,943	164,483	2,063,001	23,626,832	54,424	59,663	785,228	27,679,772
1985	1,099,655	87,504	184,883	2,350,412	27,934,230	69,479	70,193	2,171,569	33,967,925
1986	1,263,803	33,960	180,423	2,364,977	30,513,734	80,765	76,054	2,184,314	36,698,029
1987	1,122,290	50,755	179,850	2,804,592	29,299,714	78,014	74,301	2,243,361	35,852,876
1988	1,107,808	61,550	193,712	2,750,239	29,212,960	74,164	60,177	2,201,040	35,661,650
1989	1,143,237	49,232	187,891	2,435,448	29,275,286	67,045	68,642	2,444,458	35,671,239
1990	865,960	34,394	221,368	2,541,123	27,391,211	51,053	49,071	1,871,414	33,025,594
1991	583,371	23,299	220,258	2,055,047	17,590,603	27,925	26,840	1,231,979	21,759,323
1992	952,844	39,135	241,431	2,369,575	25,888,724	55,791	50,894	1,909,119	31,507,513
1993	1,165,134	53,662	264,933	2,799,265	31,402,893	72,885	69,577	2,642,707	38,471,056
1994	1,020,224	43,788	306,333	2,808,608	29,278,704	60,455	57,344	2,118,637	35,694,094
1995	1,516,912	46,646	304,270	3,499,388	36,402,259	88,870	80,167	2,772,747	44,711,260
1996	1,346,566	48,278	389,175	3,559,914	36,386,975	86,087	73,815	4,318,638	46,209,448
1997	1,388,095	25,435	276,653	3,107,537	32,557,937	36,710	68,675	1,672,715	39,133,756
1998	1,234,638	34,416	381,817	2,733,766	29,278,839	41,831	60,117	1,803,947	35,569,371
1999	1,189,077	53,838	366,513	3,052,743	30,635,851	73,048	62,436	4,003,827	39,437,333
2000	1,059,976	37,785	302,733	2,573,526	26,103,681	61,673	54,593	2,779,002	32,972,969
2001	1,745,200	63,471	329,793	2,541,199	33,827,216	80,673	100,896	3,081,474	41,769,921
2002	1,311,065	43,210	320,012	2,962,517	28,236,243	73,056	78,099	2,505,127	35,529,329
2003	1,379,073	48,154	340,680	3,329,806	31,212,372	89,316	79,268	2,855,684	39,334,353
2004	1,436,586	77,407	344,585	3,715,552	30,306,536	232,273	81,554	2,372,534	38,567,027
2005	2,007,929	86,690	357,045	3,243,618	40,763,500	411,855	80,322	3,391,116	50,342,076
2006	1,985,612	77,123	301,153	3,383,456	38,015,674	257,955	80,386	2,859,315	46,960,674
2007	1,624,034	69,787	348,408	3,693,584	35,145,507	234,693	83,021	2,964,635	44,163,669
2008	1,508,631	61,074	474,197	3,542,816	35,647,439	243,836	78,151	2,416,800	43,972,944
2009	1,609,107	120,373	379,886	2,731,504	39,355,940	229,472	71,610	2,412,090	46,909,983
2010	**2,122,768**	**97,987**	**426,574**	**5,188,644**	**44,697,599**	**338,305**	**112,906**	**3,225,770**	**56,210,553**
2011	2,282,295	103,353	442,175	5,291,326	47,217,263	354,451	114,105	3,385,304	59,190,272
2012	2,289,546	104,027	422,598	5,347,528	46,944,627	357,505	117,787	3,404,896	58,988,514
2013	2,212,420	99,957	426,627	5,158,093	45,502,093	344,479	112,976	3,284,337	57,140,982
2014	2,090,438	93,540	427,235	4,849,623	43,192,179	324,073	105,187	3,094,211	54,176,485
2015	2,050,756	91,429	427,296	4,664,906	42,289,333	317,446	107,923	3,031,697	52,980,786
2016	2,027,634	90,183	424,690	4,547,993	42,061,871	313,572	104,826	2,994,850	52,565,619
2017	1,991,233	88,243	413,915	4,320,298	41,359,400	307,551	102,256	2,937,405	51,520,300
2018	2,087,816	93,259	394,705	4,439,913	43,054,217	313,669	109,861	3,086,170	53,579,610
2019	2,035,091	90,464	389,627	4,246,366	42,181,050	304,228	105,217	3,003,387	52,355,430
2020	2,036,116	90,480	391,242	4,216,071	42,308,475	303,975	104,474	3,003,949	52,454,782
2021	2,054,087	91,381	393,593	4,233,150	42,615,735	306,607	105,836	3,030,776	52,831,165
2022	2,075,170	92,448	396,466	4,271,044	43,000,021	309,808	107,313	3,062,422	53,314,692
2023	2,085,069	92,927	399,566	4,287,271	43,196,600	311,221	107,851	3,076,709	53,557,213
2024	2,046,951	90,893	402,606	4,190,455	42,642,667	304,853	103,967	3,016,530	52,798,922
2025	2,088,367	93,021	405,639	4,283,024	43,305,654	311,370	107,579	3,079,673	53,674,327
2026	2,153,387	96,383	409,003	4,429,317	44,272,866	321,739	113,769	3,179,407	54,975,871
2027	2,080,294	92,519	412,029	4,253,482	43,303,922	309,675	105,794	3,064,958	53,622,673
2028	2,135,727	95,378	413,300	4,377,083	44,129,409	318,418	111,050	3,149,802	54,730,166
2029	2,093,399	93,123	416,727	4,272,288	43,585,076	311,337	106,273	3,083,040	53,961,264
2030	2,117,867	94,362	420,217	4,321,814	43,955,684	315,084	108,488	3,119,845	54,453,361
2031	2,160,597	96,556	422,447	4,407,790	44,785,580	321,460	111,251	3,184,957	55,490,639
2032	2,126,126	94,710	426,292	4,316,132	44,125,048	315,729	108,754	3,130,345	54,643,136
2033	2,206,872	98,892	429,849	4,507,799	45,574,949	328,546	114,841	3,254,386	56,516,134
2034	2,142,223	95,466	433,164	4,336,964	44,486,528	317,753	109,273	3,152,952	55,074,323
2035	2,096,832	93,048	436,407	4,230,143	44,146,639	309,995	102,588	3,081,368	54,497,020
TOTAL	93,587,641	4,051,992	20,142,012	204,672,036	2,056,004,026	11,529,188	4,899,167	154,619,542	2,549,505,604

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	33,841	0	0	0	725	0	0	0	51,711	0
1964	63,637	27,438	19,535	4,368	38,197	1,142	28,427	8,202	82,782	34,973
1965	119,942	52,989	34,336	7,191	42,687	2,081	50,300	15,217	135,023	35,333
1966	218,209	101,232	62,456	12,474	76,861	3,752	90,369	27,670	232,426	61,445
1967	422,183	210,746	121,230	23,464	148,792	7,282	175,119	54,006	433,210	115,536
1968	744,563	478,136	218,583	41,496	265,090	12,866	311,109	95,438	781,930	208,864
1969	1,073,513	724,358	334,003	61,208	393,906	18,688	458,996	138,023	1,205,471	321,659
1970	1,397,545	904,240	470,279	89,673	552,058	25,223	633,061	184,783	1,777,649	467,431
1971	1,731,854	1,088,072	627,141	128,321	753,842	31,827	857,242	231,214	2,537,458	659,218
1972	2,052,803	1,306,942	777,625	181,162	971,249	42,393	1,111,881	274,527	3,387,842	864,867
1973	2,144,291	1,323,001	919,997	183,667	1,184,434	43,472	1,175,070	287,241	3,970,608	946,446
1974	2,208,324	1,382,418	938,635	193,237	1,211,939	45,201	1,207,168	291,996	3,997,546	989,818
1975	2,385,867	1,450,440	983,349	205,992	1,280,531	48,479	1,274,350	304,204	4,158,104	1,088,088
1976	2,739,598	1,445,783	1,031,841	215,036	1,356,609	51,452	1,317,013	313,608	4,298,577	1,141,338
1977	2,682,772	1,514,851	929,295	225,984	1,194,634	47,338	1,388,908	329,288	4,552,801	1,196,952
1978	3,000,670	1,599,637	1,111,368	230,990	1,470,373	47,108	1,389,086	321,604	4,459,127	1,208,453
1979	3,554,338	1,634,219	1,180,601	237,905	1,568,887	48,384	1,516,690	332,394	4,421,335	1,152,106
1980	4,101,051	1,715,860	1,271,619	259,351	1,730,367	53,338	1,636,165	360,382	4,834,599	1,269,177
1981	4,431,739	1,969,453	1,355,250	271,128	1,850,501	77,794	1,756,607	391,786	5,223,096	1,357,401
1982	3,994,164	2,061,086	1,403,081	280,261	1,935,875	55,949	1,953,099	406,809	5,409,792	1,564,903
1983	5,185,039	2,323,279	1,997,245	333,027	2,880,651	69,370	2,027,198	494,603	6,019,822	1,556,367
1984	7,221,055	3,364,953	3,084,108	445,283	4,607,726	75,761	2,254,826	553,232	7,048,308	2,331,555
1985	8,936,560	3,749,321	3,882,225	540,331	5,882,868	79,219	2,365,325	758,960	7,739,192	2,378,093
1986	8,835,617	4,316,881	4,308,567	577,416	6,570,864	102,386	2,474,589	999,968	7,856,385	3,047,434
1987	8,852,462	4,157,493	4,164,429	604,923	6,418,502	211,795	2,507,017	1,026,303	9,223,407	3,033,831
1988	8,327,711	4,220,766	4,163,551	615,940	6,481,799	124,654	2,561,532	779,724	9,504,046	2,828,684
1989	8,704,817	4,100,642	3,808,363	586,536	5,951,917	170,557	2,508,886	1,442,530	8,943,045	2,930,080
1990	9,993,291	4,541,033	4,487,596	620,333	7,013,831	289,335	2,704,511	1,639,730	9,793,777	3,677,786
1991	6,494,954	3,509,959	2,995,836	567,387	4,550,196	175,123	3,463,624	1,294,508	8,920,573	3,035,311
1992	8,596,710	4,467,518	3,068,316	470,101	4,667,611	121,321	4,265,047	1,129,477	8,572,065	2,979,755
1993	8,980,846	4,098,928	3,267,372	472,751	4,993,253	157,733	4,143,906	1,347,409	9,504,354	3,319,667
1994	11,167,923	4,711,136	3,313,427	554,582	5,065,774	225,795	5,136,954	1,698,886	10,207,695	4,076,345
1995	10,769,211	4,968,972	4,087,290	509,093	6,340,315	155,546	4,224,651	1,527,143	9,441,804	3,715,006
1996	11,138,131	5,157,047	7,025,467	553,160	11,183,555	150,598	4,291,499	1,867,098	9,867,870	3,807,043
1997	11,388,609	4,923,765	6,588,274	579,209	7,422,595	144,818	4,594,942	1,869,201	11,265,726	4,037,468
1998	9,930,796	4,562,790	5,689,947	546,671	5,949,812	146,239	5,632,565	1,477,821	11,186,570	3,323,584
1999	11,342,604	4,893,389	4,639,009	633,117	5,986,277	145,875	5,824,852	1,840,936	12,250,862	4,158,844
2000	10,510,899	6,792,644	3,060,802	593,905	4,362,625	114,245	5,632,567	1,441,220	11,853,576	3,250,361
2001	20,717,211	12,515,192	4,122,574	800,217	6,386,187	128,108	6,354,938	3,361,883	17,843,408	3,401,785
2002	11,966,108	9,682,687	3,370,757	760,623	5,145,819	109,433	5,461,055	2,747,637	18,696,939	4,803,552
2003	13,383,412	10,637,970	3,501,459	734,279	5,359,670	115,630	7,160,097	2,288,354	17,197,209	4,989,247
2004	14,114,032	11,805,195	4,092,538	828,636	5,341,254	124,848	7,244,787	2,500,373	21,185,373	4,384,906
2005	14,828,865	10,937,879	18,366,640	602,729	10,344,551	119,683	7,165,795	2,584,011	19,711,871	4,699,968
2006	15,819,662	10,437,591	27,135,244	616,213	9,819,067	122,862	9,742,300	2,453,211	19,086,748	4,502,699
2007	19,438,029	13,667,397	26,190,496	937,995	9,449,454	120,039	13,857,288	3,510,392	26,086,051	3,937,970
2008	17,906,758	16,243,049	26,155,771	910,943	10,722,400	138,877	12,272,701	4,141,534	26,875,679	4,986,850
2009	26,022,577	20,713,044	27,796,252	1,762,608	10,146,779	354,302	13,621,587	4,005,470	26,451,834	6,193,659
2010	**21,088,850**	**13,548,535**	**46,160,407**	**1,421,420**	**17,011,576**	**581,762**	**18,278,839**	**5,290,048**	**38,961,619**	**9,331,860**
2011	21,592,113	14,013,969	46,956,730	1,461,360	17,336,721	594,475	20,130,138	5,422,727	39,695,434	9,550,296
2012	20,995,332	13,828,015	48,136,727	1,485,509	17,250,194	579,695	20,226,103	5,269,998	38,837,268	9,327,450
2013	20,350,459	13,454,331	47,828,326	1,471,286	16,709,058	558,102	20,728,213	5,068,926	37,483,975	8,943,992
2014	19,040,559	12,671,922	44,582,262	1,417,628	15,404,908	513,065	19,076,248	4,652,785	35,113,047	8,274,578
2015	28,654,450	19,522,936	42,366,359	1,665,434	14,504,548	477,697	19,547,299	4,325,613	33,479,691	7,811,962
2016	28,887,879	19,718,051	42,679,045	1,680,685	14,622,330	481,507	19,795,519	4,362,050	33,713,295	7,873,927
2017	27,321,751	18,933,115	41,109,357	1,609,824	13,981,642	455,911	18,867,616	4,128,489	32,540,500	7,542,298
2018	28,849,744	19,514,094	42,628,181	1,677,297	14,591,194	480,543	19,826,508	4,360,270	33,638,943	7,849,913
2019	27,530,338	18,640,254	41,200,866	1,612,188	14,024,118	458,706	18,981,434	4,161,849	32,529,498	7,539,885
2020	27,611,072	18,664,336	41,026,198	1,605,723	13,960,381	458,849	19,059,702	4,168,746	32,271,328	7,477,185
2021	27,365,521	18,484,899	40,523,201	1,573,502	13,769,832	453,808	18,853,438	4,128,120	31,712,259	7,336,653
2022	27,478,749	18,467,886	39,978,140	1,569,304	13,702,289	455,480	18,886,304	4,144,810	31,585,221	7,311,260
2023	27,508,700	18,523,408	39,361,350	1,571,492	13,609,156	455,908	18,916,334	4,149,028	31,531,636	7,294,089
2024	27,139,555	18,223,422	38,920,953	1,552,196	13,443,510	449,973	18,659,333	4,093,484	31,220,615	7,206,431
2025	27,333,509	18,381,383	39,145,186	1,561,420	13,537,461	453,194	18,805,992	4,122,819	31,409,016	7,255,719
2026	27,339,932	18,393,333	39,068,387	1,561,541	13,512,184	453,359	18,769,145	4,123,896	31,370,489	7,240,894
2027	27,391,433	18,417,293	39,192,083	1,566,656	13,564,667	454,276	18,840,787	4,131,822	31,489,217	7,269,821
2028	27,361,956	18,440,799	39,125,432	1,564,989	13,533,438	453,869	18,830,919	4,127,529	31,457,081	7,256,093
2029	27,364,157	18,371,459	39,236,165	1,565,998	13,573,247	453,987	18,826,759	4,128,097	31,560,848	7,280,506
2030	27,208,153	18,283,910	39,118,659	1,562,490	13,519,223	451,543	18,757,025	4,104,966	31,493,134	7,256,386
2031	28,156,985	18,674,545	40,137,405	1,604,819	13,925,778	466,999	19,353,554	4,248,428	32,267,767	7,469,726
2032	26,838,846	17,980,120	38,853,022	1,548,698	13,401,246	445,650	18,542,536	4,050,331	31,333,403	7,202,246
2033	28,284,023	18,743,531	40,357,128	1,616,191	13,998,232	469,235	19,487,271	4,269,637	32,458,166	7,512,889
2034	26,835,873	18,017,968	39,046,294	1,551,535	13,461,581	445,753	18,606,881	4,053,732	31,481,293	7,234,164
2035	28,197,081	18,662,906	40,435,287	1,617,002	14,012,946	467,886	19,500,423	4,260,829	32,516,821	7,519,558
TOTAL	1,043,401,808	675,067,838	1,305,326,931	61,307,100	571,034,371	17,129,153	665,980,014	168,499,031	1,281,436,846	315,241,634

TABLE B-19. Total Transportation Charge for Each Contractor

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA				South Bay Area Future Contractor	GRAND TOTAL
	San Gorgonio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Watershed Protection District	Total	City of Yuba City	County of Butte	Plumas County FC&WCD	Total		
	[30]	[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	3,219	79,888
1963	0	690,539	0	776,816	0	0	0	0	12,626	1,626,945
1964	21,728	1,260,042	9,374	1,599,846	0	0	0	0	13,938	2,806,643
1965	21,859	2,179,810	17,760	2,714,529	0	0	405	405	28,937	4,808,963
1966	37,952	3,898,819	33,415	4,857,079	0	0	564	564	31,321	7,397,775
1967	71,260	7,691,085	68,133	9,542,045	0	0	562	562	47,718	12,823,367
1968	128,877	15,313,065	142,760	18,742,777	0	0	564	564	46,945	24,987,473
1969	198,704	23,145,744	215,144	28,289,416	0	0	3,190	3,190	52,963	36,124,171
1970	289,546	30,607,434	273,523	37,672,446	0	0	15,116	15,116	69,744	46,297,666
1971	409,205	39,946,463	342,325	49,344,183	0	0	15,996	15,996	55,532	58,964,731
1972	537,044	52,933,606	422,192	64,864,134	0	0	17,367	17,367	80,412	76,705,506
1973	587,814	57,257,279	435,541	70,458,860	0	0	17,328	17,328	54,219	81,386,086
1974	611,275	61,759,841	455,447	75,292,843	0	0	17,472	17,472	76,783	87,108,988
1975	644,464	66,739,819	478,284	81,041,970	0	0	18,400	18,400	84,547	94,260,543
1976	668,153	68,467,779	475,466	83,522,252	0	0	17,471	17,471	106,717	97,328,939
1977	696,350	66,216,668	506,941	81,482,781	0	0	18,227	18,227	98,618	95,366,752
1978	708,874	72,917,066	523,053	88,987,408	0	0	17,375	17,375	100,786	104,853,242
1979	712,699	72,648,617	526,278	89,534,453	0	0	20,573	20,573	119,352	107,201,087
1980	777,814	79,908,126	571,100	98,488,945	0	0	17,755	17,755	178,812	117,157,148
1981	805,858	91,241,966	636,261	111,368,841	0	0	21,188	21,188	185,347	131,939,721
1982	853,227	93,125,063	670,228	113,713,537	0	0	28,417	28,417	173,894	135,313,079
1983	951,954	101,767,502	803,439	126,409,497	0	0	19,271	19,271	220,926	151,806,536
1984	1,072,455	137,486,443	868,812	170,414,517	0	0	21,109	21,109	225,959	208,383,577
1985	1,120,667	172,895,309	908,613	211,236,683	0	0	20,233	20,233	340,322	258,096,574
1986	1,149,524	193,220,922	937,154	234,397,708	0	0	20,134	20,134	279,227	284,458,015
1987	1,171,823	178,743,184	907,876	221,023,045	0	0	19,736	19,736	345,116	272,693,588
1988	1,208,011	190,222,146	904,709	231,943,271	0	0	17,895	17,895	365,207	284,767,749
1989	1,194,715	193,213,771	932,440	234,488,299	0	0	19,153	19,153	422,329	287,842,814
1990	1,297,422	239,518,615	1,486,593	287,063,853	0	0	18,143	18,143	474,284	339,985,331
1991	1,354,718	179,928,886	1,140,954	217,432,028	0	0	21,012	21,012	214,683	255,726,108
1992	1,348,976	196,144,526	1,025,119	236,856,540	0	0	18,008	18,008	443,676	286,412,907
1993	1,507,337	169,470,518	1,067,967	212,332,040	0	0	20,993	20,993	599,571	271,206,898
1994	1,497,529	209,259,636	1,008,783	257,924,464	0	0	19,644	19,644	609,966	316,606,283
1995	1,520,392	173,396,660	1,061,154	221,717,236	0	0	20,272	20,272	534,971	290,329,687
1996	1,526,936	181,380,152	1,103,083	239,051,638	0	0	25,373	25,373	571,857	319,444,264
1997	1,731,237	186,712,246	1,216,389	242,474,478	0	0	24,815	24,815	428,638	323,698,087
1998	1,924,943	168,700,865	1,238,198	220,310,801	0	0	17,366	17,366	465,095	302,684,038
1999	2,167,313	189,881,470	1,252,288	245,016,836	0	0	17,366	17,366	571,359	335,662,396
2000	2,425,992	184,419,493	1,313,902	235,772,230	0	0	17,367	17,367	0	320,326,835
2001	3,389,510	376,375,466	1,621,650	457,018,128	0	0	17,368	17,368	0	559,866,321
2002	4,793,421	265,250,149	1,648,917	334,437,096	0	0	17,369	17,369	0	435,279,590
2003	6,093,072	293,980,964	1,677,772	367,119,135	0	0	20,763	20,763	0	467,840,082
2004	6,385,032	338,895,263	1,909,711	418,811,948	0	0	20,825	20,825	0	517,899,355
2005	6,718,940	315,060,787	1,430,397	412,572,116	0	0	20,822	20,822	0	523,629,251
2006	7,191,828	294,543,313	1,369,116	402,839,853	0	0	21,349	21,349	0	509,843,305
2007	8,124,211	381,672,223	1,896,227	508,887,773	0	0	21,325	21,325	0	619,328,474
2008	9,175,855	358,386,325	2,349,950	490,266,692	0	0	22,715	22,715	0	604,728,111
2009	9,662,545	383,357,114	3,014,539	533,102,309	0	0	20,889	20,889	0	650,398,541
2010	**12,768,223**	**475,916,173**	**4,984,047**	**665,343,358**	**0**	**0**	**20,298**	**20,298**	**0**	**802,315,684**
2011	12,966,386	485,908,380	5,137,541	680,766,269	0	0	20,509	20,509	0	821,837,194
2012	11,512,726	480,378,969	5,012,379	672,840,366	0	0	20,344	20,344	0	805,103,399
2013	11,089,297	461,180,568	4,735,800	649,602,333	0	0	20,374	20,374	0	777,810,076
2014	10,495,220	425,224,179	4,295,154	600,761,553	0	0	20,404	20,404	0	726,572,084
2015	10,193,352	427,672,277	4,047,846	614,269,465	0	0	20,030	20,030	0	738,373,766
2016	10,233,501	430,999,219	4,084,145	619,131,153	0	0	19,900	19,900	0	742,546,816
2017	10,040,642	412,989,560	3,903,995	593,424,700	0	0	19,934	19,934	0	715,546,208
2018	10,215,952	426,339,566	4,030,885	614,003,089	0	0	19,962	19,962	0	738,170,422
2019	10,036,093	407,532,933	3,835,915	588,084,076	0	0	17,368	17,368	0	710,628,101
2020	10,004,654	405,639,448	3,833,929	585,781,551	0	0	5,475	5,475	0	708,495,004
2021	9,931,597	399,655,676	3,787,535	577,576,040	0	0	4,681	4,681	0	700,969,219
2022	9,921,837	397,319,884	3,779,984	574,601,149	0	0	3,329	3,329	0	698,717,013
2023	9,914,245	397,000,945	3,788,992	573,625,284	0	0	3,360	3,360	0	698,098,744
2024	9,866,208	390,613,610	3,722,688	565,111,981	0	0	3,393	3,393	0	688,759,224
2025	9,896,110	393,577,118	3,753,875	569,232,801	0	0	3,423	3,423	0	694,020,655
2026	9,896,230	393,418,120	3,754,762	568,902,271	0	0	3,456	3,456	0	695,485,113
2027	9,923,463	394,162,319	3,758,782	570,162,618	0	0	3,488	3,488	0	695,165,457
2028	9,923,323	394,082,277	3,761,315	569,919,020	0	0	3,521	3,521	0	696,441,600
2029	9,947,219	393,632,518	3,746,324	569,687,283	0	0	3,553	3,553	0	695,362,736
2030	9,940,658	391,662,104	3,723,600	567,081,851	0	0	3,588	3,588	0	693,497,602
2031	10,077,906	400,898,214	3,807,495	581,089,622	0	0	3,622	3,622	0	708,808,435
2032	9,926,872	385,958,077	3,652,713	559,733,761	0	0	3,656	3,656	0	686,634,472
2033	10,122,912	402,286,445	3,817,606	583,423,266	0	0	3,692	3,692	0	712,665,329
2034	9,964,876	387,013,408	3,656,981	561,370,339	0	0	3,728	3,728	0	688,873,303
2035	10,145,927	401,365,328	3,800,089	582,502,082	0	0	3,763	3,763	0	708,987,025
TOTAL	365,444,484	17,924,260,094	147,113,354	24,541,242,659	0	0	1,048,134	1,048,134	8,735,616	30,073,368,111

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 2009 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 2010			
Total Costs of "Initial" Project Conservation Facilities to be Reimbursed and Project Water Entitlements during the Project Repayment Period.	$5,614.62 (b) 339.93 AF	$4,626.89 (c) 339.93 AF	$10,241.51 339.93 AF
Less, Project Power Revenues to be Realized During the Project Repayment Period.	(2,089.42)	(1,033.39)	($3,122.82)
Less, Delta Water Charges Paid and Project Water Entitlements, Prior to 2010	(2,708.58) (d) (277.47) AF	(2,057.41) (277.47) AF	($4,765.99) (277.47) AF
TOTAL	$816.61 62.46 AF	$1,536.09 62.46 AF	$2,352.70 62.46 AF
Rate Applicable in 2010	$13.07 per acre-foot	$24.59 per acre-foot	$37.67 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 2010			
Total Costs of "Initial" Project Conservation Facilities to be Reimbursed and Project Water Entitlements during the Project Repayment Period.	$5,601.15 (b) 339.93 AF	$4,608.70 (c) 339.93 AF	$10,209.86 339.93 AF
Less, Project Power Revenues to be Realized During the Project Repayment Period.	(2,089.42)	(1,033.39)	($3,122.82)
Less, Delta Water Charges Paid and Project Water Entitlements, Prior to 2010	(2,708.58) (d) (277.47) AF	(2,057.41) (277.47) AF	($4,765.99) (277.47) AF
TOTAL	$803.15 62.46 AF	$1,517.90 62.46 AF	$2,321.05 62.46 AF
Rate Applicable in 2010	$12.86 per acre-foot	$24.30 per acre-foot	$37.16 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 exlude amounts for Consevaton 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 during the 1961 through 1978 period.

(c) Includes conservation power costs and credits at San Luis.

(d) Applying all Delta Water Charges paid prior to 1970 to reimburse Capital costs (the charge was not divided into components until 1970).

TABLE B-20B. Delta Water Rates by Facility

(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)	54.07	34.70	88.77
Less, Oroville Power Revenues	-32.02	-16.55	-48.57
Subtotal	22.04	18.16	40.20
Delta Facilities (b)	15.21	22.41	37.62
California Aqueduct, portion			
Reach 1	3.41	5.89	9.30
Reach 2A	2.03	0.82	2.85
Reach 2B	1.05	0.75	1.81
Reach 3	0.73	0.32	1.05
Subtotal	7.22	7.78	15.01
San Luis Facilities	10.23	8.89	19.11
Planning and preoperating costs through 2007	2.96	0.00	2.96
45,000 AF relinquished costs	0.22	0.29	0.51
Less, Capital Cost Credits	-1.43	0.00	-1.43
Less, Delta Water Charges paid prior to 2009	-43.37	-32.94	-76.31
Rate applicable in 2010	13.07	24.59	37.67

(a) Includes revenue received from non-contractors.
(b) Includes (1) Delta Facility planning costs, (2) Delta Studies costs, and (3) Suisun Marsh Facilities Costs.

TABLE B-21. Total Delta Water Charge for Each Contractor

(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	515,037	1,323,518	1,838,555	1,848,004	990,002	2,357,148	5,195,154	589,286	1,072,172	1,661,458
2005	544,123	1,156,941	1,701,064	1,973,748	1,028,262	2,448,242	5,450,252	612,060	1,113,607	1,725,667
2006	559,368	1,173,458	1,732,826	1,999,809	1,041,839	2,480,569	5,522,217	620,142	1,128,312	1,748,454
2007	623,728	1,291,247	1,914,975	2,198,222	1,145,206	2,726,679	6,070,107	681,671	1,240,257	1,921,928
2008	647,090	1,322,240	1,969,330	2,248,611	1,171,457	2,789,182	6,209,250	697,296	1,268,687	1,965,983
2009	717,087	1,446,549	2,163,636	2,457,420	1,280,240	3,048,190	6,785,850	762,047	1,386,499	2,148,546
2010	**1,093,351**	**1,789,517**	**2,882,868**	**3,036,861**	**1,582,110**	**3,766,929**	**8,385,900**	**941,732**	**1,713,425**	**2,655,157**
2011	1,093,351	1,791,401	2,884,752	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2012	1,093,351	1,793,284	2,886,635	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2013	1,093,351	1,795,168	2,888,519	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2014	1,093,351	1,797,051	2,890,402	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2015	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2016	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2017	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2018	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2019	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2020	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2021	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2022	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2023	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2024	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2025	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2026	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2027	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2028	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2029	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2030	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2031	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2032	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2033	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2034	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
2035	1,093,351	1,798,935	2,892,286	3,036,861	1,582,110	3,766,929	8,385,900	941,732	1,713,425	2,655,157
TOTAL	36,148,439	65,856,071	102,004,510	112,804,609	66,769,170	165,394,330	344,968,109	36,718,516	67,425,912	104,144,428

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	1,351,659	70,317	0	3,508,929	20,084,922	94,286	134,357	2,619,428	27,863,898
2005	1,403,895	73,157	0	3,474,639	20,976,687	220,342	139,550	2,598,245	28,886,515
2006	1,422,433	74,130	0	3,338,845	21,435,340	223,252	141,392	2,386,977	29,022,369
2007	1,563,559	81,479	0	3,670,110	23,562,051	253,717	155,421	2,615,486	31,901,823
2008	1,599,401	83,191	0	3,754,239	24,102,160	259,533	158,983	2,675,439	32,632,946
2009	1,747,923	90,846	0	4,102,863	26,340,321	283,634	173,747	2,923,885	35,663,219
2010	**2,160,070**	**112,206**	**0**	**5,070,286**	**31,948,455**	**350,513**	**214,715**	**3,349,629**	**43,205,874**
2011	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2012	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2013	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2014	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2015	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2016	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2017	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2018	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2019	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2020	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2021	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2022	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2023	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2024	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2025	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2026	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2027	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2028	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2029	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2030	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2031	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2032	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2033	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2034	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
2035	2,160,070	111,487	0	5,070,286	31,948,455	350,513	214,715	3,349,629	43,205,155
TOTAL	91,275,850	5,001,398	0	211,221,166	1,406,723,343	12,287,972	9,292,057	156,272,053	1,892,073,839

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	3,333,008	2,244,004	544,501	136,715	898,074	54,215	1,786,717	502,073	2,418,434	678,859
2005	3,461,814	2,330,727	565,544	141,999	932,780	56,310	1,917,073	521,475	2,511,896	705,093
2006	3,507,524	2,361,502	3,003,969	143,873	1,240,285	57,053	1,880,272	528,361	2,545,064	714,404
2007	3,855,524	2,595,798	3,302,008	158,148	1,363,339	62,714	2,066,822	580,783	2,797,573	785,284
2008	3,943,904	2,655,301	3,377,700	161,773	1,394,591	64,151	2,114,200	594,096	2,861,701	803,284
2009	4,310,140	2,901,877	3,691,358	176,795	1,524,095	70,109	2,310,528	649,264	3,127,443	877,878
2010	**5,326,438**	**3,586,116**	**5,211,546**	**218,482**	**2,100,063**	**86,639**	**2,855,332**	**802,356**	**3,864,869**	**1,084,876**
2011	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2012	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2013	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2014	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2015	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2016	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2017	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2018	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2019	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2020	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2021	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2022	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2023	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2024	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2025	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2026	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2027	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2028	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2029	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2030	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2031	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2032	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2033	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2034	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
2035	5,326,438	3,586,116	5,211,546	218,482	2,100,063	86,639	2,855,332	802,356	3,864,869	1,084,876
TOTAL	215,750,511	136,285,954	159,998,211	9,107,903	78,299,245	3,609,137	111,899,926	32,416,769	163,533,882	45,710,109

TABLE B-21. Total Delta Water Charge for Each Contractor

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA				South Bay Area Future Contractor	GRAND TOTAL
	San Gorgonio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Watershed Protection District	Total	City of Yuba City	County of Butte	Plumas County FC&WCD	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	141,429	47,414,032	471,429	60,623,490	226,287	83,306	0	309,593	0	97,492,148
2005	159,136	49,246,383	489,648	63,039,878	235,031	29,701	0	264,732	0	101,068,108
2006	173,640	47,416,073	496,113	64,068,133	238,135	30,107	49,810	318,052	0	102,412,051
2007	204,501	52,120,469	545,336	70,438,299	268,738	33,950	19,600	322,288	0	112,569,420
2008	334,702	53,315,217	557,836	72,178,456	274,736	794,785	56,138	1,125,659	0	116,081,624
2009	527,337	58,266,144	609,638	79,042,606	292,626	844,842	63,417	1,200,885	0	127,004,742
2010	**651,679**	**72,004,849**	**753,386**	**98,546,631**	**361,625**	**1,042,495**	**80,918**	**1,485,038**	**0**	**157,161,468**
2011	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	83,244	1,480,774	0	157,158,369
2012	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	86,217	1,483,747	0	157,163,225
2013	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	89,562	1,487,092	0	157,168,454
2014	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	92,906	1,490,436	0	157,173,681
2015	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	96,622	1,494,152	0	157,179,281
2016	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
2017	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
2018	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
2019	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
2020	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
2021	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
2022	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
2023	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
2024	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
2025	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
2026	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
2027	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
2028	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
2029	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
2030	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
2031	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
2032	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
2033	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
2034	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
2035	651,679	72,004,849	753,386	98,546,631	361,625	1,035,905	100,339	1,497,869	0	157,182,998
TOTAL	22,638,549	3,060,668,195	29,800,289	4,069,718,680	13,836,337	29,597,202	3,311,289	46,744,828	0	6,559,654,394

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	274,219	417,261	691,480	660,900	307,716	858,451	1,827,067	235,866	1,473,385	1,709,251
2007	177,891	270,066	447,957	441,730	197,505	550,975	1,190,210	152,478	975,872	1,128,350
2008	245,185	373,082	618,267	590,925	275,135	767,558	1,633,618	210,893	1,317,384	1,528,277
2009	491,779	748,306	1,240,085	1,185,244	551,852	1,539,527	3,276,623	422,998	2,642,336	3,065,334
2010	**473,086**	**719,862**	**1,192,948**	**1,140,191**	**530,875**	**1,481,007**	**3,152,073**	**406,919**	**2,541,897**	**2,948,816**
2011	505,711	769,505	1,275,216	1,218,821	567,485	1,583,142	3,369,448	434,981	2,717,192	3,152,173
2012	506,256	770,335	1,276,591	1,220,136	568,097	1,584,849	3,373,082	435,450	2,720,123	3,155,573
2013	530,536	807,280	1,337,816	1,278,653	595,343	1,660,858	3,534,854	456,334	2,850,580	3,306,914
2014	549,330	835,878	1,385,208	1,323,950	616,433	1,719,694	3,660,077	472,500	2,951,561	3,424,061
2015	575,025	874,976	1,450,001	1,385,876	645,267	1,800,131	3,831,274	494,601	3,089,618	3,584,219
2016	580,239	882,909	1,463,148	1,398,442	651,117	1,816,453	3,866,012	499,085	3,117,632	3,616,717
2017	572,447	871,052	1,443,499	1,379,662	642,373	1,792,060	3,814,095	492,383	3,075,765	3,568,148
2018	511,404	778,168	1,289,572	1,232,543	573,874	1,600,965	3,407,382	439,878	2,747,782	3,187,660
2019	546,698	831,873	1,378,571	1,317,606	613,480	1,711,454	3,642,540	470,236	2,937,419	3,407,655
2020	506,056	770,031	1,276,087	1,219,654	567,873	1,584,223	3,371,750	435,278	2,719,048	3,154,326
2021	509,821	775,759	1,285,580	1,228,727	572,097	1,596,008	3,396,832	438,516	2,739,275	3,177,791
2022	494,379	752,263	1,246,642	1,191,511	554,770	1,547,668	3,293,949	425,234	2,656,308	3,081,542
2023	495,346	753,733	1,249,079	1,193,840	555,854	1,550,694	3,300,388	426,066	2,661,501	3,087,567
2024	477,739	726,943	1,204,682	1,151,407	536,097	1,495,576	3,183,080	410,922	2,566,901	2,977,823
2025	435,691	662,961	1,098,652	1,050,066	488,913	1,363,943	2,902,922	374,754	2,340,975	2,715,729
2026	397,595	604,993	1,002,588	958,250	446,163	1,244,682	2,649,095	341,986	2,136,284	2,478,270
2027	436,811	664,665	1,101,476	1,052,764	490,169	1,367,448	2,910,381	375,717	2,346,991	2,722,708
2028	336,915	512,660	849,575	812,004	378,070	1,054,721	2,244,795	289,793	1,810,249	2,100,042
2029	365,194	555,691	920,885	880,161	409,804	1,143,251	2,433,216	314,117	1,962,195	2,276,312
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	13,653,977	20,911,545	34,565,522	31,135,159	15,604,005	43,590,416	90,329,580	11,955,643	71,632,146	83,587,789

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	291,279	12,676	0	601,979	3,713,614	42,726	23,753	528,589	5,214,616
2007	187,144	8,113	0	383,463	2,314,841	34,088	15,230	285,915	3,228,794
2008	260,439	11,334	0	538,243	3,320,420	39,561	21,237	427,176	4,618,410
2009	522,374	22,732	0	1,079,576	6,659,916	79,349	42,598	856,806	9,263,351
2010	**502,518**	**21,868**	**0**	**1,038,540**	**6,293,469**	**76,333**	**40,978**	**764,088**	**8,737,794**
2011	537,173	23,376	0	1,110,160	6,727,483	81,597	43,804	816,781	9,340,374
2012	537,753	23,401	0	1,111,358	6,734,739	81,685	43,852	817,662	9,350,450
2013	563,543	24,524	0	1,164,658	7,057,736	85,602	45,955	856,877	9,798,895
2014	583,507	25,392	0	1,205,916	7,307,756	88,635	47,583	887,232	10,146,021
2015	610,800	26,580	0	1,262,322	7,649,570	92,781	49,808	928,731	10,620,592
2016	616,338	26,821	0	1,273,768	7,718,928	93,622	50,260	937,152	10,716,889
2017	608,061	26,461	0	1,256,662	7,615,271	92,365	49,585	924,567	10,572,972
2018	543,221	23,639	0	1,122,659	6,803,221	82,515	44,298	825,976	9,445,529
2019	580,711	25,271	0	1,200,138	7,272,740	88,210	47,355	882,981	10,097,406
2020	537,540	23,392	0	1,110,919	6,732,078	81,653	43,834	817,339	9,346,755
2021	541,539	23,566	0	1,119,183	6,782,158	82,260	44,160	823,419	9,416,285
2022	525,137	22,852	0	1,085,285	6,576,740	79,768	42,823	798,479	9,131,084
2023	526,163	22,897	0	1,087,407	6,589,597	79,924	42,907	800,040	9,148,935
2024	507,461	22,083	0	1,048,756	6,355,378	77,084	41,382	771,604	8,823,748
2025	462,797	20,139	0	956,450	5,796,009	70,299	37,739	703,691	8,047,124
2026	422,331	18,379	0	872,819	5,289,216	64,152	34,439	642,162	7,343,498
2027	463,986	20,191	0	958,908	5,810,903	70,480	37,836	705,499	8,067,803
2028	357,876	15,574	0	739,612	4,481,986	54,361	29,183	544,156	6,222,748
2029	387,915	16,881	0	801,692	4,858,190	58,924	31,633	589,831	6,745,066
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	14,720,043	646,469	0	31,213,335	193,609,441	1,992,330	1,207,466	24,105,130	267,494,214

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	1,038,026	1,243,248	1,213,645	65,040	501,286	17,809	795,182	148,089	1,287,074	342,266
2007	666,215	820,799	1,036,396	41,723	354,543	11,413	520,847	95,550	825,932	219,727
2008	928,120	1,111,615	1,085,146	58,153	448,211	15,923	710,989	132,410	1,150,799	306,026
2009	1,861,573	2,229,614	2,176,525	116,642	898,995	31,937	1,426,061	265,580	2,308,210	613,811
2010	**1,790,812**	**2,144,863**	**2,223,874**	**112,208**	**908,184**	**30,723**	**1,371,855**	**255,484**	**2,220,471**	**590,480**
2011	1,914,311	2,292,779	2,377,238	119,946	970,815	32,842	1,466,461	273,103	2,373,601	631,201
2012	1,916,375	2,295,251	2,379,802	120,075	971,862	32,877	1,468,043	273,398	2,376,161	631,881
2013	2,008,285	2,405,332	2,493,937	125,834	1,018,472	34,454	1,538,450	286,510	2,490,121	662,186
2014	2,079,428	2,490,540	2,582,285	130,292	1,054,551	35,675	1,592,950	296,660	2,578,334	685,644
2015	2,176,691	2,607,033	2,703,069	136,386	1,103,877	37,343	1,667,459	310,536	2,698,933	717,715
2016	2,196,427	2,630,671	2,727,577	137,623	1,113,886	37,682	1,682,577	313,351	2,723,404	724,222
2017	2,166,931	2,595,344	2,690,949	135,775	1,098,927	37,176	1,659,982	309,143	2,686,832	714,497
2018	1,935,862	2,318,591	2,404,001	121,296	981,744	33,212	1,482,971	276,178	2,400,323	638,307
2019	2,069,464	2,478,607	2,569,911	129,668	1,049,498	35,504	1,585,317	295,238	2,565,979	682,359
2020	1,915,618	2,294,345	2,378,862	120,028	971,478	32,864	1,467,463	273,290	2,375,222	631,632
2021	1,929,868	2,311,412	2,396,558	120,921	978,704	33,109	1,478,379	275,323	2,392,891	636,330
2022	1,871,417	2,241,404	2,323,971	117,258	949,061	32,106	1,433,602	266,984	2,320,415	617,057
2023	1,875,075	2,245,786	2,328,514	117,488	950,917	32,169	1,436,405	267,506	2,324,952	618,264
2024	1,808,428	2,165,962	2,245,750	113,312	917,118	31,025	1,385,350	257,998	2,242,314	596,288
2025	1,649,259	1,975,325	2,048,090	103,339	836,398	28,295	1,263,418	235,290	2,044,957	543,806
2026	1,505,051	1,802,606	1,869,009	94,303	763,264	25,821	1,152,947	214,717	1,866,149	496,256
2027	1,653,497	1,980,401	2,053,353	103,604	838,547	28,367	1,266,665	235,895	2,050,212	545,203
2028	1,275,353	1,527,496	1,583,764	79,910	646,776	21,880	976,986	181,947	1,581,341	420,519
2029	1,382,402	1,655,709	1,716,700	86,618	701,065	23,717	1,058,992	197,219	1,714,074	455,816
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	52,608,925	59,845,458	54,060,571	3,306,537	25,070,002	906,526	39,048,030	7,440,347	65,431,352	17,383,328

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 Watershed Protection 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	75,738	20,330,228	181,750	27,239,381	34,858	10,579	8,638	54,075	0	36,735,870
2007	45,192	12,752,863	116,415	17,507,615	22,362	7,007	5,579	34,948	0	23,537,874
2008	67,719	18,177,683	162,507	24,355,301	31,167	9,459	7,723	48,349	0	32,802,222
2009	135,827	36,459,792	325,946	48,850,513	62,514	18,972	15,491	96,977	0	65,792,883
2010	**130,664**	**35,073,902**	**313,557**	**47,167,077**	**60,138**	**18,251**	**14,902**	**93,291**	**0**	**63,291,999**
2011	139,675	37,492,692	335,180	50,419,844	64,285	19,510	15,930	99,725	0	67,656,780
2012	139,826	37,533,127	335,542	50,474,220	64,354	19,531	15,947	99,832	0	67,729,748
2013	146,532	39,333,217	351,635	52,894,965	67,441	20,467	16,712	104,620	0	70,978,064
2014	151,723	40,726,588	364,091	54,768,761	69,830	21,192	17,304	108,326	0	73,492,454
2015	158,820	42,631,543	381,121	57,330,526	73,096	22,184	18,113	113,393	0	76,930,005
2016	160,260	43,018,079	384,577	57,850,336	73,759	22,385	18,277	114,421	0	77,627,523
2017	158,108	42,440,390	379,412	57,073,466	72,768	22,084	18,032	112,884	0	76,585,064
2018	141,248	37,914,782	338,954	50,987,469	65,008	19,729	16,109	100,846	0	68,418,458
2019	150,996	40,531,444	362,347	54,506,332	69,495	21,091	17,221	107,807	0	73,140,311
2020	139,771	37,518,293	335,409	50,454,275	64,329	19,523	15,941	99,793	0	67,702,986
2021	140,811	37,797,397	337,905	50,829,608	64,807	19,668	16,059	100,534	0	68,206,630
2022	136,546	36,652,593	327,670	49,290,084	62,844	19,072	15,573	97,489	0	66,140,790
2023	136,813	36,724,242	328,311	49,386,442	62,967	19,110	15,603	97,680	0	66,270,091
2024	131,950	35,418,926	316,641	47,631,062	60,729	18,430	15,049	94,208	0	63,914,603
2025	120,336	32,301,530	288,772	43,438,815	55,384	16,808	13,724	85,916	0	58,289,158
2026	109,814	29,477,135	263,522	39,640,594	50,541	15,339	12,524	78,404	0	53,192,449
2027	120,645	32,384,535	289,514	43,550,438	55,526	16,851	13,759	86,136	0	58,438,942
2028	93,055	24,978,396	223,304	33,590,727	42,828	12,998	10,613	66,439	0	45,074,326
2029	100,865	27,074,998	242,047	36,410,222	46,423	14,089	11,504	72,016	0	48,857,717
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	4,209,619	1,046,174,568	9,253,505	1,384,738,768	1,759,031	506,511	434,355	2,699,897	0	1,863,415,770

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	1,935,753	13,751	36,017	49,768
1966	18,057	0	18,057	419,362	421,628	1,412,600	2,253,589	26,516	61,329	87,845
1967	41,560	0	41,560	552,988	548,387	1,862,808	2,964,183	56,451	118,225	174,675
1968	128,588	0	128,588	682,767	633,066	2,178,036	3,493,870	115,927	229,740	345,667
1969	254,662	0	254,662	817,372	583,307	2,298,275	3,698,955	185,118	358,783	543,901
1970	277,493	0	277,493	903,686	640,164	2,787,493	4,331,343	200,110	387,595	587,705
1971	227,419	0	227,419	845,157	675,059	2,806,541	4,326,758	202,373	392,830	595,203
1972	224,922	0	224,922	929,160	822,262	3,027,272	4,778,694	209,016	406,506	615,521
1973	221,035	31,353	252,388	915,602	716,357	3,120,308	4,752,268	206,516	402,639	609,155
1974	240,442	32,924	273,366	956,194	746,798	3,324,543	5,027,536	208,503	407,005	615,508
1975	237,400	36,276	273,676	1,014,579	792,919	3,213,566	5,021,064	225,853	439,787	665,639
1976	271,231	40,819	312,050	1,127,634	943,328	3,362,062	5,433,024	228,933	447,212	676,146
1977	293,565	45,078	338,643	1,096,255	922,067	3,302,979	5,321,301	238,656	468,632	707,288
1978	273,807	49,159	322,966	1,185,046	935,682	3,712,097	5,832,825	245,286	484,166	729,452
1979	289,415	53,320	342,735	1,281,614	1,009,429	3,819,046	6,110,089	243,065	483,342	726,406
1980	310,779	86,049	396,827	1,434,583	1,173,659	4,118,582	6,726,824	282,209	540,456	822,665
1981	347,710	112,817	460,527	1,543,106	1,348,984	4,507,072	7,399,162	307,018	596,566	903,584
1982	438,260	141,798	580,058	1,623,427	1,369,396	4,940,900	7,933,724	328,168	682,443	1,010,611
1983	354,703	163,242	517,946	1,493,707	1,259,998	4,909,747	7,663,453	357,171	701,981	1,059,152
1984	467,232	246,623	713,856	1,803,736	1,478,252	6,869,751	10,151,738	409,482	800,953	1,210,435
1985	735,929	386,187	1,122,116	2,301,566	2,224,952	7,795,980	12,322,499	500,648	969,826	1,470,474
1986	1,119,826	714,023	1,833,849	2,170,186	2,013,959	8,193,339	12,377,484	536,703	1,037,924	1,574,627
1987	1,773,371	1,581,733	3,355,104	2,666,700	2,505,517	7,979,748	13,151,965	570,595	1,148,863	1,719,458
1988	2,349,015	2,524,068	4,873,083	2,727,866	2,774,284	7,829,776	13,331,925	673,020	1,439,487	2,112,507
1989	2,548,170	3,700,620	6,248,790	2,711,823	2,515,323	7,578,335	12,805,481	772,517	1,814,603	2,587,120
1990	2,899,410	3,848,146	6,747,556	3,147,125	2,929,625	8,354,874	14,431,625	933,311	2,046,195	2,979,506
1991	2,940,701	4,169,425	7,110,126	2,419,053	2,384,093	6,430,306	11,233,451	979,649	2,366,642	3,346,291
1992	2,797,105	4,144,190	6,941,295	2,893,518	2,926,955	7,656,397	13,476,871	1,118,743	2,526,627	3,645,370
1993	2,854,875	4,171,687	7,026,562	3,750,291	2,977,192	8,849,446	15,576,929	1,185,596	2,725,769	3,911,365
1994	2,987,314	4,224,485	7,211,799	3,787,381	3,586,091	9,612,990	16,986,462	1,335,886	3,517,570	4,853,456
1995	2,960,697	4,404,411	7,365,108	4,036,018	3,313,187	8,393,269	15,742,474	1,647,663	6,194,234	7,841,898
1996	3,044,394	4,897,402	7,941,796	3,643,855	3,178,232	9,227,992	16,050,079	2,591,704	15,229,004	17,820,707
1997	3,027,378	4,733,999	7,761,378	3,870,363	3,145,383	9,337,451	16,353,197	3,002,323	23,731,434	26,733,758
1998	2,935,879	4,589,402	7,525,281	3,479,761	3,203,980	9,084,489	15,768,230	3,255,634	28,393,820	31,649,454
1999	3,154,468	5,070,514	8,224,981	4,170,794	3,675,460	11,391,749	19,238,003	3,800,696	29,642,747	33,443,443
2000	3,462,173	5,620,263	9,082,436	5,811,477	3,598,279	10,231,201	19,640,958	3,777,458	30,645,699	34,423,157
2001	4,080,029	6,371,869	10,451,898	9,832,941	4,088,806	12,025,862	25,947,609	4,330,857	32,657,612	36,988,469
2002	4,324,858	6,567,104	10,891,962	13,360,187	4,092,834	13,175,831	30,628,851	4,050,511	32,384,290	36,434,802
2003	4,448,349	6,919,951	11,368,300	10,015,228	3,821,872	11,989,034	25,826,134	4,132,619	32,698,863	36,831,482
2004	4,933,308	7,345,927	12,279,235	8,192,762	4,107,591	11,410,392	23,710,745	4,144,835	33,187,506	37,332,342
2005	4,312,114	6,676,853	10,988,967	8,323,552	4,287,596	12,229,997	24,841,145	4,287,089	33,361,041	37,648,130
2006	4,229,456	6,229,851	10,459,306	8,338,951	4,302,624	12,416,123	25,057,698	4,218,151	33,517,569	37,735,720
2007	4,633,828	7,336,402	11,970,230	9,302,288	4,774,245	13,524,313	27,600,846	4,416,378	34,941,781	39,358,159
2008	5,258,260	6,844,528	12,102,788	10,560,305	5,350,950	14,285,834	30,197,089	5,042,247	37,048,360	42,090,608
2009	5,920,256	7,378,223	13,298,478	11,308,591	6,814,344	16,565,470	34,688,406	4,955,212	36,103,338	41,058,550
2010	**7,482,883**	**8,192,902**	**15,675,785**	**13,669,058**	**6,631,931**	**18,266,969**	**38,567,957**	**5,495,170**	**42,220,326**	**47,715,496**
2011	7,277,649	8,560,927	15,838,576	13,883,952	6,929,171	18,695,320	39,508,443	5,556,809	42,678,963	48,235,772
2012	6,764,116	7,593,634	14,357,751	11,698,697	6,006,871	15,981,161	33,686,729	5,403,474	41,539,160	46,942,634
2013	6,707,163	7,598,046	14,305,210	11,306,226	5,788,476	15,331,388	32,426,090	5,365,750	41,058,498	46,424,248
2014	6,849,238	7,690,936	14,540,174	10,922,188	5,550,514	14,821,112	31,293,814	7,701,699	40,478,759	48,180,458
2015	6,837,840	7,808,542	14,646,381	10,970,554	5,487,652	14,594,970	31,053,176	7,654,621	40,548,143	48,202,765
2016	6,858,928	7,836,828	14,695,755	10,913,413	5,451,423	14,413,499	30,778,335	7,638,668	40,596,604	48,235,273
2017	6,863,824	7,847,298	14,711,122	10,817,830	5,404,071	14,265,751	30,487,651	7,595,259	40,546,325	48,141,585
2018	6,742,378	7,770,224	14,512,602	10,668,658	5,356,493	14,092,773	30,117,924	7,519,744	40,235,447	47,755,191
2019	6,765,470	7,843,735	14,609,205	10,608,361	5,337,873	14,056,194	30,002,428	7,517,856	40,403,847	47,921,703
2020	6,758,218	7,802,290	14,560,508	10,496,433	5,287,275	13,918,186	29,701,895	7,489,814	40,236,487	47,726,300
2021	6,779,130	7,830,791	14,609,921	10,558,333	5,317,607	14,001,672	29,877,611	7,519,524	40,343,826	47,863,349
2022	6,772,202	7,826,623	14,598,825	10,569,812	5,324,002	14,012,226	29,906,040	7,521,258	40,327,196	47,848,455
2023	6,779,341	7,812,184	14,591,525	10,600,488	5,338,697	14,048,979	29,988,164	7,525,278	40,378,297	47,903,575
2024	6,767,043	7,802,349	14,569,392	10,526,085	5,300,676	13,954,996	29,781,757	7,495,351	40,297,355	47,792,706
2025	6,720,955	7,751,491	14,472,446	10,491,802	5,287,348	13,904,708	29,683,858	7,470,866	40,133,578	47,604,444
2026	6,688,953	7,709,521	14,398,474	10,517,461	5,303,999	13,933,330	29,754,790	7,475,767	40,037,780	47,513,547
2027	6,736,713	7,785,961	14,522,674	10,530,195	5,303,575	13,954,434	29,788,204	7,487,052	40,246,657	47,733,709
2028	6,643,813	7,650,243	14,294,056	10,389,528	5,241,696	13,766,131	29,397,354	7,427,613	39,797,625	47,225,238
2029	6,679,554	7,710,096	14,389,650	10,416,746	5,250,212	13,804,123	29,471,082	7,442,029	39,971,633	47,413,662
2030	6,313,882	7,159,720	13,473,602	9,593,288	4,868,205	12,732,861	27,194,353	7,144,683	38,079,506	45,224,189
2031	6,310,207	7,160,281	13,470,488	9,657,156	4,899,862	12,810,472	27,367,490	7,167,903	38,152,015	45,319,918
2032	6,308,767	7,161,179	13,469,946	9,653,014	4,895,501	12,810,834	27,359,348	7,163,606	38,194,362	45,357,969
2033	6,288,691	7,135,798	13,424,488	9,776,249	4,958,834	12,962,523	27,697,605	7,208,645	38,324,841	45,533,487
2034	6,227,709	7,081,480	13,309,189	9,714,621	4,924,081	12,889,389	27,528,091	7,188,967	38,332,010	45,520,977
2035	6,091,825	6,957,721	13,049,546	9,646,018	4,887,354	12,801,737	27,335,108	7,177,620	38,355,228	45,532,848
TOTAL	262,665,933	320,571,519	583,237,452	442,893,078	246,863,172	694,217,307	1,383,973,557	255,911,889	1,509,313,139	1,765,225,028

TABLE B-23. Total Transportation and Delta Water Charge for Each Contractor

(in dollars)

SAN JOAQUIN VALLEY AREA									
				Kern County Water Agency					
Calendar Year	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]
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	73,544	0	0	0	0	79,571
1966	0	0	12,035	137,284	0	0	0	0	149,319
1967	0	0	26,249	267,525	0	0	0	0	293,774
1968	225,170	19,370	54,573	445,315	1,709,218	16,944	19,646	307,471	2,797,706
1969	241,348	10,904	87,557	524,952	2,728,362	16,821	19,380	459,380	4,088,705
1970	306,490	34,340	94,656	573,846	3,878,088	21,431	30,401	521,705	5,460,957
1971	327,941	37,068	95,676	605,729	5,198,939	27,171	34,684	712,985	7,040,193
1972	381,647	40,329	98,769	631,452	7,166,571	26,469	63,819	1,986,417	10,395,474
1973	399,004	38,951	97,531	1,025,724	7,296,468	28,813	39,269	782,458	9,708,217
1974	507,542	40,165	98,440	1,144,626	8,007,262	29,540	42,567	1,043,137	10,913,280
1975	680,127	40,614	106,683	1,197,000	9,388,273	31,236	48,183	1,556,403	13,048,519
1976	719,594	43,135	108,064	1,323,673	10,632,876	32,663	52,119	1,442,089	14,354,213
1977	579,855	39,052	112,534	1,367,237	10,947,148	34,430	54,224	1,138,019	14,272,498
1978	698,413	36,029	115,500	1,565,716	13,280,274	38,924	59,041	1,172,018	16,965,914
1979	781,768	47,888	114,232	1,668,783	15,356,784	43,061	70,633	1,726,026	19,809,175
1980	962,738	49,623	125,929	1,770,094	16,996,740	48,017	94,948	1,672,269	21,720,358
1981	1,211,677	83,989	134,147	2,430,626	22,599,019	66,491	100,645	2,283,342	28,909,937
1982	1,247,793	70,183	135,036	2,523,485	24,994,629	70,658	108,292	2,278,059	31,428,135
1983	1,182,074	52,533	149,180	2,084,871	24,641,025	75,438	87,442	506,763	28,779,325
1984	1,491,577	28,515	164,483	3,396,201	33,368,455	94,317	121,433	1,541,360	40,206,341
1985	1,767,395	129,945	184,883	3,891,023	39,338,150	117,579	139,513	2,815,952	48,384,440
1986	2,009,250	79,322	180,423	4,079,656	43,438,847	136,711	153,169	3,654,039	53,731,416
1987	1,884,470	95,240	179,850	4,570,657	42,710,531	137,328	151,409	3,746,962	53,476,446
1988	1,969,463	109,618	193,712	4,734,317	44,647,224	138,274	146,568	3,901,468	55,840,644
1989	2,124,131	101,745	187,891	4,677,170	46,839,099	137,082	166,394	4,382,887	58,616,399
1990	1,883,597	86,949	221,368	4,827,700	45,615,521	121,149	148,697	3,960,915	56,865,896
1991	1,688,997	80,238	220,258	4,535,666	37,491,176	103,904	134,707	3,501,925	47,756,872
1992	2,234,709	105,057	241,431	5,549,954	48,688,272	143,779	175,690	4,540,755	61,679,647
1993	2,456,864	120,060	264,933	5,805,843	54,589,439	161,518	195,255	5,294,609	68,888,521
1994	2,261,687	107,565	306,333	5,210,088	52,059,979	145,620	178,067	4,667,309	64,936,649
1995	2,858,148	115,482	304,270	6,621,268	60,520,135	180,796	210,400	5,526,143	76,336,643
1996	2,050,717	125,172	389,175	6,670,890	58,602,030	178,468	190,012	7,091,908	75,298,372
1997	2,761,980	100,577	276,653	6,521,730	57,380,757	138,112	212,212	4,714,039	72,106,059
1998	2,610,320	119,895	381,817	5,812,488	53,920,325	143,429	203,968	4,968,327	68,160,569
1999	2,666,094	134,185	366,513	6,358,288	56,831,265	181,727	215,983	7,273,559	74,027,614
2000	2,589,371	120,463	302,733	6,354,101	50,944,264	173,961	213,081	6,163,138	66,861,112
2001	3,270,874	146,076	329,793	5,954,323	58,398,746	192,720	259,064	6,457,533	75,009,128
2002	2,978,582	127,235	320,012	6,799,894	52,792,697	187,030	238,969	5,737,942	69,182,361
2003	3,028,547	131,099	340,680	7,121,656	55,469,961	201,936	238,143	6,052,980	72,585,002
2004	3,073,370	160,132	344,585	7,813,740	54,035,517	344,005	239,162	5,535,710	71,546,221
2005	3,681,003	171,561	357,045	7,274,562	65,172,038	671,682	241,823	6,477,844	84,047,559
2006	3,699,324	163,929	301,153	7,324,280	63,164,628	523,933	245,531	5,774,881	81,197,659
2007	3,374,737	159,379	348,408	7,747,157	61,022,399	522,498	253,672	5,866,036	79,294,285
2008	3,368,471	155,599	474,197	7,835,298	63,070,019	542,930	258,371	5,519,415	81,224,300
2009	3,879,404	233,951	379,886	7,913,943	72,356,177	592,455	287,955	6,192,781	91,836,553
2010	**4,785,356**	**232,061**	**426,574**	**11,297,470**	**82,939,523**	**765,151**	**368,599**	**7,339,487**	**108,154,221**
2011	4,979,538	238,216	442,175	11,471,772	85,893,201	786,561	372,624	7,551,714	111,735,801
2012	4,987,369	238,915	422,598	11,529,172	85,627,821	789,703	376,354	7,572,187	111,544,119
2013	4,936,033	235,968	426,627	11,393,037	84,508,284	780,594	373,646	7,490,843	110,145,032
2014	4,834,015	230,419	427,235	11,125,825	82,448,390	763,221	367,485	7,331,072	107,527,661
2015	4,821,626	229,496	427,296	10,997,514	81,887,358	760,740	372,446	7,310,057	106,806,533
2016	4,804,042	228,491	424,690	10,892,047	81,729,254	757,707	369,801	7,281,631	106,487,663
2017	4,759,364	226,191	413,915	10,647,246	80,923,126	750,429	366,556	7,211,601	105,298,427
2018	4,791,107	228,385	394,705	10,632,858	81,805,893	746,697	368,874	7,261,775	106,230,294
2019	4,775,872	227,222	389,627	10,516,790	81,402,245	742,951	367,287	7,235,997	105,657,991
2020	4,733,726	225,359	391,242	10,397,276	80,989,008	736,141	363,023	7,170,917	105,006,692
2021	4,755,696	226,434	393,593	10,422,619	81,346,348	739,380	364,711	7,203,824	105,452,605
2022	4,760,377	226,787	396,466	10,426,615	81,525,216	740,089	364,851	7,210,530	105,650,931
2023	4,771,302	227,311	399,566	10,444,964	81,734,652	741,658	365,473	7,226,378	105,911,303
2024	4,714,482	224,463	402,606	10,309,497	80,946,500	732,450	360,064	7,137,763	104,827,825
2025	4,711,234	224,647	405,639	10,309,760	81,050,118	732,182	360,033	7,132,993	104,926,606
2026	4,735,788	226,249	409,003	10,372,422	81,510,537	736,404	362,923	7,171,198	105,524,524
2027	4,704,350	224,197	412,029	10,282,676	81,063,280	730,668	358,345	7,120,086	104,895,631
2028	4,653,673	222,439	413,300	10,186,981	80,559,850	723,292	354,948	7,043,587	104,158,069
2029	4,641,384	221,491	416,727	10,144,266	80,391,721	720,774	352,621	7,022,500	103,911,485
2030	4,277,937	205,849	420,217	9,392,100	75,904,139	665,597	323,203	6,469,474	97,658,516
2031	4,320,667	208,043	422,447	9,478,076	76,734,035	671,973	325,966	6,534,586	98,695,794
2032	4,286,196	206,197	426,292	9,386,418	76,073,503	666,242	323,469	6,479,974	97,848,291
2033	4,366,942	210,379	429,849	9,578,085	77,523,404	679,059	329,556	6,604,015	99,721,289
2034	4,302,293	206,953	433,164	9,407,250	76,434,983	668,266	323,988	6,502,581	98,279,478
2035	4,256,902	204,535	436,407	9,300,429	76,095,094	660,508	317,303	6,430,997	97,702,175
TOTAL	199,583,534	9,699,859	20,142,012	447,106,536	3,656,336,810	25,809,490	15,398,690	334,996,725	4,709,073,657

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	33,841	0	0	0	725	0	0	0	51,711	0
1964	63,637	27,438	19,535	4,368	38,197	1,142	28,427	8,202	82,782	34,973
1965	119,942	52,989	34,336	7,191	42,687	2,081	50,300	15,217	135,023	35,333
1966	218,209	101,232	62,456	12,474	76,861	3,752	90,369	27,670	232,426	61,445
1967	422,183	210,746	121,230	23,464	148,792	7,282	175,119	54,006	433,210	115,536
1968	744,563	491,196	218,583	41,496	265,090	12,866	311,109	95,438	781,930	208,864
1969	1,073,513	742,162	334,003	61,208	393,906	18,688	458,996	138,023	1,205,471	321,659
1970	1,397,545	942,145	470,279	89,673	552,058	25,223	633,061	184,783	1,777,649	467,431
1971	1,731,854	1,136,580	627,141	128,321	753,842	31,827	857,242	231,214	2,537,458	659,218
1972	2,213,559	1,381,693	819,422	185,824	1,035,552	43,760	1,179,399	287,548	3,757,581	950,069
1973	2,366,498	1,430,164	971,549	190,946	1,264,428	46,049	1,270,174	313,372	4,025,516	960,784
1974	2,487,414	1,525,684	998,174	204,028	1,304,969	48,922	1,329,037	331,627	4,462,696	1,104,245
1975	2,705,689	1,616,747	1,047,313	219,242	1,381,046	53,231	1,415,072	355,193	4,637,837	1,207,793
1976	3,170,616	1,653,456	1,106,290	232,081	1,474,159	57,721	1,491,379	381,199	4,837,349	1,278,480
1977	3,152,694	1,741,353	1,008,439	245,063	1,316,814	54,199	1,578,756	406,543	5,093,211	1,336,049
1978	3,600,850	1,874,456	1,208,681	255,418	1,617,786	56,795	1,625,999	419,949	5,090,895	1,373,766
1979	4,274,511	1,954,296	1,295,634	267,741	1,740,357	60,273	1,801,330	449,679	5,135,792	1,341,866
1980	4,958,869	2,092,705	1,406,539	295,300	1,941,103	67,594	1,973,342	498,972	5,646,551	1,484,871
1981	5,786,839	2,562,084	1,573,963	328,765	2,193,793	100,740	2,291,420	603,182	6,460,754	1,688,045
1982	5,545,598	2,725,168	1,657,379	346,669	2,336,614	82,284	2,266,156	641,909	6,751,715	1,929,385
1983	6,296,033	2,795,800	2,181,528	380,786	3,172,018	88,372	2,461,715	658,528	6,963,597	1,808,463
1984	7,671,460	3,874,555	3,287,022	497,530	4,929,444	96,480	2,727,108	727,732	8,052,068	2,597,938
1985	9,502,441	4,340,667	4,122,569	601,871	6,264,838	103,693	2,917,059	959,565	8,892,175	2,686,498
1986	9,470,683	4,976,140	4,583,914	647,576	7,009,362	130,208	3,100,583	1,223,753	9,141,638	3,398,233
1987	9,504,912	4,833,669	4,452,560	678,027	6,885,597	240,859	3,155,019	1,254,957	10,543,136	3,398,610
1988	9,103,618	5,020,459	4,510,079	704,352	7,052,287	158,832	3,329,169	1,044,110	11,093,980	3,270,823
1989	10,994,078	5,029,815	4,217,921	691,132	6,635,042	210,621	3,409,956	1,746,666	10,810,769	3,453,364
1990	12,385,968	5,497,870	4,916,094	729,168	7,720,532	331,158	3,640,812	1,953,805	11,721,704	4,220,945
1991	9,246,486	4,611,628	3,471,487	688,804	5,334,646	221,152	4,500,241	1,639,984	11,103,608	3,642,283
1992	11,803,420	5,800,310	3,625,799	612,831	5,587,010	174,984	5,478,329	1,532,224	11,142,805	3,693,763
1993	12,217,035	5,446,968	3,830,583	617,132	5,922,097	211,890	5,369,167	1,753,869	12,105,846	4,041,979
1994	14,286,062	6,013,423	3,857,597	694,352	5,963,211	277,998	6,320,025	2,090,620	12,730,316	4,776,392
1995	14,152,450	6,389,068	4,680,239	661,742	7,318,186	212,229	5,512,450	1,952,389	12,203,021	4,480,563
1996	14,578,978	6,620,205	7,633,988	710,580	12,187,087	208,342	5,610,071	2,300,101	12,729,472	4,598,694
1997	15,148,717	6,513,857	7,250,920	750,347	8,515,397	207,872	6,032,046	2,342,092	14,397,503	4,897,093
1998	13,687,980	6,147,221	6,350,758	717,166	7,039,592	209,222	7,636,332	1,950,236	14,302,951	4,179,636
1999	15,431,582	6,650,659	5,368,131	822,506	7,188,676	214,574	8,254,701	2,355,855	15,711,291	5,115,023
2000	14,765,502	10,223,372	3,824,433	793,010	5,621,915	185,809	8,183,914	2,073,191	15,502,086	4,256,897
2001	24,957,570	15,928,097	4,882,975	998,395	7,640,155	199,422	8,894,963	4,007,649	21,473,486	4,403,428
2002	16,378,273	13,164,482	4,145,788	962,697	6,423,909	182,069	8,050,467	3,404,499	22,399,781	5,825,087
2003	17,763,484	14,119,263	4,273,486	935,908	6,632,797	187,780	9,741,560	2,940,060	20,897,461	6,009,318
2004	18,463,132	15,266,177	4,859,562	1,029,017	6,606,131	196,495	9,809,883	3,147,406	24,863,684	5,398,798
2005	19,249,947	14,417,526	19,142,262	804,833	11,623,621	192,450	9,817,717	3,242,339	23,413,187	5,721,358
2006	20,365,212	14,042,341	31,352,858	825,126	11,560,638	197,724	12,417,754	3,129,661	22,918,886	5,559,369
2007	23,959,768	17,083,994	30,528,900	1,137,866	11,167,336	194,166	16,444,957	4,186,725	29,709,556	4,942,981
2008	22,778,782	20,009,965	30,618,617	1,130,869	12,565,202	218,951	15,097,890	4,868,040	30,888,179	6,096,160
2009	32,194,290	25,844,535	33,664,135	2,056,045	12,569,869	456,348	17,358,176	4,920,314	31,887,487	7,685,348
2010	**28,206,100**	**19,279,514**	**53,595,827**	**1,752,110**	**20,019,823**	**699,124**	**22,506,026**	**6,347,888**	**45,046,959**	**11,007,216**
2011	28,832,862	19,892,864	54,545,514	1,799,788	20,407,599	713,956	24,451,931	6,498,186	45,933,904	11,266,373
2012	28,238,145	19,709,382	55,728,075	1,824,066	20,322,119	699,211	24,549,478	6,345,752	45,078,298	11,044,207
2013	27,685,182	19,445,779	55,533,809	1,815,602	19,827,593	679,195	25,121,995	6,157,792	43,838,965	10,691,054
2014	26,446,425	18,748,578	52,376,093	1,766,402	18,559,522	635,379	23,524,530	5,751,801	41,556,250	10,045,098
2015	36,157,579	25,716,085	50,280,974	2,020,302	17,708,488	601,679	24,070,090	5,438,505	40,043,493	9,614,553
2016	36,410,744	25,934,838	50,618,168	2,036,790	17,836,279	605,828	24,333,428	5,477,757	40,301,568	9,683,025
2017	34,815,120	25,114,575	49,011,852	1,964,081	17,180,632	579,726	23,382,930	5,239,988	39,092,201	9,341,671
2018	36,112,044	25,418,801	50,243,728	2,017,075	17,673,001	600,394	24,164,811	5,438,804	39,904,135	9,573,096
2019	34,926,240	24,704,977	48,982,323	1,960,338	17,173,679	580,849	23,422,083	5,259,443	38,960,346	9,307,120
2020	34,853,128	24,544,797	48,616,606	1,944,233	17,031,922	578,352	23,382,497	5,244,392	38,511,419	9,193,693
2021	34,621,827	24,382,427	48,131,305	1,912,905	16,848,599	573,556	23,187,149	5,205,799	37,970,019	9,057,859
2022	34,676,604	24,295,406	47,513,657	1,905,044	16,751,413	574,225	23,175,238	5,214,150	37,770,505	9,013,193
2023	34,710,213	24,355,310	46,901,410	1,907,462	16,660,136	574,716	23,208,071	5,218,890	37,721,457	8,997,229
2024	34,274,421	23,975,500	46,378,249	1,883,990	16,460,691	567,637	22,900,015	5,153,838	37,327,798	8,887,595
2025	34,309,206	23,942,824	46,404,822	1,883,241	16,473,922	568,128	22,924,742	5,160,465	37,318,842	8,884,401
2026	34,171,421	23,782,055	46,148,942	1,874,326	16,375,511	565,819	22,777,424	5,140,969	37,101,507	8,822,026
2027	34,371,368	23,983,810	46,456,982	1,888,742	16,503,277	569,282	22,962,784	5,170,073	37,404,298	8,899,900
2028	33,963,747	23,554,411	45,920,742	1,863,381	16,280,277	562,388	22,663,237	5,111,832	36,903,291	8,761,488
2029	34,072,997	23,613,284	46,164,411	1,871,098	16,374,375	564,343	22,741,083	5,127,672	37,139,791	8,821,198
2030	32,534,591	21,870,026	44,330,205	1,780,972	15,619,286	538,182	21,612,357	4,907,322	35,358,003	8,341,262
2031	33,483,423	22,260,661	45,348,951	1,823,301	16,025,841	553,638	22,208,886	5,050,784	36,132,636	8,554,602
2032	32,165,284	21,566,236	44,064,568	1,767,180	15,501,309	532,289	21,397,868	4,852,687	35,198,272	8,287,122
2033	33,610,461	22,329,647	45,568,674	1,834,673	16,098,295	555,874	22,342,603	5,071,993	36,323,035	8,597,765
2034	32,162,311	21,604,084	44,257,840	1,770,017	15,561,644	532,392	21,462,213	4,856,088	35,346,162	8,319,040
2035	33,523,519	22,249,022	45,646,833	1,835,484	16,113,009	554,525	22,355,755	5,063,185	36,381,690	8,604,434
TOTAL	1,311,761,244	871,199,250	1,519,385,713	73,721,540	674,403,618	21,644,816	816,927,970	208,356,147	1,510,402,080	378,335,071

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 Watershed Protection 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	776,816	0	0	0	0	12,626	1,626,945
1964	21,728	1,260,042	9,374	1,599,846	0	0	0	0	13,938	2,806,643
1965	21,859	2,179,810	17,760	2,714,529	0	0	405	405	28,937	4,808,963
1966	37,952	3,898,819	33,415	4,857,079	0	0	564	564	31,321	7,397,775
1967	71,260	7,691,085	68,133	9,542,045	0	0	562	562	47,718	13,064,517
1968	128,877	15,313,065	142,760	18,755,837	0	1,050	1,439	2,489	46,945	25,571,104
1969	198,704	23,145,744	215,144	28,307,220	0	1,225	4,119	5,344	52,963	36,951,749
1970	289,546	30,607,434	273,523	37,710,351	0	3,848	17,111	20,959	69,744	48,458,552
1971	409,205	39,946,463	342,325	49,392,691	0	4,546	19,182	23,728	55,532	61,661,523
1972	537,044	54,976,817	422,192	67,790,461	0	4,929	21,145	26,074	80,412	83,911,558
1973	587,814	59,575,172	435,541	73,438,006	0	7,059	21,772	28,831	54,219	88,843,084
1974	611,275	65,991,774	455,447	80,855,290	0	8,336	22,403	30,739	76,783	97,792,502
1975	644,464	71,813,105	478,284	87,575,015	0	9,416	23,517	32,933	84,547	106,701,394
1976	668,153	74,889,946	475,466	91,716,294	0	7,004	23,251	30,255	106,717	112,628,699
1977	696,350	73,320,946	506,941	90,457,357	0	16,917	24,054	40,971	98,618	111,236,676
1978	708,874	81,933,455	523,053	100,289,976	0	12,635	24,219	36,854	100,786	124,278,773
1979	712,699	83,583,809	526,278	103,144,265	0	16,575	28,346	44,921	119,352	130,296,942
1980	862,108	93,010,922	583,496	114,822,368	0	19,834	26,556	46,390	178,812	144,714,244
1981	946,788	112,152,065	672,397	137,360,836	0	21,682	34,558	56,240	185,347	175,275,632
1982	1,021,156	117,123,623	727,476	143,155,132	0	16,117	43,111	59,228	173,894	184,340,782
1983	1,076,102	118,970,809	854,111	147,707,863	0	15,202	29,405	44,607	220,926	185,993,272
1984	1,211,437	156,252,901	933,156	192,858,831	20,590	15,442	31,790	67,822	225,959	245,434,982
1985	1,287,602	194,946,283	993,495	237,618,756	24,050	16,976	32,399	73,425	340,322	301,332,032
1986	1,344,580	218,310,580	1,058,119	264,395,370	31,753	18,145	33,591	83,489	279,227	334,275,462
1987	1,379,421	204,838,227	1,056,160	252,221,154	37,071	17,794	33,378	88,243	345,116	324,357,487
1988	1,465,634	221,645,738	1,123,943	269,523,022	48,058	19,117	33,600	100,775	365,207	346,147,163
1989	1,505,285	230,306,788	1,232,220	280,243,657	61,184	20,809	37,183	119,176	422,329	361,042,951
1990	1,624,564	277,172,964	1,855,829	333,771,413	66,041	20,855	36,807	123,703	474,284	415,393,982
1991	1,720,675	221,864,964	1,549,791	269,595,748	180,212	22,526	42,194	244,932	214,683	339,502,104
1992	1,779,694	245,343,167	1,503,314	298,077,648	208,216	26,028	43,511	277,755	443,676	384,542,261
1993	1,943,123	219,215,370	1,551,085	274,226,143	209,613	26,203	47,582	283,398	599,571	370,512,488
1994	1,919,993	257,342,564	1,474,900	317,747,452	201,284	25,161	46,074	272,519	609,966	412,618,302
1995	1,982,578	225,839,767	1,568,231	286,952,912	216,944	27,118	50,016	294,078	534,971	395,068,084
1996	1,651,010	235,386,436	1,622,470	305,837,433	217,250	27,156	56,618	301,024	571,857	423,821,269
1997	1,759,496	245,429,286	1,777,095	315,021,720	236,300	29,847	59,910	326,057	428,638	438,730,807
1998	1,952,117	227,219,125	1,797,346	293,189,682	128,021	29,927	53,588	211,536	465,095	416,969,848
1999	2,268,010	254,758,551	1,867,902	326,007,461	254,675	31,834	57,951	344,460	571,359	461,857,321
2000	2,567,950	252,394,869	1,961,103	322,354,050	262,163	79,001	61,071	402,235	0	452,763,947
2001	3,554,320	444,046,100	2,266,277	543,252,836	261,699	93,471	62,424	417,594	0	692,067,534
2002	4,961,784	334,239,547	2,305,787	422,444,169	266,107	95,018	64,666	425,791	0	570,007,936
2003	6,286,124	362,770,743	2,331,457	454,889,441	262,547	93,638	68,952	425,137	0	601,925,495
2004	6,600,599	407,251,038	2,559,050	506,050,972	260,408	93,662	29,281	383,351	0	651,302,866
2005	6,948,068	384,077,763	2,088,005	500,739,076	267,244	39,477	28,805	335,526	0	658,600,403
2006	7,441,206	362,289,614	2,046,979	494,147,367	272,993	40,686	79,797	393,476	0	648,991,226
2007	8,373,904	446,545,555	2,557,978	596,833,687	291,100	40,957	46,504	378,561	0	755,435,768
2008	9,578,276	429,879,225	3,070,293	586,800,449	305,903	804,244	86,576	1,196,723	0	753,611,957
2009	10,325,709	478,083,050	3,950,123	660,995,428	355,140	863,814	99,797	1,318,751	0	843,196,166
2010	**13,550,566**	**582,994,924**	**6,050,990**	**811,057,066**	**421,763**	**1,060,746**	**116,118**	**1,598,627**	**0**	**1,022,769,151**
2011	13,757,740	595,405,921	6,226,107	829,732,744	425,910	1,055,415	119,683	1,601,008	0	1,046,652,343
2012	12,304,231	589,916,945	6,101,307	821,861,217	425,979	1,055,436	122,508	1,603,923	0	1,029,996,372
2013	11,887,508	572,518,634	5,840,821	801,043,929	429,066	1,056,372	126,648	1,612,086	0	1,005,956,594
2014	11,298,622	537,955,616	5,412,631	754,076,945	431,455	1,057,097	130,614	1,619,166	0	957,238,219
2015	11,003,851	542,308,669	5,182,353	770,146,622	434,721	1,058,089	134,765	1,627,575	0	972,483,052
2016	11,045,440	546,022,147	5,222,108	775,528,120	435,384	1,058,290	138,516	1,632,190	0	977,357,337
2017	10,850,429	527,434,799	5,036,793	749,044,797	434,393	1,057,989	138,305	1,630,687	0	949,314,270
2018	11,008,879	536,259,197	5,123,225	763,537,189	426,633	1,055,634	136,410	1,618,677	0	963,771,878
2019	10,838,768	520,069,226	4,951,648	741,137,039	431,120	1,056,996	134,928	1,623,044	0	940,951,410
2020	10,796,104	515,162,590	4,922,724	734,782,457	425,954	1,055,428	121,755	1,603,137	0	933,380,988
2021	10,724,087	509,457,922	4,878,826	726,952,279	426,432	1,055,573	121,079	1,603,084	0	926,358,847
2022	10,710,062	505,977,326	4,861,040	722,437,864	424,469	1,054,977	119,241	1,598,687	0	922,040,801
2023	10,702,737	505,730,036	4,870,689	721,558,357	424,592	1,055,015	119,302	1,598,909	0	921,551,833
2024	10,649,837	498,037,385	4,792,715	711,289,674	422,354	1,054,335	118,781	1,595,470	0	909,856,825
2025	10,668,125	497,883,497	4,796,033	711,218,247	417,009	1,052,713	117,486	1,587,208	0	909,492,811
2026	10,657,723	494,900,104	4,771,670	707,089,496	412,166	1,051,244	116,319	1,579,729	0	905,860,560
2027	10,695,787	498,551,703	4,801,682	712,259,687	417,151	1,052,756	117,586	1,587,493	0	910,787,397
2028	10,668,057	491,065,522	4,738,005	702,056,378	404,453	1,048,903	114,473	1,567,829	0	898,698,924
2029	10,699,763	492,712,365	4,741,757	704,644,136	408,048	1,049,994	115,396	1,573,438	0	901,403,451
2030	10,592,337	463,666,953	4,476,986	665,628,482	361,625	1,035,905	103,927	1,501,457	0	850,680,600
2031	10,729,585	472,903,063	4,560,881	679,636,253	361,625	1,035,905	103,961	1,501,491	0	865,991,433
2032	10,578,551	457,962,926	4,406,099	658,280,392	361,625	1,035,905	103,995	1,501,525	0	843,817,470
2033	10,774,591	474,291,294	4,570,992	681,969,897	361,625	1,035,905	104,031	1,501,561	0	869,848,327
2034	10,616,555	459,018,257	4,410,367	659,916,970	361,625	1,035,905	104,067	1,501,597	0	846,056,301
2035	10,797,606	473,370,177	4,553,475	681,048,713	361,625	1,035,905	104,102	1,501,632	0	866,170,023
TOTAL	392,292,652	22,031,102,857	186,167,148	29,995,700,107	15,595,368	30,103,713	4,793,778	50,492,859	8,735,616	38,496,438,275

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: Capital Cost Component	Transportation Charge: Minimum OMP&R Component	Transportation Charge: Off-Aqueduct Component	Transportation Charge: Variable OMP&R Component	Transportation Charge: Total	Delta Water Charge	Water System Revenue Bond Surcharge	Total Equivalent Unit Charge
	[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	80.21	10.05	90.26
County of Butte	0.00	0.00	0.00	0.00	0.00	60.33	1.31	61.64
Plumas County Flood Control and Water Conservation District	27.66	3.47	0.00	0.00	31.13	39.79	5.15	76.07
Feather River Area	3.75	0.47	0.00	0.00	4.22	63.14	4.29	71.64
NORTH BAY AREA								
Napa County Flood Control and Water Conservation District	143.43	47.17	4.37	17.72	212.68	26.59	11.59	250.85
Solano County Water Agency	90.09	41.41	4.50	7.51	143.52	33.56	11.13	188.21
North Bay Area	110.58	43.62	4.45	11.43	170.09	30.88	11.30	212.27
SOUTH BAY AREA								
Alameda County Flood Control and Water Conservation District, Zone 7	39.42	43.96	8.08	13.45	104.91	31.36	7.64	143.91
Alameda County Water District	26.23	28.44	7.07	10.34	72.08	24.58	4.50	101.16
Santa Clara Valley Water District	23.24	21.00	6.48	8.94	59.67	17.45	3.27	80.39
South Bay Area	26.69	26.43	6.87	10.00	70.00	21.18	4.27	95.45
SAN JOAQUIN VALLEY AREA								
County of Kings	5.30	7.24	3.39	8.46	24.39	25.02	3.61	53.02
Dudley Ridge Water District	5.19	5.71	3.17	5.40	19.47	18.15	2.26	39.88
Empire West Side Irrigation District	2.03	4.89	2.46	4.86	14.24	19.22	1.72	35.18
Kern County Water Agency	9.52	10.62	4.97	7.47	32.58	21.51	2.42	56.50
Oak Flat Water District	2.05	2.59	1.94	3.23	9.81	17.90	1.73	29.45
Tulare Lake Basin Water Storage District	5.30	5.51	3.12	5.03	18.97	18.22	2.12	39.31
San Joaquin Valley Area	8.77	9.75	4.65	5.07	28.23	18.45	2.16	48.85
CENTRAL COASTAL AREA								
San Luis Obispo County Flood Control and Water Conservation District	231.91	133.58	8.67	102.93	477.09	92.75	28.67	598.51
Santa Barbara County Flood Control and Water Conservation District	737.82	179.53	17.67	94.26	1,029.28	59.68	56.65	1,145.62
Central Coastal Area	607.17	167.66	15.35	96.50	886.68	68.22	49.43	1,004.33
SOUTHERN CALIFORNIA AREA								
Antelope Valley-East Kern Water Agency	49.17	48.48	29.21	72.04	198.90	40.01	8.43	247.33
Castaic Lake Water Agency	54.53	52.97	23.39	48.39	179.28	35.27	13.56	228.11
Coachella Valley Water District	68.06	69.03	35.99	84.46	257.54	29.46	10.21	297.21
Crestline-Lake Arrowhead Water Agency	122.64	113.57	31.85	93.06	361.13	52.64	15.87	429.64
Desert Water Agency	47.48	47.76	47.70	52.08	195.01	23.69	6.67	225.37
Littlerock Creek Irrigation District	67.05	65.77	28.03	82.42	243.27	53.03	11.11	307.41
Mojave Water Agency	105.22	122.34	26.06	140.98	394.60	71.70	21.77	488.06
Palmdale Water District	53.92	55.57	37.28	97.41	244.18	49.06	9.51	302.75
San Bernardino Valley Municipal Water District	159.67	154.56	26.35	86.31	426.89	61.61	19.65	508.15
San Gabriel Valley Municipal Water District	103.07	96.78	41.66	59.22	300.74	42.46	13.00	356.19
San Gorgonio Pass Water Agency	270.87	315.17	27.66	145.28	758.98	75.62	14.90	849.51
The Metropolitan Water District of Southern California	81.01	66.00	35.83	49.58	232.42	36.91	10.36	279.68
Ventura County Watershed Protection District	55.86	29.34	20.92	111.88	418.00	76.36	22.37	516.73
Southern California Area	74.07	63.18	32.35	50.74	220.33	36.21	10.00	266.54
ALL AREAS	48.69	40.12	19.26	30.53	138.60	29.48	6.86	174.94

(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]
NBA												
1	38.56	13.93	13.75	2.06	1.54	69.84	38.56	13.93	13.75	2.06	1.54	69.84
2	41.04	14.83	6.01	0.00	0.00	61.88	79.60	28.76	19.76	2.06	1.54	131.72
3A	7.31	2.64	11.95	5.06	2.48	29.44	86.91	31.40	31.71	7.12	4.02	161.16
3B	47.05	17.00	27.02	3.32	5.51	99.90	126.65	45.76	46.78	5.38	7.05	231.62
SBA												
1	6.74	2.43	16.12	5.34	5.75	36.38	8.62	3.11	19.29	7.83	8.44	47.29
2	0.63	0.23	1.82	0.00	0.00	2.68	9.25	3.34	21.11	7.83	8.44	49.97
4	2.12	0.77	3.11	0.00	0.00	6.00	11.37	4.11	24.22	7.83	8.44	55.97
5	4.45	1.61	2.44	0.00	0.00	8.50	15.82	5.72	26.66	7.83	8.44	64.47
6	0.26	0.09	0.26	0.00	0.00	0.61	16.08	5.81	26.92	7.83	8.44	65.08
7	1.97	0.71	0.47	0.00	0.00	3.15	18.05	6.52	27.39	7.83	8.44	68.23
8	2.68	0.97	0.78	0.00	0.00	4.43	20.73	7.49	28.17	7.83	8.44	72.66
9	5.53	2.00	2.93	0.00	0.00	10.46	26.26	9.49	31.10	7.83	8.44	83.12
CA												
1	1.88	0.68	3.17	2.49	2.69	10.91	1.88	0.68	3.17	2.49	2.69	10.91
2A	1.20	0.43	0.63	0.00	0.00	2.26	3.08	1.11	3.80	2.49	2.69	13.17
2B	0.61	0.22	0.31	0.00	0.00	1.14	3.69	1.33	4.11	2.49	2.69	14.31
3	0.54	0.20	0.23	0.00	0.00	0.97	4.23	1.53	4.34	2.49	2.69	15.28
4	0.85	0.31	1.58	1.18	1.21	5.13	5.08	1.84	5.92	3.67	3.90	20.41
5	0.65	0.23	0.31	0.00	0.00	1.19	5.73	2.07	6.23	3.67	3.90	21.60
6	0.17	0.06	0.16	0.00	0.00	0.39	5.90	2.13	6.39	3.67	3.90	21.99
7	0.98	0.35	0.38	0.00	0.00	1.71	6.88	2.48	6.77	3.67	3.90	23.70
8C	0.02	0.01	0.07	0.00	0.00	0.10	6.90	2.49	6.84	3.67	3.90	23.80
8D	0.38	0.14	0.30	0.00	0.00	0.82	7.28	2.63	7.14	3.67	3.90	24.62
9	0.32	0.12	0.28	0.00	0.00	0.72	7.60	2.75	7.42	3.67	3.90	25.34
10A	0.34	0.12	0.37	0.00	0.00	0.83	7.94	2.87	7.79	3.67	3.90	26.17
11B	0.50	0.18	0.23	0.00	0.00	0.91	8.44	3.05	8.02	3.67	3.90	27.08
12D	0.47	0.17	0.21	0.00	0.00	0.85	8.91	3.22	8.23	3.67	3.90	27.93
12E	0.33	0.12	0.36	0.00	0.00	0.81	9.24	3.34	8.59	3.67	3.90	28.74
13B	0.70	0.25	0.41	0.00	0.00	1.36	9.94	3.59	9.00	3.67	3.90	30.10
14A	2.72	0.98	3.18	2.05	2.29	11.22	12.66	4.57	12.18	5.72	6.19	41.32
14B	0.43	0.16	0.39	0.00	0.00	0.98	13.09	4.73	12.57	5.72	6.19	42.30
14C	0.36	0.13	0.29	0.00	0.00	0.78	13.45	4.86	12.86	5.72	6.19	43.08
15A	2.01	0.73	3.32	2.48	2.48	11.02	15.46	5.59	16.18	8.20	8.67	54.10
16A	3.33	1.20	5.14	5.37	5.80	20.84	18.79	6.79	21.32	13.57	14.47	74.94
17E	11.24	4.06	14.43	18.78	21.40	69.91	30.03	10.85	35.75	32.35	35.87	144.85
17F	2.91	1.05	0.18	0.00	0.00	4.14	32.94	11.90	35.93	32.35	35.87	148.99
18A	2.62	0.95	1.73	0.00	-2.25	3.05	35.56	12.85	37.66	32.35	33.62	152.04
19	1.93	0.70	1.05	0.00	0.00	3.68	37.49	13.55	38.71	32.35	33.62	155.72
19C	2.10	0.76	0.00	0.00	0.00	2.86	39.59	14.31	38.71	32.35	33.62	158.58
20A	1.54	0.56	1.73	0.00	0.00	3.83	41.13	14.87	40.44	32.35	33.62	162.41
20B	1.86	0.67	1.14	0.00	0.00	3.67	42.99	15.54	41.58	0.00	33.62	133.73
21	0.94	0.34	0.79	0.00	0.00	2.07	43.93	15.88	42.37	0.00	33.62	135.80
22A	0.98	0.35	0.41	0.00	0.00	1.74	44.91	16.23	42.78	0.00	33.62	137.54
22B	9.63	3.48	11.17	5.82	7.06	37.16	54.54	19.71	53.95	5.82	40.68	174.70
23	2.65	0.96	0.77	0.00	-2.87	1.51	57.19	20.67	54.72	5.82	37.81	176.21
24	5.13	1.85	2.17	0.00	0.00	9.15	62.32	22.52	56.89	5.82	37.81	185.36
25	3.75	1.35	0.12	0.00	0.00	5.22	66.07	23.87	57.01	5.82	37.81	190.58
26A	4.09	1.48	7.24	0.00	-19.57	(6.76)	70.16	25.35	64.25	5.82	18.24	183.82
28G	7.62	2.75	2.74	0.00	0.00	13.11	77.78	28.10	66.99	5.82	18.24	196.93
28H	7.33	2.65	2.87	0.00	0.00	12.85	85.11	30.75	69.86	5.82	18.24	209.78
28J	82.26	29.72	39.91	0.00	0.00	151.89	167.37	60.47	109.77	5.82	18.24	361.67
EBX												
1	N/A	0.00	0.37	0.00	0.00	0.37	N/A	25.35	64.62	5.82	18.24	114.03
2A	N/A	0.00	3.20	0.00	0.00	3.20	N/A	25.35	67.82	5.82	18.24	117.23
2B	N/A	0.00	57.31	4.55	30.31	92.17	N/A	25.35	125.13	10.37	48.55	209.40
2C	N/A	0.00	0.61	0.00	0.00	0.61	N/A	25.35	125.74	10.37	48.55	210.01
2D	N/A	0.00	0.00	0.00	0.00	0.00	N/A	25.35	125.74	10.37	48.55	210.01
2E	N/A	0.00	0.00	0.00	0.00	0.00	N/A	25.35	125.74	10.37	48.55	210.01
3A	N/A	0.00	52.64	5.51	38.62	96.77	N/A	25.35	178.38	15.88	87.18	306.79
3B	N/A	0.00	3.47	0.00	0.00	3.47	N/A	25.35	181.85	15.88	87.18	310.26
4A	N/A	0.00	4.45	0.00	0.00	4.45	N/A	25.35	186.30	15.88	87.18	314.70
4B	N/A	0.00	79.48	1.54	8.09	89.11	N/A	25.35	265.78	17.42	95.26	403.81
WB												
29A	3.82	1.38	8.29	2.41	2.51	18.41	36.76	13.28	44.22	34.76	38.38	167.40
29F	2.78	1.00	0.99	0.00	0.00	4.77	39.54	14.28	45.21	34.76	38.38	172.17
29G	9.25	3.34	4.71	0.00	-9.05	8.25	48.79	17.62	49.92	34.76	29.33	180.42
29H	5.76	2.08	4.47	0.00	0.00	12.31	54.55	19.70	54.39	34.76	29.33	192.73
29J	9.65	3.49	1.28	0.00	-16.92	(2.50)	64.20	23.19	55.67	34.76	12.41	190.23
30	15.49	5.60	4.01	0.00	0.00	25.10	79.69	28.79	59.68	34.76	12.41	215.33
CB												
31A	7.01	2.53	18.92	1.96	2.16	32.58	14.29	5.16	26.06	5.63	6.06	57.20
33A	261.80	94.58	35.69	11.33	28.26	431.66	276.09	99.74	61.75	16.96	34.32	488.86
34	187.05	67.58	0.99	0.00	0.00	255.62	463.14	167.32	62.74	16.96	34.32	744.48
35	0.00	0.00	0.00	0.00	0.00	0.00	463.14	167.32	62.74	16.96	34.32	744.48

(a) Representative of transportation unit costs only; does not include a unit cost of conservation. The Delta Water Rate should be added to these values in order to approximate unit costs at 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 th 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 contrac 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 2009 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
2001	0	0	0	0	0	0	0	0
2002	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
2,001	0	0	0	0	0	0	0	0
2002	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	1,361,198	0
2001	347	146	183	116	108	48	1,044,067	0
2002	1,639	690	861	546	510	226	1,542,546	0
2003	0	0	0	0	0	0	1,834,550	0
2004	2,132	27,868	18,579	18,731	10,355	8,528	1,503,163	0
2005	1,243	16,250	10,833	10,922	6,038	4,973	1,098,294	0
2006	4,632	60,550	40,367	40,697	22,499	18,529	1,483,335	0
2007	13,123	171,531	114,354	115,291	63,738	52,490	1,895,213	0
2008	28,340	370,451	246,967	248,992	137,654	113,362	2,830,048	0
2009	0	0	0	0	0	0	2,094,894	0
2010	**0**	**0**	**0**	**0**	**0**	**0**	**2,133,516**	**0**
2011	0	0	0	0	0	0	2,047,385	0
2012	0	0	0	0	0	0	2,047,385	0
2013	0	0	0	0	0	0	2,047,385	0
2014	0	0	0	0	0	0	2,047,385	0
2015	0	0	0	0	0	0	2,047,385	0
2016	0	0	0	0	0	0	2,047,385	0
2017	0	0	0	0	0	0	2,047,385	0
2018	0	0	0	0	0	0	2,047,385	0
2019	0	0	0	0	0	0	2,047,385	0
2020	0	0	0	0	0	0	2,047,385	0
2021	0	0	0	0	0	0	2,047,385	0
2022	0	0	0	0	0	0	2,047,385	0
2023	0	0	0	0	0	0	2,047,385	0
2024	0	0	0	0	0	0	2,047,385	0
2025	0	0	0	0	0	0	2,047,385	0
2026	0	0	0	0	0	0	2,047,385	0
2027	0	0	0	0	0	0	2,047,385	0
2028	0	0	0	0	0	0	2,047,385	0
2029	0	0	0	0	0	0	2,047,385	0
2030	0	0	0	0	0	0	2,047,385	0
2031	0	0	0	0	0	0	2,047,385	0
2032	0	0	0	0	0	0	2,047,385	0
2033	0	0	0	0	0	0	2,047,385	0
2034	0	0	0	0	0	0	2,047,385	0
2035	0	0	0	0	0	0	2,047,385	0
TOTAL	57,137	649,878	435,130	437,188	242,671	198,939	76,170,806	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	735,806	0	2,109,155	0	1,430,851	0	1,430,851	3,540,006
2001	812,638	0	1,857,653	0	809,097	0	809,097	2,666,750
2002	729,338	0	2,276,356	0	1,151,359	0	1,151,359	3,427,715
2003	915,966	0	2,750,516	0	1,287,717	0	1,287,717	4,038,233
2004	933,012	0	2,522,368	0	1,853,865	0	1,853,865	4,376,233
2005	1,041,964	0	2,190,517	0	1,931,971	0	1,931,971	4,122,488
2006	826,049	0	2,496,658	0	1,715,593	0	1,715,593	4,212,251
2007	1,401,707	0	3,827,447	0	2,575,425	0	2,575,425	6,402,872
2008	1,010,772	0	4,986,586	0	2,686,936	0	2,686,936	7,673,522
2009	1,217,890	0	3,312,784	0	2,120,227	0	2,120,227	5,433,011
2010	**1,108,959**	**0**	**3,242,475**	**0**	**2,369,279**	**0**	**2,369,279**	**5,611,754**
2011	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2012	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2013	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2014	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2015	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2016	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2017	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2018	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2019	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2020	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2021	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2022	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2023	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2024	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2025	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2026	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2027	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2028	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2029	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2030	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2031	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2032	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2033	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2034	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
2035	1,182,126	0	3,229,511	0	2,807,428	0	2,807,428	6,036,940
TOTAL	42,174,304	0	120,366,053	0	98,738,225	0	98,738,225	219,104,277

(a) Units 3 and 4 at Devil Canyon Powerplant were operational in 1993.

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
2001	0	0	0	0	0	0	0	0
2002	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	19,176	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	40,029	2,650,139	789,274	1,101,897	7,354	0	18,742,682	23,331,375
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	39,825	2,636,667	785,261	1,096,296	7,317	0	18,647,406	23,212,772
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	19,966,108	24,854,326
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	47,894	3,170,848	944,353	1,318,402	8,799	0	22,425,319	27,915,615
2003	40,765	2,698,871	803,787	1,122,160	7,489	0	19,087,337	23,760,409
2004	44,199	2,926,222	871,498	1,216,690	8,120	0	20,695,237	25,761,966
2005	32,668	2,162,783	644,128	899,261	6,002	0	15,295,938	19,040,780
2006	46,979	3,110,276	926,313	1,293,217	8,631	0	21,996,927	27,382,343
2007	45,289	2,998,370	892,985	1,246,688	8,321	0	21,205,489	26,397,142
2008	42,495	2,813,410	837,900	1,169,784	7,807	0	19,897,390	24,768,786
2009	64,241	4,340,711	1,304,353	1,768,383	11,803	0	30,624,083	38,113,574
2010	**64,373**	**4,337,234**	**1,301,695**	**1,772,039**	**11,827**	**0**	**30,609,983**	**38,097,151**
2011	66,074	4,460,307	1,339,728	1,818,873	12,139	0	31,471,478	39,168,599
2012	66,185	4,467,791	1,341,982	1,821,907	12,159	0	31,524,245	39,234,269
2013	65,501	4,421,911	1,328,237	1,803,085	12,034	0	31,200,293	38,831,061
2014	66,057	4,448,515	1,334,814	1,818,379	12,135	0	31,397,149	39,077,049
2015	67,773	4,565,317	1,370,022	1,865,617	12,452	0	32,220,475	40,101,656
2016	67,957	4,577,576	1,373,681	1,870,693	12,486	0	32,307,145	40,209,538
2017	69,646	4,686,243	1,405,630	1,917,178	12,795	0	33,078,343	41,169,835
2018	68,094	4,573,971	1,370,928	1,874,474	12,511	0	32,292,493	40,192,471
2019	70,002	4,710,563	1,412,979	1,926,953	12,861	0	33,249,645	41,383,003
2020	67,022	4,499,410	1,348,261	1,844,920	12,313	0	31,768,142	39,540,068
2021	68,371	4,594,550	1,377,361	1,882,076	12,562	0	32,436,074	40,370,994
2022	67,696	4,552,561	1,365,210	1,863,502	12,438	0	32,136,824	39,998,231
2023	56,326	3,800,141	1,141,176	1,550,485	10,348	0	26,815,110	33,373,586
2024	58,236	3,927,149	1,179,064	1,603,094	10,699	0	27,712,941	34,491,183
2025	66,601	4,480,157	1,343,659	1,833,354	12,236	0	31,624,672	39,360,679
2026	24,377	1,664,519	502,427	671,039	4,478	0	11,728,776	14,595,616
2027	24,885	1,702,937	514,503	685,017	4,572	0	11,996,380	14,928,294
2028	16,114	1,106,796	334,916	443,570	2,960	0	7,793,469	9,697,825
2029	16,793	1,151,620	348,246	462,271	3,085	0	8,110,607	10,092,622
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	2,003,241	134,095,051	40,130,986	55,144,128	368,038	0	947,109,655	1,178,851,099

(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	410,977	123,044	124,501	40	58,573	2,822,739	3,540,006
2001	10	309,712	90,216	94,747	3	33,121	2,138,941	2,666,750
2002	49	392,601	109,178	140,257	15	47,132	2,738,483	3,427,715
2003	0	462,318	127,642	166,333	0	52,714	3,229,226	4,038,233
2004	1,278	510,640	156,824	143,962	265	75,889	3,487,375	4,376,233
2005	745	489,942	162,252	104,054	154	79,087	3,286,254	4,122,488
2006	2,777	487,734	145,116	151,165	575	70,229	3,354,655	4,212,251
2007	7,866	743,958	224,560	219,073	1,630	105,427	5,100,358	6,402,872
2008	16,988	863,301	225,861	358,614	3,520	109,992	6,095,246	7,673,522
2009	0	631,215	188,738	189,937	0	86,793	4,336,328	5,433,011
2010	**0**	**652,522**	**197,475**	**193,439**	**0**	**96,988**	**4,471,330**	**5,611,754**
2011	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2012	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2013	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2014	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2015	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2016	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2017	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2018	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2019	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2020	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2021	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2022	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2023	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2024	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2025	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2026	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2027	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2028	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2029	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2030	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2031	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2032	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2033	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2034	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2035	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
TOTAL	29,882	25,598,118	7,949,825	7,086,123	6,213	4,041,919	174,392,202	219,104,282

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	40,029	2,650,139	789,274	1,101,897	7,354	0	18,742,682	23,331,375
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	39,825	2,923,960	868,252	1,202,504	7,317	55,287	20,637,619	25,734,764
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	22,881,260	28,511,434
1999	44,775	3,197,893	957,160	1,292,426	8,230	39,144	22,546,556	28,086,184
2000	49,163	3,657,086	1,089,812	1,474,196	9,048	58,573	25,780,325	32,118,203
2001	49,058	3,556,975	1,057,327	1,444,922	9,014	33,121	25,104,689	31,255,106
2002	47,943	3,563,449	1,053,531	1,458,659	8,814	47,132	25,163,802	31,343,330
2003	40,765	3,161,189	931,429	1,288,493	7,489	52,714	22,316,563	27,798,642
2004	45,477	3,436,862	1,028,322	1,360,652	8,385	75,889	24,182,612	30,138,199
2005	33,413	2,652,725	806,380	1,003,315	6,156	79,087	18,582,192	23,163,268
2006	49,756	3,598,010	1,071,429	1,444,382	9,206	70,229	25,351,582	31,594,594
2007	53,155	3,742,328	1,117,545	1,465,761	9,951	105,427	26,305,847	32,800,014
2008	59,483	3,676,711	1,063,761	1,528,398	11,327	109,992	25,992,636	32,442,308
2009	64,241	4,971,926	1,493,091	1,958,320	11,803	86,793	34,960,411	43,546,585
2010	**64,373**	**4,989,756**	**1,499,170**	**1,965,478**	**11,827**	**96,988**	**35,081,313**	**43,708,905**
2011	66,074	5,168,383	1,563,465	2,004,503	12,139	114,924	36,276,051	45,205,539
2012	66,185	5,175,867	1,565,719	2,007,537	12,159	114,924	36,328,818	45,271,209
2013	65,501	5,129,987	1,551,974	1,988,715	12,034	114,924	36,004,866	44,868,001
2014	66,057	5,156,591	1,558,551	2,004,009	12,135	114,924	36,201,722	45,113,989
2015	67,773	5,273,393	1,593,759	2,051,247	12,452	114,924	37,025,048	46,138,596
2016	67,957	5,285,652	1,597,418	2,056,323	12,486	114,924	37,111,718	46,246,478
2017	69,646	5,394,319	1,629,367	2,102,808	12,795	114,924	37,882,916	47,206,775
2018	68,094	5,282,047	1,594,665	2,060,104	12,511	114,924	37,097,066	46,229,411
2019	70,002	5,418,639	1,636,716	2,112,583	12,861	114,924	38,054,218	47,419,943
2020	67,022	5,207,486	1,571,998	2,030,550	12,313	114,924	36,572,715	45,577,008
2021	68,371	5,302,626	1,601,098	2,067,706	12,562	114,924	37,240,647	46,407,934
2022	67,696	5,260,637	1,588,947	2,049,132	12,438	114,924	36,941,397	46,035,171
2023	56,326	4,508,217	1,364,913	1,736,115	10,348	114,924	31,619,683	39,410,526
2024	58,236	4,635,225	1,402,801	1,788,724	10,699	114,924	32,517,514	40,528,123
2025	66,601	5,188,233	1,567,396	2,018,984	12,236	114,924	36,429,245	45,397,619
2026	24,377	2,372,595	726,164	856,669	4,478	114,924	16,533,349	20,632,556
2027	24,885	2,411,013	738,240	870,647	4,572	114,924	16,800,953	20,965,234
2028	16,114	1,814,872	558,653	629,200	2,960	114,924	12,598,042	15,734,765
2029	16,793	1,859,696	571,983	647,901	3,085	114,924	12,915,180	16,129,562
2030	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2031	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2032	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2033	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2034	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
2035	0	708,076	223,737	185,630	0	114,924	4,804,573	6,036,940
TOTAL	2,033,123	159,693,169	48,080,811	62,230,251	374,251	4,041,919	1,121,501,857	1,397,955,381

CONVERSION FACTORS

Quantity	To convert from customary unit	To metric units	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 (106 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 (af)	thousand cubic meters ($m^3 \times 10^3$)	1.2335	0.8107
	acre-feet (af)	hectare-meters (ha - m)■	0.1234	8.107
	thousand acre-feet (taf)	million cubic meters (m^3 x 106)	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 x 109)◆	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 (af/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
	feet head of water	kilopascals (kPa)	2.989	0.32456
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 (µmhos/cm)	microsiemens per centimeter (µS/cm)	1.0	1.0
Temperature	degrees Fahrenheit (°F)	degrees Celsius (°C)	(°F - 32)/1.8	(1.8 x °C) + 32

● When using "dual units," inches are normally converted to millimeters (rather than centimeters).

■ Not used often in metric countries, but is offered as a conceptual equivalent of customary western U.S. practice (a standard depth of water over a given area of land).

◆ ASTM Manual E380 discourages the use of billion cubic meters since that magnitude is represented by giga (a thousand million) in other countries. It is shown here for potential use for quantifying large reservoir volumes (similar to million acre-feet).

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 per day=1.98 af a day
1 acre-foot=approximately 325,851 gallons=43,560 cubic feet
1 million gallons=3.07 acre-feet
1 million gallons per day (mgd)=1,120 af a year