



State of California
The Resources Agency

Department of
Water Resources



The California State Water Project— 1977 Activities and Future Management Plans



ON THE COVER The water level in Castaic Lake fell drastically as the drought continued in 1977. The 400-cubic-hectometre (324,000 acre-foot) reservoir was less than one-third full when this photo was taken in early May, 1977. The top of the concrete spillway was 42 metres (137 feet) above the water surface. By the end of the heavy-use season, the water had dropped an additional 13 metres (44 feet). In the background is Castaic Lagoon, which serves as both a recreational lake and a recharge source for a ground water basin downstream.

**Department of
Water Resources**

Bulletin 132-78

The California State Water Project— 1977 Activities and Future Management Plans

October 1978

Huey D. Johnson
Secretary for Resources

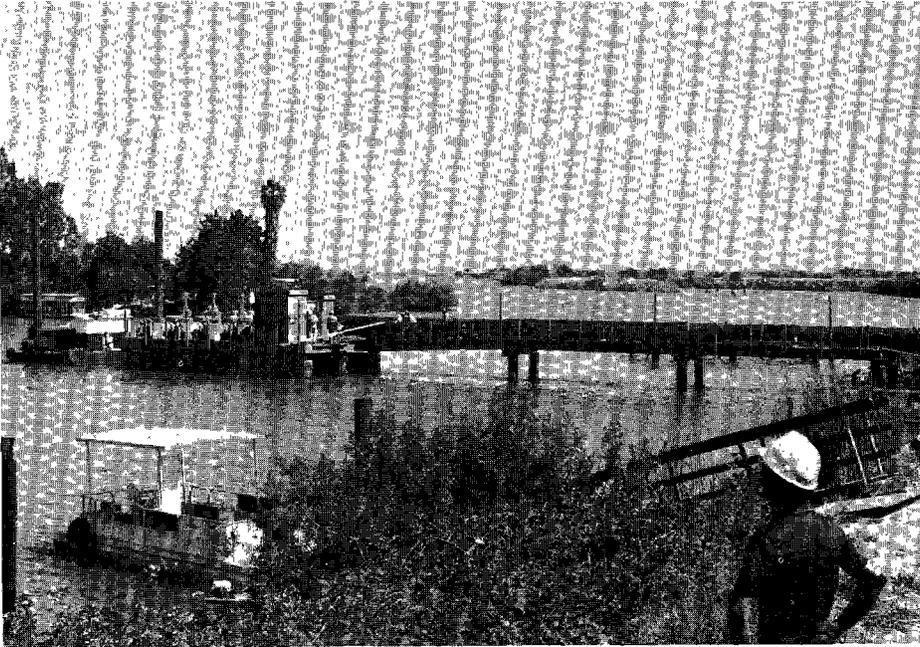
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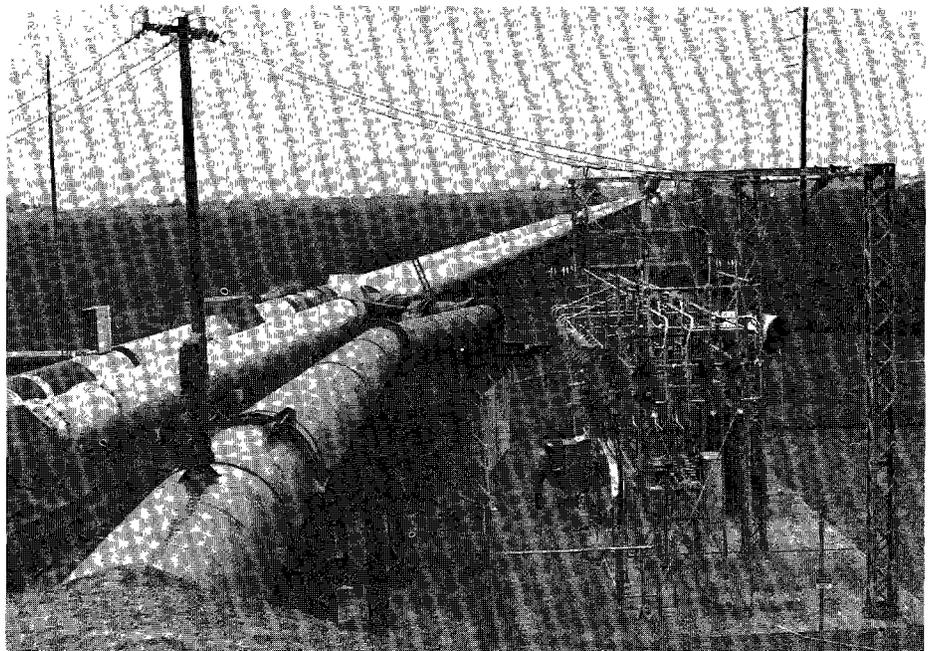
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Construction of the Middle River Pumping Plant (above) began in April and was completed in June 1977. The emergency facility was used to pump water from Middle River to a connection with the East Bay Municipal Water District's Mokelumne Aqueduct pipeline (below). The water was then transported a few miles through EBMUD's pipeline for release into the Contra Costa System which was threatened by increasing salinity at Rock Slough.



FOREWORD

1977 was a bittersweet year for the State Water Project. The worst drought in our State's history limited our ability to serve our 31 water service contractors; yet at the same time the largest water exchange in the history of the State took place between urban users in the San Francisco Bay area, agricultural users in the San Joaquin Valley, and The Metropolitan Water District of Southern California with San Bernardino Valley Municipal Water District, Coachella Valley County Water District, and Desert Water Agency. This greatly helped to significantly reduce the magnitude of the shortage.

The Department's innovative water exchange program, which began in 1976 expanded full scale in 1977. In all, the four Southern California contractors made available 536 917 000 cubic metres (435,279 acre-feet) of 1977 project water for delivery to San Joaquin Valley State contractors, Federal contractors, and the San Francisco Bay Area.

Water and facilities of the Project were used to rescue the Marin Municipal Water District in the San Francisco Bay Area community from drought disaster and to help the City and County of San Francisco provide a reserve against continued drought.

In terms of long-range planning, our Department's blueprint for the future--the Delta Alternative Study recommendations--was adopted by Governor Edmund G. Brown Jr. and approved initially by both houses of the Legislature with the broadest support of any California water project ever, including the Sierra Club, the Association of California Water Agencies, the Planning and Conservation League, and most of the State's water service contractors, including The Metropolitan Water District. Although not receiving final Legislative approval, the bold and innovative \$3.5 billion program, including the Peripheral Canal, represents the first comprehensive plan to meet the State Water Project's long-range needs in nearly a decade. It is a water management program consistent with today's social and environmental realities. The program combines water conservation, water reclamation, and ground water storage with traditional surface water facilities. It is a firm program to assure the sound management of the Project through at least 2000.

From the standpoint of energy, 1977 was a most successful year. We now have firmed up supplies for 71 percent of our 1983 power needs from selected sources. This supply includes retention of Hyatt-Thermalito power for Project use and the generation from aqueduct powerplants including proposed Pyramid and Cottonwood Powerplants, proposed Pine Flat Powerplant of the Kings River Conservation District, five small hydro plants to be constructed by The Metropolitan Water District of Southern California on its distribution system and the first of a series of geothermal plants to be constructed by the Department in the geysers' area of Lake and Sonoma Counties. We also moved forward on applied development of such potential power sources as wind and cogeneration and in negotiation of supplemental power purchase agreements to fulfill all project power needs.

The many lessons we learned from the 1976-1977 drought are being incorporated into future operating plans for the State Water Project. In 1977, the Department constructed a series of rock barriers in the Delta to help control the complex systems of waterways. The barriers helped conserve water and, during the critical months when water quality and salinity control were delicate, the barriers kept the Delta water quality at acceptable levels.

Another action combating the drought was the pumping by several water districts of ground water from approved wells into the California Aqueduct with concurrent delivery of an equal amount at other locations, thereby eliminating the need to build more expensive interim distribution systems.

At the end of 1976 and 1977, project operations were modified to allow project water entitlement, scheduled for delivery during the last months of the year, to be carried over for delivery at a later time, when delivery of the water would be more beneficial to the water contractors.

In mid-1977 the Department developed a decision tool called the "Rule Curve". The "Rule Curve" was used to forecast upcoming available water supply by combining water in storage with the current rainfall and snow conditions in late 1977 and early 1978. This was used as the basis for approving initial water deliveries during 1978 on a month by month basis while the drought continued. Fortunately, much needed storms came to replace depleted supplies statewide and, in February, the Department announced that all requested project entitlements would be delivered in 1978.

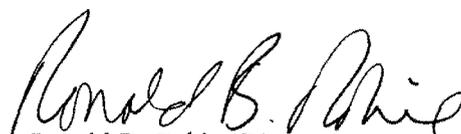

Ronald B. Robie, Director
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TABLE OF CONTENTS

	<u>Page</u>
FOREWORD	iii
ORGANIZATION, DEPARTMENT OF WATER RESOURCES.	vii
ORGANIZATION, CALIFORNIA WATER COMMISSION.	ix
CHAPTER I. CONTINUING HISTORY OF THE PROJECT.	1
ACTIONS CONCERNING PROJECT WATER SUPPLY AND FACILITIES	1
Delta Alternatives Review.	1
SWP Operations During the Dry Year	6
Water Exchanges.	12
Water Supply For 1978.	15
State Water Resources Control Board Delta Hearings	17
Rock Barriers in the Delta	18
Ground Water Storage Programs.	22
Transfer of Water Entitlements	22
Extension of California Aqueduct	23
Safety of Department Dams.	24
Financing of Distribution Works.	25
Wheeling of Central Valley Project Water	25
Interstate 5 - Peripheral Canal Borrow Program	27
Progress Toward Metrication.	29
ACTIONS CONCERNING PROJECT POWER	30
Long-Range Power Program	30
Southern California Recovery Plants.	31
Federal Energy Regulatory Commission License Application	33
ACTIONS CONCERNING PROJECT RECREATION AND FISH AND WILDLIFE ENHANCEMENT	33
Fishing Access Site Program.	33
Wildlife Preservation.	34
LITIGATION	35
PROJECT CONSTRUCTION IN 1977	42
Plans and Specifications	42
Land Acquisition	43
Construction Progress.	44
CHAPTER II. PROJECT MANAGEMENT AND OPERATIONS	48
PROJECT MANAGEMENT	48
WATER RIGHTS MANAGEMENT.	48
Delta Water Quality Monitoring and Reporting	48
Feather River Entitlement Negotiations	49
Delta Water Entitlement Negotiations	49
Agricultural Negotiations.	49
WATER CONTRACTS MANAGEMENT	50
Water Deliveries in 1977	54
Project Water Delivery Plans	66
Contract Amendments.	68
Negotiation of Water Charge Settlements.	70
1978-79 Budget Review.	71
POWER CONTRACTS MANAGEMENT	72
Long-Range Energy Program.	72
Energy Management Activities in 1977	84
Energy Committee	85
PROJECT OPERATIONS	87
PROJECT OPERATIONS IN 1977	87
Water Conditions	87
Water Deliveries	87
Other Activities	88

	<u>Page</u>
RECREATION AND FISH AND WILDLIFE ACTIVITIES.	94
Oroville Field Division.	96
Delta Field Division	96
San Luis Field Division.	96
California Aqueduct Fishery.	97
Southern Field Division.	97
Southern California Wildlife Preservation.	98
 CHAPTER III. FUTURE CONSTRUCTION COSTS, OPERATING COSTS AND	
PROJECT FINANCING . . . . .	.100
Project Construction Expenditures. . . . .	.108
Other Capital Requirements . . . . .	.114
Financing of Capital Expenditures. . . . .	.116
Miscellaneous Receipts . . . . .	.119
Project Operating Revenues . . . . .	.124
Application of Revenues and Miscellaneous Receipts . . . . .	.128
Power Costs. . . . .	.136
 INDEX TO TABULAR MATERIAL IN BULLETIN . . . . .	.251
PROJECT STATISTICS (METRIC UNITS) . . . . .	.252
PROJECT STATISTICS (ENGLISH UNITS). . . . .	.254
CONVERSION FACTORS.	inside back cover

TABLES

1 Annual Water Requirements.	56
2 Summary of 1977 Entitlement and Surplus Water Service to Long-term Contractors	58
3 Water Deliveries in 1977	60
4 Annual Project Energy Requirements for Pumping	74
5 Water Quality Measurements at Selected Stations in 1977.	89
6 Monthly Power Operations in 1977	90
7 Project Financial Analysis, December 31, 1977. . . . .	.104
8 Project Capital Expenditures . . . . .	.110
9 Bond Sales and Project Interest Rates. . . . .	.120
10 Project Operating Costs. . . . .	.132
11 Annual Service on Bonds Sold as of December 31, 1977 . . . . .	.134
12 Annual Service on Assumed Future Bond Sales. . . . .	.135

FIGURES

	<u>Page</u>
1 Future Southern California Recovery Plants	31
2 Aqueduct Recreation Developments	34
3 Project Facilities and Construction Divisions	43
4 Sacramento-San Joaquin Delta Agencies	50
5 Long-Term Water Supply Contracting Agencies	52
6 Water Supply Contract Amendments as of December 31, 1977	69
7 Summary of Project Water Operations, 1977	92
8 Financing of Construction Expenditures, 1952-2035	102
9 Application of Project Operating Revenues	103
10 Generalized Construction Schedule	109
11 Local Projects Under the Davis-Grunsky Act Program	114
12 Projected Savings of Pumping Energy Requirements Due to Conservation and Wastewater Reclamation Under SB 346	138

APPENDICES

A Financial Statements	(bound separately)
B Data and Computations Used in Determining Water Charges	143
C	(discontinued)
D Costs of Recreation and Fish and Wildlife Enhancement	(bound separately)
E Water Operations in the Sacramento-San Joaquin Delta	(bound separately)

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

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CHAPTER I

CONTINUING HISTORY OF THE PROJECT

The State Water Project experienced the worst drought year in the State's history in 1977. Water supplies available to the Project were critically low. The Project's northern storage reservoirs were drawn down to record lows in an attempt to deliver the maximum amount of water possible. To combat the drought the Department expanded the water exchange program with four southern California contractors to provide more water to the San Joaquin Valley and to the water-starved San Francisco Bay area.

This chapter highlights 1977 activities concerning the drought and includes a

progress report on the Department's activities in the continuing management of the State Water Project. Much information on the drought and State Water Project activities are included in the Department's special drought reports, "The California Drought-1977 An Update, February 15, 1977", "The Continuing California Drought, August 1977", and "The 1976-77 California Drought - A Review, May 1978".

The chapter also includes a summary of significant litigation involving the State Water Project in 1977.

ACTIONS CONCERNING PROJECT WATER SUPPLY AND FACILITIES

Delta Alternatives Review

The Delta Alternatives Review Program, which was established in 1975 to review the Peripheral Canal and its surrounding issues, continued during 1977 (see Bulletin No. 132-77, page 1). The objective of the review was to find the best way to protect the Delta environment while supplying water to meet needs in State Water Project (SWP) and federal Central Valley Project (CVP) service areas that receive water from the Delta. The scope of the study included not only alternative facilities to transfer water across the Delta, but also numerous facilities both north and south of the Delta and legal and institutional measures that would affect the Delta.

In October 1976 the Department proposed a program of water development and other actions which were reported in "Delta Alternatives Study Status, October 1976", which was distributed widely to interested parties and the general public. The program recommended:

1. Delta and Suisun Marsh protection measures--physical, institutional, and statutory;
2. municipal and industrial water conservation and waste water reclamation in export service areas;
3. surface and ground water storage facilities and conveyance systems south of the Delta;
4. water storage facilities north of the Delta;
5. one of three remaining Delta transfer alternatives--the New Hope Cross Channel with an enlarged Clifton Court Forebay, the New Hope with a new South Delta Intake Channel, or the Peripheral Canal.

A series of statewide public workshops was held in October and November 1976 to obtain public comment on the proposed program. Following review and consideration of comments received during these

workshops and other meetings, a revised status report, "Delta Alternatives Review Status, Draft-February 1977", was published and widely distributed.

In May, 1977, after further study, the Department, with the concurrence of the Department of Fish and Game, recommended that the Peripheral Canal, contingent on guaranteed protection for the Delta, be selected as the Delta water transfer facility. The recommendation called for the Peripheral Canal to be constructed in three stages, with the first stage to be completed in 1984 and operated for two years to (1) test fish screens, (2) establish criteria for Central Delta releases, and (3) evaluate its effect on fish migration. The proposal also included the other elements described in the October 1976 and February 1977 status report.

At about the same time Senator Ruben Ayala, Chairman of the Senate Agricultural and Water Resources Committee, introduced Senate Bill 346 primarily to sponsor construction of the Peripheral Canal. The Department of Water Resources' plan was incorporated in Senate Bill 346 in early June 1977, after a coalition of water, environmental, labor, farming, and other groups, brought together by Governor Edmund G. Brown, Jr., agreed on a number of amendments. One of the main purposes was to unite Californians in support of a compromise plan to meet the needs of many diverse interests and to serve as a basis to draft complementary federal legislation. The main thrust of the program is to:

1. Provide a program for water storage and transportation facilities to meet projected SWP-CVP water needs under existing and contemplated contracts to year 2000, including reducing part of the ground water overdraft in the San Joaquin Valley.
2. Provide a framework for obtaining federal participation in Delta, Suisun Marsh, and San Francisco Bay protection.

3. Provide a basis for federal participation in the Peripheral Canal and other joint projects of the SWP and CVP.

Facilities included in the bill and the Department's program:

Delta Components

- o Staged Peripheral Canal
- o Relocation of Contra Costa Canal Intake to Clifton Court
- o South Delta Water Quality Improvement Facilities
- o Western Delta Overland Water Facilities
- o Suisun Marsh Protection Facilities

Components North of Delta

- o Cottonwood Creek Project (Dutch Gulch and Tehama Reservoir)
- o Glenn Reservoir-River Diversion (Offstream Storage)
- o Colusa Reservoir-River Diversion (Alternate, Offstream Storage)

Components South of Delta

- o Waste Water Reclamation
- o Water Conservation
- o Ground Water Storage South of Delta
- o Enlarge East Branch California Aqueduct
- o Los Vaqueros Reservoir (Offstream Storage)
- o Los Banos Grandes Reservoir (Alternate, Offstream Storage)
- o Mid-Valley Canal (a component of the federal water supply system, not to be financed by SWP contractors)

Related Matters

- o Unspecified Water Transportation Facilities to Bring Water to San Joaquin, San Francisco, San Mateo, Alameda, and Western Contra Costa Counties

Figure *a* shows the location of the facilities that would be authorized by SB 346, and Figure *b* shows a more detailed location of the staged Peripheral Canal.

SB 346 was passed by the Senate on June 23, 1977, by a vote of 28 to 7, and sent to the Assembly. The Assembly Committee on Water, Parks, and Wildlife held extensive public hearings and made a number of additional amendments before the Assembly passed the bill on September 9, 1977, by a vote of 58 to 21. The Assembly amendments were heard on the Senate floor on September 15, the closing day of the session, and the bill received an affirmative vote of 21 to 16. While this was a majority, it was less than the necessary two-thirds needed to send the bill to the Governor. Most of those who testified in opposition indicated that more time was needed to adequately understand the many provisions to the amended bill.

Under the rules of the Legislature, the bill was assigned to a conference committee of three Senators (Senators Ayala, Behr, and Nejedly) and three from the Assembly (Assemblymen Gualco, Kapiloff,

and Duffy). During November and December 1977, the Joint Conference Committee held six interim hearings throughout the State, in Los Angeles, Fresno, San Diego, San Francisco, Redding, and Stockton, to receive testimony and possible refinements to the bill. The Legislature reconvened on January 3, 1978.

The Conference Committee met on January 26 and approved the final conference report by a vote of 4 to 2.

As a result of the amendments, the Conference Committee report received the support of the San Francisco Bay Conservation and Development Commission and the Association of California Water Agencies, both of which previously opposed the bill. While virtually all State Water Project contractors supported SB 346, several contractors from the San Joaquin Valley^{1/} and a number of large landowners^{2/} opposed the bill.

The Senate vote on the bill was held on February 2, 1978. However, the Conference Committee report was rejected by a vote of 20 ayes to 14 noes, with 6 not voting -- 27 affirmative votes are needed for passage. The author, Senator Ayala, obtained reconsideration of the vote by the Senate so that another vote could be held at a later date.

The Delta Alternatives Review staff is completing work on the final report of the review activities (Bulletin 76),

^{1/} This included the Kern County Water Agency, within which the Wheeler Ridge-Maricopa Water Storage District (encompassing about 59 084 hectares [146,000 acres] in the Agency's service area, of which 8 549 hectares [21,126 acres] are owned by Chevron USA; 8 112 hectares [20,045 acres] are owned by Tenneco West; 2 329 hectares [5,756 acres] are owned by Southern Pacific; and 8 852 hectares [21,873 acres] are owned by Tejon Ranch) was most vocal, and the Tulare Lake Basin Water Storage District (encompassing about 78 105 hectares [193,000 acres] in the San Joaquin Valley, of which 29 503 hectares [72,902 acres] are owned by J. G. Boswell Co.; 5 220 hectares [12,898 acres] are owned by Chevron USA; and 5 998 hectares [14,822 acres] are owned by Salyer Land Co.).

^{2/} Principal of these is the Salyer Land Company which holds large ownerships in several districts served by the Project.

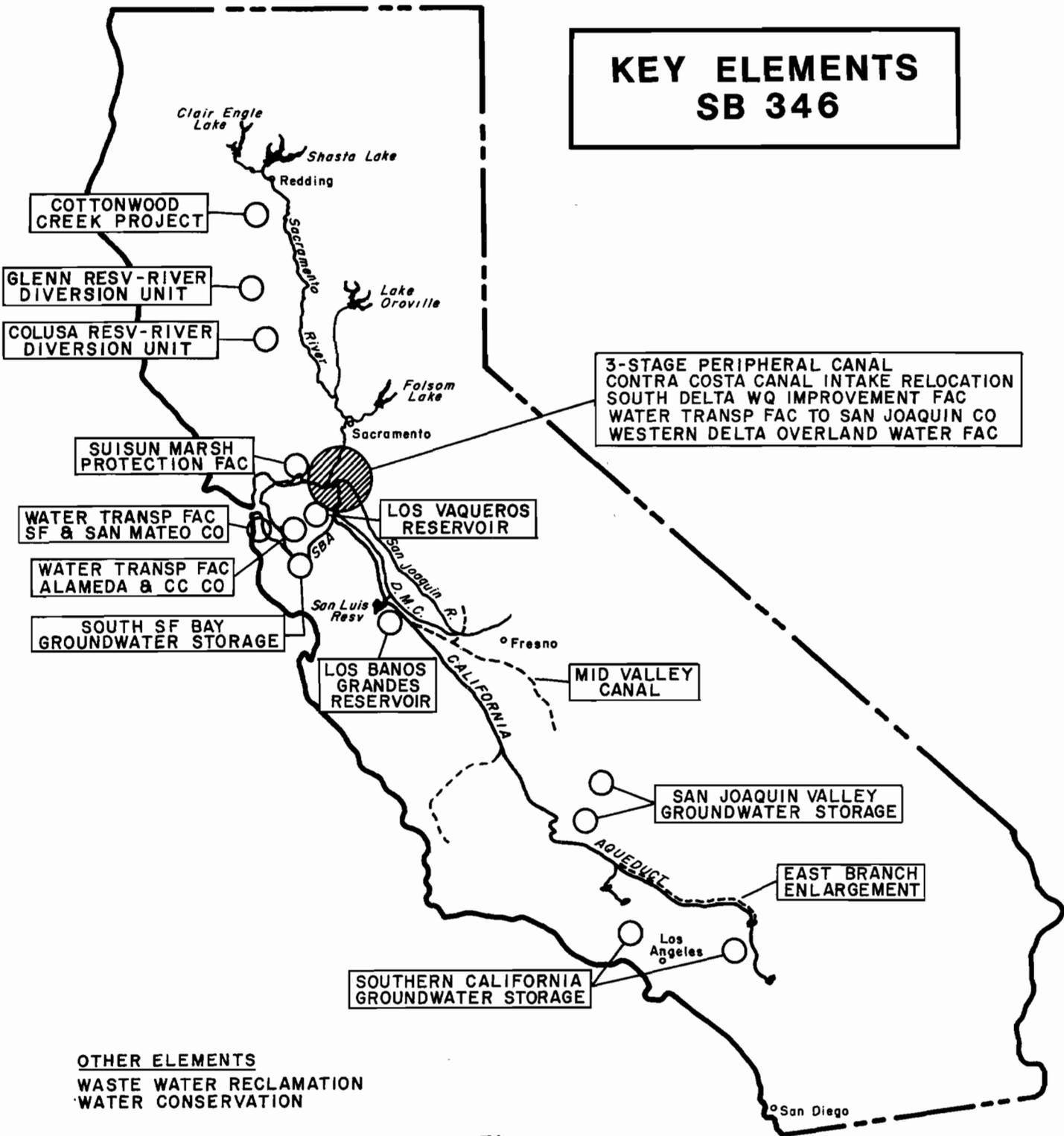


Figure a

PROPOSED DELTA FACILITIES

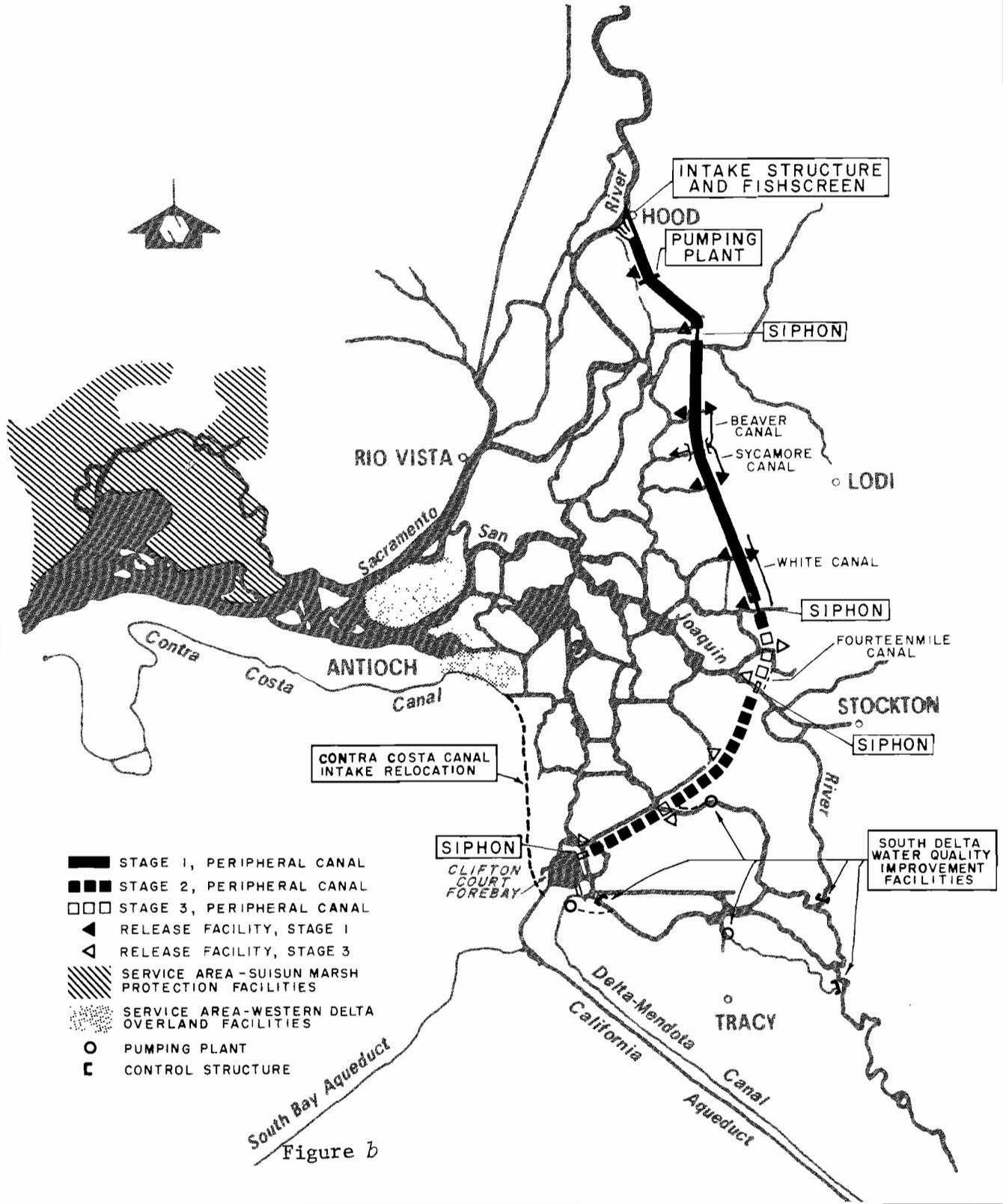


Figure b

which is planned for publication by the Department in 1978.

In May 1975, the Director adopted a water management policy of the Department of Water Resources. A portion of the policy was as follows:

- o To maximize beneficial use, optimum application techniques and processes for water conservation shall be implemented and waste shall be avoided.
- o Water shall be reused to the maximum extent feasible.

In keeping with this policy, the Delta Alternatives Study assumed that projected export requirements would be reduced by water conservation programs and development of wastewater reclamation facilities in the three coastal basins that receive project water exported from the Delta. Studies indicated that 863 450 000 cubic metres (700,000 acre-feet) per year could be realized from these two sources by the year 2000. It was determined during the studies that 123 350 000 cubic metres (100,000 acre-feet) of water use from new wastewater reclamation facilities is already reflected in contractor requests by 2000. Therefore, a net reduction of 740 100 000 cubic metres (600,000 acre-feet) was included in the Delta export requirements. The assumed reduced demands are shown in Figure *c*. Figure *c* also shows entitlement water requests submitted by Project contractors in September 1977.

The Department will expect the water service contractors to develop effective programs for both water conservation and waste water reclamation to help reduce demand on the Delta and to provide a source of water supply to help satisfy the needs which develop between now and the year 2000. This action will help stretch the available supplies, reduce the demand on the State's resources, and provide additional time to develop the full yield of the State Water Project.

SWP Operations During the Dry Year

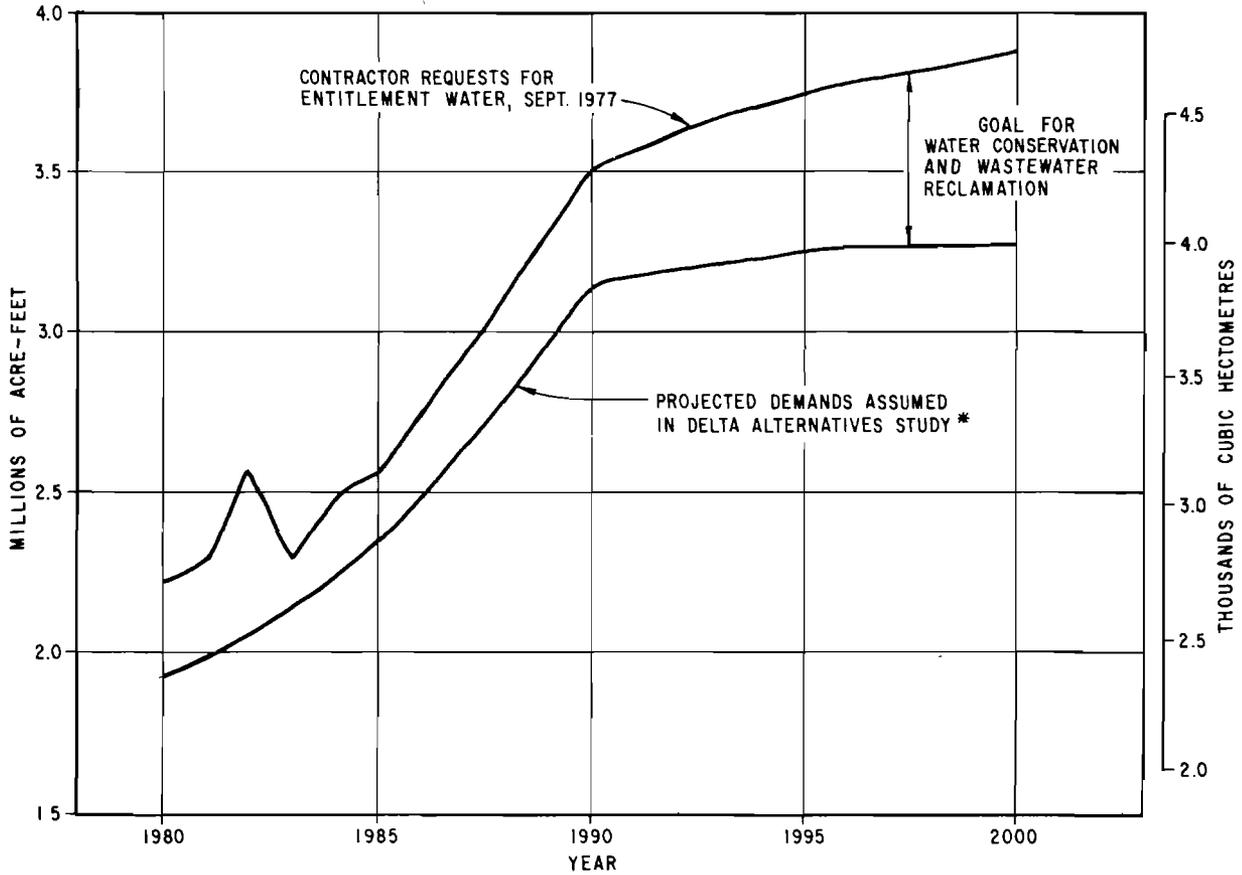
Although the Department considered 1976 to be a critical year in terms of water supply, 1977 turned out to be even worse. The Project was unable to deliver all of the water requested; however, through careful water management and water exchanges between contractors 1 188 132 000 cubic metres (963,220 acre-feet) was delivered through Project facilities during the year.

This shortage of water was caused by continuation of the severe drought in areas where SWP water supplies originate. Southern California received near normal precipitation, as in 1976, but northern and central California experienced the driest year ever recorded. Figure *d* shows cumulative natural runoff to Shasta and Oroville reservoirs for the last two water years, runoff in the basins for 1923-24, and a multi-year average for the basins. Figure *e* shows the precipitation as a percent of normal for the 1976-77 water year (a water year begins October 1 and extends through September 30 of the following year).

The dry year of 1976 was considered to be a major learning experience for the Department. In 1977 this experience was put to use, and the Department gained greater knowledge in project operations due to the continuing shortage in water supplies, particularly in the area of water exchanges and controlling of flows in the Delta through the use of temporary barriers.

The SWP continued to be operated in 1977 to maintain the Delta water quality objectives established by the State Water Resources Control Board (SWRCB). These objectives were modified twice by the SWRCB during the year, once on February 8, 1977, and again on June 2, 1977. The February 8 modification, designated as the "Interim Water Quality Control Plan for 1977, Sacramento-San Joaquin Delta and Suisun Marsh", changed Delta water quality standards such that less water was required for Delta outflow.

GOAL FOR WATER CONSERVATION AND WASTEWATER RECLAMATION



* DEMANDS WERE BASED ON CONTRACTOR REQUESTS FOR ENTITLEMENT WATER SUBMITTED IN SEPT. 1976

Figure c

ANNUAL NATURAL RUNOFF TO MAJOR RESERVOIRS DURING SELECTED YEARS

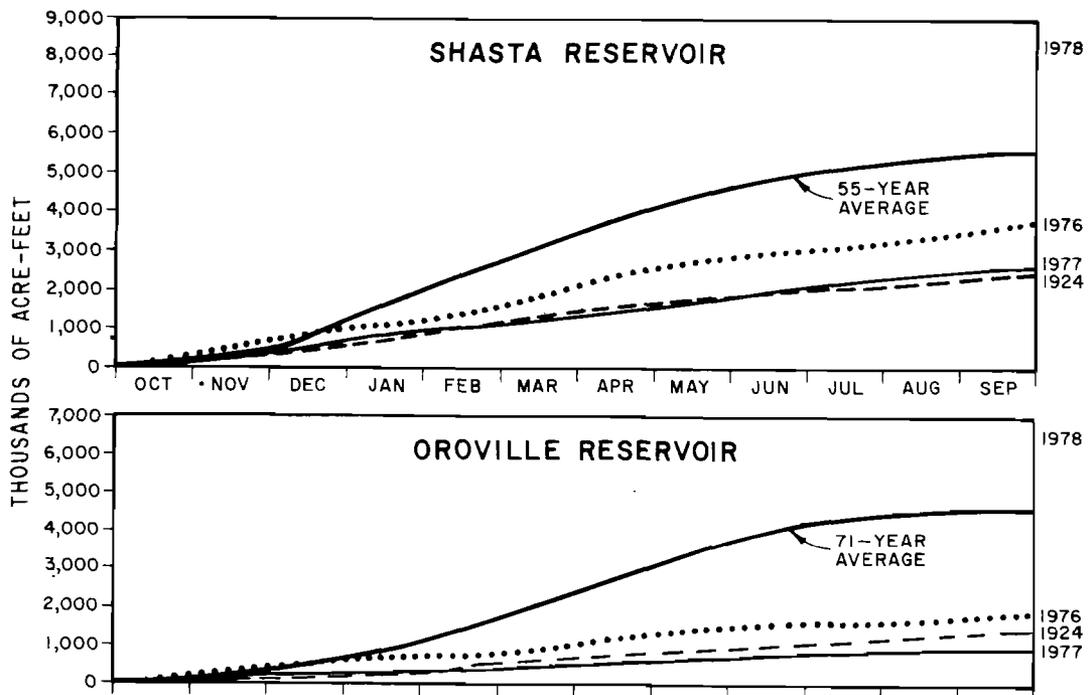
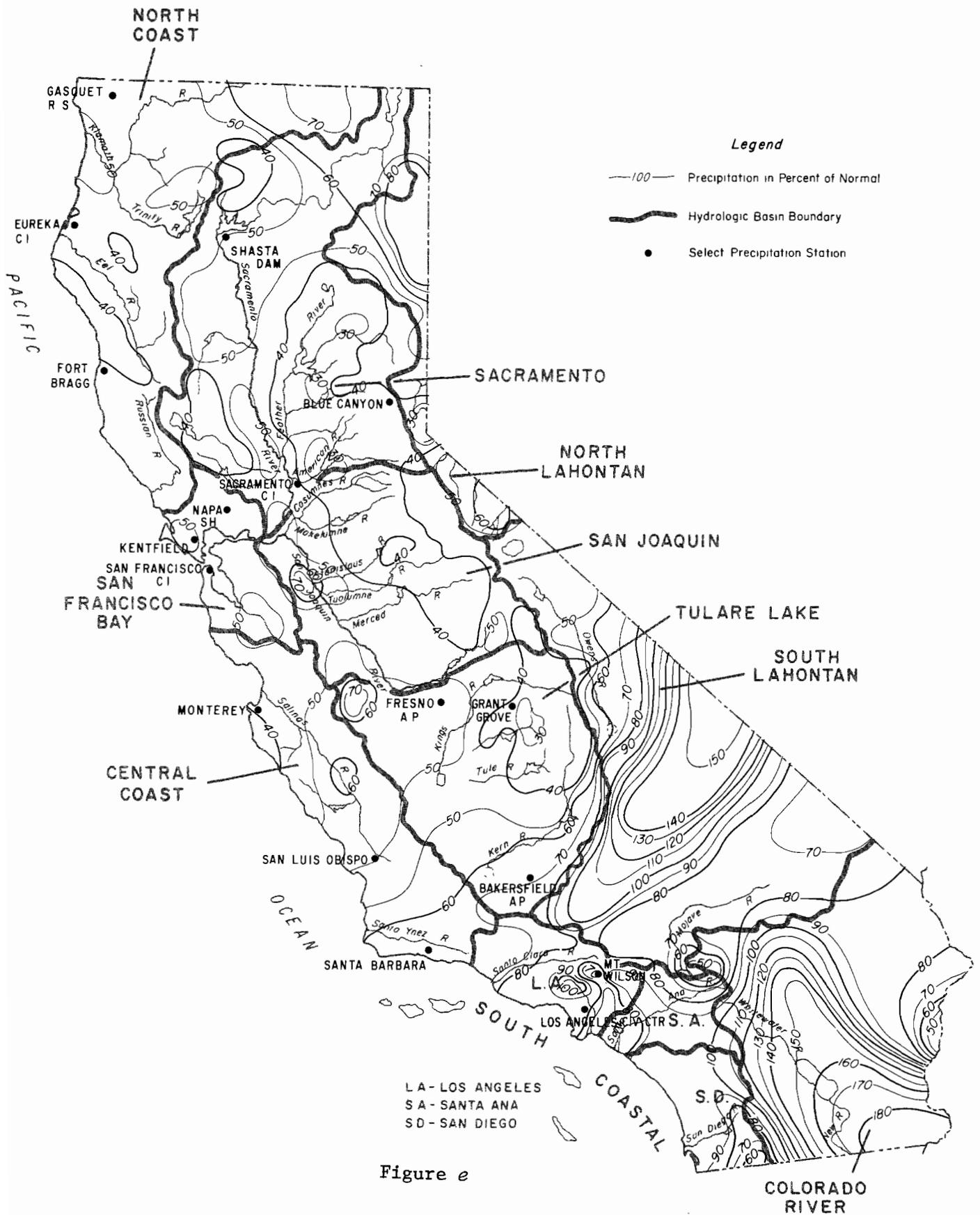


Figure d

**FIGURE 5. WATER YEAR PRECIPITATION IN PERCENT OF NORMAL
OCTOBER 1, 1976 - SEPTEMBER 30, 1977**



The modification was based on the Delta assuming its share of the shortfalls in all aspects of normal operations because of reduced Project water supplies due to the continuing drought. The June 2 modification, known as the "Emergency Regulation Order", established drought emergency regulations for conserving limited water supplies upstream from the Delta and was to be in effect until December 31, 1977. It changed the Delta water quality standards to further reduce the quantity of water required for Delta outflow.

These SWRCB modifications were necessary to ensure that there would be enough water held over to protect the Delta if the drought continued into 1978. The Department estimated that if the February 8 interim standards remained in effect, power generation at Oroville would be halted during the summer. Also, the water supply would have been totally exhausted in November 1977 and again in the summer of 1978 if the drought continued.

The water saved as a result of the two modifications remained in storage at upstream reservoirs of the SWP and CVP. Because November and December 1977 were also dry, on December 15, the SWRCB extended the June 2, 1977 emergency regulations into 1978. However, after late December 1977 and January 1978 storms, the water supply situation improved greatly and the Emergency Regulations were lifted on February 2, 1978.

After the State Water Resources Control Board adopted the February 8, 1977 interim criteria, the Department was able to complete its operation plans for the remainder of the year. Even though the interim criteria conserved the water supply, 1977 became the first year that the Project was not able to deliver all of the requested entitlement water to SWP contractors. As provided for in the water supply contracts, Project deliveries to agricultural contractors were reduced 60 percent from their requested

amounts and deliveries to urban contractors were reduced by 10 percent.

Project contracts provide that, if agricultural users are cut more than 50 percent in one year, municipal and industrial users must share the additional cutback. These cutbacks were imposed to leave the SWP with enough water in storage to meet minimal 1978 needs even if the drought had extended through the winter of 1977-78. To make up for some of the reductions, agricultural contractors received additional water to help meet their needs in 1977 through an extensive water exchange program with Southern California contractors. Further details of the cutback amounts are explained in the Water Contracts Management section of Chapter II.

As a part of the 493 400 000 cubic metre (400,000 acre-foot) exchange program with Metropolitan Water District (MWD), pumping of water over the Tehachapi Mountain at the A.D. Edmonston Pumping Plant for delivery to MWD was halted on March 1, 1977. MWD took delivery of its remaining 1977 project water supply from previously stored water in Southern California reservoirs. The only pumping after March 1 at A.D. Edmonston was to supply small quantities to other SWP contractors south of the Tehachapi Mountains. Pumping of water to meet MWD requests did not commence until the later part of January 1978.

A continuing problem during 1977 was the disagreement between the Department and the Bureau of Reclamation on what water quality standards are to be met in the Delta. The Department must meet the State Water Resources Control Board water quality standards, while the Bureau considers in operating the Central Valley Project that it has only to meet the requirements of the November 19, 1965 agreement (see Bulletin 132-77, page 8). During periods when the SWP was maintaining water quality standards different from CVP standards, the SWP provided about 105 464 000 cubic metres (85,500

acre-feet) of additional water for Delta outflows. If the CVP had been in agreement with the SWP on the water quality standards, the CVP would have provided about 59 208 000 cubic metres (48,000 acre-feet) of the additional water needed for Delta outflow. This situation led the Department to shutdown transport of water to the Cross Valley Canal, as explained in the section on Wheeling of Central Valley Project Water in this chapter.

Low water storage in Oroville reservoir also affected power generation. Prior to July 25, 1977, the units at Edward Hyatt Powerplant were loaded by automatic generation control (a signal from Pacific Gas and Electric Company control center automatically varied the load the generating units were carrying to meet the electrical system demands). On July 25, three units (Units 2, 4, 6) were block-loaded to 65 megawatts (rated output is 115 megawatts). Blockloading sets the generation at a constant value, and was required to prevent the vibration occurring at other loads under the low water levels. On August 15, 1977, the water had dropped so low that these three pump back units were declared unavailable except for testing or emergency use. The units were tested monthly but were not used for generation during the remainder of 1977. The monthly storage curve for Lake Oroville is shown in Figure f.

Another drought-caused problem arose at Oroville during September. An agreement with the Department of Fish and Game requires the Department of Water Resources to maintain certain water temperatures in the Oroville Fish Hatchery and in the river immediately below the diversion dam. Releases through the generators from the low water levels caused the water temperatures to exceed those allowed by the agreement. To correct the situation, water was released from low-level river outlet valves, instead of through the generators, until the temperatures at the hatchery were acceptable. During the periods of low-level releases no

power was generated. This cooling operation continued through mid-November by alternating between periods of low-level releases and power generation.

On August 20, 1977 the Bureau of Reclamation and the Department signed an agreement outlining certain operating conditions in the Delta for the remainder of 1977. The agreement was conditioned so the joint operation would not affect the ability of the Department to meet water quality limitations set by the State Water Resources Control Board.

In an additional item, the Department loaned 92 513 000 cubic metres (75,000 acre-feet) of water to the Bureau from storage in San Luis Reservoir. This loan enabled the Bureau to make deliveries to Central Valley Project contractors for the completion of their irrigation season. The agreement stated that the water would be paid back before December 31, 1977. The Bureau had returned all the water from their replenished storage in San Luis Reservoir by November 30, 1977. Storage during 1977 in San Luis Reservoir is shown in Figure f.

Another method of alleviating problems caused by the drought was to allow Wheeler Ridge-Maricopa Water Storage District, a member unit of Kern County Water Agency, to pump ground water into the California Aqueduct with concurrent delivery at other locations, of an equal amount. This operation served the Agency as an interim distribution system. Requests for this type of service were granted when it was determined the ground water would not adversely affect water quality in the aqueduct. Several federal contractors took advantage of this procedure.

For further discussion of the miscellaneous water delivery activities during 1977 see the Water Contracts Management Section in Chapter II.

A survey was made during 1977 to determine the use of drip, sprinkler, and

RESERVOIR STORAGE

1977

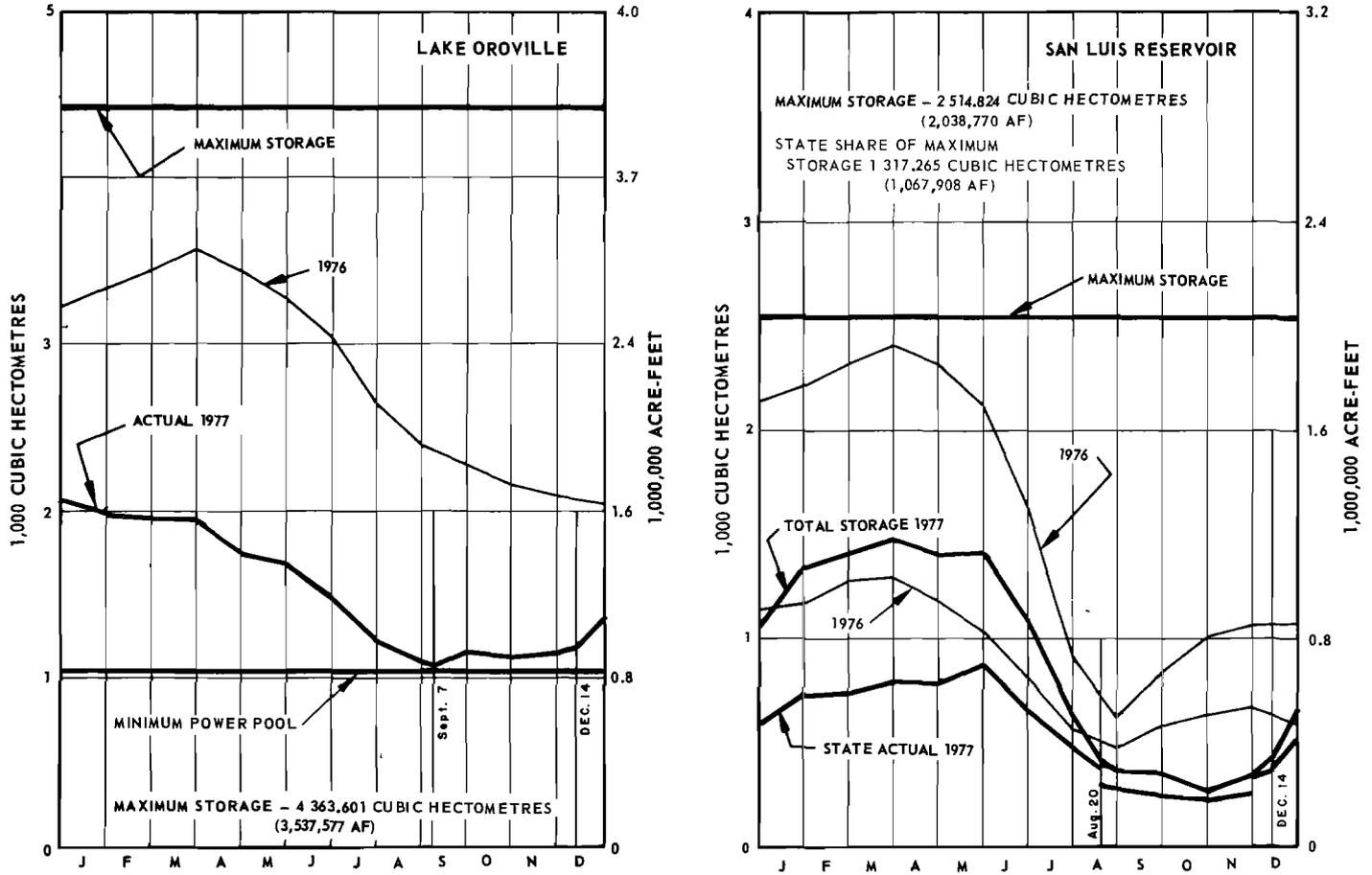


Figure f

surface irrigation methods on lands served by the SWP in the San Joaquin

Valley. The results are shown in the following table:

Year	Total Hectares Served	Method of Irrigation ^(a)					
		Surface ^(b)		Sprinkler		Drip	
		Hectares	% of Total	Hectares	% of Total	Hectares	% of Total
1975	154,000	61,000	39%	89,000	58%	4,000	3%
1977	79,000	18,000	23%	55,000	60%	6,000	8%

a) A hectare equals 2.47 acres.

b) Includes all surface methods -- furrow, border, flood, etc.

Water Exchanges

During the last two years, the concept of water exchanges has been the keystone of the Department's water-management policy. The basic concept is that SWP contractors with alternative water source agree to relinquish part of their project water for use by other SWP contractors or elsewhere within the State where the need for water is great. The agreements ensure that relinquishing contractors, as well as others not participating in the exchange program, will incur no greater costs than they would have borne without the exchange. Any additional costs resulting from the exchange are borne by the agencies that purchase the exchange water.

The first such exchange was carried out in mid-1976 between the Metropolitan Water District of Southern California (MWD) and Dudley Ridge Water District, an agricultural contractor in the San Joaquin Valley. Under this exchange, MWD increased diversion of its Colorado River supply by 12 952 000 cubic metres (10,500 acre-feet) and released a like amount of its SWP supply to Dudley Ridge. As an indication of cooperation by all involved, Pacific Gas and Electric (PGandE), Southern California Edison (SCE) and San Diego Gas and Electric Companies (SDGandE) agreed to provide 85 percent of the electrical energy to

pump water from the Colorado at rates similar to those under the Suppliers Contract, making costs reasonable for the exchange.

During late 1976 and early 1977 the Department realized that the drought would continue for another year. In January 1977, negotiations began with MWD for more water exchange. MWD indicated they would have the physical facilities to divert as much as 493 400 000 cubic metres (400,000 acre-feet) of additional Colorado River water in 1977. During the negotiation phase, the Department asked SWP contractors, the U. S. Bureau of Reclamation, and other water users in the State to specify how much additional water they needed during 1977, how it would be used, and the availability of water from other sources. This information was used to assist in the exchange water allocations.

On March 15, 1977, the Department and MWD signed an exchange agreement for 394 720 000 cubic metres (320,000 acre-feet) with a provision that an additional 98 680 000 cubic metres (80,000 acre-feet) be retained in project reservoirs for a possible exchange later in the year. The exchange water was initially allocated to three categories as follows:

1. Urban Use - domestic, sanitary, health and fire protection.



"Exchange Water" flowing into San Antonio Release Waterway from the Project's South Bay Aqueduct. Meter enclosure is in the foreground.

6 168 000 cubic metres (5,000 acre-feet) - Bay area urban reserve.

12 335 000 cubic metres (10,000 acre-feet) - City and County of San Francisco.

13 322 000 cubic metres (10,800 acre-feet) - Marin Municipal Water District.

3 700 000 cubic metres (3,000 acre-feet) - Alameda County Water District (subject to imposition of 25 percent mandatory water rationing).

2. Non-State Project Contractors - Agricultural - for survival maintenance of permanent crops.

24 978 000 cubic metres (20,250 acre-feet) - U. S. Bureau of Reclamation.

3. State Water Project Contractors - Agricultural

334 217 000 cubic metres (270,950 acre-feet) - allocated to ten SWP agricultural contractors including the Joint Water Districts Board.

The agreement to supply exchange water to Marin County proved to be an excellent example of how water agencies and districts from different parts of the State can work together to meet the State's water needs. The Marin agreement, coordinated by the Department, included a cooperative effort by the City and County of San Francisco, City of Hayward, East Bay Municipal Utility District (EBMUD), and the Marin Municipal Water District. This was in addition to the original agreement with MWD which allowed a part of the exchange water to be purchased by Marin. The State Department of Transportation also cooperated in the exchange program by allowing the installation of a 610-millimetre (24-inch) pipeline on one lane of the Richmond-San Rafael Bridge to convey the water to Marin's existing water-delivery facilities. The exchange facilities to Marin County and City of San Francisco

are shown in Figure *g*. The Marin agreement provided for wheeling the South Bay Aqueduct deliveries into the City of San Francisco's San Antonio Reservoir through the City of Hayward and East Bay Municipal Utility District to the pipeline on the Bridge by a series of exchanges. Because of capacity limitations a second agreement provided that EBMUD would pump Marin's exchange water directly from the Delta into the EBMUD system and an equivalent amount delivered to the pipeline on the Bridge; however this expanded potential was not needed.

During March three other Southern California contractors agreed to relinquish all or a portion of their 1977 SWP entitlement water for purposes of drought relief. The contractors and quantities of relinquished water purchased for use by other contractors were:

19 736 000 cubic metres (16,000 acre-feet) - San Bernardino Valley MWD.

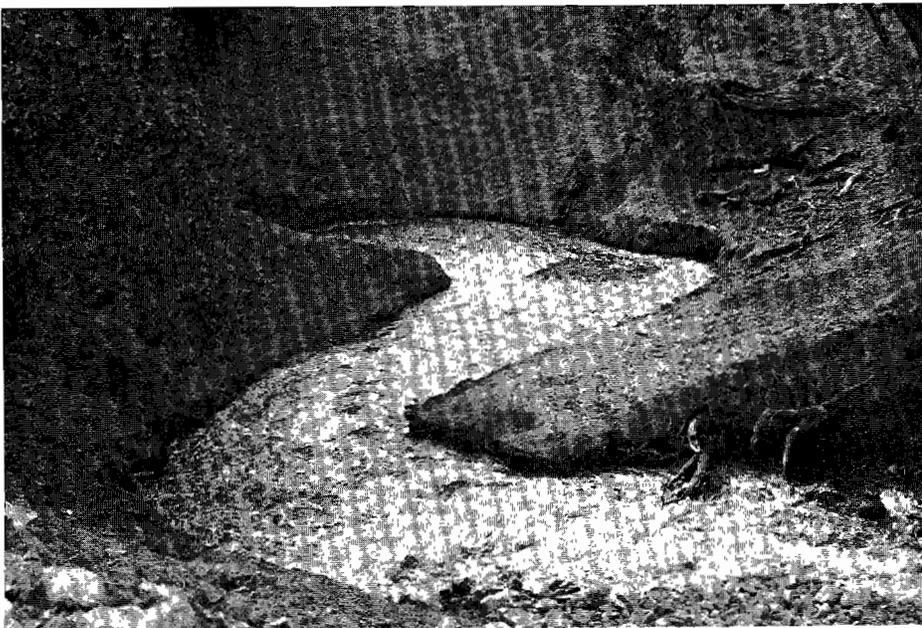
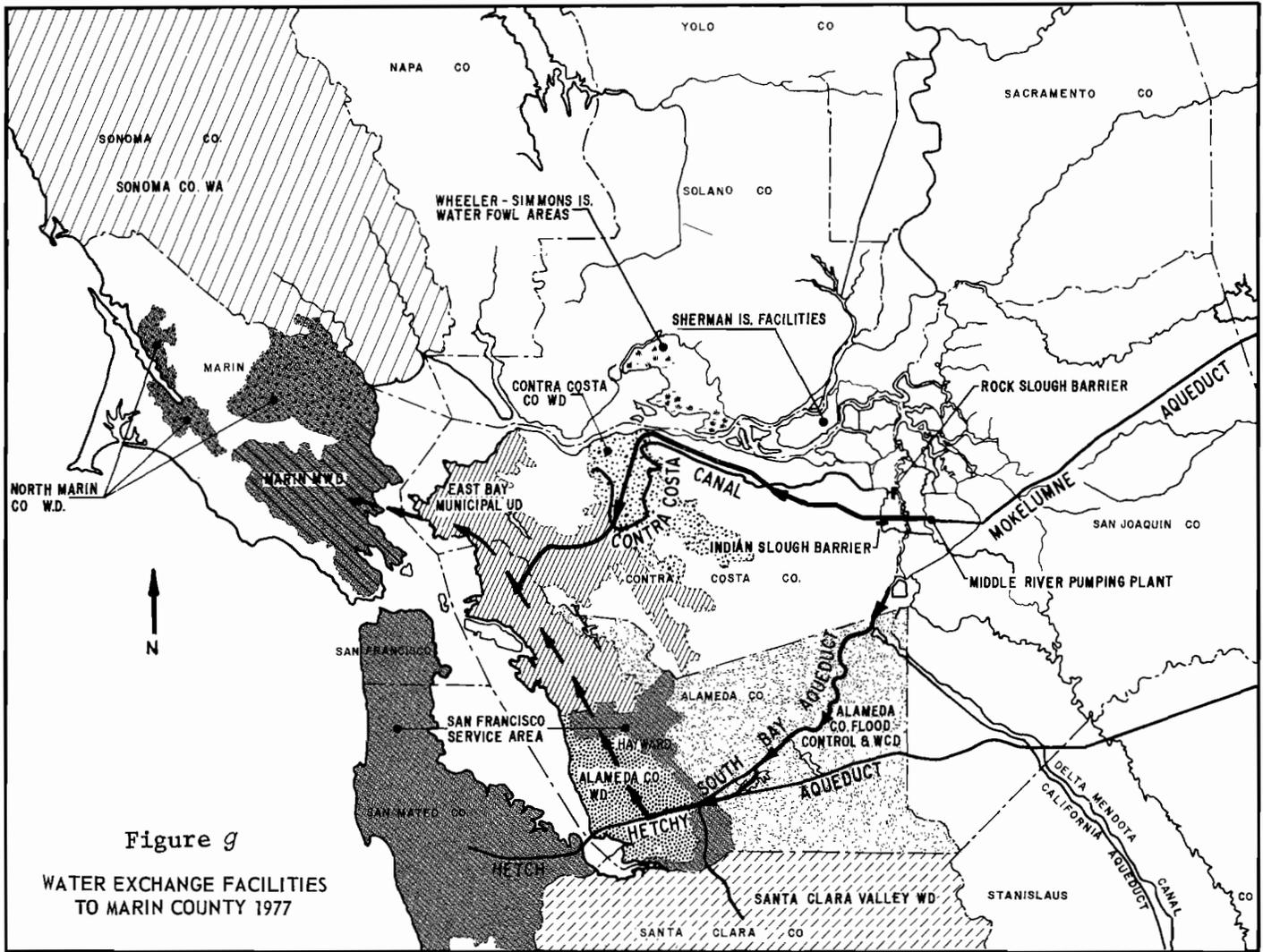
9 349 000 cubic metres (7,579 acre-feet) - Coachella Valley County Water District.

14 432 000 cubic metres (11,700 acre-feet) - Desert Water Agency.

43 517 000 cubic metres (35,279 acre-feet) - Total.

This water was allocated to SWP agricultural contractors (37 227 000 cubic metres [30,180 acre-feet]) and increased the San Francisco Bay Area Urban Reserve to 6 290 000 cubic metres (5,099 acre-feet).

Continuing the cooperation shown in the 1976 exchange program, the Project's Suppliers (except the City of Los Angeles Department of Water and Power) provided electrical energy used in pumping water through the Colorado River Aqueduct to the Metropolitan Water District service area. Energy to pump 335 512 000 cubic metres (272,000 acre-feet) of water (85%), of the 394 720 000 cubic metres (320,000 acre-feet) made available to



San Antonio Release Waterway transporting Project "exchange water" to San Francisco's San Antonio Reservoir, near Sunol.

contractors in the initial portion of the exchange, was supplied at rates similar to those under the Suppliers Contract. The remaining 59 208 000 cubic metres (48,000 acre-feet) was pumped with energy purchased by the Metropolitan Water District at significantly higher rates. The Department's pricing policies for the exchange agreements resulted in all but a small part of the higher energy costs being allocated to non-SWP contractors. This substantially raised the price of water purchased by non-SWP contractors as compared with that purchased by SWP project contractors.

This high price plus additional water from May and June precipitation prompted the Bureau of Reclamation to notify us on June 30, 1977, that they would not be able to use 14 882 000 cubic metres (12,065 acre-feet) of their initial allocation. The water was reallocated to four SWP agricultural contractors.

During September 1977, the Department arranged to exchange with two San Joaquin Valley contractors 17 762 000 cubic metres (14,400 acre-feet) of the 98 680 000 cubic metres (80,000 acre-feet) held in reserve. This water also reflected the higher energy costs. The remaining 80 918 000 cubic metres (65,600 acre-feet) of the MWD reserve was held as an emergency reserve for 1978 in the event the extreme dry condition continued into 1978.

Toward the end of 1977, a preliminary agreement to purchase a part of the reserve was being negotiated with Contra Costa County Water District. The January 1978 storms substantially increased the available water supplies, and the negotiations were cancelled.

A total of 418 317 000 cubic metres (339,130 acre-feet) of exchange and purchased water was delivered during 1977. In addition, 1 200 000 cubic metres (973 acre-feet) was delivered in January of 1978 and 117 400 000 cubic metres (95,176 acre-feet) was held for a 1978 emergency reserve. The Water Contracts

Management Section in Chapter II of this Bulletin presents a detailed breakdown of the exchange deliveries.

Water Supply for 1978

Since there was a possibility the drought would extend for another year, the Department had to prepare for this possibility. The major actions are noted in this section.

The Department began planning for the 1978 water supply with the 1977 Operation Plan in February 1977. This plan, which included the cutbacks in entitlement water deliveries, was formed with the intention of having enough water in storage to meet minimal 1978 needs if the drought continued through the winter of 1977-78. This intention was maintained throughout the year in the Operation Plan updates.

In an effort to help agricultural contractors develop the most efficient operating plans, the Department agreed to let them carry over a part of their remaining allocation of 1977 Project water for 1978 delivery. This allowed contractors to forego or reduce certain irrigation applications during late 1977 to assure that the water would be available for crops in 1978.

As the drought continued through a second year, the Department concluded that additional operational criteria were needed on which to base future project operations. During the summer of 1977 the Department began operation planning studies to develop a method that could be followed under varying hydrologic conditions during 1978, especially if the winter of 1977-78 was as dry as the previous year. The method developed into a decision tool known as the "Rule Curve". Its purpose was to relate existing water in storage and precipitation to project contractor deliveries in 1978, thus enabling forecasts of the water year, so that contractor deliveries could be increased month by month after the bottom line December 1 schedule was announced.

The "Rule Curve" was actually a system of curves that related 1978 water unimpaired^{1/} flow at the Four River Index Basins^{1/} to:

1. Projected delivery to contractors in the 1978 calendar year.
2. October 1978 storage at Oroville and south of the Delta.

The Department used the Rule Curve beginning in December 1977 and monthly through April 1978, to prepare revised delivery schedules based on water year runoff forecasts derived from record minimum future precipitation. In addition, the Department calculated projected delivery amounts with a 75 percent, 50 percent, and 25 percent chance of those amounts being exceeded.

The development of the Rule Curve involved 14 basic coordinated operation studies of the State Water Project and Central Valley Project, more than 60 studies of California Aqueduct operation, and numerous partial studies. Major factors included in the studies were:

- o Meeting the Emergency Regulation criteria in the Delta.
- o Operation of the Central Valley Project.
- o Contractual limitations and other legal considerations.
- o Power availability.
- o Carryover storage into 1979.
- o Operation of local reservoirs in 1978.
- o Hydrologic variations.

The "Rule Curve" was submitted, in draft form, to the California Water Commission and SWP contractors during September and October. During October, public hearings were held in Los Angeles, San Francisco, Bakersfield, and Sacramento to obtain public comment on the criteria of the "Rule Curve". The report, "Operational Criteria for the STATE WATER PROJECT, December 1, 1977 - December 31, 1978", was published in final form in December 1977.

In early December the 1977-78 water supply continued to be critical and resulted in a projection that the SWP would be able to supply 801 775 000 cubic metres (650,000 acre-feet) during 1978 if the drought continued. As a result of late December 1977 and January 1978, storms, the Department announced on February 16, 1978, that full entitlement requests of 2 635 536 000 cubic metres (2,136,632 acre-feet) for 1978 would be delivered.

In another dry-year planning step for 1978, the Department negotiated to continue exchanges with The Metropolitan Water District of Southern California (MWD). Under this agreement, MWD would increase its Colorado River diversions by 246 700 000 cubic metres (200,000 acre-feet) and relinquish a like amount of its 1978 entitlement water. The relinquished water would have been allocated to other water districts and agencies with a justifiable need for the water. An additional exchange was arranged whereby San Bernardino Valley Municipal Water District, Desert Water Agency, and Coachella Valley County Water District would lend more than 50 573 000 cubic metres (41,000 acre-feet) of their entitlement water to agricultural contractors during 1978. These loans would have been repaid by 1983. In early January, Metropolitan Water District pumped

^{1/} Four River Index Basins are Sacramento River at Bend Bridge near Red Bluff, Feather River inflow to Oroville Reservoir, Yuba River at Smartville, and American River inflow to Folsom Reservoir.

37 005 000 cubic metres (30,000 acre-foot) from the Colorado River under terms of the agreement.

Because the water supply picture changed dramatically in January and February 1978, the water exchanges were no longer necessary, and the exchanges were cancelled except for the amount which had been pumped from the Colorado River. The electric utilities have advised that they will provide a share of the energy required for this pumping on a basis similar to the 1977 exchange.

The Department continued to govern 1978 water operations by the "Rule Curve" into the spring of 1978. In April 1978, when the full 1977-78 water supplies and snowpack could be evaluated, it was determined that some surplus water could be available for delivery in 1978. In April unscheduled surplus water (water available in the Delta which would otherwise be lost to the Pacific Ocean) was delivered to Oak Flat Water District and Kern County Water Agency. In addition, the Department was able to schedule surplus water deliveries to Dudley Ridge Water District and Green Valley Water District.

Contractor needs for water are continually increasing. The ability of existing Project facilities to deliver entitlement water are quickly approaching the dry period yield (1928-34) of these facilities. In the event the dry period occurs in the near future, we can expect shortages in entitlement water deliveries from the Project to occur as early as 1982. If the yield of the present project is 50% of the maximum contracted amount, we could experience shortages in entitlement deliveries as early as 1980.

State Water Resources Control Board Delta Hearings

On July 11, 1977, the State Water Resources Control Board completed its Delta hearings on possible revisions to the Delta water quality standards contained in its Water Quality Control Plans

(Basin Plans) and water rights decisions for the State Water Project and Federal Central Valley Project. (For background on the Board's previous water rights decision for these projects, Decision 1379, see page 17, Bulletin No. 132-72.) The hearings included more than 30 days of testimony. The Department offered more than 100 exhibits on a variety of subjects, including a proposed revision to the method for classifying the types of water year. The Department explained that present water quality standards and State Water Project operations are governed by the "Shasta criteria", which require that natural inflow into Shasta Reservoir be used to determine the type of water year (critical, dry, below normal, above normal, or wet). However, studies have shown that inflows to Shasta are often quite different from inflows to the Delta.

Therefore, the Department proposed that water years be categorized on the basis of natural inflow measurements at the following four stations instead of the Shasta station:

1. The Sacramento River at Bend Bridge.
2. The Yuba River at Smarville.
3. The Feather River at Oroville.
4. The American River at Folsom Reservoir.

Measurements of flow at these four stations would more accurately account for Delta inflows and would provide a more accurate basis for determining the type of water year.

The Department presented extensive testimony on the amounts of flow required to meet certain Delta water quality criteria, and also presented operation studies to demonstrate the impact of various criteria on the yield of the State Water Project and Central Valley Project. This evidence was designed to help the Board evaluate existing and proposed water quality standards by comparing the benefits with the corresponding impacts on project yields. That comparison is a

fundamental step in establishing reasonable standards for protecting beneficial uses of water in the Delta. Other subjects covered by the Department included land-use surveys of the Delta, possible overland facilities for the South Delta, alternative water quality control monitoring locations, and potential future water development within the Sacramento-San Joaquin Basin.

The Department also submitted opening and reply briefs to the State Water Resources Control Board as well as an oral summary argument. In the briefs, the Department reviewed numerous legal issues including the point that riparian rights are limited to amounts of water which can be both reasonably and beneficially used, but that those rights should not exceed amounts which would be available from natural flow. To be reasonable, farming practices and water management must be efficient and evaluated in terms of statewide water needs. During the hearings, the Department proposed specific Delta agricultural water quality standards that vary with hydrologic conditions in each water year. With respect to the Contra Costa Canal water supply, the Department also proposed that variable municipal and industrial water-quality standards be established and that any water supply in excess of natural flows must be purchased.

Finally, the Department of Water Resources supported the Department of Fish and Game's recommended standards for fish and wildlife protection as contained in the draft "Four Agency Fish Agreement". The final Board decision on water-quality standards is expected during 1978.

Rock Barriers in the Delta

During 1976 a rock barrier was constructed at Sutter Slough to help meet water-quality criteria in the Delta under State requirements set by the State Water Resources Control Board and to conserve water during the drought. The barrier was removed in late 1976. (See Bulletin

132-77, pages 11 and 12.) As the drought continued into 1977, several barriers and control facilities were built to help control the complex system of waterways in the Delta. These barriers:

- o reduced chloride levels at selected points
- o increased water circulation in selected channels
- o reduced salinity intrusion into the Delta
- o reduced required quantities of stored water
- o increased protection for fishery resources

The barriers and control facilities with their locations are shown in Figure *h*.

South Delta Facilities - During June and July 1977, two barriers in the south Delta were completed, one in Old River east of Clifton Court, and one in the San Joaquin River near Mossdale.

The Old River barrier allowed eastward flow at high tide and increased water circulation in Old River. The San Joaquin River Barrier stabilized and raised the water level, particularly at low tide, and allowed water users south of Paradise Cut to pump at a constant rate regardless of the tidal stage.

The San Joaquin River barrier was breached in August 1977 and both were removed during January and February 1978. The cost for engineering, construction, removal, and surveillance of these facilities was about \$443,000. They were funded by the Federal Drought Emergency Act.

Rock Slough Quality Control Facilities To reduce chloride levels at the Contra Costa Canal Intake, the Department constructed rock fill barriers on Rock and Indian Sloughs (Werner Cut) and a temporary pumping plant on Middle River.

**DROUGHT MITIGATIVE FACILITIES CONSTRUCTED BY DWR
SACRAMENTO - SAN JOAQUIN DELTA 1976 and 1977**

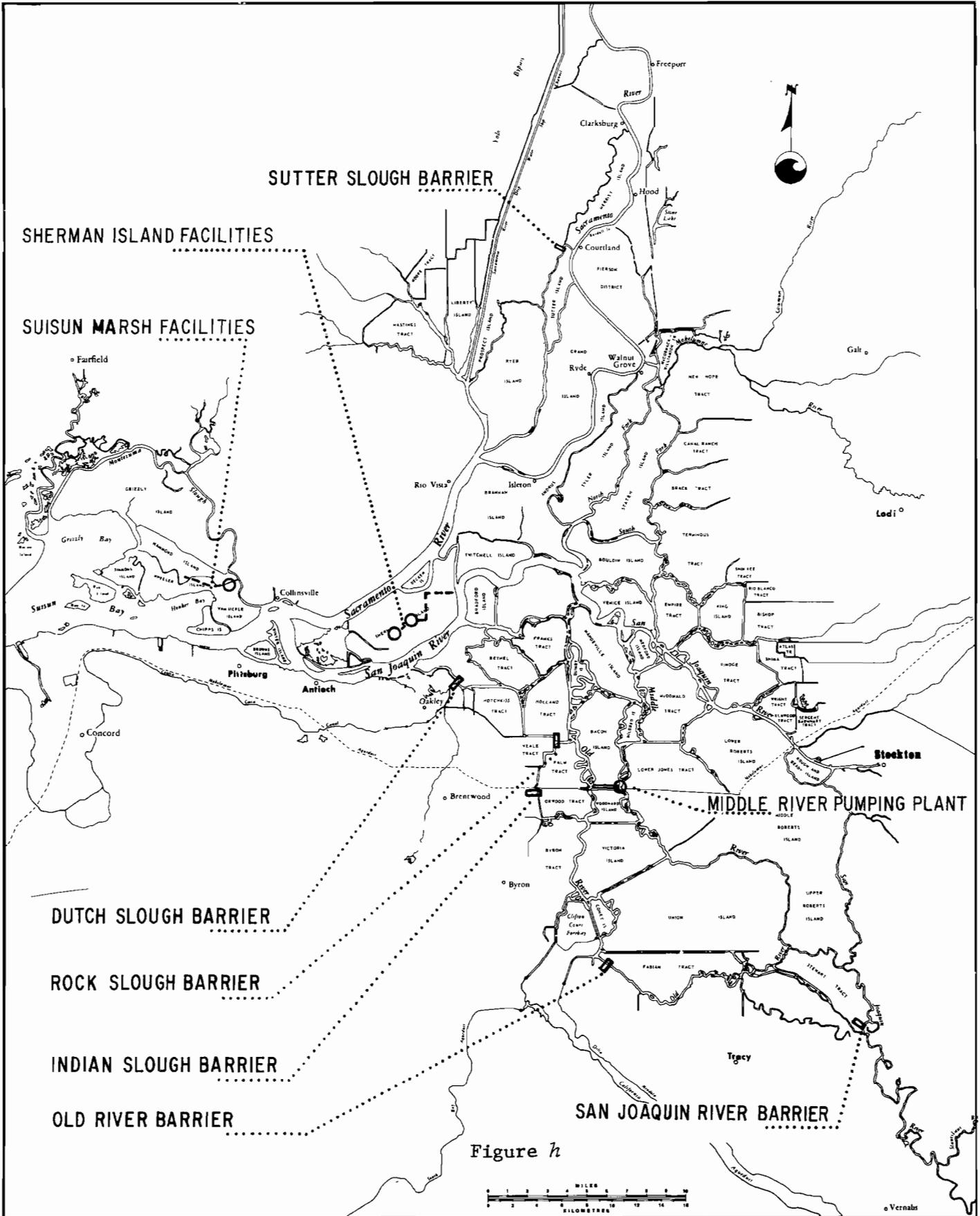
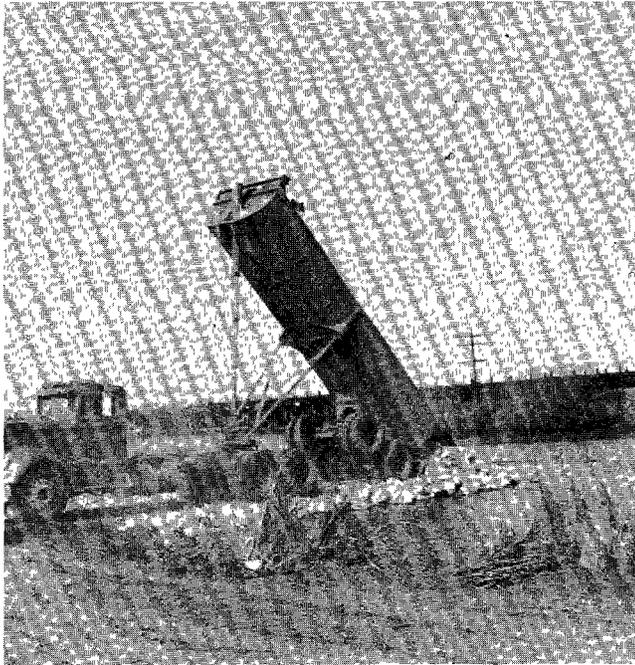


Figure h





Constructing rock barrier at Indian Slough.

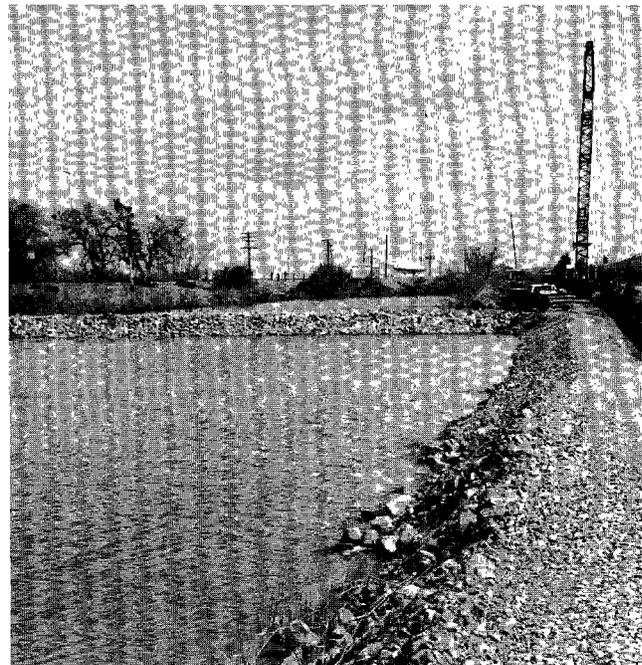
State Water Project contractors were not charged for these barriers. These facilities benefited the federal water program and were funded by the Federal Drought Emergency Act and the California Water Fund at a cost of about \$2.5 million. The funds covered construction and operating costs of the facilities. The Bureau of Reclamation provided power for pumping at the Middle River plant.

The barriers acted to limit inflow of Old River water, which was high in chlorides, to the Canal Intake Pool. Chloride levels in the pool were reduced still further by pumping in water from Middle River. The Middle River Pumping Plant began operation in June to lift better quality water into East Bay Municipal Utilities District's Mokelumne Aqueduct Number 1, to flow to the intake pool just north of the Indian Slough Barrier. The barriers were constructed during March 1977 and removed in March 1978. Pumping began on June 10, 1977 and ended on January 15, 1978. The pumping plant was also removed during spring 1978.

West Delta Facilities - During May 1977, the Department proposed to construct three barriers in the Western Delta: Dutch Slough, Fisherman's Cut, and False River. The facilities were designed to reduce salinity intrusion to the central and southern Delta and conserve stored water.

The Dutch Slough barrier was the only barrier constructed. It was completed on September 22, 1977, and removed on January 13, 1978. During January 1978, plans to construct the other two barriers were cancelled.

The Dutch Slough barrier with siphon and flapgates allowed westward flow at ebb tide and prevented eastward flow. Higher salinity water was diverted away from Dutch and Sand Sloughs into False River and the San Joaquin River.



Completed Indian Slough Barrier retained water pumped and transported from Middle River.

The cost of the West Delta Facilities was about \$533,000 and was funded by the Federal Drought Emergency Act.

Old River Closure - Pursuant to the Four Party Interim Fish Protection Agreement between the Department of Water Resources, Department of Fish and Game, U. S. Bureau of Reclamation, and the U. S. Fish and Wildlife Service, the Old River Barrier was constructed on October 28, 1977, to protect fishery resources in the Delta, and was removed on December 2, 1977. This barrier increased the flow in the San Joaquin River by reducing diversion into the Old River channel. The increased flow effectively increases dissolved oxygen levels in the San Joaquin River and was beneficial to the upstream migration of salmon. This facility is not specifically drought related, and is installed annually if requested by the Department of Fish and Game.

Suisun Marsh - During the spring of 1977 an alternative water supply was provided to certain duck club owners on Simons and Wheeler Islands. Water was brought from Montezuma Slough through existing culverts and controlled levee breaches for distribution to the area duck clubs. The water from Montezuma Slough had a much lower salinity level than the water around the Suisun Bay. The lower salinity water was needed for production of alkali bullrush seed, a primary waterfowl food item. The arrangement was satisfactory to all parties and during fall, 1977, several breaches were replaced with culverts and slide gates so that the operation could be repeated if necessary. The cost of the Suisun Marsh facilities was approximately \$10,000, and was divided between the Department of Water Resources, (California Water Fund), the Department of Fish and Game, and the duck club owners. The United States Bureau of Reclamation declined to participate.

Sherman Island Facilities - On March 11, 1977, an agreement was entered into by the Department of Water Resources, Reclamation District No. 341 (Sherman Island), and the North Delta Water Agency whereby the Emmaton quality criteria (1 000 mg/l chloride, January to August; 1 400 mg/l chloride, August to January) would be relaxed, and the existing Sherman Island irrigation system altered to provide better quality water for farms on the island than would be available east of Emmaton. An existing drain pump on the eastern portion of the island was connected to siphon water from Three-Mile Slough into a deepened existing drainage ditch. Pumps were installed to deliver the water into the Central Canal and Mayberry Slough. About 38 230 cubic metres (50,000 cubic yards) of material was excavated from existing ditches to allow flows to be reversed for the project. The State loaned and installed two 566 litre-per-second (20-cfs) pumps to pump water into the Central Canal and two 283 litre-per-second (10-cfs) submersible pumps to pump water into Mayberry Slough. Construction began in March 1977, and the system became operational in May 1977. In June, 1977, chloride levels were approximately 600 mg/l in the Central Canal and 1 600 mg/l at Emmaton.

Although the water was available, few farmers used the supply for summer irrigation. Most fields were planted in January and February, and many farmers were unaware of the proposed improvement in quality for the system and planted crops which could be dry-farmed. However, the value of the modified system was realized in November and December 1977, when it was used extensively for pre-irrigation.

The cost of the facilities totaled \$110,000, which was shared by DWR (California Water Fund - \$25,000) and the Federal Drought Emergency Act (\$85,000).

The estimated water savings achieved by construction of the Rock Slough-Middle River, Sherman Island, and Dutch Slough facilities is 370 050 000 cubic metres (300,000 acre-feet).

Ground Water Storage Programs

The Department continued an active study of the possible use of ground water basins for storage of project water to supplement surface water reservoirs in providing future project water supplies. The potential for intermittently storing water in ground water basins has been recognized for many years. Interest was intensified in the early 1970's, when the Department became aware of increasing public reaction to the development of new surface reservoirs as a means of augmenting water supplies.

In the initial phase of the Department's current ground water basin storage program, a number of ground water basins with potential for SWP water storage were identified for further study. In 1975, a study of the San Fernando Basin in Southern California was started to determine the possibility of implementing a program in the basin. The Department's Bulletin 186, expected to be released later this year, will report on the study and will include results of investigations of:

- o Physical characteristics and capabilities of the basin.
- o Use of existing conveyance, spreading, and extraction facilities.
- o Financial, legal, institutional, and environmental impacts involved in the use of the basin.

Throughout 1977, the Southern District held meetings with local agencies overlying the basin in an attempt to arrive at acceptable solutions to the issues and to the concerns of all involved.

Several issues must still be resolved, and implementation of the project was further complicated by the drought and resultant reduction in the availability of water during 1977.

Other areas under preliminary study include the White Wolf Basin and Kern River Fan, in the South San Joaquin Valley and the Chino, Raymond, Bunker Hill-San Timoteo, Antelope Valley, Santa Clara River Valley, San Gabriel Valley, Orange County and Las Posas Basins in Southern California. Each of these areas may meet the general criteria for a ground water storage program. These criteria are:

- o Facilities for importing, delivering, and spreading the water must be readily available, or facilities could be economically constructed.
- o Adequate storage capacity must exist in the basins.
- o Hydraulic continuity must exist between the points of spreading and recapture, and relatively shallow wells would be required at the potential recapture sites.
- o No major water quality problem exists in the groundwater basin.

After the preliminary studies, the most favorable basins will be selected for detailed investigations.

Transfer of Water Entitlements

In 1975 a Department Task Force was established to review the Project's water management program, particularly with respect to the transfer of entitlements of water among contractors. The task force conducted its review during the remainder of 1975 and in 1976; however, the Department deferred release of the report until after the release of the Delta Alternatives Review (to assure that the recommendations of the two inter-related project reviews are consistent.)

Preliminary conclusions and recommendation of the task force were described to water contractor representatives at the DWR-MWD-Audit Committee Task Force meeting on March 23, 1977. As requested at that meeting, some of the contractors submitted written comments regarding the preliminary conclusions.

By Water Service Contractors Council Memo No. 1214, dated March 2, 1978, the task force's report was distributed for review and comment by the contractors.

The report recognizes that the prime project water management concern is to provide sufficient, dependable project water supplies -- and the timely augmentation of the supplies. Since SB 346 and the Delta Alternatives Program were directed to this prime concern, the report centers on what the task force considers the next most significant concern: the growing disparity between annual entitlement amounts and projected demands of the respective contractors. As framed by the task force, the report specifically is addressed to the charge:

"Determine the most feasible means to minimize the apparent disparity between Table A entitlements and project water demands while maintaining the water supply and financial integrity of the Project."

An illustration of the extent of the disparity is reflected in the results of the poll questionnaire transmitted by Council Memo No. 970, dated June 10, 1975, which requested expressions of interest in changing contract entitlement amounts. (Results of the poll are contained in Council Memo Nos. 986, dated August 26, 1975, and 1020, dated January 23, 1976.

Recommendations presented in the task force report include the following:

- (1) Other than during short-term emergency situations, requests for transfers of entitlements among

contractors should not be approved by the Department.

- (2) Contractor requests for long-term increases of future annual entitlements should be approved by the Department only to the extent they could be served under reasonable projections of the Project's dependable water supply.
- (3) Contractor requests for short-term increases of annual entitlements and for surplus water deliveries should be approved by the Department, in that order, to the extent requested amounts are within the available annual water supply.
- (4) Contractor requests for both short-term and long-term decreases of future annual entitlements should be approved by the Department, subject to either of the following:
 - (a) Requesting contractors agree to accelerate the repayments required under their contracts in such a manner that project cash flow during the critical revenue period would be maintained, or
 - (b) Legislation is enacted which would significantly increase the portion of tideland oil revenues accruing to the Department that could be used to cover Burns-Porter bond service (such as would have resulted under SB 346 as amended September 8, 1977).
- (5) Supplementing the adjustment of future Table A amounts to revised projection of demands, all past entitlements paid for but not delivered should be credited to the accounts of the respective contractors.

Extension of the California Aqueduct

In 1977, the Department completed a draft report on the feasibility of constructing an extension of the California

Aqueduct into upper Coachella Valley. The study was at the request of five project contractors (Coachella Valley County Water District, Desert Water Agency, San Gorgonio Pass Water Agency, Mojave Water Agency, and San Bernardino Valley Municipal Water District) who funded its cost of \$100,000.

The report investigated two possible routes for the Aqueduct. One route, called the "desert route", would run from Hesperia through Lucerne and Yucca Valleys to a terminus near the Whitewater River. The second route, called the "pass route", would carry water south of the San Bernardino Mountains through San Gorgonio Pass and ending at the Whitewater River.

The Department held a public hearing on December 12, 1977, to obtain comments on the draft report. General consensus was that the Department should extend the California Aqueduct into the upper Coachella Valley.

The Department received numerous resolutions from water agencies urging that the selected route be through their service areas. The agencies further requested additional studies on a "canal" alternative in the desert route and verification of the maximum delivery potentials in the aqueduct reaches from Hesperia through Devil Canyon Powerplant in the pass route.

The Department will investigate the canal alternative and present California Aqueduct operation. A final report incorporating the comments received from the public hearing and the new work is expected to be completed in 1978.

Safety of Department Dams

In 1975 the Department as required by Water Code Section 6056, initiated a revised program for review of Department-owned dams. Under the program, 3 member consulting boards are convened to conduct independent reviews of the individual dams.

The first of these boards was formed in 1975 to review Pyramid and Perris Dams. The board members were Mr. Wendell Johnson, Dr. Jack W. Hilf and Dr. Douglas D. Campbell. The board's first report, published in April 1976, recommended improvement of the spillways of both dams.

At Perris Dam, the Board recommended resolution of the possible effects of spillway channel erosion on the embankment during a probable maximum flood condition. The spillway channel conditions were investigated and work to realign and strengthen the spillway began in 1977. The modifications were completed in March 1978, at a contract cost of approximately \$47,000.

At Pyramid Dam, the Board recommended resolution of the possible effect of erosion on the lined spillway chute and dam embankment during a probable maximum flood. A study of the condition has been concluded. The plans have been prepared to modify the spillway to attain needed improvements. The modification work is scheduled to be done in 1978, at an estimated contract cost of \$345,000.

The consulting Board for Castaic Dam continued its independent review during 1977 with meetings in March and August. Completion of the Board's report is expected in 1978. The Board members are Mr. Wendell Johnson, Dr. Douglas D. Campbell, and Mr. Earle J. Klohn.

A new board has been formed to initiate a review of Cedar Springs Dam. This Board -- Mr. Stanley Wilson and Mr. Schaefer Dixon, Consulting Engineers, and Mr. William I. Gardner, Consulting Geologist -- scheduled its first meeting for April, 1978.

In 1977 the Director approved a schedule of review of the following DWR-owned dams:

- o Review of Cedar Springs Dam and Oroville Complex in 1979.
- o Review of Bethany, Del Valle, Patterson, and Clifton Court in 1980.
- o Review of Frenchman, Antelope, and Grizzly Valley in 1981.

The schedule enables a complete review of the 16 DWR-owned dams within a five-year period. A repeat review of the dams is scheduled to be complete by June 1986.

Financing of Distribution Works

In addition to paying their allocated share of project costs, most contractors must finance the construction of local distribution facilities needed for project water deliveries. It is currently estimated that the 31 long-term contractors will spend a total of \$2.36 billion for such facilities. Total expenditures to date are an estimated \$1.02 billion.

Under a 1968 enactment, the Legislature provided \$8 million to help designated agencies finance works needed to distribute Project water. Between 1968 and 1976 the Department disbursed seven construction loans accounting for \$7.5 million of the total \$8 million.

In 1973 the Lost Hills Water District applied for a construction loan of \$500,000. The District subsequently requested and was given several extensions of time in which to complete and submit information required by the Department concerning the proposed loans. In November 1976 the District submitted all the required information, and in April, 1977, the loan contract was approved by the DWR Director. The District had not requested disbursement of the funds by the end of the year. Status of the program as of December 31, 1977, is summarized in the following table.

Applicants (All Member Units of Kern County Water Agency)	Construction Loan Disbursements	Construction Loan to be Disbursed
Berrenda Mesa Water District	\$1,600,000	
Cawelo Water District	1,800,000	
Lost Hills Water District		\$500,000
Rosedale-Rio Bravo Water Storage District	550,000	
Semitropic Water Storage District:		
Buttonwillow Improvement District	2,450,000	
Pond Poso Improvement District	<u>1,100,000</u>	
Total	\$7,500,000	\$500,000

Wheeling of Central Valley Project Water

Cross Valley Canal. The first contracts for wheeling federal water through portions of the California Aqueduct for delivery to Kern County Water Agency's Cross Valley Canal were executed in 1975 between the State, the U. S. Bureau of Reclamation, and the following five San Joaquin Valley districts:

- Pixley Irrigation District
- Lower Tule River Irrigation District
- Ducor Irrigation District
- Tulare County
- Fresno County

Wheeling contracts with the following four districts were executed during 1976:

Hills Valley Irrigation District
Kern-Tulare Water District
Rag Gulch Water District
Tri-Valley Water District

At the end of 1977 a new contract for wheeling service with Saucelito Irrigation District was being considered. In addition, amendments to the existing contracts with Hills Valley Irrigation District, Ducor Irrigation District, and Tri-Valley Water District were being amended. The amendments plus the new contract would increase the maximum wheeling of federal water from 155 214 000 cubic metres (125,832 acre-feet) to 158 258 000 cubic metres (128,300 acre-feet).

The basic provisions of these contracts were stated in Bulletin 132-76, page 4.

Bulletin 132-76 stated that the contracts, letter agreements, and exchange of letters between the U. S. Bureau of Reclamation and the Department of Water Resources provide that the Department, in wheeling Cross Valley water from the Delta, will comply with all state and federal water quality standards applicable to the Department. Compliance with those standards requires the Bureau of Reclamation to release into the Delta its share of the water required. Thus, during any period when the Bureau is not releasing its share of the Delta outflow, the Department is not obligated to wheel Cross Valley water.

In June, 1976, however, the Bureau of Reclamation informed the Department that it did not agree with the above interpretation of the contracts. The Bureau took the position that the State should wheel Cross Valley water at times when the Bureau is out of compliance with quality standards. Further communications ensued between the Department and the Bureau during the remainder of 1976 but the difference in contract interpretation was not resolved.

Consequently, the agencies served by the Cross Valley Canal will have their water supply cut off when the Bureau fails to meet the Delta water quality criteria.

This imposed a hardship upon the agencies during this drought year since they did not know when the cutoff would occur. In recognition of this hardship, the Department made an operation study in March to predict how many days the Bureau would be out of conformance during the year. It was determined that 6 747 000 cubic metres (5,470 acre-feet) was scheduled to be delivered on these out-of-conformance days. The remaining scheduled water that could be delivered was 28 136 000 cubic metres (22,810 acre-feet). On this basis, the Department agreed to deliver 28 371 000 cubic metres (23,000 acre-feet) to the Cross Valley Canal for the rest of the year whether or not the Bureau was able to furnish the share of Delta outflow as assumed. If the Bureau furnished more Delta outflow than assumed, the Department would increase the amount of water transported. The Bureau did furnish more than it had been assumed; thus the amount transported through State facilities from April through the remainder of the year was increased to 30 838 000 cubic metres (25,000 acre-feet).

The total amount transported to the Cross Valley Canal during the year was 36 031 000 cubic metres (29,210 acre-feet). Amounts of water wheeled for each agency are shown in Chapter II of this bulletin, in the Water Contracts Management Section.

San Felipe Project. The Department of Water Resources and the Santa Clara Valley Water District have reached general agreement on the issues concerning wheeling USBR water supply through Project facilities to the San Felipe Division of the Central Valley Project. (See page 5, Bulletin 132-76.)

A contract to wheel water through the California Aqueduct must be conditioned on the Bureau's furnishing its share of water to meet State and federal water quality standards in the Delta.

The final Environmental Impact Statement (EIS) for the San Felipe Project stated that water could be transported from the Delta to O'Neill Forebay through the Federal Delta-Mendota Canal without enlarging the canal. This would eliminate the need to wheel water through the California Aqueduct. However, construction was delayed by a suit filed by the Environmental Defense Fund and the Sierra Club, which challenged the adequacy of the final EIS in regards to the ability of the Delta-Mendota Canal to accommodate the San Felipe water without enlargement.

The trial was held February, 1977, by the Federal District Court. Shortly before the trial, the State was joined as a plaintiff. The State's concern focused on the inadequacy of the EIS in discussing the environmental impacts of San Felipe on the Delta, the effects of using the Delta-Mendota Canal instead of the California Aqueduct to divert water from the Delta, and the effects of earthquake hazards at San Justo Reservoir. On April 26, 1977, the Court ruled that the EIS was adequate and dissolved the preliminary injunction against construction that was issued in the summer of 1976.

Interstate 5 - Peripheral Canal Borrow Program

In northern San Joaquin and southern Sacramento Counties, Interstate 5 (I-5) lies about 3 kilometres (2 miles) east of the alignment of the proposed Peripheral Canal. The roadbed of I-5 had to be placed on fill and the canal would have an excess of material. Recognizing this, in 1965, the Boards of Supervisors of Sacramento and San Joaquin Counties jointly requested that the two projects be coordinated.

Studies, followed by public hearings in the Delta in 1966, indicated that coordination of the projects could produce many significant benefits. These include a reduction in the construction costs of the two projects, a reduction in need for extra right of way to place excess material excavated for the canal, and minimization of the use of local

Vegetation emerging in northeast corner of pond, north of White Slough.

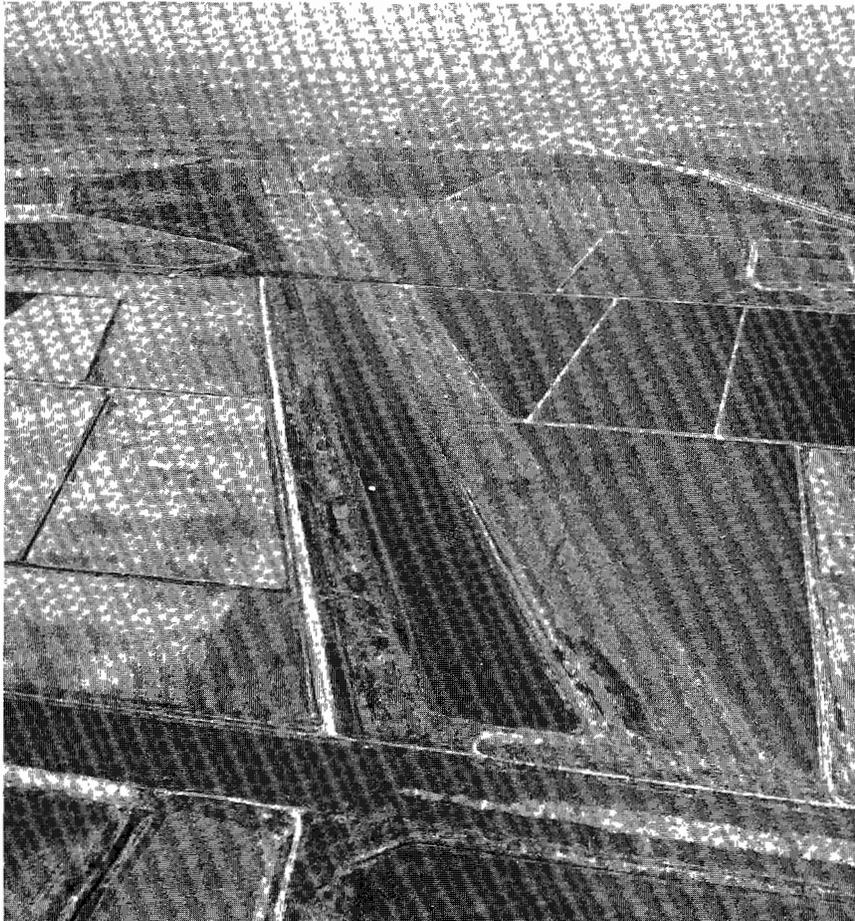


roads to carry highway fill material, thereby minimizing wear and damage on local highways and possible accidents due to hazardous truck traffic. Consequently, in 1968 Caltrans and the Department signed interagency agreements to coordinate construction, and Caltrans prepared Environmental Impact Statements for I-5 and the proposed borrow program in Sacramento and San Joaquin Counties.

Realizing there could be an interim period between completion of the highway and the start of construction of the canal, the Departments of Water Resources and Fish and Game executed a Memorandum of Understanding in 1968, which provides that Fish and Game would plant and maintain a fishery in the ponds created by groundwater seeping into the borrow area so that they could be used if desired to provide recreation benefits prior to canal construction.

In late 1973, lawsuits were filed against the State and Federal Government by Friends of the Earth, Rio Blanco Ranch and others, claiming that construction of the highway borrow ponds would constitute construction of the canal. Both the U. S. District Court and the U. S. Court of Appeals ruled that a portion of the canal right of way could be used as a highway borrow site and that its use would not constitute construction of the Canal. The State Court agreed with that ruling. The Courts pointed out that before the canal could be built, it would have to be evaluated and approved utilizing the full environmental process.

Construction of I-5 and the borrow ponds was initiated in October 1974. Eight borrow ponds have now been completed in San Joaquin County and two in Sacramento County. Three ponds are still being ex-



Aerial view of ponds resulting from Department's coordinated program with Caltrans in constructing I-5.

cavated, one in San Joaquin County and two in Sacramento County. When completed, a total of about 6.3 million cubic metres (8.2 million cubic yards) of material will have been taken for I-5 construction.

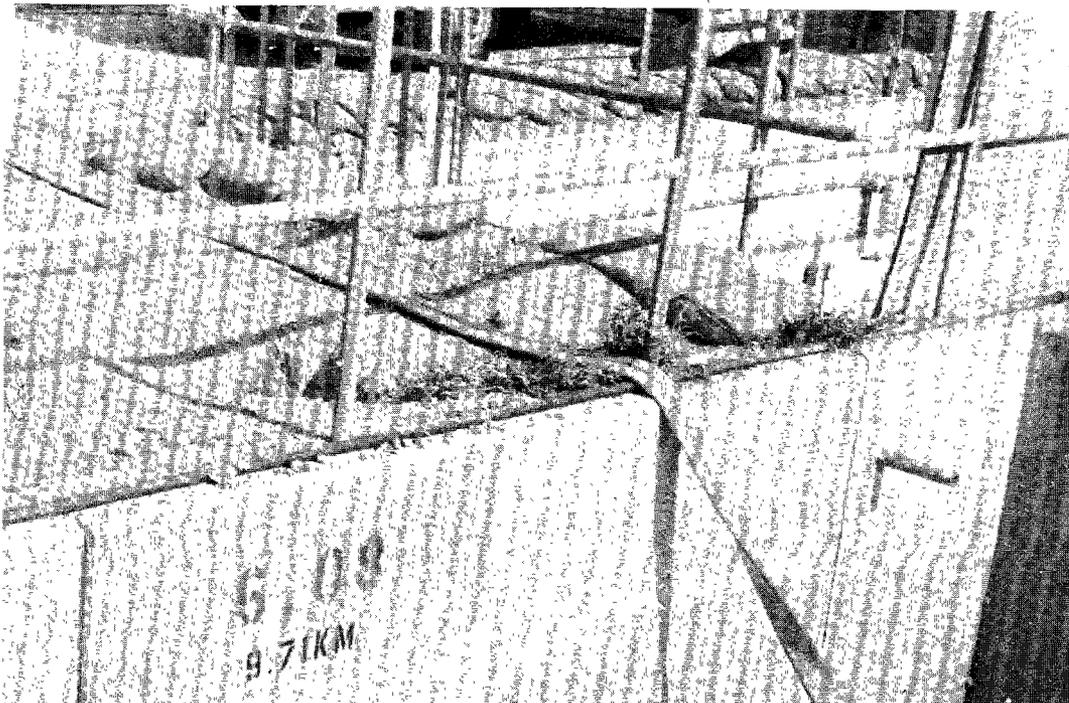
Even though losing in federal and State courts, opponents of the canal continued to attack the borrow program. In October 1977, Congressman George Miller of Contra Costa County asked the General Accounting Office (GAO) to investigate the borrow program on the basis of continuing allegations that the ponds constituted construction of the Peripheral Canal. In March 1978, GAO completed its investigation and found that everything being done complies with the court rulings. GAO was unable to obtain cost breakdowns to determine the cost savings to the highway. However, the Department estimates the cost savings to the two projects will total at least \$23 million, with that portion of the savings associated with the highway construction totalling about \$14 million. The savings to the canal would total about \$9 million if it were built today. This savings will increase as construction costs increase.

Natural vegetation has been allowed to grow adjacent to the completed ponds. The trees, grasses, and shrubs are now providing an excellent habitat for birds and small game.

In accordance with the Department's agreement with Fish and Game, five completed ponds already have been stocked with warmwater fish. The Department is completing a plan to allow public fishing in the ponds and hunting on the adjacent land until it is needed for Peripheral Canal construction. An environmental analysis of the plan has been completed, and the necessary environmental clearances are now being obtained. The Department hopes to open these five pond areas for recreation use later in 1978.

Progress Toward Metrication

The SI system of metric units of measurement had been adopted by 41 of the principal industrial nations of the world, and many industries in the United States are actively converting to the system. In June 1975, the Director of



Mile marker on canal lining at Quail Lake outlet structure.

Water Resources set a policy to promote the use of the International System of Units (SI).

All Department bulletins and reports include a table of conversion factors, and the SI units, followed by the customary English system units in parentheses, are used for all units of measure.

In March 1976, the gradual conversion to SI units were expanded to require them (in addition to the customary English units) in tables, scales on maps, and scales or conversion factors on graphs. The letter symbols listed in the Metric Practice Guide E380-72 were adopted for Department use, and a target date of July 1, 1976 was set to begin using SI units as prime numbers with customary units in parentheses.

Specific SI units to be used in lieu of customary units were adopted in May 1977 to standardize the system throughout the Department. Also, the practice of using SI units followed by customary units in parentheses was expanded to include outgoing correspondence.

The guidelines will be changed and/or expanded as we gain experience.

Existing instruments and equipment will continue to serve their remaining useful lives. Existing equipment will be modified to indicate metric measurement or

units if the conversion can be made without substantial capital outlay or additional positions for personnel in making the modification. When purchasing equipment or apparatus, consideration will be given to its compatibility for future conversions to the system. New instruments will be obtained with SI scales unless the cost should be prohibitive.

All mileage markers on concrete surfaces of canal lining and aqueduct structures will have corresponding kilometre markings placed adjacent to them. Existing mileage markers will be maintained as required to keep them legible until all essential project documentation can also be converted. (This will include maps and all other working documents.) The conversion of distance measurements in these documents is to be completed by July 1980. Brass cap elevation bench marks are individually identified but do not contain elevation figures. No change in this system is required since surveys now incorporate SI units. Staff gages for monitoring water surface elevations in the aqueduct are coordinated with electronic monitoring and recording systems by which the water operations are controlled. Since this control system involves computer programming, conversion of the various associated system components is expected between 1981-1983.

ACTIONS CONCERNING PROJECT POWER

Long-Range Power Program

During 1977, the Department continued its efforts to assure adequate future sources of power for the Project after March 31, 1983, when purchase terms of existing contracts terminate. (Chapter II contains a more detailed description of these activities. However, they are highlighted here for general interest.)

The objective of the Department's long-range energy program is the acquisition

of adequate energy supplies for continued operation of the Project beyond March 31, 1983. The approved program includes:

- o Use of recovery generation from aqueduct power recovery plants to meet project needs.
- o Retain Hyatt-Thermalito generation for project use after March 31, 1983.

- o Purchase supplemental capacity and energy under a modified and extended suppliers contract.
- o Select and develop additional resources for the balance of energy requirements.
- o Exchange or sell Project capacity and energy in excess of Project requirements.

In accordance with the long-range program, the Department is exploring a wide range of alternative sources of power.

A major cornerstone of the long-range energy program is the withdrawal of Hyatt-Thermalito generation from commercial sale for use in the Project. About half of the Project's energy needs would

be supplied by such generation together with aqueduct recovery generation.

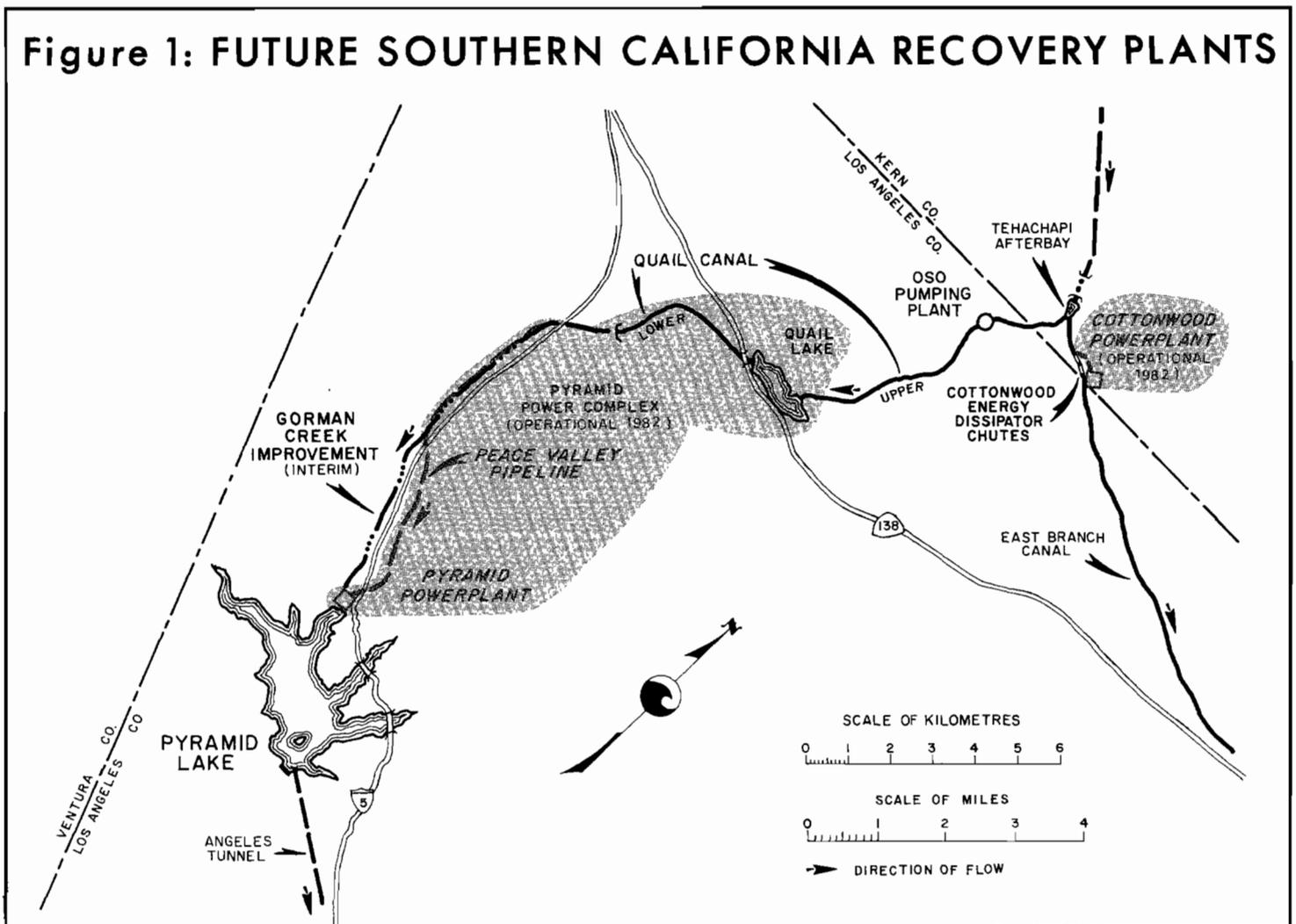
On September 30, 1977, the Director formally notified the Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company that the existing Oroville-Thermalito Power Sale Contract (see page 87, Bulletin 132-68) will be cancelled as of April 1, 1983.

Southern California Recovery Plants

Pyramid Powerplant.

The Pyramid Power Complex shown on Figure 1 is expected to be operational in 1982. Construction will start on Peace Valley Pipeline by the middle of 1978 and also on the first stage of Pyramid

Figure 1: FUTURE SOUTHERN CALIFORNIA RECOVERY PLANTS



Powerplant. The first stage facilities will be adequate to meet water demands until at least the mid 1990's, and will consist of (1) increasing the regulatory water storage in Quail Lake and Lower Quail Canal; (2) constructing the Peace Valley Pipeline, consisting of one 3.65-metre (12-foot) diameter pipe; and (3) constructing of Pyramid Powerplant, with two 37.5-megawatt generating turbines and other pertinent facilities. A second stage, consisting of a parallel pipeline and additional generating units at the power plant, may be required depending on a future determination of water deliveries from the West Branch. The first-stage facilities will be constructed to accommodate construction of second-stage facilities if necessary. Estimated costs of the Pyramid Facilities total about \$100 million not considering allowances for future cost escalation.

Cottonwood Powerplant.

This powerplant will be located near the head of the East Branch of the California Aqueduct as shown in Figure 1. Water now flows through the Cottonwood Energy Dissipator Chutes.

The powerplant will be constructed adjacent to the energy dissipator chutes and will consist of one 3.35-metre (11-foot) diameter penstock and one 15-megawatt generating unit. It is anticipated that construction will start in about March 1979, with the first contract for the furnishing and installation of the turbine. This powerplant will be operational in 1982. The facilities are presently estimated to cost about \$24 million not considering allowances for future cost escalation.



Director Robie signing The Metropolitan Water District of Southern California power sale contract, for purchase of future Project power.

Metropolitan Water District Power Agreement

In early 1978, the Department signed a power sale contract with The Metropolitan Water District of Southern California (MWD). The contract provides for purchase by the Department of hydroelectric power from powerplants to be built by MWD in the early 1980's.

Further discussion of the power agreements is included in the Power Contract Management section of Chapter II.

Federal Energy Regulatory Commission License Application

On October 1, 1977, the Federal Energy Regulatory Commission (FERC) was activated as an independent commission within the Department of Energy and assumed the functions and regulatory responsibilities of the Federal Power Commission, which ceased to exist as of September 15, 1977.

On the basis of the FERC staff counsels' recommendations, the Administrative Law Judge issued an initial decision on April 29, 1977, recommending that a license for the California Aqueduct be issued subject to certain conditions. The Department informed the Commission that the proposed conditions were acceptable. The decision would have become final on June 10, 1977; however, the Commission issued a "Notice Initiative Review of Initial Decision" on that same date. The final license was granted on March 22, 1978, effective February 1, 1972 so as to cover the initial generation at Devil Canyon and Castaic Powerplants. The license will facilitate revenue bond financing and construction of Pyramid and Cottonwood Powerplants in the immediate future and San Luis Obispo Powerplant when the Coastal Aqueduct extension is definitely scheduled.

ACTIONS CONCERNING PROJECT RECREATION AND FISH AND WILDLIFE ENHANCEMENT

Recreation use at State Water Project facilities in 1977 totaled about 4.0 million visitor days. This is a decrease of about 5 percent from the 4.2 million visitor days in 1976. The continuing drought, which produced low water surface levels in Project reservoirs, was undoubtedly the prime cause of the decrease.

In 1977 an additional 8 kilometres (5 miles) were added to the Southern California bikeway. Figure 2 indicates the status of aqueduct recreation developments at the end of 1977.

Fishing Access Site Program

Under legislation enacted in 1968, the Wildlife Conservation Board is responsible for planning and developing a fishing access program on Project aqueducts (see page 2, Bulletin 132-69). In 1969, the Board and the Department embarked on

a program of development at certain sites along the California Aqueduct; under the program the Department agreed to:

- o Permit use of some existing roads.
- o Furnish and install necessary safety devices prior to public use.
- o Provide necessary access to land on which to develop the sites:

In addition, the Board requires that:

- o A fishery be established prior to development of a site.
- o Site operation and maintenance be provided by local government.
- o Site facilities should be adequate but not elaborate.

Figure 2: AQUEDUCT RECREATION DEVELOPMENTS

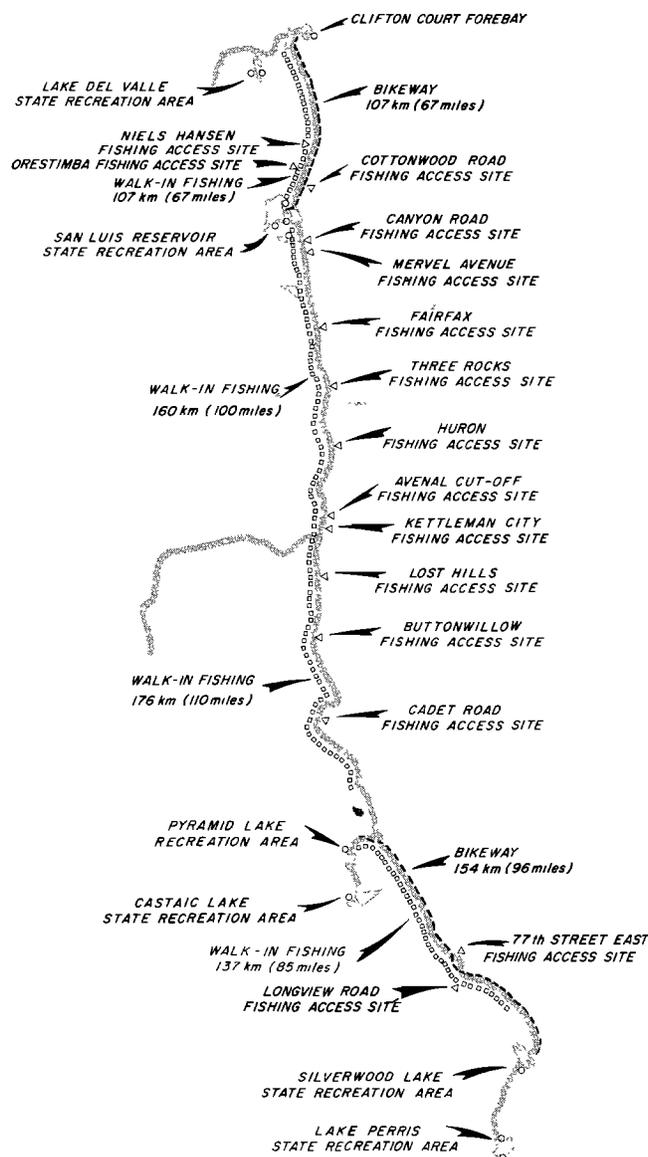
Considerable use has been made of the fishing access sites in the San Joaquin Valley and Southern California, where the aqueduct is the largest flowing body of water in these semiarid regions and where substantial fisheries have become established. All project sites are open and free to the public and have been well received.

Wildlife Preservation

Both federal and state laws require that water project developers take reasonable actions to preserve, or mitigate damage to, wildlife resources affected by their projects. For several years the Department has been developing wildlife mitigation plans for the State Water Project in Southern California (south of A. D. Edmonston Pumping Plant). The damage that these plans will seek to mitigate are generally losses resulting from inundation of natural habitat or development of facilities.

In 1977, agreement was reached with the U. S. Forest Service on a plan to mitigate damage to wildlife on federally owned land. The plan calls for the Department to buy about 607 hectares (1,500 acres) within the Los Padres, Angeles, and San Bernardino National Forests in Southern California and turn them over to the Forest Service for management. The Department will also provide funds for modest development to improve wildlife habitat values, and for 10-year management costs. Early in 1978 the first parcel was acquired and three other parcels are being acquired. Probably 6 to 8 parcels will be needed to reach the total of 607 hectares (1,500 acres).

The Department is working, primarily with the State Department of Fish and Game, on plans to mitigate damage to wildlife on lands which were once privately owned but that were subsequently acquired by the Department for the State Water Project. Wildlife losses in this category were greater than those on federal lands. Wildlife habitat was



affected on about 6 475 hectares (16,000 acres) of land, with habitat losses amounting to an equivalent of 3 642 hectares (9,000 acres).

A preservation or mitigation plan has not yet been agreed upon for this category of wildlife impact. Several poten-

tial areas, of different sizes and in different locations, were considered. Negotiations have limited consideration almost entirely to the San Jacinto Valley area east of Perris Lake in Riverside County. Some of the land involved is already owned by the Department, having been purchased for the State Water Project.



Boating and beach area at Castaic Lake.

LITIGATION

The following are summaries of significant litigation which involved the State Water Project in 1977:

Zurn Engineering, Inc., (Pascal and Ludwig) v. State Department of Water Resources, Superior Court, Los Angeles County No. 978331. The contractor for the construction of Grizzly Valley Dam (Lake Davis) contends the Department still owes approximately \$1.4 million for work done because of changes in the work, forced acceleration, and added quantities of excavation and fill. Judgment was entered on February 10, 1976, for plaintiff, awarding him a total of \$896,000 plus interest. The Department appealed. The District Court of Appeal overturned findings for the contractor and returned the claims to the Department.

This landmark case holds that a determination such as the Department's in

this case is "final and conclusive" unless it is shown to be fraudulent, capricious, arbitrary or so grossly erroneous as to imply bad faith. The contractor appealed this decision to the United States Supreme Court. Petition for Supreme Court hearing was denied July 21, 1977. The Contractor then filed a Petition for a Writ of Certiorari from the Supreme Court. The Supreme Court denied Zurn Engineers' writ. In accordance with the Appellate Court ruling, the Department is processing the remaining claims pursuant to "due process" requirements.

State Department of Water Resources v. Moloney, Sacramento County Superior Court No. 239121, involves the purchase of transformers for the Oroville Powerplant. Three of the transformers failed after a short period of use, and upon examination it was found that they did

not meet original contract specifications. All six transformers have now been repaired or rebuilt, and the State is seeking to recover the costs of approximately \$2,000,000.

On September 30, 1975, Central Moloney, Inc. filed a cross-complaint against the Department for \$255,886 for repairs made on two of the transformers.

Pretrial discovery is still in progress and a trial date has not been set.

Berrenda Mesa Water District v. Department of Water Resources, filed September 10, 1976, Sacramento County Superior Court, No. 262976.

The Berrenda Mesa Water District filed suit against the Department of Water Resources and also named as defendants Contra Costa County Water District, Contra Costa County Water Agency, and the North, Central and South Delta Water Agencies. The Berrenda Mesa Water District is a member agency of Kern County Water Agency.

The complaint sought to enjoin releases of water to the Delta above those that allegedly were required for operation of the State Water Project. The complaint alleged that the releases were in violation of:

1. The constitutional prohibition against impairment of the obligation of contract with regard to the contract between the State and Kern County Water Agency and the contract between the Agency and Berrenda Mesa;
2. The contract with the bondholders;
3. The priorities established by Water Code Section 106, which give irrigation the second highest priority to the use of water;
4. Article 10, Section 2 of the California Constitution requiring the reasonable beneficial use of water; and

5. The stay order of the Sacramento Superior Court staying operation of Decision 1379.

The complaint asked for both a preliminary and permanent injunction and for a declaratory judgment determining the issues that it raised.

The Department filed a demurrer which was heard on December 16, 1976 alleging that (1) the plaintiff lacks standing to enforce the Kern County Water Agency contract with the Department, and (2) the proceeding is an inappropriate forum in which to complain of alleged enforcement by the Department of D-1379.

On February 8, 1977, the trial court sustained the Department's demurrer without leave to amend on the grounds that (1) plaintiff failed to state a cause of action, (2) plaintiff lacks standing to sue to enforce the Kern County Water Agency contract with the Department, and (3) plaintiff did not plead that it is a third party beneficiary to any contract.

Tulare Lake Basin Water Storage District v. State of California, et al., filed October 19, 1976, Sacramento County Superior Court No. 263582.

The Tulare Lake Basin Water Storage District and Dudley Ridge Water District, both State Water Project water supply contractors, filed suit against the Department of Water Resources alleging essentially the same causes of action as did the Berrenda Mesa Water District in its suit against the Department, discussed previously.

The complaint asked for a preliminary and permanent injunction, declaratory relief, and damages. The amount of damages is not set forth in the complaint.

The Department's demurrer was heard on February 28, 1977. It alleges that this is not the proper forum in which to challenge the Department's release of water into the Delta.

On October 5, 1977, the trial court sustained the demurrer with leave to amend. The judge found that the court has no jurisdiction to take any action concerning the alleged violation of the stay of Decision 1379 since the matter of Decision 1379 is pending before a federal court.

Salyer Land Company, et al., v. Department of Water Resources, Sacramento County Superior Court No. 267012, filed May 9, 1977.

The Salyer Land Company alleges that the Department wrongfully violated the stay order against Decision 1379, wrongfully diverted water allegedly belonging to the claimant into the Sacramento-San Joaquin Delta, and wrongfully refrained from delivering that water to the Tulare Lake Basin Water Storage District pursuant to the agreement between the Department and the District.

The claimant, Salyer Land Company, which is located in the Tulare Lake Basin Water Storage District, is asserting the claim in its own behalf and in behalf of all other similarly situated landowners. The claimant is alleging damages in the amount of \$3.7 million, which includes damage to crops and soil due to the consequent use of ground water with a high sodium content, costs of energy for pumping, and cost of drilling additional wells.

On July 28, 1977 the Department filed a demurrer which claimed that the plaintiff failed to state a cause of action. The grounds for the demurrer were that (1) the plaintiff lacks standing to enforce the contract between the Department of Water Resources and the Tulare Lake Basin Water Storage District; (2) the plaintiff lacks standing to seek damages resulting from a violation of an injunction issued in another action; (3) any violation of an injunction entered in another action may be raised only in that action; (4) a cause of action for damages cannot be stated until the court in the other action determines

that an injunction has been violated; and (5) the injunction in any case would not bind the Department or any of the defendants.

On January 9, 1978 the Sacramento County Superior Court judge issued preliminary rulings in favor of the Department.

State Department of Water Resources v. Garden Highway Mutual Water Company, Sutter County Superior Court No. 21359, filed December 17, 1975.

In this action the Department requested the Court to determine the rights of Defendant Garden Highway Water Company to divert water from the Feather River. The Defendant Company holds lands along and near the Feather River near the junction of the Feather River and the Sacramento River. The Company has appropriate rights to divert up to 1.8 cubic metres per second (62.7 cubic feet per second) from the river and also has some riparian lands.

The Department releases stored water from the Oroville-Thermalito facilities; the water flows down the river to satisfy uses along the river and in the Delta and also for diversion into the California Aqueduct for delivery to state water contractors.

The Company claimed the right to divert more water than the Department believed that the Company was entitled to divert under its rights. The Department has negotiated agreements with almost all of the water users along the Feather River below Oroville but had not been able to reach agreement with Defendant Company.

The parties reached a tentative settlement at a pretrial conference on March 1, 1977. This settlement was included in a draft of agreement sent to the defendant company on April 25, 1977.

A settlement agreement was executed May 17, 1977. No request for dismissal

will be filed until operating experience is gained under the agreement.

Santa Clara County Water District v. State of California, filed June 23, 1977, Santa Clara County Superior Court No. 378513.

The Santa Clara County Water District brought an in rem suit to validate its contract with the Bureau of Reclamation for water service from the San Felipe unit of the Federal Central Valley Project. The District is required to name the State as defendant.

On September 20, 1977, the State executed a stipulation with the District reinforcing the District's earlier agreement to respect state and federal water quality requirements for the Delta.

On November 10, 1977, Judge Phelps of the Santa Clara County Superior Court issued the judgment validating the contract and including the following:

"Plaintiff acknowledges an agreement with DWR in which plaintiff stated itself to be 'fully committed to Delta protection;' and further acknowledges regarding its agreement with the United States its concurrence with the following:

'If operation of the Project to meet Federally-adopted Delta water quality control standards requires proportionate reduction in deliveries of water to the Contractor (Santa Clara Valley Water District) under this agreement, such reductions will be made and shall not be deemed a breach hereof.'"

The Bureau of Reclamation responded with a negative comment on this rather modest step toward greater Delta protection:

"The purpose of this letter is to make it clear that the United States was neither a party to, nor did it approve or endorse in any way, the agreement (September 2, 1975) between the District and the State, nor did we approve or endorse the language in the judgment related thereto. We wish to further advise, if the agreement, in any way, conflicts with or impinges upon the obligations of the District under its contract with the United States, that contract and not the agreement with the State will control. In other words, the United States will expect and will require full compliance with both the letter and the intent of the water service contract with the District."

Contra Costa County Water District v. State Water Resources Control Board and California Department of Water Resources, Real Party in Interest, filed March 10, 1977, Contra Costa County Superior Court No. 172975.

On March 10, 1977, the Contra Costa County Water Agency and William Baldwin, a Delta farmer, filed a court action to set aside the State Water Resources Control Board's (SWRCB) Interim Water Quality Control Plan for 1977. The Interim Plan, adopted on February 8, 1977 modified existing basin plans' water quality standards to assure that there would be sufficient water supplies to get through the second year of drought. The petition claims that the Board's hearings and comment procedures on the Draft Interim Plan were inadequate and denied Contra Costa County Water Agency and other Delta people due process. The petitioners claim that the Interim Plan should be set aside because it will allow greater salinity intrusion into Suisun Marsh and the Delta, thereby damaging the environment and it will allow the Bureau of Reclamation and the Department to use more water for export while

violating the Delta Protection Act, the Area of Origin Act, and senior Delta water rights.

The petition claims that the State Board has no right or emergency powers which would allow the State Water Project and Central Valley Project to export during 1977 when, the petitioners contend, there is no surplus water in the Delta. Specifically, they object to the concept of spreading and sharing the losses and burdens of the current drought because of the Delta's priority to all water, including upstream storage in project reservoirs.

On December 15, 1977, the SWRCB rescinded the February, 1977, Interim Water Quality Control Plan. This action removed the issue before the court and on December 23, the Contra Costa County Superior Court dismissed the suit.

Sierra Club v. Morton, U. S. Court of Appeals for the Ninth Circuit (District Court decision reported in 400 F. Supp. 610 (N.D.Cal. 1975).)

This suit seeks to enjoin federal and state defendants from constructing or continuing construction or operation of the Delta Pumping Plant, the Peripheral Canal, and certain existing or proposed Federal Central Valley Project facilities because of an alleged failure to meet environmental requirements.

On July 28, 1975, a Memorandum of Opinion was issued which stated that the Peripheral Canal would, and the Delta and Tracy Pumping Plants did, affect the navigable waters of the Delta. Therefore the state and federal defendants were ordered to obtain permits for these facilities from the U. S. Corp of Engineers. No injunction was issued.

All defendants have filed appeals. The Department has also begun compliance by filing for two permits to divert water through the Delta Pumping Plant. These applications would be dropped if the trial court order is reversed.

Appellate briefs were filed in the Ninth Circuit Court of Appeals on June 21, 1976; and the State's and intervenor's reply briefs were filed on November 19, 1976. No date for oral argument has been set.

State of California v. USA, United States District Court (Sacramento) CIV S-3014, filed October 1973.

This suit arises from conditions imposed by the State Water Resources Control Board in Decision 1422 on the U. S. Bureau of Reclamation's water rights for the New Melones Dam project. The Bureau sought a declaratory judgment that the State Board does not have the authority to place operational limitations on the project. The dispute centers on whether Section 8 of the Federal Reclamation Act of 1902 gave the state authority to place conditions on federal reclamation projects.

The Department was concerned because an adverse decision would have set a precedent that would have left the Department without the Bureau of Reclamation's contribution to maintaining water quality in the Sacramento-San Joaquin Delta.

Several other cases involving the issue of the Board's jurisdiction over the Federal Central Valley Project are being held in abeyance in the U. S. District Court in Sacramento pending the outcome of this case. They are:

- a. Kern County Water Agency v. SWRCB and Central Valley East Side Project Association v. SWRCB (to set aside the Delta Water Rights Decision 1379);
- b. San Joaquin County Flood Control and Water Conservation District v. SWRCB (to set aside the Lower American River Water Rights Decision 1400);
- c. People ex rel. SWRCB v. Morton (the action by the State to compel CVP compliance with SWRCB water rights permits).

On October 9, 1975, Judge MacBride held that the United States is not required to comply with the terms and conditions in Decision 1422. The judge ruled that the State must grant the United States the right to appropriate water necessary for use in any federal reclamation project in California if unappropriated water is available and that Section 8 of the Reclamation Act of 1902 does not allow State agencies to impose terms or conditions on such appropriative rights.

The State Board then appealed the decision to the Ninth Circuit Court of Appeals, and the Department, along with 15 other western states, filed friend of the court briefs in support of the Board. On April 1, 1977, the Ninth circuit affirmed the District Court decision in essentially each respect.

The decision of the Ninth Circuit was appealed to the United States Supreme Court, which agreed to hear the appeal in December 1977.

On July 3, 1978 the Supreme Court issued its decision (Opinion 77/285), completely reversing the decisions of the two lower courts. The Court ruled that Section 8 of the Reclamation Act allows state agencies to place conditions on federal reclamation projects, as long as the conditions are not inconsistent with clear Congressional directives. The Court, after reviewing the history of the Reclamation Act and preceding statutes, essentially recognized the supremacy of the State law in connection with the appropriation, purchase, and condemnation of water rights for federal reclamation projects.

The Court returned the case to the lower courts for further proceedings as the lower courts had not explored the issue of the consistency of the Board's permit conditions with the New Melones authorization or the issue of whether or not the federal government was precluded from complaining about the Board's actions because of the government's delay in raising the complaint.

Seepage Suits, Sacramento and Feather Rivers. During 1975 and early 1976, several suits were filed against the State and the United States in both the state and federal courts by more than 25 landowners adjacent to the Sacramento and Feather River for damage alleged to have been caused by erosion and seepage in March and April of 1974, allegedly resulting from the coordinated operation of the federal and state water projects. The plaintiffs allege damage in excess of \$30,000,000.

The developments that occurred in 1977 were as follows:

In a case, known as the Sacramento River Seepage Cases (H. L. Sanborn, et al. v. United States CIV 5-76-154), a complaint in inverse condemnation, negligence and trespass for approximately \$20,000,000 based on alleged erosion and seepage damage was filed in Federal District Court on March 22, 1976 by a group of landowners along the Sacramento River. Defendants are the United States, the Bureau of Reclamation, the Corps of Engineers and the State of California. Similar complaints against the State and the United States have also been filed in the Superior Courts of the counties where the affected land is situated; however, as of December 1977, neither the State nor the United States has been served in the state court actions.

The claims arise from damage allegedly caused by high flows in the Sacramento River in March and April 1974 which plaintiffs contend caused erosion and seepage and raised the ground water table. The 1973-74 winter was extremely wet and flooding occurred along the Sacramento River due to intense storms in January and at the end of March. The levels were partially controlled by releases from Shasta Dam and diversions from the Trinity project.

The complaint alleges that the Federal and State Governments, as joint venturers in the Central Valley Project (CVP),

kept the river levels high for an extended period causing excess seepage which damaged their orchards and crops.

On September 19, 1977, United States District Court Judge McBride ruled on the pending motions of the United States as follows:

- (1) The plaintiffs' claims against the State are dismissed because there is no independent ground for federal jurisdiction.
- (2) The plaintiffs' inverse condemnation claims against the United States are dismissed because they all exceed \$10,000 so the District Court has no jurisdiction. Such claims must be filed with the United States Court of Claims.
- (3) The plaintiffs' tort claims against the United States are dismissed as to any damage caused by operation of the CVP for any of its purposes because of the Flood Control immunity provided by federal statute (United States Code, Volume 33, Section 702c).

The only basis plaintiffs have left to seek recovery against the United States is if they can show that they suffered some damage that resulted from activity of the United States which was unrelated to the operation of the CVP.

This ruling may prompt plaintiffs to more actively pursue the Superior Court actions that were filed against the State.

Brannan-Andrus Levee break cases.
Sacramento Superior Court, having various numbers.

On June 21, 1972 a levee along the north bank of the San Joaquin River failed. Large portions of Brannan and Andrus Islands, including the town of Isleton, were flooded. The levee is owned and maintained by the Brannan-Andrus Levee Maintenance District. The break

occurred at a point where the District was excavating along the landward toe of the levee and using the material to raise and regrade the top of the levee.

The plaintiffs are property owners who were damaged by the flood. They contend that the State is liable for their damage because various local and state agencies, including DWR, were responsible for the integrity of the levee system in the Delta and hence the State should reimburse them for their losses. Plaintiffs' theories of recovery include negligence, inverse condemnation, nuisance, and maintenance of a dangerous condition.

Plaintiffs' motion for a determination that the State was legally responsible for their damages was denied by the trial court on March 29, 1976. Their petition to the court of appeal for an order compelling the trial court to rule in their favor was rejected on November 18, 1976.

In a verdict rendered on August 23, 1977 the jury determined:

1. Sacramento County is not liable for inverse condemnation. (Although the work being done included widening of the county road the judge did not let the question of tort liability against the county to go to the jury.)
2. The Brannan-Andrus Levee Maintenance District is liable in tort and for inverse condemnation.
3. The State is not liable in tort or for inverse condemnation but is liable because The Reclamation Board breached its mandatory duty to review the plans for the levee maintenance work.

Only the liability issues were determined in this part of the trial. Another jury will determine the amount of damages which each defendant must pay.

The City of Los Angeles v. City of San Fernando. On May 12, 1975, the California Supreme Court decided a landmark case involving rights to ground water (14 Cal. 3d 199 (1975)). The court upheld Los Angeles' claims to (1) native ground water, based on a pueblo right, and (2) ground water derived from imported water. The court removed the legal uncertainties surrounding the

authority of importing agencies to conjunctively use their water supplies and to plan recharge programs. The importer, under this case, may depend on obtaining a right to the percolated water and its recapture.

The parties are negotiating a judgment which will be submitted to the trial court for approval.

PROJECT CONSTRUCTION IN 1977

Construction in the Mojave Division and West Branch of the California Aqueduct, and modifications to existing Project facilities, comprised the construction program on the State Water Project during 1977. Construction Divisions are delineated on Figure 3.

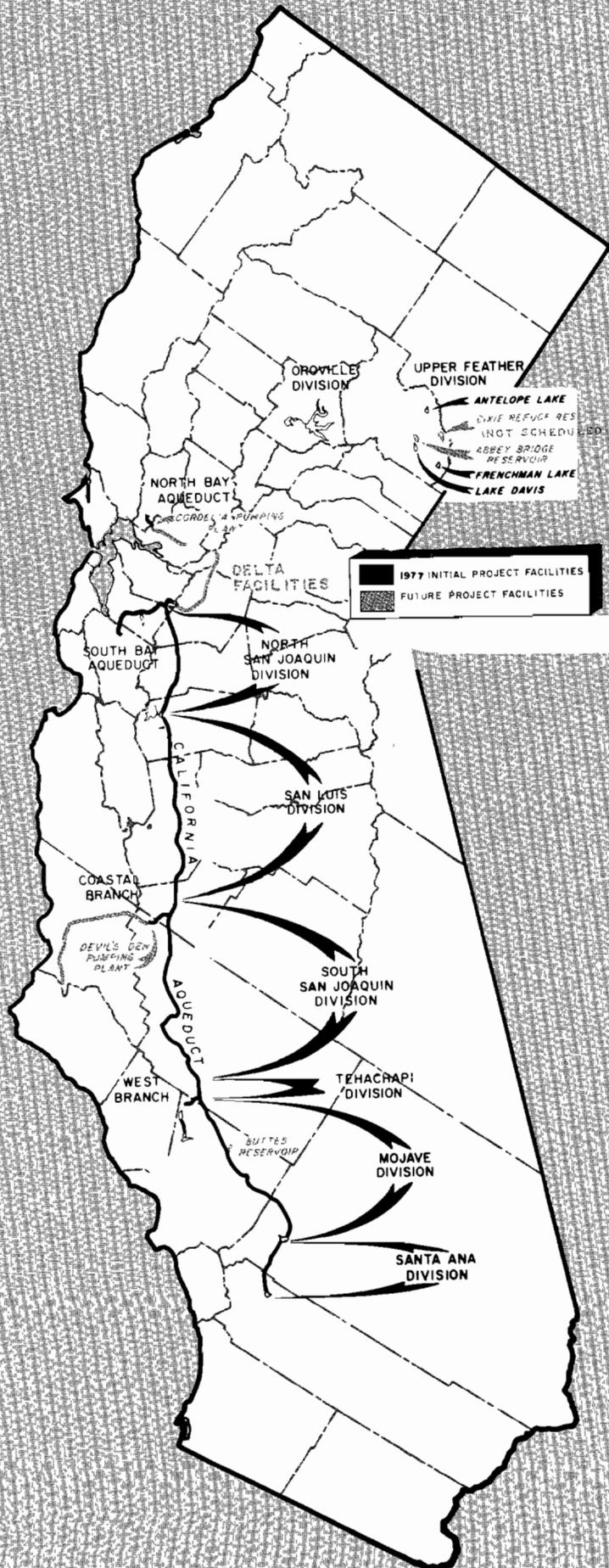
Plans and Specifications

In 1977, the Department completed plans and specifications for 43 construction and procurement contracts, 34 of which were awarded by the year's end. Included in this total were four contract awards for other State agencies and nine



(Left to right) Mrs. Irene Lund Parker, Mrs. Gertrude L. Gilbert, cutting the ribbon with Director Robie at the Bidwell Bar Bridge dedication ceremonies.

Figure 3: PROJECT FACILITIES AND CONSTRUCTION DIVISIONS



awards for drought-related emergency contracts.

Design activity increased in 1977. The Department's effort being put into the contracts for the Pyramid Power Complex on the West Branch, and Cottonwood Power-plant in the Mojave Division, will be evident in the form of completed plans and specifications early in 1978.

The review of design alternatives of the Department's Study of Alternative Courses of Action for the Delta Facilities, was completed early in 1977.

Review activities to analyze seismic performance of project facilities in the Oroville Area has progressed and the report is being prepared.

Land Acquisition

The current land acquisition program includes land and right of way required for the existing State Water Project facilities together with that required for (1) portions of Phase II of the North Bay Aqueduct (to minimize paying for excessive escalation of land prices when construction starts), (2) limited reaches of the Delta facilities (to realize joint savings where canal excavation may be used in constructing a nearby portion of Interstate 5), (3) recreation developments associated with project facilities, and (4) investigation of acquisition of lands needed for alternative fish and wildlife enhancement proposals.

During 1977, approximately \$374,661 was spent for land acquisition in excess of credits for sales of surplus property and returns of condemnation deposits. This brings the total net expenditure through 1977 to \$110.9 million, which is approximately 81 percent of the \$137.4 million estimated total cost of the current program.

Acquisition was completed for 67 parcels, 76.1 hectares (188.14 acres). Eight parcels of excess land, 94.7 hectares (234 acres), were sold, bringing the total of such excess lands sold through 1977 to 814 parcels, 2,025 hectares (5,004 acres).

Seven parcels containing 49.8 hectares (123 acres) were transferred to other agencies. In relocations, 12 relocation agreements at a cost of \$843,000 were approved and 90 land exchange agreements covering 73 incidents were processed.

One inverse condemnation suit for about \$750,000 was in progress. A parcel of land originally required for the Peace Valley Aquatic Recreation Area has not

been purchased because funds for the project were deleted by the Legislature. This abandonment gave rise to the inverse condemnation action.

The number of land parcels required under the current land acquisition program is shown in the tabulation below for each facility or construction division of the Project together with the total number of parcels acquired through 1977.

Current Acquisition Program

<u>Facility or Construction Division</u>	<u>Parcels Acquired in 1977</u>	<u>Total Parcels Acquired</u>	<u>Total Parcels Required</u>
Feather River Facilities:			
Upper Feather Division	0	22	29
Oroville Division	0	949	958
Delta Facilities	5	32	159
Emergency Drought Facilities	1	1	25
North Bay Aqueduct	1	34	80
South Bay Aqueduct	0	203	206
California Aqueduct:			
North San Joaquin Division	0	208	209
San Luis Division	0	22	22
South San Joaquin Division	0	572	578
Tehachapi Division	0	1	1
Mojave Division	28	1,631	1,648
Santa Ana Division	3	679	698
West Branch	29	288	323
Coastal Branch (Phase I)	0	48	48
Coastal Aqueduct	<u>0</u>	<u>0</u>	<u>200</u>
	67	4,690	5,184

Construction Progress

At the beginning of 1977, sixty-four construction contracts were underway. Thirty-four additional contracts were started during the year with fourteen contracts carried over into 1978. Construction activities in 1977 continued on the Mojave Division and West Branch of the California Aqueduct. Completion of, and modifications to, existing project facilities comprised the remaining construction effort.

General

The following contracts were completed during 1977:

- o Modulator - de-modulator interface units installed in Project power and pumping plants to monitor power generated and used for improved efficiency of system power,
- o Project Operations Control Center, furnish uninterruptable power supply system,

- o California Aqueduct Control System, filter box assemblies were mounted in the turnout and check structure control buildings,
- o Delta Pumping Plant and Oso Pumping Plant, furnish stainless steel wearing rings.

A contract to furnish and install a fire detection and suppression system in the Project Operations Control Center remains in progress.

Feather River Facilities

Among the contracts completed at Oroville in 1977 were:

- o Reconstruction of Old Bidwell Bar Bridge and Toll House,
- o Miners Ranch Canal, Road Surfacing and Bank Protection,
- o Oroville Dam Instrument Vault,
- o Edward Hyatt Powerplant, Spherical Valves Seat Seal Test Fixture,

- o Edward Hyatt Powerplant, Penstock Intake Shutter Modification,
- o Edward Hyatt Powerplant Penstock Intake, Fourth Stage Fabrication and Installation of Replacement Trashracks and Trashrack Stabilizer Assemblies.

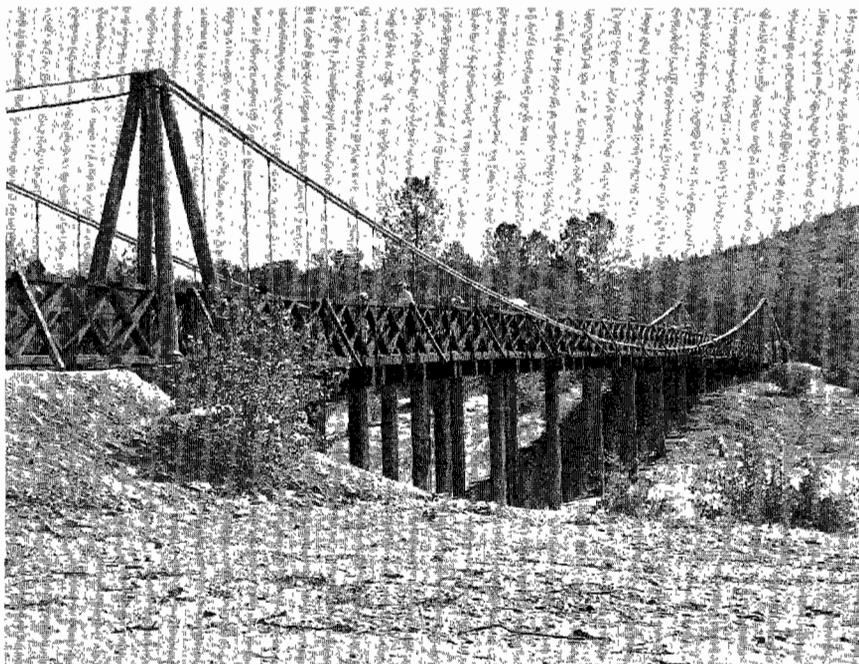
Contracts for construction of Oroville Division Operations and Maintenance Facilities, Miners Ranch Canal Replacement Tunnel, and Oroville Dam Spillway Chute Repair were in progress.

South Bay Aqueduct

At South Bay Pumping Plant, contracts to install crane rails, an 18-tonne (20-ton) gantry crane, and perform miscellaneous modifications are still in progress.

California Aqueduct

General. All the drought related emergency contracts were included in the general activities (see Rock Barriers in the Delta, this chapter.) California Aqueduct Facilities Modifications Con-



Reconstruction of the historic Bidwell Bar Bridge was completed in 1977.

tracts Nos. 5 and 6, involving additions, modifications and repair work at various pumping plants and other facilities in the San Joaquin and Southern Field Divisions, are in progress.

North San Joaquin Division - A contract to replace the impellers in Units Nos. 1 and 2 at the Delta Pumping Plant was awarded in the fall of 1977, marking the only activity in the Division this year.

San Luis Division - This Division is complete and operational. A contract to install a seepage pump in the canal at Aqueduct Mile Post 74.57 was completed during the year.

South San Joaquin Division - All facilities are operational. Contracts completed during 1977 were:

- o Phase I Completion Contract involving construction of a vehicle repair building and miscellaneous modifications at the San Joaquin Operations and Maintenance Center and modifications at the Lost Hills Operations and Maintenance Sub-Center.
- o Buena Vista and Wheeler Ridge Pumping Plants Valve Gallery Access Platforms.
- o Furnish two metal intake gates at the Wind Gap Pumping Plant.
- o Check Structures Nos. 22 through 29, Repair and Coating Radial Gates.
- o A Phase II Completion Contract involving miscellaneous road and facility modifications at the San Joaquin Operations and Maintenance Center remains in progress.

Tehachapi Division - Contracts for Pump Air Supply System and Railings, Doors, and Door Frame Modifications at A. D. Edmonston Pumping Plant were completed.

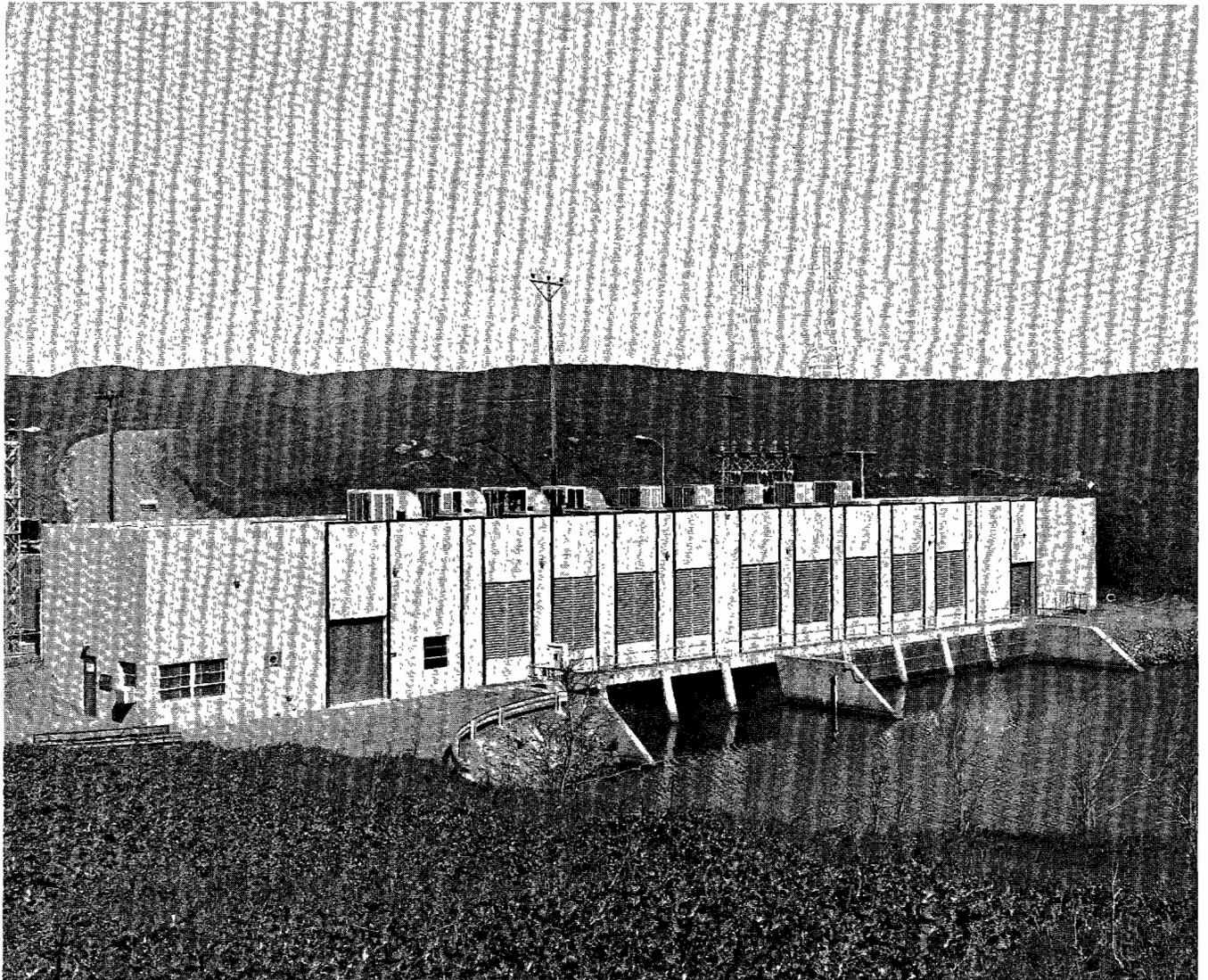
Mojave Division - The three contracts to furnish and install Phase II Pumps, Motors, and Discharge Valves at Pearblossom Pumping Plant were completed in 1977. Also completed was a Completion Contract at the Pearblossom Operations and Maintenance Center consisting of installation of additional maintenance facilities and modification to existing buildings and facilities.

West Branch - Three contracts were completed on the West Branch of the California Aqueduct in 1977. They are:

- o A Completion Contract consisting of installation of a Civil Maintenance and Shops, building and modifications to existing buildings and facilities at the Southern California Operations and Maintenance Center.
- o Castaic Ridge Boating Facility Additions - Costs of these additions were funded by the Department of Navigation and Ocean Development.
- o Diversion of Gorman Creek Improvement Channel.

Contracts in progress at the year's end were:

- o Oso Pumping Plant Maintenance Shop.
- o Quail Lake Enlargement and Outlet Structure.
- o Castaic Dam Low Intake Gate, remachine gate stem flange stud bolts.



View of South Bay Pumping Plant looking northwest.

CHAPTER II

PROJECT MANAGEMENT AND OPERATIONS

PROJECT MANAGEMENT

This is a summary report on management of the Project's water and power utility during 1977, covering arrangement for

(1) securing water rights and pumping power and (2) marketing developed water supplies and project power generation.

WATER RIGHTS MANAGEMENT

Delta Water Quality Monitoring and Reporting

Decision 1379 of the State Water Resources Control Board includes interim Delta water quality standards which require, under certain circumstances, State and Federal projects to either reduce the level of exports from the Sacramento-San Joaquin Delta or increase the releases from upstream storage reservoirs if possible. It also orders an extensive Delta water quality monitoring program and declares the Board's intent to reconsider the standards by July 1, 1978, based on experience to be gained from working with interim criteria and the knowledge gained from the Decision 1379 Monitoring Program and the Inter-agency Ecological Study Program for the Sacramento-San Joaquin Estuary. While the terms and conditions of Decision 1379 have been stayed by Court Order, the Department voluntarily complies with portions of the Decision pertaining to monitoring and reporting of water conditions.

Water quality information and data on Delta water conditions are stored in the Department's Water Data Information System. These data can be obtained by any State or federal agency through the Department. The data for 1977 was published and transmitted to the State Water Resources Control Board. Copies of the 1975 and 1976 data report are available. The Department is cooperating with the State Water Resources Control Board in an analysis of existing State and federal data systems to adopt an

electronic data processing system that will be common to all State agencies.

The Department continued to implement activities outlined in its established planning network covering the first two phases of a four-phase program (see page 19, Bulletin 132-73) for monitoring Delta water quality as specified in Decision 1379. The first two phases involved expansion of the monitoring activities and an increase of equipment and personnel. The final two phases involve a petition process to the Board seeking clarification or modification of the Decision. This process was initiated at the Water Quality Hearings in 1977 when the Department requested that the Decision 1379 Monitoring Program be modified to the 1977 level.

In 1977 the Department sampled an average of 25 parameters at each of 29 sites throughout the estuary on a biweekly basis. With respect to both the number of parameters and sites sampled, the monitoring program was about 85 percent in compliance with the Decision. Although the Decision states that sampling will be performed weekly, the Department believes biweekly sampling yields essentially the same results.

Work continued on the development of six onshore continuous monitoring sites and development of data handling and reporting procedures. The Department's water quality work boat, M. V. San Carlos, became operational in the spring of 1976, expanding the Department's capability to meet the monitoring and reporting required under the Decision.

Feather River Entitlement Negotiations

Negotiations continued with two appropriate water users and eight riparian water users along the Feather River. One riparian water user has verbally agreed to an agreement this year. (These totals are subject to change as water users initiate or discontinue diversions from the river.)

During 1977 negotiations were completed with Garden Highway Mutual Water Company and an agreement was signed on May 17, 1977.

Delta Water Entitlement Negotiations

Municipal Water Use - The previous bulletins have referred to the administration of completed agreements with Municipal water users in the western Delta -- the Contra Costa County Water District and the City of Antioch (see page 20, Bulletin 132-67). Both agencies had below average water supplies during the 1977 water year as defined in the contract. The District has a deficit of 142 days and the City a deficit of 208 days. Including the credits accumulated in previous years, the District and the City now have total credits of 25 and 228 days, respectively. These credits for above-average offshore water supplies are available to offset below-average days in future years.

Industrial Water Use - In mid-1976 a proposed agreement was presented to the six industrial water users, the Contra Costa County Water District, and the U. S. Bureau of Reclamation. A joint meeting of all parties was held in the fall to explain terms of the agreement. An example of the application of the agreement formula for water availability was prepared and sent to the water users; however very little interest was expressed by the industries in return.

The industries were contacted during the year individually and their water-use systems reviewed. Only three have shown any interest in further talks regarding their offshore water problems.

Agricultural Negotiations

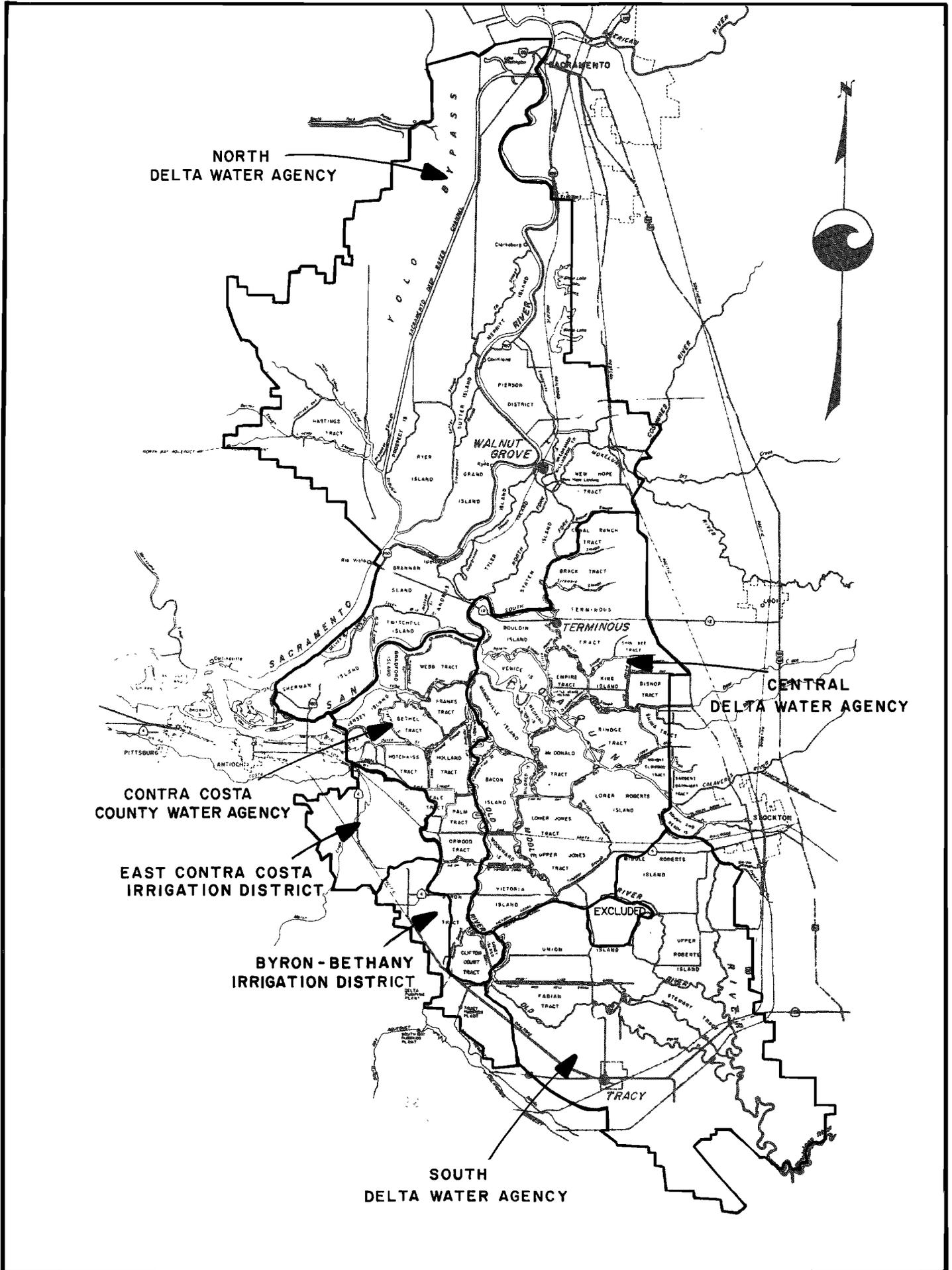
Beginning in 1974, six agencies representing agricultural water interests in the Delta succeeded to the overall interest of the Delta Water Agency, which ceased to exist December 31, 1973. These are the North Delta, Central Delta, South Delta, and Contra Costa County Water Agencies, and the East Contra Costa and Byron-Bethany Irrigation Districts as shown in Figure 4. Negotiations continued during 1977 with these agencies with Deputy Director Robert W. James assigned to head the Department's negotiators.

East Contra Costa Irrigation District - Negotiations with East Contra Costa Irrigation District continued in abeyance at the request of the District's staff pending more progress with one of the "big three agencies" to assure contracts with common terms if possible. Preliminary investigations were initiated to determine the feasibility of changing the District's source of supply from the Delta channels to the proposed connecting channel from the California Aqueduct to Contra Costa Canal.

North Delta Water Agency - Department representatives met with representatives of the Agency and the U. S. Bureau of Reclamation several times during 1977 to develop a basis for a Delta contract. A joint DWR-USBR proposal was submitted to the Agency and to the other five agencies early in 1977. The Agency submitted a draft contract to be reviewed by both DWR and USBR. DWR is preparing preliminary designs and cost estimates for the overland facilities needed on Sherman Island to be included in the contract.

South Delta Water Agency - Representatives of the Department, the USBR, and the Agency have met several times during the year. A joint DWR-USBR proposal was developed and submitted to the SDWA on January 7, 1977. The proposal included flow and quality criteria and would be phased for immediate action. Phase I is what can be done now. Phase II is what can be done during the filling of New

Figure 4: SACRAMENTO-SAN JOAQUIN DELTA AGENCIES



Melones Reservoir. Phase III is what can be done when New Melones is in full operation. Phase IV is what can be done after a cross-Delta transfer facility is operational. The Agency flatly refused our proposal and submitted another counterproposal. We have evaluated the counterproposal and are preparing another proposal for submission to the Agency early in 1978.

Central Delta Water Agency - Representatives of the Department and the Agency reinitiated meetings during 1977. By request of the Agency, the USBR has not participated in these discussions, which have been limited to items peculiar to the Agency's relationship to the State.

Suggested quality criteria have been exchanged although no conclusions were reached. The Cooperative Extension Service of the University of California completed its third year of data collection and evaluation in relation to water quality requirements of Delta agriculture. Several general conclusions were presented during the late rounds of the water rights hearings, but no specific conclusions have yet been made.

Contra Costa County Water Agency and Byron-Bethany Irrigation District - No negotiations have been initiated with either entity. It has been decided to postpone any action with these entities until some progress is achieved with the other Delta interests.

WATER CONTRACTS MANAGEMENT

The drought sharply curtailed 1977 water deliveries and brought about some unique water contracts management problems and activities. For the first time requested deliveries of entitlement water had to be reduced in accordance with the provisions of Article 18(a) of the water supply contracts. Four Southern California contractors made 536 917 000 cubic metres (435,279 acre-feet) of their 1977 allotted entitlement water available to ten other long-term contractors and five non-contractors, and for a reserve for drought relief. A total of 38 agreements in which the State was a party were negotiated and executed to accomplish this massive redistribution of project water. Determination of the quantity of project water delivered under the various agreements, as well as the many billings required by them, resulted in a considerable increase in work in this area during 1977.

The 31 agencies which have executed long-term contracts with the State are listed in Column (1) of Figure 5.

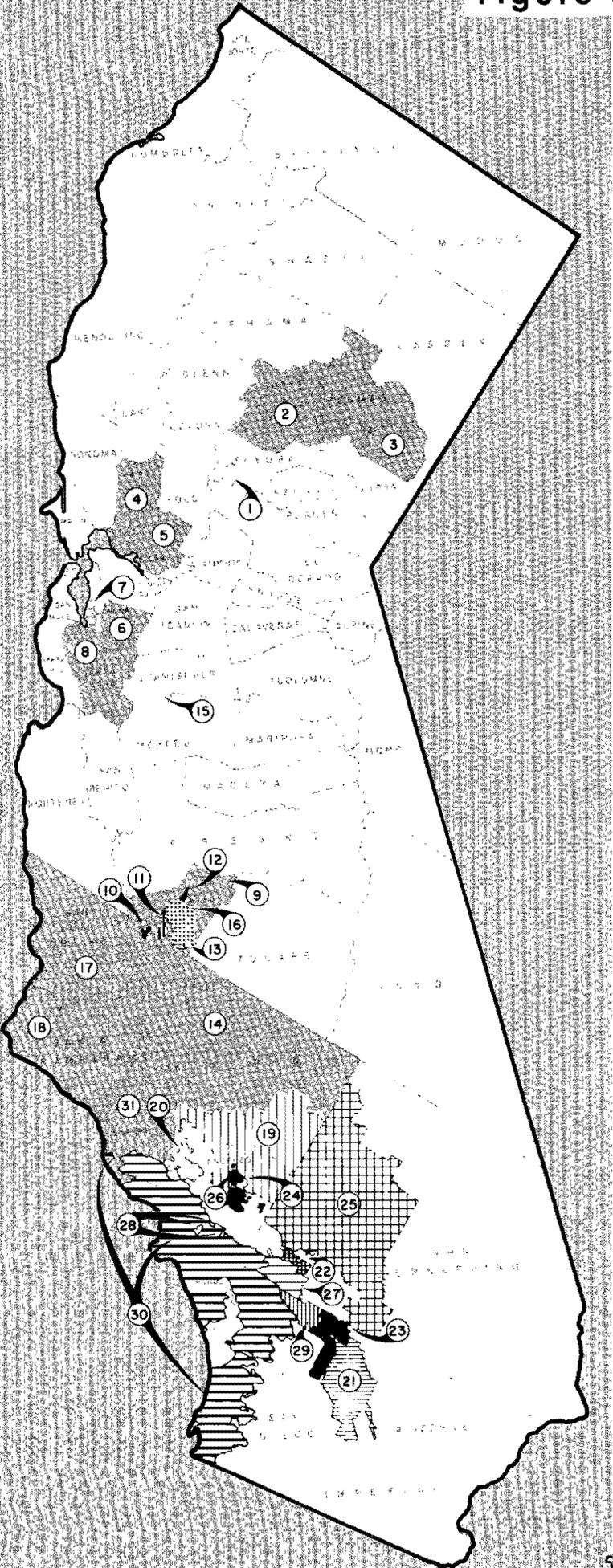
Column (4) of Figure 5 lists the total payments, through the end of 1977, which each contractor has made under terms of

its project water supply contract. Columns (5), (6) and (7) show area, assessed valuation and population applicable to each contractor, and that as a whole the 31 contractors account for a substantial portion of the State total for each of these three categories.

The maximum annual quantity of entitlement water each agency has contracted to receive is shown in Column (3) of Figure 5. Table B-4 shows for each contractor the annual entitlements which have been contracted for. In most cases the annual entitlement amounts are initially low and increase each year until the maximum entitlement amount is reached. For most contractors, initial delivery of the maximum annual entitlement is scheduled for 1990.

The latest estimated entitlement water requirements of each contractor are shown in Table B-5B. A comparison of Table B-4 and B-5B values shows that the projected needs of several contractors for project water are less than the amounts contracted for. The Department is studying means of lessening the adverse effects resulting from such differences.

Figure 5: LONG-TERM WATER SUPPLY



Location No.	Contracting Agency	Total Cumulative Deliveries through Dec. 31, 1977 (acre-feet) ^(a)	Maximum Annual Entitlement (acre-feet) ^(a)
UPPER FEATHER AREA (1)			
1	City of Yuba City	0	9,600
2	County of Butte	2,044	27,500
3	Plumas County Flood Control and Water Conservation District	<u>3,056</u>	<u>2,700</u>
Subtotal		5,100	39,800
NORTH BAY AREA			
4	Napa County Flood Control and Water Conservation District	44,537	25,000
5	Solano County Flood Control and Water Conservation District	<u>0</u>	<u>42,000</u>
Subtotal		44,537	67,000
SOUTH BAY AREA			
6	Alameda County Flood Control and Water Conservation Dist., Zone 7	146,103	46,000
7	Alameda County Water District	239,742	42,000
8	Santa Clara Valley Water District	<u>966,615</u>	<u>100,000</u>
Subtotal		1,352,460	188,000
SAN JOAQUIN VALLEY AREA			
9	County of Kings	13,830	4,000
10	Devil's Den Water District	130,369	12,700
11	Dudley Ridge Water District	455,539	57,700
12	Empire West Side Irrigation District	43,374	3,000
13	Hacienda Water District	57,675	8,500
14	Kern County Water Agency	4,614,121	1,153,400
15	Oak Flat Water District	57,032	5,700
16	Tulare Lake Basin Water Storage District	<u>1,022,024</u>	<u>110,000</u>
Subtotal		6,393,964	1,355,000
CENTRAL COASTAL AREA			
17	San Luis Obispo County Flood Control and Water Conservation District	0	25,000
18	Santa Barbara County Flood Control and Water Conservation District	<u>0</u>	<u>57,700</u>
Subtotal		0	82,700
SOUTHERN CALIFORNIA AREA			
19	Antelope Valley-East Kern Water Agency	71,506	138,400
20	Castaic Lake Water Agency	0	41,500
21	Coachella Valley County Water Dist.	26,800	23,100
22	Crestline-Lake Arrowhead Water Agency	4,488	5,800
23	Desert Water Agency	42,000	38,100
24	Little Rock Creek Irrigation Dist.	2,751	2,300
25	Mojave Water Agency	149	50,800
26	Palmdale Water District	0	17,300
27	San Bernardino Valley Municipal Water District	101,277	102,600
28	San Gabriel Valley Municipal Water District	21,129	28,800
29	San Geronimo Pass Water Agency	0	17,300
30	The Metropolitan Water District of Southern California	1,854,733	2,011,500
31	Ventura County Flood Control Dist.	<u>0</u>	<u>20,000</u>
Subtotal		2,124,833	2,497,500
TOTAL STATE WATER PROJECT		9,920,894	4,230,000
NET TOTALS, STATE WATER PROJECT SERVICE AREA			
TOTAL, STATE OF CALIFORNIA			
PERCENT, STATE WATER PROJECT OF TOTAL			

a) Metric conversion is acre-feet times 1233.5 equals cubic metres.
 b) Metric conversion is acres times 0.040469 equals hectares.
 c) Total for Plumas County Flood Control and Water Conservation District, including Last Chance Creek Water District.
 d) Total for County of Kings, including Dudley Ridge Water District, Empire West Side Irrigation District, Hacienda Water District, most of Tulare Lake Basin Water Storage District, and about 40% of Devil's Den Water District.

CONTRACTING AGENCIES

	Total Payments through Dec. 31, 1977 (dollars)	Gross Area as of July 1, 1977 (acres) ^(d)	Assessed Valuation 1977-1978 (dollars)	Estimated Population (July 1, 1977)	Location No.
	(4)	(5)	(6)	(7)	
	0	3,040	71,000,000	15,500	1
	212,000	1,064,230	572,651,338	125,900	2
	<u>176,000</u>	<u>1,644,000^(c)</u>	<u>148,000,000^(c)</u>	<u>14,700^(c)</u>	3
	388,000	2,711,270	791,651,338	156,100	
	2,315,000	508,000	441,253,285	95,000	4
	<u>171,000</u>	<u>528,400</u>	<u>723,372,682</u>	<u>197,500</u>	5
	2,486,000	1,036,400	1,164,625,967	292,500	
	7,456,000	272,000	505,217,000	105,000	6
	9,395,000	60,500	881,665,897	183,000	7
	<u>35,323,000</u>	<u>849,000</u>	<u>5,540,000,000</u>	<u>1,203,000</u>	8
	52,174,000	1,181,500	6,926,882,897	1,491,000	
	248,000	893,000 ^(d)	293,012,600 ^(d)	70,900 ^(d)	9
	2,574,000	8,500	1,258,700	50	10
	5,460,000	29,900	3,539,600	50	11
	471,000	7,500	744,600	50	12
	620,000	15,300	244,800	50	13
	84,349,000	5,057,200 ^(e)	2,617,431,100 ^(e)	363,300 ^(e)	14
	472,000	4,000	275,000	50	15
	<u>10,535,000</u>	<u>193,000</u>	<u>14,750,000</u>	<u>50</u>	16
	104,729,000	6,208,400	2,931,256,400	434,500	
	1,735,000	2,131,300	747,294,003	136,400	17
	<u>3,853,000</u>	<u>1,756,900</u>	<u>1,402,530,067</u>	<u>288,900</u>	18
	5,588,000	3,888,200	2,149,824,070	425,300	
	22,500,000	1,524,900	514,420,530	94,600	19
	9,334,000	125,000	284,787,692	63,600	20
	5,663,000	637,500	415,430,270	69,500	21
	1,622,000	55,100	90,491,270	10,200	22
	9,288,000	208,900	323,522,229	45,200	23
	431,000	43,300	7,494,770	1,600	24
	10,777,000	3,160,400	424,789,060	75,500	25
	2,822,000	73,800	67,560,110	24,600	26
	33,736,000	209,400	906,300,493	309,100	27
	8,926,000	16,300	502,495,317	149,400	28
	4,940,000	140,600	81,014,235	30,800	29
	557,917,000	3,133,300	51,073,062,957	11,800,000	30
	<u>3,950,000</u>	<u>1,179,500^(f)</u>	<u>2,449,060,010^(f)</u>	<u>468,600^(f)</u>	31
	671,906,000	10,508,000	57,140,428,943	13,142,700	
	837,271,000	25,533,770 ^(g)	71,104,669,615 ^(g)	15,942,100 ^(g)	
		24,170,855 ^(h)	69,436,185,219 ^(h)	15,632,450 ^(h)	
		100,314,000	106,694,000,000	21,896,000	
		24.1	65.1	71.3	

e) Total Kern County Water Agency, including about 80% of Devil's Den Water District, and about 50% of Antelope Valley-East Kern Water Agency.

f) Total for Ventura County Flood Control District, including portion of Antelope Valley-East Kern Water Agency, The Metropolitan Water District of Southern California, and Castaic Lake Water Agency.

g) Includes duplicate values for overlapping agency areas.

h) Excludes all overlapping areas.

The total cumulative deliveries through December 31, 1977, including both Project and non-Project water, made to each contractor through Project facilities are shown in Column (2) of Figure 5. Although several contractors have consistently taken less water each year than their annual entitlement amounts, total cumulative deliveries to contractors through 1977 substantially exceed the total cumulative entitlement water delivery amount through 1977, which is shown in Column (7) of Table 1, because of the surplus and local water deliveries which have been made to several Project contractors. Total deliveries of surplus and local water from project facilities to non-contractors are reflected by the difference between the total for all contractors shown in Column (2) of Figure 5 and the subtotal value for the period 1962-77 shown in Column (11) of Table 1.

Water Deliveries in 1977

Project service during 1977 entailed water deliveries to 37 entities of which 21 were long-term contractors and 16 non-contractors. Monthly deliveries to each of the 37 are shown in Table 3 and include:

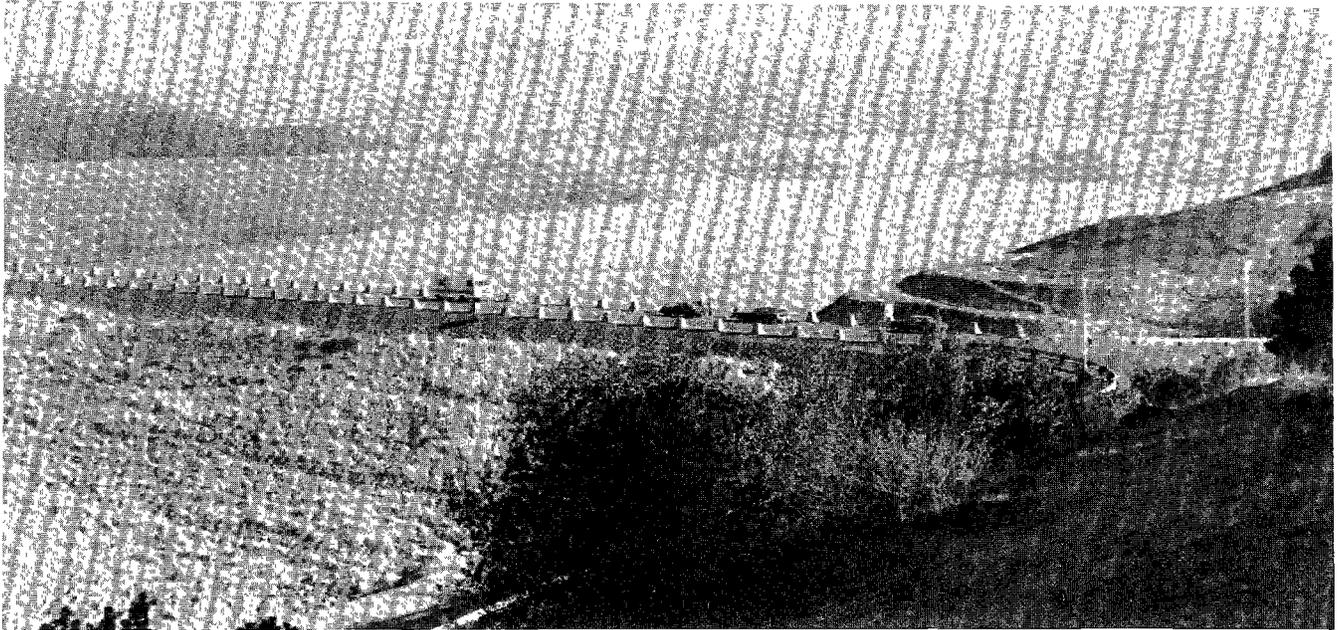
- o 700 986 000 cubic metres (568,290 acre-feet) of entitlement water to 20 long-term contractors.
- o 7 234 000 cubic metres (5,865 acre-feet) of 1976 entitlement water (carry-over) to three long-term contractors.
- o 381 359 000 cubic metres (309,168 acre-feet) of Metropolitan Exchange water to nine long-term contractors and four non-contractors.
- o 36 958 000 cubic metres (29,962 acre-feet) of purchased water to eight long-term contractors.
- o 23 282 000 cubic metres (18,875 acre-feet) of local water to four

long-term contractors and four non-contractors.

- o 36 031 000 cubic metres (29,210 acre-feet) of federal Central Valley Project water to Kern County Water Agency's Cross Valley Canal pursuant to contracts with the United States and nine agencies.
- o 2 282 000 cubic metres (1,850 acre-feet) of water purchases by the Bureau of Reclamation to alleviate critical shortages in the Bureau's Friant-Kern Canal Service Area to Kern County Water Agency's Cross Valley Canal pursuant to a State-United States contract dated June 20, 1977.

Entitlement Water Deliveries - Approved 1977 entitlement water delivery schedules issued on about December 1, 1976, called for deliveries of 2 048 274 000 cubic metres (1,660,538 acre-feet). Approved amounts shown in Column (1) of Table 2 were essentially the same as those requested the previous September. By early February it was evident that water supplies in 1977 would be critically low. As a result, the Department had to reduce 1977 deliveries of entitlement water in accordance with the provisions of Article 18 (a) of the water supply contracts. On February 15, 1977, it was announced that all 1977 entitlement water deliveries scheduled for agricultural use would be reduced by 60 percent and all other water by 10 percent. The reductions resulted in the allocations shown in Column (2) of Table 2. Agencies in the Feather River Service Area having water rights settlement contracts with the State were assessed 50 percent cut-backs, the maximum allowed under those contracts.

Three contractors were delivered a total of 7 234 000 cubic metres (5,865 acre-feet) of 1976 entitlement water during January 1977, as shown in Column (9) of Table 2, herein, pursuant to "carryover" agreements with the Department. Towards



View of low water in Lake Oroville, looking across the dam in November 1977.

TABLE 1: ANNUAL
(in acre-

Calendar Year	Annual Entitlements Under Long-term Water Supply Contracts						
	Feather River Area	North Bay Area	South Bay Area	San Joaquin Valley Area	Central Coastal Area	Southern California Area	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
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	11,538	0	0	0	11,538
1968	550	0	109,900	81,050	0	0	191,500
1969	620	0	98,700	168,075	0	0	267,395
1970	700	0	114,200	207,700	0	0	322,600
1971	890	0	116,200	258,500	0	0	375,590
1972	970	0	118,300	420,766	0	201,723	741,759
1973	1,100	0	120,400	392,352	0	472,400	986,252
1974	1,230	0	122,400	470,350	0	588,220	1,182,200
1975	1,610	0	124,500	556,509	0	704,250	1,386,869
1976	1,990	0	126,500	555,117	0	824,780	1,508,387
1977	2,420	0	128,600	594,100	0	942,201	1,667,321
Subtotal, 1962-1977	12,080	0	1,191,238	3,704,519	0	3,733,573	8,641,411
1978	2,850	0	130,700	651,600	0	1,060,722	1,845,872
1979	3,280	0	132,700	707,700	0	1,177,873	2,021,553
1980	4,710	19,250	134,800	765,000	2,200	1,304,914	2,230,874
1981	10,390	21,750	137,000	828,500	3,300	1,425,865	2,426,805
1982	12,270	24,400	139,200	889,200	6,600	1,546,806	2,618,476
1983	14,200	27,050	141,400	955,500	9,900	1,668,557	2,816,607
1984	16,130	29,600	143,600	1,017,900	14,900	1,790,398	3,012,528
1985	19,060	32,750	145,800	1,079,100	24,800	1,912,549	3,214,059
8 years, 1978-1985	82,890	154,800	1,105,200	6,894,500	61,700	11,887,684	20,186,774
10 years, 1986-1995	340,420	587,500	1,650,200	13,032,300	688,000	23,869,646	40,168,066
10 years, 1996-2005	386,460	670,000	1,878,000	13,550,000	827,000	24,975,000	42,286,460
10 years, 2006-2015	393,170	670,000	1,880,000	13,550,000	827,000	24,975,000	42,295,170
10 years, 2016-2025	398,000	670,000	1,880,000	13,550,000	827,000	24,975,000	42,300,000
10 years, 2026-2035	398,000	670,000	1,880,000	13,550,000	827,000	24,975,000	42,300,000

- a) Metric conversion is acre-feet times 1233.5 equals cubic metres.
b) Includes 1,610,693 acre-feet of 1978 entitlement water; 145,994 acre-feet of carryover from 1977; and 371,771 acre-feet of deferred deliveries pursuant to contract articles 12(d) and 14(b).
c) Includes 1,992,234 acre-feet 1979 entitlement water and 116,307 acre-feet of deferred deliveries pursuant to Article 12(d) of contracts.
d) Values for the years 1970 through 1975 include deliveries to short-term contractors (Mustang Water District, 1970-71; Tracy Golf and Country Club, 1974; Green Valley Water District, 1974-75).
e) Includes conveyance of federal CVP water to Cross Valley Canal, and for 1977 only, exchange water, and purchased water.

WATER REQUIREMENTS

feet)(a)

Estimated Annual Water Demands								Calendar Year
Deliveries to Contracting Agencies				Initial Fill	Operational Losses and Storage Changes	Recreation Water	Total	
Entitlement Water	Surplus Water(d)	Repayment Water and Regulated Delivery of Local Supply(e)	Total					
(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	
0	0	18,289	18,289	9	272	0	18,570	1962
0	0	22,456	22,456	71	185	0	22,712	1963
0	0	32,507	32,507	171	152	0	32,830	1964
0	0	44,105	44,105	93	729	0	44,927	1965
0	0	67,928	67,928	0	1,746	0	69,674	1966
11,538	0	53,605	65,143	8,328	4,212	0	77,683	1967
171,709	121,534	14,777	308,020	498,926	117,906	0	924,852	1968
193,020	72,397	18,829	284,246	510,614	72,196	0	867,056	1969
233,993	133,024	38,080	405,097	23,947	2,435	0	431,479	1970
357,340	296,019	44,119	697,478	23,207	5,812	8	726,505	1971
611,801	423,964	66,638	1,102,403	145,066	53,062	6,489	1,307,020	1972
694,460	296,416	42,511	1,033,387	214,941	53,798	1,083	1,303,209	1973
874,075	417,676	46,224	1,337,975	256,960	1,593	2,118	1,598,646	1974
1,223,990	622,902	63,793	1,910,685	110,149	-94,606	3,377	1,929,605	1975
1,373,002	580,110	115,217	2,068,329	67,686	-680,736	1,604	1,456,883	1976
568,290	0	396,780	965,070	0	-135,511	1,111	830,670	1977
6,313,218	2,964,042	1,085,858	10,363,118	1,860,168	-596,755	15,790	11,642,321	16 years, 1962-1977
2,128,458(b)	0	159,812	2,288,270	11,874	544,671	2,825	2,847,640	1978
2,108,541(c)	729,674	199,542	3,037,757	4,360	112,654	3,213	3,157,984	1979
2,170,409	490,993	199,807	2,861,209	4,360	30,939	4,918	2,901,426	1980
2,374,135	146,001	200,077	2,720,213	0	259,326	9,528	2,989,067	1981
2,565,431	166,012	193,217	2,924,660	0	108,312	11,627	3,053,999	1982
2,371,140	251,012	193,317	2,815,469	0	-31,328	12,727	2,796,868	1983
2,482,275	110,000	174,817	2,767,092	0	160,973	13,027	2,941,092	1984
2,548,840	0	151,300	2,700,140	0	112,414	23,900	2,836,454	1985
18,768,029	1,893,692	1,471,889	22,133,610	20,594	1,297,961	81,765	23,524,530	8 years, 1978-1985
33,579,625	-	-	33,579,625	0	1,116,633	243,740	34,939,998	10 years, 1986-1995
38,801,285	-	-	38,801,285	0	862,260	245,000	39,908,545	10 years, 1996-2005
41,198,970	-	-	41,198,970	0	1,025,515	245,000	42,469,485	10 years, 2006-2015
42,011,400	-	-	42,011,400	0	1,024,915	245,000	43,281,315	10 years, 2016-2025
42,067,400	-	-	42,067,400	0	1,076,000	245,000	43,388,400	10 years, 2026-2035

TABLE 2: SUMMARY OF 1977 ENTITLEMENT AND SURPLUS WATER SERVICE
TO LONG-TERM CONTRACTORS ^(a)

(acre-feet)^(b)

Long-term Contractor	Scheduled as of 12/1/76	Entitlement Water		Carried over to 1978	Metropolitan Exchange Water		Purchased Water		Delivery of Entitlement water carried over from 1976	Total Deliveries	Article 12(d) Credits to Future Delivery of 1977 Entitlement water
		Allocated Entitlement as of 2/15/77	Delivered		Allocated	Delivered	Allocated	Delivered			
UPPER FEATHER RIVER	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Butte County	1,050	1,800	706	0	0	-	0	-	-	706	0
Plumas County FC&WCD	620	620	303	0	0	-	0	-	-	303	0
SOUTH BAY AREA											
Alameda County FC&WCD, Zone 7	18,400	15,962	12,575	3,387	0	-	0	-	69	12,644	2,438
Alameda County WD	22,200	19,980	18,840	1,140	3,000	1,094	0	-	-	19,934	2,220
Santa Clara Valley WD	88,000	76,282	76,220	0	0	-	0	-	-	76,220	11,718
SAN JOAQUIN VALLEY AREA											
County of Kings	1,700	1,530	1,530	0	0	-	0	-	-	1,530	170
Devil's Den WD	12,700	5,080	5,075	0	6,185	6,185	651	651	-	11,911	7,620
Dudley Ridge WD	40,600	12,160	11,153	1,007	16,007	16,007	1,558	1,558	-	28,718	18,240
Empire West Side ID	3,000	1,200	738	462	1,463	1,463	154	154	-	2,355	1,800
Hacienda WD	4,200	1,680	1,680	0	1,941	1,941	215	215	-	3,836	2,520
Kern County Water Agency	483,600	218,990	188,407	30,583	223,869	219,358	22,172	22,172	2,900	432,837	264,610
Oak Flat WD	3,700	1,407	1,472	(-65)	1,708	1,708	190	190	-	3,370	2,155
Tulare Lake Basin WSD	54,800	21,920	13,505	8,415	25,312	25,312	2,809	2,809	2,896	44,522	32,880
SOUTHERN CALIFORNIA AREA											
Antelope Valley-East Kern WA	50,000	23,415	11,202	11,000	19,939	19,939	2,213	2,213	-	33,354	26,585
Castaic Lake WA	5,000	4,500	0	4,500	0	-	0	-	-	0	500
Coachella Valley County WD	8,421	7,579	0	0	0	-	(-7,579) ^(d)	0	-	0	842
Crestline-Lake Arrowhead WA	1,514	1,363	1,109	0	0	-	0	-	-	1,109	151
Desert Water Agency	13,000	11,700	0	0	0	-	(-11,700) ^(d)	0	-	0	1,300
Little Rock Creek	730	292	111	181	324	0	38	0	-	111	438
Mojave Water Agency	100	62	80	(-18) ^(c)	0	-	0	-	-	80	20
Palmdale Water District	0	0	0	0	0	-	0	-	-	0	0
San Bernardino Valley MWD	45,102	40,592	24,833	(-241) ^(c)	0	-	(-16,000) ^(d)	0	-	24,833	4,269
San Gabriel Valley MWD	10,000	9,000	8,996	0	0	-	0	-	-	8,996	1,000
The Metropolitan WD of SC	791,700	680,310	189,755	90,000	(-400,000) ^(d)	-	0	-	-	189,755	75,590
TOTAL	1,660,538	1,157,424	568,290	150,675	299,748	293,007	30,000	29,962	5,865	897,124	457,066

a) Surplus water was not available in 1977.

b) Metric conversion is acre-feet times 1233.5 equals cubic metres.

c) Represents amount taken in excess of that allocated. Art. 12(d) credits shown in column (11) have been reduced by these amounts and they are not included in carryover total.

d) Represents quantity of water made available to other contractors. Not included in total.

the end of the year, nine contractors elected to forego delivery of a portion of their allocated 1977 entitlement water supply until 1978 and signed agreements with the Department providing for such carryover. The purpose of the reduction in planned 1977 use and carryover was to obtain a more efficient use of the limited water supplies which would be available in the event the drought continued through 1978. Amounts carried over from 1977 to 1978 are shown in Column (4) of Table 2 and are, for the most part, equal to the difference between the allocated amount and the delivered amount for those contractors requesting the carryover.

Three contractors (Oak Flat Water District-80 000 cubic metres [65 acre-feet], Mojave Water Agency-22 000 cubic metres [18 acre-feet], and San Bernardino Valley Municipal Water District-297 000 cubic metres [241 acre-feet]) took delivery of Project water during 1977 in amounts exceeding their allocations. 1978 delivery rights will be reduced by the amount of excess water taken. Two contractors took substantially less than their allocated amounts, because their Project water needs were less than the amount they were entitled to. In all other cases, contractors either took delivery of all, or nearly all, of their 1977 allocations, or elected to carry over a portion to 1978.

Future Delivery Rights - Article 12(d) of the long-term contracts provides that a contractor may elect to take delivery in a succeeding year of any water which the State is unable to deliver as a result of causes beyond its control. As a result of the reductions made to initially scheduled 1977 entitlement deliveries because of the drought, contractors acquired a total credit for future delivery of 1977 entitlement water of 563 791 000 cubic metres (457,066 acre-feet). Credits acquired by each contractor in 1977 pursuant to Article 12(d) are shown in Column (11) of Table 2; total credits for each contractor, including those from previous years plus

1977 carryover water, are shown under the heading "Additions" in Table 3.

Surplus and Preconsolidation Repayment Water Service - No surplus water deliveries were possible during 1977 because of the reduced availability of Project water due to the drought. Preconsolidation repayment water, which must come from surplus water supplies could therefore not be delivered either in 1977. As a result 105 310 000 cubic metres (85,375 acre-feet) remains to be delivered by 1985 pursuant to the J. G. Boswell Company preconsolidation water contract and 73 920 000 cubic metres (58,927 acre-feet) pursuant to the Belridge Oil Company contract.

Metropolitan Exchange Water - In January, 1977 the Metropolitan Water District of Southern California indicated that up to 493 400 000 cubic metres (400,000 acre-feet) of additional Colorado River water could be pumped and used within the District during 1977, and that the use of State Project water could be reduced by the same amount. Negotiations were undertaken immediately on agreements to provide for this exchange of Colorado River water for State Project water and for the allocation by the State of the released Project water to agencies facing critical water shortages. Metropolitan made the full 493 400 000 cubic metres (400,000 acre-feet) of its entitlement water available to the State under three agreements as follows:

<u>Agreement Date</u>	<u>Cubic Metres</u>	<u>Acre-feet</u>
March 15, 1977	394 720 000	320,000
August 31, 1977	17 762 000	14,400
November 1, 1977	80 918 000	65,600
Total	493 400 000	400,000

Based on written expressions of need, sent in response to a February 18, 1977 telegram from the Department, and information received at a February 24, 1977 public hearing, the exchange water made available to the State by the March 15,

TABLE 3: WATER

(in acre-

Line No.	Contracting Agency and Type of Service	Month							
		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.
FEATHER RIVER SERVICE AREA									
County of Butte:									
1.	Entitlement Water	24	19	65	66	0	67	94	204
Last Chance Creek Water District:									
2.	Regulated Delivery of Local Supply	0	0	0	30	671	2,748	1,548	1,223
Plumas County Flood Control & Water Cons. District:									
3.	Entitlement Water	6	3	2	28	13	68	59	60
Thermalito Irrigation District:									
4.	Regulated Delivery of Local Supply	0	1	1	11	0	61	57	60
5.	AREA TOTAL	30	23	68	135	684	2,944	1,758	1,547
NORTH BAY SERVICE AREA									
6.	Napa County Flood Control & Water Cons. District: Regulated Delivery of Local Supply	768	662	657	515	755	821	571	768
SOUTH BAY SERVICE AREA									
Alameda County Flood Control & Water Cons. Dist., Zone 7									
7.	Entitlement Water	546	622	752	1,119	1,131	1,508	1,672	1,684
8.	Carryover Water	69	0	0	0	0	0	0	0
9.	Regulated Delivery of Local Supply	207	59	0	0	0	0	0	0
10.	Agency Total	822	681	752	1,119	1,131	1,508	1,672	1,684
Alameda County Water District:									
11.	Entitlement Water	479	588	1,440	1,827	1,717	2,632	2,415	2,287
12.	Exchange Water	0	0	0	0	0	0	0	0
13.	Regulated Delivery of Local Supply	262	448	0	0	0	0	0	0
14.	Agency Total	741	1,036	1,440	1,827	1,717	2,632	2,415	2,287
Marina Municipal Water District:									
15.	Exchange Water	0	0	0	786	959	934	965	950
San Francisco Water Department									
16.	Exchange Water	0	0	0	0	0	0	0	0
Santa Clara Valley Water District:									
17.	Entitlement Water	4,263	4,397	4,386	5,700	7,415	8,399	8,641	8,053
Skyland Municipal Water District:									
18.	Exchange Water	0	0	0	0	0	0	0	0
19.	AREA TOTAL	5,826	6,114	6,578	9,432	11,222	13,473	13,693	12,974
SAN JOAQUIN VALLEY SERVICE AREA									
County of Kings:									
20.	Entitlement Water	185	185	161	31	0	162	162	161
Devil's Den Water District:									
21.	Entitlement Water	2,362	743	115	0	0	229	552	1,000
22.	Exchange Water	0	0	454	13	189	2,300	2,217	952
23.	Purchased Water	0	0	50	1	21	256	246	70
24.	Agency Total	2,362	743	619	14	210	2,785	3,015	2,022
Dudley Ridge Water District:									
25.	Entitlement Water	592	511	595	1,353	596	1,591	3,400	689
26.	Exchange Water	0	0	280	58	3,005	3,087	3,383	3,181
27.	Purchased Water	0	0	31	6	334	343	376	268
28.	Regulated Delivery of Local Supply	0	0	0	0	0	0	0	200
29.	Agency Total	592	511	906	1,417	3,935	5,021	7,159	4,338
Empire West Side Irrigation District:									
30.	Entitlement Water	0	0	138	118	194	0	0	0
31.	Exchange Water	0	0	185	339	162	235	25	194
32.	Purchased Water	0	0	21	38	18	26	3	21
33.	Agency Total	0	0	344	495	374	261	28	215
Hacienda Water District:									
34.	Entitlement Water	23	204	154	180	0	392	723	0
35.	Exchange Water	0	0	419	152	7	457	509	382
36.	Purchased Water	0	0	46	17	1	51	57	42
37.	Agency Total	23	204	619	349	8	900	1,289	424
Kern County Water Agency:									
38.	Entitlement Water	4,511	15,095	15,595	13,360	2,314	28,996	31,430	16,331
39.	Exchange Water	0	0	14,169	13,332	21,689	43,175	52,727	65,577
40.	Purchased Water	0	0	1,572	1,480	2,408	4,792	5,852	6,068
41.	Carryover Water	2,900	0	0	0	0	0	0	0
42.	Agency Total	7,411	15,095	31,336	28,172	26,411	76,963	110,009	87,976
Oak Flat Water District:									
43.	Entitlement Water	20	0	253	131	0	108	265	130
44.	Exchange Water	0	0	155	274	139	274	526	273
45.	Purchased Water	0	0	17	30	16	30	59	31
46.	Agency Total	20	0	425	435	155	412	850	434
Tulare Lake Basin Water Storage District:									
47.	Entitlement Water	197	3,160	1,960	803	274	0	133	2,320
48.	Exchange Water	0	0	891	414	0	4,754	2,853	8,594
49.	Purchased Water	0	0	99	46	0	527	317	954
50.	Carryover Water	2,896	0	0	0	0	0	0	0
51.	Agency Total	3,093	3,160	2,950	1,263	274	5,281	3,303	11,868
United States Bureau of Reclamation:									
52.	Conveyance of Federal CVP Water	0	3,406	580	1,412	328	6,080	7,211	2,698
53.	Water Bank Water	0	0	0	0	0	1,350	900	0
53A.	Exchange Water	0	0	0	0	0	2,455	1,228	1,228
54.	Agency Total	0	3,406	580	1,412	3,602	9,885	8,939	3,926
Westlands Water District:									
55.	Regulated Delivery of Local Supply	0	0	0	0	0	0	0	300
Wheeler Ridge Water Storage District									
56.	Regulated Delivery of Local Supply	0	0	0	0	102	125	198	274
57.	AREA TOTAL	13,686	23,304	37,940	33,588	35,071	101,795	134,952	111,938
SOUTHERN CALIFORNIA SERVICE AREA									
Antelope Valley-Jac Kern Water Agency:									
58.	Entitlement Water	143	202	119	41	939	1,797	3,210	4,180
59.	Exchange Water	0	0	567	2,840	1,113	3,008	3,729	1,826
60.	Purchased Water	0	0	62	316	123	334	414	203
61.	Agency Total	143	202	748	3,197	2,175	5,139	7,353	6,209
62.	Castaic Lake Water Agency	0	0	0	0	0	0	0	0
63.	Coachella Valley County Water District	0	0	0	0	0	0	0	0
Crestline-Lake Arrowhead Water Agency:									
64.	Entitlement Water	27	74	48	83	47	80	123	221
65.	Desert Water Agency	0	0	0	0	0	0	0	0
Littlerock Creek Irrigation District:									
66.	Entitlement Water	0	0	2	5	18	6	24	16
Mojave Water Agency:									
67.	Entitlement Water	22	0	0	0	0	0	5	35
68.	Palmdale Water District	0	0	0	0	0	0	0	0
San Bernardino Valley Municipal Water District:									
69.	Entitlement Water	2,678	3,184	2,444	682	672	179	593	1,076
San Gabriel Valley Municipal Water District:									
70.	Entitlement Water	537	474	424	483	1,282	1,303	1,395	1,605
The Metropolitan Water Dist. of Southern California:									
71.	Entitlement Water	65,187	53,729	13,540	14,729	7,925	8,765	12,562	3,350
72.	AREA TOTAL	68,644	57,663	17,206	19,179	12,119	15,472	22,055	12,412
ALL AGENCIES:									
73.	Entitlement Water	81,852	83,190	42,193	40,739	24,537	56,282	87,458	43,302
74.	Exchange Water	0	0	17,120	18,208	30,537	60,679	66,162	83,157
75.	Purchased Water	0	0	1,898	1,924	2,921	6,359	7,324	7,657
76.	Carryover Water	5,865	0	0	0	0	0	0	0
77.	Subtotal	87,717	83,190	61,211	60,881	57,995	123,320	162,944	134,116
78.	Regulated Delivery of Local Supply	1,237	1,170	658	556	1,528	3,755	2,374	2,825
79.	Conveyance of Federal CVP and Water Bank Water	0	3,406	580	1,412	328	7,430	7,711	2,698
80.	TOTAL WATER	88,954	87,766	62,449	62,849	59,851	134,505	173,029	139,639

a) Metric conversion is acre-feet times 123.5 equals cubic meters.
 b) Includes 457,086 acre-feet of 1977 entitlement water pursuant to Article 12(d),
 160,676 acre-feet of 1977 entitlement carryover water, and 161,408 acre-feet of credits
 acquired before 1977. (See Table 2 herein and Table 3 of Bulletin 132-77.)

DELIVERIES IN 1977

feet)^(a)

Month					1977 Contract Entitlement	1977 Entitlement Not Delivered	Net Cumulative Entitlement Not Delivered thru		Net Entitlement Credits as of January 1, 1978		Line No.
Sep	Oct.	Nov.	Dec.	Total			1976	1977	Additions ^(b)	Reductions	
146	10	0	11	706	1,800	1,094	4,412	5,506	-	-	1.
152	0	0	0	6,372	-	-	-	-	-	-	2.
32	22	5	5	303	620	317	1,157	1,474	-	-	3.
70	102	19	36	418	-	-	-	-	-	-	4.
400	134	24	52	7,799	2,420	1,411	5,569	6,980	-	-	5.
829	887	636	357	8,226	-	-	-	-	-	-	6.
1,608	929	540	464	12,575	18,400	5,825	46,670	52,495	47,563	0	7.
0	0	0	0	69	-	-	-	-	-	-	8.
0	0	0	30	296	-	-	-	-	-	-	9.
1,608	929	540	494	12,940	-	-	-	-	-	-	10.
2,156	1,833	721	745	18,840	22,200	3,360	97,498	100,858	81,592	0	11.
0	0	571	523	1,094	-	-	-	-	-	-	12.
0	0	0	0	710	-	-	-	-	-	-	13.
2,156	1,833	1,292	1,268	20,644	-	-	-	-	-	-	14.
0	0	0	0	4,594	-	-	-	-	-	-	15.
429	353	1,235	1,355	3,372	-	-	-	-	-	-	16.
8,167	8,051	4,965	3,783	76,220	88,000	11,780	38,714	50,494	11,718	0	17.
10	0	0	0	10	-	-	-	-	-	-	18.
12,370	11,166	8,032	6,900	117,780	128,600	20,965	182,882	203,847	140,873	-	19.
0	0	0	483	1,530	1,700	170	0	170	170	0	20.
74	0	0	0	5,075	12,700	7,625	0	7,625	7,620	-	21.
60	0	0	0	6,185	-	-	-	-	-	-	22.
7	0	0	0	651	-	-	-	-	-	-	23.
141	0	0	0	11,911	-	-	-	-	-	-	24.
102	0	355	1,369	11,153	30,400	19,247	0	19,247	19,247	-	25.
1,560	810	643	0	16,007	-	-	-	-	-	-	26.
40	89	71	0	1,558	-	-	-	-	-	-	27.
0	0	0	0	200	-	-	-	-	-	-	28.
1,702	899	1,069	1,369	28,918	-	-	-	-	-	-	29.
0	0	288	0	738	3,000	2,262	0	2,262	2,262	0	30.
0	147	176	0	1,463	-	-	-	-	-	-	31.
0	12	15	0	154	-	-	-	-	-	-	32.
0	159	479	0	2,355	-	-	-	-	-	-	33.
0	4	0	0	1,680	4,200	2,520	0	2,520	2,520	0	34.
13	2	0	0	1,941	-	-	-	-	-	-	35.
1	0	0	0	215	-	-	-	-	-	-	36.
14	6	0	0	3,836	-	-	-	-	-	-	37.
16,766	6,674	7,050	10,285	188,407	483,600	295,193	0	295,193	295,193	-	38.
3,944	4,745	0	0	219,358	-	-	-	-	-	-	39.
0	0	0	0	22,172	-	-	-	-	-	-	40.
0	0	0	0	2,900	-	-	-	-	-	-	41.
20,710	11,419	7,050	10,285	432,837	-	-	-	-	-	-	42.
208	80	277	0	1,472	3,700	2,293	0	2,293	2,155	2,466	43.
67	0	0	0	1,708	-	-	-	-	-	-	44.
7	0	0	0	190	-	-	-	-	-	-	45.
282	80	277	0	3,370	-	-	-	-	-	-	46.
0	0	40	4,618	13,505	54,800	41,295	0	41,295	41,295	74,852 ^(e)	47.
179	300	2,701	4,626	25,312	-	-	-	-	-	-	48.
19	33	300	514	2,809	-	-	-	-	-	-	49.
0	0	0	0	2,896	-	-	-	-	-	-	50.
198	333	3,041	9,758	44,522	-	-	-	-	-	-	51.
6,001	1,494	0	0	29,210	-	-	-	-	-	-	52.
0	0	0	0	1,850	-	-	-	-	-	-	53.
0	0	0	0	8,185	-	-	-	-	-	-	53A.
6,001	1,494	0	0	39,245	-	-	-	-	-	-	54.
0	0	0	0	300	-	-	-	-	-	-	55.
342	430	557	325	2,353	-	-	-	-	-	-	56.
29,390	14,820	12,473	22,220	571,177	594,100	370,775	0	370,775	370,462	77,318	57.
244	169	95	63	11,202 ^(d)	50,000	38,798	116,818	155,616	42,372	-	58.
4,885	1,858	113	0	10,939	-	-	-	-	-	-	59.
543	206	12	0	2,213	-	-	-	-	-	-	60.
5,672	2,233	220	63	33,354	-	-	-	-	-	-	61.
0	0	0	0	0	11,400	11,400	27,636	39,036	5,000	-	62.
0	0	0	0	0	8,421	842	5,200	13,621	842	-	63.
126	120	99	111	1,109	2,030	921	2,367	3,288	151	-	64.
0	0	0	0	0	13,000	1,300	8,000	21,000	1,300	-	65.
7	2	31	0	111	730	619	51	670	619	-	66.
0	18	0	0	80	20,200	20,120	65,331	85,451	20	-	67.
0	0	0	0	0	8,220	8,220	21,300	29,520	0	-	68.
3,057	2,165	3,229	4,874	24,833	57,500	16,667	130,733	147,400	4,269	-	69.
0	0	1,493	0	8,996	14,800	5,804	38,889	44,693	1,000	-	70.
2,095	2,474	2,721	2,678	189,755	755,900	166,145	510,094	676,239	102,239	-	71.
10,957	7,012	7,793	7,726	258,238	942,201	270,836	926,419	1,216,534	157,812	-	72.
34,788	22,551	21,909	29,489	568,290	1,667,321	663,987	1,114,870	1,798,136	669,147	77,318	73.
11,147	8,215	5,439	6,504	309,168	-	-	-	-	-	-	74.
617	340	398	514	29,962	-	-	-	-	-	-	75.
0	0	0	0	5,865	-	-	-	-	-	-	76.
46,552	31,106	27,746	36,507	913,285	-	-	-	-	-	-	77.
1,393	1,419	1,212	748	18,875	-	-	-	-	-	-	78.
6,001	1,494	0	0	31,060	-	-	-	-	-	-	79.
53,946	34,019	28,958	37,255	963,220	1,667,321	663,987	1,114,870	1,798,136	669,147 ^(d)	77,318	80.

a) Includes a 870 acre-foot downward adjustment to compensate for faulty meter readings. Adjustment not reflected in Tables B-5a and B-5b.
d) In addition to this amount, 145,300 acre-foot of preconsolidation repayment water remains to be delivered pursuant to contracts with Bridge Oil Company and J. G. Bonwell Company.
e) Does not include possible credits for years 1974 and 1975.

1977, agreement was allocated for urban and agricultural uses to both long-term contractors and non-contractors.

Metropolitan exchange water made available by the August 31, 1977 agreement was offered to all long-term contractors, but because of cost and the fact that it was late in the season, only two elected to take any. The full amount was allocated to Kern County Water Agency, 16 282 000 cubic metres (13,200 acre-feet), and Dudley Ridge Water District 1 480 000 cubic metres (1,200 acre-feet). The exchange water made available by the November 1, 1977 agreement was not allocated but held in project reservoirs

to meet future emergencies in the event the drought should continue into the third year.

In all, 16 agreements were executed under which ten long-term water supply contractors acquired the rights to a total of 369 739 000 cubic metres (299,748 acre-feet) of Metropolitan Exchange Water (see Column (5) of Table 2). An additional five agreements were executed under which four non-contractors and the Joint Water District's Board, a Feather River water rights contractor, acquired the rights to delivery of 36 588 000 cubic metres (29,662 acre-feet) of exchange water as follows:

Agency	Maximum Delivery Amount Under Agreement	
	cubic metres	(acre-feet)
Joint Water Districts Board	822 744	667
Marin Municipal Water District	13 321 800	10,800
City of San Francisco	12 335 000	10,000
Skylonda Mutual Water Company	12 335	10
U. S. Bureau of Reclamation	<u>10 096 197</u>	<u>8,185</u>
Total	36 588 077	29,662

Actual deliveries of Metropolitan exchange water to contractors and non-contractors are shown in Table 3.

A total of 87 073 000 cubic metres (70,590 acre-feet) of exchange water was not contracted for, while an additional 24 969 000 cubic metres (20,242 acre-feet) which was under contract and available for delivery was not taken during 1977. Of the latter amount, 15 831 000 cubic metres (12,834 acre-feet) was slated for the City of San Francisco and Marin Municipal Water District, which had agreements extending to February 15, 1978, rather than through the end of 1977 like the others. San Francisco

took an additional 1 200 000 cubic metres (973 acre-feet) in early January, and both Marin and San Francisco would doubtless have taken more in 1978 if the drought had continued. Of the total exchange water made available by Metropolitan, an unallocated supply of 110 841 000 cubic metres (89,859 acre-feet) was thus available in Project reservoirs after all exchange agreements had expired.

Purchased Water - Three agencies agreed to release all or a part of their 1977 allocated supply of entitlement water for use by other contractors faced with critical shortages, as shown below:

Contractor	Allocated Entitlement		Quantity Released	
	cubic metres	(acre-feet)	cubic metres	(acre-feet)
Coachella Valley County WD	9 348 696	7,579	9 348 696	7,579
Desert Water Agency	14 431 950	11,700	14 431 950	11,700
San Bernardino Valley MWD	<u>50 070 232</u>	<u>40,592</u>	<u>19 736 000</u>	<u>16,000</u>
Total	73 850 878	59,871	43 516 646	35,279

In each case the released Project water had been slated for ground water replenishment use so the three were able to forego delivery of the water and use their local supply.

After entering into agreements with each of the three agencies under which the water was purchased by the State, the water was allocated for agricultural use to nine long-term water supply contractors and the Joint Water Districts Board. Agreements were executed under which 37 005 000 cubic metres (30,000 acre-feet) of purchased water were made available to the nine as shown in Column (7) of Table 2. The Joint Water Districts Board entered into an agree-

ment for 222 000 cubic metres (180 acre-feet) and the remaining 6 290 000 cubic metres (5,099 acre-feet) was placed in an unallocated urban reserve for the San Francisco Bay Area.

As shown in Table 2, all long-term contractors except Littlerock Creek Irrigation District took delivery of all the purchased water allocated to them. Neither Littlerock or the Joint Water Districts Board took any, however, and none of the purchased water in the unallocated urban reserve was delivered. Therefore, 6 589 000 cubic metres (5,317 acre-feet) of purchased water remained in Project reservoirs at year's end.



Aerial view of California Aqueduct turnout to the Kern County Water Agency's Cross Valley Canal.

Wheeling of Federal Water - The State wheels Federal Central Valley Project water to Kern County Water Agency's Cross Valley Canal turnout for the benefit of nine agencies in Kern, Tulare, and Fresno Counties. The Bureau furnishes the water and the power for such wheeling pursuant to a contract between the State and the United States. The State has also contracted with each of the agencies for which the wheeling is provided. These contracts specify scheduling procedures, provide for billing and payment for the wheeling service and, in total, provide for the wheeling of up to 155 214 000 cubic metres (125,832 acre-feet) of CVP water per year.

Initial wheeling schedules issued by the Department in December 1976, provided tentative approval for wheeling the amounts requested. The schedules were tentative as there was some doubt the Bureau would be able to provide all the water scheduled because of the worsening drought conditions and since it might be necessary to stop wheeling because of

Delta outflow water quality problems. The Department had previously notified all concerned that it would not wheel water to the Cross Valley Canal during any period when the Bureau was not providing its share of Delta outflow needed to meet State and federal water quality standards established under the Federal Water Quality Pollution Control Act.

A total of 36 031 000 cubic metres (29,210 acre-feet) of the 155 214 000 cubic metres (125,832 acre-feet), initially approved on a tentative basis, was delivered. Almost all of the reduction was due to the limited availability of Central Valley Project water because of the drought. (Further discussion of the "wheeling" program in 1977 is included in Chapter I.) The following tabulation shows the agencies that have contracted with the State for wheeling service, the maximum annual amount each has contracted to receive, the amount wheeled for each during 1977, and the State's charges for the wheeling service:

Agency	Maximum Annual Contractual Amount		Wheeled in 1977		Charge for 1977 Wheeling (dollars)
	Cubic Metres	Acre-foot	Cubic Metres	Acre-foot	
County of Fresno	3 701 000	3,000	913 000	740	\$ 4,151
County of Tulare	3 701 000	3,000	913 000	740	4,151
Ducor Irrigation District	1 480 000	1,200	365 000	296	1,662
Hills Valley Irrigation District	2 647 000	2,146	654 000	530	2,976
Kern-Tulare Water District	49 340 000	40,000	11 068 000	8,973	50,338
Lower Tule River Irrigation District	38 364 000	31,102	8 842 000	7,168	40,214
Pixley Irrigation District	38 364 000	31,102	9 458 000	7,668	43,017
Rag Gulch Water District	16 406 000	13,300	3 518 000	2,852	16,001
Tri Valley Water District	1 211 000	982	300 000	243	1,362
Total	155 214 000	125,832 ^(a)	36 031 000	29,210	\$163,872

a) At year's end, amendments revising the contractual amounts of two contracts plus a new contract with Saucelito Irrigation District which would result in increasing the total to 158 258 000 cubic metres (128,300 acre-feet) were being considered.

Miscellaneous Water Delivery Activities

- The Department received many requests during 1977 for project water transfers in addition to those involving the redistribution of entitlement water released by the four Southern California Agencies, and for the use of project facilities for the conveyance of nonproject water. To the extent possible the Department complied with such requests.

Eight requests submitted by the U. S. Bureau of Reclamation on behalf of landowners in Westlands Water District for permission to pump local general water into the State-federal joint California Aqueduct facilities, and to take concurrent delivery of an equal amount of water from the aqueduct at a nearby turnout, were approved. In each case, approval was based on a determination that introduction of the local ground water into aqueduct waters would not have a significant adverse effect on the quality of water delivered to State contractors. There was no charge by the State for this use of the joint facilities as it was assumed that only that capacity allocated to federal use was utilized.

Two contractors asked that a portion of the project water scheduled for delivery within their service areas be instead delivered to Westlands Water District. The requested transfers were to allow water users, one in each contractor's service area, to utilize a portion of their scheduled Project water on land being farmed by them in Westlands where a more critical need for additional water existed.

Subsequent to approval by Westlands, the Bureau of Reclamation and the State, 5 551 000 cubic metres (4,500 acre-feet) of Devil's Den's Project entitlement water and 1 243 000 cubic metres (1,008 acre-feet) of Tulare Lake Basin's Project entitlement water were delivered to the Westlands Water District.

The Bureau of Reclamation obtained a supplemental water supply in 1977 by pur-

chasing water from entities in the Sacramento Valley under the "water bank" provisions of Public Law 95-18. Water bank water was acquired to alleviate critical shortages in the Federal Friant-Kern service area.

In order to make the water bank water available in the service area it was necessary to use the California Aqueduct and Kern County Water Agency's Cross Valley Canal. A contract was therefore executed between the State and the United States which provided for conveyance of the water by the State from California Aqueduct Reach 8C to the Cross Valley Canal turnout in Reach 12E at a charge of \$0.00263477 per cubic metre (\$3.25 per acre-foot). Pursuant to the agreement, 2 282 000 cubic metres (1,850 acre-feet) were conveyed by the State for a total charge of \$6,013.

In August, 1977, 617 000 cubic metres (500 acre-feet) of Kaweah River water was made available for use in other areas. Dudley Ridge Water District acquired 247 000 cubic metres (200 acre-feet) of this water and the balance of 370 000 cubic metres (300 acre-feet) was acquired by Westlands Water District. A complex series of exchanges was necessary for the two districts to acquire these quantities of additional water. The Department's participation involved conveyance of 617 000 cubic metres (500 acre-feet) of federal Central Valley Project water from the Delta to Westlands Water District. The districts were charged \$2,805 for this service.

Wheeler Ridge-Maricopa Water Storage District entered into several agreements with the Department to obtain more efficient use of local well water through the use of Project facilities. Four of these agreements were to allow ground water pumped from District wells to be diverted to turnout forebays, where it could be pumped into District distribution systems. None of the local water was allowed to enter the California Aqueduct. There was no charge in connection with these agreements.

Two agreements permitted locally pumped ground water from approved wells to be put into the aqueduct with concurrent delivery to the District of the same quantity of water from aqueduct turnouts. No Project pumping or storage was involved. There was a \$0.00121605 per cubic metre (\$1.50 per acre-foot) charge to cover State operation and administrative costs. A total of 2 902 000 cubic metres (2,353 acre-feet) of water from four wells was put into the aqueduct pursuant to these agreements, for which the District was charged \$3,530.

A seventh agreement between the Department and Kern County Water Agency on behalf of Wheeler Ridge-Maricopa was executed late in the year. This agreement provided for the conveyance and storage in Project facilities of local ground water pumped into the aqueduct. It also provided for a storage charge, administration charge, a use-of-facilities charge, and a power charge if Project pumping plants were used to deliver the water. Soon after the agreement was signed it was learned that The Metropolitan Water District would make a portion of its entitlement water available to

other contractors in 1978. This appeared to be a more attractive source of supplemental water to the District so the agreement was not utilized.

Project Water Delivery Plans

Project contractors submitted estimated Project water delivery requirements in September, 1977, covering the seven-year period of 1978 through 1984. Estimates for both entitlement and surplus water were submitted.

Entitlement Water - The following tabulation shows the total estimated entitlement delivery requests received in 1977 as well as those received in prior years.

Pursuant to Article 12(a) (2) of the long-term water supply contract, the State is to furnish each agency with an approved monthly water delivery schedule by December 1 for the following year. For the first time since project water deliveries began, this was not done in 1977. Contractors were notified by Water Service Contractors Council Memo No. 1182, dated November 8, 1977, that the 1978 schedules would be late.

(acre-feet)^(b)

Projections Submitted in:	For Delivery of Entitlement Water During: ^(a)						
	1978	1979	1980	1981	1982	1983	1984
1977	2,128,452	2,108,541	2,170,409	2,374,135	2,574,831	2,371,140	2,482,275
1976	1,835,343	1,919,070	2,026,880	2,168,335	2,273,925	2,376,990	
1975	1,704,780	1,813,362	1,931,607	2,027,770	2,131,960		
1974	1,794,222	1,925,483	2,022,548	2,112,251			
1973 ^(c)	1,776,735	1,864,075					
1972	1,683,016						
Contract Amount	1,845,872	2,021,553	2,230,874	2,426,805	2,618,476	2,816,607	3,012,528

a) Includes anticipated delivery of Article 12(d) water in 1978 and 1979 and amounts of 1977 entitlement water carried over for delivery in early 1978. Does not include delivery of non-project water to Napa County Flood Control and Water Conservation District through 1982.

b) Metric conversion is acre-feet times 1233.5 equals cubic metres.

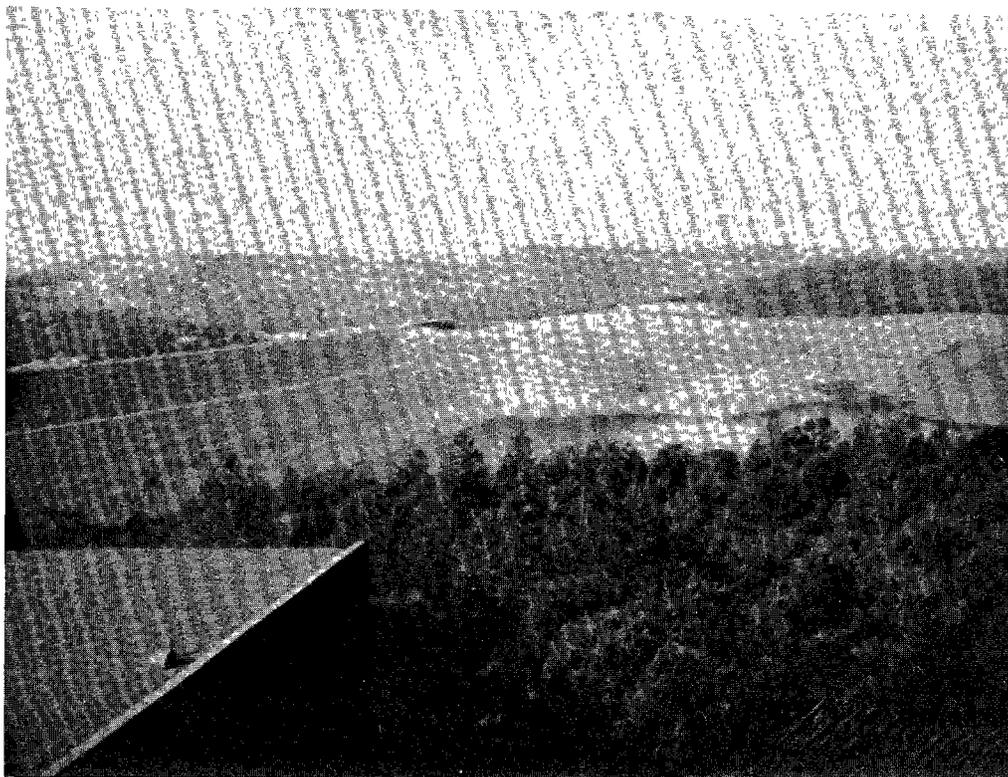
c) Prior to 1974, six-year requests were submitted.

During the summer and fall of 1977, a decision tool was developed for use by the Department in determining the quantity of project water which could be approved for delivery to contractors (see Chapter I).

Initial schedules for 1978 were issued in early January and called for a total delivery of 1978 entitlement water of 801 775 000 cubic metres (650,000 acre-feet) the maximum it was certain could be delivered at that time as determined through use of the decision tool. This limited supply required a 96 percent reduction in entitlement water requested for agricultural use and a 46 percent reduction in all other requested entitlement water. Carryover water, see Column (4) of Table 2, although available in Project reservoirs for delivery in 1978, was not included in the initial schedules. Contractors were told that (1) schedules would be updated monthly during January through April to reflect

any changes in water supply conditions and (2) carryover water would be included on an updated schedule after a schedule request had been received. The 117 400 000 cubic metres (95,176 acre-feet) of emergency relief water remaining in Project reservoirs at year's end was not scheduled, as it was being held in reserve to alleviate critical water shortages that might develop in 1978.

Surplus, Preconsolidation, Repayment, and Article 12(d) Water - Since there was no guarantee that the project could deliver anything more than 801 775 000 cubic metres (650,000 acre-feet) of 1978 entitlement water plus the carryover and emergency relief water then in project reservoirs, no surplus, preconsolidation repayment or Article 12(d) water (see preceding sections in this chapter entitled "Future Delivery Rights" and "Surplus and Preconsolidation Repayment Water Service") could be scheduled on



View of Oroville Dam and Lake in November 1977.

the initial schedules for 1978. Contractors were told such water would be scheduled only if it was later found that its delivery would not adversely effect the delivery of all requested 1978 entitlement water. Fifteen contractors had requested deliveries of nearly 1 850 250 000 cubic metres (1.5 million acre-feet) of Project water in addition to their full 1978 entitlement water amounts of 2 192 078 000 cubic metres (1,777,120 acre-feet) in September of 1977.

Section (d) of amended Article 21 of the long-term water supply contracts specifies that if a contractor guarantees the resulting costs, the State will order the estimated power required to pump specified quantities of surplus water for the contractor in some future year. Such commitments are to ensure the availability of a supply of low-cost power for pumping the contractor's surplus water, but they give the contractor no greater right or priority to receive surplus water than a contractor not making a commitment. Pursuant to contractor requests, power was ordered late in 1977 in an amount estimated by the State to be sufficient to deliver 145 679 000 cubic metres (118,102 acre-feet) to seven contractors during the first three months of 1983. Ordering was limited to this three-month period, as existing contracts provide for the purchase of power only through March 31, 1983. Table B-31 of Appendix B shows for applicable contractors, the annual amount of surplus water deliveries for which power has been ordered and the resulting repayment obligations which have been incurred for the period 1978 through March 31, 1983.

Wheeling of Federal Water - The nine agencies which have contracted with the State for wheeling of federal Central Valley project water (see a previous section herein also entitled "Wheeling of Federal Water") requested that of the maximum quantity of federal water to which each is entitled, a total of 155 214 000 cubic metres (125,832 acre-feet) be wheeled during 1978. Contracts

with the nine specify that monthly wheeling schedules shall be issued on or before December 8 of each year showing the approved wheeling for each of the first four months of the next calendar year and a tentatively approved schedule for the remaining eight months. No schedules for 1978 were issued on December 8, 1977, and the U. S. Bureau of Reclamation had notified all users of federal water that there was no water then available for 1978 agricultural use. Users were told that water would be scheduled later if it became available.

Contract Amendments

Amendments to the long-term water supply contracts total 285. These amendments are summarized by subject and number in Figure 6. The first contract amendments were executed in 1963; every year thereafter through 1976 additional amendments were completed. None were signed during 1977, however, making it the first year since 1963 that this has occurred. Also no new amendments were prepared and submitted for signature during 1977.

Amendments prepared and submitted to contractors before 1977 for signing, but not yet acted on, include:

- o An amendment to the contract with the City of Yuba City concerning calculation of the Delta Water Charge and the Project interest rate.
- o An amendment to the contract with Solano County Flood Control and Water Conservation District concerning calculation of the Delta Water Charge.
- o An amendment to contracts with the City of Yuba City and Solano County Flood Control and Water Conservation District which deletes the surcharge, surcharge credit, and power credit provisions.
- o Amendments to eight contracts to re-align and clarify the surplus water

Figure 6: WATER SUPPLY CONTRACT AMENDMENTS AS OF DECEMBER 31, 1977

Contracting Agency	Minimum Project Yield Increased	Delta Water Charge, "Eel" Costs Delayed			Project Interest Rate Modified	Surcharge and Surcharge Credit Provisions					"Wet Weather" Provisions Added	"A & R" Surplus Water Provisions		Turnout Construction by Agency	Peaking Service		Annual Entitlements Revised	Excess Capacity Purchased	Article 28 Revised	Special Conditions
		1970	1971	1972 till construction		Added	Revised Thru 1969	Moratorium Declared		Deleted		Added	Revised		Increased	Decreased				
								1970	1971											
FEATHER RIVER AREA																				
City of Yuba City	1	2P	2P	2P	2P	1						1					1		NA	
County of Butte	1	3	3	3	3	1	2		4	5		1							NA	
Plumas County Flood Control and Water Conservation District	1	3	5	6	3	1	2	4	7	8		10								9
NORTH BAY AREA																				
Napa County Flood Control and Water Conservation District	1	3	4	5	3	1				6		1								1,2
Solano County Flood Control and Water Conservation District	1	2	3P	3P	2	1						1,5		1						
SOUTH BAY AREA																				
Alameda County Flood Control and Water Conservation District, Zone 7	2	6	8	9	6	2	5	7	10	11	1	2,12	3				1,4			1
Alameda County Water District	1	4	5	7	4	1	3		8	9	S	1 11	2						10	1,6
Santa Clara Valley Water District	2	6	8	10	6	2	5	7	11	12	1	1,2,14	3				1,4		13	1,9
SAN JOAQUIN VALLEY AREA																				
County of Kings		2	3	4	2		1		5	6	S	S 8								7
Devil's Den Water District	1	5	7	8	5		4	6	9	10		1,12					1,3		11	2
Dudley Ridge Water District	1	6	8	9	6		5	7	10	11		1,13					1,2 3,4		12	
Empire West Side Irrigation District	1	4	6	7	4		3	5	8	9	S	1,11					2		10	
Hacienda Water District	1	4	6	7	4		3	5	8	9	S	1,11					2		10	7
Kern County Water Agency	1	4	6	8	4		3	5	9	10		1,12					1,2		11	7
Oak Flat Water District		3	5	6	3		2	4	7	9	S	S 11	1				8		10	
Tulare Lake Basin Water Storage District	2	5	6	7	5		4		8	10	S	2,13					1,3,9 12		11	
CENTRAL COASTAL AREA																				
San Luis Obispo County Flood Control and Water Conservation District	2	3	4	5	3	1	2			6		1 2,8								7
Santa Barbara County Flood Control and Water Conservation District	2	3	4	5	3	1	2			6		1 2,7					2			
SOUTHERN CALIFORNIA AREA																				
Antelope Valley-East Kern Water Agency	1	5	6	7	5	1				8		1 10	3	2	1	4			9	2,3 4
Castaic Lake Water Agency	2	4	5	6	4	1	2			7		1 2,10	2		2 9,3				8	
Coachella Valley County Water District	2	3	4	5	3	1	2			6		1 2,8			2				7	
Crestline-Lake Arrowhead Water Agency	2	5	6	7	5	1	2			8		1 2,11	4	3	2,10				9	
Desert Water Agency	2	3	4	5	3	1	2			6		1 2,8			2				7	
Littlerock Creek Irrigation District	2	3	4	5	3	1	2			6		1 2,7			2					
Mojave Water Agency	2	4	5	6	4	1	2			7		1 2		3	2				8	3
Palmdale Water District	2	3	4	5	3	1	2			6		1 2,8			2				7	
San Bernardino Valley Municipal Water District	2	4	5	6	4	1	2			7		1 2			1,2 3,9				8	
San Gabriel Valley Municipal Water District	2	4	5	6	4	1	2			7		1 2	2		2,9	3			8	
San Geronio Pass Water Agency	2	4	5	6	4	1	2			7		1 2	2							2,3
The Metropolitan Water District of Southern California	1	9	10	11	9	1				13		1			1,3 8V,15	2,6 7			14	(a)
Ventura County Flood Control District	1	2	3	4	2		1			5		1,7							6	

P = Pending
S = Special provisions of basic contract.

V = Amendment voided by subsequent actions.
a) Amendment Numbers 2, 3, 4, 5, 7, 8V, 12.

provisions: City of Yuba City, County of Butte, Mojave Water Agency, Napa County Flood Control and Water Conservation District, San Bernardino Valley Municipal Water District, San Geronio Pass Water Agency, and The Metropolitan Water District of Southern California.

Deferred Delivery Amendment - As reported in the last bulletin of this series, no further negotiations on the deferred delivery amendment are contemplated pending release of a Department Task Force report concerning Project management. This report will deal with the problems encountered by contractors when there are disparities between annual entitlements and Project water demands and will include recommended management actions to deal with those problems.

Negotiation of Water Charge Settlements

A task force consisting of representatives of the State Water Contractors Audit Committee, The Metropolitan Water District of Southern California, and the Department's Water Service Contract Cost Negotiation committee continued its discussions and negotiations during 1977.

Protests of Prior Year Charges. A negotiated settlement of \$750,000 was reached during 1977 with the water contractors. The settlement resolves Department accounting of planning and general capital costs for years 1973, 1974, 1975, and the first six months of 1976, all of which had been protested by the water contractors. The settlement is reflected in the 1979 statement of charges. This is the final settlement of after-the-fact protested planning and general capital costs.

Beginning with the 1976-77 fiscal year, the Department issued new guidelines and implemented a new process within the budget review period to minimize the extent of protests incurred after 1976

(see section 1978-79 Budget Review). All subsequent protested planning and general capital costs will be resolved and adjusted through this Budget Review Process.

Several issues concerning contractors' water service charges have not yet been resolved. Therefore, Water Service Contractors Council Memo No. 1192, dated December 19, 1977, was issued stating that "Whether or not agreements have been reached to effect changes in the Department's present methods of calculating charges, the time for protesting the following items will not be extended beyond December 21, 1978:

- o Planning costs for the years 1973 through June 30, 1976.
- o Charges for extra service. (The present method is described in Water Service Contractors Council Memo No. 593 dated July 10, 1970.)
- o Transportation variable charges for fluctuations in reservoir storage.
- o Allocation of Delta Pumping Plant operating costs between transportation and conservation."

The first item has been resolved but the remaining items are still open.

Allocation of Power Costs - Another issue with which the task force has long concerned itself is the allocation of power costs to applicable contractors. The Energy Committee was established in 1976 to provide a forum for discussion of State Water Project energy matters and to address problems relating to the power costs and cost allocations. The Department's Energy Division staff submitted a proposal to the Committee of changed procedures for power cost allocations and valuations after March 31, 1983 within the existing provision of the water supply contracts. The proposal is reflected in the power cost

projections shown in this bulletin beyond March 31, 1983 (the termination date of current power purchase agreements). A more detailed description of the Committee's activities and the power cost allocation proposal is included in the Power Contracts Management Section of this chapter.

Project Purpose Cost Allocation - In 1977, the Department reviewed the project purpose cost allocation for the Oroville Division of the State Water Project. The cost allocation for the Oroville Division was initially reported in Bulletin 132-71, Appendix D.

Assembly Bill No. 1514 was introduced in the Legislature in 1977 requesting funds under the Davis-Dolwig Act to reimburse the Project for recreation and fish and wildlife enhancement costs that have previously been financed by the project. The bill was amended in early 1978 to include requests for reimbursement for recreation costs based on the revised Oroville cost allocation and 1977 costs and interest accruals. The revised percentages, for allocating costs of the Oroville Division between water supply and recreation and fish and wildlife enhancement, will be used to compute the water contractors' charges after AB 1514 becomes law. Details of the revised cost allocation for the Oroville Division are published in Bulletin 132-78, Appendix D (bound separately) and generally reflects the following changes:

- o The initial Oroville cost allocation included power generation as a separate Project purpose. Under Article 30(b) of the Standard Provisions of the Water Supply Contract, costs allocated to power generation were required for computing the unit surcharge to be assessed project water applied on "excess lands". Article 30(b) has been amended from the water supply contracts; and power generation is no longer a separate Project purpose.

- o The initial Oroville cost allocation was based on an interest rate of 4.357 percent. The current project interest rate of 4.462 percent was used in the updated allocation.
- o The initial Oroville cost allocation included only recreation and enhancement benefits in the Oroville Division. Studies leading to the revised allocation included consideration of effects in the Sacramento-San Joaquin Delta resulting from operation of Oroville Division facilities. To date, the operation of the Oroville Division has not benefited the Delta.

In 1977, the Department continued background work for the proposed cost allocations of the California Aqueduct, Dos Amigos Pumping Plant to termini. No conclusion has been reached and the study is continuing.

1978-79 Budget Review

In September 1977, the Director met with representatives of the water contractors to review proposed State Water Project expenditures for the 1978-79 fiscal year. Subsequently, the Department's 1978-79 budget for the State Water Project was formally presented to the California Water Commission for review and comment. This is done annually for the purpose of reducing the number of cost items that might be contested by the water contractors.

This is the second year of water contractors' participation in the budget review process. This review has replaced the after-the-fact negotiation of protested capital costs, which took place in prior years. The Department now makes available all information submitted to the Resources Agency, Department of Finance and Legislative Analyst including submittal of work authority changes as they develop during the year. This new comprehensive review process includes consideration of water

contractors' recommendations prior to final establishment of budget levels for the next fiscal year, thereby enabling before-the-fact budget adjustments. The review emphasizes the determination of responsibility for costs of programs that are, (1) necessary for the Project and primarily benefit the Project, (2) necessary for both the Project and non-Project responsibilities of the Department, (3) not necessary for the Project. The Department is strictly adhering to

these guidelines for split funded programs.

With the implementation of this process, for the fiscal year 1976-77 and all years following, capital cost settlements will no longer be allowed except to correct errors or make adjustments to programs not executed as contemplated at the time of the budget review. These types of adjustments will be considered up to two years after the fiscal year in question.

POWER CONTRACTS MANAGEMENT

The following are highlights of the Department's continuing efforts and accomplishments during 1977 with respect to ensuring an adequate electrical energy supply for operation of the State Water Project.

Long Range Energy Program

As described in Bulletin 132-77 (page 61), the Long Range Energy Program is directed to obtaining energy for Project pumping operations after the current purchase arrangements expire on March 31, 1983. In April 1977, the Department released the "Final Environmental Impact Report on the Long Range Energy Program for the California State Water Project". After a final 30-day waiting period, the Director signed on May 17, 1977 the "Certification of Final EIR and Notice of Determination". This certifies that the Department has prepared an environmental impact report for the program pursuant to provisions of the California Environmental Quality Act and the State Guidelines and has reviewed and considered the information contained in the report prior to approval of the program. The approved Program includes the following:

- o Continue to use recovery generation to meet project needs.
- o Retain Hyatt-Thermalito generation for project use after March 31, 1983.

- o Select or develop additional energy sources for the balance of project energy requirements.
- o Continue to purchase capacity and energy under a modified and extended Suppliers Contract.
- o Exchange or sell capacity and energy temporarily in excess of project requirements.

Current estimates of long-term energy requirements for each project pumping plant and estimates of recovery generation to be supplied by the project powerplants is shown in Table 4.

Continue to Use Recovery Generation to Meet Project Needs. Three recovery plants are in operation on the California Aqueduct (San Luis Pumping-Generating Plant, Devil Canyon, and Castaic Powerplants). Four additional plants are proposed (Los Vaqueros, Pyramid, Cottonwood, and San Luis Obispo Powerplants). Of the four, only construction of Pyramid (Phase I) and Cottonwood Powerplants is definitely scheduled at this time (see Southern California Recovery Plants, Chapter I). During 1977, discussions were initiated regarding arrangements for financing the construction costs of the two scheduled facilities with Central Valley Project revenue bonds. A draft of the financing contract was distributed among and discussed with the 13 water supply contractors downstream from the powerplant sites.



Director Robie giving formal notification that the existing Oroville-Thermalito Power Sale Contract will be cancelled as of April 1, 1983.

Thermalito Powerplant

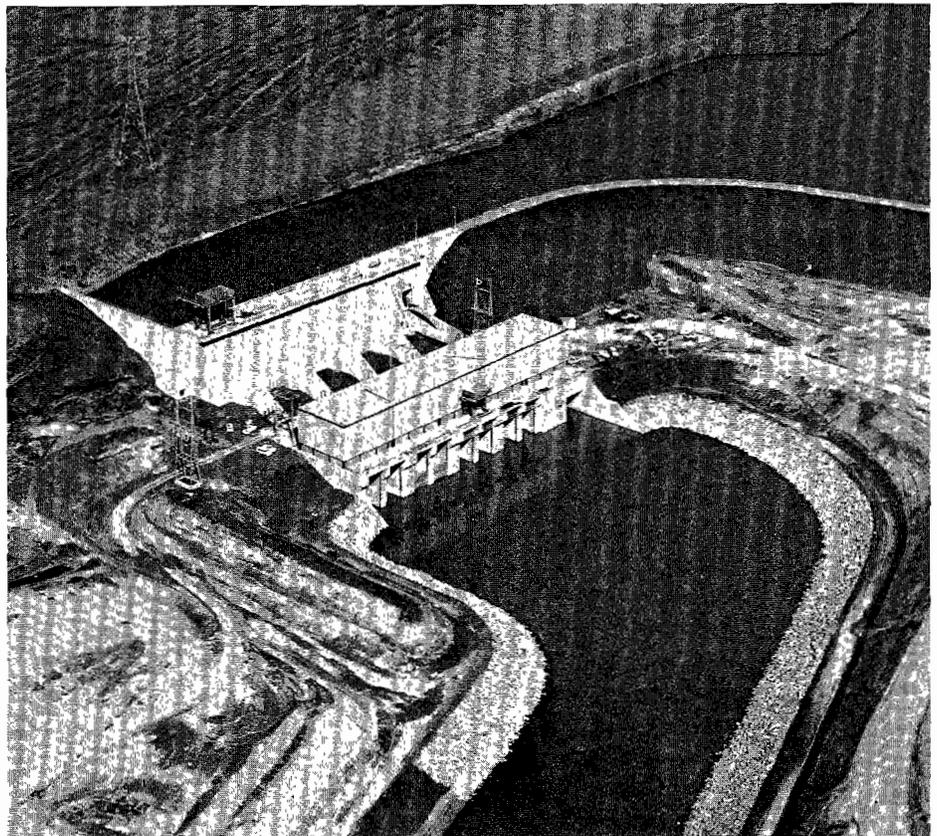


TABLE 4: ANNUAL PROJECT ENERGY

(in millions of

Calendar Year	Energy													
	Glenn Reservoir Complex	North Bay Aqueduct Pumping Plants		Delta Facilities Pumping Plant	South Bay Aqueduct Pumping Plants (b)	California Aqueduct								
		Calhoun and Travis	Cor-delia (a)			Los Vaqueros	Delta	San Luis	Dos Amigos	Buena Vista	Wheeler Ridge	Wind Gap	A. D. Edmon-ston (Teha-chapi)	Pear-blossom
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
Subtotal, Actual for 16 years 1962-1977 (d)	0	0	24	0	1,072	0	3,313	1,132	1,244	959	831	1,740	6,045	631
1978	0	0	4	0	117	0	835	224	329	380	363	841	3,027	443
1979	0	0	3	0	118	0	692	236	272	345	333	774	2,801	517
1980	0	0	4	0	116	0	686	142	298	382	369	859	3,099	562
1981	0	0	4	0	118	0	818	225	316	403	388	903	3,250	515
1982	0	0	4	0	119	0	828	156	349	451	435	1,013	3,648	612
1983	0	7	6	0	121	0	721	169	314	376	354	819	2,928	536
1984	0	7	6	0	123	0	814	273	324	383	358	827	2,950	536
1985	0	8	7	0	125	0	821	249	341	402	376	867	3,087	556
8 years, 1978-1985	0	22	38	0	957	0	6,215	1,674	2,543	3,122	2,976	6,903	24,790	4,277
10 years, 1986-1995	34	149	91	401	1,407	626	10,592	2,755	4,428	5,393	5,113	11,779	41,707	5,870
10 years, 1996-2005	1,970	188	139	455	1,597	740	12,073	2,721	5,101	6,470	6,216	14,368	51,072	5,927
10 years, 2006-2015	1,887	200	166	482	1,600	740	12,853	3,066	5,425	7,051	6,817	15,788	56,290	5,931
10 years, 2016-2025	1,870	216	201	495	1,600	740	13,324	3,225	5,538	7,255	7,029	16,293	58,132	5,906
10 years, 2026-2035	1,870	220	210	500	1,600	740	13,510	3,350	5,550	7,280	7,050	16,350	58,340	5,890

a) During 1968 thru 1985 an interim pumping plant will pump from the federal Solano Project terminal reservoir.

b) Includes South Bay and Del Valle Pumping Plants and, during 1962 thru 1967, an interim pumping plant which pumped a supply provided by the federal Delta Mendota Canal.

REQUIREMENTS FOR PUMPING

kilowatthours)

Requirements				Recovery Generation									Net Energy Requirements	Calendar Year
Pumping Plants				Glenn Reservoir Complex	California Aqueduct Power Plants									
Oso	Las Perillas and Badger Hill	Devil's Den Sawtooth and Polonio	Total		Los Vaqueros	San Luis	Devil Canyon	Castaic (c)	San Luis Obispo	Cottonwood	Pyramid	Total	Col. (18) minus Col. (27)	
(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	
470	299	0	17,760	0	0	671	977	1,343	0	0	0	2,991	14,769	16 years, 1962-1977
164	36	0	6,763	0	0	124	728	572	0	0	0	1,424	5,339	1978
117	29	0	6,237	0	0	118	873	404	0	0	0	1,395	4,842	1979
134	31	0	6,682	0	0	101	925	462	0	0	0	1,488	5,194	1980
168	32	0	7,140	0	0	101	844	583	0	0	0	1,528	5,612	1981
176	34	0	7,825	0	0	107	1,012	610	0	36	334	2,099	5,726	1982
117	35	0	6,503	0	0	137	875	401	0	96	241	1,750	4,753	1983
117	37	0	6,755	0	0	154	891	404	0	97	242	1,788	4,967	1984
124	37	0	7,000	0	0	159	909	425	0	101	255	1,849	5,151	1985
1,117	271	0	54,905	0	0	1,001	7,057	3,861	0	330	1,072	13,321	41,584	8 years, 1978-1985
2,336	455	714	93,850	0	138	1,628	9,400	8,092	138	1,092	4,861	25,349	68,501	10 years, 1986-1995
3,402	512	1,134	114,085	75	200	1,734	9,512	11,736	213	1,121	7,095	31,686	82,399	10 years, 1996-2005
4,031	530	1,280	124,137	1,571	200	1,851	9,125	13,818	230	1,124	8,417	36,336	87,801	10 years, 2006-2015
4,267	530	1,280	127,901	1,720	200	1,827	8,769	14,586	230	1,121	8,911	37,364	90,537	10 years, 2016-2025
4,300	530	1,280	128,570	1,720	200	1,820	8,780	14,690	230	1,120	8,980	37,540	91,030	10 years, 2026-2035

c) The City of Los Angeles Department of Water and Power constructed and operates the 1,250,000-kilowatt Castaic Power Plant and will supply the Project with electric power and energy equivalent to the generation from a 213,984-kilowatt power plant the State originally had planned to construct.
d) 1974 and thereafter -- entitlement deliveries only.

The draft contract was patterned on the Devil Canyon-Castaic Contract (see page 2, Bulletin 132-73). Essential agreement had been reached regarding proposed financing by the end of 1977.

Retain Hyatt-Thermalito Generation For Project Use After March 31, 1983. On September 30, 1977, the Director formally notified the companies (Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas and Electric Company) that the existing Oroville-Thermalito Power Sale Contract (see page 87, Bulletin 132-68) will be cancelled as of April 1, 1983.

In accordance with Sections 11670 and 11671 of the California Water Code, the Power Sale Contract provided for cancellation by the Department upon five years' notice. The Department's resolution basic to the sale of Oroville revenue bonds (see page 19, Bulletin 132-68) fully contemplated such cancellation and use of Oroville power for the Project pursuant to a State Power Contract. On September 28, 1977, the Department adopted the "Fourth Supplemental Resolution, No. DWR-OD6 (Supplemental to Resolution Adopted March 19, 1968) Providing for Certain Payments to Be Made by the Department and for the Use of Oroville Power for the Benefit of the State Water Resources Development System". The Fourth Supplemental Resolution is in reality the State Power Contract, effective April 1, 1983, for all the purposes of the original resolution.

Before adopting the Fourth Supplemental Resolution, the Department obtained the required independent engineer's certificate (from R. W. Beck and Associates of Seattle, Washington) which concluded that the use of Oroville power as contemplated by the State Power Contract is reasonable under accepted engineering standards and in comparison with available alternative sources of power, and that there is adequate assurance that sufficient moneys will be available to make all payments due under the State

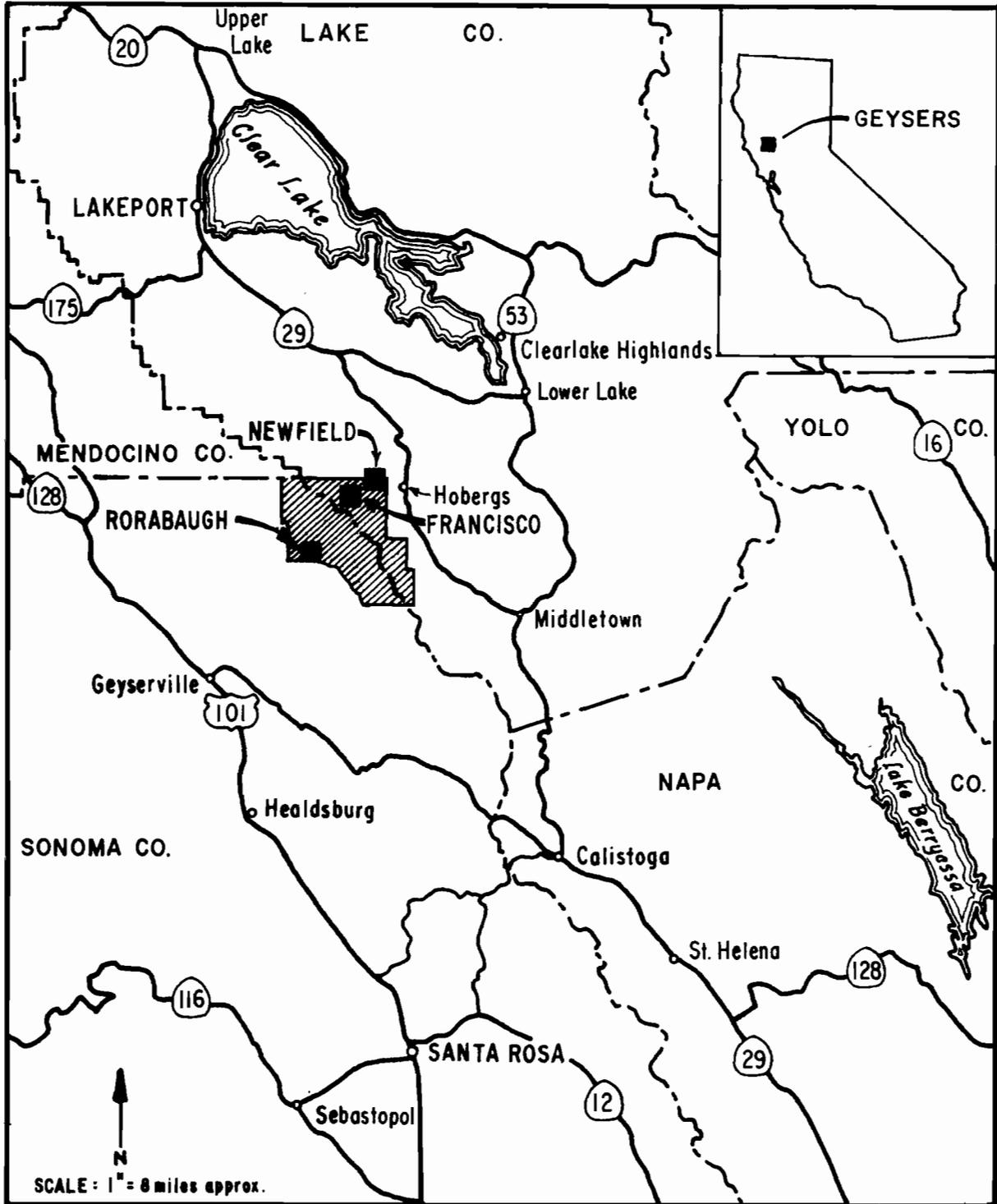
Power Contract. The Department also obtained an independent bond counsel's opinion (from Orrick, Herrington, Rowley and Sutcliffe of San Francisco) stating that the Contract is in accordance with law and the original resolution.

Under the State Power Contract, the Department will transfer moneys to a fund pledged to pay bond service in amounts equal to that now paid by the Companies (e.g., \$16,150,000 annually, plus certain additional amounts if energy production exceeds 2.1 billion kilowatthours annually). In addition, the Department agrees to pay the annual operating costs of the Oroville Power Facilities more than \$1,500,000 annually. (The \$16,150,000 payment by the Companies includes a maximum of \$1,500,000 for such costs, which have now escalated and exceed \$2.8 million annually.)

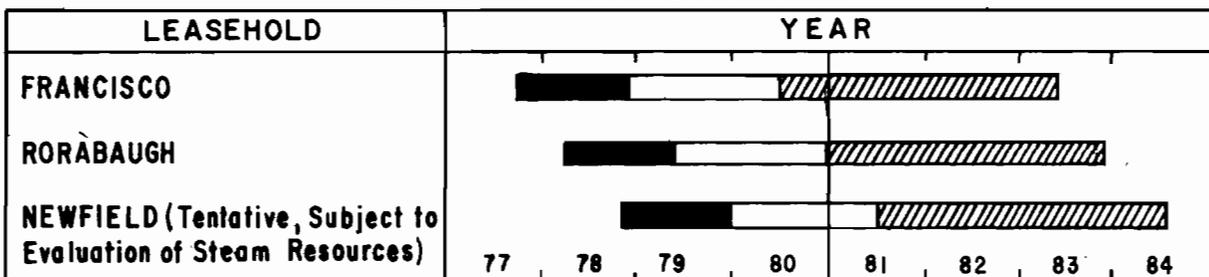
Select or Develop Additional Energy Resources. During 1977, the Department selected resources which, together with Recovery and Hyatt-Thermalito power, would supply about 71 percent of the Project pumping energy for 1983. The Department continues to pursue other resources. In addition, the Department initiated an active research and development program (discussed under a separate heading) covering alternative unconventional sources. On the other hand, certain other potential resources, referred to in previous Bulletin 132, have been deleted from the Department's current resource plan due to their uncertain status.

o *Selected Resources - geothermal development.* On September 12, 1977, the Department signed a contract with McCullough Oil Corporation, Geothermal Kinetics, Inc., and Entex Petroleum for purchase of geothermal steam from their Francisco leasehold in The Geysers Area, Lake County. In addition, the contract provides a right-of-first refusal for the Department to obtain the steam from the Newfield leasehold,

PROPOSED GEOTHERMAL DEVELOPMENT IN THE GEYSERS AREA



DEVELOPMENT SCHEDULE



- Prepare notice of intent
- Construction
- Approvals - notice of intent & application for certification

also in Lake County. A second contract was signed on December 28, 1977 with Geothermal Kinetics for purchasing steam from their Rorabaugh leasehold in Sonoma County. Both contracts are essentially the same, providing for development of 55 MW generating facilities at each site. If drilling is successful in the Newfield leasehold, the Department plans to contract for developing a 55-MW plant on the property. (The 55-MW capacity is a readily available, standard unit size for geothermal plants.)

The contracts provide that the steam supplier is responsible for development of the steam wells, installing steam piping systems and providing plant effluent disposal. The supplier is required to meet all regulatory requirements for these facilities. The Department is responsible for installation and operation of the powerplant and providing all transmission facilities. Environmental and engineering studies are under way for preparation of Notices of Intent (NOI) to the California Energy Commission for these plants. With environmental data compiled for the NOI and, later, for the Application for Certification, the Commission will prepare the Environmental Impact Report for these proposed developments.

The first plant (in Francisco leasehold) is scheduled to be on line by April 1, 1983 and the second (in the Rorabaugh leasehold) by January 1, 1984.

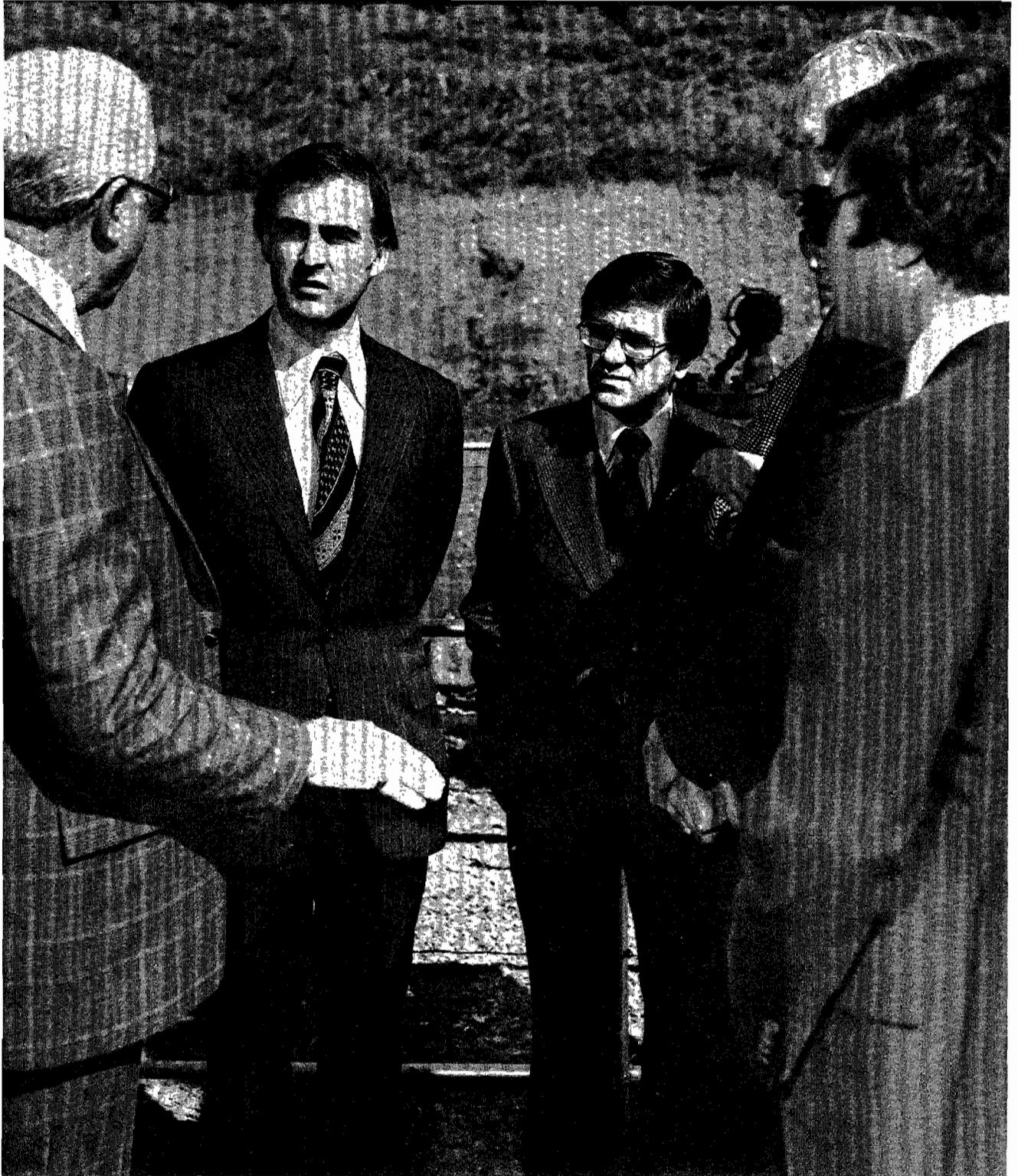
- o *Selected Resources - Metropolitan Water District Power Agreement.* By the end of 1977, The Metropolitan Water District of Southern California and the Department had reached agreement on a contract (signed January 10, 1978) for the Department's purchase of the energy from

five powerplants Metropolitan proposes to construct on its water-distribution system. The five plants will total 29.5 MW in capacity and would produce about 190 million kWh annually with Metropolitan's system operating at full capacity. The plants are Greg Avenue, Lake Mathews, Yorba Linda, San Dimas, and Foothill Feeder. The contract will run for a minimum of 25 years. The generation from these plants is expected to be available by April 1, 1983.

- o *Selected Resources - Pine Flat Power Project.* In June 1977, the Department was a successful bidder (in competition with other utilities) for the power output of the proposed project by the Kings River Conservation District (KRCD). Negotiations were nearing completion by the end of 1977 on a planning and feasibility study agreement and for a power sale contract.

Pine Flat Dam is owned and operated by the U. S. Corps of Engineers and provides flood control and recreation benefits to the area and conservation benefits and water supplies to member agencies of KRCD. Releases are now made through energy-dissipating valves at the base of the Dam. The KRCD proposed project would replace these valves with generating facilities. In November, the voters within KRCD overwhelmingly approved (87%) an authorization of revenue bonds to finance construction costs of the project.

The powerplant will have an installed capacity of 165,000 kW and on the long-term average, will produce about 400 million kWh annually. KRCD will design, construct, own, and operate the project and sell the output to the Department. KRCD will perform the planning study, including the environmental documentation, and obtain the required permits and licenses.



From left to right: Roland Russell, Vice President, McCulloch Geothermal Corporation; Governor Jerry Brown; Ron Robie, Director of Water Resources; Ray Chantler, Geologist with McCulloch; Tom Quinn, Chairman, Air Resources Board on a tour of the geothermal area in Lake and Sonoma counties.

The Department will be responsible for obtaining the necessary transmission arrangements and for furnishing all transmission data required by KRCD to obtain permits and licenses and to complete environmental documentation. Project generation is expected to be available by April 1, 1983.

- o *Potential Resources - Lake Siskiyou Hydroelectric Project.* In October 1977, the Department and other utilities made offers to Siskiyou County for purchase of the energy from their proposed project at Lake Siskiyou (Box Canyon Dam). On the basis of these offers the Department was selected and negotiations for a planning and feasibility study agreement are now under way.

The project would involve installation of generating equipment of 4 MW capacity on the outlet conduit at the dam, and salvage energy presently being wasted by stream releases through an energy dissipating valve. The average annual generation would be about 20 million kWh.

- o *Potential Resources - Sly Creek Power Project.* The Department has made an offer to Oroville-Wyandotte Irrigation District to purchase of the energy from its proposed Sly Creek Power Project. The offer was accepted and negotiations began early in 1978. The proposed powerplant would have a capacity of 10 MW and would generate about 45 million kWh annually.
- o *Deleted Resources - Project.* Bulletin 132-77 (page 68) referred to the Planning and Feasibility Study Agreement the Department had entered into with the San Diego Gas & Electric Company (SDG&E) as a 15-percent participant in study costs of SDG&E's proposed Sundesert Nuclear Project near Blythe. At the time the Department signed the agreement, the Sundesert Project could not have been

lawfully constructed without a statutory exemption from the California Nuclear Fuel Cycle Laws. The Laws (AB 2820, 2821 and 2822, enacted in 1976) prohibit the certification of nuclear powerplants in California until the California Energy Commission and the Legislature determine that spent nuclear fuel reprocessing and high level waste management technologies have been adequately demonstrated and approved by the Federal Government.

On December 21, 1977, by vote of 4 to 1, the California Energy Commission approved SDG&E's Notice of Intention to build the project. In voting its approval, the Commission also imposed 49 conditions on the project. The Commission's approval was for Sundesert Unit 1 only, (950 MW total, of which the State's 15 percent share would be 142.5 MW).

During the 1977 legislative session, attempts were made to exempt the Sundesert Project from the California Nuclear Fuel Cycle Laws. While efforts were not successful, AB 1852 was enacted which required the Commission to transmit to the Legislature, no later than January 16, 1978, its determination as to whether all pertinent findings could be made at that time. In the event that the Commission determined such findings could not be made, it would be required to include in its determination a recommendation as to whether any facility (for which a Notice of Intention had been filed with the Commission before January 1, 1977 - meaning Sundesert), should be exempt from such requirement. The Commission was to consider various enumerated factors in making the recommendation. On January 25, 1978, the Commission, under provisions of AB 1852, recommended to the Legislature that Sundesert should not be exempted from the California Nuclear Fuel Cycle Laws. AB 1852 provided

that the Legislature and the Governor had 90 days to act on the Commission's recommendation. During April 1978, legislation to grant such approval was defeated in Assembly Committee. SDG&E terminated its funding of the project in May 1978.

- o *Deleted Resource - San Joaquin Nuclear Project (Wasco).* Previous bulletins have referred to this proposed project by the City of Los Angeles Department of Water and Power (LADWP) and to the Department's 10 percent participation in associated planning and feasibility studies.

The Department deleted this facility from its resource plans in the fall of 1977, since no progress had been made toward preparation of a Notice of Intention for filing with the California Energy Commission and no firm program for obtaining waste water sources for cooling had been developed. In addition, the proposed plant could not be legally constructed without exemption from the California Nuclear Fuel Cycle Laws or a finding by the California Energy Commission that spent nuclear fuel processing and high level waste management technologies had been adequately demonstrated and approved by the Federal Government.

In March 1973, an advisory referendum was held in Kern County on the issue. The vote was over two to one against the project. LADWP subsequently withdrew its application for changes in zoning in Kern County, effectively terminating the project.

Continue to Purchase Capacity and Energy Under a Modified and Extended Suppliers Contract. On March 31, 1978, the Suppliers, collectively and individually, gave notice that the Suppliers Contract will be terminated effective April 1, 1983. This action had been expected. The Department continued discussions with the Suppliers during 1977 in an effort to arrive at mutually agreeable

rates, terms, and conditions to purchase supplemental capacity and energy after March 31, 1983. The Department contemplates that any of the Project's power requirement not covered by other resources can be obtained from California utilities.

Exchange or Sell Capacity and Energy Temporarily in Excess of Project Requirements. This aspect of the Long Range Energy Program has been practiced in project operation to date. For instance, the portion of the Department's allocation of Canadian Entitlement power and EAV transmission capacity in excess of Project needs, as estimated six years in advance, has been sold to the California Companies. In 1977, such sales amounted to \$4,168,762. In addition, from June 10 through December 1977, the Department sold 85 megawatts of Canadian Entitlement power that was retained for project use under the six-year schedule, but not needed because of drought-caused reductions of project water deliveries. This special sale under special agreement with the Pacific Gas and Electric Company returned \$431,230 to the Department. Also under special agreement, the Department sold \$13,066 of San Luis peaking capacity to the Company in September 1977. Under the Long Range Energy Program, the Department expects that arrangements for sales and/or exchanges of temporary excess power will be considerably more flexible and used more frequently than practiced to date.

Energy Research and Development. At its November 4, 1977 meeting in Sacramento, The California Water Commission adopted the Department's proposed "DWR's Energy Research and Development Program" as its Policy Statement No. 77-2. The policy recommends a \$500,000 annual limit on expenditures for the program from Project funds and allows water contractor input during program budget development or when the Department presents changes of established budgets for commission review. On December 14, 1977, the Director announced a step-up in the Department's research and development efforts to

identify and develop alternative energy sources to operate the State Water Project because:

- Increasing amounts of energy will be required to operate the State Water Project.
- Approvals for conventional energy sources are becoming increasingly difficult to obtain because of environmental concerns.
- Rising costs of energy and scarcity of conventional fuels, such as oil and gas, preclude their dependability as future energy sources.
- Advances in energy technology have increased the feasibility of utilizing renewable energy sources, including solar, wind, geothermal, and biomass.

The Department will evaluate the feasibility of new energy sources and will plan their development to help meet a portion of the Project's future energy requirements.

- Solar. In 1977, the Department announced initiation of a selection procedure to obtain engineering services for a feasibility study of a multi-module Solar Electric Powerplant concept as conceived by Professor Otto Smith. Responses were obtained from five firms. At about the same time, the Jet Propulsion Laboratory (JPL), acting on behalf of the U. S. Department of Energy, announced a Request for Proposals for a dispersed modular solar electric system. The Department decided to submit a proposal in response to the request. Negotiations for a contract to perform the feasibility study of Dr. Smith's concept have been postponed pending the results of evaluation of the proposals submitted to the Jet Propulsion Laboratory.

The Beckwourth Operations and Maintenance Subcenter, located in Plumas County, has been the center for maintenance of the Project's Upper Feather River facilities since early 1968. A program to retrofit this subcenter with solar energy collectors for space heating and domestic hot water has been initiated. Design of the solar energy retrofit has been completed and it is expected that the system will be in operation to provide a substantial reduction in the use of liquid petroleum gas for heating the buildings by the winter of 1979.

Preliminary plans have been developed incorporating solar power as the major source of energy in heating and cooling of the buildings in the future Pyramid Powerplant complex. The latest design technology will be used to minimize energy waste in conditioning of the interior environment of the buildings. Energy conservation measures such as building orientation, window shading, insulation, heat recovery, and use of building mass have been incorporated into the design. The air circulation system will be operated by computerized controls with active solar energy collectors and efficient heat pumps for space heating and cooling of the buildings. In addition, solar collectors will heat the water for the domestic hot water supply. Exterior and interior lighting of the building will be accomplished with the latest energy conservative types of fixtures, such as high pressure sodium lamps. The artists rendering of the facilities solar is shown below.

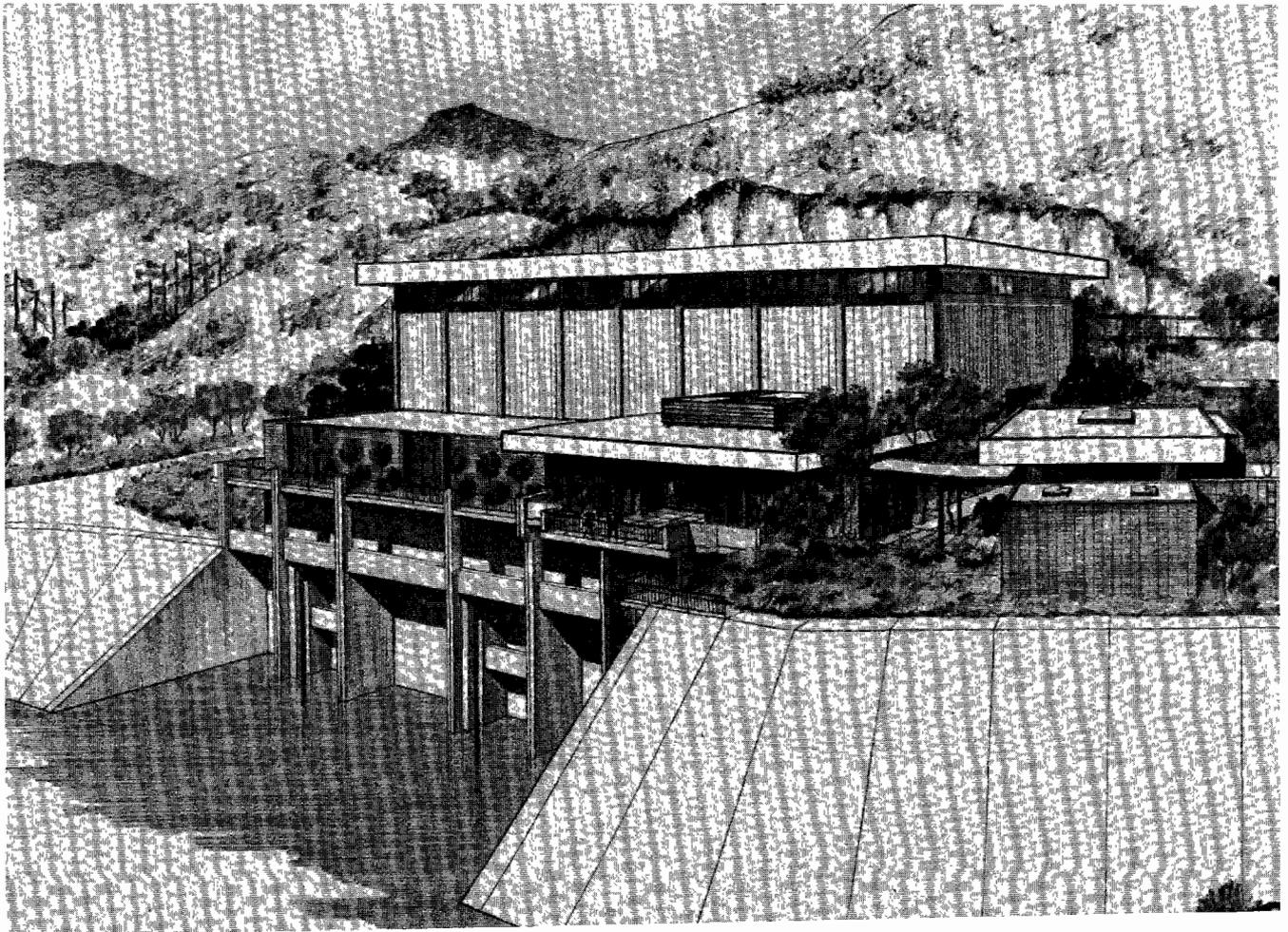
Biomass. In 1977, the Department established a task force, in conjunction with other State agencies, to evaluate the potential of using agricultural and forest wastes as possible Project energy sources.

The Department is also developing plans to construct a demonstration plant, to be followed by a commercial-size generating facility using forestry and agricultural residues as fuel co-generation with industrial and other large heat energy users.

Wind. The Department is investigating application of wind-turbine generators as a source of renewable energy for the Project. Two stations, which record air temperatures and wind velocity and direction, were installed in April 1976 near the Tehachapi Mountains, close to the California Aqueduct.

Wind data will be collected for at least three years before the feasibility of wind energy development can be determined. The Department also is evaluating the wind potential at Pacheco Pass near San Luis.

Geothermal. The Department is planning to participate in San Diego Gas and Electric Company's geothermal demonstration project near Heber, California. Participants include a number of utilities in California and in neighboring states, ERDA, Electric Power Research Institute, and the California Energy Commission. Large geothermal potential exists in Southern California, but develop-



Architect's rendering of the Project's planned Pyramid Powerplant Facilities.

ment of the geothermal brine has been thwarted by difficult technical problems. The proposed SDG&E project is being planned to demonstrate the technical and economical feasibility of this geothermal potential.

- **Wet/Dry Cooling.** The Department is participating in Southern California Edison's experimental Wet/Dry Cooling Tower Program. Participants include other utilities, ERDA, Electric Power Research Institute, and the California Energy Commission. The purpose of the program is to determine the feasibility of providing part of the cooling needs of a thermal power plant with a dry cooling system and to evaluate the potential for water savings.

Energy Management Activities in 1977

Drought conditions necessitated special power arrangements during 1977. Two of these special arrangements have been previously referred to concerning the sale to the Pacific Gas and Electric Company of unneeded Canadian Entitlement power and San Luis peaking capacity.

Also due to conditions brought out by the drought, the Pacific Gas and Electric Company formally requested, by letter dated October 25, 1977, the Department to conduct an "Anticipated Capacity Deficiency" study pursuant to Article 28 of the Oroville-Thermalito Power Sale Contract. The study will be completed in early 1978.

Use of Suppliers' Power for the 1977 Metropolitan Exchange Program. Because of the severe drought of 1977, special arrangements were required to insure an adequate water supply for the State. The Department arranged with The Metropolitan Water District of Southern California (MWD) to reduce MWD's 1977 deliveries of Project water entitlements. This exchange enabled the Department to deliver an equivalent amount of water to other water contractors. Three of the

member utilities of the Suppliers agreed to participate in the delivery of off-peak energy. Energy rates for the increased pumping from the Colorado River under this exchange would be similar to those under the Suppliers' Contract.

The amount of energy delivered for this exchange was limited to 85 percent of 1.6214 kWh/cubic metres (2,000 kWh/AF) times the volume of Colorado River water exchanged, plus related transmission losses of about 4.1 percent. (Of the 85 percent, the Pacific Gas and Electric Company, 43 percent; Southern California Edison Company, 36 percent; and San Diego Gas and Electric Company, 6 percent.) The maximum amount of exchange water covered by the power agreement was 394 720 000 cubic metres (320,000 AF).

Since lower pumping lifts are required to deliver Colorado River water to MWD as compared with Project water, the exchange decreased the total amount of energy the Department would have required under the Suppliers Contract for 1977.

1983 Power Order. Under the existing provisions of the Suppliers Contract, orders for firm capacity are placed six years in advance. In November 1977, the Department notified the utilities with respect to the 1983 power order on the following bases:

- o 325 MW of Suppliers' Firm Capacity for the three months January through March, down 50 MW from the Department's notice for 1982 of 375 MW. (The Department estimates that such capacity, together with Canadian Entitlement and Aqueduct Recovery Power, will be sufficient to pump deliveries for the first three months of 1983 as now projected by the water contractors, with reasonable allowances for operational contingencies.)
- o 10 MW of Suppliers' Firm Capacity for the nine months April through December. (This token amount, the

maximum which subsequently can be eliminated upon two years' written notice under present provisions, serves to reaffirm the Department's desire that the Suppliers Contract be continued beyond March 31, 1983.)

- o In addition, notice was given to the California Companies (PG&E, Edison, and SDG&E) that the Department wishes to retain 300 MW of the Companies' transmission line service between the California-Oregon border and Midway Substation. (This preserves the Department's option for such continued service beyond 1983.)

Energy Committee

The Energy Committee, consisting of representatives of the water contractors and the Department, was established in 1976 to provide a forum for discussion of State Water Project energy matters and to address problems relating to power costs and cost allocations as reflected in charges paid by the water contractors (see page 72, Bulletin 132-77).

During 1977, the Committee met three times. In addition to keeping the contractors informed of energy matters, attention was centered on developing an updated projection of power costs to be shown in the Bulletin 132 series. Such a projection would be based on assumed specific pumping power sources after March 31, 1983. Projections shown in previous Bulletins 132, from the mid-1960s through the 1977 editions, generally have reflected unit power cost estimates for assumed State participation in future nuclear developments. The assumption that nuclear power will be available is not now valid.

In October, the Energy Division staff proposed a projection of power costs, under then current cost estimates of assumed future power sources. The projection was based on possible power cost allocations and valuations within the existing provisions of the water supply

contracts. That proposal is reflected in the power cost projections shown in this bulletin. Assumed power sources and costs are more completely described in Chapter III. With regard to power valuations and power cost allocations (which significantly affect the distribution of system costs among contractor charges), three new changes of the Department's administrative procedure are incorporated in the estimates shown in Appendix B. These changes would pertain to charges after March 31, 1983 and specifically concern:

- o the assigned value of Hyatt-Thermalito generation.
- o the assigned value of recovery power.
- o the allocation of system power costs among pumping plants.

The considerations involved for each of the above are briefly outlined as follows:

Assigned Value of Hyatt-Thermalito Generation. Under the Fourth Supplemental Resolution regarding Oroville Revenue Bonds (the State Power Contract, effective April 1, 1983), the Department of Water Resources will pay annually for SWP use of Hyatt-Thermalito power \$16.15 million, 2.59 mills per kWh for generation in excess of 2.1 billion kWh, and operating costs in excess of \$1.5 million. Funds for Department of Water Resources payments will be derived from aqueduct pumping power costs that are reimbursed by water contractors through the Transportation Charge. In turn, such payments will be credited to the costs of Oroville which would otherwise be reimbursed by all water contractors through the Delta Water Charge.

For water charge determinations, the Staff proposed that the value assigned to Hyatt-Thermalito power be equivalent to the Department of Water Resources payments under the State Power contract rather than some greater value (up to

market value) because:

- o If the values are greater negative Delta Water Charges could result for certain years.
- o While the repayment of Oroville Revenue Bonds would be accelerated under larger assigned values, net State Water Project cash-flow would be reduced during the interim (due to increased power credits reflected in the Delta Water Charge).
- o While it may be possible to avoid the reduced cash flow and associated financial effect by amendment of the Water Contract, as to the determination of power credits included in the Delta Water Charge, it is unlikely that all contractors would agree to such an amendment now.

Assigned Value of Recovery Power. The Department presently values system recovery power based on the least expensive alternative source expected to be available to the State Water Project as estimated when power commitments are made for a particular year (six years in advance under the Suppliers Contract). Erratic valuations sometimes result. Projected alternative costs may vary even more erratically after March 31, 1983.

For water charge purposes, the Staff proposed to value recovery power on a fixed basis (i.e., freeze at Bulletin 132-77 assigned value of about 25 mills per kilowatthour) rather than continue on the present basis, because:

- o With the relatively large base of committed power sources expected in the future, and with Project demands affected by Delta hydrology, it is conceivable that the values under the "least expensive" alternative source approach could, at times, approach zero. Assigned values under a continuance of the current procedure may not be enough to offset the costs of the recovery plants included in the contractors' charges.

- o All other Project-financed sources will be valued at project cost -- including geothermal and Oroville. More specifically, internal SWP value of these other sources will be equivalent to the Department's payments required to support the revenue bond financing of the source. A possible alternative would be to value recovery generation at the revenue bond service which could be associated with each plant. However, such value would be considerably less than that which the contractors located below recovery plants have been led to expect from previous projections.

Allocation of System Power Costs Among Pumping Plants. The Department's present allocation method is geared to the current purchase terms of the Suppliers Contract which distinguish between on-peak capacity and energy costs.

The Staff proposed that the direction of the future allocation procedure tend toward simplification (e.g., average annual system energy costs) rather than more detail (e.g., "time-of-day" pricing) because:

- o Greater detail does not necessarily produce more equitable results nor greater conservation incentives to SWP contractors:
 - Assigned project generation values, outside of the allocation process, also affect the overall distribution of system net Project power costs among contractors.
 - Allocation refinements at the plant level cannot be transmitted directly to the respective contractors under existing contract provisions.

- Detailed bases for allocations tend to be obliterated by system operational considerations (e.g., aqueduct transient storage and shift capability, favored operation of one portion of the system to optimize overall costs, and varying off-peak pumping capabilities of the respective plants because of differing buildup rates of contractor entitlements conveyed through the plants).
- o The relative costs of power capacity and energy are converging rather than diverging. Fuel costs are escalating more rapidly than construction costs. The once-projected abundance of cheap nuclear energy is not now realistic.
- o The bases for allocating capacity costs would become quite complex in the future. Use of respective power sources may shift radically within a year to meet pumping loads. Also, loads may change significantly within a year due to project ground water operations now being planned.

PROJECT OPERATIONS

PROJECT OPERATIONS IN 1977

This is a summary on operation of the State Water Project covering (1) water conditions, (2) water deliveries, and (3) other activities during 1977.

Water Conditions

The 1976-77 water year (October 1, 1976 through September 30, 1977) was the most critical year since operation of the State Water Project began in 1962 and the driest year of the century in California. Northern and central portions of the State set all-time records for low precipitation and runoff. As a result of back-to-back dry years in 1976 and 1977, the State's Oroville and San Luis Reservoirs were drawn down during 1977 to levels which would support only minimum water deliveries in 1978. Fortunately, the December 1977 and January 1978 storms improved the water supply outlook for 1978. The weather scene during 1976-77 was dominated by a persistent high-pressure ridge in the atmosphere off the California coast. The high pressure displaced the storm track northward of its usual winter path over California, leaving most of the State deficient in precipitation, runoff, and reservoir storage. The mountain snowpack compared to that of the

1923-24 water year, which was the lowest on record. The state-wide average runoff for the 1976-77 water year was about 24 percent of normal. Runoff in the Feather River Basin in the 1976-77 water year was the lowest on record.

Details of water supply conditions during the 1976-77 water year are available in Department of Water Resources Bulletin No. 202-77, "Water Conditions and Flood Events in California".

Water Deliveries

During 1977, water deliveries from State Water Project facilities totalled 1 189 328 000 cubic metres (964,190 acre-feet), as shown in the following table. This is a 53-percent decrease from deliveries made in 1976. These deliveries include Project entitlement exchange water which was made available by Southern California water contractors and delivered to San Joaquin Valley contractors and to federal CVP contractors, regulated delivery of locally supplied water, and the conveyance of federal water. Also included in the 1977 deliveries was the exchange water sold to the City of San Francisco, the Marin Municipal Water District, and Skyllonda Mutual Water

Company. The types of deliveries are itemized in Table 3. The year 1977 was the worst drought year of record for the State of California and that fact, along with 1976 being the third driest year of record, accounted for the sharp reversal in overall project deliveries.

Water deliveries to United States Bureau of Reclamation customers from the joint facilities for 1977 were 399 207 000 cubic metres (323,638 acre-feet), down 76 percent from 1976 deliveries. This amount does not include 38 313 000 cubic metres (31,060 acre-feet) wheeled through Project facilities for delivery to Kern County Water Agency's Cross Valley Canal.

Other Activities

Table 5 shows summary data on the quality of water delivered during 1977 as measured at selected stations. Also

shown at the bottom of Table 5 are the corresponding monthly average objectives for maximum concentrations of constituents as set forth in long-term water contracts. (Note that the mineral analyses are based on one each month, while the objectives are stated in terms of average conditions within a month.)

Figure 7 presents a pictorial summary of Project water operations during 1977. Also shown on Figure 7 are the areas of the Project's five field divisions, which have the responsibility for operations and maintenance activities.

Project power operations for each generating plant during each month of 1977 are summarized in Table 6.

STATE WATER PROJECT BENEFITS THROUGH 1977

The quantitative benefits of project operations through 1977 are summarized in the tabulation below:

Year	Water Delivered (acre-feet)(a)						Recreation Supported (Recreation days) (b)	Electrical Energy Generated (Megawatt-hours)
	Entitlement Water			Other Deliveries		Total Delivery		
	Municipal and Industrial Use	Agricultural Use	Total	Surplus	Local, Wheeled CVP, and Pre-consolidation Repayment Water			
1962					18,289	18,289	30,000	
1963					22,456	22,456	105,000	
1964					32,507	32,507	331,600	
1965					44,105	44,105	499,800	
1966					67,928	67,928	482,700	
1967	5,747	5,791	11,538		53,605	65,143	455,200	
1968	46,472	125,237	171,709	121,534	14,777	308,020	931,300	628,000
1969	34,434	158,586	193,020	72,397	18,829	284,246	1,554,800	2,614,000
1970	47,996	185,997	233,993	133,024	38,080	405,097	1,804,800	2,679,000
1971	85,286	272,054	357,340	296,019	44,119	697,478	2,085,900	3,302,000
1972	181,066	430,735	611,801	423,964	66,638	1,102,403	1,971,200	1,922,000
1973	293,896	400,564	694,460	296,416	42,511	1,033,387	2,502,000	3,298,000
1974	418,519	455,556	874,075	417,676	46,224	1,337,975	4,073,600	4,672,000
1975	641,621	582,369	1,223,990	622,902	63,793	1,910,685	4,189,300	3,159,000
1976	818,588	554,414	1,373,002	580,110	115,217	2,068,329	4,239,600	2,131,000
1977	359,230	555,030	914,255	0	49,935	964,190	3,957,000	958,000
TOTAL(c)	2,932,855	3,726,333	6,659,183	2,964,042	739,013	10,362,238	29,213,800	25,363,000

a) Metric conversion is acre-feet times 1233.5 equals cubic metres.

b) A recreation day is the visit of one person to a recreation area for any part of one day.

c) In addition, dams of the State Water Project have prevented millions of dollars worth of flood damage.

TABLE 5: WATER QUALITY MEASUREMENTS AT SELECTED STATIONS IN 1977

Station	Monthly Samples	Concentrations (in parts per million unless otherwise noted)					
		Total Dissolved Solids	Total Hardness	Chlorides	Sulfates	(a) Sodium (%)	Boron
Thermalito Afterbay, Outlet to Feather River	Minimum	58	42	1.0	1.6	17	0.0
	Average	71	47	1.9	3.1	21	.04
	Maximum	95	58	2.9	4.8	23	0.1
Sacramento-San Joaquin Delta, Delta Pumping Plant	Minimum	406	125	120	44	57	0.1
	Average	582	165	222	61	65	0.3
	Maximum	726	170	304	70	71	0.4
South Bay Aqueduct, Santa Clara Terminal Facility	Minimum	433	124	127	50	58	0.1
	Average	567	153	211	61	65	0.2
	Maximum	708	175	290	68	72	0.4
California Aqueduct: Entrance to O'Neill Forebay	Minimum	445	145	137	53	57	0.1
	Average	620	155	213	61	64	0.2
	Maximum	725	172	307	71	71	0.3
Outlet from O'Neill Forebay	Minimum	331	122	95	45	55	0.2
	Average	458	153	144	66	57	0.2
	Maximum	667	190	245	92	60	0.3
Near Kettleman City	Minimum	342	124	97	50	54	0.1
	Average	447	149	138	66	58	0.2
	Maximum	540	170	176	86	61	0.4
Coastal Branch near Devil's Den	Minimum	326	121	92	43	55	0.1
	Average	415	144	125	61	57	0.2
	Maximum	490	168	155	80	60	0.4
Near Buena Vista Pumping Plant	Minimum	344	125	99	50	54	0.1
	Average	423	145	128	63	57	0.2
	Maximum	525	170	175	76	60	0.3
At Tehachapi Afterbay	Minimum	355	132	98	47	54	0.2
	Average	439	151	134	71	56	0.3
	Maximum	543	169	198	90	60	0.3
At Pearblossom Pumping Plant	Minimum	327	125	89	47	55	0.2
	Average	515	168	170	82	58	0.3
	Maximum	859	238	307	115	66	0.4
Silverwood Lake, Outlet to San Bernardino Tunnel	Minimum	269	115	75	39	50	0.2
	Average	405	148	125	61	54	0.3
	Maximum	510	162	149	68	56	0.4
Lake Perris, Outlet from Santa Ana Pipeline	Minimum	276	137	68	44	44	0.2
	Average	312	142	71	46	46	0.2
	Maximum	365	147	76	48	47	0.3
Pyramid Lake, Entrance to Angeles Tunnel	Minimum	252	122	62	45	44	0.2
	Average	297	134	69	54	46	0.3
	Maximum	376	145	78	63	47	0.4
Castaic Lake, Outlet Tower	Minimum	261	144	46	66	32	0.2
	Average	315	175	50	93	35	0.2
	Maximum	406	213	55	120	36	0.3
Monthly Average Quality Objectives		440	180	110	110	50	0.6

a) Amount of sodium in solution expressed as a percentage of the total sodium, calcium, magnesium and potassium in solution.

TABLE 6: MONTHLY POWER

(in millions of

Operations	Month						
	January	February	March	April	May	June	July
ENERGY GENERATED BY EDWARD HYATT (OROVILLE) AND THERMALITO POWERPLANTS (a)							
Gross Generation	63.05	60.20	75.49	107.79	58.07	91.66	110.90
Powerplant Use and Pumpback Requirements	40.40	29.92	58.41	.86	1.50	.60	1.24
Delivered to California Power Pool Companies	22.65	30.28	17.08	106.93	56.57	91.06	109.66
ENERGY USED BY PROJECT PUMPING PLANTS							
Interim (Cordelia)	.40	.35	.34	.28	.39	.44	.30
South Bay	4.94	8.76	12.16	9.16	13.23	11.57	11.76
Del Valle	.02	.29	.60	.12	.30	.01	.01
Tracy (State Share)	1.01	0	0	0	0	0	0
Delta	52.35	31.63	29.89	4.78	20.97	5.69	6.42
San Luis (State Share)	33.69	10.22	12.04	0	9.69	0	0
Dos Amigos (State Share)	6.83	7.68	6.64	4.69	5.87	13.77	18.21
Las Perillas	.35	.33	.38	.62	.56	1.11	1.61
Badger Hill	.89	.82	.98	1.66	1.54	3.03	4.23
Buena Vista	11.69	10.96	4.89	2.29	3.90	5.72	7.49
Wheeler Ridge	12.57	11.22	4.16	1.46	3.19	2.93	4.19
Wind Gap	27.98	25.28	8.62	2.50	6.38	4.34	6.38
A. D. Edmonston	97.59	86.93	29.10	8.00	20.51	13.04	19.67
Oso (West Branch)	3.70	1.71	.02	.01	.04	0	0
Pearblossom	21.06	22.54	8.31	.29	4.37	.58	.37
Devil Canyon S. S.	0	0	.01	0	0	0	0
Julian Hinds (b)	0	0	0	0	0	0	65.06
Total	275.07	218.72	118.14	35.86	90.94	62.23	145.70
SOURCES OF ENERGY FOR PROJECT							
San Luis Pumping-Generating Plant (State Share)	0	0	0	7.12	.31	24.58	23.98
Castaic Generating Plant (State Share)	15.00	5.76	3.19	0	.84	.84	0
Devil Canyon Generating Plant	42.80	41.01	3.10	1.18	2.26	1.67	2.05
Canadian Entitlement Power	37.52	33.64	37.70	35.22	36.44	34.33	37.18
California Suppliers	179.75	138.31	76.27	0	42.72	.52	16.31
Julian Hinds (b)	0	0	0	0	0	0	65.06
Total	275.07	218.72	120.26	43.52	82.57	61.94	144.58

a) Sold under terms of the Oroville-Thermalito Power Sale Contract, November 29, 1967.

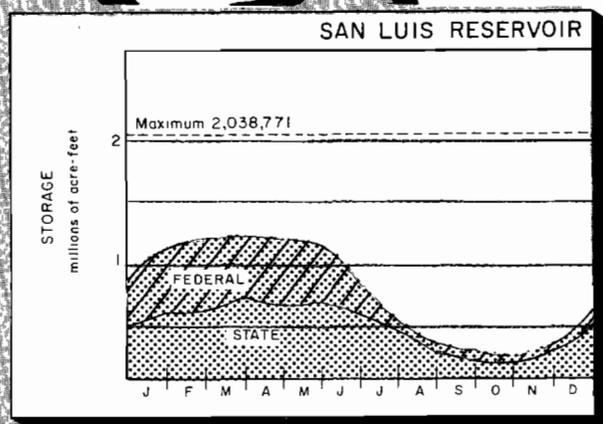
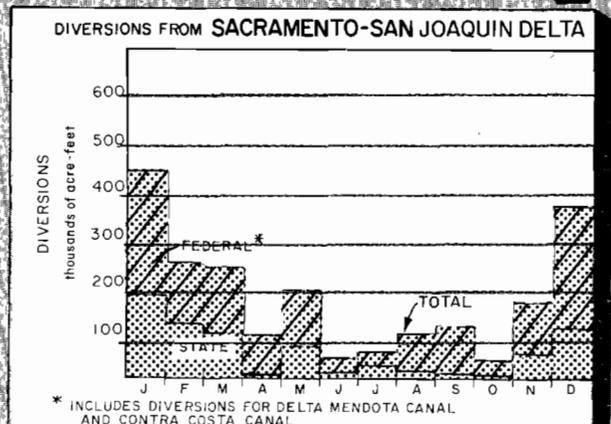
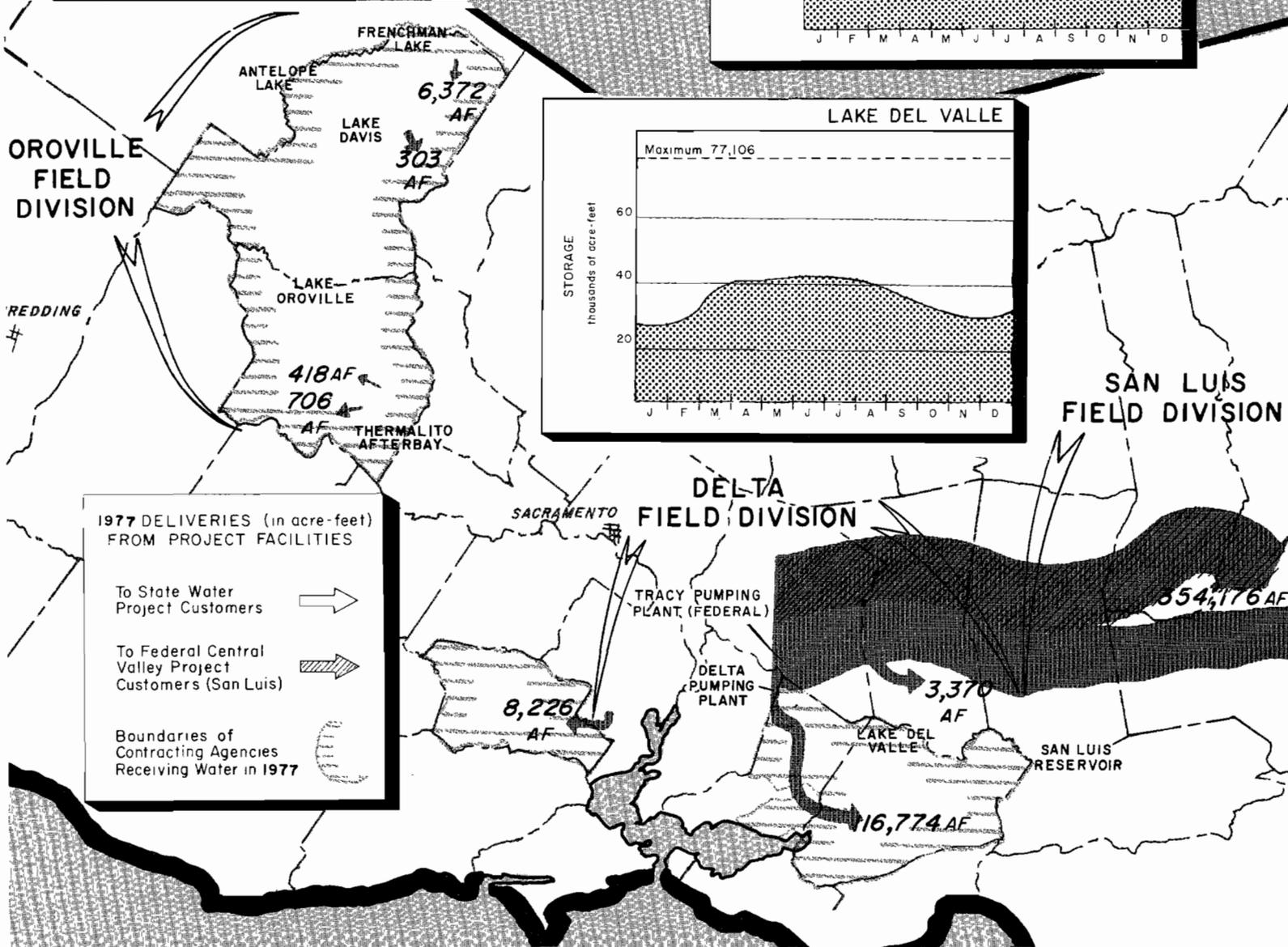
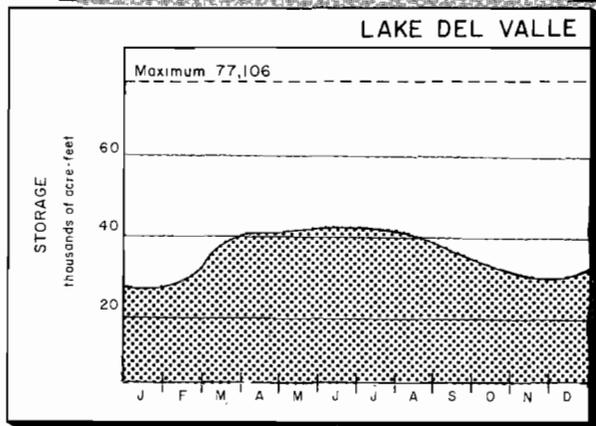
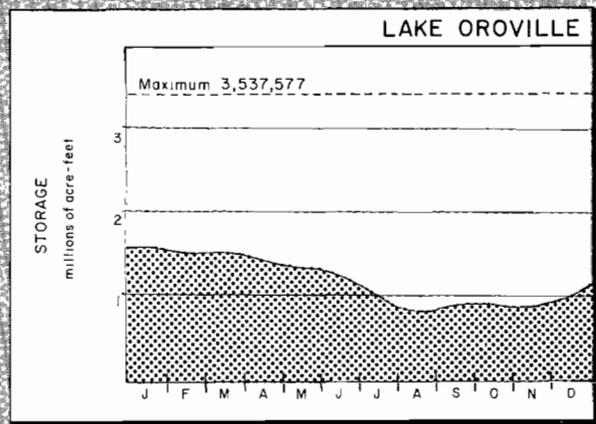
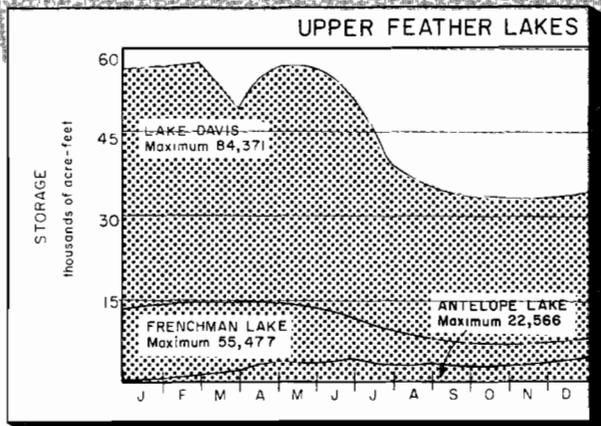
b) Energy for pumping Colorado River water for MWD in state water exchange program.

OPERATIONS IN 1977

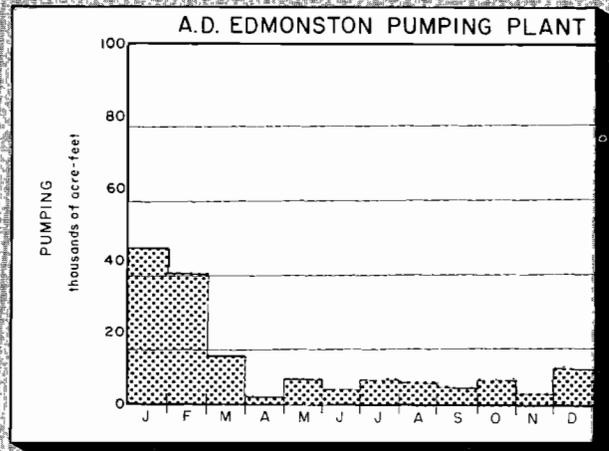
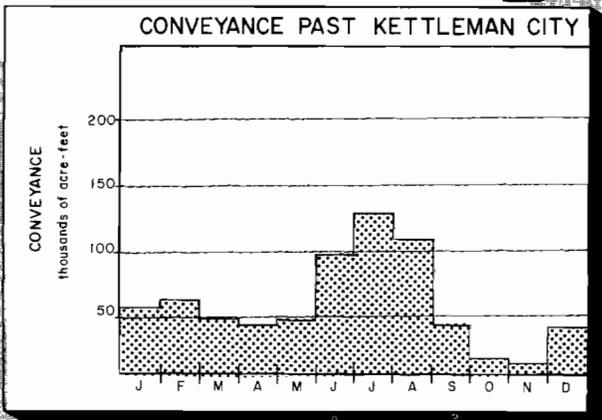
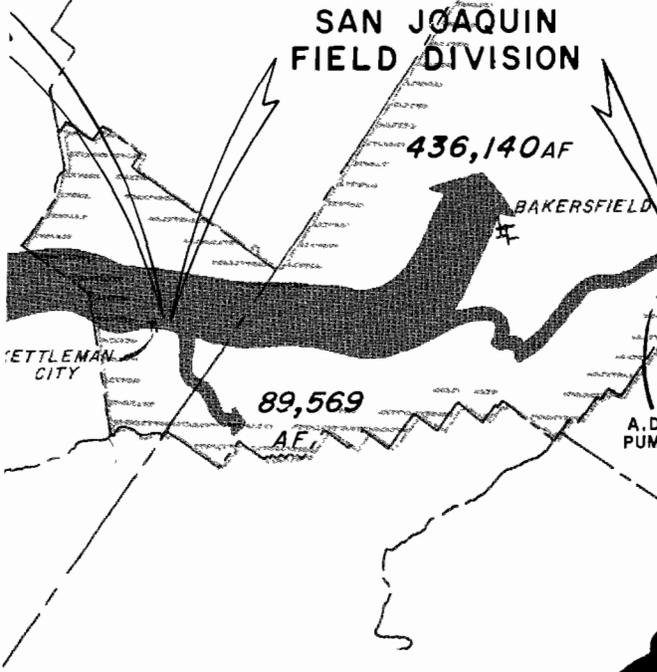
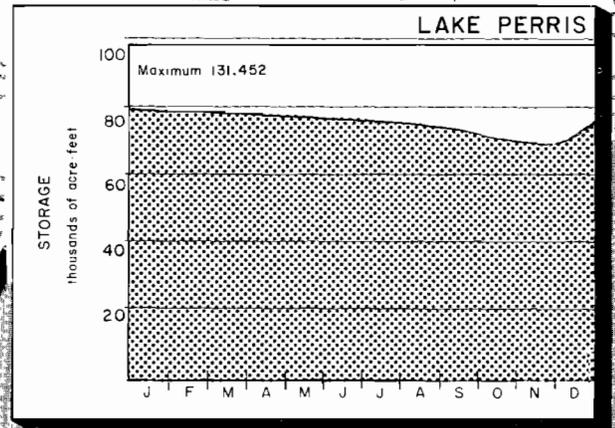
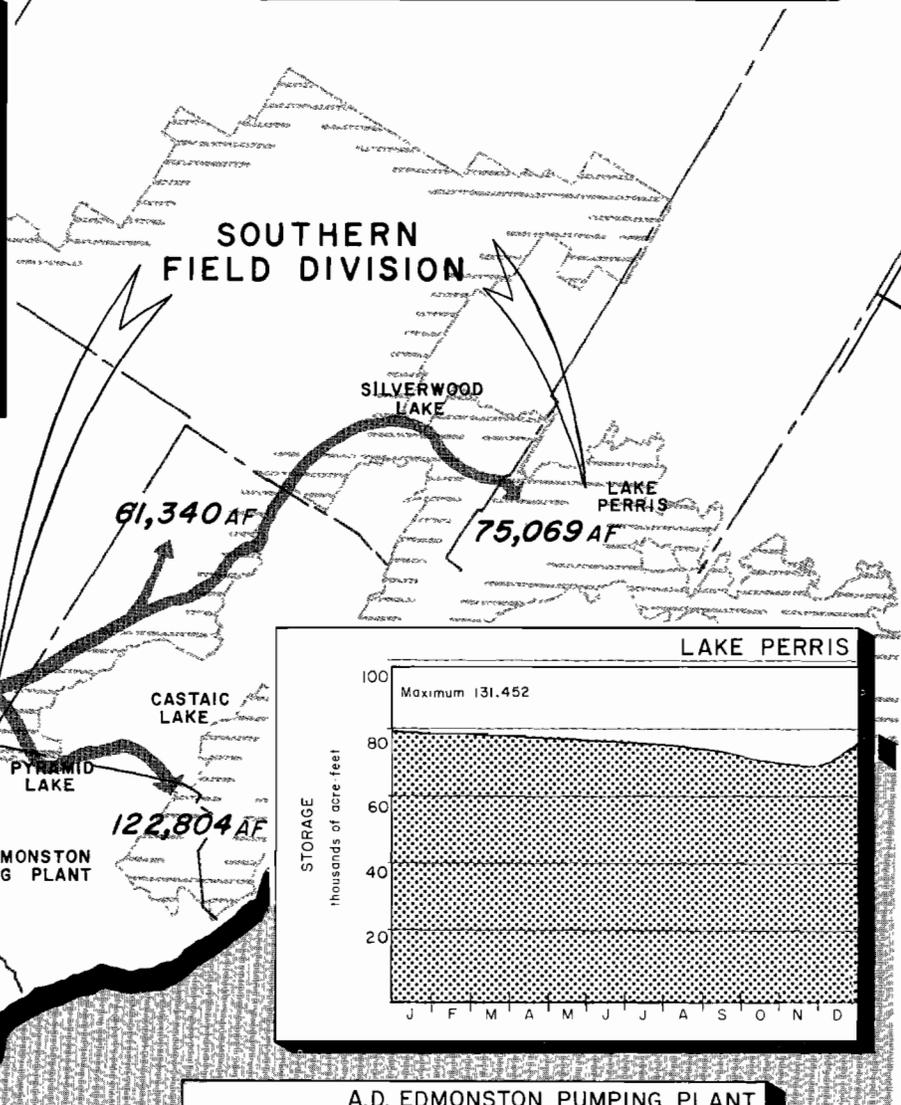
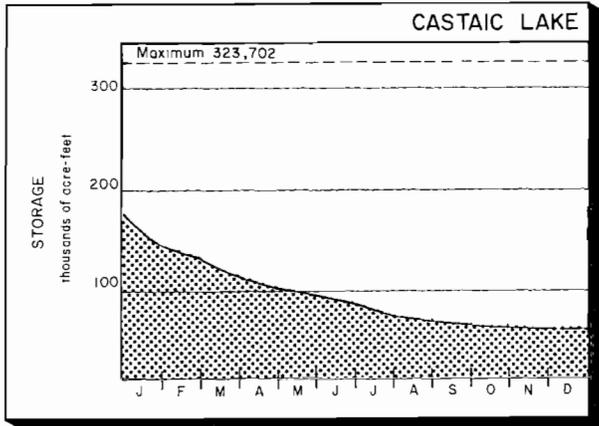
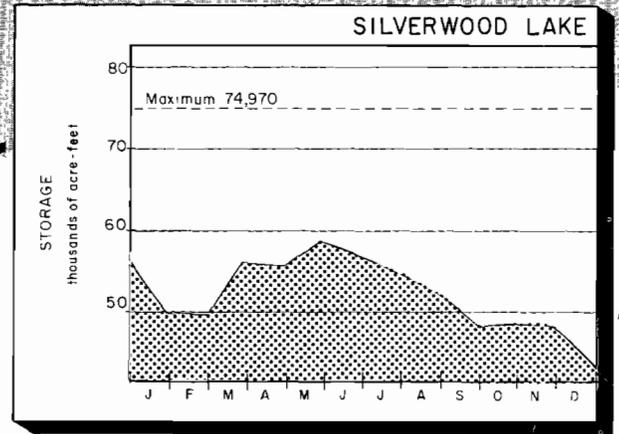
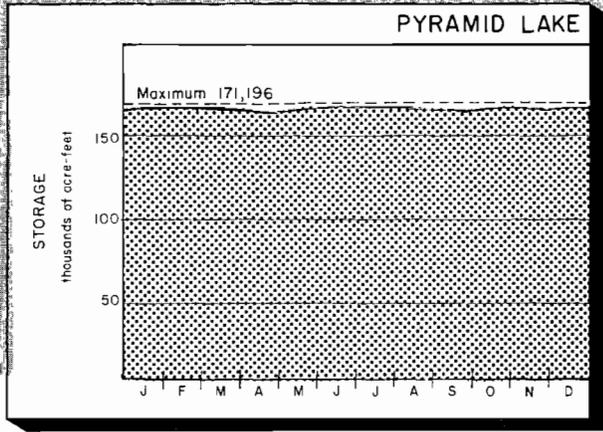
kilowatthours)

Month						Operations
August	September	October	November	December	Total	
						ENERGY GENERATED BY EDWARD HYATT (OROVILLE) AND THERMALITO POWERPLANTS (a)
84.58	21.82	14.37	22.95	19.75	730.63	Gross Generation
.71	2.61	1.63	1.56	.97	140.41	Powerplant Use and Pumpback Requirements
83.87	19.21	12.74	21.39	18.78	590.22	Delivered to California Power Pool Companies
						ENERGY USED BY PROJECT PUMPING PLANTS
.40	.43	.47	.33	.17	4.30	Interim (Cordelia)
10.11	6.64	6.47	5.57	5.96	106.33	South Bay
.03	.01	.01	.02	.02	1.44	Del Valle
0	0	0	0	0	1.01	Tracy (State Share)
4.82	2.92	2.49	15.69	60.88	238.53	Delta
0	0	.02	5.28	29.95	100.89	San Luis (State Share)
15.94	3.74	3.29	2.36	5.57	94.59	Dos Amigos (State Share)
.85	.34	.20	.14	.47	6.96	Las Perillas
2.32	.84	.48	.31	1.24	18.34	Badger Hill
6.15	2.91	2.50	1.74	4.02	64.26	Buena Vista
3.61	2.12	2.14	1.46	4.80	53.85	Wheeler Ridge
5.73	4.22	4.68	2.85	9.66	108.62	Wind Gap
17.43	13.18	15.63	9.22	33.71	364.01	A. D. Edmonston
0	0	0	0	2.20	7.68	Oso (West Branch)
.67	.24	3.12	2.69	5.32	69.56	Pearblossom
0	0	0	0	0	.01	Devil Canyon S. S.
<u>113.68</u>	<u>86.28</u>	<u>116.56</u>	<u>109.62</u>	<u>75.11</u>	<u>566.31</u>	Julian Hinds (b)
181.74	123.87	158.06	157.28	239.08	1,806.69	Total
						SOURCES OF ENERGY FOR PROJECT
14.91	1.64	2.31	.09	0	74.94	San Luis Pumping-Generating Plant (State Share)
.02	0	0	0	6.26	31.91	Castaic Generating Plant (State Share)
2.69	3.11	2.31	5.37	12.84	120.39	Devil Canyon Generating Plant
35.82	36.25	36.52	35.29	36.40	432.31	Canadian Entitlement Power
14.62	1.75	.16	1.98	108.44	580.83	California Suppliers
<u>113.68</u>	<u>86.28</u>	<u>116.56</u>	<u>109.62</u>	<u>75.11</u>	<u>566.31</u>	Julian Hinds (b)
181.74	129.03	157.86	152.35	239.05	1,806.69	Total

Figure 7: SUMMARY OF PROJECT



WATER OPERATIONS, 1977



RECREATION AND FISH AND WILDLIFE ACTIVITIES

About 4.0 million people used the State Water Project for recreation during 1977, about a 5 percent decrease from the 4.2 million recreationists reported in 1976. The decrease can be attributed to conditions brought on by the drought, which dropped the water levels in most major reservoirs. The recreation total includes people engaged in camping, boating, swimming, fishing (lake or aqueduct), bicycling, and other recreation activities at Project facilities.

Approximately 1.0 million visitor days of use occurred at Project visitors centers. This is a 23 percent decrease from the 1.3 million people visiting the facilities in 1976. Visitors include people entering or stopping near visitors centers and overlooks, and those participating in guided tours of Project facilities. No new visitor centers were constructed in 1977.

About 18,600 cyclists used the California Aqueduct Bikeway in 1977; 900 along the Aqueduct from Bethany Reservoir to O'Neill Forebay, and 17,700 in the Antelope Valley area. This is less than a 1-percent increase over the 18,500 cyc-

lists reported for 1976. The total length of bikeway in operation is approximately 270 kilometres (168 miles). This includes 8 kilometres (5 miles) added in 1977 to the Southern California bikeway, which now extends from Quail Lake to near Silverwood Lake. An additional 2.4 kilometres (1.5 miles) across Big Rock Creek in the Pearblossom area of Southern California is now in the design stage.

In addition to the overall decrease in recreational use of the Project in 1977, the drought also adversely affected the quality of many recreation activities. It appears that precipitation in 1978 is above average, and both the quality and quantity of recreation activity at most Project facilities should improve significantly. Also, fish and wildlife habitat damaged by drought conditions should begin to recover this year. It will take several years of normal rainfall for some of the wildlife habitat areas to recover completely.

Recreation use in 1976 and 1977 is shown in the following table:



Recreationists at Lake Del Valle.

Facility	Recreation Use in Recreation Days		Facility	Recreation Use in Recreation Days	
	1977	1976		1977	1976
Oroville Field Division			San Luis Field Division (Cont'd)		
Frenchman Lake	121,700	146,600	California Aqueduct		
Antelope Lake	14,700	80,200	Walk-in fishing	3,400	5,000
Lake Davis	263,200	252,000	TOTAL	426,200	382,400
Lake Oroville Complex	411,200	462,800			
TOTAL	810,800	941,600	San Joaquin Field Division		
Delta Field Division			Lost Hills F.A.S.	1,700	1,100
Lake Del Valle	313,400	228,900	Buttonwillow F.A.S.	1,600	1,000
Clifton Court Forebay	5,100	10,900	Cadet Road F.A.S.	500	400
Cottonwood Road F.A.S.	700	700	Kettleman City F.A.S.	1,100	700
Niels Hansen F.A.S.	700	700	California Aqueduct		
Orestimba F.A.S.	700	900	Walk-in-fishing	21,000	24,000
California Aqueduct			TOTAL	25,900	27,200
Walk-in fishing	17,000	18,600			
California Aqueduct			Southern Field Division		
Bikeway	900	900	Castaic Lake	832,500	963,700
TOTAL	338,500	261,600	Silverwood Lake	375,300	412,400
San Luis Field Division			Pyramid Lake	320,800	330,100
San Luis Reservoir			Lake Perris	781,500	879,800
O'Neill Forebay, and			77th Street, East F.A.S.	5,300	7,855
Los Banos Reservoir	419,500	373,400	Longview Road F.A.S.	7,300	2,362
Canyon Road F.A.S.	400	500	California Aqueduct		
Mervel Avenue, F.A.S.	300	300	Walk-in fishing	15,200	13,027
Fairfax F.A.S.	400	700	California Aqueduct		
Three Rocks F.A.S.	400	800	Bikeway	17,700	17,600
Huron F.A.S.	500	600	TOTAL	2,355,600	2,626,844
Avenal Cutoff F.A.S.	1,300	1,100			
			GRAND TOTAL, SWP	3,957,000	4,239,644

Additional details on recreation and fish and wildlife activities within each field division are presented in the following paragraphs:

Oroville Field Division

Fishing success at Antelope Lake has been declining for several years. In the fall of 1976 the lake was drawn down and chemically treated to control undesirable species of fish. Because of the drought, Antelope Lake did not return to normal water level in 1977; however, the lake was planted with 15,000 rainbow trout (catchables) and 69,000 rainbow trout (fingerlings).

The Department of Fish and Game planted Lake Davis with 276,000 rainbow trout (fingerlings) in 1977. Frenchman Lake was planted with 17,000 rainbow trout (subcatchables) and 132,000 rainbow trout (fingerlings).

Lake Oroville was planted with 40,000 rainbow trout (catchables), 10,000 brown trout (catchables), 25,000 brown trout (subcatchables), 60,000 silver salmon (subcatchables), and 181,000 kokanee salmon (fingerlings).

At Lake Oroville construction of a 150-person group campground at Loafer Creek was completed. This campground includes food preparation units, fire rings, comfort stations, and employee trailer quarters. Reconstruction of the historic Bidwell Bar Bridge and Tollhouse was completed in 1977. The Department of Parks and Recreation began construction of a new outdoor program and campfire area at Loafer Creek.

A new comfort station and landscaping were completed at the Oroville Spillway Marina launching ramp. New boating facilities include installation of sanitary facilities at the Craig, Sycamore, Bloomer, and Foreman Boat-in Areas. At Thermalito Forebay a lane was added to the existing boat ramp and additional walkways, shade structures, and minor landscaping were completed.

At the Oroville Wildlife Area a canal was enlarged to create more wetland habitat. Many of the ponds were deepened to provide enough water to carry wildlife through the drought. Some vegetation in the Wildlife Area died during the 1976-77 drought and were replaced.

Hunting and fishing access were maintained at Thermalito Afterbay during 1977. Estimated use by waterfowl hunters totaled about 3,000 user days.

Delta Field Division

Public hunting for waterfowl was conducted at Clifton Court Forebay from October 22, 1977, through January 22, 1978. A total of 795 hunters were issued permits and took 841 birds for an average of 1.1 birds per hunter-day. The Forebay is best suited for hunting by scull boat. Hunters using the banks or hunting from conventional boats were least successful.

At Bethany Reservoir a new two-lane boat ramp facility was completed with a 66-car-and-trailer parking area, shade structures, a water intake system, and landscaping.

San Luis Field Division

During 1977 the Department of Fish and Game conducted an extensive angler creel census at San Luis Reservoir and O'Neill Forebay. To get information on growth and movement of striped bass, tagging was begun in January 1977, with 234 stripers being tagged.

Based on a year long creel census, an estimated 79,000 anglers spent 475,000 hours fishing on San Luis Reservoir. This represents a 43-percent decline in angler hours from 1976 estimates. The estimated catch of striped bass declined to about 93,000 fish. An estimated 7,800 fish of other species, principally black crappie, American shad, and white catfish, were also caught.

An estimated 116,000 anglers spent 734,000 hours fishing O'Neill Forebay during 1977. This is 40 percent fewer hours than estimated in 1976. The estimated catch of striped bass decreased about 30 percent to 97,000 fish. The white catfish harvest also declined by 68 percent to about 43,000 fish caught in 1977.

At San Luis Reservoir, construction of facilities at the Basalt Campground was completed in 1977. These facilities consist of 79 campsites, comfort stations, play areas, landscaping, a trailer sanitation station, and other utilities. A new water treatment plant and landscaping were completed at the Basalt Boat Launching Area.

California Aqueduct Fishery

Aerial use-counts of anglers along the California Aqueduct from Bethany Reservoir to A. D. Edmonston (Tehachapi) Pumping Plant were made on nine days during 1977. Assuming that angler use on weekends is similar and the five weekdays' use is equal to the corresponding weekends' use, an estimated 35,000 anglers used the California Aqueduct from Bethany Reservoir to A. D. Edmonston (Tehachapi) pumping Plant in 1977. About 10 percent of the use took place at developed fishing access sites. The total aqueduct angler use showed a 6 percent increase over 1976.

Surveys conducted periodically from January through June 1977 indicated that 666 anglers interviewed had fished a total of 1,064 hours to catch 96 striped bass and 33 catfish. Average catch per angler hour for striped bass and catfish were 0.09 and 0.03 fish per hour, respectively. Fishing success on the aqueduct was generally lower than in 1976.

Southern Field Division

Silverwood Lake was planted with 257,500 rainbow trout, 21,600 brown trout, 36,000 brown trout (fingerlings), and

5,400 channel catfish. Silverwood Lake is continuing to have a good carryover of both rainbow trout and brown trout. Anglers are catching trophy size trout in excess of two pounds each and striped bass are becoming more evident in the catch.

At Silverwood Lake, construction of a bicycle campground in Miller Canyon and a 30-car parking lot in the Cleghorn Bay Use Area was completed in 1977. Other improvements included a new kiosk and campfire center.

Lake Perris was planted with 195,000 rainbow trout, 11,600 brown trout, 25,000 brown trout (subcatchables), and 10,000 channel catfish. Alabama spotted bass were successful in spawning and produced a good number of young in 1977. Florida bluegill are in the process of replacing the green sunfish population in Lake Perris. Sampling indicates these two species are now in about equal numbers. Tags continue to return from the channel catfish which were tagged with \$5.00 reward tags in 1976.

The fourth year of hunting activity at Lake Perris resulted in about the same hunting pressure and take of upland game and waterfowl as 1976. Lake Perris continues to provide moderately productive recreational hunting opportunities for the unattached hunter in Southern California. At Lake Perris, construction of an additional campground, picnic areas, bicycle and equestrian trails, two entrance stations, and a water treatment plant was completed in 1977. Phase III construction is now underway and is scheduled for completion in 1978. Included in Phase III are family and group campgrounds, an interpretive area, a vehicular camp, a trailer sanitary station, and an employee residence.

Pyramid Lake was planted with 130,500 rainbow trout and 19,600 brown trout. Striped bass fishing at Pyramid Lake continues to be very good.

At Pyramid Lake, improvements were made at the Yellow Bar, Bear Trap, Spanish Point, and Vaqueros Boat-in Areas. These improvements include 50 picnic sites with shade structures, a water system, and extensive tree plantings. Also, the Emigrant Landing Boat Ramp was improved by the addition of a walkway and boat dock.

Castaic Lake and Lagoon were planted with 203,800 rainbow trout, and Castaic Lake was planted with 11,600 brown trout and 15,200 channel catfish. The average size of bass caught at Castaic Lake in 1977 was about 330 millimetres (13 inches). Angler acceptance of the 305 millimetre (12-inch) size limit on large mouth bass was reported as good. In 1977, tags continued to return from the channel catfish tagged and released in 1975.

The existing boat ramp at Castaic Ridge was improved by the addition of two lanes, and the adjacent slopes were stabilized with riprap.

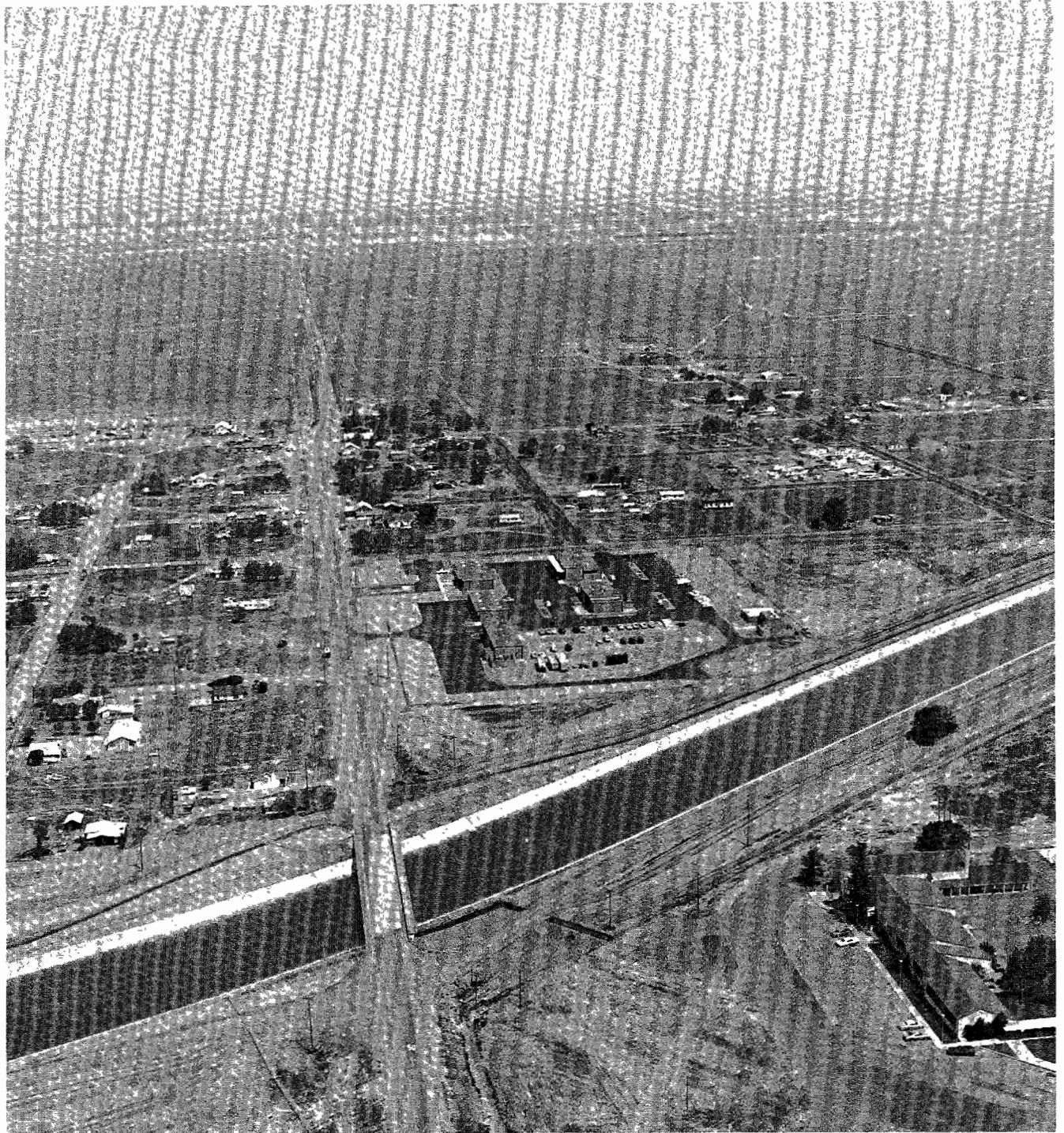
Southern California Wildlife Preservation

In 1977, agreement was reached with the United States Forest Service on a plan to mitigate wildlife habitat losses resulting from inundation or development of State Water Project facilities on federally owned land. The plan involves

the purchase by the Department of about 607 hectares (1,500 acres) and privately owned land within the Los Padres, Angeles and San Bernardino National Forests in Southern California. The acquired parcels will be turned over to the Forest Service for management. The Department will also provide funds for modest development to improve wildlife habitat values, and for 10 years' management costs.

The Department is working with the California Department of Fish and Game on plans to mitigate damage to wildlife habitat on lands that were privately owned and subsequently acquired by the Department for construction of the State Water Project. Wildlife habitat losses in this category were greater than those from federal lands. Wildlife habitat was impacted on about 6 475 hectares (16,000 acres) of privately owned land, with habitat losses amounting to an equivalent 3 642 hectares (9,000 acres).

A mitigation plan has not yet been agreed upon for wildlife impact on lands that were privately owned. Several potential areas were considered. Site selection has now been limited almost entirely to the San Jacinto Valley area east of Perris Lake in Riverside County. Some of the land involved is already owned by the Department, having been purchased for the State Water Project.



Aerial view of Lost Hills O&M Center.

CHAPTER III

FUTURE CONSTRUCTION COSTS, OPERATING COSTS AND PROJECT FINANCING

Bulletin 132-77 did not include a chapter on project financing, due to the undefined status of the Project additional conservation facilities when the Bulletin was prepared. As a result of the Delta Alternatives Review a water management plan was formulated which defined recommended additional conservation facilities to supply water for the SWP through the year 2000. The water management plan also reflects water conservation and wastewater reclamation in the projection of future water needs. The Project financial analysis in this chapter includes the recommended additional conservation facilities from the Delta Alternatives Review and representative costs to develop water supply after the year 2000 (see line 18). (Line numbers indicate lines of Table 7 and respective line descriptions in this chapter.)

As of December 31, 1977, over \$2.3 billion had been expended by the Department for constructing the facilities of the State Water Project. These expenditures include costs of planning, design, relocations, land acquisition, and operations during the construction period of each facility.

While the initial project facilities were completed in 1973, continuing construction will be required to develop the remaining minimum Project yield, which will be used to satisfy future demands. The Department's current assumptions concerning costs of future facilities indicate that capital expenditures could eventually total \$14 billion, which includes \$7 billion to allow for future cost escalation. This total includes approximately \$4 billion for undefined facilities needed after year 2000, which are not included in the Delta Alternative Review. This total also includes approximately \$2.8 billion assumed to be paid by the federal government on

facilities which will be jointly used. The above estimate does not include potential cost to the Project for possible future sources of pumping power now being studied. An estimate of these costs and the financing required are discussed in the Power Costs Section (following the financial analysis narrative). It is assumed these costs will be financed by Central Valley Project revenue bonds and will be supported through the power rates included in Project water charges. Their omission does not effect the basic validity of the financial analysis.

Also excluded from the above estimates are the costs of project-associated works which, though essential for realizing full project benefits, are financed and constructed by local and State public agencies other than the Department. Such associated works include:

- o Distribution systems, required to convey water from Project aqueducts to users, financed and constructed by water contractors and their member units. The costs of such works are estimated to total \$2.36 billion, \$1.02 billion of which had been incurred as of the end of 1977.
- o Onshore recreation developments at Project facilities, financed and constructed by a variety of State and local agencies. Almost \$100 million had been expended for such developments through 1977, with a like amount expected in the future.

On the other hand, the Department's capital expenditures for the Project include requirements other than those for construction, such as:

- o Disbursements under the Davis-Grunsky Act Program (see Line 23).

- o Annual principal and interest payments for additional water conservation storage capacity assumed to be eventually constructed by the federal government. Such additional storage is required to satisfy the water delivery demands after 1989 in the Department's water management plan (see Line 24).
- o Special capital requirements under revenue bond financing (see Line 25).

This chapter presents a detailed analysis showing a financially viable State Water Project, producing enough revenues to pay all annual costs of operations and maintenance, to meet all repayment obligations on funds used to finance construction and, eventually to produce financing for additions to the Project that may be authorized in the future.

The financial analysis is shown in Table 7 in two spreads. Actual and projected capital expenditures and sources of financing are shown in Spread 1 and graphically in Figure 8. Actual and anticipated revenues and the application thereof to pay Project operating expenses and to repay capital financing are shown in Spread 2 and graphically in Figure 9.

The financial analysis is based on the major assumption that the Department would sell revenue bonds in connection with the construction of future Project facilities -- with proceeds sufficient to fulfill the currently estimated need for supplemental financing. (Supplemental financing refers to funds in excess of those (1) on hand; (2) anticipated under current agreements and legislative enactments; (3) authorized Water Bonds, to the extent issued, and issued Revenue Bonds; and (4) assumed to be provided under future agreements with the United States in connection with the Delta Facilities, Los Vaqueros Reservoir and Glenn Reservoir Complex). The analysis indicates a total need for supplemental construction funds of \$763.0 million (\$868.9 million including bond

interest, operating costs, and bond discount) occurring during the nine-year period 1979 through 1987. The analysis also assumes no change in the present statutory provisions regarding State tideland oil and gas revenues. As explained in Line 28, if revenue available to the California Water Fund declines after 1985, there could be an additional \$700 million of supplemental construction funds required.

Additional supplemental funds needed would be supplied by future sale of revenue bonds as authorized by the Central Valley Project Act. Revenue to support the bonds could be provided by payments made by agencies benefiting from the facilities built with the bond proceeds.

Future conditions undoubtedly will cause changes in the financial analysis set forth in Table 7. For this reason, basic assumptions are comprehensively reviewed and the financial analysis updated periodically. Notable contingencies that could change the financial analysis are:

- o A delay beyond the current 1981 target date for financial participation by the United States in the construction of joint-use Peripheral Canal.
- o Deviation from estimates of available energy and its costs.
- o Deviation of actual rates of future construction price inflation from those currently assumed for cost estimates.
- o Rescheduling of currently planned construction for future facilities.
- o Possible development of alternative sources of additional water not included in present plans.
- o Need to expand the Project to serve areas not now contemplated.

**Figur 8: FINANCING OF CONSTRUCTION EXPENDITURES,
1952-2035**

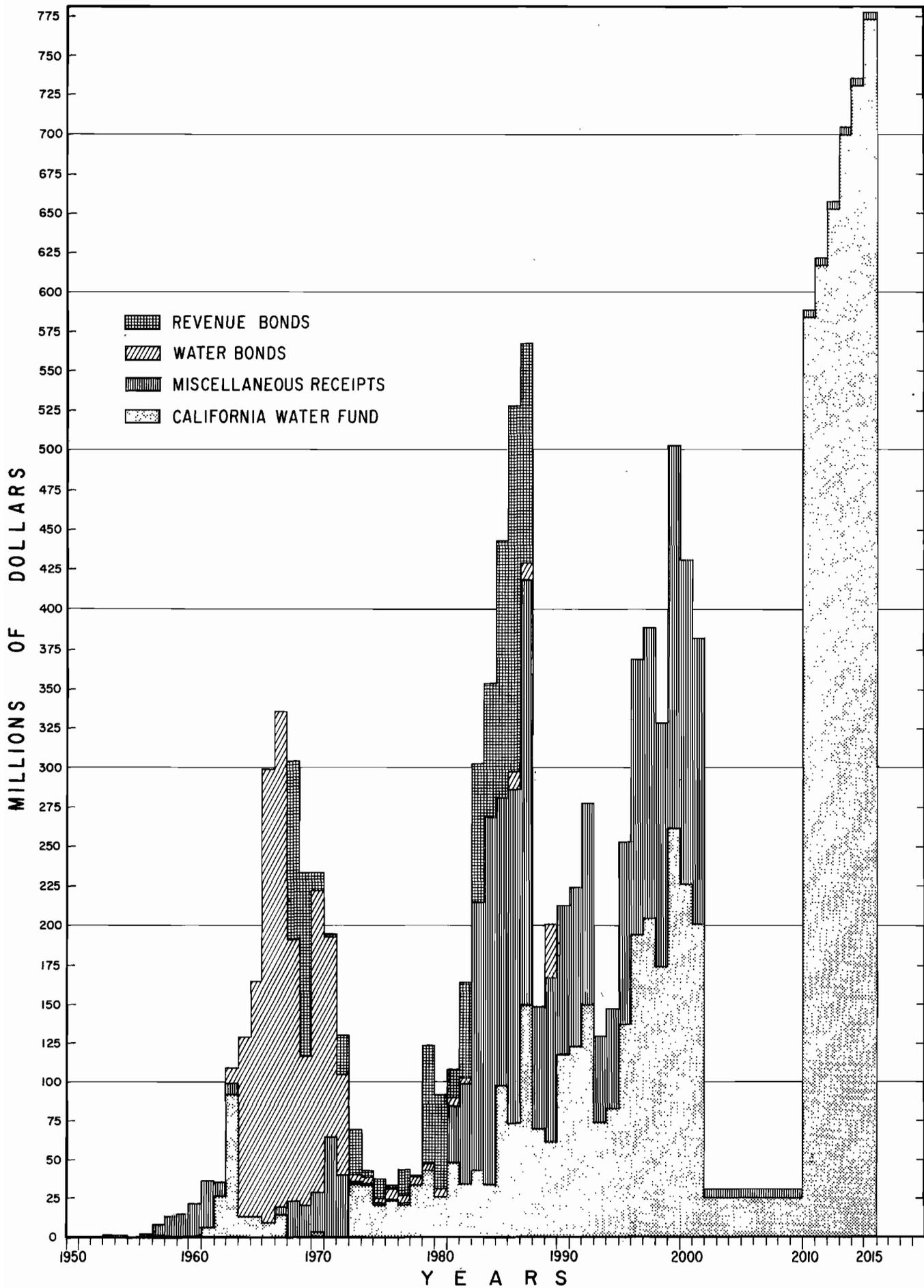


Figure 9: APPLICATION OF PROJECT OPERATING REVENUES

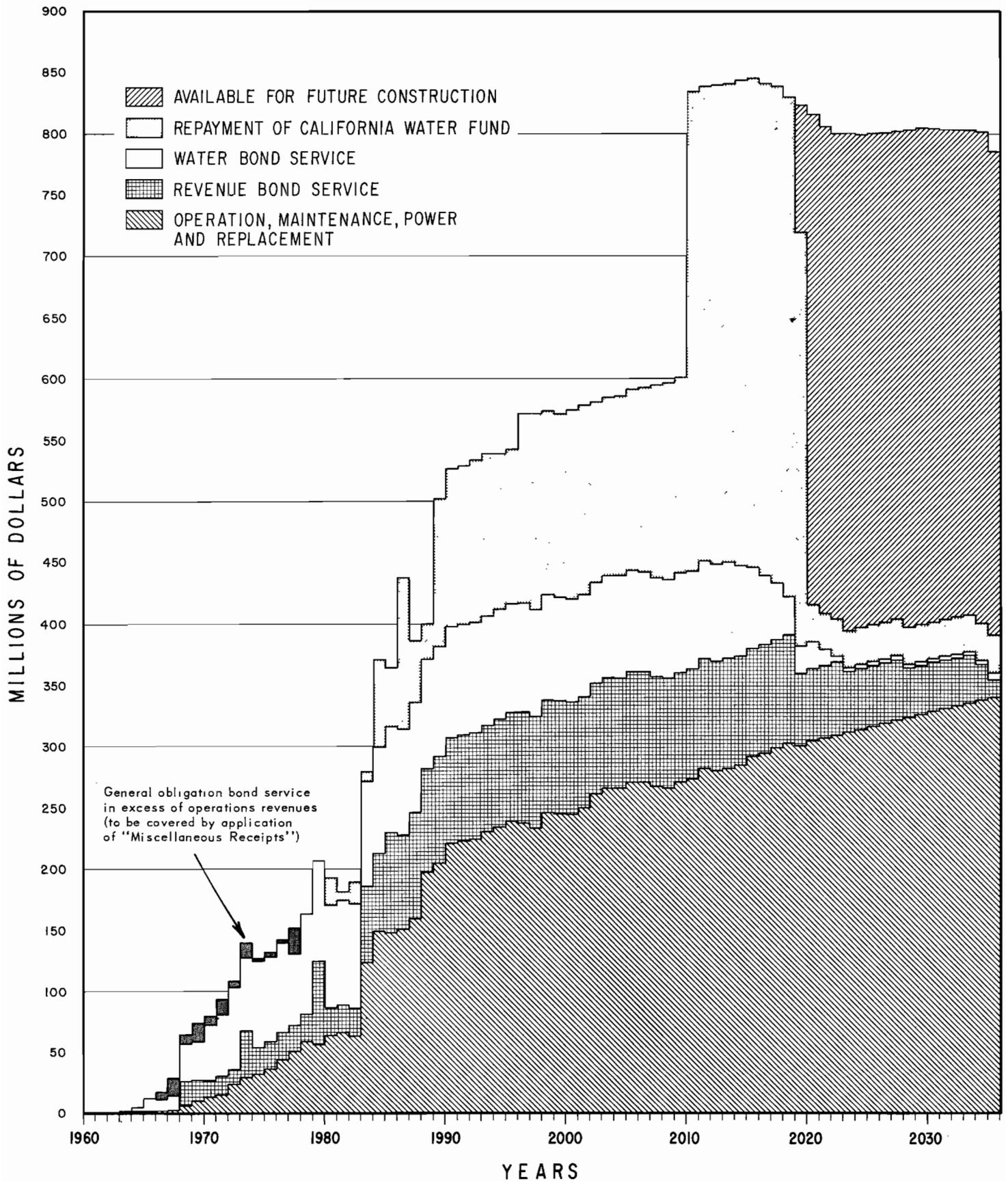


TABLE 7: PROJECT FINANCIAL

(in thousands)

LINE NO.	LINE ITEM	CALENDAR							
		1952-1977	1978	1979	1980	1981	1982	1983	1984
		<u>CAPITAL</u>							
	PROJECT CONSTRUCTION EXPENDITURES								
1.	Initial Project Facilities	2,180,126	0	0	0	0	0	0	0
2.	Abbey Bridge and Dixie Refuge Dams and Reservoirs	766	0	0	0	0	0	0	0
3.	Phase II North Bay Aqueduct	414	189	188	775	1,266	8,132	10,492	2,250
4.	Delta Facilities	39,726	6,676	13,942	16,689	33,968	66,492	98,294	84,364
	California Aqueduct:								
5.	Final Four Units at Delta Pumping Plant	558	295	867	1,949	3,316	6,745	7,298	3,279
6.	San Luis Canal Modifications	0	0	0	0	500	1,500	3,556	7,992
7.	Final Three Units at A. D. Edmonston Pumping Plant	130	490	1,818	5,085	9,984	8,938	3,551	383
8.	Staged Units and Pipelines South of A. D. Edmonston	18,435	333	175	2,615	5,435	3,528	2,750	730
9.	Buttes Dam and Reservoir	50	1	7	24	132	291	986	7,881
10.	Final Three Units at Las Perillas and Badger Hill	769	0	0	0	0	23	116	480
11.	Peace Valley Pipeline and Pyramid Powerplant	8,947	11,389	30,719	29,211	14,531	5,373	95	0
12.	Cottonwood Powerplant	2,725	869	2,282	8,365	7,348	2,202	52	0
13.	Phase II of the Coastal Branch	0	0	834	1,544	2,191	7,655	30,963	36,366
14.	Enlargement of California Aqueduct, Mojave Division	0	0	0	0	475	2,257	4,206	12,629
15.	General Costs	58,116	7,600	11,719	10,392	3,937	2,435	1,375	609
16.	SUBTOTAL, California Aqueduct	89,730	20,977	48,421	59,185	47,849	40,947	54,948	70,349
17.	Miscellaneous Project Costs	15,323	1,903	1,797	555	348	283	284	283
18.	Additional Conservation Facilities	8,502	3,503	4,290	3,641	7,636	15,311	59,619	89,118
19.	San Joaquin Drainage Facilities	8,271	469	350	321	321	321	321	321
20.	SUBTOTAL, PROJECT CONSTRUCTION EXPENDITURES	2,342,858	33,717	68,988	81,166	91,388	131,486	223,958	246,685
21.	Cost Escalation Allowance	0	597	2,614	5,621	11,677	28,426	65,694	89,119
22.	TOTAL PROJECT CONSTRUCTION EXPENDITURES	2,342,858	34,314	71,602	86,787	103,065	159,912	289,652	335,804
	OTHER CAPITAL REQUIREMENTS								
23.	Davis-Grunsky Act Program	105,101	5,188	5,224	5,224	5,224	4,039	0	0
24.	Additional Conservation Facilities-Storage Payments	0	0	0	0	0	0	0	0
25.	Special Capital Requirements under Revenue Bond Financing	39,121	0	46,351	0	0	0	12,579	17,335
26.	TOTAL OTHER CAPITAL REQUIREMENTS	144,222	5,188	51,575	5,224	5,224	4,039	12,579	17,335
27.	TOTAL CAPITAL REQUIREMENTS	2,487,080	39,502	123,177	92,011	108,289	163,951	302,231	353,139
		<u>FINANCING OF</u>							
28.	APPLICATION OF CALIFORNIA WATER FUND MONEYS	306,934	33,501	42,655	25,750	48,475	34,033	43,304	33,599
	APPLICATION OF PROCEEDS FROM SALE OF BONDS:								
29.	Oroville Revenue Bonds	244,995	0	0	0	0	0	0	0
30.	Devil Canyon-Castaic Revenue Bonds	89,636	813	4,038	31,211	376	13,064	15	7
31.	Supplemental Revenue Bonds	0	0	71,260	29,826	17,828	48,316	87,412	83,573
32.	Water Bonds, Davis-Grunsky Program	105,101	5,188	5,224	5,224	5,224	4,039	0	0
33.	Water Bonds, Additional Conservation Facilities	8,502	0	0	0	0	0	0	0
34.	Water Bonds, Initial Project Facilities	1,443,758	0	0	0	0	0	0	0
35.	TOTAL, Application of Proceeds from Sale of Bonds	1,891,992	6,001	80,522	66,261	23,428	65,419	87,427	83,580
36.	APPLICATION OF MISCELLANEOUS RECEIPTS TO CONSTRUCTION	288,154	0	0	0	36,386	64,499	171,500	235,960
37.	TOTAL FINANCING OF CAPITAL REQUIREMENTS	2,487,080	39,502	123,177	92,011	108,289	163,951	302,231	353,139

ANALYSIS, DECEMBER 31, 1977

of dollars)

Spread 1 of 2

YEARS											TOTAL 1952- 2035	LINE NO.	
1985	1986	1987	1988	1989	1990	1991- 1995	1996 2005	2006 2015	2016 2025	2026 2035			
<u>EXPENDITURES</u>													
0	0	0	0	0	0	0	0	0	0	0	0	2,180,126	1.
0	0	0	0	0	0	0	0	0	0	0	0	766	2.
98	0	0	0	0	0	0	0	0	0	0	0	23,804	3.
39,439	29,000	50,948	73,947	47,329	8,830	40	0	0	0	0	0	609,684	4.
125	0	0	0	0	0	0	0	0	0	0	0	24,432	5.
8,382	0	0	0	0	0	0	0	0	0	0	0	21,930	6.
0	0	0	0	0	0	0	0	0	0	0	0	30,379	7.
0	0	0	0	0	0	0	0	0	0	0	0	34,001	8.
9,019	0	0	0	0	0	0	0	0	0	0	0	18,391	9.
639	0	0	0	0	0	0	0	0	0	0	0	2,027	10.
0	0	0	0	0	0	0	0	0	0	0	0	100,265	11.
0	0	0	0	0	0	0	0	0	0	0	0	23,843	12.
29,449	0	0	0	0	0	0	0	0	0	0	0	109,002	13.
42,015	47,450	14,463	295	0	0	0	0	0	0	0	0	123,790	14.
717	0	0	0	0	0	0	0	0	0	0	0	96,900	15.
90,346	47,450	14,463	295	0	0	0	0	0	0	0	0	584,960	16.
275	0	0	0	0	0	0	0	0	0	0	0	21,051	17.
154,481	249,227	261,007	14,587	62,794	81,861	360,127	652,525	504,000	0	0	0	2,532,229	18.
321	0	0	0	0	0	0	0	0	0	0	0	11,016	19.
284,960	325,677	326,418	88,829	110,123	90,691	360,167	652,525	504,000	0	0	0	5,963,636	20.
138,390	201,862	231,209	59,826	90,425	91,887	519,321	1,565,442	3,397,000	0	0	0	6,499,110	21.
423,350	527,539	557,627	148,655	200,548	182,578	879,488	2,217,967	3,901,000	0	0	0	12,462,746	22.
0	0	0	0	0	0	0	0	0	0	0	0	130,000	23.
0	0	0	0	0	30,281	151,405	302,810	302,810	302,810	302,810	302,810	1,392,926	24.
20,000	0	9,586	0	0	0	0	0	0	0	0	0	144,972	25.
20,000	0	9,586	0	0	30,281	151,405	302,810	302,810	302,810	302,810	302,810	1,667,898	26.
443,350	527,539	567,213	148,655	200,548	212,859	1,030,893	2,520,777	4,203,810	302,810	302,810	302,810	14,130,644	27.
<u>CAPITAL EXPENDITURES</u>													
97,347	74,038	149,189	69,645	61,114	116,798	566,678	1,361,793	4,153,810	302,810	302,810	302,810	7,824,283	28.
0	0	0	0	0	0	0	0	0	0	0	0	244,995	29.
5	0	0	0	0	0	0	0	0	0	0	0	139,165	30.
161,551	230,869	138,265	0	0	0	0	0	0	0	0	0	868,900	31.
0	0	0	0	0	0	0	0	0	0	0	0	130,000	32.
0	10,117	10,719	0	34,334	0	0	0	0	0	0	0	63,672	33.
0	0	0	0	0	0	0	0	0	0	0	0	1,443,758	34.
161,556	240,986	148,984	0	34,334	0	0	0	0	0	0	0	2,890,490	35.
184,447	212,515	269,040	79,010	105,100	96,061	464,215	1,158,984	50,000	0	0	0	3,415,871	36.
443,350	527,539	567,213	148,655	200,548	212,859	1,030,893	2,520,777	4,203,810	302,810	302,810	302,810	14,130,644	37.

TABLE 7: PROJECT FINANCIAL

(in thousands)

LINE NO.	LINE ITEM	CALENDAR							
		1952-1977	1978	1979	1980	1981	1982	1983	1984
		<u>MISCELLANEOUS RECEIPTS AND</u>							
	MISCELLANEOUS RECEIPTS								
38.	Federal Payments for Project Capital Expenditures	75,431	384	1,077	234	36,386	64,499	125,859	135,703
39.	Appropriations Prior to the Burns-Porter Act	98,975	0	0	0	0	0	0	0
40.	Appropriations for Capital Costs Allocated to Recreation	60,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
41.	Appropriations Under SB 261 (1968)	82,661	0	0	0	0	0	0	0
42.	City of Los Angeles Payments for Castaic Power Development	36,502	0	0	0	0	0	0	0
43.	Water Contractor Advances for Construction Requested Works	71,608	26	59	36	81	43	50	25
44.	Investment Earnings on Unexpended Miscellaneous Receipts	77,399	6,200	13,600	12,300	10,500	8,600	8,300	8,500
45.	TOTAL MISCELLANEOUS RECEIPTS	502,576	11,610	19,736	17,570	51,967	78,142	139,209	149,228
		<u>PROJECT OPERATING REVENUES</u>							
46.	Payments Under Oroville Power Sale Contract	141,737	16,150	16,150	16,150	16,150	16,150	32,883	20,031
47.	Payments Under Devil Canyon-Castaic Contract	40,684	8,978	8,978	8,978	8,978	8,978	9,878	9,872
48.	Payments (assumed) for Supplemental Revenue Bonds	0	0	0	0	0	5,769	17,749	23,149
49.	Payments Under Long-term Water Supply Contracts	717,720	116,088	131,601	151,750	149,085	147,456	197,041	290,615
50.	Federal Payments for Project Operating Costs	15,978	2,645	2,676	2,617	2,617	2,615	2,612	2,612
51.	Appropriations for Operating Costs Allocated to Recreation	10,324	2,647	2,392	2,524	2,541	2,575	2,864	3,351
52.	Payments Under Davis-Grunsky Loan Repayment Contracts	2,181	219	509	716	1,093	1,225	1,714	1,900
53.	Miscellaneous Revenues	124,101	2,000	48,351	2,000	2,000	2,000	14,579	19,335
54.	TOTAL PROJECT OPERATING REVENUES	1,052,725	148,727	210,657	184,735	182,464	186,768	279,320	370,865
55.	TOTAL MISCELLANEOUS RECEIPTS & PROJECT OPERATING REVENUES	1,555,301	160,337	230,393	202,305	234,431	264,910	418,529	520,093
		<u>APPLICATION OF MISCELLANEOUS RECEIPTS</u>							
56.	CARRYOVER (+) AND APPLICATION (-) OF RECEIPTS AND REVENUES HELD TEMPORARILY IN RESERVE	70,550	3,205	23,025	8,617	15,581	11,178	-32,291	-86,732
57.	PROJECT OPERATING COSTS	261,404	58,862	56,319	63,699	66,541	63,235	123,609	149,038
58.	DEPOSITS TO SPECIAL RESERVES UNDER REVENUE BOND FINANCING	61,212	288	40,877	-11,243	-11,242	-11,238	21,627	18,415
	PAYMENTS OF BOND SERVICE:								
	Bonds Sold Through December 31, 1977:								
59.	Interest Payments	838,926	83,557	88,938	88,117	87,151	86,091	84,957	83,697
60.	Principal Repayments	35,055	14,425	15,465	17,965	20,070	21,380	23,665	25,105
	ASSUMED FUTURE BOND SALES:								
61.	Interest Payments	0	0	5,769	11,874	12,212	12,211	17,613	23,013
62.	Principal Repayments	0	0	0	0	0	0	0	0
63.	TOTAL BOND INTEREST PAYMENTS	838,926	83,557	94,707	99,991	99,363	98,302	102,570	106,710
64.	TOTAL BOND PRINCIPAL REPAYMENTS	35,055	14,425	15,465	17,965	20,070	21,380	23,665	25,105
	REPAYMENT OF THE CALIFORNIA WATER FUND								
65.	Required for Construction	0	0	0	23,276	7,732	17,554	7,849	71,597
66.	Not Required for Construction	0	0	0	0	0	0	0	0
67.	APPLICATION OF MISCELLANEOUS RECEIPTS TO CONSTRUCTION	288,154	0	0	0	36,386	64,499	171,500	235,960
68.	SUBTOTAL, Repayment of Capital Financing	323,209	14,425	15,465	41,241	64,188	103,433	203,014	332,662
69.	RESERVATION FOR FUTURE CONSTRUCTION	0	0	0	0	0	0	0	0
70.	TOTAL APPLICATION OF MISCELLANEOUS RECEIPTS AND PROJECT OPERATING REVENUES	1,555,301	160,337	230,393	202,305	234,431	264,910	418,529	520,093

ANALYSIS, DECEMBER 31, 1977

of dollars)

Spread 2 of 2

YEARS											GRAND TOTAL	LINE NO.	
1985	1986	1987	1988	1989	1990	1991 1995	1996 2005	2006 2015	2016 2025	2026 2035			
<u>PROJECT OPERATING REVENUES</u>													
157,974	198,015	260,340	74,010	100,100	91,061	439,215	1,108,984	0	0	0	2,869,272	38.	
0	0	0	0	0	0	0	0	0	0	0	98,975	39.	
5,000	5,000	5,000	5,000	5,000	5,000	25,000	50,000	50,000	50,000	50,000	350,000	40.	
0	0	0	0	0	0	0	0	0	0	0	82,661	41.	
0	0	0	0	0	0	0	0	0	0	0	36,502	42.	
40	0	0	0	0	0	0	0	0	0	0	71,968	43.	
8,300	9,500	3,700	0	0	0	0	0	0	0	0	166,899	44.	
171,314	212,515	269,040	79,010	105,100	96,061	464,215	1,158,984	50,000	50,000	50,000	3,676,277	45.	
20,032	20,041	20,040	20,053	20,053	20,055	100,296	200,668	200,700	200,722	200,730	1,298,791	46.	
9,863	9,855	9,847	9,841	9,829	9,823	48,937	97,554	99,471	71,985	0	482,329	47.	
38,377	54,322	56,723	64,149	67,284	67,283	339,686	714,262	700,487	588,666	426,456	3,164,362	48.	
264,012	340,887	277,984	285,011	385,025	408,768	2,087,502	4,538,879	6,176,142	7,070,303	7,165,856	30,901,725	49.	
3,346	3,689	3,756	11,292	11,271	11,360	60,363	146,200	163,184	163,200	163,200	775,233	50.	
4,470	4,463	4,728	5,414	4,721	5,139	25,758	50,635	53,254	53,477	53,580	294,857	51.	
1,923	1,938	2,037	2,012	2,002	1,949	9,437	18,926	15,060	6,100	2,997	73,938	52.	
22,000	2,000	11,586	2,000	2,000	2,000	10,000	20,000	20,000	0	0	305,952	53.	
364,023	437,195	386,701	399,772	502,185	526,377	2,681,979	5,787,124	7,428,298	8,154,453	8,012,819	37,297,187	54.	
535,337	649,710	655,741	478,782	607,285	622,438	3,146,194	6,946,108	7,478,298	8,204,453	8,062,819	40,973,464	55.	
<u>AND PROJECT OPERATING REVENUES</u>													
-13,133	0	0	0	0	0	0	0	0	0	0	0	56.	
147,987	150,256	159,520	196,847	204,763	220,546	1,150,214	2,516,108	2,764,884	3,054,122	3,291,722	14,699,676	57.	
21,080	1,085	10,676	1,093	1,097	1,100	5,582	11,664	12,718	4,116	0	178,907	58.	
82,377	80,994	79,536	77,995	76,423	74,823	348,176	547,236	286,988	32,002	0	3,127,984	59.	
26,050	27,505	29,365	30,845	32,435	33,915	191,375	482,490	682,450	244,600	0	1,954,160	60.	
38,241	53,916	56,951	64,377	64,378	64,226	317,976	590,315	477,610	304,317	107,172	2,222,171	61.	
0	0	0	0	2,055	2,814	21,305	121,967	211,860	271,007	305,322	936,330	62.	
120,618	134,910	136,487	142,372	140,801	139,049	666,152	1,137,551	764,598	336,319	107,172	5,350,155	63.	
26,050	27,505	29,365	30,845	34,490	36,729	212,680	604,457	894,280	515,607	305,322	2,890,490	64.	
48,288	123,439	50,653	28,615	121,034	128,953	647,351	1,517,344	2,622,277	302,810	302,810	6,021,582	65.	
0	0	0	0	0	0	0	0	369,511	1,433,190	0	1,802,701	66.	
184,447	212,515	269,040	79,010	105,100	96,061	464,215	1,158,984	50,000	0	0	3,415,871	67.	
258,785	363,459	349,058	138,470	260,624	261,743	1,324,246	225,194	3,936,098	2,251,607	608,132	14,130,644	68.	
0	0	0	0	0	0	0	0	0	2,558,389	4,055,793	6,614,082	69.	
535,337	649,710	655,741	478,782	607,285	622,438	3,146,194	6,946,108	7,478,298	8,204,453	8,062,819	40,973,464	70.	

- o Changes in contractors' entitlements due to changing needs,
- o Construction contractors' claims.

Furthermore, the outcome of certain lawsuits now pending before the courts (see Chapter I) could affect Project capital expenditures or anticipated Project revenues.

With regard to the first contingency, the Department will not construct the

Peripheral Canal without financial participation by the United States (Bureau of Reclamation). If the form of financial participation is a contract between the State and the Bureau for the conveyance (wheeling) of Central Valley Project Water through the Peripheral Canal, rather than a federal appropriation of construction funds as assumed in this financial analysis, the indicated need for supplemental funds would increase during the period from 1981 through 1990.

Project Construction Expenditures

Actual and projected construction expenditures for each construction division of the Project are shown in Table 8 -- together with a preliminary allocation of such total expenditures among Project purposes. A generalized construction schedule for the contracts in progress and future contracts is shown in Figure 10.

Described in the following sections are the Department's current assumptions concerning the costs of each facility of the future construction program as set forth in Table 7. As to any project not yet constructed, a decision to proceed will be made only after examination of all alternatives and completion of a final environmental impact report and other review processes.

Lines 1 through 20 show costs based on prices and salaries prevailing on December 31, 1977. The portion of cost attributed to escalation is shown in Line 21.

Line 1: Initial Project Facilities. This is the cost of the facilities included in the initial construction program concluded in 1973 (see Chapter II, Bulletin 132-74). Additional costs after 1973 and estimated costs of remaining work on the initial Project facilities are included in Lines 15 and 17, "California Aqueduct, General Costs" and "Miscellaneous Project Costs". Line 1 also includes a \$16.3 million expenditure in 1977 for the settlement of the McNamara-Fuller claim on the initial construction contract for the Oroville

Powerplant (see Bulletin 132-77, page 31).

Line 2: Abbey Bridge and Dixie Refuge Dams and Reservoirs. Beginning in Bulletin 132-76, the Department assumed these reservoirs to be postponed indefinitely until there is local support and demonstrated need for them.

Line 3: Phase II of the North Bay Aqueduct. The current schedule is for Phase II to be operational in 1983. However, the Solano and Napa County Flood Control and Water Conservation Districts and the Department are continuing to study the future needs of the area served by the North Bay Aqueduct. The ultimate schedule for completion of this facility will depend on the result of these studies.

Line 4: Delta Facilities. The estimated expenditures included in Bulletin 132-77 assumed that some type of Delta Transfer Facility would be operational by 1984. However, as a result of the Delta Alternative Review study the Department has recommended the Peripheral Canal as the Delta Transfer Facility (see Chapter I, Delta Alternative Review). The expenditures shown in this line assume that Stage 1 and Stage 2 would be operational in 1985 and Stage 3 operational in 1990. This timing was based on the assumption that SB 346 would be approved early in 1978 and was the earliest date at which the State would be able to develop a water supply

Figur 10: GENERALIZED CONSTRUCTION SCHEDULE

FACILITY, CONSTRUCTION DIVISION OR FEATURE	CALENDAR YEAR										
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
UPPER FEATHER DIVISION											
ABBEY BRIDGE AND DIXIE REFUGE DAMS AND RESERVOIRS		(NOT SCHEDULED)									
DELTA FACILITIES											
ADDITIONAL PROJECT CONSERVATION FACILITIES											
SAN JOAQUIN VALLEY AND SOUTHERN CALIFORNIA											
GROUND WATER STORAGE FACILITIES											
LOS VAQUEROS RESERVOIR											
COTTONWOOD CREEK PROJECT											
GLENN RESERVOIR COMPLEX											
FUTURE CONSERVATION FACILITIES											
NORTH BAY AQUEDUCT											
(PHASE II) LINDSEY SLOUGH THRU CORDELIA PUMPING PLANT											
NORTH SAN JOAQUIN DIVISION											
DELTA PUMPING PLANT, 11 UNITS											
UNITS 8, 9, 10, 11											
SAN LUIS DIVISION											
SAN LUIS CANAL MODIFICATIONS											
TEHACHAPI DIVISION											
A. D. EDMONSTON PUMPING PLANT, 14 UNITS											
UNITS 10, 12, & 14 (FINAL)											
PASTORIA SIPHON, SECOND BARREL											
MOJAVE DIVISION											
COTTONWOOD POWERPLANT											
BUTTES DAM AND RESERVOIR											
EAST BRANCH ENLARGEMENT											
WEST BRANCH											
PYRAMID POWERPLANT											
PEACE VALLEY PIPELINE											
QUAIL FACILITIES											
CASTAIC DAM OUTLET WORKS, STAGE II											
COASTAL BRANCH											
LAS PERILLAS AND BADGER HILL PUMPING PLANTS, 6 UNITS EACH											
UNIT 4, EACH PLANT											
UNIT 6, EACH PLANT											
DEVIL'S DEN PUMPING PLANT THRU SANTA MARIA TERMINUS, PHASE II											
SAN JOAQUIN DRAINAGE FACILITIES											

TABLE 8: PROJECT CAPITAL EXPENDITURES

(in thousands of dollars)

FACILITIES AND CONSTRUCTION DIVISIONS	INCURRED THRU 1977	FUTURE EXPENDITURES	TOTAL	PRELIMINARY ALLOCATIONS AMONG PROJECT PURPOSES			
				Water Supply and Power Generation	Flood Control (a)	Recreation and Fish and Wildlife Enhancement	Other (b)
PROJECT CONSTRUCTION REQUIREMENTS							
Feather River Facilities;							
Upper Feather Division	14,413	8	14,421	1,285	0	13,136	0
Oroville Division	526,833	6,686	533,519	451,256	69,967	12,296	0
North Bay Aqueduct	4,614	30,400	35,014	35,014	0	0	0
Delta Facilities	39,726	780,388	820,114	365,252	0	59,464	395,398
South Bay Aqueduct	70,075	189	70,264	49,592	7,168	13,480	24
California Aqueduct							
North San Joaquin Division	156,911	33,025	189,936	183,379	0	6,557	0
San Luis Division	177,556	28,331	205,887	198,029	0	7,650	208
South San Joaquin Division	266,035	2,200	268,235	260,162	0	8,073	0
Tehachapi Division	264,253	45,069	309,322	300,052	0	9,270	0
Mojave Division	219,335	251,500	470,835	462,118	0	8,717	0
Santa Ana Division	188,655	5,184	193,839	183,291	0	10,548	0
West Branch	371,837	118,296	490,133	472,503	0	17,364	266
Coastal Branch	15,963	146,158	162,121	162,016	0	0	105
Subtotal	1,660,545	629,763	2,290,308	2,221,550	0	68,179	579
Additional Conservation Facilities	8,502	10,062,026	10,070,528	7,583,477	0	97,606	2,389,445
San Joaquin Drainage Facilities	8,271	3,354	11,625	0	0	0	11,625
Unassigned	9,879	0	9,879	0	0	0	9,879
Subtotal	2,342,858	11,512,814	13,855,672	10,707,426	77,135	264,161	2,806,950
OTHER CAPITAL REQUIREMENTS							
Davis-Grunsky Act Program	105,101	24,899	130,000	0	0	0	130,000
TOTAL	2,447,959	11,537,713	13,985,672	10,707,426	77,135	264,161	2,936,950

a) Reflects Department's allocation to this purpose, irrespective of federal payments.

b) Includes costs currently unassigned to purpose, planning costs of deleted features of project facilities, initial costs of inventoried items, joint costs assigned to the Federal Government, and costs assigned to the Davis-Grunsky Act Program.

from this facility. Until some further action is taken, the State believes that under dry or critically dry conditions, it will not be able to meet requested entitlement amounts after 1981, unless the requested amounts are reduced by water conservation and/or wastewater reclamation.

Line 5: California Aqueduct, Final Four Units at Delta Pumping Plant. These 30.2-cubic-metre-per-second (1.067-cubic-foot-per-second) units are scheduled to be operational in 1984.

Line 6: California Aqueduct, San Luis Canal Modifications. These modifications would be required to maintain and, eventually, to augment the present conveyance capacity between Dos Amigos Pumping Plant and Kettleman City. Measures to compensate for subsidence along the canal would cost about \$8.5 million (State share) between 1981 and 1985. Also included is \$13.4 million (\$19.1 million, including escalation allowance) between 1983 and 1985 for increasing the State's share of conveyance capacity by about 28.3 cubic metres per second (1,000 cubic feet per second). This increase would be required to accommodate greater projected deliveries than estimated in 1959 when design capacities were established for the canal.

Line 7: California Aqueduct, Final Three Units at A. D. Edmonston (Tehachapi) Pumping Plant. The current schedule is for two of these 8.9-cubic-metre-per-second (315-cubic-foot-per-second) units to be operational in 1982 and the third unit in 1983. This is one year later than reported in Bulletin 132-77.

Line 8: California Aqueduct, Staged Units and Pipelines South of A. D. Edmonston (Tehachapi) Pumping Plant. Additional capacity would be installed as needed to convey growing Project water deliveries through staged features, including the second barrel of Pastoria Creek Siphon (to be completed in 1982) and Castaic Dam and Outlet Works, Second Stage (to be completed in 1984).

Line 9: California Aqueduct, Buttes Dam and Reservoir. Current assumptions are that this off-aqueduct reservoir would be operational by 1986 to regulate project water deliveries to Antelope Valley-East Kern Water Agency. Under the Agency's water supply contract, construction of the facility by the State is conditioned on engineering and financial feasibility. Studies are presently underway to determine if the operational date can be revised.

Line 10: California Aqueduct, Final Three Units at Both Las Perillas and Badger Hill Pumping Plant. These 3.2-cubic-metre-per-second (112-cubic-foot-per-second) units were installed by the Berrenda Mesa Water District, at the District's expense, under special agreement with the Department. Units No. 5 and the second discharge line at Badger Hill were purchased, at depreciated value, in January, 1977. Current assumptions are that the Department would replace Unit No. 4 by January 1986, and Unit No. 6 would be purchased at depreciated values in January 1985.

Line 11: California Aqueduct, Peace Valley Pipeline and Pyramid Powerplant. The costs shown in this line are for the first stage of the pipeline and powerplant complex which is scheduled to be operational in 1982. For a description of the facilities see Chapter I, Future Southern California Recovery Plants.

Line 12: California Aqueduct, Cottonwood Powerplant. This proposed power recovery plant on the East Branch is scheduled for operation in 1982. For a description of the facilities see Chapter I, Future Southern California Recovery Plants.

Line 13: California Aqueduct, Phase II of the Coastal Branch. Phase II construction of the Coastal Branch would include and extend from the proposed Devil's Den Pumping Plant to a terminus on the Santa Maria River for water service to San Luis Obispo County and Santa Barbara County Flood Control and Water Conservation Districts. For purposes of

this analysis, Phase II is assumed to be operational in 1986.

Line 14: Enlargement of California Aqueduct, Mojave Division. A part of the recommendation from the Delta Alternative Review is to enlarge the California Aqueduct between the Cottonwood Power Plant and Silverwood Lake. This is to provide enough capacity to transport both increased amounts of entitlement water for The Metropolitan Water District of Southern California and water for ground water storage in Southern California ground water basins. The analysis assumes the enlargement will be completed in 1988. (It should be noted that the operation studies basic to projected energy requirements does not reflect this potential enlargement.)

Line 15: California Aqueduct, General Costs. These expenditures cover such items as general design and construction costs, completion of aqueduct monitor and control systems and operation and maintenance facilities, and other completion activities for initial Project facilities of the California Aqueduct. Portions of these costs would be allocated to the aqueduct units described in the preceding paragraphs.

Line 16: Subtotal, California Aqueduct. The total of Lines 5 through 15.

Line 17: Miscellaneous Project Costs. These expenditures cover such items as the completion of monitor and control systems and other completion activities for initial project facilities other than the California Aqueduct.

Line 18: Additional Conservation Facilities. The water supply provided by Lake Oroville, San Luis Reservoir and the Peripheral Canal will eventually be insufficient to satisfy growing water delivery obligations under executed contracts. Prior to Bulletin 132-76, it was assumed the needs for additional water would be met by contracting for unused conserved water in the Delta, obtaining water from the federal Cottonwood Creek Project and contracting for

water from some form of Eel River Development (see pages 73, 74, lines 17 and 21, of Bulletin 132-75 for a more complete description).

Since Eel River development is prohibited under the California Wild and Scenic River Act, and no other future additional conservation facilities were defined at that time, the Bulletin 132-76 financial analysis assumed the construction of unspecified future facilities. The costs were considered representative of the eventual costs required to meet the remaining Project demands.

Eel River planning studies were terminated in 1977 and will be reactivated in 1982 to prepare the report required for the Legislature in 1985.

As discussed in Chapter I, the Delta Alternatives Review Program has recommended future actions which will include the construction of certain facilities to provide water storage to meet projected water needs to year 2000. Line 18 includes construction costs for ground water storage, Los Vaqueros Reservoir, the Glenn Reservoir Complex and future water supply planning costs. The above mentioned facilities and the federal Cottonwood Creek Project (Line 24) would provide enough storage to meet projected demands assuming future water conservation and waste water reclamation. However, to meet the State Water Project ultimate demand of 5 217.7 million cubic metres (4,230,000 acre-feet) facilities would be required after year 2000. Since no facility has been defined, the financial analysis includes assumed construction costs between years 2010 and 2015 to provide approximately 518.1 million cubic metres (420,000 acre-feet) of firm yield. These costs would be representative of costs required to construct a surface reservoir.

The timing and sizing of the future facilities depends upon several contingencies which include:

- o Legislative approval, to the extent necessary, of the Delta Alternatives Review Program recommendations.
- o Federal participation in facilities which are to be joint SWP-CVP facilities.
- o Implementation of water conservation by water users and increased waste water reclamation.
- o Changes in the projected water demands due to changing needs.

Line 19: San Joaquin Drainage Facilities. Included are the costs of (1) monitoring the quality of subsurface agricultural waste waters in the San Joaquin Valley; (2) studies on treatment of agricultural waste waters for reuse, management, and disposal in support of San Joaquin Valley Interagency Drainage Program; and (3) the Department's share of the costs for the Interagency Drainage Program involving the Department, the State Water Resources Control Board, and the U. S. Bureau of Reclamation.

A major component of the Interagency Drainage Program is the determination of an equitable method for repayment of construction and operation costs of drainage facilities. The Department believes that consideration should be given to methods that do not necessarily require full repayment by the primary beneficiaries, as is usually the case

with a water delivery system. The Department also believes there is a statewide interest in solving valley drainage problems. The program will propose a specific plan, including recommended facilities.

Line 20: Subtotal: Project Construction Expenditures. The total of Lines 1 through 19.

Line 21: Cost Escalation Allowance. Estimates of future construction expenditures shown in Lines 1 through 19 are based on prices and salaries prevailing on December 31, 1977. The amounts in Line 21 are the estimated cost increases that could be expected to occur due to escalation. The following assumed percentages were applied to allow for escalation:

Year	Percent Increase Per Annum	
	State Salaries	Construction Prices
1978	6	6
After 1978	5	6

Land acquisition costs are assumed to escalate 7 percent per annum.

These escalation rates are believed to be those most probable to occur, given the present economic climate.

Line 22: Total Project Construction Expenditures. The total of Lines 20 and 21.

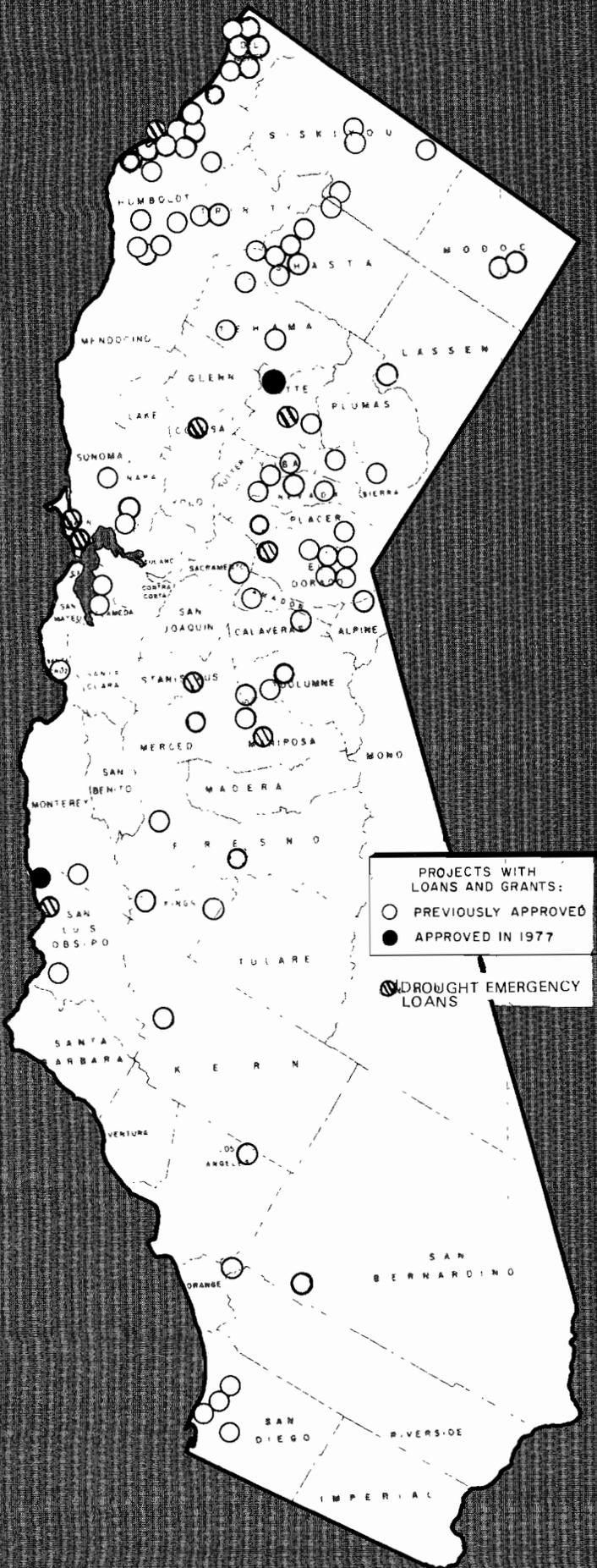


Figure 11: LOCAL PROJECTS
 UNDER THE
 DAVIS-GRUNSKY ACT PROGRAM

Other Capital Requirements

In addition to construction expenditures, capital requirements of the Project include the items discussed in the following paragraphs:

Line 23: Davis-Grunsky Act Program. This state financial assistance program for water developments constructed by local public agencies is authorized by the Burns Porter Act which provided \$130 million in capital financing. These expenditures include disbursements for approved loans and grants and the Department's administrative costs incurred while the developments are under construction. (Administrative costs following construction are funded by Project revenues.)

As of December 31, 1977, the Department and the California Water Commission had approved more than \$108.7 million in grants and loans for 87 local agencies located throughout the State as indicated on Figure 11. New loans and grant applications were approved during 1977 for the following agencies:

- o \$398,000 supplemental construction loan to Paradise Irrigation District, Butte County.
- o \$3,122,000 construction loan to Cambria Community Services District, San Luis Obispo County.

Drought Emergency Loans:

- o \$45,000 to Lime Saddle Community Services District, Butte County.
- o \$45,000 to Stinson Beach County Water District, Marin County.
- o \$40,300 to Mariposa Public Utility District, Mariposa County.
- o \$100,000 to El Dorado Irrigation District, El Dorado County.
- o \$50,000 to Templeton Community Services District, San Luis Obispo County.
- o \$44,250 to Orick Community Services District, Humboldt County.
- o \$100,000 to Bolinas Community Services District, Marin County.
- o \$75,000 to City of Williams, Colusa County.
- o \$100,000 to Denair Community Services District, Stanislaus County.

Of the total approved applications, over \$46.1 million (42 percent) were for loans and the remaining \$62.6 million (58 percent) were for grants.

The Department estimates that funds presently authorized for the program would be disbursed by 1982.

During 1977, the Legislature passed Assembly Bill No. 395 (Chapter 86), which amended Section 12885.9 of the Water Code relating to drought emergency loans under the Davis-Grunsky Act. The bill extended authorization through calendar year 1978, increased the maximum amount of such a loan to \$200,000, permitted a public agency with a population of up to 200,000 to qualify, and deleted the \$2,000,000 limit on the total amount of such loans.

Line 24: Additional Conservation Facilities-Storage Payments.

In addition to the additional conservation facility construction shown in Line 18, the Department assumes the State will purchase water storage rights in the future federal Cottonwood Creek Project. The storage rights would be purchased under a federal Water Supply Act of 1958 contract, in which annual payments of principal and interest would be made to the federal government. Line 24 is an estimate of the annual payments.

Line 25: Special Capital Requirements Under Revenue Bond Financing.

In addition to construction expenditures, the authority under which revenue bonds have been sold required that proceeds shall also fund interest and operation of the financed facilities through one year following completion of construction. The authority was amended in 1975 so that bond proceeds are not specifically required to pay the costs and expenses of the Department incurred in addition to construction costs, such as all interest during construction costs. The future revenue bonds for the financial analysis assumed bond proceeds will pay bond interest for only one year and the first year's operation cost, except for the revenue bonds assumed to be sold in 1979. The bonds assumed sold in 1979

are to finance the Pyramid and Cottonwood Power Plants and will include proceeds to fund the interest costs through July 1983, in addition to the first year's operation cost. These interest costs, through 1983, to be funded by

bonds proceeds are estimated to be approximately \$43.5 million. Application of proceeds to these special requirements is shown below for actual and assumed revenue bond sales.

Application of Revenue Bond Proceeds	: (Actual)	: Devil Canyon- Castaic (Actual)	: Supplemental (Assumed)
(in millions)			
Construction expenditures	\$218.0	\$127.1	\$763.0
<u>Plus, Other capital requirements:</u>			
Reimbursement of General Fund	\$ 2.6	\$ 0.0	\$ 0.0
Bond interest through one year following completion of construction	19.9	10.0	92.4
Operating costs for one year following completion of construction	1.5	0.7	4.6
Bond discount	<u>3.0</u>	<u>1.4</u>	<u>8.8</u>
Subtotal	\$ 27.0	\$ 12.1	\$105.9
 TOTAL, Principal amount of bonds	 \$245.0	 \$139.2	 \$868.9

Line 26: Total, Other Capital Requirements. The total of Lines 23, 24, and 25.

Line 27: Total Capital Requirements. The total of Lines 22 and 26.

Financing of Capital Expenditures

Three general types of financing have been used for the Project:

- o Burns-Porter financing, derived from the sale of California Water Resources Development Bonds (Water Bonds) and a portion of the State's tideland oil and gas revenues that are deposited in the California Water Fund as authorized by the Burns-Porter Act (California Water Code Sections 12920-12944), approved by the electorate in 1960.
- o Revenue Bond Financing, derived from the sale of revenue bonds as authorized by the Central Valley Project Act (California Water Code Sections 11100-11925). The Department's authority to issue revenue bonds was confirmed by a decision of the Supreme Court of California in 1963 (Warne v. Harkness 60 Cal., 2d 579).

- o Miscellaneous Receipts, derived from payments and appropriations (including certain additional tideland oil and gas revenues) as authorized by a variety of special contracts, cost-sharing agreements, and legislative actions concerning the State Water Project.

To date, Water Bonds have financed most of the construction costs of the Project. The Burns-Porter Act authorized an issue of \$1.75 billion of general obligation bonds of the State, which are made self-supporting by revenues received under the water supply contracts. This authorization includes a reservation of \$130 million specifically for the Davis-Grunsky Act Program. Proceeds from the sale of Water Bonds are deposited in the California Water Resources Development

Bond Fund-Bond Proceeds Account, from which moneys may be expended only for the construction of Project facilities and for the Davis-Grunsky Act Program.

Moneys deposited in the California Water Fund are appropriated for purposes of the Burns-Porter Act. Such deposits are derived from a portion of the State's tideland oil and gas revenues under a continuing authorization.

In the past, the Legislature has acted both to decrease and increase the level of deposits. Money may be expended from the Fund only for the construction of Project facilities and for the Davis-Grunsky Act Program.

About \$384 million of revenue bonds had been sold by the Department as of December 31, 1977 -- no additional revenue bonds were sold during 1977.

Future issues of revenue bonds are planned to supplement Project financing. 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 such sale. These purposes in addition to construction, planning, and right of way costs may include the payment of (1) bond interest during the construction period, and for one year following completion of construction, and (2) operating costs during a period of one year after completion of construction.

Miscellaneous receipts are deposited in the Central Valley Water Project Construction Fund and may be expended for (1) Water Bond interest and (2) construction of Project facilities. Under the Department's financial management, miscellaneous receipts are first used to the extent needed for coverage of any Water Bond interest which exceeds available revenues.

Described below is the application of funds to capital expenditures under the financial analysis:

Line 28: - Application of California Water Fund Moneys. The Burns-Porter Act provides that any available money in the California Water Fund shall be used for construction in lieu of proceeds from the sale of Water Bonds. When the Act became effective in late 1960, approximately \$97 million had been accumulated in the Fund. This balance and continuing annual appropriations to the Fund through June 28, 1968, financed a total of \$176 million of project construction costs. On June 28, 1968, SB 261 became effective (California Statutes of 1968, Chapter 411) which transferred the remaining balance to the Central Valley Water Project Construction Fund and deferred accruals to the California Water Fund until July 1, 1972. Since the latter date, appropriations again are being deposited in the California Water Fund in annual amounts of \$25 million.

The projected use of appropriations to the California Water Fund is shown in the financial analysis only to the extent required under current estimates of future construction expenditures. However, the Department expects that appropriations to the Fund would continue indefinitely in the full annual amounts now provided for by law. The Department also expects that transfers to the California Water Fund, to be derived from Project revenues in excess of operating costs and Water Bond debt service, would be available for financing future capital expenditures -- particularly, the long-range costs of additional conservation facilities and San Joaquin Drainage Facilities.

Under present California law, the State's annual tideland revenues are allocated thus: approximately \$4 million to the General Fund; \$25 million to the California Water Fund; \$5 million to the Central Valley Water Project Construction Fund; and the remainder to capital outlay for higher education.

The financial analysis indicates that full annual appropriations of tideland revenues to the California Water Fund

(and short-term interest earnings thereon, amounting to an estimated \$0.75 million annually) would be required for financing construction expenditures through 2015. Commencing in 1981, annual repayments to the Fund (see Line 65, Spread 2) would supplement annual appropriations. After 2015, all future financing could be provided by such repayments.

In regard to the above assumption it should be pointed out that the \$25 million may not always be available. During legislative hearings on SB 346 during 1977, the State Lands Commission testified that with the current federal oil and gas pricing regulations, revenue available to the California Water Fund would decline after 1985 and be virtually nonexistent after 1990. If this were to occur an estimated additional \$700 million in supplemental revenue bond financing would be needed to finance the capital expenditures shown in this analysis.

Finally, it is emphasized that the projected use of the California Water Fund is based on current estimates and assumptions as to the timing and magnitude of future capital costs. Such costs could change significantly with future events, especially in regard to the nature and timing of additional conservation facilities and San Joaquin Drainage Facilities.

Line 29: Application of Proceeds From Sale of Oroville Revenue Bonds. All proceeds from sale of Oroville Revenue Bonds in April 1968 (Series A) and in April 1969 (Series B) had been applied as of December 31, 1973.

Line 30: Application of Proceeds From Sale of Devil Canyon-Castaic Revenue Bonds. Construction funds provided by the sale of Devil Canyon-Castaic Revenue Bonds, in August 1972, include (1) \$98.9 million which reimbursed other project funds used to finance construction of the Devil Canyon and Castaic Facilities prior to the delivery of the

bonds; and (2) \$28.2 million which was reserved to complete construction of the Facilities. Shown in Line 30 is the projected use of the reimbursement funds for construction of works other than the Facilities and of funds reserved for future completion of the Facilities.

Line 31: Application of Proceeds From Sale of Supplemental Revenue Bonds. As previously indicated in Line 25, future revenue bond issues are assumed to provide \$763.0 million for application to the construction expenditures shown in this analysis and \$105.9 million to other special capital requirements. This is, in effect, the supplemental amount necessary to complete the State Water Project as now contemplated. Future developments could reduce or increase this amount. It should also be noted that the assumptions regarding staging of the additional conservation facilities can have a significant effect on the need for supplemental bonds.

Line 32: Application of Proceeds From Sale of Water Bonds, Davis-Grunsky Act Program. For simplification, the \$130 million of capital expenditures authorized for the Davis-Grunsky Act Program under the Burns-Porter Act are shown to be funded solely by proceeds from the sale of Water Bonds. Actually, \$28.0 million of the California Water Fund was used for the Program in lieu of bond proceeds prior to 1969. This simplification does not in any way affect the validity of the analysis.

Line 33: Application of Proceeds From Sale of Water Bonds, Additional Conservation Facilities. The Burns-Porter Act provides that to the extent California Water Fund monies are expended, an equal amount of proceeds from the sale of Water Bonds is reserved ("offset") for financing the construction of certain additional conservation facilities to be located in either or both the North Coastal area and the Sacramento Valley. In mid-1972, the maximum reservation of "offset" bonds was effectively

limited to \$176 million -- the total amount of California Water Fund monies which had been expended up to that time. By mid-1972, all remaining Water Bond proceeds from the Burns-Porter authorization had either been "offset" or reserved for the Davis-Grunsky Act Program.

Approximately \$8.5 million of the "offset" bonds have been used to finance planning studies of the Eel River Development. In the analysis, the future offset bonds were only used, as needed, for the construction of the Glenn Reservoir Complex. The analysis indicated there was only need for approximately \$55.2 million of additional "offset" bonds. This would leave \$112.6 million of the "offset" bonds unused. However, a revision in timing of construction in the areas mentioned above could have a significant effect on the projected use of the "offset" bonds.

Line 34: Application of Proceeds From Sale of Water Bonds, Initial Project Facilities. This application, completed in mid-1972, was limited to \$1.444 billion -- i.e., the total of \$1.75 billion

Burns-Porter authorization less \$130 million reserved for the Davis-Grunsky Program and \$176 million "offset" for additional conservation facilities.

Line 35: Total Application of Proceeds From Sale of Bonds. The total of Lines 29 through 34. (See Table 9 for a summary of actual and projected bond sales, together with information concerning interest costs and principal maturities.)

Line 36: Application of Miscellaneous Receipts to Construction. Since the first call on Miscellaneous Receipts is to insure coverage of Water Bond interest, the estimated portion of receipts remaining for application to capital expenditures depends on an analysis, shown on Spread 2 of Table 7, of total available receipts and revenues in relation to operating costs and bond service requirements.

Line 37: Total Financing of Capital Requirements. This line -- the total of Lines 28, 35 and 36 -- matches Line 27 and confirms that all capital expenditures would be funded under the analysis.

Miscellaneous Receipts

Sources of Miscellaneous Receipts are described in the following paragraphs:

Line 38: Federal Payments for Project Capital Expenditures. The federal share of the State's capital expenditures includes payments for (1) "open-space" grants at certain project reservoirs, (2) costs of Lakes Oroville and Del Valle allocated to flood control under existing agreements, and under current expectations, (3) a share of the State's construction costs of the Delta Facilities, Los Vaqueros Reservoir, and the Glenn Reservoir Complex under future agreements. In the analysis, only the State's share of costs is included for works constructed by the United States, such as the San Luis joint-use facilities.

About \$1.6 million in federal payments has been received for acquisition costs

of project and recreation lands reserved for open space at Lakes Perris and Del Valle and Castaic and Silverwood Lakes. The final payment for "open space" was received in 1975.

Federal payments received through December 31, 1977, for Project costs allocated to flood control totalled \$73.8 million -- \$68.6 million for Lake Oroville and \$5.2 million for Lake Del Valle. This line includes an allowance for an additional \$1.4 million of payments for Lake Oroville. This additional amount is subject to revision after the Corps completes its final audit of the Department's records of joint costs.

This line also assumes an additional payment of \$.27 million in 1978 for flood control at Lake Del Valle (see page 5, Bulletin 132-72). The South

TABLE 9: BOND SALES AND PROJECT INTEREST RATES

Bond Sales	Date of Sale	Dollar-years (a)	Interest Cost (b)	Percent Interest Cost (c)	Project Interest Rate (d)
	(1)	(2)	(3)	(4)	(5)
<u>Actual Issues</u>					
\$50,000,000 Bond Anticipation Notes	11/21/63	26,944	531	1.970	1.970
\$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/ 5/64	1,726,000	60,986	3.533	3.516
\$100,000,000 Series "C" Water Bonds	10/ 7/64	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/ 8/66	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/ 3/68	5,228,700	270,289	5.197	-
\$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/ 1/69	3,423,460	195,902	5.767	-
\$46,761,000 Cumulative 1970 General Fund Borrowing; repaid 7/10/70	-	4,938	346	7.007	4.021
\$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/ 2/71	3,447,900	190,292	5.519	4.148
\$100,000,000 Series "Q" Bond Anticipation Notes	3/10/71	100,000	2,349	2.350	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/ 9/71	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 (e)	8/ 8/72	4,776,204	258,839	5.419	4.457
\$10,000,000 Series "T" Water Bonds	3/20/73	185,265	9,491	5.122	4.459
\$10,000,000 Series "U" Water Bonds	1/13/76	158,750	8,731	5.50	4.462
\$10,000,000 Series "V" Water Bonds	11/15/77	158,750	7,573	4.769	4.462
<u>Projected Issues</u>					
\$177,500,000 Supplemental Revenue Bonds (f)	1/79	3,987,550	259,191	6.5	4.591
\$12,260,000 Series "W" Water Bonds	1/80	194,628	10,705	5.5	4.594
\$151,600,000 Supplemental Revenue Bonds (f)	1/83	5,283,642	369,937	7.0	4.780
\$213,700,000 Supplemental Revenue Bonds	7/84	8,034,799	562,561	7.0	(g)
\$220,000,000 Supplemental Revenue Bonds (f)	7/85	7,602,417	532,288	7.0	5.001
\$55,170,000 Series "X" Water Bonds (Offset)	7/86	1,929,791	106,136	5.5	5.014
\$106,100,000 Supplemental Revenue Bonds (f)	7/87	2,952,231	206,656	7.0	5.086

a) A unit equivalent to one dollar of principal amount outstanding for one year, in thousands.

b) In thousands of dollars.

c) The total interest cost (without regard to premiums received) divided by the total dollar-years, expressed as a percent.

d) Determined by dividing cumulative interest costs by cumulative dollar-years, expressed as a percent. Excluding Central Valley Project Revenue Bonds, Oroville Division, which do not affect the calculation of the "project interest rate".

e) Bonds sold at a net interest cost of 5.446 percent. Net proceeds for financing construction costs plus bond discount amounting to \$126,893,000 are used for purposes of the project interest rate.

f) Net proceeds for financing construction costs plus bond discount are used for purposes of the project interest rate.

g) These bonds are assumed to finance construction of the California Aqueduct Enlargement, Mojave Division and are not included in the calculation of the project interest rate.

Pacific Division, Corps of Engineers, released a public notice on February 9, 1973, on its review of the Del Valle flood control payments. The District Engineer found that modification of the Del Valle cost allocation was justified because of a substantial increase of costs and because economic patterns of development in the floodplain had changed from the original projection shown in Senate Document No. 128. As a result, the District Engineer recommended that the federal payment be increased by \$0.57 million. This increase was authorized by the Water Resources Development Act of 1976, 94th Congress. The federal government paid \$300,000 to the Department during 1977 and \$270,000 is expected to be received during fiscal year 1978-79.

The amounts shown in this line for 1981 and thereafter are for assumed federal financial participation in the Delta Facilities, Los Vaqueros Reservoir, and the Glenn Reservoir Complex. In accordance with the Bureau of Reclamation's feasibility report on the Peripheral Canal as an addition to the federal Central Valley Project (approved by the Secretary of the Interior), construction costs of the joint-use Delta Facilities would be shared with the State on a 50-50 basis. The amounts shown in Line 38 are based on the assumption that congressional authorization for federal participation would be secured so that payments to the State would commence in 1981, based on a concurrent 50 percent share of the State's annual construction expenditures. "Catch-up" payments for joint costs incurred prior to 1981, together with accrued interest at the State's project interest rate, are assumed to be equally distributed during the three-year period 1981 through 1983. Such "catch-up" payments to the State would total about \$38.5 million.

In the event that congressional authorization is delayed, the Department expects that the Bureau of Reclamation by formal agreement would contract for the conveyance of federal Central Valley

Project water through State Delta facilities. It is possible that the contract under suitable circumstances could form the basis to support the issuance of revenue bonds to finance the federal portion of the costs. The Department will not construct joint facilities without some form of financial participation by the Bureau.

The financial analysis assumes the Los Vaqueros Reservoir and Glenn Reservoir Complex (see Line 18, Additional Conservation Facilities) would be built and financed by the State, with federal participation in the form of payments based on the concurrent federal share of annual construction costs. The assumed Federal share of Los Vaqueros Reservoir (75 percent) results in payments of approximately \$660 million between 1981 and 1987. The assumed federal share of Glenn Reservoir Complex (50 percent) results in payments of approximately \$1.7 billion between 1986 and 2001.

Line 39: Appropriations Prior to the Burns-Porter Act. Year-to-year appropriations by the Legislature financed all capital expenditures prior to the effective date of the Burns-Porter Act: November 8, 1960. Expenditures so financed substantially ended in 1963 and totalled about \$11 million from the General Fund and \$88 million from the Investment Fund (succeeded by the California Water Fund in 1959). These amounts exclude \$1.3 million from the local Projects Assistance Fund, which financed the Davis-Grunsky Act Program prior to the \$130 million authorization of the Burns-Porter Act. While these special appropriations do not fit the general definition of "miscellaneous receipts" in that they were not deposited in the Central Valley Water Project Construction Fund, they are so classified herein for simplifying the presentation of the financial analysis.

Line 40: Appropriations for Capital Costs Allocated to Recreation and Fish and Wildlife Enhancement. In accordance with Public Resources Code Section 6217,

\$5 million of the State's tideland oil and gas revenues is deposited annually in the Central Valley Water Project Construction Fund for repayment of (1) costs of constructing multipurpose Project facilities that are allocated to recreation and fish and wildlife enhancement and (2) costs of acquiring land for recreation developments associated with Project facilities. As indicated in Table 8, such costs are now estimated to eventually total about \$264 million. This is an increase of \$108 million over that shown in Table 7 of Bulletin 132-77, due primarily to an allocation of the additional conservation facilities to recreation and fish and wildlife enhancement purpose. The \$5 million annual appropriation would extend through about 2042 in order to reimburse the Project with interest.

Release of the \$5 million annual appropriation to the Department for expenditure is dependent on legislative approval for the costs reported annually by the Department. In 1977, the Department reported costs totalling over \$65.8 million, including over \$10.5 million of accrued interest (Appendix D, "Costs of Recreation and Fish and Wildlife Enhancement". Bulletin No. 132-77, April 1977). This was an increase of about \$0.1 million over the previous report (see page 7, Appendix D, Bulletin No. 132-77). Most of this increase was due to costs incurred in 1976 and interest accrued during 1976. These increased expenditures are included in AB 1514 (a two-year bill) which was introduced in 1977.

Costs allocated to recreation and fish and wildlife enhancement which have not been reported to the Legislature include those for the California Aqueduct south of Dos Amigos Pumping Plant, Delta Facilities, and additional conservation facilities. The costs for the California Aqueduct system south of Dos Amigos Pumping Plant are scheduled to be reported in 1979. The costs for the other facilities will be reported after construction is completed.

By Appendix D to Bulletin No. 132-78, April 1978, the Department reported an additional \$1.0 million -- raising the total costs reported to the Legislature to almost \$66.9 million. Most of this increase was due to costs incurred in 1977 and interest accrued during 1977. AB 1514 was amended in 1978 to include this increased amount.

Line 41: Appropriations Under SB 261 (1968). By enactment of SB 261, June 28, 1968, the balance in the California Water Fund was transferred to the Central Valley Water Project Construction Fund, together with appropriations of tideland oil and gas revenues in the annual amounts of \$11 million through June 30, 1970, and \$25 million thereafter until June 30, 1972.

Line 42: City of Los Angeles Payments Castaic Power Development. Under a 70-year contract executed September 2, 1966 (see page 12, Bulletin No. 132-67), the State constructed the Angeles Tunnel with a 30-foot diameter instead of with a 17-foot diameter as originally planned. In return, the City constructed, operates, and maintains a 1,250-megawatt Castaic Powerplant and will supply the State without charge power equivalent in value to that which the State would have produced in its originally planned 214-megawatt plant. The value of this equivalent power is accounted for in Line 57 as a credit to Project operating costs in the same manner as other aqueduct power credits. In addition, the City has made certain payments, shown in Line 42 to ensure that the benefits of joint development are equally realized by both the State and the City. Neither the estimated capital expenditures for the Project nor the payments shown in Line 42 include amounts for the Castaic surge chamber -- which was constructed by the State but directly financed by the City.

Line 43: Water Contractor Advances for Construction of Requested Works. In addition to the costs of local systems

necessary for the distribution and use of Project water, water supply contractors are required to finance, in advance, the construction costs of delivery structures (turnouts) and of any excess capacity the Department is requested to construct in Project facilities. Advance payments for state construction requested by contractors are summarized in the following table.

Excess capacity may be requested for the purpose of increasing the instantaneous rates of water delivery over the "peaking" rates normally provided for by the contracts.

Advance payments for requested excess capacity are determined by contract formula to assure more than enough funds to cover the additional construction costs. A complete determination of the additional construction costs and the credits for overpayments will be reported in 1979. For purposes of the financial analysis, the Department expects that such advance payment would exceed the additional construction costs involved, with interest, by about \$45 million. Credits for the assumed overpayments have been applied to reduce estimated Project revenues which otherwise would be derived from water charges, described in a subsequent section.

(in millions)

Requested Excess Capacity:

- ° The Metropolitan Water District of Southern California:
 - (a) for 188 cubic foot per second excess capacity in reaches from Kettleman City to junction of the West Branch.....\$19.4
 - (b) for enlargement of Lake Perris above a basic capacity of 100,000 acre-feet.....\$13.9
 - (c) for 787 cubic-foot per second excess capacity in the San Bernardino Tunnel.....\$12.0

- ° San Gabriel Valley Municipal Water District:
 - for 21 cubic foot per second of excess capacity in the San Bernardino Tunnel.....\$ 0.3

- ° Antelope Valley-East Kern Water Agency:
 - for 19 cubic-foot per second excess capacity in the reaches of the West Branch from the junction through Quail Facilities.....\$ 0.3

- Subtotal.....\$45.9

Required advance payment of water charges by The Metropolitan Water District of Southern California for originally requested excess capacity in the West Branch, now classified as basic Project capacity....\$16.3

Requested delivery structures constructed or to be constructed by the State.....\$ 9.8

Total water supply contractor advances for State construction of requested works.....\$72.0

The costs of requested excess capacity do not include expenditures incurred for strengthening the tunnel linings and siphons of the Tehachapi Crossing to accommodate a possible future 36 cubic metres per second (1,260-cubic-foot-per-second) increase in supply. By agreement with the contractors, these particular costs are classified as basic Project costs (see pages 22-23, Bulletin No. 132-67).

Line 44: Investment Earnings on Unexpended Miscellaneous Receipts. Unexpended Project funds are invested in the Surplus Money Investment Fund of the State Treasurer. Interest earnings during the last half of 1977 were at a rate of 6.18 percent per annum. For the financial analysis, the Department estimates that future interest earnings of the Fund will average 6.25 percent per annum.

However, this line also includes the interest earnings on revenue bond proceeds used to reimburse prior Burns-Porter bond expenditures and unexpended Supplemental Bond proceeds. In 1973, the Department obtained approval of the Department of Finance for the investment of funds which reimbursed construction expenditures for the Devil Canyon-Castaic Facilities in a special fund. The reimbursed funds will be held for a predictable number of years, generally longer than the normal investments covered by the Surplus Money Investment Fund, and normally realize a greater rate of return than possible in the Fund. The special fund, managed by the State Treasurer, is expected to yield a return of about 7.1 percent per annum and is so reflected in the amount shown in this line.

Line 45: Total Miscellaneous Receipts.
The total of Lines 38 through 44.

Project Operating Revenues

Project operating revenues are deposited in two primary accounts: the Central Valley Water Project Revenue Fund, in which are placed all revenues pledged to revenue bonds, and the California Water Resources Development Bond Fund-Revenue Account, in which are placed all other Project operating revenues, including interest earnings on any unexpended proceeds from the sale of Water Bonds.

Line 46: Payments Under Oroville-Thermalito Power Sales Contract. All of the generation from Hyatt-Thermalito Powerplants is now sold under a power Sale Contract dated November 29, 1967 to three electric utilities (Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas and Electric Company). While the Power Sale Contract was to continue in effect until November 29, 2017, or until all Oroville Revenue Bonds had been retired, whichever date occurs later, it was specifically subject to cancellation, in whole or in part, by the Department on five years' notice when the power was

applied for by a public agency. Revenues under the Contract are pledged to the payment of annual operating expenses of Hyatt-Thermalito Powerplants (limited to \$1.5 million annually) and annual debt service on Oroville Revenue Bonds. Firm revenues consist of \$8,075,000 paid semiannually. Revenues are also derived from energy adjustment accounts for cumulative theoretical generation in excess of 2.1 billion kilowatthours annually. During 1977, 1,400,000 kilowatthours were debited against energy adjustment accounts, bringing the cumulative positive balance on December 31, 1977 to 3,744,749 kilowatthours (equivalent to a credit as of that date of \$9,698,900).

As pointed out in Chapter II, the Department adopted on September 28, 1977, the Fourth Supplemental Resolution (supplemental to the original Resolution adopted March 19, 1968 which authorized Oroville Revenue Bonds). On September 30, 1977, the Department notified the three electric utilities that the Power Sale Contract will be cancelled effective

April 1, 1983. On that date, for purposes of the original Resolution, the Fourth Supplemental Resolution will constitute the State Power Contract which will replace the Power Sale Contract. Revenues and the application of revenues under the State Power Contract will remain the same as under the Power Sale Contract -- except that the firm semiannual payments will be increased to cover the actual operating expenses of Hyatt-Thermalito Powerplants in excess of \$1.5 million annually.

For fiscal year 1977-78, such annual operating expenses have escalated to \$2,840,000. Thus, the amounts shown on Line 46 after March 31, 1983 include an additional revenue of \$1,340,000 annually. Also included are revenues to compensate for additional transmission and station service charges after termination of the Power Sale Contract, building up from \$1,327,000 in 1983 to \$1,806,000 by 2020. Also, Line 46 includes an additional revenue of \$15,840,000 from the electric utilities in 1983 to clear an estimated positive balance in energy adjustment accounts. Thereafter, Line 46 includes estimated revenues for energy generation in excess of 2.1 billion kilowatthours annually equivalent to 300 million kilowatthours (\$777,000) annually.

All payments under the State Power Contract will be made from moneys deposited in the Revenue Account of the California Water Resources Development Bond Fund. Such payments will constitute a cost of operation of the State Water Resources Development System (the first priority use of revenues under the Burns-Porter Act).

For the financial analysis, the Department assumes that revenues from the sale or other disposal of Hyatt-Thermalito power will continue to be available after termination of the State Power Contract, in the same amounts as under the Contract.

Line 47: Water Contractor Payments Under Devil Canyon-Castaic Contract.

These payments by the six water contractors located below Devil Canyon and Castaic Facilities are equal to (1) the annual service of Devil Canyon-Castaic Revenue Bonds and (2) annual operating costs of the Facilities allocated to power generation (see page 2, Bulletin 132-73).

Line 48: Contractor Payments (assumed) for Supplemental Revenue Bonds.

For this analysis, it is assumed that these payments would cover annual debt service on future issues of revenue bonds, which would provide construction funds for certain of the remaining aqueduct facilities and the additional conservation facilities together with operating costs associated with such facilities. All revenue bonds issued after 1985 are assumed to be repaid by 2035.

Line 49: Water Contractor Payments Under Long-Term Water Supply Contracts.

Water supply contracts provide for payments of two general charges: (1) a Delta Water Charge and (2) a Transportation Charge.

The Delta Water Charge is assessed for each acre-foot of water the contractors are entitled to receive. The Charge is computed to return to the State during the contract term all appropriate costs of Project conservation facilities, together with interest thereon. Project conservation facilities are defined as those facilities which conserve water, including Lake Oroville, Delta Facilities, additional conservation facilities, and San Luis Reservoir, together with a portion of the California Aqueduct from the Delta to San Luis Reservoir. Current studies of operating ground water basins to provide for conservation of Project water may result in an amendment of water supply contracts to include such facilities as conservation facilities. Costs allocated to flood control, recreation, and fish and wildlife enhancement are not paid under

the water supply contracts. Both charges for power costs and credits for power revenues are included in the determination of the Delta Water Charge.

The Transportation Charge is computed to return to the State during the contract term the costs of the aqueducts necessary to deliver water to the respective contractors, including interest costs. Such costs exclude those allocated to flood control, recreation, and fish and wildlife enhancement. In addition, costs of the Devil Canyon and Castaic Facilities allocable to power are excluded from the Transportation Charge and are paid under the Devil Canyon-Castaic Contract. Similarly, under the assumptions of this analysis, costs of certain Project facilities to be financed by supplemental revenue bonds would not be paid under the water supply contracts but would be paid under agreements yet to be negotiated.

Each year's costs of each aqueduct reach are allocated among contractors whose deliveries are or will be conveyed through that reach. For contractors with predominantly municipal and industrial water use, the allocated amounts of each year's construction expenditures are required to be repaid, together with interest, in 50 equal annual installments. For contractors with predominantly agricultural water use, allocated construction costs are repaid by a uniform charge per acre-foot of water entitlement, computed to return those costs with interest to the State during the contract term.

Operating costs are paid currently under the Transportation Charge and therefore do not include any interest charges. Construction costs under the Transportation Charge and all construction and annual operating costs under the Delta Water Charge are to be repaid with interest at the "Project interest rate".

The Project interest rate is defined as the weighted average of the rates paid on securities issued and loans obtained to finance Project facilities, excluding Oroville Revenue Bonds. Under original contract provisions, the basis for determining the Project interest rate was the weighted average of rates paid on Water Bond sales only. Under contract amendments executed in 1969, after issuance of Oroville Revenue Bonds, the basis was expanded to include rates on all other securities sold and loans obtained thereafter for financing Project facilities, including revenue bonds (see page 28, Bulletin No. 132-70). However, not all proceeds from the sale of revenue bonds are melded in 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 on the bond discount (a component of the total interest cost of a revenue bond issue). Following is the percent of total proceeds from revenue bond issues which affect the actual and projected calculation of the Project interest rate:

Revenue Bond Proceeds	: Devil Canyon- : Castaic (actual)	: Supplemental : (assumed)
	(in millions)	
Applied to construction costs	\$127.1	\$566.6 ^(a)
Less, portion of such proceeds derived from interest earnings prior to delivery of bonds	1.6	-0-
Plus, bond discount and financing costs	1.4	7.3
 Subtotal, proceeds included in calculating the project interest rate.	 \$126.9	 \$573.9
Principal amount of bonds	139.2	655.2
Percent total principal amount included in calculating the Project Interest Rate	91%	88%

a) Does not include supplemental funds required for enlargement of California Aqueduct, Mojave Division.

Table 9 presents information basic to the calculation of the actual and projected Project interest rates.

A detailed development of water charges for each contractor is presented in Appendix B which is based on presently known conditions and supports the Department's determination of 1979 water charges -- billed July 1, 1978. However, there are the following significant differences between the projection of charges shown in Line 49 and the substantiation of 1979 charges shown in Appendix B:

- o Future capital costs shown in Appendix B are based on prices prevailing on December 31, 1977. Those shown in the financial analyses include allowances for future price escalation.
- o The Project interest rate basic to charges shown in Appendix B includes actual bond sales. (4.462 percent). The Project interest rate basic to the charges shown in Line 49 also reflects the projected bond sales shown in Table 9.
- o Pre-1979 charges shown in Appendix B represent what charges should have been under presently known conditions. Pre-1979 charges shown in Line 49 are those actually paid under previously determined bills.
- o Charges for 1979 and thereafter shown in Appendix B are unadjusted. Such charges shown in Line 49 include adjustments for any apparent overpayments or underpayments of pre-1978 charges and credits due to prepayments of the capital cost components which will result under various contract amendments involving excess aqueduct capacity.
- o The charges shown in Appendix B are those which would apply in the absence of the Devil Canyon-Castaic contract or of any assumed arrangement permitting sale of supplemental revenue bonds. The charges shown in Line 49 exclude the costs covered by such actual and assumed agreements.
- o The charges shown in Appendix B represent unadjusted billed amounts for the respective years. The amounts shown in Line 49 represent the payment of such charges, which lag billed amounts by one or more months. (For instance, certain payments for operating costs incurred during a particular year will actually accrue to the State during the early months of the following year.)

Line 50: Federal Payments for Project Operating Costs. Under the December 31, 1961, Agreement between the State and

the United States, the Department operates and maintains the San Luis joint-use facilities. Under the January 12, 1972, Supplement to the Agreement, the United States pays 45 percent of the costs incurred by the Department for these activities (The percentage does not apply to power costs. The United States and the Department provide their own power to pump their respective amounts of water through the joint facilities). This percentage was reviewed in 1975, and will remain at 45 percent, subject to review again in 1980. The amounts shown in Line 50 are based on the assumption that the current percent federal share would be extended indefinitely.

Line 50 also includes an assumed 50 percent federal share of the joint operating costs of the Delta Facilities (also excluding power costs) as proposed in the Bureau's feasibility report on the Peripheral Canal. Line 50 also includes the assumed federal share of Los Vaqueros Reservoir and the Glenn Reservoir Complex.

Line 51: Appropriations for Operating Costs Allocated to Recreation. Under the Davis-Dolwig Act, the Legislature declared its intent that, except for funds provided pursuant to AB 12 (1966), the Department's budget shall include appropriations from the General Fund of monies necessary for enhancement of fish and wildlife and for recreation in connection with State water projects. The \$5 million annual AB 12 appropriation (Line 40) is for repayment of construction expenditures -- annual operating costs allocated to recreation and fish

and wildlife enhancement are paid by annual General Fund appropriations.

Line 52: Local Agency Payments Under Davis-Grunsky Loan Repayment Contracts. As pointed out in the description of Line 23, \$46.1 million in loan applications had been approved as of December 31, 1977. The amounts shown in Line 52 are based on the assumption that \$13.4 million in future contracts would be approved -- bringing estimated total loans under the \$130 million authorization (which excludes an initial loan of about \$1.3 million) to \$59.5 million (46 percent). All future loans are assumed to be repaid in 50 years at 2.5 percent interest, with an initial five-year deferment of principal repayment.

Line 53: Miscellaneous Revenues. Miscellaneous revenues include annual payments by the City of Los Angeles for a share of the maintenance costs of the Angeles Tunnel, interest earnings on unexpended proceeds from sale of Water Bonds, and other short-term investment earnings on Project revenues. Based on experience to date, an allowance of \$2 million annually through 2015 is included in Line 53 to approximate these revenues. This line also includes future bond proceeds that are special reserves under revenue bond financing, described in Line 58.

Line 54: Total Project Operating Revenues. The total of Lines 46 through 53.

Line 55: Total Miscellaneous Receipts and Project Operating Revenues. The total of Lines 45 and 54.

Application of Revenues and Miscellaneous Receipts

Revenues pledged to revenue bonds, deposited in the Central Valley Water Project Revenue Fund, are disbursed in accordance with resolutions authorizing the issuance of such bonds. All other operating revenues, deposited in the California Water Resources Development Bond Fund-Revenue Account, are disbursed in accordance with the following prior-

ities of use as specified in the Burns-Porter Act.

- (1) Project operating costs;
- (2) Water Bond Service.
- (3) Repayment of Project expenditures from the California Water Fund.

(4) Deposits to a reserve for future construction of the State Water Resources Development System -- a system of facilities which may be added to under certain authorizations of the Legislature and designations by the Department as specified in the Burns-Porter Act, and which includes the State Water Project.

Line 56: Carryover (+) and Application (-) of Miscellaneous Receipts and Revenues Held Temporarily in Reserve.

The only carryover of receipts and revenues from year to year concerns a temporary reserve to insure that future annual service on Water Bonds will be met. Receipts accruing after 2015 -- not needed for either bond service or construction expenditures under this analysis -- are included in Line 69 as being available for financing future construction of the State Water Resources Development System.

Line 57: Project Operating Costs. Historical and estimated project operating costs are presented in Table 10 by Project facilities. Line 57 in the financial analysis is composed of operating costs that are assumed to occur under the assumptions of lower water demands due to wastewater reclamation and water conservation, and are shown in the top portion of Table 10. This line also includes the operating costs for the Federal share of joint facilities and operating costs allocated to recreation, which are offset by revenues shown in Lines 50 and 51, respectively. The lower portion of Table 10 are the costs that are assumed to occur with the water requests submitted by the SWP contractors in the fall of 1977. Except for power costs (which includes expected escalation to about 1983), allowances for future long-term price escalation are not included in these estimates since such operating costs do not substantially affect the overall results of the financial analysis. (For the most part, changes of operating costs cause direct offsetting changes of operating revenues.)

Power cost is the major item of annual operating expense for the Project, and there have been significant changes in the assumptions regarding the future development of power sources and costs. Near the end of this chapter is a section titled Power Costs which explains the current assumptions regarding future power sources and their related costs.

Line 58: Deposits to Special Reserves Under Revenue Bond Financing. Only those deposits derived from Project operating revenues and miscellaneous receipts are shown in this line. In regard to Oroville Revenue Bonds, such deposits include the following:

- o Payments to the Department for energy and generating capability prior to April 1, 1969, under terms of interim letter agreements, and all other power revenues for one year following completion of construction.
- o Payments to the Department from the energy adjustment account for net annual energy generation in excess of 2.1 billion kilowatthours.
- o Federal flood control contributions in the amount of \$1.65 million for allocated operations and maintenance costs.

In regard to Devil Canyon-Castaic Revenue Bonds, such deposits consist of about \$9.4 million to provide a reserve approximating maximum annual bond service.

For this analysis, deposits to special reserves provide a reserve approximating maximum annual bond service on all future supplemental revenue bond sales. In addition, for the bonds associated with the Pyramid Powerplant and Cottonwood Powerplant, the deposit shown in 1979 includes bond proceeds to pay for bond service through July 1, 1983. For the years 1979 through 1983 this line reflects a decrease in special deposits to account for bond service payment from the bond proceeds.

The ultimate effect of the other reserves, together with interest earnings is to accelerate the last year that operating revenues are applied to revenue bond service. For simplicity, the operation of these reserves is ignored in the financial analysis.

Lines 59-60: Payment of Service on Bonds Sold. These two lines show the total interest and principal payments on bonds sold to date. Table 11 provides a summary of Water Bonds (Series A through V), Oroville Revenue Bonds, and Devil Canyon-Castaic Revenue Bonds. The last bonds sold were Series V Water Bonds in November 1977. Annual service on Series V is shown in Table 11 of this bulletin.

Annual interest and principal payments on individual series are shown in the following bulletins.

Water Bonds

Series A through R	Table 13, Bulletin 132-72
Series S	Table 10, Bulletin 132-73
Series T	Table 10, Bulletin 132-74
Series U	Table 11, Bulletin 132-76

Revenue Bonds

Oroville Series A and B	Table 12, Bulletin 132-72
Devil Canyon- Castaic	Table 10, Bulletin 132-73

Line 59 also includes over \$0.3 million in interest payments to the General Fund for the temporary loan of \$46.8 million in 1970 -- repaid by proceeds from the sale of Series N Water Bonds.

Line 61-62: Assumed Payments of Service on Future Bonds Sales. Table 12 shows the projected annual service on future Supplemental Revenue Bonds and Water Bonds (Series W and X) under the assumptions of this analysis.

Assumptions concerning the service on future Supplemental Revenue Bonds are as follows:

Revenue Bonds assumed sold in January, 1979

- o Net interest cost would average 6-1/2 percent.
- o The service pattern would provide for no maturities during the first 10 years after issuance, with final maturity 40 years after issuance.

Remaining Revenue Bonds

- o The net interest cost would average 7.0 percent.
- o The service pattern would provide for no maturities during the first 10 years after issuance, with a final maturity 50 years after issuance.
- o The final bond issue (sold in 1987) would have a final maturity 40 years after issuance.

Assumptions concerning the service on future Water Bonds are as follows:

- o The net interest cost would average 5.5 percent.
- o The service pattern would provide for no maturities during the first nine years after issuance, with a final maturity for Series W 20 years after issuance. The final sale of water bonds (Series X) for additional conservation facilities would have final maturity 50 years after issuance.

Lines 63-64: Total Payments of Bond Service. The total of interest payments shown on Lines 59 and 61 and the total of principal payments shown on Lines 60 and 62 respectively.

Lines 65-66: Repayment of the California Water Fund. The Burns-Porter Act requires that, after operation and maintenance and bond service requirements have

been satisfied, project revenues shall be transferred to the California Water Fund as reimbursement to the Fund for moneys expended for construction of the State Water Resources Development System. For the financial analysis, the repayment amounts through 2015 (Line 65), together with the \$25 million of tidelands revenue allocated each year to the California Water Fund are utilized for financing capital expenditures (Line 28). (The Burns-Porter Act provides a continuing appropriation of all money in the California Water Fund for this purpose.)

Line 66 indicates repayment to the Fund of moneys not required to be appropriated for further construction. The Fund would be substantially repaid by 2019. Continuing annual repayments shown thereafter in Line 65 represent repayment of the continuing appropriation from the fund for annual principal and interest payments to the federal government for the additional conservation storage costs shown in Line 24.

The totals of Line 65 and Line 66 equal the total of Line 28 and indicate that all California Water Fund appropriations are repaid as required by the Burns-Porter Act.

Line 67: Application of Miscellaneous Receipts to Construction Expenditures. This line matches Line 36. All projected annual accruals of miscellaneous receipts would be totally applied to Water Bond service and construction expenditures through 2015 under the financial analysis. After 2015 annual receipts would be reserved for financing future construction -- shown in Line 69.

Line 68: Subtotal, Repayment of Capital Financing. This line is the subtotal of Lines 64, 65, 66 and 67. Under the assumptions of this analysis, Line 68

demonstrates the schedule by which the Project would eventually repay, with Project income, all funds required to finance capital expenditures as shown in Line 37.

Line 69: Reservation for Future Construction. In accordance with the Burns-Porter Act, all project revenues in excess of Project operating costs, Water Bond service, and California Water Fund repayment shall be deposited in a reserve account for financing future construction of the State Water Resources Development System. Also included in the amounts shown in Line 69 are those miscellaneous receipts (primarily reimbursements of capital costs allocated to recreation and fish and wildlife enhancement) which accrue too late to be applied to construction expenditures under this analysis.

Within the constraints of timing, accruals to the reserve could be available for financing additional Project costs (including capital costs of future power sources) in the event contingencies occur, such as referred to at the beginning of this chapter. However, if additional costs were to be incurred in annual amounts preceding or exceeding the annual amounts shown in Line 69, the required use of full appropriations to the California Water Fund could extend beyond 2015 (the last year of such full use as indicated in the analysis), and the eventual need for supplemental construction funds could exceed the amount projected in this analysis.

Line 70: Total Application of Miscellaneous Receipts and Project Operating Revenues. This summary of the application of revenues and receipts matches the total accruals of such moneys as shown in Line 55.

TABLE 10: PROJECT

(in thousands)

FEATURE	Calendar					
	1962- 1977	1978	1979	1980	1981	1982
OPERATING COSTS FOR PROJECT FACILITIES WITH IMPLEMENTATION OF SB 346 (a)						
Feather River Facilities	43,773	7,460	7,202	7,288	7,275	7,248
North Bay Aqueduct	605	93	80	91	95	87
Delta Facilities	0	0	0	0	0	0
South Bay Aqueduct	15,388	1,891	1,919	1,996	1,973	1,959
California Aqueduct:						
Mainline - Delta to A. D. Edmonston	124,438	26,226	27,531	28,002	30,017	28,744
Mainline - A. D. Edmonston thru Perris	54,626	16,788	17,801	22,212	23,103	22,676
West Branch	10,658	4,460	-190	2,022	2,016	497
Coastal Branch	8,035	1,112	1,114	1,192	1,184	1,182
Additional Conservation Facilities	0	0	0	0	0	0
Water Quality Monitoring Program - Sacramento-San Joaquin Delta	3,272	772	802	836	818	782
Davis-Grunsky Act Program (continuing administrative costs)	609	60	60	60	60	60
TOTAL OPERATING COSTS	261,404	58,862	56,319	63,699	66,541	63,235
OPERATING COSTS FOR PROJECT FACILITIES TO DELIVER CONTRACTORS' REQUESTED WATER (b)						
Feather River Facilities	43,773	7,460	7,202	7,288	7,275	7,248
North Bay Aqueduct	605	93	80	91	95	87
Delta Facilities	0	0	0	0	0	0
South Bay Aqueduct	15,388	1,891	1,919	1,996	1,973	1,959
California Aqueduct:						
Main Line - Delta to A. D. Edmonston	124,438	26,226	27,531	28,002	30,017	28,744
Main Line - A. D. Edmonston thru Perris	54,626	16,788	17,801	22,212	23,103	22,676
West Branch	10,658	4,460	-190	2,022	2,016	497
Coastal Branch	8,035	1,112	1,114	1,192	1,184	1,182
Additional Conservation Facilities	0	0	0	0	0	0
Water Quality Monitoring Program - Sacramento-San Joaquin Delta	3,272	772	802	836	818	782
Davis-Grunsky Act Program (continuing administrative costs)	609	60	60	60	60	60
TOTAL OPERATING COSTS	261,404	58,862	56,319	63,699	66,541	63,235

a) Projected costs reflect the Department's future management plans and are included in Table 7, Project Financial Analysis, December 31, 1977.

b) Projected costs are included in Appendix B of this Bulletin.

OPERATING COSTS

of dollars)

Year									TOTAL, 1962- 2035
1983	1984	1985	1986- 1995	1996- 2005	2006- 2015	2016- 2025	2026- 2035		
8,539	8,972	8,949	89,853	90,056	90,075	90,160	90,168	557,018	
415	682	673	8,842	11,561	11,815	13,218	15,146	63,403	
0	0	1,631	36,225	34,728	35,623	36,094	36,235	180,536	
3,869	4,293	3,925	43,566	46,759	47,852	51,120	55,914	282,424	
60,328	82,403	78,109	1,016,453	1,177,919	1,322,983	1,425,574	1,498,587	6,927,314	
57,016	68,503	62,703	919,591	1,105,319	1,255,315	1,417,545	1,575,202	6,618,400	
-9,083	-18,480	-11,999	-250,918	-340,609	-374,481	-393,158	-393,635	-1,772,900	
1,704	1,845	1,848	37,809	50,290	54,369	54,801	54,921	271,406	
0	0	0	159,384	332,195	313,445	350,872	351,288	1,507,184	
761	760	2,088	20,741	7,290	7,288	7,296	7,296	60,802	
<u>60</u>	<u>60</u>	<u>60</u>	<u>600</u>	<u>600</u>	<u>600</u>	<u>600</u>	<u>600</u>	<u>4,089</u>	
123,609	149,038	147,987	2,082,146	2,516,108	2,764,884	3,054,122	3,291,722	14,699,676	
8,539	8,972	8,949	89,853	90,056	90,075	90,160	90,168	557,018	
415	682	742	10,183	12,850	14,040	15,588	16,014	71,565	
0	0	1,631	36,225	34,728	35,623	36,094	36,235	180,536	
3,869	4,293	4,354	50,308	57,106	57,638	57,976	58,079	318,749	
60,328	82,403	81,424	1,110,525	1,341,509	1,473,939	1,523,503	1,532,533	7,471,122	
57,016	68,503	70,850	1,093,475	1,402,515	1,570,969	1,638,429	1,646,761	7,705,724	
-9,083	-18,480	-13,371	-246,445	-350,083	-383,730	-394,034	-394,705	-1,790,468	
1,704	1,845	1,848	37,809	50,290	54,369	54,801	54,921	271,406	
0	0	0	159,384	344,695	348,645	350,872	351,288	1,554,884	
761	760	2,088	20,741	7,290	7,288	7,296	7,296	60,802	
<u>60</u>	<u>60</u>	<u>60</u>	<u>600</u>	<u>600</u>	<u>600</u>	<u>600</u>	<u>600</u>	<u>4,089</u>	
123,609	149,038	158,575	2,362,658	2,991,556	3,269,456	3,381,285	3,399,190	16,405,427	

TABLE 11: ANNUAL SERVICE ON BONDS SOLD AS OF DECEMBER 31, 1977

(in thousands of dollars)

Calendar Year	Bonds Sold Through December 31, 1977									
	Series A through U Water Bonds		Oroville Revenue Bonds		Devil Canyon-Castaic Revenue Bonds		Series V Water Bond Sold 11/15/77		Total	
	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest
1964	0	3,333	0	0	0	0	0	0	0	3,333
1965	0	11,114	0	0	0	0	0	0	0	11,114
1966	0	16,742	0	0	0	0	0	0	0	16,742
1967	0	26,912	0	0	0	0	0	0	0	26,912
1968	0	37,760	0	3,876	0	0	0	0	0	41,636
1969	0	47,461	0	10,448	0	0	0	0	0	57,909
1970	0	53,291	0	13,145	0	0	0	0	0	66,436
1971	0	63,035	0	13,145	0	0	0	0	0	76,180
1972	0	69,148	1,260	13,112	0	0	0	0	1,260	82,260
1973	1,200	69,348	1,330	13,042	0	7,708	0	0	2,530	90,098
1974	3,000	69,533	1,400	12,969	0	7,708	0	0	4,400	90,210
1975	5,000	69,366	1,475	12,893	0	7,708	0	0	6,475	89,967
1976	7,000	69,408	1,555	12,811	0	7,708	0	0	8,555	89,927
1977	10,200	69,323	1,635	12,727	0	7,708	0	0	11,835	89,758
1978	12,700	68,835	1,725	12,637	0	7,708	0	477	14,425	89,657
1979	13,650	68,214	1,815	12,540	0	7,708	0	476	15,465	88,938
1980	16,050	67,491	1,915	12,441	0	7,708	0	477	17,965	88,117
1981	18,050	66,633	2,020	12,334	0	7,708	0	476	20,070	87,151
1982	19,250	65,685	2,130	12,221	0	7,708	0	477	21,380	86,091
1983	20,520	64,672	2,245	12,101	900	7,708	0	476	23,665	84,957
1984	21,785	63,591	2,365	11,982	955	7,647	0	477	25,105	83,697
1985	22,555	62,456	2,485	11,862	1,010	7,583	0	476	26,050	82,377
1986	23,830	61,265	2,605	11,737	1,070	7,515	0	477	27,505	80,994
1987	24,985	60,016	2,735	11,602	1,135	7,442	510	476	29,365	79,536
1988	26,180	58,712	2,870	11,464	1,205	7,366	590	453	30,845	77,995
1989	27,475	57,400	3,015	11,314	1,275	7,284	670	425	32,435	76,423
1990	28,635	56,080	3,175	11,152	1,355	7,198	750	393	33,915	74,823
1991	29,535	54,713	3,335	10,983	1,435	7,107	830	357	35,135	73,160
1992	30,385	53,322	3,510	10,806	1,520	7,010	910	318	36,325	71,456
1993	31,950	51,909	3,695	10,618	1,610	6,907	990	274	38,245	69,708
1994	33,455	50,432	3,885	10,421	1,705	6,799	1,070	228	40,115	67,880
1995	34,510	48,896	4,085	10,215	1,810	6,684	1,150	177	41,555	65,972
1996	35,670	47,315	4,300	9,996	1,920	6,561	1,230	121	43,120	63,993
1997	35,295	45,756	4,525	9,767	2,035	6,432	1,300	62	43,155	62,017
1998	36,675	44,226	4,760	9,524	2,155	6,295	0	0	43,590	60,045
1999	37,600	42,655	5,005	9,265	2,285	6,160	0	0	44,890	58,080
2000	38,890	41,033	5,280	8,987	2,420	6,040	0	0	46,590	56,060
2001	39,980	39,351	5,565	8,693	2,565	5,912	0	0	48,110	53,956
2002	41,120	37,620	5,865	8,384	2,720	5,773	0	0	49,705	51,777
2003	42,970	35,835	6,180	8,057	2,885	5,626	0	0	52,035	49,518
2004	45,160	33,957	6,520	7,714	3,055	5,470	0	0	54,735	47,141
2005	46,450	31,995	6,870	7,349	3,240	5,305	0	0	56,560	44,649
2006	47,740	29,971	7,245	6,968	3,435	5,130	0	0	58,420	42,069
2007	49,230	27,883	7,635	6,564	3,640	4,945	0	0	60,505	39,392
2008	51,220	25,727	8,050	6,138	3,860	4,749	0	0	63,130	36,614
2009	53,560	23,478	8,490	5,690	4,090	4,540	0	0	66,140	33,708
2010	55,250	21,134	8,950	5,216	4,335	4,319	0	0	68,535	30,669
2011	56,740	18,717	9,435	4,717	4,595	4,085	0	0	70,770	27,519
2012	58,530	16,216	9,945	4,192	4,875	3,837	0	0	73,350	24,245
2013	60,370	13,676	10,485	3,636	5,165	3,574	0	0	76,020	20,886
2014	57,900	11,244	11,055	3,051	5,475	3,303	0	0	74,430	17,598
2015	53,690	8,838	11,655	2,435	5,805	3,015	0	0	71,150	14,288
2016	46,130	6,626	12,290	1,782	6,150	2,710	0	0	64,570	11,118
2017	38,060	4,614	12,960	1,097	6,520	2,388	0	0	57,540	8,099
2018	25,350	2,980	13,665	371	6,910	2,045	0	0	45,925	5,396
2019	16,890	1,778	0	0	7,325	1,682	0	0	24,215	3,460
2020	17,320	934	0	0	7,765	1,298	0	0	25,085	2,232
2021	8,510	301	0	0	8,230	890	0	0	16,740	1,191
2022	1,800	48	0	0	8,725	458	0	0	10,525	506
TOTAL	1,560,000	2,370,004	244,995	466,191	139,165	283,872	10,000	7,573	1,954,160	3,127,640

TABLE 12: ANNUAL SERVICE ON ASSUMED FUTURE BOND SALES
(in thousands of dollars)

Calendar Year	Series W through X Water Bonds		Supplemental Revenue Bonds		Total Future Bond Sales	
	Principal	Interest	Principal	Interest	Principal	Interest
1979	0	0	0	5,769	0	5,769
1980	0	337	0	11,537	0	11,874
1981	0	674	0	11,538	0	12,212
1982	0	674	0	11,537	0	12,211
1983	0	674	0	16,939	0	17,613
1984	0	674	0	22,339	0	23,013
1985	0	674	0	37,567	0	38,241
1986	0	674	0	53,242	0	53,916
1987	0	3,708	0	53,243	0	56,951
1988	0	3,708	0	60,669	0	64,377
1989	0	3,708	2,055	60,670	2,055	64,378
1990	625	3,691	2,189	60,535	2,814	64,226
1991	723	3,654	2,331	60,394	3,054	64,048
1992	821	3,612	2,482	60,242	3,303	63,854
1993	920	3,564	2,644	60,081	3,564	63,645
1994	1,018	3,510	3,801	59,867	4,819	63,377
1995	1,116	3,452	5,449	59,600	6,565	63,052
1996	1,766	3,388	7,256	59,199	9,022	62,587
1997	1,864	3,288	7,757	58,652	9,621	61,940
1998	2,017	3,183	9,318	58,068	11,335	61,251
1999	2,115	3,070	9,893	57,372	12,008	60,442
2000	2,255	2,952	10,517	56,636	12,772	59,588
2001	662	2,870	11,277	55,861	11,939	58,731
2002	717	2,834	11,951	55,034	12,668	57,868
2003	772	2,795	12,650	54,161	13,422	56,956
2004	772	2,752	13,375	53,234	14,147	55,986
2005	828	2,710	14,205	52,256	15,033	54,966
2006	883	2,664	15,096	51,217	15,979	53,881
2007	883	2,616	16,099	50,115	16,982	52,731
2008	938	2,567	17,059	48,939	17,997	51,506
2009	993	2,515	18,134	47,693	19,127	50,208
2010	993	2,461	19,245	46,367	20,238	48,828
2011	1,048	2,406	20,509	44,964	21,557	47,370
2012	1,103	2,349	21,742	43,469	22,845	45,818
2013	1,103	2,288	23,067	41,885	24,170	44,173
2014	1,159	2,227	24,472	40,222	25,631	42,449
2015	1,214	2,163	26,120	38,483	27,334	40,646
2016	1,269	2,097	27,747	36,675	29,016	38,772
2017	1,269	2,027	29,515	34,795	30,784	36,822
2018	1,324	1,957	31,344	32,796	32,668	34,753
2019	1,379	1,884	19,766	30,669	21,145	32,553
2020	1,434	1,808	21,045	29,290	22,479	31,098
2021	1,490	1,730	22,379	27,825	23,869	29,555
2022	1,545	1,648	23,815	26,266	25,360	27,914
2023	1,600	1,563	25,274	24,607	26,874	26,170
2024	1,655	1,475	26,872	22,846	28,527	24,321
2025	1,710	1,384	28,575	20,975	30,285	22,359
2026	1,765	1,290	30,341	18,991	32,106	20,281
2027	1,821	1,192	32,221	16,892	34,042	18,084
2028	1,931	1,092	25,658	14,672	27,589	15,764
2029	1,986	986	27,228	12,914	29,214	13,900
2030	2,041	877	28,877	11,046	30,918	11,923
2031	2,152	765	30,524	9,067	32,676	9,832
2032	2,207	646	32,355	6,974	34,562	7,620
2033	2,262	525	34,369	4,753	36,631	5,278
2034	2,372	401	26,442	2,740	28,814	3,141
2035	4,910	407	13,860	942	18,770	1,349
TOTAL	67,430	116,840	868,900	2,105,331	936,330	2,222,171

Power Costs

Power costs are the major item of annual operating expense for the Project. On the basis of current estimates, payments for net power costs will constitute about 40 percent of the total charges for Project water service during the Project repayment period.

Through March 31, 1983, power needs in excess of recovery generation (at San Luis, Devil Canyon, and Castaic) will continue to be obtained from Canadian Entitlement and Suppliers power under fixed purchase terms negotiated in 1966. (On March 31, 1978, the Suppliers, collectively and individually, notified the Department that the Suppliers Contract in its entirety will be cancelled effective April 1, 1983.) Hyatt-Thermalito power is being sold to electric utilities under a long-term contract (subject to cancellation upon five years' notice) with fixed payment terms also negotiated in about 1966. Since 1966, the costs and value of energy have increased several fold.

Also since about 1966, the Department's power cost projections beyond March 31, 1983 have been based on the simplifying assumption that power needs in excess of recovery generation could be obtained at unit commodity costs (for capacity and energy, respectively) as estimated for State participation in future large-scale nuclear development. This simplifying assumption is now obsolete for the reasons discussed in Chapter II, and is no longer appropriate for projecting the costs and the Project's financial requirements for future power.

As pointed out in Chapter II, the established Long Range Energy Program for the State Water Project envisions assured and economic sources of electric energy to supply Project pumping operations after March 31, 1983 through:

- o Continued use of recovery generation.
- o Cancellation of the Power Sale Contract and retention of Hyatt-Thermalito generation for Project use after March 31, 1983.
- o Selection or development of additional energy sources for the balance of Project energy requirements.
- o Continued purchase of supplemental capacity and energy, as may be required, under a modified and extended Suppliers Contract.
- o Exchanges as may be possible (in lieu of sales) of capacity and energy from all Project sources which may, at times, be temporarily in excess of Project requirements.

While the Department has embarked on the Program, the Program may never be completely defined. Investigations, discussions, and negotiations will be required on a continuing basis and on a broad front. As pointed out in Chapter II, arrangements effected by the end of 1977 include (1) notice of cancellation of the Hyatt-Thermalito Power Sale Contract effective April 1, 1983, (2) execution of contracts for a steam supply for two geothermal units in the Geysers area, (3) initiation of construction of Pyramid and Cottonwood Powerplants, and (4) purchase of generation from proposed powerplants to be constructed by The Metropolitan Water District of Southern California and the Kings River Conservation District.

Following sections describes a projection, as of January 1, 1978, of actual and assumed sources for supplying the estimated future pumping requirements of the Project, together with assumptions as to capabilities, construction and

operating costs, financing requirements, and allocation of costs among Project pumping plants.

Project Pumping Loads

In previous Bulletins 132, projections of Project pumping loads were based essentially on the need for entitlements as estimated by the contractors. In addition to such deliveries, operation studies basic to load projections have included estimated water amounts needed to (1) compensate for operational losses from the aqueduct system, (2) support Project recreation development, and (3) generally, supply the ensuing six years of requested surplus water and construction repayment water deliveries. These operation studies have been based on a lower quartile Delta water supply condition until about the mid-1980s (i.e., a supply which could be expected to be exceeded three of every four years), thereafter changing to a median water supply condition. The objective of these studies was to determine, within available usable storage on the aqueduct system and operational criteria (regarding maximum water surface draw-down rates, maintenance, down-times, etc.), the minimum annual amounts of power capacity that must be purchased to support estimated water deliveries.

Under the Department's current plans, which encompass the facilities and operations which would be authorized by enactment of SB 346, projected pumping loads would be significantly affected due to the following Project changes:

- o Estimated Project water demands, particularly those in Southern California that would be supplied by energy-intensive trans-basin importations, would be significantly reduced due to increased emphasis on municipal and industrial waste water reclamation and local water conservation (amounting to an annual reduction growing to about 740 million cubic metres (600,000 acre-feet) Project wide by the year 2000 as

compared with demands basic to Bulletin 132-77 projections).

- o Offstream storage operations (including conjunctive ground water operations) would provide a significant portion of the future Project yield and would require additional pumping load not previously considered in the Department's projections. (Previous projections considered that additional yield beyond the Delta Facilities would be provided from conventional on-stream storage located north of the Delta.)

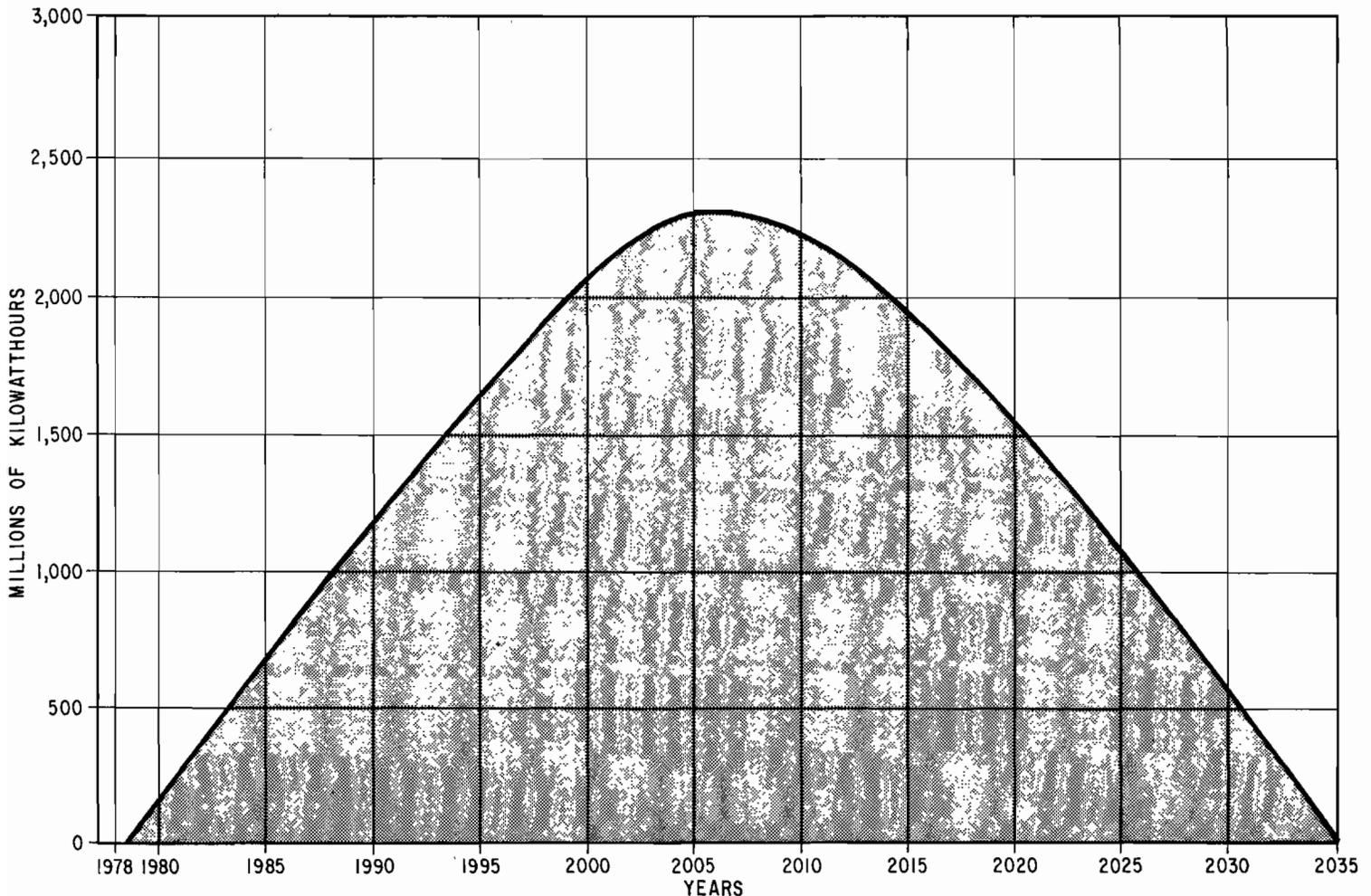
In view of off-stream storage operations and surplus water deliveries contemplated under SB 346, gross Project pumping loads would be largest during "wet" years of Delta supply. However, "median" water supply conditions would govern critical power supply conditions since a considerable portion of the Project's power supply will be derived from hydroelectric generation (namely, Hyatt-Thermalito power) which also would vary in amount with Delta supply. Pumping requirements during "dry" conditions would be reduced to an extent greater than the decrease of hydroelectric generation due to the elimination of surplus water deliveries, application of allowable deficiencies under Article 18 of the Water Supply Contract, and releases from off-aqueduct (including ground water) storage.

The general effect of increased local conservation and waste water reclamation as envisioned under SB 346 on projected loads is portrayed by the curve on Figure 12. The curve is based on estimated median Delta water supply conditions. The sizable reduction of energy load indicated will require a concerted water management effort on the part of both the water contractors and the Department for this energy-savings goal to be realized.

Projected Power Sources and Costs

All orders have been placed for power through March 31, 1983 under current

**Figure 12: PROJECTED SAVINGS OF PUMPING ENERGY REQUIREMENTS
DUE TO
CONSERVATION AND WASTE WATER RECLAMATION UNDER SB 346^(c)**



a) Based on median water supply conditions.

power purchase arrangements. Contractor requests submitted in the Fall of 1977 for the delivery of annual entitlements through 1982 substantially increased as pointed out in Chapter II--to the extent that the Department's orders for Firm Capacity under the Suppliers Contract, placed six years in advance, generally are deficient. The financial analysis assumes that any extra capacity and associated energy needed before April 1, 1983 can be purchased for \$24 per kilowatt year for capacity and average system cost for energy. The future sources

for supplying pumping requirements after March 31, 1983 for the remainder of the repayment period (through the year 2035) cannot be completely defined now. General assumptions are made herein as to their type and associated financing requirements. For instance, new sources required later during the repayment period are identified as "Thermal A, Thermal B", etc. The projection of sources will be continuously refined in future editions of Bulletin 132 as additional knowledge is gained and specific resources are selected.

Financing Requirements

Project financial analyses to date have included only the actual and projected costs of power sources which are a physical part of basic Project conservation and transportation facilities -- the Hyatt-Thermalito facilities and power recovery plants on the California Aqueduct. The costs of other power sources have only been included only to the extent of annual operating costs in such analyses under the general nuclear development assumption used before by the Department for long-range projections. While that assumption fully accounted for the eventual repayment of financing costs within the water charge structure, it did not account for the timing of costs needed to finance the acquisition of such other power sources and the impacts such timing would exert on water charges.

For this analysis, it is assumed that the acquisition costs of all future power sources would be financed by the Department's sale of Central Valley Project Revenue Bonds. This has historically been the case, except for the State's share of San Luis Pumping-Generating Plant which was financed with Burns-Porter funds.

The sale of revenue bonds requires a firm arrangement (a financing contract) which guarantees timely payment of annual bond service. The specific form of such financing contracts has varied to some extent:

- o For Hyatt-Thermalito (Oroville) Facilities, the financing contract now is the Power Sale Contract with the California Companies. Under the Fourth Supplemental Resolution to the Oroville Revenue Bond Resolution (see Chapter II), the Companies' obligations will be assumed after March 31, 1983 by the State. Such obligations will be paid from the Revenue Account of the California Water Resources Development Bond Fund as an annual operating expense

of the State Water Project in accordance with the first priority of use of revenues under the Burns-Porter Act.

- o For Devil Canyon-Castaic Facilities, the financing contract is with the Project water contractors whose deliveries are conveyed through the Facilities. In return for the Department's construction of the Facilities for their benefit, the contractors are committed to pay their respective shares of the annual service on bonds issued to finance the construction costs, as well as of the annual operating cost of the Facilities allocated to power production. These costs are declared nonreimbursable under the water supply contract and the water charges the contractors would otherwise pay (capital and minimum OMP&R components of the Transportation Charge) are reduced by the amount of the payments under the financing contracts. The benefit the contractors receive is the value of power production which is credited to their variable OMP&R components. As previously indicated, the value of recovery power has been set at about 25 mills per kilowatthour.

It is assumed that the financing contracts for future recovery plants on the Project transportation facilities (Pyramid and Cottonwood Powerplants) will be similar to the Devil Canyon-Castaic Contract.

The future power plants associated with Los Vaqueros and Glenn Reservoirs would not be comparable with the above-mentioned recovery plants in that they would be part of the Project conservation facilities rather than Project transportation facilities. Los Vaqueros and Glenn plants will be similar to the San Luis Pumping-Generating Plant. It is assumed for this analysis that these future plants would be financed and repaid similar to the San Luis plant --

their construction costs would be financed by any available Project funds, including Burns-Porter funds, with the parent facility. Based on preliminary estimates of costs allocable to power, the value (costs) of gross generation by the future plants would be equivalent to about 35 mills per kilowatthour.

Current indications are that any acquisition costs (including construction costs) of power sources physically re-

moved from the water facilities of the Project would be financed by revenue bonds. It is assumed the water supply contracts would be amended to provide that the interest costs of such power revenue bonds will not be reflected in the Project interest rate.

Estimated construction costs, bond issues, and fixed annual bond service costs are shown below for each future source:

Sources	Estimated Total Construction Cost \$1,000	Bond Issuance		Annual Bond Cost Repayment ^{1/}		
		Total Bond Sales \$1,000	Date of Bond	Annual Bond Service \$1,000	Beginning Date of Repayment	Number of Years of Repayment
Pine Flat Hydro Project	55,248 ^{2/}	60,268	1/1/1979	3,882	4/1/1983	46
Geothermal Units (Francisco & Rorabaugh Leaseholds)	44,570 ^{3/}	51,026	1/1/1981	3,992	4/1/1983	25
Thermal Unit A	166,273 ^{4/}	207,583	1/1/1986	15,081	1/1/1990	30
Thermal Unit B	166,273 ^{4/}	207,583	1/1/1997	15,081	1/1/2001	30
Thermal Unit C	166,273 ^{4/}	207,583	1/1/2008	15,081	1/1/2012	30
Thermal Unit D	166,273 ^{4/}	207,583	1/1/2018	15,081	1/1/2022	30
Thermal Unit E	166,273 ^{4/}	207,583	1/1/2027	15,081	1/1/2031	30
TOTAL	931,183	1,149,209				

^{1/} Based on 6 percent interest. After the end of the repayment period a similar source is assumed to be available at the same cost until the end of the Project repayment period (2035).

^{2/} Project share of estimated costs, to be constructed and financed by the Kings River Conservation District.

^{3/} To be constructed and financed by the Project.

^{4/} Assumed project participation in future thermal plants constructed by others, with financing of allocated share by the Project.

Project Sales

The Long Range Energy Program contemplates that there may, at times, be Project resources in excess of Project requirements and that such temporary excesses would be sold or exchanged. The general nuclear power assumption previously used tended to obscure the fact that such temporary excesses may be experienced in the future. Such excesses would be the result of total Project resources as a whole; therefore, any revenue or credit realized from the sale or exchange of excess power would be associated with all Project-owned sources, and not with a particular plant. For purposes of this analysis, such estimated revenues are allocated among Project-owned plants on the basis of installed generating capacity.

For the projections shown in this bulletin, varying amounts of power capacity would be available over and above required loads and reserves; however, committed energy resources generally would be deficient and would have to be supplemented by purchases from electric utilities. Arrangements may be possible whereby the excess capacity would be exchanged with electric utilities for supplemental energy. However, for purposes of this analysis, it is assumed that excess capacity would be sold at \$50 per kilowatt-year -- based on the estimated alternative cost of capacity from gas turbine generators. The excess capacity sold averages about 475 MW annually for this analysis.

Allocation of Project Power Costs Among Plants

Power costs are incurred for operation of the Project as a whole, not for the

operation of respective pumping plants. However, the water-charge structure provided for by the Water Supply Contracts requires that Project power costs be allocated annually among the respective Project pumping plants. The method for this allocation is not specified. The variable OMP&R component of the Transportation Charge is determined directly by such allocation (i.e., power costs assigned to each aqueduct reach are apportioned among each acre-foot of annual water quantities conveyed through the reach).

Through March 31, 1983, Project power capacity costs are allocated among plants (reaches) separately from Project energy costs. Capacity costs are apportioned among plants on the basis of non-coincidental peak demand at each plant (i.e., such peaks may not occur at the same time for all plants). Energy costs are apportioned equally upon each kilowatthour of use. Noncoincidental peaks for allocation purposes are based on theoretical operation studies -- generally those basic to the order of Suppliers Firm Capacity prepared six years in advance of use, but adjusted for any actual water delivery increases over those basic to such studies. On the other hand, kilowatthours of energy use used in the allocation process are actual annual quantities as metered at each plant.

As pointed out in Chapter II, the Department proposes to apportion both Project capacity and energy costs, incurred after March 31, 1983, among plants on the basis of actual energy use recorded for such plants. This simplified, straight-forward procedure is used in the analyses shown in this bulletin.

APPENDIX B

**DATA AND COMPUTATIONS USED IN
DETERMINING WATER CHARGES FOR 1979**

APPENDIX B - DATA AND COMPUTATIONS USED
IN DETERMINING WATER CHARGES

TABLE OF CONTENTS

	<u>Page</u>
Character of Water Charges	147
Composition of Water Charges	148
Bases for Allocating Reimbursable Costs Among Contractors.	151
Proportionate Maximum Use of Facilities	152
Proportionate Annual Use of Facilities.	152
Special Treatment of Certain Plant Costs	153
Water Conveyance	153
Bases for Reimbursable Costs	154
Capital Costs	155
Costs of Delivery Structures	155
Costs of Requested Excess Capacity	156
Annual Operating Costs.	157
Minimum Operating Costs.	157
Costs to be Returned to the State Through Payments Under the Transportation Charge and the Devil Canyon-Castaic Contract	157
Costs to be Returned Through Payments Under the Delta Water Charge and the Oroville Power Sale Contract	158
Project Water Charges.	158
Transportation Charges.	158
Allocated Capital Costs,	158
Capital Cost Components.	158
Minimum OMP&R Components	159
Variable OMP&R Components.	159
Total Transportation Charges	161
Delta Water Rates per Acre-foot of Entitlement.	161
Delta Water Charges	161
Total Delta Water Charges.	161
Total Transportation and Delta Water Charges.	161
Equivalent Total Water Charges.	161
Equivalent Water Costs, by Reach.	161
Surplus Water Service	162
Actual and Projected Deliveries	162
Surplus Water Costs	162
Surplus Water Charges	162

FIGURES

B-1 Relationships of Data Used to Substantiate Statements of Charges. . .	149
B-2 Criteria for Amortization Schedules	160
B-3 Repayment Reaches and Descriptions.	163

TABLE OF CONTENTS (Continued)

	<u>Page</u>
TABLES	
B-1 Factors for Distributing Reach Capital Costs Among Contractors. . . .	164
B-2 Factors for Distributing Reach Minimum OMP&R Costs Among Contractors.	166
B-3 Power Costs and Credits and Annual Replacement Deposits for Each Aqueduct Pumping and Power Recovery Plant	168
B-4 Annual Entitlements to Project Water	170
B-5A Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor	174
B-5B Annual Water Quantities Delivered to Each Contractor	180
B-6 Annual Water Quantities Conveyed thru Each Pumping and Power Recovery Plant of Project Transportation Facilities.	184
B-7 Reconciliation of Capital Costs Allocated to Water Supply and Power Generation for the Period 1952-1999	192
B-8 Capital Costs of Requested Delivery Structures	193
B-9 Capital Costs of Requested Excess Peaking Capacity	194
B-10 Capital Costs of Each Aqueduct Reach to be Reimbursed thru Capital Cost Component of Transportation Charge	196
B-11 Minimum OMP&R Costs of Each Aqueduct Reach to be Reimbursed thru Minimum OMP&R Component of Transportation Charge.	200
B-12 Variable OMP&R Costs to be Reimbursed thru Variable OMP&R Component of Transportation Charge	208
B-13 Capital and Operating Costs of Project Conservation Facilities to be Reimbursed thru Delta Water Charge.	210
B-14 Capital Costs of Transportation Facilities Allocated to Each Contractor.	212
B-15 Capital Cost Component of Transportation Charge for Each Contractor .	214
B-16 Minimum OMP&R Component of Transportation Charge for Each Contractor.	218
B-17 Unit Variable OMP&R Component of Transportation Charge.	222
B-18 Variable OMP&R Component of Transportation Charge for Each Contractor.	225
B-19 Total Transportation Charge for Each Contractor.	229
B-20 Calculation of Delta Water Rates	233
B-21 Total Delta Water Charge for Each Contractor	234
B-22 Total Transportation and Delta Water Charge for Each Contractor . . .	238
B-23 Equivalent Unit Charge for Water Supply for Each Contractor	242
B-24 Equivalent Unit Costs of Water Delivered From or Thru Each Aqueduct Reach.	243
B-25 Annual Surplus Water Deliveries	244
B-26 Power Costs for Pumping Surplus Water	245
B-27 Power, Replacement and Administrative Charge for Surplus Water Deliveries.	246
B-28 Projected Annual Surplus Water Deliveries	247
B-29 Projected Power Costs for Pumping Surplus Water	248
B-30 Projected Unit Power Rates for Pumping Surplus Water	249
B-31 Commitment for the Cost of Power for Pumping Surplus Water.	250

APPENDIX B

DATA AND COMPUTATIONS USED IN DETERMINING WATER CHARGES

Statements of charges to be furnished by the State on or before July 1 of each year are described in Article 29(e) of the "Standard Provisions for Water Supply Contract", which provides that:

"...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."

Compliance with Article 29(e) requires a comprehensive annual redetermination of all water supply aspects of the State Water Project for the entire project repayment period. This annual redetermination is specifically provided for in

Article 22(f), concerning the Delta Water Rate per acre-foot of future entitlement, and in Article 28, with regard to the Annual Transportation Charges for the entire project repayment period.

This appendix documents the redetermination for water charges to be paid by contractors during calendar year 1979 and is based on aspects of the State Water Project known January 1, 1978. The computational procedure and relationships among tabulations of this redetermination are outlined on Figure B-1. All B-tables shown on Figure B-1 are found at the end of this appendix.

This appendix also documents payments, pursuant to amended Article 21 of the Standard Provisions, for the sale and service of surplus project water to contractors.

Character of Water Charges

Most of the facilities of the State Water Project are necessary either for the conservation and development of a project water supply in and above the Sacramento-San Joaquin Delta or for the conveyance of such a supply to project service areas throughout the State. The Standard Provisions classify these facilities, respectively, as "project conservation facilities" and "project transportation facilities".

Project Conservation Facilities

- o Frenchman Dam and Lake
- o Grizzly Valley Dam and Lake Davis

- o Oroville Dam and Lake Oroville
- o Oroville Power Facilities
- o Delta Facilities
- o Additional Conservation Facilities
- o A portion of the California Aqueduct (all of San Luis Dam, Reservoir, and Pumping-Generating Plant, and a portion of the works from the Delta through O'Neill Forebay)

Project Transportation Facilities

- o Grizzly Valley Pipeline

- o North Bay Aqueduct
- o South Bay Aqueduct (including Del Valle Dam and Lake Del Valle)
- o The remaining portion of the California Aqueduct (the remaining portion of the works between the Delta Facilities and Dos Amigos Pumping Plant and all works south, including Dos Amigos Pumping Plant and the project dams and lakes in Southern California)

The Standard Provisions provide for two basic annual charges for project water:

- o The Delta Water Charge, which will be paid by all contractors and which will return all reimbursable costs of the project conservation facilities to the State.
- o The Transportation Charge, in addition to the Delta Water Charge, which will be paid by those contractors served by the project transportation facilities and which will return all reimbursable costs of such facilities to the State.

The Delta Water Charge is essentially a unit commodity assessment on each acre-foot of project water the contractors are entitled to receive under their contracts. The unit charge is calculated so that, if applied to each acre-foot of all such entitlements for the remainder of the project repayment period, all outstanding reimbursable costs of the project conservation facilities will be returned to the State, with appropriate interest, by the end of the period. Reimbursable costs include those allocated to water supply and power genera-

tion. Outstanding reimbursable costs exclude (a) those returned to the State through actual payments of the Delta Water Charge and (b) all those returned and to be returned to the State through sales of power generated in connection with the project conservation facilities.

Article 22(g) of the Standard Provisions as amended, requires that the Delta Water Charge be adjusted, when costs are incurred, to reimburse the costs of those supplemental conservation facilities constructed in the future to supply "supplemental water" in addition to the "minimum project yield", 5 217 705 000 cubic metres (4,230,000 acre-feet) annually. Article 22(g) further provides that the redetermined Charge will be paid both by contractors for "supplemental water" and by contractors supplied by the present "minimum project yield". Thus, the Delta Water Charge is "open-ended".

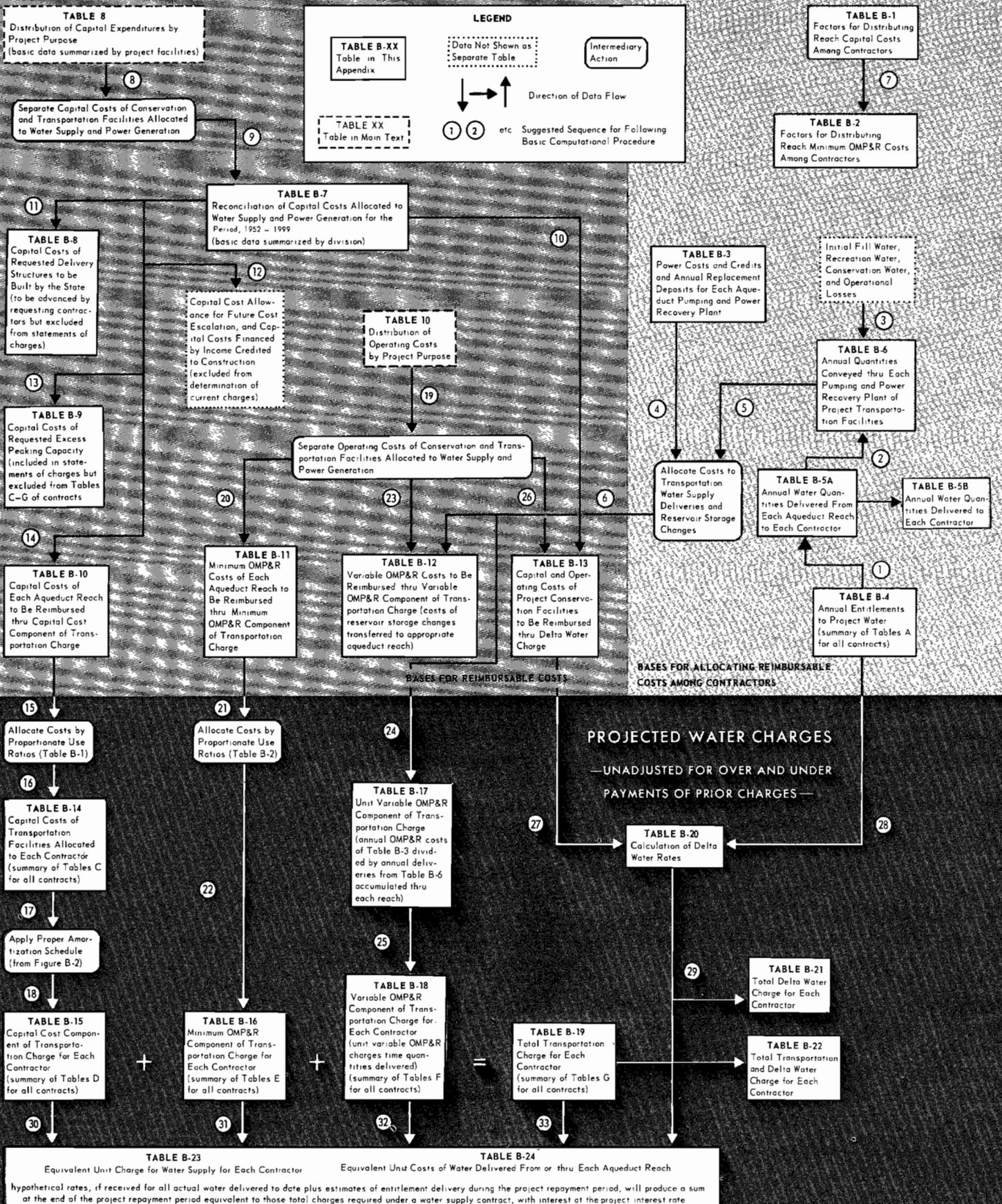
The Transportation Charge is essentially an assessment for that use of the project transportation facilities required to deliver water provided within the "minimum project yield" from points in and above the Sacramento-San Joaquin Delta to the vicinity of each contractor's turnout. Generally, the annual Charge represents each contractor's proportionate share of the reimbursable costs for constructing and operating the project transportation facilities. Certain variations are allowed in the method of amortizing each contractor's share of reimbursable capital costs. The contractor's share of reimbursable operating costs is repaid essentially in the year such costs are incurred by the State.

Composition of Water Charges

The Delta Water Charge and the Transportation Charge each consists of three components:

- o A capital cost component, which will return to the State all reimbursable capital costs.

Figure B-1: RELATIONSHIPS OF DATA USED TO SUBSTANTIATE STATEMENTS OF CHARGES



- o A minimum operation, maintenance, power, and replacement (OMP&R) component, which will return to the State all reimbursable operating costs that are incurred irrespective of water quantities actually delivered to the contractors.
- o A variable OMP&R component, which will return to the State all reimbursable operating costs that are incurred in amounts that depend on, and vary with, water quantities actually delivered to the contractors.

The time and method of payment for corresponding components of the Delta Water Charge and the Transportation Charge are as follows:

- o 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, on the basis of statements furnished by the State on or before July 1 of the preceding year.
- o The minimum OMP&R component of the Transportation Charge and all reimbursable operating costs under the Delta Water Charge are paid in 12 equal installments, due the first of each month, also on the basis of statements furnished by the State on or before July 1 of the preceding year.
- o The variable OMP&R component of the Transportation Charge is paid in varying monthly amounts, due the 15th of the second month following actual water delivery, on the basis of a unit charge per acre-foot established on or before July 1 of the preceding year and applied to actual monthly delivery quantities as determined by the State on or before the 15th of the month following actual delivery.

The Transportation Charges do not in-

clude certain credits from contractor payments under supplemental agreements including the following:

1. Payments for State construction of requested delivery structures which exceed actual construction costs of such structures.
2. Payments for State construction of requested excess capacity in project transportation facilities which exceed actual construction costs of such excess capacity.
3. Payments under the Devil Canyon-Castaic contract.

Transportation Charges for prior years, through 1977, do not equal those amounts actually paid by contractors under statements previously furnished by the State. Overpayments or underpayments of charges (difference between the redetermined amounts and those under statements previously furnished) are accumulated, with interest credits or debits, and are deducted from or added to the redetermined amounts of the Transportation Charge to be paid by respective contractors during 1979 (except for the capital cost component associated with agricultural use by Kern County Water Agency). These adjustment computations are shown in the attachments accompanying each contractor's statement of charges and are reflected in revised copies of Tables C through G of the contract, also furnished with the statement of charges.

The formula for computing the Delta Water Rate, Article 22(f) of the Standard Provisions, provides that all adjustments for prior overpayments or underpayments of the Charge are accounted for in a redetermination of the Rate. Since the redetermined Rate applies to all future entitlements, such adjustments are effectively amortized during the remainder of the project repayment period. This appendix includes a deter-

mination of the Delta Water Rate for 1979.

This redetermination excludes charges associated with project water service other than the Delta Water Charge and the Transportation Charge. Other charges (and the manner by which such charges are treated herein) are:

- o Advances of funds pursuant to Article 24(d) of the Standard Provisions, for excess capacity constructed by the State at the request of contractors. (Information on required advances is included herein because these charges are covered in the July 1 statements. However, any advances which are projected to exceed the additional capital costs for such excess capacity in completed aqueduct reaches have not been credited to future capital cost components of the Transportation Charge. Application of these credits is shown in the copies of revised Tables D and G which are furnished with the statements of charges.)
- o 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
- is included herein concerning actual and projected capital costs of such delivery structures. Statements concerning these costs and data in support of such statements are furnished to the appropriate contractors at various times and are not part of the July 1 statements.)
- o Payments for sale and service of surplus project water to entities other than contractors pursuant to Article 21 of the Standard Provisions. (Payments of such water are based on prices greater than the unit variable OMP&R costs involved. Net revenues resulting from "noncontractor" service are applied as described on page 24, Bulletin 132-71. Such prices are generally based on the unit rates shown in Table B-24.)
- o Payments under the Devil Canyon-Castaic Contract for costs of the Devil Canyon and Castaic Facilities allocable to power generation. (Charges under the Contract are billed separately from those under the Water Supply Contract. The treatment of such charges in relation to redetermined Transportation Charges is shown in special attachments to the bills of the six affected contractors.)

Bases for Allocating Reimbursable Costs Among Contractors

This section concerns how reimbursable costs of aqueduct reaches of the project transportation facilities are allocated among contractors for determining the Transportation Charge. Reimbursable costs of the project conservation facilities are not allocated directly among contractors. Conceptually, the Delta

Water Charge is a unit commodity charge rather than a use-of-facilities charge.

Allocation of reimbursable costs of aqueduct reaches among contractors is based on two specific applications of the Proportionate Use of Facilities method:

- o 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 project development.
- o Allocations of reimbursable variable OMP&R costs of each reach are based on the proportionate actual annual use of that reach by the respective contractors.

Figure B-3, at the end of the text for this appendix, shows reaches in which reimbursable costs of project transportation facilities are allocated among contractors.

Proportionate Maximum Use of Facilities

The derivation of ratios that represent the proportionate maximum use of each aqueduct reach by the respective contractors was last described in Bulletin 132-70, (See pages 103-106 for a description of the computational procedure; pages 116-117 for a summary of aqueduct reaches, reach delivery quantities, and reach capacities; and pages 118-173 for a detailed derivation of factors for each contractor and for each aqueduct reach.) Such factors are still valid -- except for the first reach of the California Aqueduct and for reaches of the South Bay Aqueduct. Revised ratios for these reaches are described in Bulletin 132-72 (see pages 106-111) and account for certain contract amendments executed early in 1972 regarding South Bay Aqueduct use (see pages 33-35, Bulletin 132-73).

Table B-1 presents a summary of all reach ratios currently applicable to reimbursable capital costs.

Table B-2 presents a corresponding summary applicable to reimbursable minimum OMP&R costs. Requested excess capacity is ignored in B-1 (since the associated

capital costs are paid for on an incremental-cost basis and not a proportionate-use basis) but is accounted for in B-2).

Proportionate Annual Use of Facilities

Article 26(a) of the contract provides that the variable OMP&R component of the Transportation Charge shall return to the State those costs which are incurred in an amount which depends upon and varies with the amount of project water delivered to the contractor. (The minimum OMP&R component returns those operating costs which are incurred in an amount which does not vary with deliveries.) The Article explains that all such costs for a reach for a given year shall be allocated among contractors in proportion to the respective delivery quantities conveyed through the reach during the year.

Under the State's procedure, variable OMP&R costs originate with certain operating costs of project pumping and power recovery plants. These costs are incurred in amounts which generally vary with the total water conveyed through the plants -- not with just the portion for delivery to contractor turnouts. In addition to direct deliveries, conveyance may include the following:

- (a) Water applied in down-aqueduct on-shore recreation developments;
- (b) Water stored in the initial fill of down-aqueduct reservoirs;
- (c) Water lost through evaporation and seepage from down-aqueduct reaches and reservoirs; and
- (d) Water stored during a year in excess of storage withdrawals, subsequent to initial fill, in down-aqueduct reservoirs.

Under the State's procedure, certain operating costs for a plant for a given

year are allocated among direct deliveries and (a) through (d) above in proportion to respective quantities conveyed through the plant during the year. Plant costs allocated to direct deliveries are designated as variable OMP&R costs to be repaid by contractors for the reach in which the plant is located. Remaining plant costs are allocated to the quantities (a) through (d) above and designated as follows:

- (a) A portion of joint OMP&R costs of the reach containing the plant allocated to recreation.
- (b) A portion of joint capital costs of respective down-aqueduct reservoirs.
- (c) and (d) A portion of joint minimum OMP&R costs of respective down-aqueduct reaches and reservoirs.

Concerning (d) above, in years when storage in down-aqueduct reservoirs is decreased for the purpose of making deliveries, associated variable OMP&R costs are established for the respective reservoirs with an offsetting credit applied to the minimum OMP&R costs of each. Such variable OMP&R costs are calculated to be equivalent to the original plant costs of conveying the water placed in storage. Under current procedures, the unit cost of conveying water to storage is assumed to be equivalent to the unit cost of conveying water to the storage site in years when such storage is released.

Special Treatment of Certain Plant Costs. As indicated in the preceding section, the State's procedure requires an initial apportionment of certain plant costs among capital cost, minimum OMP&R, and variable OMP&R components. This is based on annual quantities conveyed through respective plants for various down-aqueduct functions. Plant costs which are apportioned are summarized in Table B-3 and include the following items:

- o Costs of capacity and energy used,

exclusive of associated power transmission and station service charges. (Transmission and station service costs are classified as minimum OMP&R costs.)

- o Credits for capacity and energy produced at aqueduct power recovery plants (treated as negative costs).
- o Annual payments to sinking fund reserves to finance periodic replacement of plant machinery components having economic lives shorter than the project repayment period.

Excluded from the above are costs for salaries of plant operations and maintenance personnel -- classified as minimum OMP&R costs.

Also excluded from B-3 are plant capacity and energy costs associated with surplus water service after May 1, 1973. Prior to May 1, 1973, surplus water service was charged the same unit variable OMP&R component as entitlement water service. Prior to that date, surplus water deliveries are included in the "Deliveries -- Water Supply" described in the following section.

Beginning May 1, 1973, the rate structure for surplus water service was significantly changed (see "Contract Amendments, Water Contracts Management", Chapter II). Capacity and energy costs of pumping plants are assigned directly to surplus water service in years of delivery. However, no surplus water was available in 1977 due to the severity of the drought.

Water Conveyance. Table B-4 summarizes the schedules of annual entitlements as set forth in Table A of each contract. Table B-5A presents a summary of the actual and projected annual water quantities delivered and to be delivered from each aqueduct reach to each contractor. These quantities include surplus water delivered prior to May 1, 1973, exchange

water delivered to project contractors in 1976 and 1977 and actual and projected nonproject water delivered to contractors through SWP facilities. These water deliveries do not necessarily correspond with annual entitlements. (For a comparison of actual and projected deliveries to annual entitlements, see Table 1, Chapter II.) Table B-5B presents a summary of actual and projected annual water quantities delivered and to be delivered to each contractor.

Table B-6 summarizes the water quantities conveyed or to be conveyed through each aqueduct pumping plant or power plant for each year of the project repayment period and for each of the following functions:

- o Made available to contractors at down-aqueduct delivery structures ("Deliveries -- Water Supply").
- o Required to initially fill down-aqueduct reaches and reservoirs to operational levels ("Initial Fill Water").
- o Consumed in down-aqueduct project-associated recreation developments ("Deliveries, Recreation").
- o Lost through evaporation and seepage from all down-aqueduct reaches ("Operational Losses").
- o Placed in down-aqueduct reservoir storage subsequent to the initial fill of such storage ("Reservoir Storage Changes").

In addition Table B-6 summarizes the net annual water amounts stored and to be stored in San Luis Reservoir (a project conservation facility with costs reimbursed through the Delta Water Charge) and lost and to be lost through evaporation and seepage from the Reservoir and from the water conservation portion of the Aqueduct (all such quantities are included under the heading "Conservation Water").

The Delta Pumping Plant is a joint transportation-conservation facility. Under the State's procedure, power and replacement costs of the Delta Pumping Plant which are apportioned to the conveyance of annual "conservation water" quantities are transferred to the capital costs of San Luis Reservoir (during initial fill) or to the minimum OMP&R costs of San Luis Reservoir (subsequent to initial fill).

In years when releases from San Luis Reservoir cause a net annual storage depletion in order to make deliveries to contractors down-aqueduct therefrom, a portion of the minimum OMP&R costs of the Reservoir is transferred to the transportation variable OMP&R costs of the Delta Pumping Plant. This transfer is in an amount equal to the variable OMP&R cost per acre-foot of delivery through the Delta Pumping Plant for that year, multiplied by the acre-feet of deliveries derived from San Luis Reservoir storage for that year.

Bases for Reimbursable Costs

Tables 8 and 10 (Chapter III) summarize the capital and OMP&R costs of all project facilities, respectively, and the allocation of these costs among the various project purposes. Allocation percentages are shown for each project facility in the following tabulation. For the most part, these percentages are

preliminary and subject to future revision and are applicable to the State's costs of the respective facilities. The redetermination in this appendix is concerned only with the costs of project facilities that are allocated to water supply and power generation.

Project Facilities	Water Supply and Power Generation		All Other Purposes (Nonreimbursable)	
	Capital Costs	Minimum OMP&R Costs	Capital Costs	Minimum OMP&R Costs
(in percent)				
<u>Project Conservation Facilities</u>				
Frenchman Dam and Lake	21.5	0	78.5	100.0
Antelope Dam and Lake	0	0	100.0	100.0
Grizzly Valley Dam and Lake Davis	5.1	8.8	94.9	91.2
Oroville Division ^(a)	97.1	99.0	2.9	1.0
California Aqueduct, Delta to Dos Amigos Pumping Plant	96.5	94.1	3.5	5.9
Delta Facilities	86.0	86.0	14.0	14.0
Additional Conservation Facilities	90.0	90.0	10.0	10.0
<u>Transportation Facilities</u>				
California Aqueduct:				
California Aqueduct excluding Coastal Branch ^(b)	97.0	92.9	3.0	7.1
Coastal Branch	100.0	100.0	0	0
South Bay Aqueduct:				
Del Valle Dam and Lake				
Del Valle	25.2	22.0	74.8	78.0
Remainder of South Bay Aqueduct	100.0	100.0	0	0
North Bay Aqueduct	100.0	100.0	0	0

- a) Percentages shown are applicable to the total costs of the Division excluding specific power costs of Edward Hyatt and Thermalito Powerplants and Switchyards. Federal reimbursements for flood control are treated as negative costs.
- b) A final allocation of facilities from the Delta to Dos Amigos Pumping Plant has been made. 3.4 percent of these capital costs are allocated to recreation and fish and wildlife enhancement and are reported for reimbursement under AB12. However, until the remainder of the aqueduct is finally reported the percentage for billing purposes is as shown.

Capital Costs

Table B-7 presents a reconciliation of estimated total capital costs of each project conservation facility and each aqueduct reach as estimated for (a) Chapter III and (b) current redetermination of water charges.

Costs of Delivery Structures. Costs of delivery structures constructed by the State are paid directly by each contractor requesting such structures (see pages 87 and 88, Bulletin 132-71 for a description of the method of payment for

the capital costs of a delivery structure constructed by the State). Capital costs of all delivery structures constructed and to be constructed by the State are shown for each contractor in Table B-8. However, these costs are incomplete in some respects and should not be construed as preliminary estimates or final invoices to be furnished by the State. The following tabulation indicates the general location and construction status of delivery structures requested as of the end of 1977.

Project Facility	Number of Delivery Structures					
	Requested by Agencies	Under Construction		Completed		Stub Only ^(a)
		by State	by Agencies	by State	by Agencies	
Oroville Area	6	0	0	0	6	0
North Bay Aqueduct (Phase I)	3	0	1	1	0	1
South Bay Aqueduct	20	0	0	8	9	3
California Aqueduct:						
North San Joaquin Division	5	0	1	0	4	0
San Luis Division (served by the federal Central Valley Project)						
South San Joaquin Division	49	0	4	9	28	8
Tehachapi Division	1	0	0	0	0	1
Mojave Division	24	0	0	0	13	11
Santa Ana Division	10	0	0	3	5	2
West Branch	5	0	0	1	1	3
Coastal Branch (Phase I)	3	0	0	1	2	0
TOTAL	126	0	6	23	68	29

a) Will be completed at a later date. Temporary facilities for delivery of water have been installed at several of the stubs.

Costs of Requested Excess Capacity.

Amendments have been added to contracts of the following three agencies and provide for excess capacity in the project transportation facilities:

The Metropolitan Water District of Southern California, San Gabriel Valley Municipal Water District, and Antelope Valley-East Kern Water Agency. Listed in Table B-9 are estimates of the annual amounts for:

- o Additional costs incurred by the State for requested excess capacity.
- o Required annual advances, by water contractors, of funds for such costs.
- o Any credits for advances estimated to be in excess of costs which will be applied to the respective contractor's accounts (generally, to the contractors' next installment of the capital cost component of the Transportation Charge).

Under Amendment 2 of Metropolitan's contract, 22.9 cubic metres per second (809 cubic feet per second) of excess capacity originally was constructed in reaches of the West Branch at the District's request. Under Amendment 7, such capacity was reclassified as basic capacity of the project transportation facilities. This aspect of Amendment 7 required a \$16.3 million prepayment of the District's capital cost component of the Transportation Charge in lieu of advances of funds for the originally requested capacity.

Application of credits for contractor advances that are estimated to be in excess of actual costs and (concerning Metropolitan's Amendment 7) for prepayments of the capital cost component is shown in attachments to the respective statements of charges.

Amendment 5 of Metropolitan's contract includes a provision whereby additional costs to be incurred because of modifi-

cations to the Santa Ana Valley Pipeline, required for enlargement of Lake Perris, at the request of Metropolitan are to be allocated to the District and returned to the State through payments of the Transportation Charge: The estimated additional costs to be repaid through the District's capital cost component for the aqueduct reach from Devil Canyon Powerplant to Barton Road total \$6.7 million, as shown on page 98, Bulletin 132-72.

Annual Operating Costs

Estimated operating costs allocable to water supply and power generation shown in Table 10 (Chapter III) will be returned to the State through payments of the minimum and variable OMP&R components of Delta Water and Transportation Charges and through a portion of the revenues from electric power sales.

All reimbursable operating costs of conservation facilities are returned to the State through payments of the minimum OMP&R component of the Delta Water Charge.

Those operating costs to be reimbursed through payments of the variable OMP&R component of the Transportation Charge were previously described in the section entitled "Special treatment of Certain Plant Costs". The remainder of this section centers on those costs to be reimbursed through payments of the minimum OMP&R component of the Transportation Charges.

Minimum Operating Costs. The following types of operating costs are considered to be incurred in annual amounts that do not vary with the water quantities delivered to the contractors and are therefore classified as minimum OMP&R costs:

- o All direct labor charges for field operations and maintenance personnel, including associated indirect costs.
- o Electric power transmission and station service costs.

- o All costs for equipment, materials, and supplies and for replacement of works other than rotating machinery of pumping and power recovery plants.
- o 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 (a) lost to evaporation and seepage from respective aqueduct reaches, or (b) placed into storage in respective reservoirs of the project transportation facilities (after initial fill).
- o Credits, which offset those costs referred to in (b) above, for deliveries derived from reservoir storage.
- o A distributed share of general and direct operating costs which cannot be identified solely with one facility or aqueduct reach.

Concerning the allocation of general operating costs among facilities and reaches, this redetermination follows the procedures described on pages 111-113, Bulletin 132-70.

Costs to be Returned to the State Through Payments Under the Transportation Charge and the Devil Canyon-Castaic Contract

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 contractor payments of the capital cost component under the Transportation Charge and of debt service under the Devil Canyon-Castaic Contract. The actual and projected costs to be reimbursed through payments of the minimum OMP&R component under the Transportation Charge and of allocated operating costs under the Devil Canyon-Castaic Contract are shown in Table B-11. Variable OMP&R costs, shown in Table B-12, are a portion of those costs shown in Table B-3 allocable to the water supply delivery

quantities shown in Table B-6 and reimbursed through payments of the variable OMP&R component of the Transportation Charge.

The preliminary estimate of costs of pumping entitlement and exchange water in 1977 are included in Table B-12. These amounts are allocated to water supply based upon water deliveries in Table B-6 and reflect delivery of water under the 1977 exchange water program as well as allocated contractor entitlement in that year. In Bulletin 132-80, the Department intends to determine if the exchange program caused an increase in the cost of water to other contractors. If so, any additional costs will be excluded from the unit charges shown in Table B-17 and will be charged to water contractors receiving exchange water in 1977. This is to insure that non-partici-

pating contractors will not have increased costs in 1977 because of the program.

Costs to be Returned Through Payments Under the Delta Water Charge and the Oroville Power Sale Contract

Summarized in Table B-13 are actual and projected capital and operating costs of the initial project conservation facilities to be reimbursed through payments under (a) the Delta Water Charge, (b) Oroville power sales, and (c) San Luis power credits. Included in Table B-13 are credits applied to the reimbursable capital costs of the project conservation facilities pursuant to negotiated settlements concerning the magnitude of incurred planning costs for the period 1952 through 1976 (see section entitled "Negotiation of Water Charge Settlements". Chapter II).

Project Water Charges

This section summarizes the redetermination of past and projected components of the Transportation Charge for annual revision of Tables C through G that are included in each water contract. This section also includes a derivation of the unit Delta Water Rates. Equivalent unit charges for each acre-foot of entitlement water service are also summarized herein for (a) each contractor and (b) each aqueduct reach.

Transportation Charges

The accumulation of allocated costs of each aqueduct reach to each contractor forms the basis for the annual components of the Transportation Charge.

Allocated Capital Costs. Table B-14 summarizes each contractor's share of

the capital costs of aqueduct reaches presented in Table B-10, as determined by application of proportionate-use ratios set forth in Table B-1. The resulting allocated costs are set forth in Table C of the respective contracts.

Prepayments of the capital cost component, required under Metropolitan's Amendment 7, are shown as negative capital costs in Metropolitan's Table C and in Table B-14. Both Table B-14 and Tables C of the six contracts for service below the Devil Canyon and Castaic Facilities include the capital costs that are reimbursable under the Devil Canyon-Castaic Contract.

Capital Cost Components. Criteria as to the types of amortization schedules applicable to the allocated capital costs

for the respective contractors are summarized in Figure B-2. The accounting of interest charges included in the capital cost components of the Transportation Charge follows the procedure established in Settlement Letter No. 2.

Table B-15 summarizes the capital cost components of the Transportation Charge for each contractor for each year of the project repayment period. These estimated components, subsequently adjusted for prior overpayments or underpayments are set forth in Table D of the respective contracts. Credits for advance payment for excess capacity that exceeds actual costs of such capacity are applied to reduce the payment amounts set forth in Table D, but are not included in Table B-15. Both Table B-15 and Table D of the six Devil Canyon-Castaic contracts include the debt service payments due under the Devil Canyon-Castaic Contract.

Minimum OMP&R Components. Table B-16 summarizes the minimum OMP&R components of the Transportation Charge for each year of the project repayment period. These estimated components subsequently adjusted for prior overpayments or underpayments, are set forth in Table E of the respective contracts. These components represent the accumulated share of the reach costs presented in Table B-11, as determined by application of the proportionate-use ratios shown for each reach and for each contractor in Table B-2.

Under operating agreements with Kern County Water Agency concerning the early installation of units by Berrenda Mesa Water District in Las Perillas and Badger Hill Pumping Plants (see page 7, Bulletin 132-71), the Agency is to be billed any additional operating costs caused by early installation of the units which would otherwise increase charges to downstream contractors. Under this requirement, the following minimum OMP&R costs of Reach 31A are assigned directly to the Agency with the

remaining reach costs allocated by application of the proportionate-use ratios:

Year	Direct Charge	Year	Direct Charge
1969 ...	\$ 46,486	1978 ...	\$ 63,299
1970 ...	46,306	1979 ...	69,014
1971 ...	139,391	1980 ...	72,534
1972 ...	94,322	1981 ...	72,512
1973 ...	71,506	1982 ...	69,455
1974 ...	98,483	1983 ...	66,175
1975 ...	124,659	1984 ...	66,123
1976 ...	137,273	1985 ...	65,984
1977 ...	61,497	Total ...	\$1,365,019

Both Table B-16 and Table E for the six Devil Canyon-Castaic contracts include the portion of operating costs payable under the Devil Canyon-Castaic Contract.

Variable OMP&R Components. Article 26(a) of the Standard Provisions specifies the following procedure for calculating the variable OMP&R component of the Transportation Charge:

- o An annual charge per acre-foot of projected water deliveries to all contractors served from or through each reach is determined so as to return to the State the projected variable OMP&R costs to be incurred for each reach.
- o 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.

Table B-17 presents a summary of actual and projected total variable OMP&R costs for each acre-foot of conveyance through each aqueduct pumping plant and power

plant for each year of the project repayment period. The data summarized in Table B-17 have been derived by dividing the power costs (and credits) and replacement costs shown in Table B-3 by the total water quantities shown in Table B-6.

However, certain costs included in Table B-12 for "extra peaking service", which would otherwise constitute variable OMP&R costs, are assigned directly to contractors requesting this type of service (see page 21, Bulletin 132-71, and Water Service Contractors Council Memo No. 593, July 10, 1970). These costs are excluded

from the unit charges shown in Table B-17. Extra peaking charges for additional power capacity are as shown below:

Year	Agency	Pumping Plant	
		Dos Amigos	Las Perillas and Badger Hill
			(dollars)
1972	Kern County W.A.	\$9,553	\$24,700
	Hacienda W.D.	10	0
1973	Kern County W.A.	0	6,016
1974	Kern County W.A.	0	7,140
1975	Kern County W.A.	494	6,397
1976	Kern County W.A.	0	1,981

FIGURE B-2: CRITERIA FOR AMORTIZATION SCHEDULES

Contractor	Amortization of Allocated Capital Costs in 50 Equal Annual Installments, With Initial Payment Due in:								
	1963	1964	1965	1966	1968	1970	1973	a	b
Alameda County FC&WCD, Zone 7	● c								
Alameda County WD	●								
Antelope Valley-East Kern WA	●								
Castaic Lake WA.....		●							
County of Butte									
County of Kings					●				
City of Yuba City									
Coachella Valley County WD		●							
Crestline-Lake Arrowhead WA		●							
Desert WA	● d								
Devil's Den WD								●	
Dudley Ridge WD								●	
Empire West Side ID.....								●	
Hacienda WD								●	
Kern County WA: Ag use								●	
M&I use			●						
Littlerock Creek ID		●							
Mojave WA		●							
Napa County FC&WCD				●					
Oak Flat WD								●	
Palmdale WD		●							
Plumas County FC&WCD.....						●			
San Bernardino Valley MWD	●								
San Gabriel Valley MWD	● d								
San Geronio Pass WA	● d								
San Luis Obispo County FC&WCD		● e							
Santa Barbara County FC&WCD		● e							
Santa Clara Valley WD	●								
Solano County FC&WCD							●		
The Metropolitan WD-SC	●								
Tulare Lake Basin WSD.....								●	
Ventura County FCD		●							

- a Amortization of allocated capital costs on basis of equivalent unit rate applied to annual entitlements (Table B-4) within project repayment period.
- b Payments on Delta Water Charge only.
- c Principal payments on each annual capital cost prior to 1971 delayed until calendar year 1972, except payments for 1963.
- d Deferred and added to 1964 payment with accrued interest.
- e Exception: all principal and interest payments for costs of "Coastal Stub" are assumed deferred until 1976.

Table B-18 summarizes the variable OMP&R components of the Transportation Charge for each contractor and for each year of the project repayment period. Table B-18 is developed from the costs per acre-foot as shown in Table B-17 and the delivery quantities for each contractor from each reach as shown in Table B-5A, plus any costs for "extra peaking service". These estimated components, subsequently adjusted for prior overpayments or underpayments, are set forth in Table F of the respective contracts.

Total Transportation Charges. Annual Transportation Charges for each contractor are summarized in Table B-19. (The amounts shown in Table B-19 represent the sums of the corresponding amounts shown in Tables B-15, B-16, and B-18.) These estimated payments, subsequently adjusted for prior overpayments or underpayments, are set forth in Table G of the respective contracts. Both Table B-19 and Table G of the six Devil Canyon-Castaic contracts include debt service and operating cost payments due under the Devil Canyon-Castaic Contract.

Delta Water Rates per Acre-Foot of Entitlement

Calculation of the Delta Water Rate for the "initial" conservation facilities applicable after December 31, 1978, is shown in Table B-20 in accordance with the amended Articles 22(e) and 22(g) of 29 contracts. See discussion of "Costs to be reimbursed through payments under the Delta Water Charge and the Oroville Power Sales Contract" for Table B-13. Under the amended articles, future construction and operating costs of each additional and supplemental conservation facility will be included in the calculation of the Rate in years when the State first incurs major construction costs.

Two contracts have not as yet been amended (Yuba City and Solano County Flood Control and Water Conservation

District). Future charges to these contractors projected in Table B-21, are based upon rates determined under original provisions of their respective contracts.

Delta Water Charges

Total Delta Water Charges. The annual Delta Water Charge for each contractor is summarized in Table B-21. Table B-21 is developed from the total rate per acre-foot as shown in Table B-20 and the entitlement water for each contractor as shown in Table B-4.

Total Transportation and Delta Water Charges

The total charge to each contractor consists of the sum of the Total Delta Water Charge and the Total Transportation Charge.

Total annual transportation and total Delta Water Charges are summarized in Table B-22. Table B-22 summarizes the total charge to each contractor by combining Table B-19 and Table B-21.

Equivalent Total Water Charges

A summary of total charges is shown in Table B-23 in terms of the equivalent charge for each acre-foot of project water now estimated to be delivered as entitlement water 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 under the Delta Water Charge and Transportation Charge, plus interest at the project interest rate. The Table B-23 values account for the fact that current estimates of future entitlement water service are noticeably less than the amounts shown in Tables A for certain Southern California contractors.

Equivalent Water Costs, by Reach

Table B-24 presents a summary of the

equivalent unit cost of conveying entitlement water through respective aqueduct reaches of the project transportation facilities. These unit costs provide the basis of charges assessed (a) for certain "extra service" (such as for delivery of entitlements down-aqueduct from a contractor's turnout) and, together with the Delta Water Charge per acre-foot, (b) for surplus water service to entities other than long-term water supply contractors. It should be noted that the cumulative unit conveyance costs shown for reaches in Table B-24 do not necessarily equal the equivalent unit Transportation Charges to contractors served from such reaches. This is because the unit charges of Table B-23 account for the rates of water demand buildup and cost allocation factors of the respective contractors, whereas the unit costs of Table B-24 meld together the effect of the respective buildups and allocation criteria of all contractors whose entitlements are conveyed through a given reach.

Surplus Water Service

Actual and Projected Deliveries. Surplus water deliveries have been made from project supplies during each of the years 1968 through 1976. None was available for delivery during 1977, however, because of the severity of the drought. At the time studies concerning estimated future deliveries of surplus water were initiated for this Bulletin, it was assumed that none would be delivered during 1978 because of the large amount of higher priority water to which contractors had acquired delivery rights in 1977 pursuant to Article 12(d) of the long-term contracts.

Table B-25 shows the quantities of surplus water delivered to long-term contractors during the period of May 1, 1973, through December 31, 1977. Table B-28 shows projected surplus water deliveries for each year of the period January 1, 1978, through 1983. Projections are based

on the assumptions that each year of the six-year period there will be a median water supply but that surplus water deliveries in each year, other than 1978, will be limited to an amount which could be delivered if enough water is retained in storage at years end to assure that all entitlement deliveries can be made the next year even if that year turns out to be as dry as 1924.

Surplus Water Costs. Table B-26 shows the costs for power which have been incurred by the State at each project pumping plant associated with surplus water deliveries shown in Table B-25. Estimated power costs at each pumping plant that will be incurred in making the projected surplus water deliveries shown in Table B-28 are tabulated in Table B-29.

Surplus Water Charges. Table B-27 shows the actual charges to each contractor for delivery of the surplus water quantities shown in Table B-25. The method of determining these charges is discussed on Page 117 of Bulletin 132-77. Estimated unit power rates for pumping the projected surplus water delivery amounts shown in Table B-28 are shown in Table B-30.

Table B-31 Shows surplus water quantities requested and future financial obligations which have been incurred as a result of post commitments for electrical power ordered under amended Article 21(d) of the long-term contracts. This article provides for the State to order power for surplus water deliveries in a future year or years if there is a written commitment from a contractor to pay the costs of such power. These commitments are made to be assured of obtaining from the project's energy suppliers the lowest possible priced power for surplus water pumping. A commitment of this type, however, does not provide a contractor with a greater right or priority to receive surplus water than contractors which have not made commitments.

**Figure B-3: REPAYMENT REACHES AND DESCRIPTIONS
PROJECT TRANSPORTATION FACILITIES**

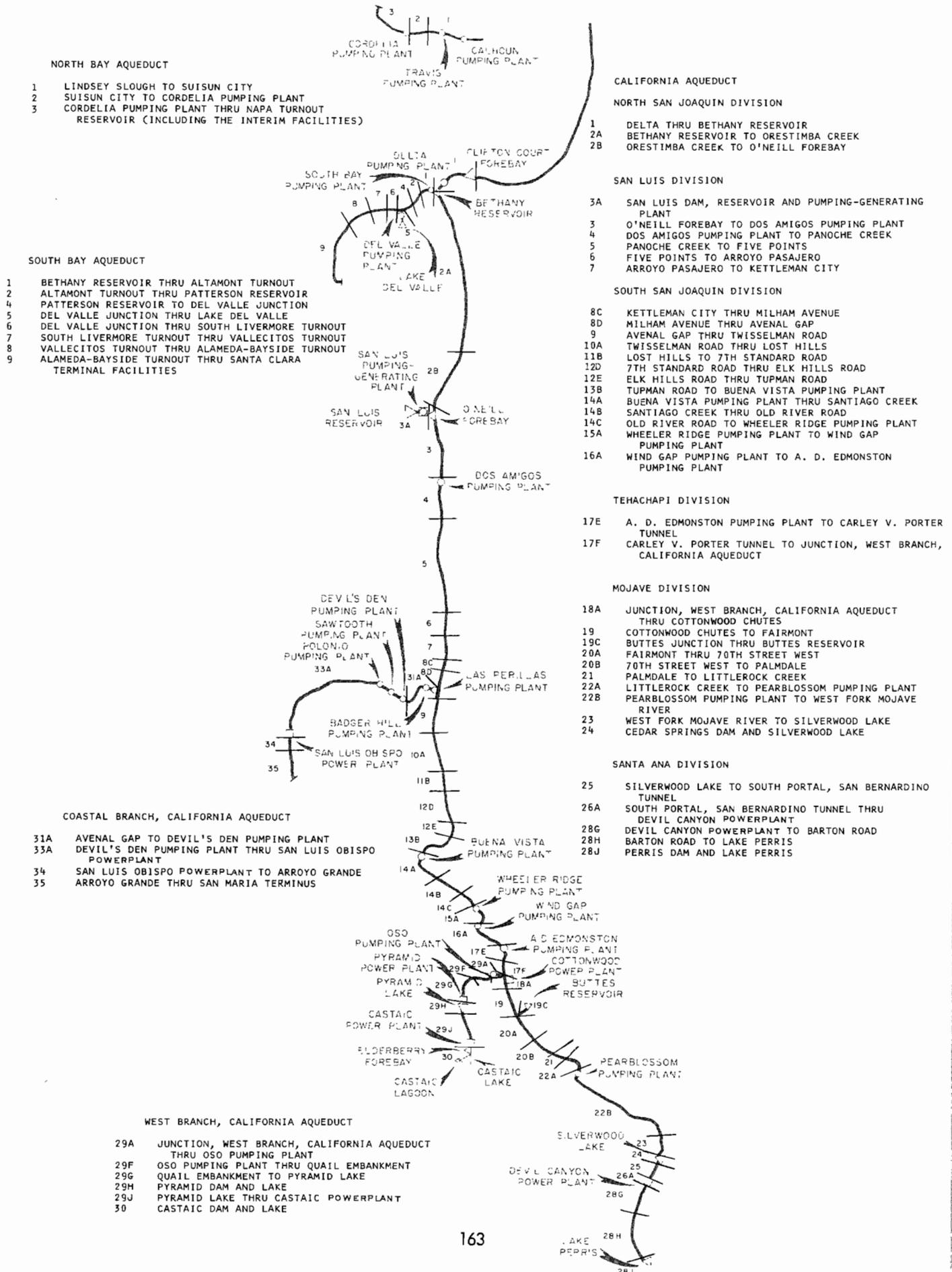


TABLE B-1: FACTORS FOR DISTRIBUTING

Reach No	Reach Description	NORTH BAY AREA		SOUTH BAY AREA			TOTAL
		Napa County FC&WCD	Solano County FC&WCD	Alameda County FC&WCD Zone 7	Alameda County Water District	Santa Clara Valley Water District		Future Contractor
North Bay Aqueduct							
1	Lindsey Slough to Suisun City	.39808876	.60191124				1.00000000
2	Suisun City to Cordelia Pumping Plant	39808861	.60191139				1.00000000
3	Cordelia Pumping Plant thru Napa Turnout Reservoir (Including the interim facilities)	1.00000000					1.00000000
South Bay Aqueduct							
1	Bethany Reservoir thru Altamont Turnout			.22599621	.20663014	.49237700	.07499665
2	Altamont Turnout thru Patterson Reservoir			.22599657	.20663057	.49237791	.07499495
4	Patterson Reservoir to Del Valle Junction			.19504791	.21450021	.51113252	.07931936
5	Del Valle Junction thru Lake Del Valle			.14436367	.12972254	.33715573	.38875806
6	Del Valle Junction thru South Livermore Turnout			.14599918	.21144710	.50574745	.13680627
7	South Livermore Turnout thru Vallecitos Turnout				.25176680	.60218448	14604872
8	Vallecitos Turnout thru Alameda-Bayside Turnout				.06294980	.72065355	21639665
9	Alameda-Bayside Turnout thru Santa Clara Terminal Facilities					1.00000000	1.00000000
California Aqueduct							
1	Delta Thru Bethany Reservoir			.00954802	00872976	.02080260	.00342519

Reach No.	Reach Description	CENTRAL COASTAL AREA			SOUTHERN			
		San Luis Obispo County FC&WCD	Santa Barbara County FC&WCD	Antelope Valley-East Kern Water Agency	Castaic Lake Water Agency	Coachella Valley County Water District	Crestline Lake Arrowhead Water Agency	Desert Water Agency
California Aqueduct								
1	Delta Thru Bethany Reservoir	.00531147	.01240007	.02939503	00890866	.00528393	.00133630	.00871425
2A	Bethany Reservoir to Orestimba Creek	.00555266	.01296315	.03072975	00931319	.00552151	.00139640	.00910607
2B	Orestimba Creek to O'Neill Forebay	.00555876	.01297741	.03076360	00932344	.00552915	.00139833	.00911867
3	O'Neill Forebay to Dos Amigos Pumping Plant	.00555769	.01297494	.03075777	.00932168	.00552856	.00139818	.00911771
4	Dos Amigos Pumping Plant to Panoche Creek	.00555659	.01297235	.03075165	.00931982	.00552794	.00139801	.00911670
5	Panoche Creek to Five Points	.00555520	.01296912	.03074401	00931751	.00552717	.00139780	.00911543
6	Five Points to Arroyo Pasajero	.00555311	.01296424	.03073244	.00931400	.00552602	.00139750	.00911351
7	Arroyo Pasajero to Kettleman City	.00555243	.01296267	.03072873	.00931287	.00552565	.00139740	.00911289
8C	Kettleman City thru Milham Avenue	.00555159	.01296069	.03072405	.00931145	.00552517	.00139729	.00911211
8D	Milham Avenue thru Avenal Gap	.00556628	.01322842	.03135878	.00950380	.005564073	.00142650	.00930269
9	Avenal Gap thru Twisselman Road			.03437577	.01041812	.00618845	.00156502	.01020599
10A	Twisselman Road thru Lost Hills			.03492681	.01058510	.00628966	.00159061	.01037292
11B	Lost Hills to 7th Standard Road			.03848657	.01166387	.00694140	.00175542	.01144773
12D	7th Standard Road thru Elk Hills Road			.04046660	.01226391	.00730484	.00184732	.01204709
12E	Elk Hills Road thru Tupman Road			.04052108	.01228042	.00731580	.00185010	.01206514
13B	Tupman Road to Buena Vista Pumping Plant			.04397523	.01332721	.00794772	.00200991	.01310729
14A	Buena Vista Pumping Plant thru Santiago Creek			.04618687	.01399742	.00835456	.00211281	.01377821
14B	Santiago Creek thru Old River Road			.04702647	.01425185	.00851020	.00215218	.01403490
14C	Old River Road to Wheeler Ridge Pumping Plant			.04846557	.01468794	.00877627	.00221947	.01447369
15A	Wheeler Ridge Pumping Plant to Wind Gap Pumping Plant			.04927653	.01493368	.00892667	.00225752	.01472172
16A	Wind Gap Pumping Plant to A. D. Edmonston Pumping Plant			.05113510	.01549688	.00927016	.00234437	.01528820
17E	A. D. Edmonston Pumping Plant to Carley V. Porter Tunnel			.05355379	.01622984	.00971819	.00245767	.01602709
17F	Carley V. Porter Tunnel to Junction, West Branch, Calif. Aqueduct			.05366827	.01626453	.00973908	.00246295	.01606154
18A	Junction, West Branch, Calif. Aqueduct thru Cottonwood Chutes			.13238112		.02399390	.00606794	.03957043
19	Cottonwood Chutes to Fairmont			.13237766		.02399451	.00606810	.03957141
19C	Buttes Junction thru Buttes Reservoir			1.00000000				
20A	Fairmont thru 70th Street West			.06847931		.02576424	.00651572	.04249001
20B	70th Street West to Palmdale			.02276024		.02702916	.00683554	.04457607
21	Palmdale to Littlerock Creek			.02318953		.02754716	.00696650	.04543034
22A	Littlerock Creek to Pearblossom Pumping Plant			.01181870		.02794143	.00706620	.04608043
22B	Pearblossom Pumping Plant to West Fork Mojave River					.02827552	.00715073	.04663153
23	West Fork Mojave River to Silverwood Lake					.00324449	.00818121	.00535117
24	Cedar Springs Dam and Silverwood Lake					.01024605	.01251569	.01690478
25	Silverwood Lake to South Portal, San Bernardino Tunnel							
26A	South Portal, San Bernardino Tunnel thru Devil Canyon Pwp							
28C	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 Pumping Plant				.02736564			
29F	Oso Pumping Plant thru Quail Embankment				.02736563			
29G	Quail Embankment to Pyramid Lake				.02736564			
29H	Pyramid Dam and Lake				.02646380			
29J	Pyramid Lake thru Castaic Powerplant				.02736563			
30	Castaic Dam and Lake				.02637131			
31A	Avenal Gap to Devil's Den Pumping Plant	.10522767	.24566277					
33A	Devil's Den Pumping Plant thru San Luis Obispo Powerplant	.29988697	.70011303					
34	San Luis Obispo Powerplant to Arroyo Grande	.20553239	.79446761					
35	Arroyo Grande thru Santa Maria Terminal	.14771038	.85228962					

REACH CAPITAL COSTS AMONG CONTRACTORS

Reach No.	SAN JOAQUIN VALLEY AREA								
	Devil's Den Water District	Dudley Ridge Water District	Empire West Side Irrigation District	Hacienda Water District	Kern County Water Agency		County of Kings	Oak Flat Water District	Tulare Lake Basin Water Storage District
					Municipal and Industrial	Agricultural			
California Aqueduct									
1	.00377824	01707931	.00088687	.00251598	.02742075	.30633444	.00090702	00167139	.03253706
2A	.00394038	01781205	.00092491	.00262393	.02864590	.31948963	.00094755	.00174305	.03393294
2B	.00395099	01786013	.00092740	.00263102	.02869073	.32034362	.00094904		.03402458
3	.00395208	01786513	.00092766	.00263176	.02868919	.32043064	.00094900		.03403409
4	.00395323	01787039	.00092794	.00263254	.02868758	.32052214	.00094893		.03404410
5	.00395466	01787693	.00092828	.00263352	.02868559	.32063639	.00094886		.03405659
6	.00395684	01788685	.00092879	.00263498	.02868255	.32080926	.00094875		.03407550
7	.00395753	01789003	.00092896	.00263544	.02868158	.32086471	.00094872		.03408157
8C	.00395842	01789405	.00092918	.00263603	.02868035	.32093468	.00094867		.03408923
8D	.00404591	01828966		.00269431	.02928494	.32802221			.01551611
9					.03214521	.32838224			
10A					.03267760	.31755652			
11B					.03609912	.24768443			
12D					.03801001	.20879251			
12E					.03807068	.20769413			
13B					.01464596	.16664965			
14A					.00622935	.13374077			
14B					.00634719	.11790931			
14C					.00654829	.09078926			
15A					.00666217	.07549599			
16A					.00692172	.04047416			
17E					.00213551				
31A	.07364766					.57546190			

CALIFORNIA AREA									
Reach No.	Littlerock Creek Irrigation District	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District	San Geronimo Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Flood Control District	TOTAL
1	.00049187	.01101303	.00369180	.02363192	.00650450	.00398446	.43940274	00429334	1.00000000
2A	.00051421	.01151300	.00385943	.02469456	.00679800	.00416362	.45932582	00448829	1.00000000
2B	.00051477	.01152575	.00386368	.02472869	.00680672	.00416938	.45985090	00449324	1.00000000
3	.00051469	.01152359	.00386296	.02472604	.00680580	.00416893	.45976953	00449238	1.00000000
4	.00051459	.01152131	.00386218	.02472327	.00680482	.00416846	.45968397	00449149	1.00000000
5	.00051448	.01151846	.00386122	.02471980	.00680361	.00416788	.45957712	00449037	1.00000000
6	.00051428	.01151416	.00385978	.02471455	.00680178	.00416698	.45941544	00448869	1.00000000
7	.00051421	.01151278	.00385931	.02471286	.00680118	.00416671	.45936361	00448816	1.00000000
8C	.00051414	.01151103	.00385874	.02471072	.00680044	.00416634	.45929816	00448747	1.00000000
8D	.00052475	.01174889	.00393847	.02522753	.00694206	.00425349	.46880430	00458017	1.00000000
9	.00057523	.01287942	.00431739	.02767698	.00761389	.00466647	.51396901	00502081	1.00000000
10A	.00058444	.01308595	.00438661	.02812957	.00773752	.00474279	.52223261	00510129	1.00000000
11B	.00064401	.01442004	.00483371	.03104405	.00853455	.00523416	.57558975	00562119	1.00000000
12D	.00067713	.01516215	.00508241	.03266922	.00897860	.00550817	.60527969	00591035	1.00000000
12E	.00067804	.01518261	.00508926	.03271816	.00899157	.00551643	.60610827	00591831	1.00000000
13B	.00073586	.01647710	.00552311	.03554404	.00976456	.00599288	.65787670	00642278	1.00000000
14A	.00077287	.01730602	.00580090	.03736328	.01026125	.00629961	.69105032	00674576	1.00000000
14B	.00078692	.01762074	.00590636	.03805925	.01045073	.00641694	.70365858	00686838	1.00000000
14C	.00081102	.01816015	.00608712	.03924903	.01077498	.00661754	.72526114	00707853	1.00000000
15A	.00082461	.01846415	.00618901	.03992156	.01095807	.00673092	.73744044	00719696	1.00000000
16A	.00085571	.01916080	.00642247	.04145755	.01137676	.00698987	.76533787	00746838	1.00000000
17E	.00089617	.02006742	.00672629	.04346097	.01192239	.00732766	.80165539	00782162	1.00000000
17F	.00089809	.02011032	.00674067	.04355438	.01194797	.00734341	.80337045	00783834	1.00000000
18A	.00221525	.04960424	.01662681	.10730447	.02944861	.01809192	.57469531		1.00000000
19	.00221522	.04960300	.01662640	.10730706	.02944877	.01809230	.57469557		1.00000000
19C									1.00000000
20A	.00237800	.05324853	.01784830	.11522151	.03161800	.01942666	.61700972		1.00000000
20B	.00249470	.05586076	.01872390	.12087842	.03316988	.02038045	.64729088		1.00000000
21	.00254199	.05692052		.12319478	.03380326	.02077093	.65963499		1.00000000
22A		.05773081		.12495765	.03428607	.02106816	.66905055		1.00000000
22B		.05842136		.12645206	.03469615	.02132008	.67705257		1.00000000
23				.14467449	.03969012	.02439238	.77446614		1.00000000
24				.22243002	.04339444	.02843498	.66607404		1.00000000
25				.14947726	.03997502	.02520426	.78534346		1.00000000
26A				.14947726	.03997502	.02520426	.78534346		1.00000000
28G				.05126137			.94873863		1.00000000
28H							1.00000000		1.00000000
28J							1.00000000		1.00000000
29A							.95944607	.01318829	1.00000000
29F							.95944608	.01318829	1.00000000
29G							.95944609	.01318827	1.00000000
29H							.96446829	.00906791	1.00000000
29J							.95944608	.01318829	1.00000000
30							.96449830	.00863039	1.00000000
31A									1.00000000
33A									1.00000000
34									1.00000000
35									1.00000000

TABLE B-2: FACTORS FOR DISTRIBUTING REACH

Reach No	Reach Description	NORTH BAY AREA		SOUTH BAY AREA				TOTAL
		Napa County FC&WCD	Solano County FC&WCD	Alameda County FC&WCD Zone 7	Alameda County Water District	Santa Clara Valley Water District	Future Contractor	
North Bay Aqueduct								
1	Lindsey Slough to Suisun City	.39808876	.60191124					1.00000000
2	Suisun City to Cordelia Pumping Plant	.39808861	.60191139					1.00000000
3	Cordelia Pumping Plant thru Napa Turnout Reservoir (Including the interim facilities)	1.00000000						1.00000000
South Bay Aqueduct								
1	Bethany Reservoir thru Altamont Turnout			.22599621	.20663014	.49237700	.07499665	1.00000000
2	Altamont Turnout thru Patterson Reservoir			.22599657	.20663057	.49237791	.07499495	1.00000000
4	Patterson Reservoir to Del Valle Junction			.19504791	.21450021	.51113252	.07931936	1.00000000
5	Del Valle Junction thru Lake Del Valle			.14436367	.12972254	.33715573	.38875806	1.00000000
6	Del Valle Junction thru South Livermore Turnout			.14599918	.21144710	.50574745	.13680627	1.00000000
7	South Livermore Turnout thru Vallecitos Turnout				.25176680	.60218448	1.4604872	1.00000000
8	Vallecitos Turnout thru Alameda-Bayside Turnout				.06294980	.72065355	.21639665	1.00000000
9	Alameda-Bayside Turnout thru Santa Clara Terminal Facilities					1.00000000		1.00000000
California Aqueduct								
1	Delta Thru Bethany Reservoir			.00954802	.00872976	.02080260	.00342519	— — —

Reach No.	Reach Description	CENTRAL COASTAL AREA				SOUTHERN		
		San Luis Obispo County FC&WCD	Santa Barbara County FC&WCD	Antelope Valley-East Kern Water Agency	Castaic Lake Water Agency	Coachella Valley County Water District	Crestline Lake Arrowhead Water Agency	Desert Water Agency
California Aqueduct								
1	Delta Thru Bethany Reservoir	.00531147	.01240007	.02939503	.00890866	.00528393	.00133630	.00871425
2A	Bethany Reservoir to Orestimba Creek	.00555266	.01296315	.03072975	.00931319	.00552151	.00139640	.00910607
2B	Orestimba Creek to O'Neill Forebay	.00555876	.01297741	.03076360	.00932344	.00552915	.00139833	.00911867
3	O'Neill Forebay to Dos Amigos Pumping Plant	.00555769	.01297494	.03075777	.00932168	.00552856	.00139818	.00911771
4	Dos Amigos Pumping Plant to Panoche Creek	.00555659	.01297235	.03075165	.00931982	.00552794	.00139801	.00911670
5	Panuche Creek to Five Points	.00555520	.01296912	.03074401	.00931751	.00552717	.00139780	.00911543
6	Five Points to Arroyo Pasajero	.00555311	.01296424	.03073244	.00931400	.00552602	.00139750	.00911351
7	Arroyo Pasajero to Kettleman City	.00555243	.01296267	.03072873	.00931287	.00552565	.00139740	.00911289
8C	Kettleman City thru Milham Avenue	.00549671	.01283255	.03042012	.00921937	.00546665	.00138249	.00901561
8D	Milham Avenue thru Avenal Gap	.00560860	.01309375	.03103938	.00940703	.00557923	.00141095	.00920128
9	Avenal Gap thru Twisselman Road			.03398205	.01029883	.00611262	.00154585	.01008094
10A	Twisselman Road thru Lost Hills			.03451663	.01046082	.00621064	.00157063	.01024262
11B	Lost Hills to 7th Standard Road			.03796305	.01150525	.00684053	.00172991	.01128139
12D	7th Standard Road thru Elk Hills Road			.03987187	.01208371	.00719023	.00181834	.01185809
12E	Elk Hills Road thru Tupman Road			.03992309	.01209924	.00720053	.00182095	.01187505
13B	Tupman Road to Buena Vista Pumping Plant			.04324825	.01310695	.00780756	.00197447	.01287616
14A	Buena Vista Pumping Plant thru Santiago Creek			.04536499	.01374841	.00819606	.00207273	.01351685
14B	Santiago Creek thru Old River Road			.04616419	.01399059	.00834387	.00211013	.01376063
14C	Old River Road to Wheeler Ridge Pumping Plant			.04753265	.01440528	.00859629	.00217396	.01417689
15A	Wheeler Ridge Pumping Plant to Wind Gap Pumping Plant			.04830162	.01463830	.00873855	.00220995	.01441151
16A	Wind Gap Pumping Plant to A.D. Edmonston Pumping Plant			.05006206	.01517177	.00906311	.00229201	.01494676
17E	A.D. Edmonston Pumping Plant to Carley V. Porter Tunnel			.05234459	.01586347	.00948480	.00239865	.01564222
17F	Carley V. Porter Tunnel to Junction, West Branch, Calif. Aqueduct			.05245356	.01589650	.00950462	.00240367	.01567491
18A	Junction, West Branch, Calif. Aqueduct thru Cottonwood Chutes			.13238112		.02399390	.00606794	.03957043
19	Cottonwood Chutes to Fairmont			.13237766		.02399451	.00606810	.03957141
19C	Buttes Junction thru Buttes Reservoir			1.00000000				
20A	Fairmont thru 70th Street West			.06847931		.02576424	.00651572	.04249001
20B	70th Street West to Palmdale			.02276024		.02702916	.00683554	.04457607
21	Palmdale to Littlerock Creek			.02318953		.02754716	.00696650	.04543034
22A	Littlerock Creek to Pearlblossom Pumping Plant			.01181870		.02794143	.00706620	.04608043
22B	Pearlblossom Pumping Plant to West Fork Mojave River					.02827552	.00715073	.04663153
23	West Fork Mojave River to Silverwood Lake					.00324449	.00818121	.00535117
24	Cedar Springs Dam and Silverwood Lake					.01024605	.01251569	.01690478
25	Silverwood Lake to South Portal, San Bernardino Tunnel							
26A	South Portal, San Bernardino Tunnel thru Devil Canyon Pwp.							
28C	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 Pumping Plant			.00304299	.02728237			
29F	Oso Pumping Plant thru Quail Embankment			.00304379	.02728234			
29G	Quail Embankment to Pyramid Lake				.02736564			
29H	Pyramid Dam and Lake				.02646380			
29J	Pyramid Lake thru Castaic Powerplant				.02736563			
30	Castaic Dam and Lake				.02637131			
31A	Avenal Gap to Devil's Den Pumping Plant	.10522767	.24566277					
33A	Devil's Den Pumping Plant thru San Luis Obispo Powerplant	.29988697	.70011303					
34	San Luis Obispo Powerplant to Arroyo Grande	.20553239	.79446761					
35	Arroyo Grande thru Santa Maria Terminal	.14771038	.85228962					

MINIMUM OMP&R COSTS AMONG CONTRACTORS

Reach No	SAN JOAQUIN VALLEY AREA								
	Devil's Den Water District	Dudley Ridge Water District	Empire West Side Irrigation District	Hacienda Water District	Kern County Water Agency		County of Kings	Oak Flat Water District	Tulare Lake Basin Water Storage District
					Municipal and Industrial	Agricultural			
California Aqueduct									
1	.00377824	01707931	.00088687	.00251598	02742075	30633444	00090702	00167139	03253706
2A	.00394038	01781205	.00092491	00262393	02864590	.31948963	.00094755	00174305	.03393294
2B	.00395099	01786013	.00092740	00263102	02869073	.32034362	.00094904		.03402458
3	.00395208	01786513	.00092766	00263176	02868919	.32043064	.00094900		.03403409
4	.00395323	01787039	.00092794	.00263254	.02868758	.32052214	.00094893		.03404410
5	.00395466	01787693	.00092828	.00263352	02868559	32063639	.00094886		.03405659
6	.00395684	01788685	.00092879	.00263498	.02868255	32080926	.00094875		.03407550
7	.00395753	01789003	.00092896	.00263544	.02868158	32086471	.00094872		.03408157
8C	.00390372	01764649	.00091632	00259956	02836376	.31651560	.00093819		.03361753
8D	.00398843	01802948		00265599	02895222	32337797			.01529539
9					03173493	.32315570			
10A					03225002	.31237849			
11B					03555316	.24304304			
12D					.03738966	20458362			
12E					.03744664	20348854			
13B					.01437747	16288986			
14A					.00610657	13050491			
14B					.00621833	11497394			
14C					.00640883	.08842321			
15A					.00651639	07347673			
16A					.00676126	03933051			
17E					.00208231				
31A	.07364766					57546190			

CALIFORNIA AREA

Reach No.	Littlerock Creek Irrigation District	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District	San Geronimo Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Flood Control District	TOTAL
1	.00049187	01101303	00369180	02363192	00650450	00398446	43940274	00429334	1.00000000
2A	.00051421	01151300	00385943	02469456	00679800	.00416362	45932582	00448829	1.00000000
2B	.00051477	01152575	00386368	02472869	00680672	.00416938	45985090	00449324	1.00000000
3	.00051469	01152359	00386296	02472604	00680580	.00416893	45976953	00449238	1.00000000
4	.00051459	01152131	00386218	02472327	00680482	.00416846	45968397	00449149	1.00000000
5	.00051448	01151846	00386122	02471980	00680361	.00416788	45957712	00449037	1.00000000
6	.00051428	01151416	00385978	02471455	00680178	.00416698	45941544	00448869	1.00000000
7	.00051421	01151278	00385931	02471286	00680118	.00416671	45936361	00448816	1.00000000
8C	.00050905	01139703	00382056	02444913	00673013	.00412224	46619410	00444309	1.00000000
8D	.00051940	01162908	00389834	02495260	00686817	.00420714	47575203	00453354	1.00000000
9	.00056864	01273174	00426793	02733801	00752279	.00460932	52108733	00496332	1.00000000
10A	.00057757	01293209	00433508	02777635	00764260	.00468324	52938182	00504140	1.00000000
11B	.00063524	01422367	00476795	03059311	00841338	.00515814	58274744	00554474	1.00000000
12D	.00066717	01493906	00500769	03215687	00884093	.00542180	61234745	00582351	1.00000000
12E	.00066803	01495830	00501413	03220286	00885312	.00542956	61318897	00583099	1.00000000
13B	.00072369	01620441	00543178	03491750	00959625	.00588725	66464178	00631662	1.00000000
14A	.00075911	01699773	00569765	03665478	01007092	.00618017	69750337	00662575	1.00000000
14B	.00077249	01729729	00579803	03731574	01025102	.00629159	70996969	00674247	1.00000000
14C	.00079540	01781020	00596992	03844447	01055888	.00648190	73127981	00694231	1.00000000
15A	.00080829	01809845	00606653	03908064	01073222	.00658915	74327706	00705461	1.00000000
16A	.00083775	01875830	00628766	04053195	01112817	.00683383	77068316	00731170	1.00000000
17E	.00087593	01961383	00657438	04241764	01164221	.00715176	80626315	00764506	1.00000000
17F	.00087775	01965466	00658807	04250630	01166651	.00716671	80794577	00766097	1.00000000
18A	.00221525	04960424	01662681	10730447	02944861	.01809192	57469531		1.00000000
19	.00221522	04960300	01662640	10730706	02944877	.01809230	57469557		1.00000000
19C	.00237800	05324853	01784830	11522151	03161800	.01942666	61700972		1.00000000
20A	.00249470	05586076	01872390	12087842	03316988	.02038045	64729088		1.00000000
21	.00254199	05692052		12319478	03380326	.02077093	65963499		1.00000000
22A		05773081		12495765	03428607	.02106816	66905055		1.00000000
22B		05842136		12645206	03469615	.02132008	67705257		1.00000000
23				14467449	03969012	.02439238	77446614		1.00000000
24				22243002	04339444	.02843498	66607404		1.00000000
25				11825184	03722720	.01993915	82458181		1.00000000
26A				14947726	03997502	.02520426	78534346		1.00000000
28G				05126137			94873863		1.00000000
28H							1.00000000		1.00000000
28J							1.00000000		1.00000000
29A							95652648	01314816	1.00000000
29F							95652573	01314814	1.00000000
29G							95944609	01318827	1.00000000
29H							96446829	00906791	1.00000000
29J							95944608	01318829	1.00000000
30							96499830	00863039	1.00000000
31A									1.00000000
33A									1.00000000
34									1.00000000
35									1.00000000

TABLE B-3: POWER COSTS AND CREDITS AND ANNUAL REPLACEMENT

(in

Calendar Year	NORTH BAY AQUEDUCT		SOUTH BAY AQUEDUCT	CALIFORNIA					
	Reach 1	Reach 3	Reach 1	Reach 1	Reach 4	Reach 14A	Reach 15 A	Reach 16A	Reach 17E
	Calhoun and Travis Pumping Plants	Cordelia Pumping Plant (b)	South Bay and Del Valle Pumping Plants (c)	Delta Pumping Plant	Dos * Amigos Pumping Plant	Buena Vista Pumping Plant	Wheeler Ridge Pumping Plant	Wind Gap Pumping Plant	A.D. Edmonston (Tehachapi) Pumping Plant
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
1962	0	0	38,130	0	0	0	0	0	0
1963	0	0	58,871	0	0	0	0	0	0
1964	0	0	75,239	0	0	0	0	0	0
1965	0	0	146,297	0	0	0	0	0	0
1966	0	0	198,643	0	0	0	0	0	0
1967	0	0	229,629	26,982	0	0	0	0	0
1968	0	7,128	342,761	1,324,777	239,505	0	0	0	0
1969	0	8,557	279,751	855,304	143,403	0	0	0	0
1970	0	13,666	448,383	368,508	217,820	2,940	0	0	0
1971	0	10,626	422,057	597,946	229,306	156,540	23,021	18,577	29,067
1972	0	14,430	623,564	1,110,833	575,291	348,668	187,825	385,935	1,263,087
1973	0	14,453	485,534	918,234	493,776	511,904	514,487	883,725	3,139,297
1974	0	17,508	510,873	997,269	560,461	556,968	595,585	1,048,196	3,700,573
1975	0	14,801	382,106	1,353,916	561,089	650,781	707,038	1,394,918	4,853,538
1976	0	20,865	588,953	916,647	596,373	700,999	687,617	1,414,776	4,917,337
1977	0	20,350	595,972	1,117,972	421,459	284,257	246,493	471,401	1,561,120
1978	0	26,000	688,400	3,601,000	1,585,100	1,766,800	1,542,300	3,532,400	13,558,600
1979	0	21,000	638,400	4,104,000	1,182,100	1,412,800	1,237,300	2,796,400	10,108,600
1980	0	24,000	714,400	3,287,000	1,476,100	1,790,800	1,707,300	3,857,400	13,916,600
1981	0	23,000	691,400	4,298,000	1,430,100	1,890,800	1,815,300	4,098,400	14,792,600
1982	0	23,000	681,400	3,219,400	1,524,100	1,964,800	1,889,300	4,270,400	15,418,600
1983	139,000	134,000	2,568,400	14,096,400	6,177,100	7,355,800	6,924,300	15,942,400	56,546,400
1984	167,000	153,200	2,984,400	19,702,400	7,766,100	9,271,800	8,657,300	20,058,400	71,663,400
1985	183,000	173,200	3,047,400	20,001,400	8,225,100	9,807,800	9,188,300	21,172,400	75,454,400
1986	212,000	185,200	3,197,400	20,553,400	8,965,100	10,562,800	9,884,300	22,742,400	80,792,400
1987	241,000	193,200	3,230,400	21,952,400	9,375,100	11,049,800	10,338,300	23,755,400	84,124,400
1988	314,000	209,200	3,427,400	28,360,400	10,463,100	12,472,800	11,717,300	26,918,400	95,164,400
1989	377,000	220,200	3,527,400	26,299,400	11,236,100	13,638,800	12,891,300	29,649,400	104,869,400
1990	440,000	226,200	3,635,400	27,410,400	12,204,100	15,097,800	14,368,300	33,084,400	117,135,400
1991	449,000	242,200	3,782,400	29,798,400	12,340,100	15,273,800	14,540,300	33,484,400	118,568,400
1992	454,000	256,200	3,904,400	29,210,400	12,468,100	15,494,800	14,769,300	34,027,400	120,561,400
1993	453,000	265,200	3,962,400	28,132,400	12,545,100	15,730,800	15,033,300	34,667,400	122,974,400
1994	478,000	290,200	4,234,400	32,231,400	13,140,100	16,495,800	15,771,300	36,377,400	129,068,400
1995	481,000	303,200	4,267,400	31,592,400	13,308,100	16,820,800	16,113,300	37,191,400	132,074,400
1996	484,000	317,200	4,271,400	30,585,400	13,211,100	16,688,800	15,987,300	36,899,400	131,037,400
1997	497,000	338,200	4,379,400	30,044,400	13,626,100	17,328,800	16,631,300	38,412,400	136,528,400
1998	502,000	352,200	4,358,400	31,595,400	13,651,100	17,394,800	16,706,300	38,595,400	137,217,400
1999	513,000	373,200	4,403,400	33,911,400	13,726,100	17,439,800	16,739,300	38,663,400	137,422,400
2000	515,000	384,200	4,360,400	32,539,400	13,762,100	17,566,800	16,884,300	39,014,400	138,756,400
2001	521,000	393,200	4,390,400	32,790,400	13,892,100	17,734,800	17,048,300	39,396,400	140,120,400
2002	527,000	400,200	4,426,400	33,276,400	14,190,100	18,212,800	17,532,300	40,537,400	144,273,400
2003	531,000	406,200	4,441,400	33,241,400	14,376,100	18,517,800	17,844,300	41,271,400	146,950,400
2004	535,000	413,200	4,463,400	34,328,400	14,473,100	18,646,800	17,971,300	41,567,400	148,018,400
2005	533,000	415,200	4,429,400	33,459,400	14,496,100	18,737,800	18,075,300	41,821,400	148,981,400
2006	533,000	420,200	4,405,400	34,137,400	14,529,100	18,840,800	18,188,300	42,095,400	150,011,400
2007	542,000	433,200	4,456,400	34,382,400	14,658,100	18,986,800	18,325,300	42,408,400	151,107,400
2008	544,000	440,200	4,440,400	34,736,400	14,834,100	19,335,800	18,690,300	43,276,400	154,307,400
2009	548,000	449,200	4,450,400	34,268,400	14,951,100	19,531,800	18,891,300	43,749,400	156,033,400
2010	549,000	455,200	4,428,400	34,897,400	14,894,100	19,465,800	18,828,300	43,606,400	155,530,400
2011	551,000	463,200	4,424,400	35,127,400	14,983,100	19,635,800	19,005,300	44,027,400	157,079,400
2012	561,000	477,200	4,477,400	35,758,400	15,241,100	20,014,800	19,382,300	44,907,400	160,257,400
2013	567,000	487,200	4,487,400	36,698,400	15,436,100	20,350,800	19,727,300	45,722,400	163,236,400
2014	565,000	491,200	4,447,400	35,488,400	15,253,100	20,087,800	19,467,300	45,115,400	161,048,400
2015	567,000	498,200	4,433,400	35,478,400	15,241,100	20,089,800	19,473,300	45,133,400	161,128,400
2016	578,000	514,200	4,492,400	36,177,400	15,413,100	20,300,800	19,673,300	45,594,400	162,761,400
2017	575,000	517,200	4,436,400	34,922,400	15,266,100	20,130,800	19,514,300	45,229,400	161,476,400
2018	578,000	526,200	4,434,400	36,821,400	15,201,100	20,015,800	19,396,300	44,949,400	160,450,400
2019	588,000	542,200	4,484,400	35,123,400	15,400,100	20,291,800	19,666,300	45,580,400	162,715,400
2020(d)	612,000	599,200	4,486,400	37,259,400	15,491,100	20,455,800	19,836,300	45,980,400	164,182,400

a) Includes the costs of electric capacity and energy used by pumping plants, exclusive of associated power transmission and station service charges; the value of electric capacity and energy produced by power recovery plants (treated as negative costs); the payments to sinking fund reserves that will finance periodic replacement of electro-mechanical equipment; and the plant capacity and energy costs associated with surplus water service prior to May 1, 1973.

b) Power costs for the period 1968 through 1982 are for an interim facility.

DEPOSITS FOR EACH AQUEDUCT PUMPING AND POWER RECOVERY PLANT^(a)

dollars)

AQUEDUCT								GRAND TOTAL	Calendar Year
Reach 18A Cottonwood Powerplant	Reach 22B Pear- blossom Pumping Plant	Reach 26A Devil Canyon Powerplant	Reach 29A Oso Pumping Plant	Reach 29G Pyramid Powerplant	Reach 29J Castaic Powerplant	Reach 31A Las Perillas and Badger Hill Pumping Plants	Reach 33A Devil's Den Sawtooth and Polonio PP's and San Luis Obispo Pwp.		
(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
0	0	0	0	0	0	0	0	38,130	1962
0	0	0	0	0	0	0	0	58,871	1963
0	0	0	0	0	0	0	0	75,239	1964
0	0	0	0	0	0	0	0	146,297	1965
0	0	0	0	0	0	0	0	198,643	1966
0	0	0	0	0	0	6,517	0	263,128	1967
0	0	0	0	0	0	120,278	0	2,034,449	1968
0	0	0	0	0	0	79,620	0	1,366,635	1969
0	0	0	0	0	0	137,449	0	1,188,766	1970
0	64,807	0	1,696	0	0	171,389	0	1,725,032	1971
0	103,584	-3,112	180,005	0	-214,585	240,651	0	4,816,176	1972
0	615,309	-511,506	274,450	0	-962,637	128,730	0	6,505,756	1973
0	595,646	-532,280	322,440	0	-1,308,192	129,345	0	7,194,392	1974
0	616,327	-1,045,146	457,487	0	-2,339,503	101,109	0	7,708,461	1975
0	914,358	-1,493,232	314,643	0	-2,317,570	151,198	0	7,412,964	1976
0	367,205	-1,283,495	50,795	0	-1,859,911	194,417	0	2,188,035	1977
0	2,344,900	-5,527,100	626,800	0	-5,372,000	264,700	0	18,637,900	1978
0	2,570,900	-4,582,100	379,800	0	-3,947,000	195,700	0	16,117,900	1979
0	3,161,900	-3,767,100	525,800	0	-3,731,000	230,500	0	23,193,700	1980
0	2,889,900	-3,109,100	676,800	0	-3,708,000	224,500	0	26,013,700	1981
-219,000	3,089,900	-4,482,100	727,800	-1,682,000	-4,185,000	223,500	0	22,464,100	1982
-1,449,400	10,740,900	-17,739,100	2,134,800	-7,491,800	-10,224,000	730,500	0	86,585,700	1983
-1,853,400	12,991,900	-24,273,100	2,859,800	-11,665,800	-14,173,000	867,500	0	105,217,900	1984
-1,904,400	13,560,900	-24,216,100	3,028,800	-11,371,800	-13,949,000	871,500	0	113,272,900	1985
-2,207,400	14,461,900	-24,428,100	3,242,800	-11,762,800	-13,943,000	1,065,500	937,800	124,461,700	1986
-2,043,400	14,304,900	-23,994,100	3,662,800	-12,339,800	-15,794,000	1,076,500	994,800	130,127,700	1987
-2,549,400	15,656,900	-24,523,100	4,371,800	-14,123,800	-18,278,000	1,140,500	1,129,800	151,871,700	1988
-2,429,400	14,944,900	-23,805,100	5,778,800	-14,270,800	-20,936,000	1,159,500	1,211,800	164,362,700	1989
-2,361,400	16,182,900	-24,330,100	6,718,800	-14,855,800	-24,129,000	1,179,500	1,294,800	183,301,700	1990
-2,654,400	15,473,900	-23,872,100	7,112,800	-14,724,800	-23,910,000	1,204,500	1,412,800	188,521,700	1991
-2,328,400	15,566,900	-24,140,100	7,310,800	-15,075,800	-25,539,000	1,220,500	1,514,800	189,675,700	1992
-2,345,400	15,869,900	-23,079,100	7,493,800	-14,432,800	-25,532,000	1,217,500	1,629,800	194,843,700	1993
-2,453,400	16,244,900	-24,143,100	8,028,800	-21,364,800	-27,114,000	1,284,500	1,798,800	200,368,700	1994
-2,378,400	16,155,900	-24,180,100	8,426,800	-21,537,800	-26,991,000	1,294,500	1,893,800	204,835,700	1995
-2,187,400	15,640,900	-23,189,100	8,507,800	-21,461,800	-29,156,000	1,300,500	1,988,800	200,925,700	1996
-2,640,400	16,444,900	-23,512,100	8,829,800	-21,012,800	-29,917,000	1,334,500	2,131,800	209,444,700	1997
-2,452,400	16,081,900	-23,256,100	9,055,800	-21,359,800	-29,532,000	1,343,500	2,220,800	212,474,700	1998
-2,289,400	16,283,900	-23,522,100	8,979,800	-21,232,800	-28,345,000	1,372,500	2,350,800	216,789,700	1999
-2,475,400	16,290,900	-24,102,100	9,143,800	-21,707,800	-28,387,000	1,373,500	2,421,800	216,340,700	2000
-2,746,400	16,464,900	-23,300,100	9,229,800	-21,714,800	-31,667,000	1,394,500	2,504,800	216,452,700	2001
-2,634,400	16,351,900	-24,016,100	9,769,800	-21,898,800	-32,046,000	1,414,500	2,512,800	222,829,700	2002
-2,418,400	16,658,900	-24,016,100	9,968,800	-21,860,800	-32,663,000	1,429,500	2,648,800	227,327,700	2003
-2,279,400	16,621,900	-23,968,100	10,106,800	-21,895,800	-30,623,000	1,445,500	2,739,800	232,564,700	2004
-2,612,400	16,445,900	-23,915,100	10,303,800	-21,920,800	-32,067,000	1,445,500	2,746,800	231,375,700	2005
-2,324,400	16,773,900	-23,833,100	10,305,800	-21,673,800	-33,167,000	1,436,500	2,726,800	233,405,700	2006
-2,370,400	16,711,900	-23,847,100	10,448,800	-21,903,800	-35,013,000	1,453,500	2,769,800	233,549,700	2007
-2,301,400	16,330,900	-23,058,100	10,992,800	-21,575,800	-34,653,000	1,448,500	2,757,800	240,546,700	2008
-2,817,400	16,594,900	-23,786,100	11,094,800	-22,160,800	-35,103,000	1,451,500	2,780,800	240,927,700	2009
-2,299,400	16,241,900	-23,178,100	11,180,800	-22,215,800	-33,850,000	1,445,500	2,746,800	242,726,700	2010
-2,703,400	16,475,900	-22,846,100	11,276,800	-22,191,800	-35,548,000	1,443,500	2,746,800	243,950,700	2011
-2,674,400	16,685,900	-21,677,100	11,564,800	-21,891,800	-36,931,000	1,460,500	2,803,800	250,417,700	2012
-2,443,400	16,548,900	-23,375,100	11,977,800	-22,400,800	-37,133,000	1,464,500	2,797,800	254,149,700	2013
-2,590,400	16,286,900	-22,385,100	11,827,800	-21,453,800	-35,697,000	1,450,500	2,809,800	252,212,700	2014
-2,342,400	16,487,900	-23,273,100	11,761,800	-22,371,800	-35,889,000	1,446,500	2,754,800	250,617,700	2015
-2,409,400	16,925,900	-22,926,100	11,768,800	-22,210,800	-36,730,000	1,465,500	2,815,800	254,204,700	2016
-2,447,400	16,481,900	-23,357,100	11,805,800	-22,116,800	-35,823,000	1,446,500	2,771,800	250,829,700	2017
-2,284,400	16,050,900	-22,971,100	11,852,800	-22,406,800	-35,088,000	1,446,500	2,755,800	251,728,700	2018
-2,408,400	16,856,900	-22,897,100	11,792,800	-22,227,800	-36,759,000	1,462,500	2,809,800	253,021,700	2019
-2,398,400	16,543,900	-22,899,100	12,095,800	-22,342,800	-36,937,000	1,462,500	2,810,800	257,238,700	2020

c) The estimated costs of Del Valle Pumping Plant are combined with those of South Bay Pumping Plant to simplify the cost allocations.

d) And each year thereafter for the remainder of the project repayment period.

TABLE B-4: ANNUAL ENTITLE-

(in acre-feet) (b)

Sheet 1 of 4

Calendar Year	NORTH BAY AREA			SOUTH BAY AREA (c)				CENTRAL COASTAL AREA		
	Napa County FC & WCD(d)	Solano County FC & WCD	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)
1960	0	0	0	0	0	0	0	0	0	0
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	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	12,500	6,750	19,250	22,000	24,800	88,000	134,800	1,000	1,200	2,200
1981	13,750	8,000	21,750	23,000	26,000	88,000	137,000	1,000	2,300	3,300
1982	15,000	9,400	24,400	24,000	27,200	88,000	139,200	2,000	4,600	6,600
1983	16,250	10,800	27,050	25,000	28,400	88,000	141,400	3,000	6,900	9,900
1984	17,500	12,100	29,600	26,000	29,600	88,000	143,600	4,500	10,400	14,900
1985	18,750	14,000	32,750	27,000	30,800	88,000	145,800	7,500	17,300	24,800
1986	20,000	16,500	36,500	28,000	32,100	88,000	148,100	10,000	23,100	33,100
1987	21,250	20,000	41,250	29,000	33,300	88,000	150,300	12,500	28,800	41,300
1988	22,500	27,000	49,500	30,000	34,500	88,000	152,500	15,500	35,800	51,300
1989	23,750	34,500	58,250	31,000	35,700	90,000	156,700	20,000	46,100	66,100
1990	25,000	42,000	67,000	32,000	36,900	92,000	160,900	25,000	57,700	82,700
1991	25,000	42,000	67,000	34,000	38,400	94,000	166,400	25,000	57,700	82,700
1992	25,000	42,000	67,000	36,000	39,900	96,000	171,900	25,000	57,700	82,700
1993	25,000	42,000	67,000	38,000	41,400	98,000	177,400	25,000	57,700	82,700
1994	25,000	42,000	67,000	40,000	42,000	100,000	182,000	25,000	57,700	82,700
1995	25,000	42,000	67,000	42,000	42,000	100,000	184,000	25,000	57,700	82,700
1996	25,000	42,000	67,000	44,000	42,000	100,000	186,000	25,000	57,700	82,700
1997	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
1998	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
1999	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2000	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2001	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2002	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2003	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2004	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2005	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2006	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2007	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2008	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2009	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2010	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2011	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2012	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2013	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2014	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2015	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2016	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2017	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2018	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2019	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2020	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2021	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2022	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2023	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2024	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2025	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2026	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2027	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2028	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2029	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2030	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2031	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2032	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2033	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2034	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
2035	25,000	42,000	67,000	46,000	42,000	100,000	188,000	25,000	57,700	82,700
TOTAL	1,331,250	2,091,050	3,422,300	2,494,607	2,459,248	6,510,783	11,464,638	1,227,000	2,830,700	4,057,700

- a) From Tables A and Articles 6(a) of water supply contracts as of December 31, 1977.
- b) Metric conversion is acre-feet times 1233.5 equals cubic metre.
- c) Entitlements for the South Bay Area were supplied by nonproject water for the period June 1962 through November 1967. Actual delivery quantities of project water are shown for 1967.
- d) District's Table A quantities exclude those during the period 1968 through 1979 which are assumed to be supplied by nonproject water.

MENTS TO PROJECT WATER (a)

(In acre-feet)^(b)

Calendar Year	SAN JOAQUIN VALLEY AREA								
	Devil's Den Water District	Dudley Ridge Water District	Empire West Side Irrigation District	Hacienda Water District	Kern County Water Agency	County of Kings	Oak Flat Water District	Tulare Lake Basin Water Storage District	Total
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1960	0	0	0	0	0	0	0	0	0
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	3,700	14,300	1,000	0	46,600	900	2,300	12,250	81,050
1969	5,000	14,325	3,000	2,400	95,700	1,200	2,500	43,950	168,075
1970	5,700	15,700	3,000	2,500	145,100	1,300	2,600	31,800	207,700
1971	6,700	17,900	3,000	2,300	190,300	1,300	2,800	34,200	258,500
1972	7,700	20,000	3,000	2,600	270,700	1,400	5,366	110,000	420,766
1973	8,700	22,000	3,000	2,900	310,500	1,500	3,100	40,652	392,352
1974	9,700	33,390	3,000	3,300	347,000	1,500	3,471	68,989	470,350
1975	10,700	40,555	3,000	3,758	410,820	1,600	3,576	82,500	556,509
1976	11,700	30,921	3,000	3,900	442,150	1,600	4,039	57,807	555,117
1977	12,700	30,400	3,000	4,200	483,600	1,700	3,700	54,800	594,100
1978	12,700	32,500	3,000	4,600	534,300	1,900	3,900	58,700	651,600
1979	12,700	34,600	3,000	4,900	583,900	2,000	4,000	62,600	707,700
1980	12,700	36,700	3,000	5,200	634,500	2,200	4,200	66,500	765,000
1981	12,700	38,800	3,000	5,600	691,400	2,300	4,300	70,400	828,500
1982	12,700	41,000	3,000	5,900	745,300	2,500	4,500	74,300	889,200
1983	12,700	42,900	3,000	6,200	805,100	2,800	4,600	78,200	955,500
1984	12,700	45,100	3,000	6,500	860,600	3,100	4,800	82,100	1,017,900
1985	12,700	47,200	3,000	6,900	915,000	3,400	4,900	86,000	1,079,100
1986	12,700	49,300	3,000	7,200	968,200	3,700	5,100	90,000	1,139,200
1987	12,700	51,400	3,000	7,500	1,023,500	4,000	5,200	93,900	1,201,200
1988	12,700	53,500	3,000	7,800	1,074,600	4,000	5,400	97,800	1,258,800
1989	12,700	55,600	3,000	8,200	1,112,300	4,000	5,600	101,700	1,303,100
1990	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
1991	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
1992	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
1993	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
1994	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
1995	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
1996	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
1997	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
1998	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
1999	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2000	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2001	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2002	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2003	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2004	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2005	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2006	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2007	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2008	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2009	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2010	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2011	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2012	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2013	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2014	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2015	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2016	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2017	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2018	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2019	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2020	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2021	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2022	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2023	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2024	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2025	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2026	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2027	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2028	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2029	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2030	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2031	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2032	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2033	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2034	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2035	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
TOTAL	818,900	3,422,291	202,000	495,358	65,747,570	233,900	352,152	6,559,148	77,831,319

TABLE B-4: ANNUAL ENTITLE-

(in acre-feet) (b)

Sheet 3 of 4

Calendar Year	SOUTHERN CALIFORNIA AREA									
	Antelope Valley-East Kern Water Agency	Castaic Lake Water Agency	Coachella Valley County 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)
1960	0	0	0	0	0	0	0	0	0	0
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	20,000	1,236	5,200	526	8,000	170	8,400	1,620	1,677	122
1973	25,000	3,700	5,800	870	9,000	290	10,700	2,940	48,000	11,500
1974	30,000	5,700	6,400	1,160	10,000	400	13,100	4,260	50,000	12,300
1975	35,000	7,500	7,000	1,450	11,000	520	15,400	5,580	52,500	13,100
1976	44,000	9,500	7,600	1,740	12,000	640	17,800	6,900	55,000	14,000
1977	50,000	11,400	8,421	2,030	13,000	730	20,200	8,220	57,500	14,800
1978	57,000	13,400	9,242	2,320	14,000	920	22,500	9,340	60,000	15,700
1979	63,000	15,300	10,063	2,610	15,000	1,040	24,900	10,260	62,500	16,600
1980	69,200	17,700	10,884	2,900	17,000	1,150	27,200	11,180	65,500	17,400
1981	75,000	20,100	12,105	3,190	19,000	1,270	29,600	11,700	68,500	18,300
1982	81,300	22,100	13,326	3,480	21,000	1,380	31,900	12,320	71,500	19,100
1983	87,700	24,600	14,547	3,770	23,000	1,500	34,300	12,940	74,500	19,900
1984	94,000	26,900	15,768	4,060	25,000	1,610	36,700	13,560	78,000	20,700
1985	100,400	29,100	16,989	4,350	27,000	1,730	39,000	14,180	81,500	21,800
1986	106,700	30,900	18,210	4,640	29,000	1,840	41,400	14,800	85,000	23,200
1987	113,000	32,900	19,431	4,930	31,500	1,960	43,700	15,420	89,000	24,600
1988	119,400	35,300	20,652	5,220	34,000	2,070	46,000	16,040	93,000	26,000
1989	125,700	37,400	21,873	5,510	36,500	2,190	48,500	16,660	97,000	27,400
1990	132,100	39,300	23,100	5,800	38,100	2,300	50,800	17,300	101,500	28,800
1991	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1992	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1993	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1994	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1995	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1996	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1997	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1998	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1999	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2000	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2001	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2002	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2003	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2004	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2005	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2006	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2007	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2008	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2009	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2010	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2011	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2012	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2013	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2014	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2015	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2016	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2017	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2018	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2019	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2020	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2021	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2022	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2023	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2024	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2025	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2026	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2027	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2028	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2029	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2030	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2031	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2032	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2033	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2034	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2035	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
TOTAL	7,656,500	2,251,536	1,286,111	321,556	2,107,600	127,210	2,848,100	983,720	5,909,177	1,641,322

MENTS TO PROJECT WATER^(a)

(in acre-feet)^(b)

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA				TOTAL STATE WATER PROJECT
	San Geronio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC & WCD	Total	
	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)
1960	0	0	0	0	0	0	0	0	0
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	11,538
1968	0	0	0	0	0	300	250	550	191,500
1969	0	0	0	0	0	350	270	620	267,395
1970	0	0	0	0	0	400	300	700	322,600
1971	0	0	0	0	0	450	440	890	375,590
1972	0	154,772	0	201,723	0	500	470	970	741,759
1973	0	354,600	0	472,400	0	600	500	1,100	986,252
1974	0	454,900	0	588,220	0	700	530	1,230	1,182,200
1975	0	555,200	0	704,250	0	1,050	560	1,610	1,386,869
1976	0	655,600	0	824,780	0	1,400	590	1,990	1,508,387
1977	0	755,900	0	942,201	0	1,800	620	2,420	1,667,321
1978	0	856,300	0	1,060,722	0	2,200	650	2,850	1,845,872
1979	0	956,600	0	1,177,873	0	2,600	680	3,280	2,021,553
1980	6,800	1,057,000	1,000	1,304,914	0	4,000	710	4,710	2,230,874
1981	7,800	1,157,300	2,000	1,425,865	4,200	5,450	740	10,390	2,426,805
1982	8,800	1,257,600	3,000	1,546,806	4,600	6,900	770	12,270	2,618,476
1983	9,800	1,358,000	4,000	1,668,557	5,050	8,350	800	14,200	2,816,607
1984	10,800	1,458,300	5,000	1,790,398	5,500	9,800	830	16,130	3,012,528
1985	11,800	1,558,700	6,000	1,912,549	5,950	12,250	860	19,060	3,214,059
1986	12,900	1,659,300	8,000	2,035,890	6,600	14,700	890	22,190	3,414,980
1987	14,000	1,759,800	10,000	2,160,241	7,300	17,150	920	25,370	3,619,661
1988	15,100	1,860,400	13,000	2,286,182	8,000	20,600	960	29,560	3,827,842
1989	16,200	1,961,000	16,000	2,411,933	8,800	24,050	1,000	33,850	4,029,933
1990	17,300	2,011,500	20,000	2,487,900	9,600	27,500	1,040	38,140	4,191,640
1991	17,300	2,011,500	20,000	2,497,500	9,600	27,500	1,080	38,180	4,206,780
1992	17,300	2,011,500	20,000	2,497,500	9,600	27,500	1,120	38,220	4,212,320
1993	17,300	2,011,500	20,000	2,497,500	9,600	27,500	1,160	38,260	4,217,860
1994	17,300	2,011,500	20,000	2,497,500	9,600	27,500	1,200	38,300	4,222,500
1995	17,300	2,011,500	20,000	2,497,500	9,600	27,500	1,250	38,350	4,224,550
1996	17,300	2,011,500	20,000	2,497,500	9,600	27,500	1,300	38,400	4,226,600
1997	17,300	2,011,500	20,000	2,497,500	9,600	27,500	1,350	38,450	4,228,650
1998	17,300	2,011,500	20,000	2,497,500	9,600	27,500	1,400	38,500	4,228,700
1999	17,300	2,011,500	20,000	2,497,500	9,600	27,500	1,450	38,550	4,228,750
2000	17,300	2,011,500	20,000	2,497,500	9,600	27,500	1,510	38,610	4,228,810
2001	17,300	2,011,500	20,000	2,497,500	9,600	27,500	1,570	38,670	4,228,870
2002	17,300	2,011,500	20,000	2,497,500	9,600	27,500	1,630	38,730	4,228,930
2003	17,300	2,011,500	20,000	2,497,500	9,600	27,500	1,690	38,790	4,228,990
2004	17,300	2,011,500	20,000	2,497,500	9,600	27,500	1,750	38,850	4,229,050
2005	17,300	2,011,500	20,000	2,497,500	9,600	27,500	1,810	38,910	4,229,110
2006	17,300	2,011,500	20,000	2,497,500	9,600	27,500	1,880	38,980	4,229,180
2007	17,300	2,011,500	20,000	2,497,500	9,600	27,500	1,950	39,050	4,229,250
2008	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,020	39,120	4,229,320
2009	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,090	39,190	4,229,390
2010	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,160	39,260	4,229,460
2011	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,240	39,340	4,229,540
2012	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,320	39,420	4,229,620
2013	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,410	39,510	4,229,710
2014	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,500	39,600	4,229,800
2015	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,600	39,700	4,229,900
2016	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
2017	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
2018	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
2019	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
2020	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
2021	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
2022	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
2023	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
2024	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
2025	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
2026	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
2027	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
2028	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
2029	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
2030	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
2031	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
2032	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
2033	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
2034	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
2035	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,230,000
TOTAL	909,800	112,360,272	988,000	139,390,904	497,600	1,400,600	112,820	2,011,020	238,177,881

TABLE B-5A: ANNUAL WATER QUANTITIES DELIVERED

(in acre-feet)^(b)

Sheet 1 of 6

Calendar Year	Grizzly Valley Pipeline PC FC&WCD	NORTH BAY AQUEDUCT			TOTAL	SOUTH BAY AQUEDUCT						
		Reach 2	Reach 3	ACWD		Reach 1		Reach 2	Reach 4	Reach 5		Reach 6
						AC	FC&WCD			AC	FC&WCD		AC	FC&WCD
		SC FC&WCD	NC FC&WCD ^(c)	ACWD		AC	FC&WCD	AC	FC&WCD	ACWD	AC	FC&WCD	AC	FC&WCD
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)		
1962	0	0	0	0	8,412	141	353	0	0	0	0	
1963	0	0	0	0	10,914	814	917	0	0	0	0	
1964	0	0	0	0	19,238	248	1,425	0	0	0	0	
1965	0	0	0	0	15,280	637	1,830	138	0	0	0	
1966	0	0	0	0	0	2,475	2,537	499	0	0	0	
1967	0	0	0	0	0	1,527	2,391	862	0	0	0	
1968	0	0	1,214	1,214	0	1,408	3,799	721	0	5	0	
1969	0	0	2,687	2,687	0	1,165	3,459	1,851	0	160	0	
1970	70	0	3,618	3,618	0	1,345	4,558	3,182	0	164	0	
1971	64	0	2,521	2,521	0	546	1,908	2,403	0	160	0	
1972	505	0	3,647	3,647	0	1,066	4,605	2,041	1,489	2,777	0	
1973	679	0	3,792	3,792	0	430	1,123	1,193	0	229	0	
1974	648	0	4,870	4,870	0	177	0	975	0	162	0	
1975	405	0	6,840	6,840	0	137	1,783	1,864	0	120	714	
1976	382	0	7,122	7,122	0	265	7,204	3,384	0	817	5,461	
1977	303	0	8,226	8,226	0	210	4,491	2,213	0	524	5,206	
1978	650	0	8,180	8,180	0	158	4,245	1,884	0	1,386	6,327	
1979	680	0	6,625	6,625	0	302	4,960	3,191	0	4,779	10,006	
1980	710	0	6,790	6,790	0	302	5,148	3,410	0	2,756	10,384	
1981	740	0	6,960	6,960	0	302	5,260	3,710	0	3,106	10,622	
1982	770	0	7,080	7,080	0	302	5,338	4,210	0	3,359	10,791	
1983	800	10,800	7,185	17,985	0	302	5,471	4,412	0	3,759	11,056	
1984	830	12,100	7,375	19,475	0	302	5,617	4,610	0	4,122	11,349	
1985	860	12,870	8,300	21,170	0	300	5,600	4,900	0	4,600	11,600	
1986	890	15,240	8,600	23,840	0	300	5,800	5,300	0	4,700	11,900	
1987	920	18,320	8,950	27,270	0	400	5,900	5,700	0	5,000	12,000	
1988	960	24,900	9,300	34,200	0	500	4,500	6,000	0	5,200	13,800	
1989	1,000	31,350	9,750	41,100	0	700	4,600	6,400	0	5,400	13,900	
1990	1,040	37,800 ^(d)	10,000	47,800	0	800	4,600	6,800	0	5,600	14,200	
1991	1,080	37,800	10,600	48,400	0	1,300	4,700	7,400	0	6,200	14,400	
1992	1,120	37,800	11,200	49,000	0	1,900	4,700	7,900	0	6,800	14,600	
1993	1,160	37,800	11,800	49,600	0	2,500	4,800	8,500	0	7,300	14,900	
1994	1,200	37,800	12,400	50,200	0	3,100	4,900	9,100	0	7,900	15,000	
1995	1,250	37,800	13,000	50,800	0	3,600	5,000	9,700	0	8,500	15,200	
1996	1,300	37,800	13,700	51,500	0	4,200	5,000	10,200	0	9,100	15,500	
1997	1,350	37,800	14,400	52,200	0	4,700	5,100	10,900	0	9,600	15,700	
1998	1,400	37,800	15,100	52,900	0	4,700	5,100	10,900	0	9,600	15,700	
1999	1,450	37,800	15,800	53,600	0	4,700	5,100	10,900	0	9,600	15,700	
2000	1,510	37,800	16,500	54,300	0	4,700	5,100	10,900	0	9,600	15,700	
2001	1,570	37,800	16,700	54,500	0	4,700	5,100	10,900	0	9,600	15,700	
2002	1,630	37,800	16,900	54,700	0	4,700	5,100	10,900	0	9,600	15,700	
2003	1,690	37,800	17,100	54,900	0	4,700	5,100	10,900	0	9,600	15,700	
2004	1,750	37,800	17,300	55,100	0	4,700	5,100	10,900	0	9,600	15,700	
2005	1,810	37,800	17,500	55,300	0	4,700	5,100	10,900	0	9,600	15,700	
2006	1,880	37,800	17,840	55,640	0	4,700	5,100	10,900	0	9,600	15,700	
2007	1,950	37,800	18,180	55,980	0	4,700	5,100	10,900	0	9,600	15,700	
2008	2,020	37,800	18,520	56,320	0	4,700	5,100	10,900	0	9,600	15,700	
2009	2,090	37,800	18,860	56,660	0	4,700	5,100	10,900	0	9,600	15,700	
2010	2,160	37,800	19,200	57,000	0	4,700	5,100	10,900	0	9,600	15,700	
2011	2,240	37,800	19,560	57,360	0	4,700	5,100	10,900	0	9,600	15,700	
2012	2,320	37,800	19,920	57,720	0	4,700	5,100	10,900	0	9,600	15,700	
2013	2,410	37,800	20,280	58,080	0	4,700	5,100	10,900	0	9,600	15,700	
2014	2,500	37,800	20,640	58,440	0	4,700	5,100	10,900	0	9,600	15,700	
2015	2,600	37,800	21,000	58,800	0	4,700	5,100	10,900	0	9,600	15,700	
2016	2,700	37,800	21,400	59,200	0	4,700	5,100	10,900	0	9,600	15,700	
2017	2,700	37,800	21,800	59,600	0	4,700	5,100	10,900	0	9,600	15,700	
2018	2,700	37,800	22,200	60,000	0	4,700	5,100	10,900	0	9,600	15,700	
2019	2,700	37,800	22,600	60,400	0	4,700	5,100	10,900	0	9,600	15,700	
2020 ^(f)	2,700	37,800	25,000	62,800	0	4,700	5,100	10,900	0	9,600	15,700	

- a) Includes surplus water delivered prior to May 1, 1973, nonproject water and exchange water.
- b) Metric conversion is acre-feet times 1233.5 equals cubic metre.
- c) For the period 1968 through 1982 annual quantities delivered are nonproject water pumped through an interim facility.
- d) Solano County Flood Control and Water Conservation District (SCFC&WCD) has contracted for 42,000 acre-feet maximum annually, of which 4,200 acre-feet will be delivered from the Delta through the District's facilities.
- e) For the period June 1962 through November 1967, deliveries were supplied by nonproject water.
- f) And thereafter for the remainder of the project repayment period.

FROM EACH AQUEDUCT REACH TO EACH CONTRACTOR^(a)

(in acre-feet)^(b)

Sheet 2 of 6

Calendar Year	SOUTH BAY AQUEDUCT ^(c) (continued)				CALIFORNIA AQUEDUCT								
	Reach 7	Reach 8	Reach 9	TOTAL SOUTH BAY AQUEDUCT	NORTH SAN JOAQUIN DIVISION Reach 2A	SOUTH SAN JOAQUIN DIVISION							
						Reach 8C				Reach 8D			
						ACWD	ACWD	SCVWD	OFWD	HWD	TLBWS	EWSID	CK	KCWA (Ag.)	DDWD	DRWD	HWD
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	
1962	0	0	0	8,906	0	0	0	0	0	0	0	0	0
1963	0	0	0	12,645	0	0	0	0	0	0	0	0	0
1964	0	0	0	20,911	0	0	0	0	0	0	0	0	0
1965	1,127	0	15,014	34,026	0	0	0	0	0	0	0	0	0
1966	14,864	0	34,538	54,913	0	0	0	0	0	0	0	0	0
1967	12,882	0	39,101	56,763	0	0	0	0	0	0	0	0	0
1968	24,817	0	70,105	101,055	3,084	0	25,100	1,978	900	0	0	26,360	0
1969	813	0	62,264	69,712	3,016	0	7,081	56	100	0	0	31,375	0
1970	0	0	80,311	89,560	5,911	0	0	3,942	0	0	0	40,407	3,408
1971	5,961	0	87,606	98,584	7,212	0	80,906	5,990	3,700	0	0	41,053	6,659
1972	22,182	0	100,266	138,426	5,200	0	144,843	5,795	1,400	0	0	42,443	5,851
1973	2,521	0	88,582	94,078	3,214	140	26,177	3,000	1,500	1,500	0	22,057	2,760
1974	0	4	88,000	89,318	3,471	0	32,603	3,000	1,500	0	0	33,390	3,300
1975	393	593	88,000	93,604	3,576	0	41,536	3,000	1,600	0	0	40,555	3,758
1976	13,774	7,526	88,000	126,431	4,112	0	24,595	3,000	1,600	0	0	41,421	3,900
1977	12,359	7,575	76,220	108,798	3,370	0	26,998 (G)	2,355	1,530	0	4,750 (H)	28,718	3,636
1978	15,466	8,774	99,718	137,958	6,055	0	52,532	4,262	2,070	0	0	51,747	7,120
1979	17,346	8,774	88,000	137,358	4,000	0	31,400	4,000	2,000	0	0	34,600	4,900
1980	16,026	8,774	88,000	134,800	4,200	0	33,400	3,000	2,200	0	0	36,700	5,200
1981	17,226	8,774	88,000	137,000	4,300	0	35,300	3,000	2,300	0	0	38,800	5,600
1982	18,426	8,774	88,000	139,200	4,500	0	37,300	3,000	2,500	0	0	41,000	5,900
1983	19,626	8,774	88,000	141,400	4,600	0	39,300	3,000	2,800	0	0	42,900	6,200
1984	20,826	8,774	88,000	143,600	4,800	0	41,300	3,000	3,100	0	0	45,100	6,500
1985	22,026	8,774	88,000	145,800	4,900	0	43,100	3,000	3,400	0	0	47,200	6,900
1986	23,226	8,774	88,000	148,100	5,100	0	45,100	3,000	3,700	0	0	49,300	7,200
1987	24,526	8,774	88,000	150,300	5,200	0	47,000	3,000	4,000	0	0	51,400	7,500
1988	25,726	8,774	88,000	152,500	5,400	0	49,000	3,000	4,300	0	0	53,500	7,800
1989	26,926	8,774	90,000	156,700	5,600	0	50,900	3,000	4,600	0	0	55,600	8,200
1990	28,126	8,774	92,000	160,900	5,700	0	55,100	3,000	4,900	0	0	57,700	8,500
1991	29,626	8,774	94,000	166,400	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500
1992	31,126	8,774	96,000	171,900	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500
1993	32,626	8,774	98,000	177,400	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500
1994	33,226	8,774	100,000	182,000	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500
1995	33,226	8,774	100,000	184,000	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500
1996	33,226	8,774	100,000	186,000	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500
1997	33,226	8,774	100,000	188,000	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500
1998	33,226	8,774	100,000	188,000	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500
1999	33,226	8,774	100,000	188,000	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500
2000	33,226	8,774	100,000	188,000	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500
2001	33,226	8,774	100,000	188,000	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500
2002	33,226	8,774	100,000	188,000	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500
2003	33,226	8,774	100,000	188,000	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500
2004	33,226	8,774	100,000	188,000	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500
2005	33,226	8,774	100,000	188,000	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500
2006	33,226	8,774	100,000	188,000	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500
2007	33,226	8,774	100,000	188,000	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500
2008	33,226	8,774	100,000	188,000	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500
2009	33,226	8,774	100,000	188,000	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500
2010(f)	33,226	8,774	100,000	188,000	5,700	0	55,100	3,000	4,000	0	0	57,700	8,500

Calendar Year	CALIFORNIA AQUEDUCT (continued)											
	SOUTH SAN JOAQUIN DIVISION (continued)											
	Reach 8 D (continued)	Reach 9		Reach 10 A			Reach 11 B		Reach 12 E		Reach 13 B	
		TLBWS	KCWA (Ag.)	HWD	KCWA (M&I)	KCWA (Ag.)	HWD	KCWA (M&I)	KCWA (Ag.)	KCWA (M&I)	KCWA (Ag.)	KCWA (M&I)	KCWA (Ag.)
(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	
1968	0	30,951	0	0	0	0	0	24,775	0	0	0	0
1969	0	24,489	0	0	0	2,842	0	64,682	0	0	0	0
1970	0	46,114	1,855	0	158	4,315	0	72,279	0	9,279	0	4,891
1971	34,920	58,356	0	0	9,973	0	0	63,773	0	28,056	0	0
1972	107,699	75,464	0	0	5,876	0	0	72,358	0	62,342	0	17,388
1973	21,387	54,583	0	0	22,948	0	0	67,544	0	13,082	0	9,297
1974	36,386	63,814	0	10,019	22,719	0	0	87,476	2,651	4,248	8,038	4,246
1975	40,964	50,021	0	2,791	72,121	0	0	85,675	0	10,797	8,538	7,059
1976	28,316	53,465	0	74	50,444	0	0	85,067	37,519	20,555	5,626	8,855
1977	17,524	59,765	0	201	79,404	0	4,263	83,944	17,900	8,394	0	12,424
1978	47,463	71,068	0	0	154,790	0	0	111,408	29,405	133,521	3,314	54,172
1979	31,200	57,800	0	0	112,850	0	0	105,070	28,140	48,240	3,600	12,000
1980	33,100	61,700	0	0	123,246	0	0	112,765	28,310	55,304	3,600	13,875
1981	35,100	65,950	0	0	137,384	0	0	118,900	28,590	63,238	3,600	15,938
1982	37,000	69,400	0	0	150,914	0	0	124,500	28,920	71,728	3,600	17,938
1983	38,900	72,050	0	0	166,554	0	0	128,900	29,220	80,813	3,600	20,563
1984	40,800	75,100	0	0	181,933	0	0	132,899	29,550	89,630	3,600	22,688
1985	42,900	80,600	0	0	196,200	0	0	138,100	30,000	99,900	3,600	24,000
1986	44,900	86,200	0	0	210,100	0	0	142,800	30,000	109,500	3,600	25,200
1987	46,900	92,600	0	0	223,100	0	0	147,900	30,000	120,200	3,600	25,900
1988	48,800	97,600	0	0	236,300	0	0	153,300	30,000	129,400	3,600	26,400
1989	50,800	102,700	0	0	245,800	0	0	156,100	30,000	137,100	3,600	26,700
1990(f)	54,900	108,000	0	0	255,560	0	0	160,200	30,000	145,840	3,600	26,900

G) INCLUDES 1,008 ACRE-FEET DELIVERED FROM REACH 6.

H) INCLUDES 4,550 ACRE-FEET DELIVERED FROM REACH 6.

TABLE B-5A: ANNUAL WATER QUANTITIES DELIVERED

(in acre-feet)^(b)

Sheet 3 of 6

Calendar Year	CALIFORNIA AQUEDUCT (continued)										
	SOUTH SAN JOAQUIN DIVISION (continued)							TEHACHAPI DIVISION	MOJAVE DIVISION		
	Reach 14 A		Reach 14 B	Reach 14 C	Reach 15 A	Reach 16 A		Reach 17 E	Reach 18 A	Reach 19	Reach 19 C
	KCWA (M&I)	KCWA (Ag.)	KCWA (Ag.)	KCWA (Ag.)	KCWA (Ag.)	KCWA (M&I)	KCWA (Ag.)	KCWA (M&I)	AVEKWA	AVEKWA	AVEKWA
(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)	(46)	(47)	
1970	0	0	3	0	0	0	0	0	0	0	0
1971	0	23,844	49,929	24,187	3,552	0	0	0	0	0	0
1972	0	26,621	77,034	35,016	6,064	0	4,768	0	0	0	0
1973	0	15,328	47,040	19,043	19,916	0	1,961	0	0	0	0
1974	0	7,794	32,356	12,601	18,000	3,000	1,564	0	1,223	0	0
1975	0	10,306	27,736	12,783	35,420	3,200	9,867	0	0	7,622	0
1976	0	268	35,296	9,005	39,551	3,500	11,667	0	3,808	23,063	0
1977	0	18,638	33,791	11,798	14,813	3,424	1,670	0	3,089	29,469	0
1978	12,374	23,688	54,444	22,617	27,218	4,027	19,360	0	1,993	51,034	27,070
1979	13,200	17,800	41,700	16,000	29,300	4,400	11,100	1,000	1,658	18,269	27,349
1980	13,900	19,400	45,400	17,400	22,200	4,800	15,700	1,100	1,876	20,784	30,313
1981	14,600	21,400	50,100	19,200	24,500	5,200	20,200	1,200	2,055	22,773	32,964
1982	15,400	23,700	55,300	21,200	27,000	5,700	22,300	1,300	2,279	25,270	36,032
1983	16,200	26,400	61,800	23,800	30,200	6,300	25,100	1,400	2,601	28,634	40,115
1984	16,900	28,800	67,300	25,800	32,900	7,200	27,400	1,500	2,825	29,027	42,989
1985	17,700	31,000	71,800	27,400	36,000	8,200	31,500	1,600	3,025	31,775	43,299
1986	18,600	33,200	75,400	28,900	39,800	9,500	36,300	1,700	3,225	31,475	45,783
1987	19,500	35,200	79,300	30,300	44,000	11,000	41,700	1,800	3,425	31,575	48,267
1988	20,200	37,300	81,600	31,400	48,400	12,500	47,300	1,900	3,625	31,675	50,850
1989	20,800	38,600	83,300	31,900	51,400	13,700	51,200	2,000	3,825	31,775	53,233
1990	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,025	31,875	55,717
1991	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
1992	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
1993	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
1994	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
1995	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
1996	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
1997	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
1998	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
1999	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2000	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2001	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2002	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2003	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2004	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2005	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2006	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2007	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2008	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2009	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2010	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2011	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2012	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2013	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2014	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2015	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2016	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2017	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2018	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2019	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100
2020 ^(f)	21,400	40,100	84,800	32,400	55,000	15,000	55,200	2,000	4,225	31,975	58,100

FROM EACH AQUEDUCT REACH TO EACH CONTRACTOR^(a)

(in acre-feet)^(b)

Sheet 4 of 6

Calendar Year	CALIFORNIA AQUEDUCT (continued)											
	MOJAVE DIVISION (continued)											
	Reach 20 A	Reach 20 B		Reach 21		Reach 22 A	Reach 22 B				Reach 23.	Reach 24
	AVEKWA	PWD	AVEKWA	LCID	AVEKWA	AVEKWA	MWD-SC(g)	CVCWD(g)	DWA (g)	MWA	MWA	CLAWA
(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	
1972	0	0	0	338	0	0	0	0	0	55	0	464
1973	0	0	0	290	0	0	14,800-	5,800	9,000	0	0	389
1974	0	0	0	400	0	0	16,400-	6,400	10,000	0	14	627
1975	420	0	0	520	0	0	18,000-	7,000	11,000	0	0	825
1976	471	0	416	589	0	0	19,600-	7,600	12,000	0	0	1,002
1977	773	0	997	111	0	0	0	0	0	22	58	1,109
1978	18,575	0	700	250	0	0	23,242-	9,242	14,000	2,538	0	1,800
1979	13,929	0	580	1,478	150	1,040	27,205-	10,905	16,300	14,900	0	2,351
1980	14,278	0	656	1,150	205	1,063	27,884-	10,884	17,000	17,200	0	2,565
1981	14,735	100	719	1,270	483	1,246	31,105-	12,105	19,000	29,600	0	2,970
1982	15,084	300	798	1,380	545	1,267	34,326-	13,326	21,000	31,900	0	3,475
1983	15,319	600	910	1,500	598	1,298	37,547-	14,547	23,000	34,300	0	3,755
1984	15,938	1,000	989	1,610	632	1,325	40,768-	15,768	25,000	36,700	0	4,060
1985	18,947	3,000	0	1,730	1,879	1,550	43,989-	16,989	27,000	39,000	0	4,350
1986	21,956	3,800	0	1,840	2,136	1,750	47,210-	18,210	29,000	41,400	0	4,640
1987	24,964	4,600	0	1,960	2,394	1,950	50,931-	19,431	31,500	43,700	0	4,930
1988	27,973	5,400	0	2,070	2,652	2,150	54,652-	20,652	34,000	46,000	0	5,220
1989	30,982	6,200	0	2,190	2,910	2,450	58,373-	21,873	36,500	48,500	0	5,510
1990	33,991	7,000	0	2,300	3,167	2,750	61,200-	23,100	38,100	50,800	0	5,800
1991	37,000	8,000	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
1992	37,000	9,000	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
1993	37,000	10,000	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
1994	37,000	11,000	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
1995	37,000	12,000	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
1996	37,000	13,060	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
1997	37,000	14,120	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
1998	37,000	15,180	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
1999	37,000	16,240	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
2000	37,000	17,300	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
2001	37,000	17,300	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
2002	37,000	17,300	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
2003	37,000	17,300	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
2004	37,000	17,300	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
2005	37,000	17,300	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
2006	37,000	17,300	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
2007	37,000	17,300	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
2008	37,000	17,300	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
2009	37,000	17,300	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
2010	37,000	17,300	0	2,300	3,425	3,050	61,200-	23,100	38,100	50,800	0	5,800
2011	37,000	17,300	0	2,300	3,425	3,050	0	23,100	38,100	50,800	0	5,800
2012	37,000	17,300	0	2,300	3,425	3,050	0	23,100	38,100	50,800	0	5,800
2013	37,000	17,300	0	2,300	3,425	3,050	0	23,100	38,100	50,800	0	5,800
2014	37,000	17,300	0	2,300	3,425	3,050	0	23,100	38,100	50,800	0	5,800
2015	37,000	17,300	0	2,300	3,425	3,050	0	23,100	38,100	50,800	0	5,800
2016	37,000	17,300	0	2,300	3,425	3,050	0	23,100	38,100	50,800	0	5,800
2017	37,000	17,300	0	2,300	3,425	3,050	0	23,100	38,100	50,800	0	5,800
2018	37,000	17,300	0	2,300	3,425	3,050	0	23,100	38,100	50,800	0	5,800
2019	37,000	17,300	0	2,300	3,425	3,050	0	23,100	38,100	50,800	0	5,800
2020_(f)	37,000	17,300	0	2,300	3,425	3,050	0	23,100	38,100	50,800	0	5,800

g) In accordance with the Exchange Agreement between the noted agencies, Metropolitan Water District 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 County Water District for such costs from the Delta through Reach 22B. The adjustment in deliveries shown in Column 54 provides for compliance with the repayment of the Agreement.

TABLE B-5A: ANNUAL WATER QUANTITIES DELIVERED

(in acre-feet) (b)

Sheet 5 of 6

Calendar Year	CALIFORNIA AQUEDUCT (continued)							
	SANTA ANA DIVISION							
	Reach 26 A				Reach 28 G		Reach 28 H	Reach 28 J
	MWD-SC	SBVMWD	SGVMWD	SGPWA	MWD-SC	SBVMWD	MWD-SC	MWD-SC
(60)	(61)	(62)	(63)	(64)	(65)	(66)	(67)	
1972	0	1,275	0	0	0	0	0	0
1973	444	32,426	0	0	18,942	0	0	0
1974	84,979	16,605	612	0	0	0	0	0
1975	169,960	13,865	5,450	0	0	0	0	251
1976	215,312	12,273	6,071	0	0	0	55	2,000
1977	64,823	24,833	8,996	0	0	0	43	2,442
1978	365,438	24,000	15,700	0	0	0	11,042	140,420
1979	430,842	67,010	17,600	0	0	0	18,300	170,700
1980	471,600	65,500	17,400	0	0	0	22,500	173,600
1981	285,682	68,500	18,300	3,900	0	0	176,118	175,900
1982	344,000	71,500	19,100	4,400	0	0	195,900	177,800
1983	237,500	74,500	19,900	4,900	0	0	200,400	179,800
1984	229,500	78,000	20,700	5,400	0	0	206,400	181,800
1985	340,000	78,500	21,800	11,800	0	3,000	32,000	245,700
1986	330,000	80,600	23,200	12,900	0	4,400	33,000	254,700
1987	310,000	83,200	24,600	14,000	0	5,800	34,000	273,700
1988	290,000	85,800	26,000	15,100	0	7,200	36,000	291,700
1989	280,000	88,400	27,400	16,200	0	8,600	37,000	300,700
1990	275,000	91,500	28,800	17,300	0	10,000	38,000	304,700
1991	270,000	92,600	28,800	17,300	0	10,000	39,000	308,700
1992	265,000	92,600	28,800	17,300	0	10,000	40,000	312,700
1993	260,000	92,600	28,800	17,300	0	10,000	41,000	316,700
1994	255,000	92,600	28,800	17,300	0	10,000	42,000	320,700
1995	250,000	92,600	28,800	17,300	0	10,000	43,000	324,700
1996	249,660	92,600	28,800	17,300	0	10,000	44,200	323,840
1997	249,320	92,600	28,800	17,300	0	10,000	45,400	322,980
1998	248,980	92,600	28,800	17,300	0	10,000	46,600	322,120
1999	248,640	92,600	28,800	17,300	0	10,000	47,800	321,260
2000	248,300	92,600	28,800	17,300	0	10,000	49,000	320,400
2001	250,300	92,600	28,800	17,300	0	10,000	50,000	319,400
2002	252,300	92,600	28,800	17,300	0	10,000	51,000	318,400
2003	254,300	92,600	28,800	17,300	0	10,000	52,000	317,400
2004	256,300	92,600	28,800	17,300	0	10,000	53,000	316,400
2005	258,300	92,600	28,800	17,300	0	10,000	54,000	315,400
2006	256,300	92,600	28,800	17,300	0	10,000	54,800	314,600
2007	254,300	92,600	28,800	17,300	0	10,000	55,600	313,800
2008	252,300	92,600	28,800	17,300	0	10,000	56,400	313,000
2009	250,300	92,600	28,800	17,300	0	10,000	57,200	312,200
2010	248,300	92,600	28,800	17,300	0	10,000	58,000	311,400
2011	187,100	92,600	28,800	17,300	0	10,000	58,800	310,600
2012	187,100	92,600	28,800	17,300	0	10,000	59,600	309,800
2013	187,100	92,600	28,800	17,300	0	10,000	60,400	309,000
2014	187,100	92,600	28,800	17,300	0	10,000	61,200	308,200
2015	187,100	92,600	28,800	17,300	0	10,000	61,200	308,200
2016	187,100	92,600	28,800	17,300	0	10,000	61,200	308,200
2017	187,100	92,600	28,800	17,300	0	10,000	61,200	308,200
2018	187,100	92,600	28,800	17,300	0	10,000	61,200	308,200
2019	187,100	92,600	28,800	17,300	0	10,000	61,200	308,200
2020 (f)	187,100	92,600	28,800	17,300	0	10,000	61,200	308,200

FROM EACH AQUEDUCT REACH TO EACH CONTRACTOR^(a)

(in acre-feet)^(b)

Sheet 6 of 6

Calendar Year	CALIFORNIA AQUEDUCT (continued)										Total California Aqueduct
	WEST BRANCH, CALIFORNIA AQUEDUCT				COASTAL BRANCH, CALIFORNIA AQUEDUCT						
	Reach 29 F	Reach 30			Reach 31 A		Reach 33 A	Reach 34	Reach 35		
		AVEKWA	MWD-SC	VCFCD	CLWA	KCWA (Ag.)	DDWD	SLOC FC&WCD	SLOC FC&WCD	SLOC FC&WCD	
(68)	(69)	(70)	(71)	(72)	(73)	(74)	(75)	(76)	(77)	(78)	
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	71,657	7,382	0	0	0	0	192,188
1969	0	0	0	0	52,094	9,970	0	0	0	0	195,705
1970	0	0	0	0	71,910	11,739	0	0	0	0	276,211
1971	0	0	0	0	98,481	12,490	0	0	0	0	553,081
1972	53	71,938	0	0	107,850	13,905	0	0	0	0	895,006
1973	20	155,297	0	0	69,227	9,418	0	0	0	0	638,930
1974	34	209,136	0	0	68,474	9,700	0	0	0	0	783,982
1975	26	374,280	0	0	74,516	10,700	0	0	0	0	1,129,728
1976	24	420,684	0	0	78,358	11,700	0	0	0	0	1,245,662
1977	0	122,447	0	0	82,408	7,161	0	0	0	0	788,257
1978	0	306,342	0	0	108,087	20,000	0	0	0	0	1,987,644
1979	25	466,202	0	6,500	90,700	13,020	0	0	0	0	1,967,903
1980	25	417,184	1,000	7,000	95,800	12,700	0	0	0	0	2,030,899
1981	25	550,705	2,000	8,200	101,400	12,700	0	0	0	0	2,226,745
1982	25	574,226	3,000	9,400	106,400	12,700	0	0	0	0	2,406,881
1983	225	382,600	4,000	10,600	112,200	12,700	0	0	0	0	2,197,555
1984	275	409,200	5,000	11,800	117,400	12,700	0	0	0	0	2,303,070
1985	325	382,300	6,000	13,000	117,400	12,700	0	0	0	0	2,361,680
1986	375	422,300	8,000	13,600	117,400	12,700	2,228	1,113	2,228	17,740	2,503,589
1987	425	467,300	10,000	14,200	117,400	12,700	2,509	1,255	2,509	19,165	2,631,628
1988	475	602,300	13,000	14,800	117,400	12,700	2,791	1,395	2,791	20,590	2,846,357
1989	525	732,300	16,000	15,400	117,400	12,700	3,072	1,537	3,072	22,015	3,042,896
1990	575	857,300	20,000	16,000	117,400	12,700	3,354	1,677	3,354	23,440	3,243,425
1991	625	894,300	20,000	16,600	117,400	12,700	3,762	1,880	3,762	24,580	3,291,584
1992	625	931,300	20,000	17,200	117,400	12,700	4,169	2,085	4,169	25,720	3,332,343
1993	625	968,300	20,000	17,800	117,400	12,700	4,577	2,288	4,577	26,860	3,373,102
1994	625	1,005,300	20,000	18,400	117,400	12,700	4,984	2,493	4,984	28,000	3,413,861
1995	625	1,042,300	20,000	19,000	117,400	12,700	5,392	2,696	5,392	29,140	3,454,620
1996	625	1,064,300	20,000	19,400	117,400	12,700	5,796	2,899	5,796	30,200	3,480,151
1997	625	1,086,300	20,000	19,800	117,400	12,700	6,201	3,100	6,201	31,260	3,505,682
1998	625	1,108,300	20,000	20,200	117,400	12,700	6,606	3,301	6,606	32,320	3,531,213
1999	625	1,130,300	20,000	20,600	117,400	12,700	7,010	3,504	7,010	33,380	3,556,744
2000	625	1,152,300	20,000	21,000	117,400	12,700	7,414	3,707	7,414	34,440	3,582,275
2001	625	1,174,300	20,000	21,600	117,400	12,700	7,931	3,965	7,931	34,440	3,608,167
2002	625	1,196,300	20,000	22,200	117,400	12,700	8,448	4,223	8,448	34,440	3,634,059
2003	625	1,218,300	20,000	22,800	117,400	12,700	8,965	4,481	8,965	34,440	3,659,951
2004	625	1,240,300	20,000	23,400	117,400	12,700	9,482	4,739	9,482	34,440	3,685,843
2005	625	1,262,300	20,000	24,000	117,400	12,700	10,000	5,000	10,000	34,440	3,711,740
2006	625	1,286,300	20,000	24,400	117,400	12,700	10,000	5,000	10,000	34,440	3,734,140
2007	625	1,310,300	20,000	24,800	117,400	12,700	10,000	5,000	10,000	34,440	3,756,540
2008	625	1,334,300	20,000	25,200	117,400	12,700	10,000	5,000	10,000	34,440	3,778,940
2009	625	1,358,300	20,000	25,600	117,400	12,700	10,000	5,000	10,000	34,440	3,801,340
2010	625	1,382,300	20,000	26,000	117,400	12,700	10,000	5,000	10,000	34,440	3,823,740
2011	625	1,406,300	20,000	26,600	117,400	12,700	10,000	5,000	10,000	34,440	3,848,340
2012	625	1,430,300	20,000	27,200	117,400	12,700	10,000	5,000	10,000	34,440	3,872,940
2013	625	1,454,300	20,000	27,800	117,400	12,700	10,000	5,000	10,000	34,440	3,897,540
2014	625	1,455,000	20,000	28,400	117,400	12,700	10,000	5,000	10,000	34,440	3,898,840
2015	625	1,455,000	20,000	29,000	117,400	12,700	10,000	5,000	10,000	34,440	3,899,440
2016	625	1,455,000	20,000	29,600	117,400	12,700	10,000	5,000	10,000	34,440	3,900,040
2017	625	1,455,000	20,000	30,200	117,400	12,700	10,000	5,000	10,000	34,440	3,900,640
2018	625	1,455,000	20,000	30,800	117,400	12,700	10,000	5,000	10,000	34,440	3,901,240
2019	625	1,455,000	20,000	31,400	117,400	12,700	10,000	5,000	10,000	34,440	3,901,840
2020 (f)	625	1,455,000	20,000	41,500	117,400	12,700	10,000	5,000	10,000	34,440	3,911,940

TABLE B-5B: ANNUAL WATER QUANTITIES

(in acre-feet)^(b)

Sheet 1 of 4

Calendar Year	NORTH BAY AREA			SOUTH BAY AREA ^(d)				CENTRAL COASTAL AREA		
	Napa County ^(c) FC & WCD	Solano County FC & WCD	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)
1960	0	0	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0	0	0
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	19,934	76,220	108,798	0	0	0
1978	8,180	0	8,180	14,000	24,240	99,718	137,958	0	0	0
1979	6,625	0	6,625	23,238	26,120	88,000	137,358	0	0	0
1980	6,790	0	6,790	22,000	24,800	88,000	134,800	0	0	0
1981	6,960	0	6,960	23,000	26,000	88,000	137,000	0	0	0
1982	7,080	0	7,080	24,000	27,200	88,000	139,200	0	0	0
1983	7,185	10,800	17,985	25,000	28,400	88,000	141,400	0	0	0
1984	7,375	12,100	19,475	26,000	29,600	88,000	143,600	0	0	0
1985	8,300	12,870	21,170	27,000	30,800	88,000	145,800	0	0	0
1986	8,600	15,240	23,840	28,000	32,100	88,000	148,100	5,569	17,740	23,309
1987	8,950	18,320	27,270	29,000	33,300	88,000	150,300	6,273	19,165	25,438
1988	9,300	24,900	34,200	30,000	34,500	88,000	152,500	6,977	20,590	27,567
1989	9,750	31,350	41,100	31,000	35,700	90,000	156,700	7,681	22,015	29,696
1990	10,000	37,800	47,800	32,000	36,900	92,000	160,900	8,385	23,440	31,825
1991	10,600	37,800	48,400	34,000	38,400	94,000	166,400	9,404	24,580	33,984
1992	11,200	37,800	49,000	36,000	39,900	96,000	171,900	10,423	25,720	36,143
1993	11,800	37,800	49,600	38,000	41,400	98,000	177,400	11,442	26,860	38,302
1994	12,400	37,800	50,200	40,000	42,000	100,000	182,000	12,461	28,000	40,461
1995	13,000	37,800	50,800	42,000	42,000	100,000	184,000	13,480	29,140	42,620
1996	13,700	37,800	51,500	44,000	42,000	100,000	186,000	14,491	30,200	44,691
1997	14,400	37,800	52,200	46,000	42,000	100,000	188,000	15,502	31,260	46,762
1998	15,100	37,800	52,900	46,000	42,000	100,000	188,000	16,513	32,320	48,833
1999	15,800	37,800	53,600	46,000	42,000	100,000	188,000	17,524	33,380	50,904
2000	16,500	37,800	54,300	46,000	42,000	100,000	188,000	18,535	34,440	52,975
2001	16,700	37,800	54,500	46,000	42,000	100,000	188,000	19,827	34,440	54,267
2002	16,900	37,800	54,700	46,000	42,000	100,000	188,000	21,119	34,440	55,559
2003	17,100	37,800	54,900	46,000	42,000	100,000	188,000	22,411	34,440	56,851
2004	17,300	37,800	55,100	46,000	42,000	100,000	188,000	23,703	34,440	58,143
2005	17,500	37,800	55,300	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2006	17,840	37,800	55,640	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2007	18,180	37,800	55,980	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2008	18,520	37,800	56,320	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2009	18,860	37,800	56,660	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2010	19,200	37,800	57,000	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2011	19,560	37,800	57,360	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2012	19,920	37,800	57,720	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2013	20,280	37,800	58,080	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2014	20,640	37,800	58,440	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2015	21,000	37,800	58,800	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2016	21,400	37,800	59,200	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2017	21,800	37,800	59,600	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2018	22,200	37,800	60,000	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2019	22,600	37,800	60,400	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2020	25,000	37,800	62,800	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2021	25,000	37,800	62,800	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2022	25,000	37,800	62,800	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2023	25,000	37,800	62,800	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2024	25,000	37,800	62,800	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2025	25,000	37,800	62,800	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2026	25,000	37,800	62,800	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2027	25,000	37,800	62,800	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2028	25,000	37,800	62,800	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2029	25,000	37,800	62,800	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2030	25,000	37,800	62,800	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2031	25,000	37,800	62,800	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2032	25,000	37,800	62,800	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2033	25,000	37,800	62,800	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2034	25,000	37,800	62,800	46,000	42,000	100,000	188,000	25,000	34,440	59,440
2035	25,000	37,800	62,800	46,000	42,000	100,000	188,000	25,000	34,440	59,440
TOTAL	1,051,632	1,864,380	2,916,012	2,455,237	2,460,084	6,567,725	11,483,046	1,036,720	1,604,250	2,640,970

a) Includes surplus water delivered prior to May 1, 1973, nonproject water and exchange water.

b) Metric conversion is acre-feet times 1233.5 equals cubic metre.

c) For the period 1968 through 1982, annual quantities delivered are non-project water pumped through an interim facility.

d) For the period June 1962 through November 1967, deliveries were supplied by nonproject water.

DELIVERED TO EACH CONTRACTOR^(a)

(in acre-feet)^(b)

Calendar Year	SAN JOAQUIN VALLEY AREA								
	Devil's Den Water District	Dudley Ridge Water District	Empire West Side Irrigation District	Hacienda Water District	Kern County Water Agency	County of Kings	Oak Flat Water District	Tulare Lake Basin Water Storage District	Total
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1960	0	0	0	0	0	0	0	0	0
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	7,382	26,360	1,978	0	127,384	900	3,084	25,100	192,188
1969	9,970	31,375	56	2,842	141,265	100	3,016	7,081	195,705
1970	11,739	40,407	3,942	9,578	204,634	0	5,911	0	276,211
1971	12,490	41,053	5,990	6,659	360,151	3,700	7,212	115,826	553,081
1972	13,905	42,443	5,795	5,851	490,781	1,400	8,166	252,542	820,883
1973	9,418	22,057	3,000	2,900	341,469	1,500	3,214	47,564	431,122
1974	9,700	33,390	3,000	3,300	347,000	1,500	3,471	68,989	470,350
1975	10,700	40,555	3,000	3,758	410,820	1,600	3,576	82,500	556,509
1976	11,700	41,421	3,000	3,900	439,250	1,600	4,112	54,911	559,894
1977	11,911	28,718	2,355	3,836	432,837	1,530	3,370	44,522	529,079
1978	20,000	51,747	4,262	7,120	829,493	2,070	6,055	99,995	1,020,742
1979	13,020	34,600	4,000	4,900	583,900	2,000	4,000	62,600	709,020
1980	12,700	36,700	3,000	5,200	634,500	2,200	4,200	66,500	765,000
1981	12,700	38,800	3,000	5,600	691,400	2,300	4,300	70,400	828,500
1982	12,700	41,000	3,000	5,900	745,300	2,500	4,500	74,300	889,200
1983	12,700	42,900	3,000	6,200	805,100	2,800	4,600	78,200	955,500
1984	12,700	45,100	3,000	6,500	860,600	3,100	4,800	82,100	1,017,900
1985	12,700	47,200	3,000	6,900	915,000	3,400	4,900	86,000	1,079,100
1986	12,700	49,300	3,000	7,200	968,200	3,700	5,100	90,000	1,139,200
1987	12,700	51,400	3,000	7,500	1,023,500	4,000	5,200	93,900	1,201,200
1988	12,700	53,500	3,000	7,800	1,074,600	4,000	5,400	97,800	1,258,800
1989	12,700	55,600	3,000	8,200	1,112,300	4,000	5,600	101,700	1,303,100
1990	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
1991	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
1992	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
1993	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
1994	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
1995	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
1996	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
1997	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
1998	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
1999	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2000	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2001	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2002	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2003	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2004	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2005	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2006	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2007	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2008	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2009	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2010	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2011	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2012	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2013	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2014	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2015	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2016	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2017	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2018	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2019	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2020	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2021	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2022	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2023	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2024	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2025	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2026	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2027	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2028	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2029	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2030	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2031	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2032	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2033	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2034	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
2035	12,700	57,700	3,000	8,500	1,153,400	4,000	5,700	110,000	1,355,000
TOTAL	853,135	3,549,826	208,378	512,644	66,595,884	233,900	365,987	6,762,530	79,082,284

TABLE B-5B: ANNUAL WATER QUANTITIES

(in acre-feet)^(b)

Sheet 3 of 4

Calendar Year	SOUTHERN CALIFORNIA AREA									
	Antelope Valley-East Kern Water Agency	Castaic Lake Water Agency	Coachella Valley County 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)
1960	0	0	0	0	0	0	0	0	0	0
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	53	0	0	464	0	338	55	0	1,275	0
1973	20	0	5,800	389	9,000	290	0	0	32,426	0
1974	1,259	0	6,400	627	10,000	400	14	0	16,605	612
1975	8,068	0	7,000	825	11,000	520	0	0	13,865	5,450
1976	27,782	0	7,600	1,002	12,000	589	0	0	12,273	6,071
1977	34,324	0	0	1,109	0	111	80	0	24,833	8,990
1978	99,372	0	9,242	1,800	14,000	250	2,538	0	24,000	15,700
1979	63,000	6,500	10,905	2,351	16,300	1,478	14,900	0	67,010	17,600
1980	69,200	7,000	10,884	2,565	17,000	1,150	17,200	0	65,500	17,400
1981	75,000	8,200	12,105	2,970	19,000	1,270	29,600	100	68,500	18,300
1982	81,300	9,400	13,326	3,475	21,000	1,380	31,900	300	71,500	19,100
1983	87,700	10,600	14,547	3,755	23,000	1,500	34,300	600	74,500	19,900
1984	94,000	11,800	15,768	4,060	25,000	1,610	36,700	1,000	78,000	20,700
1985	100,400	13,000	16,989	4,350	27,000	1,730	39,000	3,000	81,500	21,800
1986	106,700	13,600	18,210	4,640	29,000	1,840	41,400	3,800	85,000	23,200
1987	113,000	14,200	19,431	4,930	31,500	1,960	43,700	4,600	89,000	24,600
1988	119,400	14,800	20,652	5,220	34,000	2,070	46,000	5,400	93,000	26,000
1989	125,700	15,400	21,873	5,510	36,500	2,190	48,500	6,200	97,000	27,400
1990	132,100	16,000	23,100	5,800	38,100	2,300	50,800	7,000	101,500	28,800
1991	138,400	16,600	23,100	5,800	38,100	2,300	50,800	8,000	102,600	28,800
1992	138,400	17,200	23,100	5,800	38,100	2,300	50,800	9,000	102,600	28,800
1993	138,400	17,800	23,100	5,800	38,100	2,300	50,800	10,000	102,600	28,800
1994	138,400	18,400	23,100	5,800	38,100	2,300	50,800	11,000	102,600	28,800
1995	138,400	19,000	23,100	5,800	38,100	2,300	50,800	12,000	102,600	28,800
1996	138,400	19,400	23,100	5,800	38,100	2,300	50,800	13,060	102,600	28,800
1997	138,400	19,800	23,100	5,800	38,100	2,300	50,800	14,120	102,600	28,800
1998	138,400	20,200	23,100	5,800	38,100	2,300	50,800	15,180	102,600	28,800
1999	138,400	20,600	23,100	5,800	38,100	2,300	50,800	16,240	102,600	28,800
2000	138,400	21,000	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2001	138,400	21,600	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2002	138,400	22,200	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2003	138,400	22,800	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2004	138,400	23,400	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2005	138,400	24,000	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2006	138,400	24,400	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2007	138,400	24,800	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2008	138,400	25,200	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2009	138,400	25,600	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2010	138,400	26,000	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2011	138,400	26,600	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2012	138,400	27,200	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2013	138,400	27,800	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2014	138,400	28,400	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2015	138,400	29,000	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2016	138,400	29,600	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2017	138,400	30,200	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2018	138,400	30,800	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2019	138,400	31,400	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2020	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2021	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2022	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2023	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2024	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2025	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2026	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2027	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2028	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2029	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2030	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2031	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2032	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2033	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2034	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
2035	138,400	41,500	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
TOTAL	7,566,378	1,495,500	1,273,332	316,842	2,087,900	126,476	2,722,687	763,400	5,714,287	1,597,629

DELIVERED TO EACH CONTRACTOR^(a)

(in acre-feet)^(b)

Sheet 4 of 4

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA				TOTAL STATE WATER PROJECT
	San Geronio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC & WCD	Total	
	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)
1960	0	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	294,457
1969	0	0	0	0	0	0	0	0	268,104
1970	0	0	0	0	0	0	70	70	369,459
1971	0	0	0	0	0	192	64	256	654,442
1972	0	71,938	0	74,123	0	186	505	691	1,037,770
1973	0	159,883	0	207,808	0	53	679	732	737,532
1974	0	277,715	0	313,632	0	127	648	775	878,945
1975	0	526,491	0	573,219	0	253	405	658	1,230,830
1976	0	618,451	0	685,768	0	900	382	1,282	1,380,497
1977	0	189,755	0	259,208	0	706	303	1,009	906,320
1978	0	800,000	0	966,902	0	2,200	650	2,850	2,136,632
1979	0	1,058,839	0	1,258,883	0	2,600	680	3,280	2,115,166
1980	0	1,057,000	1,000	1,265,899	0	4,000	710	4,710	2,177,199
1981	3,900	1,157,300	2,000	1,398,245	4,200	5,450	740	10,390	2,381,095
1982	4,400	1,257,600	3,000	1,517,681	4,600	6,900	770	12,270	2,565,431
1983	4,900	962,753	4,000	1,242,055	5,050	8,350	800	14,200	2,371,140
1984	5,400	986,132	5,000	1,285,170	5,500	9,800	830	16,130	2,482,275
1985	11,800	956,011	6,000	1,282,580	5,950	12,250	860	19,060	2,547,710
1986	12,900	992,790	8,000	1,341,080	6,600	14,700	890	22,190	2,697,719
1987	14,000	1,034,069	10,000	1,404,990	7,300	17,150	920	25,370	2,834,568
1988	15,100	1,165,348	13,000	1,559,990	8,000	20,600	960	29,560	3,062,617
1989	16,200	1,291,627	16,000	1,710,100	8,800	24,050	1,000	33,850	3,274,546
1990	17,300	1,413,800	20,000	1,856,600	9,600	27,500	1,040	38,140	3,490,265
1991	17,300	1,450,800	20,000	1,902,600	9,600	27,500	1,080	38,180	3,544,564
1992	17,300	1,487,800	20,000	1,941,200	9,600	27,500	1,120	38,220	3,591,463
1993	17,300	1,524,800	20,000	1,979,800	9,600	27,500	1,160	38,260	3,638,362
1994	17,300	1,561,800	20,000	2,018,400	9,600	27,500	1,200	38,300	3,684,361
1995	17,300	1,598,800	20,000	2,057,000	9,600	27,500	1,250	38,350	3,727,770
1996	17,300	1,620,800	20,000	2,080,460	9,600	27,500	1,300	38,400	3,756,051
1997	17,300	1,642,800	20,000	2,103,920	9,600	27,500	1,350	38,450	3,784,332
1998	17,300	1,664,800	20,000	2,127,380	9,600	27,500	1,400	38,500	3,810,613
1999	17,300	1,686,800	20,000	2,150,840	9,600	27,500	1,450	38,550	3,836,894
2000	17,300	1,708,800	20,000	2,174,300	9,600	27,500	1,510	38,610	3,863,185
2001	17,300	1,732,800	20,000	2,198,900	9,600	27,500	1,570	38,670	3,889,337
2002	17,300	1,756,800	20,000	2,223,500	9,600	27,500	1,630	38,730	3,915,489
2003	17,300	1,780,800	20,000	2,248,100	9,600	27,500	1,690	38,790	3,941,641
2004	17,300	1,804,800	20,000	2,272,700	9,600	27,500	1,750	38,850	3,967,793
2005	17,300	1,828,800	20,000	2,297,300	9,600	27,500	1,810	38,910	3,993,950
2006	17,300	1,850,800	20,000	2,319,700	9,600	27,500	1,880	38,980	4,016,760
2007	17,300	1,872,800	20,000	2,342,100	9,600	27,500	1,950	39,050	4,039,570
2008	17,300	1,894,800	20,000	2,364,500	9,600	27,500	2,020	39,120	4,062,380
2009	17,300	1,916,800	20,000	2,386,900	9,600	27,500	2,090	39,190	4,085,190
2010	17,300	1,938,800	20,000	2,409,300	9,600	27,500	2,160	39,260	4,108,000
2011	17,300	1,962,800	20,000	2,433,900	9,600	27,500	2,240	39,340	4,133,040
2012	17,300	1,986,800	20,000	2,458,500	9,600	27,500	2,320	39,420	4,158,080
2013	17,300	2,010,800	20,000	2,483,100	9,600	27,500	2,410	39,510	4,183,130
2014	17,300	2,011,500	20,000	2,484,400	9,600	27,500	2,500	39,600	4,184,880
2015	17,300	2,011,500	20,000	2,485,000	9,600	27,500	2,600	39,700	4,185,940
2016	17,300	2,011,500	20,000	2,485,600	9,600	27,500	2,700	39,800	4,187,040
2017	17,300	2,011,500	20,000	2,486,200	9,600	27,500	2,700	39,800	4,188,040
2018	17,300	2,011,500	20,000	2,486,800	9,600	27,500	2,700	39,800	4,189,040
2019	17,300	2,011,500	20,000	2,487,400	9,600	27,500	2,700	39,800	4,190,040
2020	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,202,540
2021	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,202,540
2022	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,202,540
2023	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,202,540
2024	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,202,540
2025	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,202,540
2026	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,202,540
2027	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,202,540
2028	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,202,540
2029	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,202,540
2030	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,202,540
2031	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,202,540
2032	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,202,540
2033	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,202,540
2034	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,202,540
2035	17,300	2,011,500	20,000	2,497,500	9,600	27,500	2,700	39,800	4,202,540
TOTAL	884,400	100,516,902	988,000	126,053,733	497,600	1,395,467	111,346	2,004,413	224,180,458

TABLE B-6: ANNUAL WATER QUANTITIES CONVEYED THRU EACH PUMPING

(in acre-feet) ^(b)

Sheet 1 of 8

Calendar Year	NORTH BAY AQUEDUCT							SOUTH BAY AQUEDUCT					
	CALHOUN AND TRAVIS PUMPING PLANTS			CORDELIA PUMPING PLANT				SOUTH BAY PUMPING PLANT					
	Operational Losses	Water Supply Delivery	Total	Initial Fill Water	Operational Losses	Water Supply Delivery (a)	Total	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries		Total
											Water Supply	Recreation	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
1962	0	0	0	0	0	0	0	9	272	0	8,906	0	9,187
1963	0	0	0	0	0	0	0	71	185	0	12,645	0	12,901
1964	0	0	0	0	0	0	0	171	152	0	20,911	0	21,234
1965	0	0	0	0	0	0	0	93	729	0	34,026	0	34,848
1966	0	0	0	0	0	0	0	0	1,746	0	54,913	0	56,659
1967	0	0	0	0	0	0	0	0	1,677	0	56,763	0	58,440
1968	0	0	0	24	-10	1,214	1,228	0	1,847	0	101,055	0	102,902
1969	0	0	0	0	2	2,687	2,689	3,449	2,668	0	69,712	0	75,829
1970	0	0	0	0	18	3,618	3,636	16,279	1,086	-5,355	89,560	0	101,570
1971	0	0	0	0	4	2,521	2,525	0	1,815	8,854	98,584	0	109,253
1972	0	0	0	0	-10	3,647	3,637	0	3,557	2,273	138,426	0	144,256
1973	0	0	0	0	1	3,792	3,793	0	-33	-1,510	94,078	0	92,535
1974	0	0	0	0	10	4,870	4,880	0	1,287	-10,056	89,318	0	80,549
1975	0	0	0	0	10	6,840	6,850	0	320	8,550	93,604	0	102,474
1976	0	0	0	0	4	7,122	7,126	0	2,572	1,391	126,431	0	130,394
1977	0	0	0	0	2	8,226	8,228	0	2,866	2,685	108,798	112	114,461
1978	0	0	0	0	0	8,180	8,180	0	3,719	0	137,958	215	141,892
1979	0	0	0	0	0	6,625	6,625	0	3,715	0	137,358	260	141,333
1980	0	0	0	0	0	6,790	6,790	0	3,715	0	134,800	280	138,795
1981	0	0	0	0	0	6,960	6,960	0	3,715	0	137,000	290	141,005
1982	0	0	0	0	0	7,080	7,080	0	3,715	0	139,200	300	143,215
1983	350	17,985	18,335	0	0	7,185	7,185	0	3,715	0	141,400	320	145,435
1984	350	19,475	19,825	0	0	7,375	7,375	0	3,715	0	143,600	330	147,645
1985	350	21,170	21,520	0	0	8,300	8,300	0	3,692	0	145,800	350	149,842
1986	350	23,840	24,190	0	0	8,600	8,600	0	3,669	0	148,100	360	152,129
1987	350	27,270	27,620	0	0	8,950	8,950	0	3,643	0	150,300	380	154,323
1988	350	34,200	34,550	0	0	9,300	9,300	0	3,603	0	152,500	400	156,503
1989	350	41,100	41,450	0	0	9,750	9,750	0	3,580	0	156,700	400	160,680
1990	350	47,800	48,150	0	0	10,000	10,000	0	3,589	0	160,900	400	164,889
1991	350	48,400	48,750	0	0	10,600	10,600	0	3,538	0	166,400	400	170,338
1992	350	49,000	49,350	0	0	11,200	11,200	0	3,502	0	171,900	400	175,802
1993	350	49,600	49,950	0	0	11,800	11,800	0	3,461	0	177,400	400	181,261
1994	350	50,200	50,550	0	0	12,400	12,400	0	3,416	0	182,000	400	185,816
1995	350	50,800	51,150	0	0	13,000	13,000	0	3,588	0	184,000	400	187,988
1996	350	51,500	51,850	0	0	13,700	13,700	0	3,574	0	186,000	400	189,974
1997	350	52,200	52,550	0	0	14,400	14,400	0	3,562	0	188,000	400	191,962
1998	350	52,900	53,250	0	0	15,100	15,100	0	3,562	0	188,000	400	191,962
1999	350	53,600	53,950	0	0	15,800	15,800	0	3,562	0	188,000	400	191,962
2000	350	54,300	54,650	0	0	16,500	16,500	0	3,562	0	188,000	400	191,962
2001	350	54,500	54,850	0	0	16,700	16,700	0	3,549	0	188,000	400	191,949
2002	350	54,700	55,050	0	0	16,900	16,900	0	3,549	0	188,000	400	191,949
2003	350	54,900	55,250	0	0	17,100	17,100	0	3,549	0	188,000	400	191,949
2004	350	55,100	55,450	0	0	17,300	17,300	0	3,549	0	188,000	400	191,949
2005	350	55,300	55,650	0	0	17,500	17,500	0	3,549	0	188,000	400	191,949
2006	350	55,640	55,990	0	0	17,840	17,840	0	3,549	0	188,000	400	191,949
2007	350	55,980	56,330	0	0	18,180	18,180	0	3,549	0	188,000	400	191,949
2008	350	56,320	56,670	0	0	18,520	18,520	0	3,549	0	188,000	400	191,949
2009	350	56,660	57,010	0	0	18,860	18,860	0	3,549	0	188,000	400	191,949
2010	350	57,000	57,350	0	0	19,200	19,200	0	3,549	0	188,000	400	191,949
2011	350	57,360	57,710	0	0	19,560	19,560	0	3,549	0	188,000	400	191,949
2012	350	57,720	58,070	0	0	19,920	19,920	0	3,549	0	188,000	400	191,949
2013	350	58,080	58,430	0	0	20,280	20,280	0	3,549	0	188,000	400	191,949
2014	350	58,440	58,790	0	0	20,640	20,640	0	3,549	0	188,000	400	191,949
2015	350	58,800	59,150	0	0	21,000	21,000	0	3,549	0	188,000	400	191,949
2016	350	59,200	59,550	0	0	21,400	21,400	0	3,549	0	188,000	400	191,949
2017	350	59,600	59,950	0	0	21,800	21,800	0	3,549	0	188,000	400	191,949
2018	350	60,000	60,350	0	0	22,200	22,200	0	3,549	0	188,000	400	191,949
2019	350	60,400	60,750	0	0	22,600	22,600	0	3,549	0	188,000	400	191,949
2020(e)	350	62,800	63,150	0	0	25,000	25,000	0	3,549	0	188,000	400	191,949

Note: "Reservoir Storage Changes" include projected net annual storage accretions (positive values) and withdrawals (negative values) for all down-aqueduct reservoirs of the project transportation facilities. Those variable OMP&R costs (Table B-12) that are allocable to storage accretions are assigned to the minimum OMP&R costs of the respective reservoirs. "Water Supply Delivery" or "Deliveries, Water Supply", include 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 if the deliveries were actually conveyed, that year, from the Delta. The hypothetical increases in the amounts conveyed are compensated for by proportionate hypothetical increases in the actual variable OMP&R costs (Table B-3) of the up-aqueduct plants. The hypothetical increases in variable OMP&R costs for 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. "Conservation Water" includes the initial fill water, operational losses, and net annual storage changes associated with San Luis Reservoir (and the portion of the aqueduct that is allocated to conservation). The same allocation procedure outlined above for transportation facilities applies also to conservation facilities -- except that the hypothetical cost increases are added to the variable OMP&R costs to be reimbursed through the Transportation Charge, and deducted from the minimum OMP&R costs to be reimbursed through the Delta Water Charge.

- a) Includes surplus water prior to May 1, 1973 and actual water delivered to contractors under the 1976 and 1977 exchange program.
- b) Metric conversion is acre-feet times 1233.5 equals cubic metre.
- c) For the period 1968 through 1982, deliveries are from nonproject water pumped through an interim facility.
- d) For the period June 1962 through November 1967, deliveries were nonproject water.
- e) And each year thereafter for the remainder of the project repayment period.

AND POWER RECOVERY PLANT OF PROJECT TRANSPORTATION FACILITIES^(a)

(in acre-feet)^(b)

Sheet 2 of 8

Calendar Year	CALIFORNIA AQUEDUCT														
	NORTH SAN JOAQUIN DIVISION								SAN LUIS DIVISION						
	DELTA PUMPING PLANT								DOS AMIGOS PUMPING PLANT						
	Transportation Water								Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries			Total
	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Water Supply	Recreation	Total	Conservation Water	Total				Water Supply	Recreation	Total	
	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	
1967	5,746	1,183	0	11,538	0	18,467	2,957	21,424	0	0	0	0	0	0	
1968	11,079	74,464	0	293,243	0	378,786	531,275	910,061	11,079	25,126	0	189,104	0	225,309	
1969	7,336	44,287	0	265,417	0	317,040	531,185	848,225	3,887	9,922	0	192,689	0	206,498	
1970	23,947	20,767	-5,355	365,771	0	405,130	-12,995	392,135	7,668	1,901	0	270,300	0	279,869	
1971	23,207	-10,754	8,854	651,665	8	672,980	7,708	680,688	23,207	-12,030	0	545,869	0	557,046	
1972	145,066	9,057	-4,285	1,033,432	6,489	1,189,759	48,300	1,238,059	145,066	-6,635	-6,558	886,840	6,481	1,025,194	
1973	214,941	-4,951	2,902	733,080	1,083	947,055	55,846	1,002,901	214,941	-6,778	1,329	635,788	1,075	846,355	
1974	256,960	-11,524	-41,576	873,300	2,118	1,079,278	54,683	1,133,961	256,960	-16,763	-24,361	780,511	2,108	998,455	
1975	110,149	-8,092	16,101	1,223,332	3,377	1,344,867	-102,625	1,242,242	110,149	-12,144	-693	1,126,152	3,358	1,226,822	
1976	67,686	5,732	-244,124	1,353,233	1,604	1,184,131	-442,348	741,783	67,686	-308	-152,171	1,223,039	1,581	1,139,827	
1977	0	39,897	-157,543	897,085	1,111	780,550	-13,507	767,043	0	26,359	-116,219	784,917	737	695,794	
1978	16,234	68,950	304,680	2,125,602	2,825	2,518,291	171,041	2,689,332	16,234	57,477	304,680	1,981,589	1,989	2,361,969	
1979	0	70,990	-78,762	2,105,261	3,213	2,100,702	120,426	2,221,128	0	59,521	-78,762	1,963,903	2,220	1,946,882	
1980	0	69,838	45,304	2,165,699	4,918	2,285,759	-84,203	2,201,556	0	58,369	45,304	2,026,699	3,905	2,134,277	
1981	0	69,193	-18,924	2,363,745	9,528	2,423,542	209,057	2,632,599	0	57,724	-18,924	2,222,445	7,955	2,269,200	
1982	0	70,373	35,488	2,546,081	11,627	2,663,569	2,101	2,665,670	0	58,904	35,488	2,402,381	9,480	2,506,253	
1983	0	69,846	-7,552	2,338,955	12,727	2,413,976	-93,972	2,320,004	0	58,377	-7,552	2,192,955	10,560	2,254,340	
1984	0	70,685	-41,822	2,446,670	13,027	2,488,560	131,760	2,620,320	0	59,216	-41,822	2,298,270	10,850	2,326,514	
1985	0	71,305	11,602	2,507,480	23,900	2,614,287	29,157	2,643,444	0	59,859	11,602	2,356,780	19,650	2,447,891	
1986	0	71,915	2,062	2,651,689	24,010	2,749,676	-121,408	2,628,268	0	60,492	2,062	2,498,489	19,650	2,580,693	
1987	0	71,711	2,183	2,781,928	24,130	2,879,952	-61,436	2,818,516	0	60,314	2,183	2,626,428	19,650	2,708,575	
1988	0	71,618	-33,263	2,998,857	24,250	3,061,462	419,578	3,481,040	0	60,261	-33,263	2,840,957	19,650	2,887,605	
1989	0	71,335	-25,246	3,199,596	24,350	3,270,035	20,678	3,290,713	0	60,001	-25,246	3,037,296	19,650	3,091,701	
1990	0	71,449	24,735	3,404,325	24,500	3,525,009	-106,196	3,418,813	0	60,106	24,735	3,237,725	19,650	3,342,216	
1991	0	71,398	-13,257	3,457,984	24,500	3,540,625	140,074	3,680,699	0	60,106	-13,257	3,285,884	19,650	3,352,383	
1992	0	70,949	-18,086	3,504,243	24,500	3,581,606	29,090	3,610,696	0	59,693	-18,086	3,326,643	19,650	3,387,900	
1993	0	70,996	14,841	3,550,502	24,500	3,660,839	-127,604	3,533,235	0	59,781	14,841	3,367,402	19,650	3,461,674	
1994	0	71,042	-10,148	3,595,861	24,500	3,681,255	194,232	3,875,487	0	59,872	-10,148	3,408,161	19,650	3,477,535	
1995	0	71,281	8,991	3,638,620	24,500	3,743,392	59,619	3,803,011	0	59,939	8,991	3,448,920	19,650	3,537,500	
1996	0	71,263	-14,323	3,666,151	24,500	3,747,591	-21,384	3,726,207	0	59,935	-14,323	3,474,451	19,650	3,539,713	
1997	0	71,231	21,178	3,693,682	24,500	3,810,591	-198,317	3,612,274	0	59,915	21,178	3,499,982	19,650	3,600,725	
1998	0	71,240	19,311	3,719,213	24,500	3,834,264	-21,588	3,812,676	0	59,924	19,311	3,525,513	19,650	3,624,398	
1999	0	71,101	-23,415	3,744,744	24,500	3,816,930	228,896	4,045,826	0	59,785	-23,415	3,551,044	19,650	3,607,064	
2000	0	71,143	-3,480	3,770,275	24,500	3,862,438	60,664	3,923,102	0	59,827	-3,480	3,576,575	19,650	3,652,572	
2001	0	71,161	-23,573	3,796,167	24,500	3,868,255	54,639	3,922,894	0	59,858	-23,573	3,602,467	19,650	3,658,402	
2002	0	70,793	1,421	3,822,059	24,500	3,918,773	31,731	3,950,504	0	59,490	1,421	3,628,359	19,650	3,708,210	
2003	0	71,048	11,571	3,847,951	24,500	3,955,070	-21,070	3,934,000	0	59,745	11,571	3,654,251	19,650	3,745,927	
2004	0	70,920	-7,354	3,873,843	24,500	3,961,909	78,974	4,040,883	0	59,617	-7,354	3,680,143	19,650	3,752,056	
2005	0	70,816	809	3,899,740	24,500	3,995,865	-26,646	3,969,219	0	59,513	809	3,706,040	19,650	3,786,012	
2006	0	71,134	7,690	3,922,140	24,500	4,025,464	44,659	4,070,123	0	59,831	7,690	3,728,440	19,650	3,815,611	
2007	0	70,976	-24,450	3,944,540	24,500	4,015,566	37,579	4,053,145	0	59,673	-24,450	3,750,840	19,650	3,805,713	
2008	0	70,866	12,390	3,966,940	24,500	4,074,696	33,590	4,108,286	0	59,563	12,390	3,773,240	19,650	3,864,843	
2009	0	70,925	11,832	3,989,340	24,500	4,096,597	-51,457	4,045,140	0	59,622	11,832	3,795,640	19,650	3,886,744	
2010	0	70,922	-6,555	4,011,740	24,500	4,100,607	37,171	4,137,778	0	59,619	-6,555	3,818,040	19,650	3,890,754	
2011	0	70,806	-3,871	4,036,340	24,500	4,127,775	40,941	4,168,716	0	59,503	-3,871	3,842,640	19,650	3,917,922	
2012	0	70,709	-7,816	4,060,940	24,500	4,148,333	44,902	4,193,235	0	59,406	-7,816	3,867,240	19,650	3,938,480	
2013	0	70,794	8,290	4,085,540	24,500	4,189,124	102,519	4,291,643	0	59,491	8,290	3,891,840	19,650	3,979,271	
2014	0	70,699	-4,224	4,086,840	24,500	4,177,815	11,833	4,189,648	0	59,396	-4,224	3,893,140	19,650	3,967,962	
2015	0	70,731	4,172	4,087,440	24,500	4,186,843	14,258	4,201,101	0	59,428	4,172	3,893,740	19,650	3,976,990	
2016	0	70,836	-4,448	4,088,040	24,500	4,178,928	49,319	4,228,247	0	59,533	-4,448	3,894,340	19,650	3,969,075	
2017	0	70,759	6,812	4,088,640	24,500	4,190,711	-57,044	4,133,667	0	59,456	6,812	3,894,940	19,650	3,980,858	
2018	0	70,698	-9,048	4,089,240	24,500	4,175,390	180,843	4,356,233	0	59,395	-9,048	3,895,540	19,650	3,965,537	
2019	0	70,700	-2,205	4,089,840	24,500	4,182,835	-69,307	4,113,528	0	59,397	-2,205	3,896,140	19,650	3,972,982	
2020 ^(e)	0	70,745	0	4,099,940	24,500	4,195,185	36,505	4,231,690	0	59,442	0	3,906,240	19,650	3,985,332	

TABLE B-6: ANNUAL WATER QUANTITIES CONVEYED THRU EACH PUMPING

(in acre-feet)^(b)

Sheet 3 of 8

CALIFORNIA AQUEDUCT (Continued)												
SOUTH SAN JOAQUIN DIVISION												
Calendar Year	BUENA VISTA PUMPING PLANT						WHEELER RIDGE PUMPING PLANT					
	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries		Total	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries		Total
				Water Supply	Recreation					Water Supply	Recreation	
	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)
1970	4,779	1,012	0	3	0	5,794	198	2	0	0	0	200
1971	7,853	8,399	0	101,512	0	117,764	7,533	-112	0	3,552	0	10,973
1972	100,274	20,044	-6,558	223,626	6,481	343,867	100,274	12,765	-6,558	84,955	6,481	197,917
1973	204,638	35,695	1,329	311,168	1,075	553,905	204,638	21,543	1,329	229,757	1,075	458,342
1974	246,620	19,674	-24,361	388,947	2,108	632,988	246,620	11,845	-24,361	336,196	2,108	572,408
1975	103,352	26,342	-693	672,531	3,358	804,890	103,352	19,763	-693	621,706	3,358	747,486
1976	61,122	29,428	-152,171	781,688	1,581	721,648	61,122	18,552	-152,171	738,940	1,581	668,024
1977	0	25,173	-116,219	343,342	560	252,856	0	16,415	-116,219	279,115	560	179,871
1978	16,234	47,927	304,680	1,130,630	1,989	1,501,460	16,234	44,977	304,680	1,017,507	1,989	1,385,387
1979	0	49,971	-78,762	1,384,383	2,220	1,357,812	0	47,021	-78,762	1,295,683	2,220	1,266,162
1980	0	48,819	45,304	1,405,799	3,905	1,503,827	0	45,869	45,304	1,309,699	3,905	1,404,777
1981	0	48,174	-18,924	1,554,645	7,155	1,591,050	0	45,224	-18,924	1,449,345	7,155	1,482,800
1982	0	49,354	35,488	1,689,581	7,880	1,782,303	0	46,404	35,488	1,573,981	7,880	1,663,753
1983	0	48,827	-7,552	1,433,255	8,960	1,483,490	0	45,877	-7,552	1,305,055	8,960	1,352,340
1984	0	49,666	-41,822	1,492,970	9,180	1,509,994	0	46,716	-41,822	1,354,170	9,180	1,368,244
1985	0	50,309	11,602	1,507,780	17,980	1,587,671	0	47,359	11,602	1,359,880	17,980	1,436,821
1986	0	50,392	2,062	1,584,480	17,980	1,654,914	0	47,442	2,062	1,428,380	17,980	1,495,864
1987	0	50,214	2,183	1,667,790	17,980	1,738,167	0	47,264	2,183	1,503,490	17,980	1,570,917
1988	0	50,161	-33,263	1,840,590	17,980	1,875,468	0	47,211	-33,263	1,670,090	17,980	1,702,018
1989	0	49,901	-25,246	2,003,000	17,980	2,045,635	0	46,951	-25,246	1,828,400	17,980	1,868,085
1990	0	50,006	24,735	2,162,500	17,980	2,255,221	0	47,056	24,735	1,983,800	17,980	2,073,571
1991	0	50,006	-13,257	2,208,500	17,980	2,263,229	0	47,056	-13,257	2,029,800	17,980	2,081,579
1992	0	49,593	-18,086	2,247,100	17,980	2,296,587	0	46,643	-18,086	2,068,400	17,980	2,114,937
1993	0	49,681	14,841	2,285,700	17,980	2,368,202	0	46,731	14,841	2,107,000	17,980	2,186,552
1994	0	49,772	-10,148	2,324,300	17,980	2,381,904	0	46,822	-10,148	2,145,600	17,980	2,200,254
1995	0	49,839	8,991	2,362,900	17,980	2,439,710	0	46,889	8,991	2,184,200	17,980	2,258,060
1996	0	49,835	-14,323	2,386,360	17,980	2,439,852	0	46,885	-14,323	2,207,660	17,980	2,258,202
1997	0	49,815	21,178	2,409,820	17,980	2,498,793	0	46,865	21,178	2,231,120	17,980	2,317,143
1998	0	49,824	19,311	2,433,280	17,980	2,520,395	0	46,874	19,311	2,254,580	17,980	2,338,745
1999	0	49,685	-23,415	2,456,740	17,980	2,500,990	0	46,735	-23,415	2,278,040	17,980	2,319,340
2000	0	49,727	-3,480	2,480,200	17,980	2,544,427	0	46,777	-3,480	2,301,500	17,980	2,362,777
2001	0	49,758	-23,573	2,504,800	17,980	2,548,965	0	46,808	-23,573	2,326,100	17,980	2,367,315
2002	0	49,390	1,421	2,529,400	17,980	2,598,191	0	46,440	1,421	2,350,700	17,980	2,416,541
2003	0	49,645	11,571	2,554,000	17,980	2,633,196	0	46,695	11,571	2,375,300	17,980	2,451,546
2004	0	49,517	-7,354	2,578,600	17,980	2,638,743	0	46,567	-7,354	2,399,900	17,980	2,457,093
2005	0	49,413	809	2,603,200	17,980	2,671,402	0	46,463	809	2,424,500	17,980	2,489,752
2006	0	49,731	7,690	2,625,600	17,980	2,701,001	0	46,781	7,690	2,446,900	17,980	2,519,351
2007	0	49,573	-24,450	2,648,000	17,980	2,691,103	0	46,623	-24,450	2,469,300	17,980	2,509,453
2008	0	49,463	12,390	2,670,400	17,980	2,750,233	0	46,513	12,390	2,491,700	17,980	2,568,583
2009	0	49,522	11,832	2,692,800	17,980	2,772,134	0	46,572	11,832	2,514,100	17,980	2,590,484
2010	0	49,519	-6,555	2,715,200	17,980	2,776,144	0	46,569	-6,555	2,536,500	17,980	2,594,494
2011	0	49,403	-3,871	2,739,800	17,980	2,803,312	0	46,453	-3,871	2,561,100	17,980	2,621,662
2012	0	49,306	-7,816	2,764,400	17,980	2,823,870	0	46,356	-7,816	2,585,700	17,980	2,642,220
2013	0	49,391	8,290	2,789,000	17,980	2,864,661	0	46,441	8,290	2,610,300	17,980	2,683,011
2014	0	49,296	-4,224	2,790,300	17,980	2,853,352	0	46,346	-4,224	2,611,600	17,980	2,671,702
2015	0	49,328	4,172	2,790,900	17,980	2,862,380	0	46,378	4,172	2,612,200	17,980	2,680,730
2016	0	49,433	-4,448	2,791,500	17,980	2,854,465	0	46,483	-4,448	2,612,800	17,980	2,672,815
2017	0	49,356	6,812	2,792,100	17,980	2,866,248	0	46,406	6,812	2,613,400	17,980	2,684,598
2018	0	49,295	-9,048	2,792,700	17,980	2,850,927	0	46,345	-9,048	2,614,000	17,980	2,669,277
2019	0	49,297	-2,205	2,793,300	17,980	2,858,372	0	46,347	-2,205	2,614,600	17,980	2,676,722
2020(e)	0	49,342	0	2,803,400	17,980	2,870,722	0	46,392	0	2,624,700	17,980	2,689,072

AND POWER RECOVERY PLANT OF PROJECT TRANSPORTATION FACILITIES^(a)

(in acre-feet)^(b)

Sheet 4 of 8

Calendar Year	CALIFORNIA AQUEDUCT (Continued)											
	SOUTH SAN JOAQUIN DIVISION (Continued)						TEHACHAPI DIVISION					
	WIND GAP PUMPING PLANT						A. D. EDMONSTON (TEHACHAPI) PUMPING PLANT					
	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries		Total	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries		Total
Water Supply				Recreation	Water Supply					Recreation		
(40)	(41)	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	
1971	7,366	-159	0	0	0	7,207	5,446	8	0	0	0	5,454
1972	100,274	13,160	-6,558	78,891	6,481	192,248	100,274	16,067	-6,558	74,123	6,481	190,387
1973	204,638	32,414	1,329	209,841	1,075	449,297	204,638	34,051	1,329	207,880	1,075	448,973
1974	246,620	17,657	-24,361	318,196	2,108	560,220	246,620	18,183	-24,361	313,632	2,108	556,182
1975	103,352	25,326	-693	586,286	3,358	717,629	103,352	20,183	-693	573,219	3,358	699,419
1976	61,122	21,468	-152,171	701,060	1,581	633,060	61,122	21,096	-152,171	686,235	1,581	617,863
1977	0	15,698	-116,219	264,302	560	164,341	0	18,424	-116,219	259,208	560	161,973
1978	16,234	44,777	304,680	990,289	1,989	1,357,969	16,234	44,127	304,680	966,902	1,845	1,333,788
1979	0	46,821	-78,762	1,275,383	2,220	1,245,662	0	46,171	-78,762	1,259,883	2,080	1,229,372
1980	0	45,669	45,304	1,287,499	3,905	1,382,377	0	45,019	45,304	1,266,999	3,785	1,361,107
1981	0	45,024	-18,924	1,424,845	7,155	1,458,100	0	44,374	-18,924	1,399,445	7,045	1,431,940
1982	0	46,204	35,488	1,546,981	7,880	1,636,553	0	45,554	35,488	1,518,981	7,780	1,607,803
1983	0	45,677	-7,552	1,274,855	8,960	1,321,940	0	45,027	-7,552	1,243,455	8,880	1,289,810
1984	0	46,516	-41,822	1,321,270	9,180	1,335,144	0	45,866	-41,822	1,286,670	8,980	1,299,694
1985	0	47,159	11,602	1,323,880	17,980	1,400,621	0	46,509	11,602	1,284,180	17,780	1,360,071
1986	0	47,242	2,062	1,388,580	17,980	1,455,864	0	46,592	2,062	1,342,780	17,780	1,409,214
1987	0	47,064	2,183	1,459,490	17,980	1,526,717	0	46,414	2,183	1,406,790	17,780	1,473,167
1988	0	47,011	-33,263	1,621,690	17,980	1,653,418	0	46,361	-33,263	1,561,890	17,780	1,592,768
1989	0	46,751	-25,246	1,777,000	17,980	1,816,485	0	46,101	-25,246	1,712,100	17,780	1,750,735
1990	0	46,856	24,735	1,928,800	17,980	2,018,371	0	46,206	24,735	1,858,600	17,780	1,947,321
1991	0	46,856	-13,257	1,974,800	17,980	2,026,379	0	46,206	-13,257	1,904,600	17,780	1,955,329
1992	0	46,443	-18,086	2,013,400	17,980	2,059,737	0	45,793	-18,086	1,943,200	17,780	1,988,687
1993	0	46,531	14,841	2,052,000	17,980	2,131,352	0	45,881	14,841	1,981,800	17,780	2,060,302
1994	0	46,622	-10,148	2,090,600	17,980	2,145,054	0	45,972	-10,148	2,020,400	17,780	2,074,004
1995	0	46,689	8,991	2,129,200	17,980	2,202,860	0	46,039	8,991	2,059,000	17,780	2,131,810
1996	0	46,685	-14,323	2,152,660	17,980	2,203,002	0	46,035	-14,323	2,082,460	17,780	2,131,952
1997	0	46,665	21,178	2,176,120	17,980	2,261,943	0	46,015	21,178	2,105,920	17,780	2,190,893
1998	0	46,674	19,311	2,199,580	17,980	2,283,545	0	46,024	19,311	2,129,380	17,780	2,212,495
1999	0	46,535	-23,415	2,223,040	17,980	2,263,140	0	45,885	-23,415	2,152,840	17,780	2,193,090
2000	0	46,577	-3,480	2,246,500	17,980	2,307,577	0	45,927	-3,480	2,176,300	17,780	2,236,527
2001	0	46,608	-23,573	2,271,100	17,980	2,312,115	0	45,958	-23,573	2,200,900	17,780	2,241,065
2002	0	46,240	1,421	2,295,700	17,980	2,361,341	0	45,590	1,421	2,225,500	17,780	2,290,291
2003	0	46,495	11,571	2,320,300	17,980	2,396,346	0	45,845	11,571	2,250,100	17,780	2,325,296
2004	0	46,367	-7,354	2,344,900	17,980	2,401,893	0	45,717	-7,354	2,274,700	17,780	2,330,843
2005	0	46,263	809	2,369,500	17,980	2,434,552	0	45,613	809	2,299,300	17,780	2,363,502
2006	0	46,581	7,690	2,391,900	17,980	2,464,151	0	45,931	7,690	2,321,700	17,780	2,393,101
2007	0	46,423	-24,450	2,414,300	17,980	2,454,253	0	45,773	-24,450	2,344,100	17,780	2,383,203
2008	0	46,313	12,390	2,436,700	17,980	2,513,383	0	45,663	12,390	2,366,500	17,780	2,442,333
2009	0	46,372	11,832	2,459,100	17,980	2,535,284	0	45,722	11,832	2,388,900	17,780	2,464,234
2010	0	46,369	-6,555	2,481,500	17,980	2,539,294	0	45,719	-6,555	2,411,300	17,780	2,468,244
2011	0	46,253	-3,871	2,506,100	17,980	2,566,462	0	45,603	-3,871	2,435,900	17,780	2,495,412
2012	0	46,156	-7,816	2,530,700	17,980	2,587,020	0	45,506	-7,816	2,460,500	17,780	2,515,970
2013	0	46,241	8,290	2,555,300	17,980	2,627,811	0	45,591	8,290	2,485,100	17,780	2,556,761
2014	0	46,146	-4,224	2,556,600	17,980	2,616,502	0	45,496	-4,224	2,486,400	17,780	2,545,452
2015	0	46,178	4,172	2,557,200	17,980	2,625,530	0	45,528	4,172	2,487,000	17,780	2,554,480
2016	0	46,283	-4,448	2,557,800	17,980	2,617,615	0	45,633	-4,448	2,487,600	17,780	2,546,565
2017	0	46,206	6,812	2,558,400	17,980	2,629,398	0	45,556	6,812	2,488,200	17,780	2,558,348
2018	0	46,145	-9,048	2,559,000	17,980	2,614,077	0	45,495	-9,048	2,488,800	17,780	2,543,027
2019	0	46,147	-2,205	2,559,600	17,980	2,621,522	0	45,497	-2,205	2,489,400	17,780	2,550,472
2020(e)	0	46,192	0	2,569,700	17,980	2,633,872	0	45,542	0	2,499,500	17,780	2,562,822

TABLE B-6: ANNUAL WATER QUANTITIES CONVEYED THRU EACH PUMPING

(in acre-feet)^(b)

Sheet 5 of 8

CALIFORNIA AQUEDUCT (Continued)												
MOJAVE DIVISION												
Calendar Year	COTTONWOOD POWERPLANT						PEARBLOSSOM PUMPING PLANT					
	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries		Total	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries		Total
				Water Supply	Recreation					Water Supply	Recreation	
(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	
1971	0	0	0	0	0	0	21	0	0	0	0	21
1972	0	0	0	0	0	0	35,243	5,282	-153	1,794	0	42,166
1973	0	0	0	0	0	0	80,177	21,522	-2,700	52,273	0	151,272
1974	0	0	0	0	0	0	76,694	10,849	-11,149	102,837	44	179,275
1975	0	0	0	0	0	0	10,000	2,364	-8,397	190,351	70	194,388
1976	0	0	0	0	0	0	4,168	7,040	-16,055	237,180	152	232,485
1977	0	0	0	0	0	0	0	11,398	-17,534	102,326	580	96,770
1978	0	0	0	0	0	0	14,717	21,038	39,238	560,938	567	636,498
1979	0	0	0	0	0	0	0	20,767	-367	721,703	720	742,823
1980	0	0	0	0	0	0	0	21,286	15,475	770,365	820	807,946
1981	0	0	0	0	0	0	0	19,284	-39,987	760,970	865	741,132
1982	0	23,347	12,439	931,030	4,330	971,146	0	19,867	12,439	848,075	880	881,261
1983	0	22,633	-4,193	844,630	5,330	868,400	0	19,153	-4,193	755,055	880	770,895
1984	0	23,620	-12,758	858,895	5,330	875,087	0	20,140	-12,758	762,560	880	770,822
1985	0	24,194	-5,046	880,955	12,780	912,883	0	20,714	-5,046	776,150	7,830	799,648
1986	0	24,344	11,701	896,805	12,780	945,630	0	20,864	11,701	784,840	7,830	825,235
1987	0	24,253	-3,142	913,065	12,780	946,956	0	20,773	-3,142	793,930	7,830	819,391
1988	0	24,519	25,220	929,415	12,780	991,934	0	21,039	25,220	803,020	7,830	857,109
1989	0	24,311	-25,189	945,875	12,780	957,777	0	20,831	-25,189	812,310	7,830	815,782
1990	0	24,484	28,911	962,725	12,780	1,028,900	0	21,004	28,911	821,900	7,830	859,645
1991	0	24,534	-17,651	971,075	12,780	990,738	0	21,054	-17,651	823,000	7,830	834,233
1992	0	24,381	-12,300	972,075	12,780	996,936	0	20,901	-12,300	823,000	7,830	839,431
1993	0	24,407	17,480	973,075	12,780	1,027,742	0	20,927	17,480	823,000	7,830	869,237
1994	0	24,589	1,431	974,075	12,780	1,012,875	0	21,109	1,431	823,000	7,830	853,370
1995	0	24,592	480	975,075	12,780	1,012,927	0	21,112	480	823,000	7,830	852,422
1996	0	24,514	-20,072	976,135	12,780	993,357	0	21,034	-20,072	823,000	7,830	831,792
1997	0	24,573	10,747	977,195	12,780	1,025,295	0	21,093	10,747	823,000	7,830	862,670
1998	0	24,494	-4,244	978,255	12,780	1,011,285	0	21,014	-4,244	823,000	7,830	847,600
1999	0	24,260	-2,153	979,315	12,780	1,014,202	0	20,780	-2,153	823,000	7,830	849,457
2000	0	24,467	6,479	980,375	12,780	1,024,101	0	20,987	6,479	823,000	7,830	858,296
2001	0	24,617	6,820	982,375	12,780	1,026,592	0	21,137	6,820	825,000	7,830	860,787
2002	0	24,201	-7,117	984,375	12,780	1,014,239	0	20,721	-7,117	827,000	7,830	848,434
2003	0	24,509	3,751	986,375	12,780	1,027,415	0	21,029	3,751	829,000	7,830	861,610
2004	0	24,336	-4,136	988,375	12,780	1,021,355	0	20,856	-4,136	831,000	7,830	855,550
2005	0	24,256	-8,830	990,375	12,780	1,018,581	0	20,776	-8,830	833,000	7,830	852,776
2006	0	24,510	14,760	988,375	12,780	1,040,425	0	21,030	14,760	831,000	7,830	874,620
2007	0	24,528	3,594	986,375	12,780	1,027,277	0	21,048	3,594	829,000	7,830	861,472
2008	0	24,385	-10,940	984,375	12,780	1,010,600	0	20,905	-10,940	827,000	7,830	844,795
2009	0	24,300	2,913	982,375	12,780	1,022,368	0	20,820	2,913	825,000	7,830	856,563
2010	0	24,453	-9,434	980,375	12,780	1,008,174	0	20,973	-9,434	823,000	7,830	842,369
2011	0	24,292	3,799	980,375	12,780	1,021,246	0	20,812	3,799	823,000	7,830	855,441
2012	0	24,365	4,464	980,375	12,780	1,021,984	0	20,885	4,464	823,000	7,830	856,179
2013	0	24,323	-4,593	980,375	12,780	1,012,885	0	20,843	-4,593	823,000	7,830	847,080
2014	0	24,355	-10,428	980,375	12,780	1,007,082	0	20,875	-10,428	823,000	7,830	841,277
2015	0	24,133	2,775	980,375	12,780	1,020,063	0	20,653	2,775	823,000	7,830	854,258
2016	0	24,347	13,798	980,375	12,780	1,031,300	0	20,867	13,798	823,000	7,830	865,495
2017	0	24,250	1,788	980,375	12,780	1,019,193	0	20,770	1,788	823,000	7,830	853,388
2018	0	24,339	-20,367	980,375	12,780	997,127	0	20,859	-20,367	823,000	7,830	831,322
2019	0	24,263	11,915	980,375	12,780	1,029,333	0	20,783	11,915	823,000	7,830	863,528
2020(e)	0	24,209	0	980,375	12,780	1,017,364	0	20,729	0	823,000	7,830	851,559

AND POWER RECOVERY PLANT OF PROJECT TRANSPORTATION FACILITIES^(a)

(in acre-feet)^(b)

Sheet 6 of 8

Calendar Year	CALIFORNIA AQUEDUCT (Continued)											
	SANTA ANA DIVISION						WEST BRANCH, CALIFORNIA AQUEDUCT					
	DEVIL CANYON POWERPLANT						OSO PUMPING PLANT					
	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries		Total	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries		Total
				Water Supply	Recreation					Water Supply	Recreation	
(64)	(65)	(66)	(67)	(68)	(69)	(70)	(71)	(72)	(73)	(74)	(75)	
1971	0	0	0	0	0	2,444	133	0	0	0	2,577	
1972	37	0	0	1,275	0	63,883	6,557	-6,405	71,991	6,481	142,507	
1973	40,848	14,745	0	51,812	0	124,461	16,995	4,029	155,317	1,075	301,877	
1974	74,666	8,369	-4,925	102,196	0	169,926	12,702	-13,212	209,172	2,064	380,652	
1975	10,000	1,995	-6,719	189,526	0	93,352	23,008	7,704	374,306	3,288	501,658	
1976	4,168	5,180	-9,182	236,178	23	56,954	15,845	-136,116	420,708	1,429	358,820	
1977	0	8,082	-5,235	101,137	469	0	4,407	-98,685	122,447	-20	28,149	
1978	14,717	13,117	18,295	556,600	270	1,517	19,569	265,442	306,342	873	593,743	
1979	0	13,062	5,294	704,452	400	0	21,884	-78,395	472,727	1,010	417,226	
1980	0	13,328	1,762	750,600	500	0	20,213	29,829	425,209	2,415	477,666	
1981	0	11,723	-41,569	728,400	600	0	21,979	21,063	560,930	3,250	607,222	
1982	0	12,092	12,439	812,700	600	0	22,167	23,049	586,651	3,450	635,317	
1983	0	11,595	-4,193	717,000	600	0	22,354	-3,359	397,425	3,550	419,970	
1984	0	12,705	3,345	721,800	600	0	22,206	-29,064	426,275	3,650	423,067	
1985	0	12,554	1,944	732,800	6,000	0	22,275	16,648	401,625	5,000	445,548	
1986	0	12,847	6,442	738,800	6,000	0	22,208	-9,639	444,275	5,000	461,844	
1987	0	12,776	-2,256	745,300	6,000	0	22,121	5,325	491,925	5,000	524,371	
1988	0	12,967	8,270	751,800	6,000	0	21,802	-58,483	630,575	5,000	598,894	
1989	0	12,721	-17,751	758,300	6,000	0	21,750	-57	764,225	5,000	790,918	
1990	0	12,921	19,704	765,300	6,000	0	21,682	-4,176	893,875	5,000	916,381	
1991	0	12,981	-1,965	766,400	6,000	0	21,632	4,394	931,525	5,000	962,551	
1992	0	12,776	-11,738	766,400	6,000	0	21,372	-5,786	969,125	5,000	989,711	
1993	0	12,864	10,446	766,400	6,000	0	21,434	-2,639	1,006,725	5,000	1,030,520	
1994	0	12,928	-6,208	766,400	6,000	0	21,343	-11,579	1,044,325	5,000	1,059,089	
1995	0	12,906	-239	766,400	6,000	0	21,407	8,511	1,081,925	5,000	1,116,843	
1996	0	12,825	-4,973	766,400	6,000	0	21,481	5,749	1,104,325	5,000	1,136,555	
1997	0	12,886	470	766,400	6,000	0	21,402	10,431	1,126,725	5,000	1,163,558	
1998	0	12,831	-1,949	766,400	6,000	0	21,490	23,555	1,149,125	5,000	1,199,170	
1999	0	12,692	-2,573	766,400	6,000	0	21,585	-21,262	1,171,525	5,000	1,176,848	
2000	0	12,843	6,163	766,400	6,000	0	21,420	-9,959	1,193,925	5,000	1,210,386	
2001	0	12,910	5,287	768,400	6,000	0	21,301	-30,393	1,216,525	5,000	1,212,433	
2002	0	12,803	-6,845	770,400	6,000	0	21,349	8,538	1,239,125	5,000	1,274,012	
2003	0	12,873	3,896	772,400	6,000	0	21,296	7,820	1,261,725	5,000	1,295,841	
2004	0	12,852	-5,747	774,400	6,000	0	21,341	-3,218	1,284,325	5,000	1,307,448	
2005	0	12,757	2,545	776,400	6,000	0	21,317	9,639	1,306,925	5,000	1,342,881	
2006	0	12,865	3,252	774,400	6,000	0	21,381	-7,070	1,331,325	5,000	1,350,636	
2007	0	12,848	-784	772,400	6,000	0	21,205	-28,044	1,355,725	5,000	1,353,886	
2008	0	12,852	2,240	770,400	6,000	0	21,238	23,330	1,380,125	5,000	1,429,693	
2009	0	12,763	-6,415	768,400	6,000	0	21,382	8,919	1,404,525	5,000	1,439,826	
2010	0	12,852	-999	766,400	6,000	0	21,226	2,879	1,428,925	5,000	1,458,030	
2011	0	12,706	-586	705,200	6,000	0	21,271	-7,670	1,453,525	5,000	1,472,126	
2012	0	12,716	-435	705,200	6,000	0	21,101	-12,280	1,478,125	5,000	1,491,946	
2013	0	12,820	2,318	705,200	6,000	0	21,228	12,883	1,502,725	5,000	1,541,836	
2014	0	12,678	-4,748	705,200	6,000	0	21,101	6,204	1,504,025	5,000	1,536,330	
2015	0	12,675	-1,913	705,200	6,000	0	21,355	1,397	1,504,625	5,000	1,532,377	
2016	0	12,807	7,148	705,200	6,000	0	21,246	-18,246	1,505,225	5,000	1,513,225	
2017	0	12,741	-543	705,200	6,000	0	21,266	5,024	1,505,825	5,000	1,537,115	
2018	0	12,739	-4,606	705,200	6,000	0	21,116	11,319	1,506,425	5,000	1,543,860	
2019	0	12,794	2,627	705,200	6,000	0	21,194	-14,120	1,507,025	5,000	1,519,099	
2020(e)	0	12,766	0	705,200	6,000	0	21,293	0	1,517,125	5,000	1,543,418	

TABLE B-6: ANNUAL WATER QUANTITIES CONVEYED THRU EACH PUMPING

(in acre-feet)^(b)

Sheet 7 of 8

CALIFORNIA AQUEDUCT (Continued)												
WEST BRANCH, CALIFORNIA AQUEDUCT (Continued)												
Calendar Year	PYRAMID POWERPLANT						CASTAIC POWERPLANT					
	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries		Total	Initial Fill Water	Operational Losses	Reservoir Storage Changes	Deliveries		Total
				Water Supply	Recreation					Water Supply	Recreation	
(76)	(77)	(78)	(79)	(80)	(81)	(82)	(83)	(84)	(85)	(86)	(87)	
1972	0	0	0	0	0	57,364	1,788	-6,162	71,938	6,481	131,409	
1973	0	0	0	0	0	37,198	6,430	4,542	155,297	1,075	204,542	
1974	0	0	0	0	0	82,364	1,772	510	209,136	541	294,323	
1975	0	0	0	0	0	90,460	5,002	49,630	374,280	1,563	520,935	
1976	0	0	0	0	0	55,990	-7,695	-132,036	420,684	1,429	338,372	
1977	0	0	0	0	0	0	-1,485	-102,532	122,447	-20	18,410	
1978	0	0	0	0	0	1,517	10,260	265,442	306,342	540	584,101	
1979	0	0	0	0	0	0	12,575	-78,395	472,702	700	407,582	
1980	0	0	0	0	0	0	11,881	29,829	425,184	800	467,694	
1981	0	0	0	0	0	0	12,670	21,063	560,905	900	595,538	
1982	0	20,847	23,049	586,626	3,400	633,922	12,858	23,049	586,626	1,000	623,533	
1983	0	21,034	-3,359	397,200	3,500	418,375	13,045	-3,359	397,200	1,100	407,986	
1984	0	20,886	-29,064	426,000	3,600	421,422	12,897	-29,064	426,000	1,200	411,033	
1985	0	20,955	16,648	401,300	5,000	443,903	12,966	16,648	401,300	2,000	432,914	
1986	0	20,888	-9,639	443,900	5,000	460,149	12,899	-9,639	443,900	2,000	449,160	
1987	0	20,801	5,325	491,500	5,000	522,626	12,812	5,325	491,500	2,000	511,637	
1988	0	20,482	-58,483	630,100	5,000	597,099	12,493	-58,483	630,100	2,000	586,110	
1989	0	20,430	-57	763,700	5,000	789,073	12,441	-57	763,700	2,000	778,084	
1990	0	20,362	-4,176	893,300	5,000	914,486	12,373	-4,176	893,300	2,000	903,497	
1991	0	20,312	4,394	930,900	5,000	960,606	12,323	4,394	930,900	2,000	949,617	
1992	0	20,052	-5,786	968,500	5,000	987,766	12,063	-5,786	968,500	2,000	976,777	
1993	0	20,114	-2,639	1,006,100	5,000	1,028,575	12,125	-2,639	1,006,100	2,000	1,017,586	
1994	0	20,023	-11,579	1,043,700	5,000	1,057,144	12,034	-11,579	1,043,700	2,000	1,046,155	
1995	0	20,087	8,511	1,081,300	5,000	1,114,898	12,098	8,511	1,081,300	2,000	1,103,909	
1996	0	20,161	5,749	1,103,700	5,000	1,134,610	12,172	5,749	1,103,700	2,000	1,123,621	
1997	0	20,082	10,431	1,126,100	5,000	1,161,613	12,093	10,431	1,126,100	2,000	1,150,624	
1998	0	20,170	23,555	1,148,500	5,000	1,197,225	12,181	23,555	1,148,500	2,000	1,186,236	
1999	0	20,265	-21,262	1,170,900	5,000	1,174,903	12,276	-21,262	1,170,900	2,000	1,163,914	
2000	0	20,100	-9,959	1,193,300	5,000	1,208,441	12,111	-9,959	1,193,300	2,000	1,197,452	
2001	0	19,981	-30,393	1,215,900	5,000	1,210,488	11,992	-30,393	1,215,900	2,000	1,199,499	
2002	0	20,029	8,538	1,238,500	5,000	1,272,067	12,040	8,538	1,238,500	2,000	1,261,078	
2003	0	19,976	7,820	1,261,100	5,000	1,293,896	11,987	7,820	1,261,100	2,000	1,282,907	
2004	0	20,021	-3,218	1,283,700	5,000	1,305,503	12,032	-3,218	1,283,700	2,000	1,294,514	
2005	0	19,997	9,639	1,306,300	5,000	1,340,936	12,008	9,639	1,306,300	2,000	1,329,947	
2006	0	20,061	-7,070	1,330,700	5,000	1,348,691	12,072	-7,070	1,330,700	2,000	1,337,702	
2007	0	19,885	-28,044	1,355,100	5,000	1,351,941	11,896	-28,044	1,355,100	2,000	1,340,952	
2008	0	19,918	23,330	1,379,500	5,000	1,427,748	11,929	23,330	1,379,500	2,000	1,416,759	
2009	0	20,062	8,919	1,403,900	5,000	1,437,881	12,073	8,919	1,403,900	2,000	1,426,892	
2010	0	19,906	2,879	1,428,300	5,000	1,456,085	11,917	2,879	1,428,300	2,000	1,445,096	
2011	0	19,951	-7,670	1,452,900	5,000	1,470,181	11,962	-7,670	1,452,900	2,000	1,459,192	
2012	0	19,781	-12,280	1,477,500	5,000	1,490,001	11,792	-12,280	1,477,500	2,000	1,479,012	
2013	0	19,908	12,883	1,502,100	5,000	1,539,891	11,919	12,883	1,502,100	2,000	1,528,902	
2014	0	19,781	6,204	1,503,400	5,000	1,534,385	11,792	6,204	1,503,400	2,000	1,523,396	
2015	0	20,035	1,397	1,504,000	5,000	1,530,432	12,046	1,397	1,504,000	2,000	1,519,443	
2016	0	19,926	-18,246	1,504,600	5,000	1,511,280	11,937	-18,246	1,504,600	2,000	1,500,291	
2017	0	19,946	5,024	1,505,200	5,000	1,535,170	11,957	5,024	1,505,200	2,000	1,524,181	
2018	0	19,796	11,319	1,505,800	5,000	1,541,915	11,807	11,319	1,505,800	2,000	1,530,926	
2019	0	19,874	-14,120	1,506,400	5,000	1,517,154	11,885	-14,120	1,506,400	2,000	1,506,165	
2020 (e)	0	19,973	0	1,516,500	5,000	1,541,473	11,984	0	1,516,500	2,000	1,530,484	

AND POWER RECOVERY PLANT OF PROJECT TRANSPORTATION FACILITIES^(a)

(in acre-feet)^(b)

Sheet 8 of 8

Calendar Year	CALIFORNIA AQUEDUCT (Continued)						
	COASTAL BRANCH, CALIFORNIA AQUEDUCT						
	LAS PERILLAS AND BADGER HILL PUMPING PLANTS				DEVIL'S DEN, SAWTOOTH AND POLONIO PUMPING PLANTS AND SAN LUIS OBISPO POWERPLANT		
	Initial Fill Water	Operational Losses	Water Supply Delivery	Total	Operational Losses	Water Supply Delivery	Total
(88)	(89)	(90)	(91)	(92)	(93)	(94)	
1968	210	873	79,039	80,122	0	0	0
1969	0	1,042	62,064	63,106	0	0	0
1970	0	638	83,649	84,287	0	0	0
1971	0	3,455	110,971	114,426	0	0	0
1972	0	1,745	121,755	123,500	0	0	0
1973	0	5,479	78,645	84,124	0	0	0
1974	0	7,344	78,174	85,518	0	0	0
1975	0	5,819	85,216	91,035	0	0	0
1976	0	6,562	89,765	96,327	0	0	0
1977	0	5,777	89,569	95,346	0	0	0
1978	0	380	128,087	128,467	0	0	0
1979	0	380	103,720	104,100	0	0	0
1980	0	380	108,500	108,880	0	0	0
1981	0	380	114,100	114,480	0	0	0
1982	0	380	119,100	119,480	0	0	0
1983	0	380	124,900	125,280	0	0	0
1984	0	380	130,100	130,480	0	0	0
1985	0	380	130,100	130,480	0	0	0
1986	0	930	153,409	154,339	550	23,309	23,859
1987	0	930	155,538	156,468	550	25,438	25,988
1988	0	930	157,667	158,597	550	27,567	28,117
1989	0	930	159,796	160,726	550	29,696	30,246
1990	0	930	161,925	162,855	550	31,825	32,375
1991	0	930	164,084	165,014	550	33,984	34,534
1992	0	930	166,243	167,173	550	36,143	36,693
1993	0	930	168,402	169,332	550	38,302	38,852
1994	0	930	170,561	171,491	550	40,461	41,011
1995	0	930	172,720	173,650	550	42,620	43,170
1996	0	930	174,791	175,721	550	44,691	45,241
1997	0	930	176,862	177,792	550	46,762	47,312
1998	0	930	178,933	179,863	550	48,833	49,383
1999	0	930	181,004	181,934	550	50,904	51,454
2000	0	930	183,075	184,005	550	52,975	53,525
2001	0	930	184,367	185,297	550	54,267	54,817
2002	0	930	185,659	186,589	550	55,559	56,109
2003	0	930	186,951	187,881	550	56,851	57,401
2004	0	930	188,243	189,173	550	58,143	58,693
2005	0	930	189,540	190,470	550	59,440	59,990
2006	0	930	189,540	190,470	550	59,440	59,990
2007	0	930	189,540	190,470	550	59,440	59,990
2008	0	930	189,540	190,470	550	59,440	59,990
2009	0	930	189,540	190,470	550	59,440	59,990
2010	0	930	189,540	190,470	550	59,440	59,990
2011	0	930	189,540	190,470	550	59,440	59,990
2012	0	930	189,540	190,470	550	59,440	59,990
2013	0	930	189,540	190,470	550	59,440	59,990
2014	0	930	189,540	190,470	550	59,440	59,990
2015	0	930	189,540	190,470	550	59,440	59,990
2016	0	930	189,540	190,470	550	59,440	59,990
2017	0	930	189,540	190,470	550	59,440	59,990
2018	0	930	189,540	190,470	550	59,440	59,990
2019	0	930	189,540	190,470	550	59,440	59,990
2020 (e)	0	930	189,540	190,470	550	59,440	59,990

TABLE B-7: RECONCILIATION OF CAPITAL COSTS ALLOCATED TO WATER SUPPLY AND POWER GENERATION FOR THE PERIOD 1952-2035

(in thousands of dollars)

Project Facility	Project Costs Allocated to Water Supply and Power Generation							Project Costs Allocated to Other Purposes	Total, State Water Project
	Misc. Income Credited to Construction (a)	Allowances for Future Price Escalation (b)	Costs of Construction of Water Delivery Structures (c)	Additional Costs of Requested Excess Capacity and Future Enlargement (d)	Capital Cost Component of Delta Water Charge (e)	Capital Cost Component of Transportation Water Charge (f)	Water Supply and Power Total (g)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CONSERVATION FACILITIES									
Upper Feather Division									
Frenchman Dam and Lake	173	0	0	0	525	0	698	2,602	3,300
Grizzly Valley Dam and Lake Davis	30	0	0	0	216	0	246	4,776	5,022
Antelope Dam and Lake	0	0	0	0	0	0	0	4,990	4,990
Abbey Bridge Dam and Res.	0	0	0	0	0	0	0	526	526
Dixie Refuge Dam and Res.	0	0	0	0	0	0	0	242	242
Total, Upper Feather Division	203	0	0	0	741	0	944	13,136	14,080
Oroville Division									
Multipurpose Facilities	3,158	166	149	0	338,039	0	341,512	82,263	423,775
Specific Power Facilities	0	0	0	0	109,744	0	109,744	0	109,744
Total, Oroville Division	3,158	166	149	0	447,783	0	451,256	82,263	533,519
California Aqueduct									
North San Joaquin Division	171	1,083	0	0	55,388	0	56,642	2,235	58,877
San Luis Division	377	17	0	0	83,224	0	83,618	3,643	87,261
Total, California Aqueduct	548	1,100	0	0	138,612	0	140,260	5,878	146,138
Delta Facilities	155	91,335	0	0	273,762	0	365,252	454,862	820,114
Additional Conservation Facilities	3	5,385,260	0	0	2,198,214	0	7,583,477	2,487,051	10,070,528
TOTAL, CONSERVATION FACILITIES	4,067	5,477,861	149	0	3,059,112	0	8,541,189	3,043,190	11,584,379
TRANSPORTATION FACILITIES									
Upper Feather Division									
Grizzly Valley Pipeline	0	0	0	0	0	341	341	0	341
North Bay Aqueduct	19	7,009	80	0	0	27,906	35,014	0	35,014
South Bay Aqueduct	1,609	2	309	0	0	47,672	49,592	20,672	70,264
California Aqueduct									
North San Joaquin Division	383	2,424	18	0	0	123,912	126,737	4,322	131,059
San Luis Division	97	5,632	0	0	0	108,682	114,411	4,215	118,626
South San Joaquin Division	300	225	3,266	3,244	0	253,127	260,162	8,073	268,235
Tehachapi Division	23	3,165	9	6,991	0	289,864	300,052	9,270	309,322
Mojave Division	570	81,903	491	123,790	0	255,364	462,118	8,717	470,835
Santa Ana Division	342	109	2,876	11,127	0	168,837	183,291	10,548	193,839
West Branch	36,876	5,446	2,785	106	0	427,290	472,503	17,630	490,133
Coastal Division	10	33,893	87	0	0	128,026	162,016	105	162,121
Total, California Aqueduct	38,601	132,797	9,532	145,258	0	1,755,102	2,081,290	62,880	2,144,170
TOTAL, TRANSPORTATION FACILITIES	40,229	139,808	9,921	145,258	0	1,831,021	2,166,237	83,552	2,249,789
SAN JOAQUIN DRAINAGE FACILITIES	0	0	0	0	0	0	0	11,625	11,625
UNASSIGNED AND DAVIS-CRUNSKY	0	0	0	0	0	0	0	139,879	139,879
TOTAL	44,296	5,617,669	10,070	145,258	3,059,112	1,831,021	10,707,426	3,278,246	13,985,672

a) Miscellaneous project receipts, including those from sale of Airpoint Reservoir land, that are applied for accounting purposes to reduce the capital costs of the particular facilities.

b) These allowances are included for planning the future financial program, but not for determining current water charges. The costs shown on this appendix are based on prices prevailing on December 31, 1977.

c) See Table B-8.

d) From Table B-9, less a portion allocated to recreation and fish and wildlife enhancement.

e) See Table B-13. A portion of these costs will be offset by power generation sales and credits.

f) See Table B-10.

TABLE B-8: CAPITAL COSTS OF REQUESTED DELIVERY STRUCTURES ^(a)

(in dollars)

Project Area and Water Supply Contractor	Calendar Year									Total
	1952-77	1978	1979	1980	1981	1982	1983	1984	1985	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
FEATHER RIVER AREA										
County of Butte Thermalito Irrigation District ^(b)	104,924	0	0	0	0	0	0	0	0	104,924
	<u>43,939</u>	<u>0</u>	0	0	0	0	0	0	0	<u>43,939</u>
Subtotal	148,863	0	0	0	0	0	0	0	0	148,863
NORTH BAY AREA										
Napa County Flood Control and Water Conservation District	2,878	300	0	0	0	0	18,000	0	0	21,178
Solano County Flood Control and Water Conservation District	<u>6,808</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>51,000</u>	<u>0</u>	<u>1,000</u>	<u>58,808</u>
Subtotal	9,686	300	0	0	0	0	69,000	0	1,000	79,986
SOUTH BAY AREA										
Alameda County Flood Control and Water Conservation District, Zone 7	151,646	0	0	0	0	0	0	0	0	151,646
Alameda County Water District	143,789	0	0	0	0	0	0	0	0	143,789
Santa Clara Valley Water District	<u>13,865</u>	<u>0</u>	0	0	0	0	0	0	0	<u>13,865</u>
Subtotal	309,300	0	0	0	0	0	0	0	0	309,300
SAN JOAQUIN VALLEY										
Devil's Den Water District	75,841	0	0	0	0	0	0	0	0	75,841
Dudley Ridge Water District	283,509	0	0	0	0	0	0	0	0	283,509
Empire West Side Irrigation District	6,358	0	0	0	0	0	0	0	0	6,358
Green Valley Water District ^(c)	5,292	0	0	0	0	0	0	0	0	5,292
Hacienda Water District	20,659	0	0	0	0	0	0	0	0	20,659
Kern County Water Agency	2,668,265	14,000	12,000	0	0	6,000	0	0	15,000	2,715,265
Oak Flat Water District	13,333	0	0	0	0	0	0	0	0	13,333
Tracy Golf and Country Club ^(c)	1,028	0	3,500	0	0	0	0	0	0	4,528
Tulare Lake Basin Water Storage District	<u>254,984</u>	<u>0</u>	0	0	0	0	0	0	0	<u>254,984</u>
Subtotal	3,329,269	14,000	15,500	0	0	6,000	0	0	15,000	3,379,769
SOUTHERN CALIFORNIA AREA										
Antelope Valley-East Kern Water Agency	304,157	3,000	5,000	5,000	0	5,000	10,000	0	0	332,157
Castaic Lake Water Agency	336,532	8,000	8,000	1,000	0	0	0	0	0	353,532
Coachella Valley County Water District	14,206	0	0	0	0	0	0	0	8,000	22,206
Crestline-Lake Arrowhead Water Agency	12,097	0	0	0	0	3,000	0	0	0	15,097
Desert Water Agency	23,438	0	0	0	0	0	0	0	12,000	35,438
Littlerock Creek Irrigation District	23,732	0	0	0	0	0	0	0	0	23,732
Mojave Water Agency	65,373	0	10,000	10,000	0	0	0	4,000	0	89,373
Palmdale Water District	24,232	0	0	5,000	1,000	0	0	0	0	30,232
San Bernardino Valley Municipal Water District	597,549	0	5,000	0	80,000	0	0	0	5,000	687,549
San Gabriel Valley Municipal Water District	131,052	0	0	0	0	0	0	0	0	131,052
San Geronio Pass Water Agency	66,530	0	0	0	0	0	0	0	0	66,530
The Metropolitan Water District of Southern California	4,234,569	1,000	0	10,000	0	0	0	20,000	0	4,265,569
Ventura County Flood Control District	<u>79,699</u>	<u>0</u>	<u>15,000</u>	<u>5,000</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>99,699</u>
Subtotal	5,913,166	12,000	43,000	36,000	81,000	8,000	10,000	24,000	25,000	6,152,166
TOTAL	9,710,284	26,300	58,500	36,000	81,000	14,000	79,000	24,000	41,000	10,070,084

a) Approximate only, not to be construed as invoice amounts.

b) Not a project water supply contractor. A delivery structure was constructed on the Thermalito Power Canal at the District's expense as a part of a water exchange agreement.

c) Not a project water supply contractor. District has contracted for surplus water.

TABLE B-9: CAPITAL COSTS OF

(in dollars unless otherwise indicated)

Sheet 1 of 2

TOTAL REQUIRED ADVANCE OF FUNDS										
Reach Number	Year Reach Becomes Operational	Excess Capacity (cfs)	Total Reach Capacity (cfs)	Ratio of Excess Capacity to Total Capacity (cfs/cfs) (a)	Total Reach Cost (b)	Total Advance Payments for Excess Capacity (c)	Total Incremental Costs for Excess Capacity (d)	Reconciliation of Advance Payments (e)	Interest Credit (f)	Reconciliation of Advance Payments and Interest Credit
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA</u>										
8C	1968	188.00000	8,257.54768	0.02276705	597,582	13,605	2,000	11,605	1,667	13,272
8D	1968	188.00000	8,058.99281	0.02332798	13,942,413	325,248	113,000	212,248	30,109	242,357
9	1968	188.00000	7,268.54004	0.02586489	9,162,227	236,980	71,000	165,980	32,640	198,620
10A	1968	188.00000	7,117.74784	0.02641285	9,710,336	256,478	92,000	164,478	32,106	196,584
11B	1968	188.00000	6,313.19561	0.02977890	13,692,127	407,736	108,000	299,736	60,463	360,199
12D	1969	188.00000	5,929.95263	0.03170346	11,888,004	376,891	156,000	220,891	46,967	267,858
12E	1969	188.00000	5,907.22734	0.03182542	7,484,322	238,192	118,000	120,192	24,967	145,159
13B	1969	188.00000	5,341.25081	0.03519775	16,313,712	574,206	139,000	435,206	75,150	510,356
14A	1970	188.00000	5,008.96939	0.03753267	55,742,657	2,092,171	559,000	1,533,171	381,330	1,914,501
14B	1970	188.00000	4,888.19779	0.03845998	10,081,251	387,725	175,000	212,725	55,369	268,094
14C	1970	188.00000	4,700.84105	0.03999284	9,083,502	363,275	223,000	140,275	36,501	176,776
15A	1970	188.00000	4,597.94994	0.04088779	38,646,108	1,580,154	593,000	987,154	200,521	1,187,675
16A	1971	188.00000	4,387.78387	0.04284623	62,627,071	2,683,334	995,000	1,688,334	448,974	2,137,308
17E	1971	188.00000	4,136.09906	0.04545346	224,099,973	10,186,119	5,811,000	4,375,119	1,264,021	5,639,140
17F	1971	188.00000	4,126.98262	0.04555386	58,567,574	2,667,979	1,396,000	1,271,979	444,423	1,716,402
25	1971	787.00000	2,019.63064	0.38967521	30,989,289	12,075,758	6,823,844	5,251,914	1,368,192	6,620,106
28J	1973	-	-	-	-	4,378,641	4,378,641	0	0	0
<u>SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT</u>										
25	1971	21.00000	2,019.63064	0.01039794	31,022,106	322,566	182,156	140,410	36,579	176,989
<u>ANTELOPE VALLEY-EAST KERN WATER AGENCY</u>										
29A	1971	19.00000	3,128.83908	0.00607254	29,976,119	182,032	85,000	97,032	22,045	119,077
29F	1971	19.00000	3,128.01611	0.00607414	13,582,587	82,503	24,000	58,503	15,039	73,542

a) Column 1 divided by Column 2.

b) Reach costs are compounded at the project interest rate of 4.342 percent per annum as follows:

Reaches	Period	Year costs compounded to
8C thru 17F	1952 - 1965	1965
25 (for MWD)	1952 - 1966	1966
25 (for SGVMWD)	1952 - 1967	1967
29A and 29F	1952 - 1967	1967

c) Column 3 multiplied by Column 4.

d) As shown in Table B-7, except, prior Incremental Costs for Reach 28J have been brought forward with interest at 4.457% to 1966 for purposes of repayment.

e) Column 5 less Column 6.

f) Interest on Advance Payments in excess of Incremental Costs is at 5.5 percent per annum, approximate average rate of interest earnings during the period.

g) Actual payments are shown for 1966 through 1973 with 1974 adjusted to reflect overpayments and underpayments without interest for prior years.

h) Interest for overpayments and underpayments under the provisions of Amendment 2 of the contract.

i) Interest for overpayments and underpayments under the provisions of Amendment 5 of the contract.

j) Reach totals include Reconciliation of Advance Payments and Interest Credit (Column 9)

k) Advance payments in excess of incremental costs under the provisions of the contract reduce the capital cost component of the Transportation Charge.

REQUESTED EXCESS PEAKING CAPACITY

(in dollars)

Sheet 2 of 2

ANNUAL REQUIRED ADVANCE OF FUNDS												
Reach Number	Item	Estimated Costs and Advance Payments by Calendar Year										Reach Totals ^(j)
		1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	
		(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
<u>THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA</u>												
8C	1. Incremental Costs		1,000	1,000								2,000
	2. Advance Payments		6,803	6,802		-13,272						333
8D	1. Incremental Costs	4,000	45,000	64,000								113,000
	2. Advance Payments	11,513	129,524	184,211		-242,357						82,891
9	1. Incremental Costs	4,000	24,000	35,000	8,000							71,000
	2. Advance Payments	13,351	80,106	116,821	26,702		-198,620					38,360
10A	1. Incremental Costs	5,000	30,000	46,000	11,000							92,000
	2. Advance Payments	13,939	83,634	128,239	30,666		-196,584					59,894
11B	1. Incremental Costs	7,000	42,000	48,000	11,000							108,000
	2. Advance Payments	26,427	158,564	181,216	41,529		-360,199					47,537
12D	1. Incremental Costs	16,000	20,000	18,000	84,000	18,000						156,000
	2. Advance Payments	38,655	48,319	43,487	202,941	43,489		-267,858				109,033
12E	1. Incremental Costs	10,000	14,000	14,000	66,000	14,000						118,000
	2. Advance Payments	20,186	28,260	28,260	133,226	28,260		-145,159				93,033
13B	1. Incremental Costs	1,000	2,000	14,000	96,000	26,000						139,000
	2. Advance Payments	4,131	8,262	57,834	396,574	107,405		-510,356				63,850
14A	1. Incremental Costs	51,000	65,000	39,000	194,000	150,000	60,000					559,000
	2. Advance Payments	190,878	243,276	145,965	726,084	561,405	224,563		-1,914,501			177,670
14B	1. Incremental Costs	31,000	14,000	10,000	45,000	12,000						175,000
	2. Advance Payments	68,683	31,018	22,156	99,701	139,581	26,566		-268,094			119,631
14C	1. Incremental Costs	39,000	18,000	13,000	58,000	15,000						223,000
	2. Advance Payments	63,532	29,323	21,177	94,484	130,323	24,436		-176,776			186,499
15A	1. Incremental Costs	4,000	10,000	46,000	243,000	162,000	128,000					593,000
	2. Advance Payments	10,659	26,647	122,575	647,517	431,678	341,078		-1,187,675			392,479
16A	1. Incremental Costs	14,000	12,000	56,000	387,000	357,000	119,000	50,000				995,000
	2. Advance Payments	37,755	32,362	151,022	1,043,669	962,764	320,921	134,841		-2,137,308		546,026
17E	1. Incremental Costs	30,000	259,000	1,159,000	1,971,000	1,565,000	551,000	276,000				5,811,000
	2. Advance Payments	52,587	454,002	2,031,615	3,454,972	2,743,293	965,850	483,800		-5,639,140		4,546,979
17F	1. Incremental Costs	78,000	203,000	468,000	349,000	276,000	15,000	7,000				1,396,000
	2. Advance Payments	149,070	387,965	894,423	666,995	527,480	28,667	13,379		-1,716,402		951,577
25	1. Incremental Costs			932,118	2,289,874	1,910,988	1,211,656	479,208				6,823,844
	2. Advance Payments			1,649,515	4,052,256	3,381,764	2,144,197	848,026		-6,620,106		5,455,652
28J	1. Incremental Costs		304,612	13,706	296,668	65,966	230,169	1,209,586	2,017,134	235,900	4,900	4,378,641
	2. Advance Payments		304,612	13,706	296,668	65,966	230,169	1,209,586	2,017,134	235,900	4,900	4,378,641
Totals Unadjusted for past payments	1. Incremental Costs	294,000	1,063,612	2,976,824	6,109,542	4,687,954	2,341,825	2,021,794	2,017,134	235,900	4,900	21,753,485
	2. Advance Payments	701,366	2,052,677	5,799,024	11,913,984	8,867,779	3,551,064	1,766,259	-1,529,912	-15,877,056	4,900	17,250,085
Current Adjustments	1. Advance Payments and Adjustments - Amendment 2(g)	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 ^(k)		12,871,444
	2. Interest Credits - Amendment 2(h)									-1,532,433 ^(k)		-1,532,433
	3. Advance Payments and Adjustments - Amendment 5(g)	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(i)										-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	-14,223,829	-12,210,525 ^(k)	12,995,849
<u>SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT</u>												
25	1. Incremental Costs	0	0	24,882	61,126	51,012	32,344	12,792				182,156
	2. Advance Payments	0	0	44,062	108,243	90,333	57,275	22,653		-176,989		145,577
Totals Unadjusted for past payments	1. Incremental Costs	0	0	24,882	61,126	51,012	32,344	12,792				182,156
	2. Advance Payments	0	0	44,062	108,243	90,333	57,275	22,653		-176,989		145,577
Current Adjustments	1. Advance Payments and Adjustments (g)	0	0	0	184,422	49,052	44,911	61,588	-20,263	-174,133		145,577
	2. Interest Credit									-6,332		-6,332
	3. Net Required Advance of Funds	0	0	0	184,422	49,052	44,911	61,588	-20,263 ^(k)	-180,465 ^(k)		139,245
<u>ANTELOPE VALLEY-EAST KERN WATER AGENCY</u>												
29A	1. Incremental Costs	0	0	8,000	14,000	26,000	26,000	11,000				85,000
	2. Advance Payments	0	0	17,132	29,982	55,680	55,680	23,558		-119,077		62,955
29F	1. Incremental Costs	0	0	3,000	4,000	14,000	2,000	1,000				24,000
	2. Advance Payments	0	0	10,313	13,751	48,127	6,875	3,437		-73,542		8,961
Totals Unadjusted for past payments	1. Incremental Costs	0	0	11,000	18,000	40,000	28,000	12,000				109,000
	2. Advance Payments	0	0	27,445	43,733	103,807	62,555	26,995		-192,619		71,916
Current Adjustments	1. Advance Payments and Adjustments (g)				85,495	52,625	101,648	34,062	-12,794	-189,120		71,916
	2. Interest Credit	0	0	0						-16,234		-16,234
	3. Net Required Advance of Funds	0	0	0	85,495	52,625	101,648	34,062	-12,794	-205,354 ^(k)		55,682

TABLE B-10: CAPITAL COSTS OF EACH AQUEDUCT REACH TO BE REIM-

(in dollars)

Sheet 1 of 4

Calendar Year	UPPER FEATHER DIVISION	NORTH BAY AQUEDUCT				SOUTH BAY AQUEDUCT			
		Reach 1	Reach 2	Reach 3	Total	Reach 1	Reach 2	Reach 4	Reach 5
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1952	0	0	0	0	0	97	34	30	57
1953	0	0	0	0	0	477	166	144	297
1954	0	0	0	0	0	1,466	508	437	959
1955	0	0	0	0	0	1,944	674	560	1,266
1956	0	0	0	0	0	18,789	6,515	5,090	12,545
1957	0	13,290	3,391	9,953	26,634	45,090	15,639	12,285	33,218
1958	2	19,202	5,011	25,798	50,011	195,985	80,961	7,714	21,930
1959	14	7,517	2,118	17,653	27,288	496,140	148,516	24,945	17,118
1960	28	8,797	4,292	4,838	17,927	1,130,378	67,351	71,779	68,028
1961	10	1,551	10,318	2,526	14,395	3,273,247	180,596	307,885	74,398
1962	32	217	1,751	414	1,120	1,548,884	203,535	695,446	35,102
1963	51	2,510	1,063	983	2,430	480,716	69,182	2,284,291	206,587
1964	7,791	39,879	12,046	21,934	73,859	2,549,118	15,903	181,900	264,410
1965	3,139	72,793	17,900	170,361	261,054	807,505	153,454	85,425	447,830
1966	48	59,640	12,985	439,437	512,062	898,074	149,529	142,096	1,691,663
1967	47	47,334	11,637	1,551,899	1,610,870	607,614	50,423	293,304	3,499,440
1968	51,574	69,398	18,113	827,238	914,749	965,119	19,543	89,300	2,929,201
1969	234,242	62,619	22,155	46,428	131,202	455,173	9,618	3,860	886,767
1970	16,229	57,866	41,014	9,415	108,295	52,481	3,380	10,517	154,358
1971	27,204	17,897	27,963	8,480	54,340	24,505	4,645	5,035	20,395
1972	9	14,132	11,301	10,058	35,491	26,918	825	2,945	26,090
1973	26	17,380	27,796	39,891	85,067	24,495	4,012	6,025	12,732
1974	58	65,667	27,111	135,124	227,902	17,536	1,255	1,952	66,505
1975	27	57,052	62,863	49,674	169,589	57,810	590	1,250	7,709
1976	54	47,738	66,816	14,093	128,647	105,915	3,051	9,465	14,571
1977	15	44,506	62,535	28,695	135,736	182,549	4,366	5,789	22,958
1978	0	80,677	88,451	20,000	189,128	143,000	2,000	2,000	7,000
1979	0	113,062	59,763	15,000	187,825	4,000	0	1,000	4,000
1980	0	495,075	72,928	207,000	775,003	3,000	0	1,000	4,000
1981	0	762,955	173,330	330,000	1,266,285	0	0	1,000	3,000
1982	0	5,319,097	2,390,548	393,000	8,102,645	0	0	0	0
1983	0	6,932,000	2,585,000	935,000	10,452,000	0	0	0	0
1984	0	453,000	126,000	1,670,000	2,249,000	0	0	0	0
1985	0	0	0	98,000	98,000	0	0	0	0
TOTAL	340,504	14,882,851	5,940,571	7,082,892	27,906,314	14,118,025	1,196,271	4,254,469	10,534,134

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
(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
1952	8	66	72	132	496	4,029	3,293	1,505	8,827
1953	38	327	336	640	2,425	10,602	8,624	3,980	23,206
1954	123	1,005	1,003	1,954	7,455	13,853	11,209	5,201	30,263
1955	160	1,293	1,149	2,454	9,500	7,400	5,976	2,771	16,147
1956	1,559	11,959	11,043	28,372	95,872	9,920	5,041	2,408	17,369
1957	3,659	28,675	27,385	563,114	729,065	12,003	5,478	2,623	20,104
1958	2,243	17,872	17,385	560,904	904,994	18,665	17,263	8,026	43,954
1959	357	3,200	3,568	149,874	843,718	123,679	100,724	45,700	270,103
1960	1,102	2,944	4,498	359,749	1,705,829	192,199	102,556	49,172	343,927
1961	4,726	18,325	22,765	1,367	3,880,575	154,391	196,751	43,016	394,158
1962	17,295	160,939	178,242	209,042	3,048,485	614,752	493,223	168,968	1,276,943
1963	265,414	1,250,386	939,832	129,902	5,626,310	2,001,427	1,531,975	686,889	4,220,291
1964	100,603	1,716,371	2,327,770	2,942,657	10,098,732	4,693,541	2,379,598	702,947	7,776,086
1965	42,345	368,476	637,266	1,921,844	4,464,145	5,901,476	6,902,119	2,988,209	15,791,804
1966	17,663	34,915	140,350	777,872	3,852,162	8,590,933	14,173,455	5,701,775	28,466,163
1967	41,567	137,856	147,183	379,764	5,074,017	9,722,703	10,718,823	6,675,877	27,117,403
1968	84,553	2,130	68,057	253,152	4,411,055	6,419,133	895,372	1,308,583	8,623,088
1969	4,279	11,572	162,300	32,000	1,565,569	3,557,438	788,501	445,760	4,791,699
1970	2,487	6,820	20,086	15,718	234,411	2,245,869	150,311	116,476	2,512,656
1971	4,350	6,923	17,750	39,084	122,687	98,542	216,405	69,702	384,649
1972	1,084	203	4,800	32,199	95,064	160,272	43,900	7,775	211,947
1973	289	998	7,459	9,713	65,723	106,138	25,685	22,550	154,373
1974	553	6,207	30,850	11,887	136,745	178,306	18,798	46,861	243,965
1975	138	764	1,189	3,670	73,120	239,847	15,622	170,782	426,251
1976	779	4,022	8,962	27,432	174,197	57,681	57,897	72,071	72,287
1977	608	3,659	11,529	30,893	262,351	951,664	20,245	22,730	994,639
1978	0	1,000	1,000	5,000	161,000	735,293	17,401	9,370	762,064
1979	0	0	0	3,000	12,000	1,241,283	12,717	8,032	1,262,032
1980	0	0	0	1,000	9,000	2,471,725	16,732	10,039	2,498,496
1981	0	0	0	1,000	5,000	2,823,777	16,732	10,039	2,850,548
1982	0	0	0	0	0	4,787,502	19,410	12,717	4,819,629
1983	0	0	0	0	0	5,069,947	9,370	6,693	5,086,010
1984	0	0	0	0	0	2,289,675	1,339	1,339	2,292,353
1985	0	0	0	0	0	103,073	2,677	2,677	108,427
TOTAL	514,848	3,798,907	4,793,829	8,461,219	47,671,702				

BURSED THRU CAPITAL COST COMPONENT OF TRANSPORTATION CHARGE

(in dollars)

Sheet 2 of 4

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
(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	
1952	2,503	3,651	4,100	1,039	1,430	12,723	14	747	1,140
1953	7,028	10,434	11,301	2,915	3,980	35,658	46	2,748	4,305
1954	8,739	12,903	14,086	3,622	4,904	44,254	51	2,797	4,141
1955	4,290	6,228	7,007	1,777	2,391	21,693	21	913	1,132
1956	3,309	5,761	6,024	1,486	3,658	20,238	100	3,959	4,500
1957	3,558	6,289	6,539	1,610	4,113	22,109	241	10,909	13,587
1958	11,977	19,947	22,668	5,667	7,726	67,985	387	19,577	25,792
1959	23,439	41,035	43,447	10,731	22,230	140,882	450	21,169	26,433
1960	207,119	49,527	45,332	13,371	42,052	357,401	1,719	45,833	26,010
1961	185,076	300,799	175,315	39,406	72,018	772,614	4,061	77,866	31,721
1962	497,597	565,671	259,901	23,035	27,732	1,373,936	6,304	163,917	64,118
1963	2,780,064	2,092,539	2,570,228	68,244	31,511	7,542,586	6,027	165,732	83,601
1964	4,364,497	5,073,472	1,083,365	166,043	258,653	10,946,030	4,126	93,176	121,226
1965	3,874,392	5,850,995	2,952,032	1,102,785	686,868	14,467,072	15,479	501,146	589,347
1966	2,320,324	8,771,936	5,930,861	4,351,241	7,928,841	29,303,203	206,968	5,344,791	2,614,892
1967	45,894	2,122,025	7,140,712	229,378	6,865,811	16,312,032	217,648	5,106,992	3,452,312
1968	118,102	406,917	1,001,593	185,026	474,119	2,185,757	56,949	637,399	972,312
1969	7,351	130,101	100,942	110,140	164,667	498,499	57,042	123,071	87,577
1970	32,523	20,823	108,404	851,149	1,250,782	519,737	14,399	119,141	86,526
1971	100,359	237,227	313,965	27,768	350,773	1,030,092	6,928	36,185	23,750
1972	16,055	88,246	12,333	12,775	285,351	415,760	8,948	15,910	17,078
1973	6,810	77,679	13,728	7,173	20,084	125,474	2,972	13,757	13,647
1974	7,344	87,986	24,323	8,020	48,624	176,297	5,390	25,967	17,446
1975	19,342	95,849	9,450	5,209	145,735	275,585	5,058	17,604	13,758
1976	19,197	83,957	15,464	5,562	45,912	170,092	18,584	82,832	65,452
1977	35,174	73,993	8,630	3,681	9,606	131,084	20,663	71,804	96,180
1978	10,621	94,090	30,070	14,162	21,631	170,574	8,730	26,190	33,465
1979	4,957	34,920	26,190	12,319	19,691	98,077	3,880	8,730	19,885
1980	2,124	14,550	7,760	6,790	7,760	38,984	2,910	4,850	7,760
1981	2,124	60,140	225,040	103,790	129,010	520,104	1,940	2,910	5,820
1982	1,416	161,990	663,480	298,760	373,450	1,499,096	1,940	2,910	6,790
1983	708	445,230	1,529,690	661,540	836,140	3,473,308	970	970	3,880
1984	708	1,614,080	3,242,710	1,254,210	1,649,000	7,760,708	970	970	970
1985	2,832	1,925,450	3,334,860	1,236,750	1,652,880	8,152,772	3,880	3,880	3,880
TOTAL	14,621,063	30,544,794	30,941,550	9,125,876	23,449,133	108,682,416	685,795	12,757,352	8,540,433

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
(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	
1952	715	1,315	2,036	1,024	1,710	818	219	219	1,966
1953	2,642	4,928	7,694	3,852	6,415	2,673	754	763	7,217
1954	2,901	4,994	7,780	3,900	6,499	2,964	833	841	7,275
1955	1,128	1,604	2,474	1,246	2,083	1,217	333	336	2,318
1956	4,555	6,401	9,498	4,873	8,284	7,226	1,687	1,629	10,225
1957	13,649	19,309	29,916	15,033	25,111	16,099	3,943	3,976	27,642
1958	25,806	49,570	80,813	40,208	63,482	34,692	12,684	12,151	50,917
1959	26,525	69,170	110,867	55,376	88,953	66,677	22,733	22,454	72,867
1960	48,843	68,208	80,158	41,002	65,330	86,771	23,923	22,942	75,400
1961	70,446	47,365	90,757	52,908	28,781	249,656	93,888	67,429	154,469
1962	59,318	57,614	71,089	46,094	50,523	214,040	63,222	48,937	137,425
1963	54,037	94,481	178,862	88,830	69,591	437,630	107,369	80,146	104,905
1964	127,504	343,088	299,208	179,419	88,665	1,124,883	703,521	498,858	587,404
1965	649,529	1,086,113	1,554,641	1,066,779	201,098	3,434,895	1,673,446	1,441,244	487,213
1966	2,879,871	3,793,270	673,531	465,607	428,182	4,993,715	990,899	728,500	1,870,859
1967	3,741,147	4,741,022	1,937,109	1,278,093	1,273,167	2,840,710	531,166	399,211	1,737,986
1968	1,058,934	1,359,611	4,805,781	3,189,988	8,527,551	10,393,803	1,343,442	1,402,314	7,566,794
1969	149,264	235,745	722,013	540,678	3,817,226	15,507,699	1,216,484	1,102,921	9,770,072
1970	76,496	87,589	72,751	74,882	329,983	11,412,481	1,016,642	754,650	9,091,599
1971	16,041	46,294	45,248	43,847	348,785	3,045,338	198,788	37,560	3,422,176
1972	20,298	33,593	45,198	25,456	84,282	1,434,320	104,697	20,743	1,037,277
1973	14,710	16,945	10,290	16,803	25,840	700,811	20,166	13,872	822,671
1974	23,138	15,946	20,721	33,377	31,020	541,460	32,217	17,406	804,422
1975	16,753	14,463	11,686	14,368	27,261	278,830	26,418	22,150	382,914
1976	79,986	57,858	40,514	62,729	110,785	530,466	63,277	45,648	452,929
1977	74,360	51,322	23,561	55,627	83,417	300,859	51,455	31,214	232,406
1978	35,308	26,093	27,548	27,063	40,352	184,203	26,190	15,520	100,783
1979	21,728	17,363	15,908	15,423	20,952	42,680	14,550	6,790	29,100
1980	7,760	9,700	5,820	6,790	9,700	69,840	13,580	3,880	50,440
1981	5,820	7,760	4,850	4,850	7,760	41,710	12,610	2,910	27,160
1982	6,790	10,670	5,820	5,820	10,670	50,440	16,490	1,940	31,040
1983	3,880	4,850	2,910	2,910	4,850	24,250	7,760	970	15,520
1984	970	1,940	970	970	1,940	2,910	1,940	970	2,910
1985	3,880	3,880	3,880	3,880	3,880	3,880	3,880	3,880	3,880
TOTAL	9,324,732	12,390,074	11,001,902	7,469,705	15,894,128	58,080,646	8,401,206	6,814,974	39,180,181

TABLE B-10: CAPITAL COSTS OF EACH AQUEDUCT REACH TO BE REIM-

(in dollars)

Sheet 3 of 4

Calendar Year	CALIFORNIA AQUEDUCT (continued)								
	SOUTH SAN JOAQUIN DIVISION (continued)		TEHACHAPI DIVISION			MOJAVE DIVISION			
	Reach 16A	Subtotal	Reach 17E	Reach 17F	Subtotal	Reach 18A	Reach 19	Reach 19C	Reach 20A
(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)	
1952	4,568	16,491	9,980	4,188	14,168	4,208	1,563	0	2,634
1953	16,986	61,023	32,234	13,666	45,900	12,971	4,819	0	7,453
1954	17,076	62,052	47,566	20,582	68,148	17,118	6,360	0	9,779
1955	5,373	20,178	26,622	11,687	38,309	5,773	2,145	0	2,602
1956	22,377	85,314	48,847	18,113	66,960	6,210	2,307	0	2,511
1957	64,451	243,866	123,100	50,537	173,637	22,988	8,542	0	9,293
1958	136,891	552,970	168,754	74,157	242,911	39,003	14,570	123	15,832
1959	211,640	795,314	155,722	59,540	215,262	39,725	24,122	1,102	24,281
1960	210,629	796,768	209,024	46,614	255,638	21,962	26,837	5,318	41,681
1961	212,105	1,181,452	398,788	87,956	486,744	35,861	31,289	2,262	34,286
1962	176,117	1,158,718	362,995	84,897	447,892	70,001	272,918	1,841	9,780
1963	495,443	1,966,654	1,225,260	128,213	1,353,473	28,332	424,574	4,137	20,550
1964	1,829,595	6,000,673	1,918,964	797,112	2,716,076	98,266	726,255	8,564	44,347
1965	1,291,460	13,992,390	2,619,141	2,380,351	4,999,492	124,314	736,115	9,156	111,260
1966	2,965,037	27,956,122	5,491,413	9,648,092	15,139,505	376,638	1,704,068	13,365	163,309
1967	3,502,077	30,758,640	26,296,952	12,554,862	38,851,814	1,341,566	907,357	24,086	646,609
1968	7,552,961	48,868,839	32,931,867	7,545,714	40,477,581	140,473	7,313,988	71,433	1,943,454
1969	13,345,896	46,675,688	40,850,934	7,068,992	47,919,926	214,261	2,522,589	7,411	6,097,441
1970	14,389,474	37,526,613	36,910,157	7,202,619	44,112,776	2,245,205	1,162,734	6,214	3,686,468
1971	8,210,490	15,481,430	21,129,111	7,024,477	28,153,588	1,540,142	292,341	7,000	1,105,269
1972	3,137,631	5,985,431	10,476,859	35,797	10,512,656	133,143	424,118	3,628	485,469
1973	1,520,189	3,192,673	3,196,493	37,359	3,233,852	23,757	75,748	2,572	89,194
1974	1,069,716	2,638,226	4,970,291	159,633	5,129,924	26,159	209,647	2,307	141,443
1975	506,269	1,337,532	2,215,515	424,404	2,639,919	43,858	70,385	4,177	68,311
1976	645,039	2,256,099	1,186,982	185,800	1,372,782	122,384	86,179	6,470	61,410
1977	556,030	1,648,898	614,534	33,000	647,534	265,395	136,057	5,828	121,327
1978	210,490	761,935	1,006,763	7,760	1,014,523	876,880	66,930	28,321	70,810
1979	50,440	267,429	2,281,440	3,880	2,285,320	2,310,540	114,460	118,526	112,520
1980	77,600	270,630	7,781,340	4,850	7,786,190	8,269,250	103,790	123,055	92,150
1981	49,470	175,570	15,026,270	4,850	15,031,120	7,384,610	32,010	160,885	28,130
1982	63,050	214,370	10,483,760	7,760	10,491,520	2,394,930	24,250	313,899	20,370
1983	30,070	103,790	3,515,280	1,940	3,517,220	95,060	6,790	999,652	5,820
1984	3,880	22,310	400,610	970	401,580	15,520	1,940	7,908,097	1,940
1985	3,880	50,440	16,490	3,880	20,370	3,880	3,880	9,044,047	3,880
TOTAL	62,585,400	253,126,528	234,130,058	55,734,252	289,864,310	28,350,383	17,541,677	18,883,477	15,281,613

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
(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	
1952	917	5,954	36	2,071	2,133	2,481	21,997	3,429	5,759
1953	3,498	18,356	73	5,917	7,083	7,651	67,821	10,570	17,758
1954	4,678	24,232	380	8,805	8,073	10,100	89,525	13,953	23,441
1955	2,275	8,174	185	2,833	2,803	3,408	30,198	4,708	7,908
1956	2,731	8,785	221	2,989	3,047	3,662	32,463	5,059	8,500
1957	10,109	32,521	822	11,064	11,274	13,556	120,169	18,726	31,460
1958	17,234	55,104	1,438	19,254	19,108	23,275	204,941	31,889	53,508
1959	19,137	58,349	1,896	26,149	20,954	46,952	262,667	40,452	59,802
1960	38,243	45,141	11,346	140,662	17,640	112,950	461,780	67,527	96,373
1961	36,747	21,461	14,275	216,976	9,749	381,525	784,431	27,695	58,042
1962	10,301	8,038	3,969	166,204	4,422	286,019	833,493	10,194	37,079
1963	24,394	19,160	9,395	181,668	6,607	326,539	1,045,356	31,302	111,795
1964	72,939	34,742	23,340	269,795	7,046	250,599	1,535,893	71,610	208,327
1965	353,016	93,544	67,422	850,190	12,158	638,741	2,995,916	287,183	212,169
1966	1,348,753	164,765	183,349	1,786,444	31,643	1,046,161	6,818,495	427,209	370,240
1967	1,753,447	505,711	371,559	3,168,225	62,660	2,369,273	11,150,493	3,308,174	646,082
1968	2,357,052	1,174,839	1,178,502	4,709,982	104,865	2,674,143	21,668,731	7,866,579	1,301,197
1969	5,779,256	2,422,096	1,553,759	7,925,056	267,628	11,431,769	38,221,266	6,523,187	1,813,738
1970	5,396,880	3,297,813	2,113,048	23,898,616	1,273,448	17,257,491	60,337,917	1,695,155	7,422,640
1971	1,123,116	849,031	444,807	17,258,430	1,977,421	5,540,578	30,138,135	912,427	10,093,503
1972	653,696	498,647	334,164	3,897,349	49,424	811,038	7,290,676	1,382,402	5,678,109
1973	84,724	64,904	36,512	1,664,387	24,967	4,344,089	6,410,854	140,930	1,454,755
1974	120,614	105,411	55,813	5,849,009	131,970	790,991	7,433,365	71,362	1,585,146
1975	171,610	171,404	19,968	4,920,607	18,955	383,545	5,872,820	172,429	3,842,661
1976	102,541	47,042	27,586	3,183,352	84,429	216,433	3,937,826	493,279	1,518,617
1977	120,698	73,317	51,761	1,684,608	59,832	239,769	2,758,592	78,338	807,196
1978	73,720	159,080	32,980	558,720	25,220	129,980	2,022,641	75,660	241,530
1979	375,390	77,600	48,500	547,080	37,830	322,040	4,064,486	665,420	291,000
1980	119,310	65,960	40,740	565,510	30,070	279,360	9,689,195	158,110	246,380
1981	33,950	20,370	12,610	163,930	7,760	66,930	7,911,185	37,830	59,170
1982	24,250	15,520	8,730	123,190	4,850	38,800	2,968,789	20,370	35,890
1983	6,790	4,850	2,910	36,860	970	3,880	1,163,582	970	5,820
1984	1,940	1,940	970	3,880	970	1,940	7,939,137	970	1,940
1985	3,880	3,880	3,880	3,880	3,880	3,880	9,078,967	3,880	3,880
TOTAL	20,247,836	10,157,741	6,656,946	83,853,692	4,330,889	50,059,548	255,363,802	24,658,978	38,351,415

BURSED THRU CAPITAL COST COMPONENT OF TRANSPORTATION CHARGE

(in dollars)

Sheet 4 of 4

Calendar Year	CALIFORNIA AQUEDUCT (continued)									
	SANTA ANA DIVISION (continued)				WEST BRANCH					
	Reach 28G ^a	Reach 28H	Reach 28J	Subtotal	Reach 29A	Reach 29 F	Reach 29G	Reach 29H	Reach 29J	
(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)		
1952	4,922	4,170	3,106	21,386	3,007	139	180	472	569	
1953	16,026	11,842	9,748	65,944	9,352	353	244	1,803	1,731	
1954	18,531	18,618	12,507	87,050	7,601	1,234	2,293	2,418	4,282	
1955	6,226	6,255	4,269	29,366	1,047	601	1,117	1,178	2,086	
1956	6,683	6,713	4,609	31,564	502	718	1,332	1,405	2,488	
1957	24,732	24,848	17,062	116,828	1,860	2,656	4,931	5,202	9,209	
1958	42,012	42,208	29,286	198,903	3,350	4,647	8,963	9,133	16,301	
1959	47,056	47,262	45,602	240,174	8,181	9,413	19,969	18,766	36,600	
1960	60,789	60,219	122,368	407,276	22,374	15,416	35,426	30,614	71,741	
1961	32,825	35,009	722,892	876,463	22,453	11,994	21,450	20,252	40,742	
1962	21,793	20,901	61,489	151,456	41,038	28,934	88,985	59,609	111,872	
1963	41,258	38,588	1,871,018	2,093,961	86,720	56,844	158,965	108,102	215,776	
1964	92,193	46,980	104,427	523,537	154,850	68,140	213,746	147,329	299,577	
1965	99,647	79,011	155,399	833,409	371,983	79,892	414,427	130,974	606,382	
1966	175,122	317,363	606,650	1,896,584	500,644	208,497	1,268,986	355,724	3,324,046	
1967	236,476	287,456	1,199,421	5,677,609	1,615,765	891,473	1,208,281	907,515	31,976,908	
1968	896,081	273,842	818,481	11,156,180	3,996,387	304,278	407,050	1,133,138	37,192,444	
1969	1,148,337	1,485,000	965,009	11,935,271	6,755,571	323,270	707,172	1,210,886	9,935,874	
1970	1,883,633	1,028,906	3,970,764	16,001,098	8,176,501	6,217,472	2,678,225	3,068,243	8,702,803	
1971	16,560,451	6,586,356	12,492,581	46,645,318	4,366,765	3,878,120	1,155,668	8,480,350	6,013,474	
1972	1,580,384	12,307,036	22,215,577	43,163,508	1,927,396	439,161	1,013,866	19,325,650	23,840,700	
1973	216,752	254,421	4,117,109	6,183,967	797,706	171,669	444,927	9,677,761	1,649,765	
1974	158,873	105,647	2,426,925	4,347,953	577,522	173,478	175,305	4,120,819	4,048,557	
1975	155,577	128,606	1,706,643	6,005,916	363,599	431,978	993,411	683,556	80,679	
1976	168,343	125,986	1,576,568	3,882,793	411,244	669,832	1,318,865	731,842	382,595	
1977	122,116	91,661	333,121	1,432,432	433,403	2,663,541	2,179,768	204,523	1,171,603	
1978	67,900	86,330	804,609	1,276,029	543,200	3,686,000	8,135,390	436,500	452,020	
1979	285,180	172,660	560,660	1,974,920	245,410	6,385,510	26,461,600	467,540	747,874	
1980	281,300	127,070	340,470	1,153,330	258,990	5,209,870	25,240,370	585,880	605,280	
1981	33,950	32,010	86,330	249,290	79,540	808,010	13,863,240	338,530	143,560	
1982	20,370	17,460	42,680	136,770	63,050	22,310	5,515,420	41,710	79,540	
1983	3,880	1,940	2,910	15,520	22,310	4,850	496,640	3,880	5,820	
1984	970	970	970	5,820	2,910	1,940	20,370	970	1,940	
1985	3,880	3,880	3,880	19,400	3,880	3,880	3,880	3,880	3,880	
TOTAL	24,514,268	23,877,224	57,435,140	168,837,025	31,878,111	32,776,120	94,260,462	52,316,154	76,000,200	

Calendar Year	CALIFORNIA AQUEDUCT (continued)							TOTAL	GRAND TOTAL
	WEST BRANCH (continued)		COASTAL BRANCH						
	Reach 30	Subtotal	Reach 31A	Reach 33A	Reach 34	Reach 35	Subtotal		
(64)	(65)	(66)	(67)	(68)	(69)	(70)	(71)	(72)	
1952	1,448	5,815	0	0	0	0	0	101,407	101,903
1953	4,470	17,953	0	0	0	0	0	317,505	319,930
1954	5,909	23,737	0	0	0	0	0	405,029	412,484
1955	1,999	8,028	0	0	0	0	0	163,919	173,419
1956	2,136	8,581	0	0	0	0	0	262,489	358,361
1957	7,907	31,765	0	0	0	0	0	728,478	1,484,177
1958	14,331	56,725	0	0	0	0	0	1,368,389	2,332,396
1959	45,653	138,582	28,046	49,114	7,441	8,236	92,837	2,155,821	3,026,941
1960	87,117	262,688	34,404	70,450	8,507	14,265	127,626	3,013,104	4,736,888
1961	118,530	235,421	13,801	17,868	1,501	3,931	37,101	4,768,384	8,663,364
1962	354,005	684,443	10,121	7,798	524	1,659	20,132	5,947,013	8,994,410
1963	432,675	1,059,082	20,470	14,299	880	2,943	38,592	19,319,995	24,948,786
1964	1,410,463	2,294,105	315,418	26,963	1,687	5,639	349,707	32,142,107	42,322,489
1965	3,478,911	5,082,569	747,023	36,178	2,118	7,060	792,379	58,955,031	63,683,369
1966	9,628,841	15,286,738	2,258,706	35,871	1,737	5,767	2,302,081	127,168,891	131,533,067
1967	18,033,822	34,633,764	6,310,237	38,357	1,895	6,222	6,356,711	190,858,466	197,543,400
1968	16,184,081	59,217,378	2,707,341	30,783	1,325	4,372	2,743,821	194,941,375	200,318,753
1969	16,628,670	35,561,443	423,797	26,590	911	2,914	454,212	186,058,004	187,989,017
1970	22,605,489	51,450,733	269,194	24,383	854	2,792	297,223	212,758,753	213,117,688
1971	17,373,921	41,268,298	164,446	32,218	1,316	3,806	201,786	163,303,296	163,507,527
1972	4,090,587	2,955,960	131,332	17,585	524	1,666	151,107	70,687,045	70,817,609
1973	13,901,195	26,643,023	182,526	16,276	561	1,808	201,171	46,296,387	46,296,203
1974	3,343,142	4,341,709	191,191	17,444	336	1,103	210,074	24,521,513	24,886,218
1975	2,205,122	4,758,345	67,207	30,689	1,823	4,738	104,457	21,420,825	21,663,561
1976	1,514,669	5,029,047	203,821	63,797	4,616	13,168	285,402	17,006,328	17,309,226
1977	344,050	6,996,888	915,502	73,978	1,308	4,009	994,797	15,604,864	16,002,966
1978	535,962	13,789,072	55,800	70,919	4,000	5,184	135,903	19,932,741	20,282,869
1979	1,059,240	35,367,170	18,000	684,899	110,000	219,953	1,032,852	46,352,286	46,552,111
1980	1,136,840	33,037,230	18,000	1,212,737	165,000	425,511	1,821,248	56,295,303	57,079,306
1981	284,210	15,517,090	15,000	1,504,395	224,000	663,870	2,407,265	44,662,172	45,933,457
1982	1,836,210	7,558,240	46,000	6,624,970	300,000	926,649	7,897,619	35,586,033	43,688,678
1983	2,673,320	3,206,820	143,000	24,637,229	910,000	5,633,552	31,323,781	47,890,031	58,342,031
1984	710,040	738,170	562,000	26,096,097	2,703,000	7,762,995	37,124,092	56,284,170	58,539,170
1985	3,880	23,280	933,000	21,669,617	2,372,000	5,547,638	30,522,255	47,975,911	48,073,911
TOTAL	140,058,845	427,289,892	16,785,383	83,131,504	6,827,864	21,281,480	128,026,231	1,755,102,065	1,831,020,585

a) Includes excess capacity costs in the following years allocated to the Metropolitan Water District and repaid Under Article 24(c) of their contract; 1970, \$362,000; 1971, \$6,198,000; 1972, \$139,000.

TABLE B-11: MINIMUM OMP&R COSTS OF EACH AQUEDUCT REACH TO BE

(in dollars)

Sheet 1 of 8

Calendar Year	UPPER FEATHER DIVISION	NORTH BAY AQUEDUCT				SOUTH BAY AQUEDUCT			
		Reach 1	Reach 2	Reach 3	Total	Reach 1	Reach 2	Reach 4	Reach 5
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1960	0	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	37,396	5,522	0	0
1963	0	0	0	0	0	147,719	20,639	0	0
1964	0	0	0	0	0	149,750	15,574	19,405	0
1965	0	0	0	0	0	259,939	45,718	46,485	0
1966	0	0	0	0	0	271,407	23,846	64,034	0
1967	0	0	0	0	0	438,890	32,833	108,372	0
1968	0	0	0	130	130	402,697	42,978	65,553	706
1969	0	0	0	76,244	76,244	464,699	44,871	71,654	706
1970	0	0	0	88,810	88,810	366,741	42,625	62,348	64,280
1971	58	0	0	34,038	34,038	343,295	23,515	47,944	31,707
1972	40	0	0	32,893	32,893	332,887	28,313	54,226	93,171
1973	1	0	0	29,040	29,040	369,425	33,590	55,285	20,519
1974	144	0	0	41,250	41,250	435,709	54,050	79,556	51,568
1975	1,073	0	0	33,024	33,024	603,359	43,549	78,217	29,693
1976	140	0	0	65,248	65,248	728,032	57,020	143,746	107,108
1977	878	0	0	61,306	61,306	368,392	35,166	75,398	71,506
1978	200	0	0	66,929	66,929	658,397	72,838	112,405	132,869
1979	200	0	0	58,942	58,942	705,029	84,620	122,900	135,120
1980	200	0	0	67,180	67,180	717,365	90,763	124,893	129,153
1981	200	0	0	71,585	71,585	717,087	90,740	124,851	129,025
1982	200	0	0	64,360	64,360	715,283	90,496	124,415	128,260
1983	200	57,359	21,199	66,716	145,274	729,505	91,060	127,277	139,566
1984	200	239,091	55,364	70,255	364,710	732,871	91,212	127,958	142,264
1985	200	222,561	49,453	117,037	389,051	731,474	91,018	127,713	141,956
1986	200	223,212	49,253	117,255	389,720	730,044	90,813	127,543	142,056
1987	200	222,571	49,036	117,151	388,758	729,477	90,736	127,425	141,721
1988	200	224,632	49,485	119,209	393,326	737,821	91,736	128,946	143,554
1989	200	223,878	49,314	118,832	392,024	735,474	91,414	128,494	142,908
1990	200	223,961	49,336	118,868	392,165	735,757	91,451	128,562	143,082
1991	200	223,943	49,336	118,849	392,128	735,761	91,450	128,587	142,868
1992	200	223,669	49,272	118,714	391,655	734,938	91,336	128,432	142,471
1993	200	225,627	49,709	119,709	395,045	740,748	92,141	129,475	143,051
1994	200	225,724	49,748	119,709	395,181	741,389	92,217	129,732	143,725
1995	200	225,711	49,742	119,709	395,162	741,341	92,211	129,712	144,843
1996	200	224,359	49,434	119,041	392,834	737,125	91,634	128,884	143,791
1997	200	224,389	49,447	119,041	392,877	737,345	91,661	128,971	143,979
1998	200	224,229	49,410	118,966	392,605	736,812	91,589	128,856	143,807
1999	200	224,249	49,418	118,966	392,633	736,977	91,609	128,922	144,011
2000	200	224,228	49,409	118,966	392,603	736,822	91,591	128,860	143,818
2001	200	225,206	49,634	119,445	394,285	739,846	92,005	129,455	144,412
2002	200	224,971	49,582	119,317	393,870	740,198	91,913	129,359	144,423
2003	200	224,980	49,586	119,317	393,883	740,250	91,919	129,380	144,487
2004	200	224,989	49,590	119,317	393,896	740,331	91,929	129,412	144,584
2005	200	224,188	49,406	118,925	392,519	737,829	91,587	128,915	143,988
2006	200	224,174	49,400	118,925	392,499	736,745	91,576	128,881	143,885
2007	200	224,200	49,410	118,925	392,535	737,925	91,598	128,954	144,107
2008	200	224,194	49,408	118,925	392,527	737,871	91,591	128,932	144,039
2009	200	224,197	49,409	118,925	392,531	737,905	91,595	128,945	144,080
2010	200	224,791	49,541	119,227	393,559	739,663	91,839	129,260	144,332
2011	200	224,785	49,539	119,227	393,551	739,649	91,838	129,254	144,314
2012	200	224,813	49,550	119,227	393,590	739,838	91,861	129,330	144,545
2013	200	224,824	49,554	119,227	393,605	739,876	91,865	129,345	144,592
2014	200	224,801	49,545	119,227	393,573	739,731	91,847	129,287	144,415
2015	200	224,794	49,543	119,227	393,564	739,682	91,842	129,267	144,355
2016	200	224,824	49,555	119,227	393,606	739,891	91,866	129,351	144,611
2017	200	224,796	49,543	119,227	393,566	739,691	91,843	129,271	144,366
2018	200	224,792	49,542	119,227	393,561	739,688	91,842	129,270	144,362
2019	200	224,818	49,552	119,227	393,597	739,861	91,863	129,339	144,576
2020 (a)	200	224,821	49,553	119,227	393,601	739,999	91,879	129,395	144,745

a) And each year thereafter for the remainder of the project repayment period.

REIMBURSED THRU MINIMUM OMP&R COMPONENT OF TRANSPORTATION CHARGE

(in dollars)

Sheet 2 of 8

Calendar Year	SOUTH BAY AQUEDUCT (continued)					CALIFORNIA AQUEDUCT			
	Reach 6	Reach 7	Reach 8	Reach 9	Total	NORTH SAN JOAQUIN DIVISION			
						Reach 1	Reach 2A	Reach 2B	Subtotal
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1960	0	0	0	0	0	0	0	0	0
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	4,730	10,372	9,296	25,742	409,427	0	0	0	0
1967	2,734	7,733	10,904	34,573	636,039	0	0	0	0
1968	2,531	7,809	9,991	39,425	571,690	979,369	223,053	100,942	1,303,364
1969	2,383	5,549	8,263	35,717	633,842	915,438	295,367	184,125	1,394,930
1970	1,467	2,248	6,559	26,415	568,187	950,909	299,872	148,404	1,399,185
1971	2,152	9,146	9,597	29,363	496,719	1,078,303	249,911	111,521	1,439,735
1972	4,065	9,997	11,695	42,896	577,250	1,085,059	226,402	107,992	1,419,453
1973	2,940	7,177	4,424	41,666	535,026	1,127,379	217,139	98,297	1,442,815
1974	6,481	7,158	4,954	45,464	684,940	1,246,138	226,724	114,892	1,587,754
1975	17,479	14,033	17,665	65,861	869,856	1,405,742	445,522	197,018	2,048,282
1976	13,182	7,816	23,319	58,179	1,138,402	1,830,930	281,928	545,599	2,658,457
1977	1,237	1,458	5,785	72,719	626,271	1,508,394	208,034	134,779	1,851,207
1978	21,966	10,506	17,928	52,730	1,079,639	2,238,615	374,494	258,915	2,872,024
1979	19,712	12,450	18,776	50,113	1,148,720	2,156,721	381,417	289,786	2,827,924
1980	15,544	13,474	17,718	45,837	1,154,747	2,055,065	383,804	313,123	2,751,992
1981	15,543	13,470	17,716	45,829	1,154,261	2,146,606	383,980	313,196	2,843,782
1982	15,507	13,440	17,674	45,687	1,150,762	2,139,800	382,422	312,151	2,834,373
1983	15,421	13,363	17,576	45,432	1,179,200	2,198,923	388,506	314,772	2,902,201
1984	15,404	13,351	17,559	45,387	1,186,006	2,247,866	390,465	315,482	2,953,813
1985	15,370	13,320	17,519	45,284	1,183,654	2,236,590	389,672	314,801	2,941,063
1986	15,324	13,282	17,468	45,152	1,181,682	2,230,601	389,021	314,130	2,933,752
1987	15,312	13,271	17,455	45,117	1,180,514	2,229,065	388,669	313,860	2,931,594
1988	15,471	13,409	17,633	45,583	1,194,153	2,252,447	393,177	317,363	2,962,987
1989	15,417	13,361	17,571	45,423	1,190,062	2,245,492	391,554	316,111	2,953,157
1990	15,422	13,366	17,578	45,438	1,190,656	2,246,807	391,727	316,240	2,954,774
1991	15,418	13,364	17,575	45,430	1,190,453	2,247,118	391,801	316,259	2,955,178
1992	15,400	13,346	17,553	45,373	1,188,849	2,244,635	391,314	315,863	2,951,812
1993	15,543	13,471	17,717	45,793	1,197,939	2,261,562	394,592	318,618	2,974,772
1994	15,543	13,471	17,717	45,793	1,199,587	2,264,813	395,217	318,942	2,978,972
1995	15,543	13,471	17,717	45,793	1,200,631	2,264,170	395,200	318,932	2,978,302
1996	15,447	13,387	17,606	45,512	1,193,386	2,251,291	392,674	316,916	2,960,881
1997	15,447	13,387	17,606	45,512	1,193,908	2,252,588	392,866	317,016	2,962,470
1998	15,436	13,378	17,594	45,479	1,192,951	2,250,554	392,546	316,768	2,959,868
1999	15,436	13,378	17,594	45,479	1,193,406	2,251,207	392,714	316,856	2,960,777
2000	15,436	13,378	17,594	45,479	1,193,978	2,250,555	392,561	316,775	2,959,891
2001	15,504	13,438	17,673	45,682	1,198,015	2,259,982	394,361	318,217	2,972,560
2002	15,487	13,422	17,651	45,628	1,198,081	2,258,295	394,025	317,907	2,970,227
2003	15,487	13,422	17,651	45,628	1,198,224	2,258,300	394,071	317,931	2,970,302
2004	15,487	13,422	17,651	45,628	1,198,444	2,258,947	394,152	317,972	2,971,071
2005	15,430	13,373	17,588	45,462	1,194,172	2,251,125	392,659	316,782	2,960,566
2006	15,430	13,373	17,588	45,462	1,192,940	2,250,479	392,584	316,744	2,959,807
2007	15,430	13,373	17,588	45,462	1,194,437	2,251,774	392,753	316,831	2,961,358
2008	15,430	13,373	17,588	45,462	1,194,286	2,251,129	392,704	316,806	2,960,639
2009	15,430	13,373	17,588	45,462	1,194,378	2,251,772	392,732	316,820	2,961,324
2010	15,474	13,410	17,637	45,589	1,197,204	2,256,651	393,728	317,658	2,968,037
2011	15,474	13,410	17,637	45,589	1,197,165	2,256,649	393,715	317,651	2,968,015
2012	15,474	13,410	17,637	45,589	1,197,684	2,257,304	393,894	317,743	2,968,941
2013	15,474	13,410	17,637	45,589	1,197,788	2,257,948	393,935	317,764	2,969,647
2014	15,474	13,410	17,637	45,589	1,197,390	2,257,297	393,792	317,691	2,968,780
2015	15,474	13,410	17,637	45,589	1,197,256	2,256,653	393,748	317,668	2,968,069
2016	15,474	13,410	17,637	45,589	1,197,829	2,257,949	393,944	317,770	2,969,663
2017	15,474	13,410	17,637	45,589	1,197,281	2,256,654	393,753	317,671	2,968,078
2018	15,474	13,410	17,637	45,589	1,197,272	2,256,654	393,761	317,675	2,968,090
2019	15,474	13,410	17,637	45,589	1,197,749	2,257,946	393,913	317,753	2,969,612
2020(a)	15,474	13,410	17,637	45,589	1,198,128	2,257,981	394,382	317,995	2,970,358

TABLE B-11: MINIMUM OMP&R COSTS OF EACH AQUEDUCT REACH TO BE

(in dollars)

Sheet 3 of 8

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
(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	
1960	0	0	0	0	0	0	0	0	0
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	117,197	412,310	125,411	42,965	100,130	798,013	0	0	0
1969	88,434	445,650	178,489	34,801	226,515	973,889	21,090	129,116	82,618
1970	88,455	469,000	218,504	64,013	185,546	1,025,518	25,065	150,329	123,134
1971	98,656	524,447	170,379	62,260	152,672	1,008,414	30,812	182,844	113,823
1972	115,133	628,726	169,582	71,416	149,745	1,134,602	33,450	178,870	124,751
1973	115,421	594,158	153,773	56,619	148,984	1,068,955	48,922	216,066	122,025
1974	118,895	652,364	146,542	61,897	145,425	1,125,123	33,154	189,988	125,267
1975	131,754	814,821	173,594	78,816	152,568	1,351,553	75,032	239,124	151,845
1976	53,335	859,976	214,794	87,619	169,520	1,385,244	37,502	126,392	116,704
1977	148,251	1,070,835	232,137	87,935	187,994	1,727,152	39,079	136,903	171,354
1978	210,251	1,150,631	256,577	90,723	127,415	1,835,597	56,487	209,250	189,462
1979	216,177	1,165,908	259,197	90,774	129,200	1,861,256	57,504	212,603	164,889
1980	212,914	1,149,095	253,361	88,298	127,141	1,830,809	58,361	213,979	165,393
1981	213,460	1,146,771	253,339	88,295	127,130	1,828,995	58,318	213,936	165,355
1982	210,744	1,142,039	251,823	87,786	126,455	1,818,847	58,169	213,091	164,665
1983	230,174	1,217,439	265,611	92,257	132,138	1,937,619	58,026	217,383	168,917
1984	236,185	1,235,971	268,865	93,251	133,396	1,967,668	58,026	218,791	170,219
1985	235,595	1,232,938	268,452	93,117	133,173	1,963,275	57,897	218,370	169,907
1986	235,693	1,230,307	262,338	90,914	130,144	1,949,396	57,737	218,054	169,712
1987	235,281	1,227,934	261,588	90,644	129,773	1,945,220	57,691	217,855	169,555
1988	240,464	1,248,970	266,136	92,212	131,982	1,979,764	58,283	220,406	171,597
1989	238,525	1,244,597	264,605	91,668	131,224	1,970,619	58,051	219,532	170,895
1990	238,759	1,245,139	264,796	91,732	131,313	1,971,739	58,071	219,638	170,982
1991	239,042	1,245,925	264,899	91,764	131,348	1,972,978	58,064	219,685	171,036
1992	238,571	1,244,079	264,427	91,600	131,112	1,969,789	57,991	219,419	170,827
1993	241,273	1,255,549	267,531	92,690	132,700	1,989,743	58,511	221,202	172,175
1994	242,834	1,261,643	268,315	92,939	133,015	1,998,746	58,525	221,605	172,560
1995	242,791	1,260,688	268,275	92,927	132,998	1,997,679	58,524	221,585	172,539
1996	240,168	1,250,560	265,805	92,073	131,778	1,980,384	58,170	220,188	171,445
1997	240,649	1,252,582	266,052	92,152	131,877	1,983,312	58,175	220,316	171,566
1998	240,265	1,251,504	265,719	92,038	131,716	1,981,242	58,133	220,129	171,416
1999	240,683	1,252,569	265,926	92,104	131,799	1,983,081	58,136	220,235	171,517
2000	240,298	1,251,513	265,732	92,042	131,722	1,981,307	58,133	220,136	171,423
2001	242,152	1,259,047	267,511	92,655	132,601	1,993,966	58,388	221,142	172,210
2002	242,017	1,258,340	267,219	92,551	132,439	1,992,566	58,325	220,967	172,090
2003	242,135	1,258,379	267,279	92,569	132,463	1,992,825	58,325	220,997	172,118
2004	242,335	1,259,375	267,377	92,601	132,503	1,994,191	58,328	221,048	172,166
2005	240,764	1,253,032	265,901	92,090	131,775	1,983,562	58,119	220,215	171,511
2006	240,576	1,252,038	265,802	92,060	131,736	1,982,212	58,117	220,165	171,464
2007	240,999	1,254,037	266,017	92,128	131,823	1,985,004	58,121	220,275	171,568
2008	240,877	1,253,067	265,954	92,107	131,797	1,983,802	58,120	220,242	171,538
2009	240,949	1,254,021	265,992	92,119	131,812	1,984,893	58,120	220,263	171,557
2010	241,771	1,257,131	266,930	92,450	132,293	1,990,575	58,278	220,803	171,964
2011	241,740	1,257,120	266,913	92,444	132,287	1,990,504	58,278	220,793	171,955
2012	242,184	1,259,128	267,139	92,516	132,377	1,993,344	58,282	220,908	172,066
2013	242,287	1,259,161	267,191	92,532	132,398	1,993,569	58,283	220,935	172,090
2014	241,932	1,258,114	267,012	92,475	132,325	1,991,858	58,279	220,844	172,004
2015	241,819	1,257,148	266,954	92,456	132,303	1,990,680	58,278	220,814	171,975
2016	242,309	1,259,172	267,204	92,536	132,402	1,993,623	58,283	220,944	172,097
2017	241,834	1,257,153	266,964	92,460	132,307	1,990,718	58,278	220,820	171,979
2018	241,853	1,257,157	266,967	92,461	132,308	1,990,746	58,279	220,822	171,983
2019	242,232	1,259,145	267,166	92,525	132,389	1,993,457	58,282	220,924	172,079
2020 (a)	243,403	1,259,428	267,593	92,660	132,560	1,995,644	58,290	221,142	172,287

REIMBURSED THRU MINIMUM OMP&R COMPONENT OF TRANSPORTATION CHARGE

(in dollars)

Sheet 4 of 8

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
(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	
1960	0	0	0	0	0	0	0	0	0
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	80,255	56,755	0	0	0	0	0	0	0
1970	113,214	82,360	90,595	117,814	146,423	0	0	0	0
1971	124,748	77,138	91,739	87,029	160,428	665,290	145,990	107,315	508,752
1972	112,310	80,515	94,630	109,264	139,698	839,645	119,448	97,014	580,814
1973	112,456	88,263	71,125	108,549	212,161	920,415	114,745	95,006	661,167
1974	135,109	93,604	71,425	184,386	134,960	857,350	137,359	110,410	813,994
1975	198,563	118,523	58,960	111,522	103,172	1,105,123	172,555	114,520	943,536
1976	131,583	64,969	30,444	140,193	127,843	1,078,509	169,638	109,305	995,823
1977	189,962	107,320	87,916	170,309	142,083	1,333,465	186,676	111,440	1,268,849
1978	205,661	136,751	124,286	186,025	221,902	1,312,509	154,659	113,822	1,222,692
1979	180,726	123,839	99,279	173,489	199,869	1,316,070	158,089	116,112	1,222,661
1980	182,134	124,507	98,871	174,122	201,310	1,289,111	158,764	115,842	1,199,156
1981	182,097	124,452	98,895	174,053	201,259	1,287,844	158,769	115,834	1,198,793
1982	181,354	124,051	98,260	173,514	200,566	1,285,051	158,041	115,213	1,196,604
1983	185,856	126,290	104,375	175,057	204,118	1,321,444	166,440	121,102	1,214,671
1984	187,239	127,005	106,201	175,599	205,268	1,330,379	168,979	122,938	1,219,788
1985	186,899	126,738	106,048	175,240	204,841	1,328,977	168,699	122,745	1,213,548
1986	186,685	126,555	106,121	174,883	204,519	1,328,457	168,759	122,762	1,216,718
1987	186,514	126,442	106,003	174,735	204,335	1,326,612	168,576	122,633	1,215,940
1988	186,717	127,901	107,498	176,665	206,729	1,341,321	170,866	124,283	1,227,063
1989	187,961	127,389	106,993	175,990	205,905	1,337,389	170,188	123,780	1,224,513
1990	188,053	127,450	107,066	176,062	206,002	1,337,840	170,302	123,861	1,224,864
1991	188,111	127,477	107,154	176,072	206,043	1,338,787	170,419	123,941	1,224,735
1992	187,886	127,323	107,026	175,857	205,789	1,337,434	170,219	123,792	1,223,505
1993	189,350	128,345	107,737	177,355	207,493	1,346,004	171,379	124,661	1,231,536
1994	189,755	128,572	108,229	177,544	207,848	1,348,856	172,078	125,139	1,233,596
1995	189,734	128,560	108,203	177,534	207,830	1,348,785	172,028	125,104	1,233,579
1996	188,552	127,762	107,484	176,436	206,511	1,341,939	170,919	124,293	1,227,474
1997	188,680	127,834	107,640	176,497	206,624	1,342,260	171,144	124,448	1,227,541
1998	188,519	127,730	107,525	176,360	206,450	1,341,406	170,964	124,321	1,226,831
1999	188,626	127,788	107,655	176,409	206,543	1,342,593	171,145	124,444	1,227,812
2000	188,526	127,733	107,534	176,362	206,456	1,341,420	170,974	124,327	1,226,834
2001	189,378	128,306	108,053	177,152	207,403	1,347,285	171,786	124,916	1,231,222
2002	189,244	128,206	108,028	176,984	207,232	1,346,202	171,733	124,871	1,231,029
2003	189,276	128,223	108,067	176,999	207,261	1,346,280	171,788	124,908	1,231,045
2004	189,326	128,253	108,129	177,023	207,306	1,346,404	171,875	124,968	1,231,069
2005	188,620	127,776	107,688	176,374	206,519	1,342,340	171,188	124,470	1,227,479
2006	188,569	127,747	107,627	176,350	206,474	1,342,212	171,097	124,409	1,227,452
2007	188,680	127,810	107,762	176,402	206,572	1,342,488	171,292	124,542	1,227,509
2008	188,648	127,791	107,722	176,386	206,544	1,342,405	171,233	124,503	1,227,491
2009	188,667	127,801	107,745	176,396	206,561	1,342,455	171,269	124,525	1,227,501
2010	189,109	128,112	107,960	176,848	207,077	1,345,332	171,616	124,787	1,230,518
2011	189,100	128,108	107,950	176,845	207,069	1,345,308	171,600	124,776	1,230,214
2012	189,218	128,172	108,092	176,899	207,172	1,346,525	171,802	124,914	1,230,273
2013	189,244	128,188	108,124	176,911	207,194	1,346,587	171,846	124,944	1,230,286
2014	189,152	128,135	108,012	176,868	207,114	1,345,432	171,688	124,837	1,230,239
2015	189,122	128,119	107,976	176,854	207,088	1,345,360	171,636	124,800	1,230,224
2016	189,252	128,191	108,132	176,914	207,200	1,346,608	171,860	124,955	1,230,289
2017	189,127	128,121	107,981	176,856	207,092	1,345,372	171,644	124,807	1,230,228
2018	189,129	128,122	107,985	176,857	207,094	1,345,373	171,645	124,808	1,230,227
2019	189,232	128,180	108,109	176,905	207,184	1,346,562	171,828	124,932	1,230,280
2020(a)	189,453	128,304	108,377	177,009	207,377	1,346,942	172,096	125,117	1,230,341

TABLE B-11: MINIMUM OMP&R COSTS OF EACH AQUEDUCT REACH TO BE

(in dollars)

Sheet 5 of 8

Calendar Year	CALIFORNIA AQUEDUCT (continued)								
	SOUTH SAN JOAQUIN DIVISION (continued)		TEHACHAPI DIVISION			MOJAVE DIVISION			
	Reach 16A	Subtotal	Reach 17E	Reach 17F	Subtotal	Reach 18A	Reach 19	Reach 19C	Reach 20A
(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)	
1960	0	0	0	0	0	0	0	0	0
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	369,834	0	0	0	0	0	0	0
1970	0	848,934	0	0	0	0	0	0	0
1971	9,867	2,305,775	3,328	0	3,328	0	0	0	0
1972	1,058,019	3,568,428	1,359,918	27,410	1,387,328	34,889	128,706	0	123,563
1973	1,188,503	3,959,403	1,695,989	50,990	1,746,979	33,249	136,080	0	149,843
1974	1,282,586	4,169,592	2,192,043	18,666	2,210,709	27,421	80,566	0	103,517
1975	1,469,109	4,861,584	2,295,501	38,413	2,333,914	36,548	110,139	0	123,646
1976	1,660,002	4,788,907	2,664,924	143,111	2,808,035	106,206	179,662	0	163,560
1977	1,940,602	5,885,958	3,731,661	108,143	3,839,804	83,604	195,850	0	158,305
1978	1,829,521	5,963,027	3,093,266	71,414	3,164,680	142,646	250,149	0	226,202
1979	1,834,664	5,859,794	3,282,201	66,794	3,348,995	169,212	260,859	0	228,636
1980	1,867,131	5,848,681	3,396,541	58,188	3,454,729	196,250	259,039	0	219,644
1981	1,866,705	5,846,310	3,392,863	58,182	3,451,045	189,290	257,243	0	217,927
1982	1,862,545	5,831,124	3,370,995	58,074	3,429,069	180,839	257,005	0	217,750
1983	1,897,930	5,961,609	3,412,997	59,734	3,472,731	228,077	305,753	0	264,131
1984	1,907,792	5,998,224	3,416,822	60,348	3,477,170	229,152	321,512	0	279,104
1985	1,904,711	5,988,620	3,409,548	60,237	3,469,785	229,404	321,473	0	279,120
1986	1,903,315	5,984,277	3,407,748	60,188	3,467,936	229,415	323,321	42,576	280,951
1987	1,902,142	5,979,033	3,405,099	60,128	3,465,227	229,235	322,950	40,855	280,617
1988	1,919,309	6,040,638	3,433,288	60,884	3,494,172	231,848	329,025	41,288	286,109
1989	1,914,361	6,022,947	3,426,421	60,660	3,487,081	231,204	328,249	41,111	285,465
1990	1,915,863	6,026,054	3,427,173	60,692	3,487,865	231,391	328,917	41,125	286,085
1991	1,915,837	6,027,361	3,427,721	60,717	3,488,438	231,444	329,274	41,118	286,432
1992	1,914,078	6,021,146	3,424,934	60,644	3,485,578	231,273	329,245	41,065	286,436
1993	1,925,606	6,061,354	3,443,546	61,108	3,504,654	232,660	330,133	41,449	287,040
1994	1,929,465	6,073,772	3,449,120	61,268	3,510,388	233,437	333,823	41,449	290,535
1995	1,928,437	6,072,442	3,449,120	61,250	3,510,370	233,368	333,498	41,449	290,227
1996	1,919,592	6,040,765	3,433,531	60,868	3,494,399	232,114	331,361	41,192	288,365
1997	1,920,875	6,043,600	3,435,389	60,921	3,496,310	232,313	332,303	41,192	289,255
1998	1,918,848	6,038,632	3,433,829	60,863	3,494,692	232,121	331,829	41,163	288,822
1999	1,920,051	6,042,954	3,434,758	60,903	3,495,661	232,357	332,945	41,163	289,881
2000	1,918,860	6,038,718	3,433,829	60,865	3,494,694	232,131	331,874	41,163	288,865
2001	1,926,182	6,063,423	3,444,618	61,149	3,505,767	233,039	333,446	41,346	290,241
2002	1,924,732	6,059,643	3,442,923	61,109	3,504,032	232,989	333,929	41,298	290,731
2003	1,924,816	6,060,103	3,442,923	61,123	3,504,046	233,098	334,449	41,298	291,223
2004	1,925,876	6,061,771	3,443,852	61,143	3,504,995	233,218	335,021	41,298	291,763
2005	1,919,693	6,041,992	3,434,867	60,906	3,495,773	232,351	333,138	41,148	290,074
2006	1,919,551	6,041,234	3,433,938	60,884	3,494,822	232,303	332,913	41,148	289,860
2007	1,920,782	6,043,803	3,435,796	60,930	3,496,726	232,518	333,924	41,148	290,817
2008	1,919,760	6,042,383	3,434,867	60,917	3,495,784	232,451	333,618	41,148	290,529
2009	1,920,744	6,043,604	3,435,796	60,926	3,496,722	232,405	333,400	41,148	290,321
2010	1,923,585	6,055,689	3,441,074	61,064	3,502,138	232,904	334,045	41,263	290,859
2011	1,923,559	6,055,555	3,441,074	61,060	3,502,134	232,816	333,625	41,263	290,464
2012	1,924,801	6,059,124	3,442,932	61,109	3,504,041	233,058	334,771	41,263	291,549
2013	1,924,867	6,059,499	3,442,932	61,119	3,504,051	233,144	335,177	41,263	291,932
2014	1,924,625	6,057,229	3,442,003	61,082	3,503,085	232,932	334,174	41,263	290,980
2015	1,923,615	6,055,861	3,441,074	61,070	3,502,144	232,922	334,128	41,263	290,940
2016	1,924,893	6,059,618	3,442,932	61,122	3,504,054	233,178	335,343	41,263	292,092
2017	1,923,631	6,055,936	3,441,074	61,072	3,502,146	232,916	334,096	41,263	290,908
2018	1,923,626	6,055,950	3,441,074	61,071	3,502,145	232,931	334,164	41,263	290,974
2019	1,924,845	6,059,342	3,442,932	61,116	3,504,048	233,140	335,166	41,263	291,922
2020(a)	1,925,089	6,061,824	3,442,932	61,139	3,504,071	233,260	335,740	41,263	292,467

REIMBURSED THRU MINIMUM OMP&R COMPONENT OF TRANSPORTATION CHARGE

(in dollars)

Sheet 6 of 8

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	
(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)		
1960	0	0	0	0	0	0	0	0	0	
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	113,597	72,111	76,361	969,960	48,310	341,858	1,909,355	25	555	
1973	137,706	55,790	61,600	1,182,736	60,744	326,929	2,144,677	19,188	632,029	
1974	78,714	58,590	70,208	1,342,502	87,598	299,234	2,148,350	21,885	728,853	
1975	106,785	122,103	69,636	1,456,674	99,608	375,164	2,500,303	26,361	795,461	
1976	135,072	94,433	116,680	1,425,094	94,674	268,166	2,583,547	45,679	986,169	
1977	105,537	89,769	83,689	1,670,682	84,735	190,021	2,662,192	56,398	1,265,119	
1978	224,660	138,815	115,644	1,607,772	68,754	898,192	3,672,834	13,371	1,180,939	
1979	199,366	133,357	103,272	1,658,049	67,052	399,693	3,219,496	19,695	1,093,377	
1980	157,688	118,706	81,316	1,647,940	58,131	808,869	3,547,583	28,158	1,118,101	
1981	155,874	117,760	80,959	1,641,162	57,952	565,181	3,283,348	28,051	1,116,330	
1982	155,821	117,645	80,813	1,638,315	57,779	519,909	3,225,876	27,944	1,114,189	
1983	197,198	140,711	89,848	1,819,919	57,420	826,289	3,929,346	27,720	1,123,629	
1984	210,505	148,164	92,774	1,874,781	57,363	707,770	2,505,585	27,693	1,126,343	
1985	210,607	148,140	92,698	1,874,173	57,229	279,686	3,492,530	27,628	1,124,224	
1986	212,342	149,027	92,954	1,879,310	57,058	1,538,367	4,805,321	27,544	1,122,470	
1987	212,076	148,853	92,859	1,877,566	57,015	892,966	4,154,992	27,522	1,114,752	
1988	216,569	151,694	94,341	1,906,281	57,613	2,865,206	6,179,974	27,816	1,132,128	
1989	216,126	151,326	94,059	1,901,753	57,382	216,019	3,522,694	27,690	1,128,856	
1990	216,666	151,638	94,194	1,903,990	57,400	2,035,614	5,347,020	27,699	1,129,169	
1991	216,977	151,808	94,260	1,905,191	57,390	698,670	2,615,224	27,693	1,129,939	
1992	217,032	151,801	94,215	1,904,175	57,318	973,511	4,286,071	27,660	1,128,776	
1993	217,216	152,183	94,677	1,912,747	57,852	1,788,112	5,114,069	27,916	1,136,393	
1994	220,324	153,931	95,377	1,926,449	57,852	1,927,782	5,280,959	27,916	1,137,322	
1995	220,052	153,779	95,314	1,925,372	57,852	1,143,700	4,494,611	27,916	1,137,322	
1996	218,630	152,792	94,713	1,913,708	57,494	637,029	2,693,340	27,743	1,131,589	
1997	219,420	153,236	94,891	1,917,799	57,494	2,227,163	5,565,066	27,743	1,131,589	
1998	219,063	153,015	94,777	1,915,783	57,453	797,926	4,131,952	27,725	1,130,937	
1999	220,003	153,542	94,990	1,919,269	57,453	1,101,875	4,443,478	27,725	1,131,866	
2000	219,100	153,036	94,786	1,915,915	57,453	1,088,707	4,423,030	27,725	1,130,937	
2001	220,156	153,764	95,225	1,923,829	57,710	1,242,207	4,590,963	27,848	1,135,054	
2002	220,639	153,996	95,281	1,925,535	57,642	1,006,264	4,358,304	27,815	1,134,888	
2003	221,074	154,240	95,379	1,927,083	57,642	1,051,372	4,406,858	27,815	1,134,888	
2004	221,554	154,513	95,488	1,928,851	57,642	1,240,993	4,600,341	27,815	1,134,888	
2005	220,192	153,638	95,013	1,920,724	57,433	256,663	3,087,048	27,714	1,131,526	
2006	220,001	153,530	94,974	1,918,929	57,433	2,378,983	5,720,074	27,714	1,131,526	
2007	220,850	154,011	95,164	1,923,119	57,433	1,580,288	4,929,272	27,714	1,131,526	
2008	220,593	153,864	95,106	1,922,128	57,433	463,998	2,882,872	27,714	1,131,526	
2009	220,411	153,763	95,064	1,921,642	57,433	2,127,608	5,473,195	27,714	1,131,526	
2010	220,783	154,057	95,273	1,925,242	57,594	92,771	3,444,791	27,792	1,134,117	
2011	220,428	153,857	95,195	1,924,057	57,594	1,559,906	4,909,205	27,792	1,134,117	
2012	221,394	154,398	95,412	1,927,703	57,594	1,640,855	4,997,997	27,792	1,134,117	
2013	221,737	154,592	95,489	1,928,916	57,594	254,584	3,614,428	27,792	1,134,117	
2014	220,889	154,116	95,300	1,925,774	57,594	418,135	3,771,157	27,792	1,134,117	
2015	220,851	154,097	95,290	1,925,516	57,594	1,585,677	4,938,278	27,792	1,134,117	
2016	221,878	154,671	95,520	1,930,345	57,594	1,839,231	5,201,115	27,792	1,134,117	
2017	220,825	154,080	95,283	1,925,457	57,594	1,320,218	4,672,640	27,792	1,134,117	
2018	220,882	154,113	95,297	1,925,630	57,594	750,882	2,601,966	27,792	1,134,117	
2019	221,728	154,585	95,488	1,928,850	57,594	2,135,192	5,494,928	27,792	1,134,117	
2020 (a)	222,211	154,857	95,596	1,930,179	57,594	1,054,434	4,417,601	27,792	1,134,117	

TABLE B-11: MINIMUM OMP&R COSTS OF EACH AQUEDUCT REACH TO BE

(in dollars)

Sheet 7 of 8

Calendar Year	CALIFORNIA AQUEDUCT (continued)								
	SANTA ANA DIVISION (continued)				WEST BRANCH				
	Reach 28G	Reach 28H	Reach 28J	Subtotal	Reach 29A	Reach 29F	Reach 29G	Reach 29H	Reach 29J
(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	
1960	0	0	0	0	0	0	0	0	0
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	105	29	0	714	701,709	156,329	198,011	233,425	92,711
1973	125,565	24	121,471	898,229	783,466	339,778	123,734	267,065	135,567
1974	140,641	31,333	795,727	1,718,439	919,700	168,207	118,590	240,267	41,505
1975	98,384	62,269	615,679	1,598,154	1,097,349	184,509	200,565	821,200	105,330
1976	122,890	89,243	535,449	1,779,430	1,302,818	226,380	208,732	673,056	76,136
1977	118,535	87,626	739,477	2,267,155	1,366,814	150,995	206,965	642,626	31,812
1978	129,822	56,262	1,051,657	2,432,051	1,694,370	218,193	508,004	713,788	240,033
1979	97,175	68,851	876,540	2,155,638	1,636,248	209,110	508,927	679,052	231,145
1980	73,241	83,129	899,342	2,201,971	1,729,997	212,545	518,782	691,209	210,702
1981	72,618	83,047	187,354	1,487,400	1,728,433	199,693	471,677	698,206	210,151
1982	72,435	82,812	987,560	2,284,940	1,724,779	195,305	1,049,559	666,139	214,528
1983	71,915	82,276	1,090,861	2,396,401	1,736,784	263,825	1,043,592	999,131	207,364
1984	71,767	82,167	1,783,739	3,091,709	1,740,706	286,314	1,045,396	1,074,186	204,432
1985	71,601	81,979	1,692,901	2,998,333	1,737,100	286,579	1,043,861	1,092,006	206,173
1986	71,388	81,736	2,098,072	3,401,210	1,733,770	289,820	1,043,457	1,114,759	206,056
1987	71,333	81,670	1,444,062	2,746,339	1,732,481	289,213	1,043,282	1,125,229	208,812
1988	72,079	82,525	2,350,464	3,665,012	1,750,275	296,358	1,053,896	1,164,827	211,081
1989	71,795	82,206	259,078	1,569,625	1,744,646	295,814	1,052,708	1,203,144	219,276
1990	71,821	82,234	3,317,754	4,628,677	1,745,240	296,371	1,053,663	1,219,616	220,218
1991	71,809	82,219	1,561,654	2,873,314	1,745,065	297,336	1,054,064	1,232,423	220,212
1992	71,717	82,116	744,032	2,054,301	1,743,049	297,080	1,053,058	1,231,960	221,091
1993	72,384	82,881	2,571,896	3,891,470	1,757,636	296,803	1,060,395	1,233,785	221,456
1994	72,384	82,881	1,233,789	2,554,292	1,759,083	301,965	1,060,863	1,222,764	224,243
1995	72,384	82,881	1,733,478	3,053,981	1,759,027	301,434	1,060,984	1,225,716	225,172
1996	71,937	82,368	1,325,001	2,638,638	1,749,014	299,319	1,055,813	1,218,529	225,855
1997	71,937	82,368	1,803,999	3,117,636	1,749,185	301,036	1,056,517	1,235,398	227,713
1998	71,887	82,309	1,589,885	2,902,743	1,747,998	300,322	1,055,865	1,232,994	227,686
1999	71,887	82,309	1,535,022	2,848,809	1,748,133	301,632	1,056,148	1,239,720	227,686
2000	71,887	82,309	2,270,794	3,583,652	1,748,004	300,369	1,055,841	1,232,435	227,686
2001	72,208	82,678	2,235,069	3,552,857	1,755,224	302,126	1,059,712	1,241,353	228,792
2002	72,121	82,580	1,176,071	2,493,475	1,753,420	302,871	1,059,222	1,251,916	228,744
2003	72,121	82,580	2,124,442	3,441,846	1,753,462	303,283	1,060,355	1,256,817	231,531
2004	72,121	82,580	1,285,699	2,603,103	1,754,456	303,907	1,060,557	1,261,701	230,602
2005	71,859	82,279	1,989,765	3,303,143	1,747,614	302,316	1,056,560	1,256,591	230,458
2006	71,859	82,279	2,055,990	3,369,368	1,747,545	301,615	1,056,456	1,254,079	231,387
2007	71,859	82,279	1,717,680	3,031,058	1,748,620	303,070	1,057,733	1,262,450	230,458
2008	71,859	82,279	1,991,651	3,305,029	1,747,645	302,619	1,057,936	1,267,319	232,316
2009	71,859	82,279	1,211,533	2,524,911	1,748,602	302,896	1,057,922	1,266,956	234,174
2010	72,062	82,511	1,699,546	3,016,028	1,752,091	302,771	1,059,141	1,265,692	234,286
2011	72,062	82,511	1,694,435	3,010,917	1,752,079	302,638	1,059,154	1,266,011	234,286
2012	72,062	82,511	1,744,094	3,060,576	1,753,159	304,155	1,060,606	1,278,566	234,286
2013	72,062	82,511	1,971,596	3,288,078	1,753,188	304,459	1,060,731	1,281,547	234,286
2014	72,062	82,511	1,346,426	2,662,908	1,753,071	303,290	1,060,590	1,278,104	233,357
2015	72,062	82,511	1,578,442	2,894,924	1,752,105	302,901	1,059,366	1,271,087	234,286
2016	72,062	82,511	2,407,284	3,723,766	1,753,202	304,596	1,060,724	1,281,348	234,286
2017	72,062	82,511	1,699,761	3,016,243	1,752,112	302,984	1,059,448	1,273,108	234,286
2018	72,062	82,511	1,357,372	2,673,854	1,752,107	302,944	1,059,403	1,271,967	232,428
2019	72,062	82,511	2,005,258	3,321,740	1,753,180	304,360	1,060,674	1,280,160	234,286
2020(a)	72,062	82,511	1,779,319	3,095,801	1,753,261	305,188	1,060,940	1,286,564	234,286

REIMBURSED THRU MINIMUM OMP&R COMPONENT OF TRANSPORTATION CHARGE

(in dollars)

Sheet 8 of 8

Calendar Year	CALIFORNIA AQUEDUCT (continued)							TOTAL	GRAND TOTAL
	WEST BRANCH (continued)		COASTAL BRANCH						
	Reach 30	Subtotal	Reach 31A ^(b)	Reach 33A	Reach 34	Reach 35	Subtotal		
(64)	(65)	(66)	(67)	(68)	(69)	(70)	(71)	(72)	
1960	0	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	42,918
1963	0	0	0	0	0	0	0	0	168,358
1964	0	0	0	0	0	0	0	0	184,729
1965	0	0	0	0	0	0	0	0	378,874
1966	0	0	0	0	0	0	0	0	409,427
1967	0	0	0	0	0	0	0	0	636,039
1968	0	0	0	0	0	0	0	2,101,377	2,673,197
1969	0	0	509,620	0	0	0	509,620	3,248,273	3,958,359
1970	0	0	609,576	0	0	0	609,576	3,883,213	4,540,210
1971	0	0	697,732	0	0	0	697,732	5,454,984	5,985,799
1972	396,746	1,778,931	695,951	0	0	0	695,951	11,894,762	12,504,945
1973	645,222	2,294,832	639,501	0	0	0	639,501	14,195,391	14,759,458
1974	743,992	2,232,261	666,622	0	0	0	666,622	15,858,850	16,585,184
1975	886,785	3,295,738	803,817	0	0	0	803,817	18,793,345	19,697,298
1976	1,109,756	1,377,366	842,195	0	0	0	842,195	18,223,181	19,426,971
1977	690,471	1,708,741	865,440	0	0	0	865,440	20,807,649	21,496,104
1978	3,075,423	6,449,811	847,644	0	0	0	847,644	27,237,668	28,384,436
1979	403,532	3,668,014	918,522	0	0	0	918,522	23,859,639	25,067,501
1980	1,195,825	4,559,060	961,540	0	0	0	961,540	25,156,365	26,378,492
1981	1,176,387	4,484,547	960,247	0	0	0	960,247	24,185,674	25,411,720
1982	1,049,891	4,900,201	959,065	0	0	0	959,065	25,283,495	26,498,817
1983	1,109,265	5,359,961	975,627	0	0	0	975,627	26,935,495	28,260,169
1984	196,127	4,547,161	980,245	0	0	0	980,245	25,521,575	27,072,491
1985	1,949,830	6,315,549	978,568	0	0	0	978,568	28,147,723	29,720,628
1986	907,474	5,295,336	975,434	243,666	7,900	18,106	1,245,106	29,082,334	30,653,936
1987	1,594,181	5,993,198	973,961	235,038	7,770	17,019	1,233,788	28,449,391	30,186,863
1988	1,527,900	2,948,537	984,200	234,978	8,098	17,006	1,244,282	28,515,366	30,103,045
1989	1,500,911	6,016,499	980,856	234,098	8,069	16,782	1,239,805	26,782,427	28,364,713
1990	1,272,214	5,807,322	981,182	234,143	8,068	16,783	1,240,176	31,463,627	33,046,648
1991	1,848,042	6,397,142	982,093	234,315	8,199	17,052	1,241,659	27,571,294	29,154,075
1992	1,167,024	5,713,262	979,987	234,214	8,243	17,142	1,239,586	27,721,545	29,302,249
1993	1,386,110	5,956,185	987,984	235,497	8,287	17,254	1,249,022	30,741,269	32,334,453
1994	802,243	5,371,161	989,291	236,987	8,613	17,935	1,252,826	29,021,116	30,616,084
1995	2,089,573	6,661,906	989,269	236,977	8,607	17,921	1,252,774	30,022,065	31,618,058
1996	1,879,595	6,428,125	983,760	235,145	8,596	17,885	1,245,386	27,481,918	29,068,338
1997	2,213,251	6,783,100	984,862	236,390	8,760	18,226	1,248,238	31,199,732	32,786,717
1998	3,087,077	7,651,942	983,212	236,268	8,739	18,181	1,246,400	30,407,471	31,993,227
1999	173,278	4,746,597	984,291	236,434	8,850	18,412	1,247,987	27,769,344	29,355,583
2000	910,501	5,474,836	983,214	236,317	8,772	18,251	1,246,554	29,202,682	30,788,463
2001	410,022	4,177,185	988,177	237,013	8,845	18,411	1,252,446	28,109,167	29,701,667
2002	2,142,192	6,738,365	987,193	236,720	8,754	18,217	1,250,884	29,367,496	30,959,647
2003	2,102,593	6,708,041	987,218	236,977	8,925	18,576	1,251,696	30,335,717	31,928,024
2004	1,384,040	5,995,263	987,255	237,089	9,001	18,733	1,252,078	28,982,813	30,575,353
2005	2,255,704	6,849,243	984,011	236,424	8,876	18,465	1,247,776	28,969,103	30,555,994
2006	1,107,249	5,698,331	983,969	236,345	8,823	18,354	1,247,491	30,513,339	32,098,978
2007	323,464	4,278,867	984,057	236,515	8,937	18,590	1,248,099	27,974,187	29,561,359
2008	3,228,885	7,836,720	984,031	236,467	8,906	18,524	1,247,928	29,755,157	31,342,170
2009	2,229,523	6,840,073	984,046	236,543	8,956	18,630	1,248,175	30,572,897	32,160,006
2010	1,811,122	6,425,103	986,470	236,793	8,876	18,472	1,250,611	28,652,972	30,243,935
2011	1,068,835	5,683,003	986,461	236,789	8,873	18,468	1,250,591	29,369,924	30,960,840
2012	736,108	5,366,880	986,552	237,003	9,016	18,763	1,251,334	29,202,237	30,793,711
2013	2,546,215	7,180,426	986,571	236,994	9,011	18,752	1,251,328	29,861,026	31,452,619
2014	2,065,158	6,693,570	986,500	236,997	9,012	18,754	1,251,263	28,899,850	30,491,013
2015	1,722,980	6,342,725	986,477	236,821	8,895	18,511	1,250,704	29,943,385	31,534,405
2016	320,163	4,954,319	986,577	237,051	9,049	18,831	1,251,508	29,657,666	31,249,301
2017	1,979,959	6,601,897	986,479	236,873	8,929	18,584	1,250,865	30,058,523	31,649,570
2018	2,426,721	7,045,570	986,481	236,825	8,898	18,517	1,250,721	28,089,042	29,680,075
2019	611,181	5,243,841	986,562	237,026	9,032	18,796	1,251,416	29,838,384	31,429,930
2020(a)	1,638,073	6,278,312	986,667	237,079	9,067	18,869	1,251,682	29,575,293	31,167,222

b) Includes certain costs to be assigned directly to Kern County Water Agency. Refer to Appendix B text "Project Water Charges, Minimum OMP&R Components".

TABLE B-12: VARIABLE OMP&R COSTS TO BE REIMBURSED

(in dollars)

Sheet 1 of 2

Calendar Year	NORTH BAY AQUEDUCT			SOUTH BAY AQUEDUCT	CALIFORNIA AQUEDUCT							
	Reach 1	Reach 3	Total	Reach 1	Reach 1	Reach 4	Reach 14A	Reach 15A	Reach 16A	Reach 17E	Reach 18A	Reach 22B
	Calhoun and Travis Pumping Plants	Cordelia Pumping Plant (a)		South Bay and Del Valle Pumping Plants (b)	Delta Pumping Plant	Dos Amigos Pumping Plant (c)	Buena Vista Pumping Plant	Wheeler Ridge Pumping Plant	Wind Gap Pumping Plant	A.D. Edmonston (Tehachap) Pumping Plant	Cottonwood Powerplant	Pear-blossom Pumping Plant
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
1960	0	0	0	0	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	36,970	0	0	0	0	0	0	0	0
1963	0	0	0	57,711	0	0	0	0	0	0	0	0
1964	0	0	0	74,134	0	0	0	0	0	0	0	0
1965	0	0	0	142,609	0	0	0	0	0	0	0	0
1966	0	0	0	192,605	0	0	0	0	0	0	0	0
1967	0	0	0	223,117	13,881	0	0	0	0	0	0	0
1968	0	6,989	6,989	336,671	450,388	202,095	0	0	0	0	0	0
1969	0	8,551	8,551	257,579	291,499	133,714	0	0	0	0	0	0
1970	0	13,598	13,598	396,358	343,973	209,486	1	0	0	0	0	0
1971	0	10,609	10,609	381,662	571,773	223,477	136,425	16,592	0	0	0	0
1972	0	14,434	14,434	598,702	925,142	496,855	231,676	87,635	163,135	489,225	0	21,952
1973	0	14,449	14,449	493,490	682,846	377,642	300,158	272,133	431,162	1,512,539	0	217,727
1974	0	17,473	17,473	565,575	759,068	431,846	332,953	337,315	566,928	1,980,978	0	313,856
1975	0	14,779	14,779	349,758	1,283,705	494,020	506,830	544,310	1,047,515	3,646,819	0	575,535
1976	0	20,854	20,854	571,309	1,470,789	561,556	606,959	598,467	1,219,258	4,225,433	0	866,250
1977	0	20,345	20,345	572,755	1,092,650	405,802	241,355	205,801	399,406	1,298,390	0	317,051
1978	0	26,000	26,000	669,314	2,846,168	1,329,829	1,330,437	1,132,753	2,575,976	9,829,027	0	2,066,533
1979	0	21,000	21,000	620,445	3,734,600	1,141,398	1,352,987	1,184,009	2,674,422	9,668,323	0	2,478,212
1980	0	24,000	24,000	693,837	3,233,463	1,401,697	1,674,066	1,591,747	3,592,651	12,954,395	0	3,014,826
1981	0	23,000	23,000	671,762	3,791,201	1,374,437	1,798,136	1,723,453	3,888,086	14,027,485	0	2,805,164
1982	0	23,000	23,000	662,297	3,074,970	1,460,933	1,862,583	1,787,358	4,036,672	14,566,810	-209,954	2,973,543
1983	136,347	134,000	270,347	2,497,142	14,165,660	5,988,207	7,069,266	6,643,522	15,283,486	54,183,070	-1,402,728	10,461,780
1984	164,052	153,200	317,252	2,902,637	18,057,096	7,521,048	8,889,929	8,320,732	19,171,404	68,454,826	-1,785,000	12,581,237
1985	180,024	173,200	353,224	2,965,196	18,919,751	7,895,473	9,271,094	8,651,571	19,906,666	70,856,305	-1,823,212	13,043,867
1986	208,933	185,200	394,133	3,112,720	20,661,177	8,646,046	10,051,719	9,374,691	21,540,767	76,431,017	-2,093,426	13,753,995
1987	237,946	193,200	431,146	3,146,188	21,642,958	9,079,892	10,582,428	9,873,882	22,660,473	80,154,556	-1,963,488	13,805,550
1988	310,819	209,200	520,019	3,339,735	23,955,538	10,082,162	11,851,902	11,094,878	25,449,723	89,825,277	-2,388,718	14,668,851
1989	373,817	220,200	594,017	3,440,027	25,369,426	10,946,626	13,186,219	12,443,223	28,592,834	101,042,914	-2,335,319	14,419,839
1990	436,802	226,200	663,002	3,547,452	27,260,762	11,807,303	14,449,114	13,717,317	31,547,733	111,547,453	-2,209,523	15,120,561
1991	445,776	242,200	687,976	3,694,956	27,852,433	12,030,344	14,785,331	14,055,316	32,340,426	114,421,933	-2,554,428	14,938,141
1992	450,780	256,200	706,980	3,817,740	28,202,884	12,176,103	15,038,893	14,318,017	32,963,115	116,707,375	-2,241,609	15,034,096
1993	449,826	265,200	715,026	3,877,998	28,248,873	12,193,895	15,165,251	14,468,208	33,333,779	118,131,292	-2,220,645	15,025,758
1994	474,690	290,200	764,890	4,147,441	29,757,894	12,810,757	15,973,682	15,252,046	35,152,284	124,625,630	-2,344,381	15,548,595
1995	477,709	303,200	780,909	4,176,871	30,224,783	12,973,963	16,289,579	15,584,536	35,943,746	127,548,715	-2,288,961	15,593,738
1996	480,733	317,200	797,933	4,182,048	29,927,694	12,892,611	16,185,615	15,487,377	35,719,994	126,761,748	-2,105,277	15,098,146
1997	493,690	338,200	831,890	4,289,011	30,721,496	13,244,861	16,711,784	16,013,870	36,954,950	131,233,194	-2,516,530	15,688,678
1998	498,700	352,200	850,900	4,268,445	30,785,708	13,262,669	16,764,275	16,074,770	37,104,534	131,799,456	-2,362,009	15,534,630
1999	509,672	373,200	882,872	4,312,516	31,188,003	13,422,225	16,965,033	16,269,204	37,554,543	133,406,735	-2,204,840	15,727,402
2000	511,702	384,200	895,902	4,270,403	31,189,203	13,438,236	17,054,617	16,375,251	37,813,389	134,401,989	-2,369,708	15,620,964
2001	517,675	393,200	910,875	4,300,076	31,477,073	13,564,286	17,216,051	16,532,612	38,179,671	135,708,830	-2,628,108	15,780,376
2002	523,649	400,200	923,849	4,335,335	32,134,516	13,854,649	17,680,700	17,002,981	39,288,355	139,743,665	-2,538,345	15,801,635
2003	527,636	406,200	933,836	4,350,027	32,513,082	14,026,368	17,959,839	17,288,266	39,959,190	142,189,119	-2,321,456	16,025,594
2004	531,623	413,200	944,823	4,371,574	32,833,190	14,161,124	18,158,445	17,487,417	40,425,924	143,883,767	-2,192,971	16,033,280
2005	529,648	415,200	944,848	4,338,274	32,777,823	14,146,346	18,179,629	17,518,997	40,508,517	144,217,466	-2,510,886	15,845,148
2006	529,668	420,200	949,868	4,314,767	32,836,922	14,170,249	18,265,525	17,614,202	40,740,349	145,092,451	-2,208,116	15,937,334
2007	538,632	433,200	971,832	4,364,717	33,216,571	14,335,717	18,479,298	17,821,566	41,219,895	146,800,223	-2,274,212	16,066,759
2008	540,640	440,200	980,840	4,349,047	33,429,849	14,431,919	18,681,862	18,034,956	41,729,104	148,683,530	-2,211,665	15,732,116
2009	544,636	449,200	993,836	4,358,841	33,741,346	14,575,973	18,927,633	18,287,482	42,324,054	150,857,116	-2,689,510	15,859,121
2010	545,650	455,200	1,000,850	4,337,294	33,754,850	14,579,631	18,972,323	18,338,974	42,451,918	151,347,751	-2,214,481	15,686,543
2011	547,658	463,200	1,010,858	4,333,376	33,942,373	14,663,631	19,133,101	18,506,416	42,850,265	152,813,588	-2,593,656	15,839,795
2012	557,619	477,200	1,034,819	4,385,286	34,521,807	14,916,212	19,503,173	18,874,419	43,709,040	155,914,284	-2,564,376	16,030,803
2013	563,604	487,200	1,050,804	4,395,080	34,876,888	15,070,135	19,764,202	19,141,867	44,340,502	158,219,971	-2,348,304	15,943,448
2014	561,636	491,200	1,052,836	4,355,903	34,529,235	14,925,393	19,570,496	18,953,385	43,902,725	156,652,465	-2,494,881	15,731,179
2015	563,645	498,200	1,061,845	4,342,191	34,502,375	14,914,728	19,574,686	18,961,590	43,925,908	156,751,313	-2,246,871	15,847,672
2016	574,603	514,200	1,088,803	4,399,977	34,821,657	15,052,027	19,723,232	19,097,259	44,234,710	157,826,528	-2,290,425	16,094,853
2017	571,643	517,200	1,088,843	4,345,129	34,537,412	14,934,534	19,606,214	18,992,817	43,998,792	157,014,564	-2,352,882	15,884,514
2018	574,648	526,200	1,100,848	4,343,170	34,392,467	14,854,708	19,464,007	18,846,632	43,652,131	155,743,947	-2,199,361	15,496,982
2019	584,612	542,200	1,126,812	4,392,142	34,800,576	15,047,513	19,729,611	19,106,138	44,258,258	157,918,289	-2,293,849	16,065,754
2020(f)	608,608	599,200	1,207,808	4,394,101	36,099,361	15,183,667	19,976,086	19,361,451	44,860,128	160,125,795	-2,311,200	15,989,062

- a) Costs for the period 1968 through 1980 are for an interim facility.
- b) The relatively minor estimated costs of Del Valle Pumping Plant have been combined with those of South Bay Pumping Plant to simplify the allocation procedure.
- c) Includes extra peaking costs assigned directly to Kern County Water Agency and to Hacienda Water District. Refer to Appendix B text "Project Water Charges, Variable OMP&R Components".

THRU VARIABLE OMP&R COMPONENT OF TRANSPORTATION CHARGE

(in dollars)

Sheet 2 of 2

Calendar Year	CALIFORNIA AQUEDUCT (continued)											GRAND TOTAL
	Reach 24	Reach 26A	Reach 28J	Reach 29A	Reach 29G	Reach 29H	Reach 29J	Reach 30	Reach 31A	Reach 33A	Total	
	Silverwood Lake (d)	Devil Canyon Powerplant	Lake Perris (d)	Oso Pumping Plant	Pyramid Powerplant	Pyramid Lake (d)	Castaic Powerplant	Castaic Lake (d)	Las Perillas and Badger Hill Pumping Plants (e)	Devil's Den Sawtooth and Polonio PP's and San Luis Obispo Pwp		
(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	
1960	0	0	0	0	0	0	0	0	0	0	0	0
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	36,970
1963	0	0	0	0	0	0	0	0	0	0	0	57,711
1964	0	0	0	0	0	0	0	0	0	0	0	74,134
1965	0	0	0	0	0	0	0	0	0	0	0	142,609
1966	0	0	0	0	0	0	0	0	0	0	0	192,605
1967	0	0	0	0	0	0	0	0	0	0	13,881	236,998
1968	0	0	0	0	0	0	0	0	118,676	0	771,159	1,114,819
1969	0	0	0	0	0	0	0	0	78,350	0	503,563	769,693
1970	0	0	0	0	0	0	0	0	136,429	0	689,889	1,099,845
1971	0	0	0	0	0	0	0	0	166,296	0	1,114,563	1,506,834
1972	4,056	-3,112	0	91,724	0	3,532	-196,204	71,180	237,638	0	2,624,434	3,237,570
1973	47,487	-513,246	0	155,530	0	7,282	-962,637	0	120,913	0	2,649,536	3,157,475
1974	97,594	-508,285	51,490	178,255	0	180,708	-1,308,192	0	118,582	0	3,533,096	4,116,144
1975	25,862	-1,009,773	86,440	308,926	0	552,520	-2,339,503	0	94,848	0	5,798,054	6,162,591
1976	122,090	-1,438,264	104,809	243,658	0	59,952	1,590,177	1,212,767	141,217	0	11,585,118	12,177,281
1977	248,871	-1,220,217	39,323	17,059	0	0	-302,499	221,778	182,801	0	3,147,571	3,740,671
1978	0	-5,101,806	0	323,397	0	0	-2,817,439	0	263,917	0	13,778,792	14,474,106
1979	104,168	-4,463,266	0	358,960	0	0	-3,818,445	483,418	194,986	0	15,093,772	15,735,217
1980	0	-3,690,450	0	468,057	0	0	-3,391,879	0	229,696	0	21,078,269	21,796,106
1981	0	-3,054,300	717,857	625,205	0	0	-3,492,364	0	223,755	0	24,428,115	25,122,877
1982	0	-4,347,658	0	672,050	-1,556,509	0	-3,937,289	0	222,789	0	20,606,298	21,291,595
1983	0	-17,440,717	262,448	2,003,125	-7,052,472	0	-9,869,530	123,989	728,284	0	81,147,390	83,914,879
1984	1,743,193	-23,725,809	0	2,685,021	-10,987,979	0	-13,686,915	1,107,698	864,974	0	99,211,457	102,431,346
1985	761,673	-23,557,155	0	2,730,214	-10,280,407	0	-12,930,360	0	868,962	0	104,314,462	107,632,882
1986	0	-23,619,605	0	3,051,761	-11,101,025	0	-13,480,499	459,329	1,059,080	916,182	115,651,209	119,158,062
1987	99,368	-23,402,735	181,963	3,436,160	-11,604,880	0	-15,172,380	0	1,070,102	973,746	121,417,595	124,994,929
1988	0	-23,665,714	0	4,176,151	-13,521,048	0	-17,826,031	3,146,044	1,133,812	1,107,700	139,090,527	142,950,281
1989	871,736	-23,218,147	1,523,881	5,583,353	-13,810,885	0	-20,547,435	3,631	1,152,791	1,189,764	156,414,451	160,448,495
1990	0	-23,161,147	0	6,523,171	-14,443,795	0	-23,745,152	276,524	1,172,764	1,272,803	171,135,888	175,346,342
1991	1,859,466	-23,293,714	173,059	6,883,532	-14,269,447	0	-23,438,732	0	1,197,712	1,390,299	178,371,671	182,754,603
1992	66,795	-23,554,074	1,028,739	7,115,995	-14,693,443	0	-25,171,306	397,049	1,213,710	1,422,094	180,094,433	184,619,153
1993	0	-22,228,981	0	7,301,576	-14,080,405	0	-24,923,175	183,305	1,210,813	1,606,728	183,416,252	188,009,276
1994	0	-23,556,566	564,961	7,829,098	-20,859,087	0	-26,750,270	773,849	1,277,534	1,774,676	187,830,702	192,743,033
1995	0	-23,597,795	21,687	8,163,337	-20,888,748	0	-26,438,201	0	1,287,567	1,869,672	192,287,618	197,245,398
1996	1,822,074	-22,629,621	452,319	8,266,539	-20,877,119	0	-28,639,085	0	1,293,617	1,964,622	191,621,254	196,601,235
1997	0	-22,932,912	0	8,550,288	-20,370,393	0	-29,279,360	0	1,327,519	2,107,018	197,454,463	202,575,364
1998	278,998	-22,696,996	179,068	8,677,873	-20,490,493	0	-28,592,541	0	1,336,553	2,196,066	199,852,561	204,971,906
1999	0	-22,960,228	239,208	8,776,946	-20,776,212	0	-27,997,334	1,516,423	1,365,484	2,325,672	204,818,264	210,013,652
2000	0	-23,340,547	0	8,944,212	-21,256,917	0	-28,052,483	706,541	1,366,558	2,396,915	204,288,220	209,454,525
2001	0	-22,588,777	0	9,029,580	-21,266,669	0	-31,297,609	2,101,736	1,387,501	2,479,668	205,676,224	210,887,175
2002	33,551	-23,438,903	634,213	9,502,268	-21,320,939	0	-31,472,257	0	1,407,450	2,488,169	210,801,708	216,060,892
2003	17,980	-23,328,419	0	9,706,348	-21,306,701	0	-32,107,791	0	1,422,424	2,623,420	214,667,263	219,951,126
2004	0	-23,394,330	541,968	9,903,179	-21,476,149	0	-30,291,059	240,855	1,438,384	2,714,126	220,467,160	225,783,557
2005	1,404,420	-23,276,466	0	10,027,913	-21,354,592	0	-31,496,835	0	1,438,442	2,721,617	220,147,539	225,430,661
2006	0	-23,171,323	0	10,104,504	-21,271,064	0	-32,818,099	515,573	1,429,486	2,701,800	219,939,793	225,204,428
2007	0	-23,278,484	73,932	10,246,560	-21,500,619	0	-34,650,168	2,041,112	1,446,403	2,744,406	222,788,959	228,125,508
2008	1,635,021	-22,443,638	0	10,611,675	-20,846,687	0	-33,741,668	0	1,441,427	2,732,516	227,900,317	233,230,204
2009	0	-23,214,470	599,062	10,822,763	-21,637,080	0	-34,537,373	0	1,444,413	2,755,305	228,115,857	233,468,534
2010	1,043,549	-22,620,941	94,068	10,957,611	-21,791,878	0	-33,456,570	0	1,438,442	2,721,617	231,303,407	236,641,551
2011	0	-22,255,270	53,698	11,075,559	-21,815,175	0	-35,207,866	573,800	1,436,452	2,721,617	231,738,328	237,082,562
2012	0	-21,116,327	41,232	11,362,479	-21,527,706	0	-36,586,613	932,843	1,453,369	2,778,094	238,242,733	243,662,838
2013	865,640	-22,694,834	0	11,673,965	-21,851,054	0	-36,482,500	0	1,457,349	2,772,149	240,749,874	246,195,758
2014	703,980	-21,803,691	440,673	11,579,092	-21,020,568	0	-35,228,444	0	1,443,418	2,784,039	240,668,496	246,077,235
2015	0	-22,671,095	175,223	11,548,788	-21,985,418	0	-35,524,238	0	1,439,437	2,729,543	237,943,641	243,347,677
2016	0	-22,112,255	0	11,564,678	-21,844,471	0	-36,388,795	1,402,078	1,458,344	2,789,984	241,429,404	246,918,184
2017	0	-22,751,990	49,694	11,565,478	-21,685,030	0	-35,376,887	0	1,439,437	2,746,388	238,603,055	244,037,027
2018	1,952,461	-22,372,691	473,501	11,565,397	-21,881,984	0	-34,512,126	0	1,439,437	2,730,534	239,596,042	245,040,060
2019	0	-22,222,087	0	11,589,455	-21,863,371	0	-36,420,127	1,083,745	1,455,359	2,784,039	241,039,303	246,558,257
2020(f)	0	-22,305,530	0	11,889,741	-21,980,830	0	-36,599,508	0	1,455,359	2,785,030	244,528,612	250,130,521

- d) These values represent a proportionate allocation of the total variable OMP&R costs of pumping and power recovery plants (Table B-3) associated with net annual withdrawals from reservoir storage for the 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, in acre-feet ÷ "Total" annual quantity conveyed through each plant, in acre-feet. The costs so determined are accumulated for all upstream plants for each year, for each respective reservoir.
- e) Includes extra peaking costs assigned directly to Kern County Water Agency. Refer to Appendix B text "Project Water Charges, Variable OMP&R Components".
- f) And each year thereafter for the remainder of the project repayment period.

TABLE B-13: CAPITAL AND OPERATING COSTS OF PROJECT CONSERVATION

(in

Calendar Year	INITIAL PROJECT CONSERVATION FACILITIES (Portions of Upper Feather Lakes, Oroville-Thermalito Facilities, Delta Facilities and California Aqueduct)					ADDITIONAL PROJECT				
	Capital Costs (a)	Capital Cost Credits (b)	Operating Costs (c)	Application of Oroville Power Revenues to:		Planning and Pre-operating Costs (a & d)	Los Vaqueros Reservoir		Ground Water Storage	
				Capital Costs	Operating Costs		Capital Costs	Operating Costs	Capital Costs	Operating Costs
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1952	171,317	0	0	0	0	0	0	0	0	0
1953	312,178	0	0	0	0	0	0	0	0	0
1954	308,609	0	0	0	0	0	0	0	0	0
1955	194,637	0	0	0	0	0	0	0	0	0
1956	1,357,069	0	0	0	0	0	0	0	0	0
1957	6,210,718	0	0	0	0	0	0	0	0	0
1958	9,510,880	0	0	0	0	0	0	0	0	0
1959	11,380,694	0	0	0	0	0	0	0	0	0
1960	14,429,084	-4,850,000	0	0	0	0	0	0	0	0
1961	18,514,350	-431,527	0	0	0	0	0	0	0	0
1962	8,711,679	-479,280	0	0	0	0	0	0	0	0
1963	72,407,082	-478,743	-14,000	0	0	0	0	0	0	0
1964	62,401,857	-751,330	-14,000	0	0	107,780	0	0	0	0
1965	70,729,803	-763,541	-14,000	0	0	551,850	0	0	0	0
1966	130,509,278	-748,649	-14,000	0	0	1,081,887	0	0	0	0
1967	93,629,899	-812,145	-11,246	0	0	1,190,594	0	0	0	0
1968	39,354,656	-409,386	1,276,943	-951,000	0	794,772	0	0	0	0
1969	5,057,175	-245,732	2,871,378	-11,007,000	0	603,887	0	0	0	0
1970	4,410,698	-192,432	4,789,459	-14,650,000	-1,500,000	518,484	0	0	0	0
1971	4,069,083	-187,320	6,000,195	-14,650,000	-1,500,000	410,356	0	0	0	0
1972	4,528,052	-196,361	5,373,944	-14,650,000	-1,500,000	289,503	0	0	0	0
1973	3,511,311	-136,203	6,075,500	-14,650,000	-1,500,000	205,045	0	0	0	0
1974	5,442,489	-134,426	6,926,881	-17,950,000	-1,500,000	208,054	0	0	0	0
1975	4,670,512	-232,065	7,670,268	-14,650,000	-1,500,000	151,198	0	0	0	0
1976	3,965,165	-132,788	7,338,845	-14,650,000	-1,500,000	57,614	0	0	0	0
1977	20,531,120	0	10,701,464	-14,650,000	-1,500,000	3,036	0	0	0	0
1978	7,949,975	0	10,497,699	-14,650,000	-1,500,000	3,503,053	0	0	0	0
1979	8,672,901	0	10,247,832	-14,650,000	-1,500,000	4,290,103	0	0	0	0
1980	9,201,508	0	10,237,413	-14,650,000	-1,500,000	3,640,776	0	0	0	0
1981	16,602,964	0	10,701,543	-14,650,000	-1,500,000	2,450,589	1,260,000	0	0	0
1982	31,486,576	0	10,108,498	-14,650,000	-1,500,000	1,760,536	3,010,000	0	1,110,000	0
1983	45,274,601	0	5,795,369	-29,163,000	-3,720,000	1,336,388	12,250,000	0	7,550,000	0
1984	38,018,062	0	13,404,566	-15,427,000	-4,604,000	821,591	18,240,000	0	12,730,000	0
1985	17,031,553	0	13,238,120	-15,427,000	-4,605,000	307,393	27,430,000	0	40,360,000	0
1986	12,470,000	0	9,783,071	-15,427,000	-4,614,000	0	32,840,000	0	100,420,000	0
1987	21,907,640	0	14,417,153	-15,427,000	-4,613,000	0	40,160,000	0	86,030,000	0
1988	31,797,210	0	21,199,192	-15,427,000	-4,626,000	0	0	4,655,000	0	6,065,000
1989	20,351,470	0	11,868,099	-15,426,000	-4,627,000	0	0	4,221,000	0	6,043,000
1990	3,796,900	0	12,284,404	-15,427,000	-4,628,000	0	0	4,164,000	0	6,045,000
1991	17,200	0	13,926,700	-15,427,000	-4,630,000	0	0	4,179,000	0	6,044,000
1992	0	0	13,079,838	-15,427,000	-4,630,000	0	0	4,165,000	0	6,037,000
1993	0	0	12,656,135	-15,427,000	-4,626,000	0	0	4,226,000	0	6,093,000
1994	0	0	16,851,063	-15,427,000	-4,638,000	0	0	4,308,000	0	6,093,000
1995	0	0	14,950,960	-15,427,000	-4,637,000	0	0	4,300,000	0	6,093,000
1996	0	0	13,436,690	-15,427,000	-4,634,000	0	0	4,222,000	0	6,055,000
1997	0	0	8,315,257	-15,427,000	-4,639,000	0	0	4,251,000	0	6,055,000
1998	0	0	14,155,900	-15,427,000	-4,637,000	0	0	4,235,000	0	6,051,000
1999	0	0	14,793,858	-15,427,000	-4,640,000	0	0	4,256,000	0	6,051,000
2000	0	0	14,112,955	-15,427,000	-4,637,000	0	0	4,234,000	0	6,051,000
2001	0	0	14,920,161	-15,427,000	-4,640,000	0	0	4,295,000	0	6,078,000
2002	0	0	13,350,800	-15,427,000	-4,642,000	0	0	4,298,000	0	6,071,000
2003	0	0	12,888,528	-15,427,000	-4,643,000	0	0	4,305,000	0	6,071,000
2004	0	0	11,578,698	-15,427,000	-4,644,000	0	0	4,314,000	0	6,071,000
2005	0	0	13,081,318	-15,427,000	-4,642,000	0	0	4,265,000	0	6,049,000
2006	0	0	16,604,209	-15,427,000	-4,640,000	0	0	4,254,000	0	6,049,000
2007	0	0	15,042,354	-15,427,000	-4,644,000	0	0	4,277,000	0	6,049,000
2008	0	0	11,420,280	-15,427,000	-4,643,000	0	0	4,269,000	0	6,049,000
2009	0	0	12,501,264	-15,427,000	-4,643,000	0	0	4,274,000	0	6,049,000
2010	0	0	13,422,460	-15,427,000	-4,642,000	0	0	4,291,000	0	6,066,000
2011	0	0	19,045,690	-15,427,000	-4,642,000	0	0	4,290,000	0	6,065,000
2012	0	0	14,154,904	-15,427,000	-4,645,000	0	0	4,314,000	0	6,066,000
2013	0	0	15,458,252	-15,427,000	-4,646,000	0	0	4,318,000	0	6,066,000
2014	0	0	13,783,149	-15,427,000	-4,643,000	0	0	4,300,000	0	6,066,000
2015	0	0	16,917,518	-15,427,000	-4,642,000	0	0	4,293,000	0	6,066,000
2016	0	0	14,056,044	-15,427,000	-4,646,000	0	0	4,321,000	0	6,066,000
2017	0	0	14,885,240	-15,427,000	-4,642,000	0	0	4,295,000	0	6,066,000
2018	0	0	18,358,232	-15,427,000	-4,642,000	0	0	4,293,000	0	6,066,000
2019	0	0	12,208,272	-15,427,000	-4,646,000	0	0	4,317,000	0	6,066,000
2020	0	0	14,630,977	-15,427,000	-4,646,000	0	0	4,318,000	0	6,066,000
2021	0	0	14,630,977	-15,427,000	-4,646,000	0	0	4,318,000	0	6,066,000
2022	0	0	14,630,977	-15,427,000	-4,646,000	0	0	4,318,000	0	6,066,000
2023	0	0	14,630,977	-15,427,000	-4,646,000	0	0	4,318,000	0	6,066,000
2024	0	0	14,630,977	-15,427,000	-4,646,000	0	0	4,318,000	0	6,066,000
2025	0	0	14,630,977	-15,427,000	-4,646,000	0	0	4,318,000	0	6,066,000
2026	0	0	14,630,977	-15,427,000	-4,646,000	0	0	4,318,000	0	6,066,000
2027	0	0	14,630,977	-15,427,000	-4,646,000	0	0	4,318,000	0	6,066,000
2028	0	0	14,630,977	-15,427,000	-4,646,000	0	0	4,318,000	0	6,066,000
2029	0	0	14,630,977	-15,427,000	-4,646,000	0	0	4,318,000	0	6,066,000
2030	0	0	14,630,977	-15,427,000	-4,646,000	0	0	4,318,000	0	6,066,000
2031	0	0	14,630,977	-15,427,000	-4,646,000	0	0	4,318,000	0	6,066,000
2032	0	0	14,630,977	-15,427,000	-4,646,000	0	0	4,318,000	0	6,066,000
2033	0	0	14,630,977	-15,427,000	-4,646,000	0	0	4,318,000	0	6,066,000
2034	0	0	14,630,977	-15,427,000	-4,646,000	0	0	4,318,000	0	6,066,000
2035	0	0	14,630,977	-15,427,000	-4,646,000	0	0	4,318,000	0	6,066,000
TOTAL 1952-2035	860,897,955	-11,181,928	856,792,141	-1,037,074,000	-264,438,000	24,284,489	135,190,000	206,087,000	248,200,000	291,028,000

a) Reimbursed thru payments of the capital cost component of the Delta Water Charge, except for a portion of the costs of the Initial Project Conservation Facilities that will be reimbursed through project power revenues shown in column 4.

b) Negotiated settlements as to the magnitude of project planning costs from 1952 through 1976 to be reimbursed through water charges. Credits are applied to the reimbursable capital costs of the Initial Conservation Facilities.

FACILITIES TO BE REIMBURSED THRU DELTA WATER CHARGE

dollars)

CONSERVATION FACILITIES								Total	Calendar Year
Glenn Reservoir Complex		Cottonwood Creek Project		Phase V		Phase VI			
Capital Costs	Operating Costs	Capital Costs	Operating Costs	Capital Costs	Operating Costs	Capital Costs	Operating Costs		
(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	
0	0	0	0	0	0	0	0	171,317	1952
0	0	0	0	0	0	0	0	312,178	1953
0	0	0	0	0	0	0	0	308,609	1954
0	0	0	0	0	0	0	0	194,637	1955
0	0	0	0	0	0	0	0	1,357,069	1956
0	0	0	0	0	0	0	0	6,210,718	1957
0	0	0	0	0	0	0	0	9,510,880	1958
0	0	0	0	0	0	0	0	11,380,694	1959
0	0	0	0	0	0	0	0	9,579,084	1960
0	0	0	0	0	0	0	0	18,082,823	1961
0	0	0	0	0	0	0	0	8,232,399	1962
0	0	0	0	0	0	0	0	71,914,339	1963
0	0	0	0	0	0	0	0	61,744,307	1964
0	0	0	0	0	0	0	0	70,504,112	1965
0	0	0	0	0	0	0	0	130,828,516	1966
0	0	0	0	0	0	0	0	93,937,102	1967
0	0	0	0	0	0	0	0	40,065,985	1968
0	0	0	0	0	0	0	0	-2,720,292	1969
0	0	0	0	0	0	0	0	-6,623,791	1970
0	0	0	0	0	0	0	0	-5,857,686	1971
0	0	0	0	0	0	0	0	-6,154,862	1972
0	0	0	0	0	0	0	0	-6,494,347	1973
0	0	0	0	0	0	0	0	-7,007,002	1974
0	0	0	0	0	0	0	0	-3,890,087	1975
0	0	0	0	0	0	0	0	-4,921,164	1976
0	0	0	0	0	0	0	0	15,085,620	1977
0	0	0	0	0	0	0	0	5,800,727	1978
0	0	0	0	0	0	0	0	7,060,836	1979
0	0	0	0	0	0	0	0	3,929,697	1980
0	0	0	0	0	0	0	0	14,865,096	1981
0	0	0	0	0	0	0	0	31,325,536	1982
0	0	0	0	0	0	0	0	39,323,358	1983
0	0	0	0	0	0	0	0	63,183,219	1984
0	0	0	0	0	0	0	0	78,335,066	1985
5,860,000	0	0	0	0	0	0	0	141,352,071	1986
5,870,000	0	0	0	0	0	0	0	148,344,793	1987
6,970,000	0	0	0	0	0	0	0	50,633,402	1988
29,990,000	0	0	0	0	0	0	0	52,420,569	1989
39,100,000	0	15,530,000	864,000	0	0	0	0	61,729,304	1990
42,310,000	0	15,530,000	863,000	0	0	0	0	62,812,900	1991
50,860,000	0	15,530,000	862,000	0	0	0	0	70,476,838	1992
19,070,000	1,166,000	15,530,000	870,000	0	0	0	0	39,558,135	1993
21,190,000	1,166,000	15,530,000	870,000	0	0	0	0	45,943,063	1994
38,140,000	3,396,000	15,530,000	870,000	0	0	0	0	63,215,960	1995
54,560,000	3,446,000	15,530,000	865,000	60,360,000	0	0	0	138,413,690	1996
54,560,000	3,485,000	15,530,000	865,000	60,360,000	0	0	0	133,355,257	1997
42,900,000	8,427,000	15,530,000	864,000	60,350,000	0	0	0	132,448,090	1998
64,090,000	8,779,000	15,530,000	864,000	60,350,000	0	0	0	154,646,858	1999
51,380,000	7,145,000	15,530,000	864,000	60,350,000	0	0	0	139,602,955	2000
42,370,000	7,954,000	15,530,000	868,000	0	2,584,000	0	0	74,532,161	2001
0	15,605,000	15,530,000	867,000	0	2,581,000	0	0	38,233,800	2002
0	16,213,000	15,530,000	867,000	0	2,581,000	0	0	38,385,528	2003
0	17,235,000	15,530,000	867,000	0	2,581,000	0	0	38,105,698	2004
0	17,100,000	15,530,000	864,000	0	2,572,000	41,030,000	0	80,422,318	2005
0	11,669,000	15,530,000	864,000	0	2,572,000	41,030,000	0	78,505,209	2006
0	6,500,000	15,530,000	864,000	0	2,572,000	41,030,000	0	71,793,354	2007
0	6,403,000	15,530,000	864,000	0	2,572,000	41,030,000	0	68,067,280	2008
0	6,409,000	15,530,000	864,000	0	2,572,000	41,030,000	0	69,159,264	2009
0	6,398,000	15,530,000	867,000	0	2,579,000	0	1,754,000	30,838,460	2010
0	6,392,000	15,530,000	867,000	0	2,579,000	0	1,754,000	36,454,690	2011
0	6,456,000	15,530,000	867,000	0	2,579,000	0	1,754,000	31,648,904	2012
0	6,468,000	15,530,000	867,000	0	2,579,000	0	1,754,000	32,967,252	2013
0	6,420,000	15,530,000	867,000	0	2,579,000	0	1,754,000	31,229,149	2014
0	6,403,000	15,530,000	867,000	0	2,579,000	0	1,754,000	34,340,518	2015
0	6,474,000	15,530,000	867,000	0	2,579,000	0	1,754,000	31,574,044	2016
0	6,407,000	15,530,000	867,000	0	2,579,000	0	1,754,000	32,314,240	2017
0	6,406,000	15,530,000	867,000	0	2,579,000	0	1,754,000	35,784,232	2018
0	6,464,000	15,530,000	867,000	0	2,579,000	0	1,754,000	29,712,272	2019
0	6,465,000	15,530,000	867,000	0	2,579,000	0	1,754,000	32,136,977	2020
0	6,465,000	15,530,000	867,000	0	2,579,000	0	1,754,000	32,136,977	2021
0	6,465,000	15,530,000	867,000	0	2,579,000	0	1,754,000	32,136,977	2022
0	6,465,000	15,530,000	867,000	0	2,579,000	0	1,754,000	32,136,977	2023
0	6,465,000	15,530,000	867,000	0	2,579,000	0	1,754,000	32,136,977	2024
0	6,465,000	15,530,000	867,000	0	2,579,000	0	1,754,000	32,136,977	2025
0	6,465,000	15,530,000	867,000	0	2,579,000	0	1,754,000	32,136,977	2026
0	6,465,000	15,530,000	867,000	0	2,579,000	0	1,754,000	32,136,977	2027
0	6,465,000	15,530,000	867,000	0	2,579,000	0	1,754,000	32,136,977	2028
0	6,465,000	15,530,000	867,000	0	2,579,000	0	1,754,000	32,136,977	2029
0	6,465,000	15,530,000	867,000	0	2,579,000	0	1,754,000	32,136,977	2030
0	6,465,000	15,530,000	867,000	0	2,579,000	0	1,754,000	32,136,977	2031
0	6,465,000	15,530,000	867,000	0	2,579,000	0	1,754,000	32,136,977	2032
0	6,465,000	15,530,000	867,000	0	2,579,000	0	1,754,000	32,136,977	2033
0	6,465,000	15,530,000	867,000	0	2,579,000	0	1,754,000	32,136,977	2034
0	6,465,000	15,530,000	867,000	0	2,579,000	0	1,754,000	32,136,977	2035
569,240,000	309,826,000	714,380,000	39,852,000	301,770,000	90,241,000	205,150,000	45,604,000	3,567,848,657	

a) Reimbursed through payments of the minimum O&M&R component of the Delta Water Charge, except for those costs that will be reimbursed through project power revenues shown in column 5. San Luis power credits are included in these costs.

d) Under the long-term amendments of Articles 22(e) and 22(g), those planning and pre-operating costs of Additional Project Conservation Facilities which are incurred through the previous year (1977) will be included in current calculations of the Delta Water Charge.

TABLE B-14: CAPITAL COSTS OF TRANSPORTATION

(in dollars)

Sheet 1 of 2

Calendar Year	NORTH BAY AREA			SOUTH BAY AREA				CENTRAL COASTAL AREA		
	Napa County FC & WCD	Solano County FC & WCD	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	99	410	592	122	287	409
1953	0	0	0	324	407	1,809	2,540	340	795	1,135
1954	0	0	0	819	1,089	5,151	7,059	427	996	1,423
1955	0	0	0	977	1,322	6,298	8,597	213	499	712
1956	0	0	0	8,845	12,070	63,816	84,731	228	534	762
1957	16,594	10,040	26,634	21,564	29,314	649,599	700,477	295	688	983
1958	35,437	14,574	50,011	67,765	67,956	733,416	869,137	731	1,704	2,435
1959	21,488	5,800	27,288	154,259	142,963	493,061	790,283	22,800	59,751	82,551
1960	10,049	7,878	17,927	296,499	274,644	1,018,678	1,589,821	32,720	86,305	119,025
1961	7,250	7,145	14,395	853,511	797,754	1,914,724	3,565,989	14,608	36,570	51,178
1962	-197	-923	-1,120	545,147	576,593	1,686,095	2,807,835	19,302	46,084	65,386
1963	1,559	871	2,430	657,505	1,077,966	3,244,012	4,979,483	72,896	171,951	244,847
1964	42,604	31,255	73,859	712,837	1,244,232	7,247,341	9,204,410	145,883	343,964	489,847
1965	206,465	54,589	261,054	361,014	468,339	3,414,971	4,244,324	260,524	612,463	872,987
1966	468,348	43,714	512,062	593,290	562,750	2,246,487	3,402,527	599,875	1,403,936	2,003,811
1967	1,575,375	35,495	1,610,870	797,877	772,901	2,403,859	3,974,637	945,839	2,211,894	3,157,733
1968	862,076	52,673	914,749	736,453	681,334	1,997,845	3,415,632	357,446	837,127	1,194,573
1969	80,176	51,026	131,202	268,402	256,992	761,904	1,287,298	82,720	194,885	277,605
1970	48,778	59,517	108,295	58,767	56,935	135,765	251,467	53,278	126,070	179,348
1971	26,737	27,603	54,340	12,090	14,389	84,098	110,577	35,875	86,103	121,978
1972	20,183	15,308	35,491	12,297	11,729	63,626	87,652	23,034	54,784	77,818
1973	57,875	27,192	85,067	10,511	10,543	39,451	60,505	26,094	62,012	88,106
1974	172,058	55,844	227,902	16,012	18,107	74,517	108,636	28,050	66,151	94,201
1975	97,411	72,178	169,589	16,865	15,725	42,039	74,629	21,318	52,748	74,066
1976	59,696	68,951	128,647	28,139	27,673	98,909	154,721	45,408	114,140	159,548
1977	71,306	64,430	135,736	55,861	52,926	164,242	273,029	125,924	296,431	422,355
1978	87,328	101,800	189,128	41,191	38,032	96,396	175,619	33,926	83,093	117,019
1979	83,800	104,025	187,825	13,528	12,397	32,651	58,576	269,708	775,882	1,045,590
1980	433,116	341,887	775,003	25,050	22,932	55,755	103,737	475,880	1,378,827	1,854,707
1981	702,725	563,560	1,266,285	27,589	25,255	61,265	114,109	614,887	1,842,873	2,457,760
1982	3,462,123	4,640,522	8,102,645	45,711	41,794	99,592	187,097	2,224,080	5,756,924	7,981,004
1983	4,723,610	5,728,390	10,452,000	48,408	44,259	105,468	198,135	8,468,921	22,916,500	31,385,421
1984	1,900,493	348,507	2,249,000	21,862	19,988	47,631	89,481	9,642,540	27,301,135	36,943,675
1985	98,000	0	98,000	984	900	2,144	4,028	7,949,488	22,120,229	30,069,717
TOTAL	15,372,463	12,533,851	27,906,314	6,512,036	7,382,309	29,093,025	42,987,370	32,595,380	89,044,335	121,639,715

Calendar Year	SAN JOAQUIN VALLEY AREA									
	Devil's Den Water District	Dudley Ridge Water District	Empire West Side Irrigation District	Hacienda Water 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)	(19)	(20)
1952	87	397	19	60	956	9,434	19	13	739	11,724
1953	243	1,094	55	160	2,953	28,322	57	33	2,032	34,949
1954	303	1,374	68	203	3,447	33,457	70	43	2,559	41,524
1955	153	686	37	100	1,529	15,200	37	22	1,292	19,056
1956	163	738	34	109	2,772	25,118	34	26	1,330	30,324
1957	209	950	38	139	6,222	51,819	39	30	1,596	61,042
1958	521	2,348	103	347	14,790	123,516	105	61	4,098	145,889
1959	3,756	7,636	376	1,124	27,089	264,516	383	383	14,139	319,402
1960	5,463	13,243	644	1,950	34,971	365,149	660	500	24,345	446,925
1961	5,929	22,215	1,081	3,273	52,524	556,484	1,103	601	40,816	684,026
1962	11,799	49,967	2,439	7,362	96,470	1,047,045	2,495	1,887	92,020	1,311,484
1963	48,334	211,671	10,834	31,183	369,618	4,050,153	11,083	6,015	400,041	5,138,932
1964	96,781	332,482	17,177	48,979	609,266	6,821,812	17,570	11,993	631,598	8,587,658
1965	175,603	545,110	27,828	80,301	1,116,673	12,332,109	28,472	21,895	1,028,780	15,356,771
1966	415,526	1,126,390	53,412	165,932	2,259,764	25,636,203	54,633	39,064	2,042,542	31,793,466
1967	656,132	865,201	40,076	127,453	2,049,852	24,279,298	40,996	34,933	1,549,555	29,643,496
1968	243,789	200,709	9,818	29,567	1,121,632	11,790,070	10,040	12,290	370,045	13,787,960
1969	52,217	94,952	4,813	13,987	628,852	6,575,997	4,923	7,320	17,509	7,561,570
1970	31,960	54,852	2,735	8,079	428,411	4,282,331	2,797	4,016	102,193	4,917,374
1971	17,859	25,986	1,314	3,827	198,391	1,686,550	1,344	542	48,804	1,984,617
1972	12,226	11,544	584	1,699	85,609	743,146	597	345	21,686	877,436
1973	14,597	5,221	259	768	38,735	442,967	263	222	9,679	512,711
1974	15,837	7,939	387	1,169	44,218	467,712	396	331	14,624	552,613
1975	7,774	12,765	646	1,879	36,228	382,831	661	428	23,977	467,189
1976	16,388	6,220	245	918	36,365	472,899	251	5	10,252	543,543
1977	72,083	21,046	1,025	3,100	54,510	1,091,785	1,047	1,626	38,704	1,284,926
1978	7,810	16,719	843	2,464	38,372	424,019	862	1,259	31,345	523,693
1979	6,537	23,552	1,214	3,469	47,103	472,825	1,244	2,097	44,701	602,742
1980	10,958	43,530	2,255	6,412	89,398	821,019	2,307	4,160	82,833	1,062,872
1981	13,958	58,093	3,013	8,558	127,367	1,070,972	3,082	4,749	110,615	1,400,407
1982	27,552	109,234	5,669	16,090	200,226	2,010,677	5,796	8,036	208,041	2,591,321
1983	43,497	149,020	7,737	21,954	247,912	2,767,441	7,910	8,490	283,871	3,537,832
1984	80,756	177,951	9,240	26,217	286,703	3,517,994	9,444	3,829	338,987	4,451,121
1985	101,401	147,765	7,669	21,766	237,971	3,194,666	7,838	177	281,424	4,000,677
TOTAL	2,198,201	4,348,600	213,687	640,598	10,596,899	117,855,536	218,558	177,421	8,037,772	144,287,272

FACILITIES ALLOCATED TO EACH CONTRACTOR

(in dollars)

Sheet 2 of 2

Calendar Year	SOUTHERN CALIFORNIA AREA									
	Antelope Valley-East Kern Water Agency	Castaic Lake Water Agency	Coachella Valley County 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	3,244	806	875	258	1,441	72	1,742	428	6,253	1,592
1953	10,312	2,586	2,744	826	4,526	230	5,470	1,366	19,603	4,991
1954	13,106	3,264	3,564	1,062	5,879	295	7,105	1,742	25,312	6,466
1955	5,566	1,459	1,413	413	2,331	120	2,835	737	9,495	2,441
1956	10,071	2,809	2,260	631	3,732	196	4,583	1,305	13,528	3,542
1957	27,128	7,321	6,540	1,871	10,781	554	13,157	3,557	41,869	10,852
1958	50,727	13,878	11,933	3,390	19,682	1,021	24,075	6,614	74,887	19,469
1959	72,499	21,752	16,371	4,759	27,004	1,391	32,771	9,321	101,638	26,309
1960	86,909	28,357	22,716	6,995	37,463	1,593	44,531	11,092	151,446	38,559
1961	129,438	40,986	35,226	12,770	58,097	2,291	64,811	16,788	240,692	58,799
1962	202,848	65,139	44,594	14,147	73,544	3,413	86,379	25,473	258,703	65,655
1963	585,415	185,688	114,825	32,327	189,372	9,844	231,551	73,513	595,573	157,195
1964	1,118,242	362,717	214,130	56,690	353,138	18,850	439,131	140,803	1,049,382	282,364
1965	1,945,204	682,093	393,409	105,921	648,815	33,470	802,950	249,414	1,953,576	523,629
1966	4,044,603	1,532,174	830,435	220,627	1,369,547	70,828	1,700,853	528,463	4,030,973	1,085,864
1967	5,051,230	2,879,247	1,095,010	300,393	1,802,598	89,643	2,213,748	663,165	5,917,972	1,575,841
1968	5,991,938	3,029,539	1,370,948	374,020	2,260,974	108,746	2,778,257	793,796	8,032,362	2,135,554
1969	5,950,955	2,457,988	1,729,624	552,838	2,852,554	124,097	3,331,489	885,213	11,093,980	2,817,904
1970	5,216,490	2,680,553	2,105,518	713,120	3,472,508	109,825	3,977,369	761,375	14,070,657	3,525,691
1971	2,691,427	1,806,185	1,109,698	350,179	1,830,138	50,399	2,162,455	362,068	8,374,956	2,043,068
1972	1,016,769	324,792	344,080	95,427	567,458	19,943	693,520	140,161	2,817,715	731,242
1973	364,017	809,081	162,763	84,459	268,455	6,472	244,219	47,323	1,747,970	398,306
1974	464,748	237,750	266,309	76,169	439,198	8,383	532,660	60,913	1,603,600	422,106
1975	259,304	196,260	198,711	54,200	327,717	5,081	402,404	34,865	1,567,021	416,854
1976	227,588	191,690	137,535	37,552	226,820	4,091	279,117	29,788	973,650	258,898
1977	215,700	234,394	95,690	27,020	157,812	4,064	192,411	29,105	616,699	162,386
1978	280,565	411,785	70,090	19,198	115,594	4,799	142,031	32,994	390,578	103,619
1979	632,392	1,019,169	125,155	35,126	206,400	9,688	251,710	71,239	779,089	203,126
1980	1,746,778	1,055,245	319,777	83,864	527,375	27,670	655,000	206,431	1,558,229	418,333
1981	2,058,929	700,714	351,343	89,572	579,428	31,908	724,827	239,114	1,600,328	437,419
1982	1,396,147	435,172	201,309	51,333	331,995	18,219	415,640	136,442	917,223	250,758
1983	1,463,289	221,308	85,202	21,591	140,514	7,790	176,740	58,375	383,067	105,145
1984	8,239,082	119,034	59,817	15,156	98,654	5,550	124,523	41,612	268,492	73,827
1985	9,302,586	78,515	46,976	11,950	77,473	4,346	97,765	32,550	212,645	58,388
TOTAL	60,875,216	21,839,450	11,574,590	3,455,854	19,089,017	784,882	22,857,829	5,697,145	71,500,163	18,426,192

Calendar Year	SOUTHERN CALIFORNIA AREA (Continued)				FEATHER RIVER AREA				FUTURE CONTRACTOR	
	San Geronio Pass Water Agency	The Metropolitan Water District of Southern California ^a	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC & WCD	Total	South Bay	GRAND TOTAL
	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)
1952	986	71,025	381	89,103	0	0	0	0	75	101,903
1953	3,098	223,994	1,224	280,970	0	0	0	0	336	319,930
1954	4,017	288,144	1,538	361,494	0	0	0	0	984	412,484
1955	1,515	114,821	690	143,836	0	0	0	0	1,218	173,419
1956	2,192	184,790	1,342	230,981	0	0	0	0	11,563	358,361
1957	6,721	532,115	3,476	665,942	0	0	0	0	29,099	1,484,177
1958	12,052	974,948	6,596	1,219,272	0	0	0	0	36,650	2,323,396
1959	16,304	1,408,264	10,227	1,748,610	0	0	0	0	58,693	3,026,841
1960	23,987	1,972,140	13,197	2,438,985	0	0	0	0	28	4,736,888
1961	36,839	3,310,688	19,192	4,026,617	0	0	10	10	321,149	8,663,364
1962	40,836	3,633,554	29,727	4,544,012	0	0	32	32	266,781	8,994,410
1963	97,099	11,491,418	87,324	13,851,144	0	0	51	51	731,899	24,948,786
1964	173,865	18,487,281	168,508	22,865,101	0	0	7,791	7,791	1,093,823	42,322,489
1965	322,728	34,499,170	314,049	42,474,428	0	0	3,139	3,139	470,666	63,683,369
1966	668,640	76,225,627	697,817	93,006,451	0	0	-48	-48	814,798	131,533,067
1967	974,271	133,772,157	1,310,692	157,643,967	0	0	47	47	1,512,650	197,543,400
1968	1,322,475	150,096,543	1,389,841	179,685,993	0	0	0	0	1,268,272	200,318,753
1969	1,756,914	143,401,779	1,112,283	178,067,618	0	0	51,574	51,574	234,242	58,693
1970	2,202,742	167,542,395	1,188,325	207,566,568	0	0	234,242	234,242	429,482	187,989,017
1971	1,272,264	138,371,344	768,331	161,192,512	0	0	16,229	16,229	78,407	213,117,688
1972	455,278	46,028,763	68,614	53,303,762	0	0	9	9	16,299	163,507,527
1973	253,455	40,855,987	297,551	45,540,058	0	0	9	9	14,224	54,396,392
1974	261,826	19,407,703	85,755	23,867,120	0	0	26	26	9,730	46,296,203
1975	259,389	17,064,499	83,070	20,869,375	0	0	58	58	35,688	24,886,218
1976	160,743	13,694,714	83,504	16,305,690	0	0	27	27	8,686	21,663,561
1977	100,751	11,910,293	110,806	13,857,131	0	0	54	54	17,023	17,309,226
1978	64,085	17,430,777	194,659	19,260,774	0	0	15	15	29,774	16,002,966
1979	125,975	40,706,999	485,124	44,651,192	0	0	0	0	16,636	20,282,869
1980	257,760	45,914,444	501,756	53,272,662	0	0	0	0	6,186	46,552,111
1981	288,922	33,266,189	335,286	40,683,979	0	0	0	0	10,325	57,079,306
1982	154,119	20,299,779	202,077	24,810,213	0	0	0	0	10,917	45,933,457
1983	64,517	9,928,004	95,735	12,751,277	0	0	0	0	16,398	43,688,678
1984	45,243	5,646,593	54,467	14,792,050	0	0	0	0	17,366	58,342,031
1985	35,783	3,904,382	37,807	13,901,136	0	0	0	0	7,843	58,533,170
TOTAL	11,447,391	1,212,661,323	9,760,971	1,469,970,023	0	0	340,504	340,504	7,468,170	1,814,599,368

a) Costs from Table B-10, allocated to MWD, are reduced herein by \$16,421,217 in 1972 under provisions of Contract Amendment No. 7.

TABLE B-15: CAPITAL COST COMPONENT OF

(in dollars)

Sheet 1 of 4

Calendar Year	NORTH BAY AREA			SOUTH BAY AREA				CENTRAL COASTAL AREA		
	Napa County FC & WCD	Solano County FC & WCD	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)
1963	0	0	0	102,379	99,968	356,370	558,717	8,168	20,293	28,461
1964	0	0	0	119,339	153,587	517,731	790,657	13,774	33,548	47,322
1965	0	0	0	150,799	215,476	878,220	1,244,495			
1966	18,560	0	18,560	166,731	238,772	1,048,084	1,453,587	22,822	54,884	77,706
1967	41,856	0	41,856	192,915	266,764	1,159,826	1,619,505	40,838	97,117	137,955
1968	120,217	0	120,217	228,128	305,208	1,279,396	1,812,732	54,857	130,031	184,888
1969	163,097	0	163,097	260,630	339,099	1,378,771	1,978,500	58,466	138,588	197,054
1970	167,085	0	167,085	272,475	351,882	1,416,669	2,041,026	60,362	143,103	203,465
1971	169,511	0	169,511	275,069	354,714	1,423,422	2,053,205	61,603	146,085	207,688
1972	170,841	0	170,841	324,251	355,429	1,427,605	2,107,285	62,527	148,358	210,885
1973	171,845	26,386	198,231	324,862	356,013	1,430,770	2,111,645	62,985	149,478	212,463
1974	174,724	27,739	202,463	325,385	356,537	1,432,732	2,114,654	63,328	150,333	213,661
1975	183,282	30,517	213,799	326,181	357,438	1,436,439	2,120,058	63,722	151,287	215,009
1976	188,128	34,107	222,235	327,020	358,220	1,438,530	2,123,770	166,662	391,757	558,419
1977	191,097	37,536	228,633	328,420	359,596	1,443,450	2,131,466	168,921	397,434	566,355
1978	194,644	40,741	235,385	331,199	362,229	1,451,619	2,145,047	175,184	412,179	587,363
1979	198,988	45,805	244,793	333,247	364,121	1,456,414	2,153,782	176,872	416,312	593,184
1980	203,156	50,979	254,135	333,920	364,737	1,458,038	2,156,695	190,287	454,905	645,192
1981	224,699	67,985	292,684	335,166	365,878	1,460,811	2,161,855	213,958	523,489	737,447
1982	259,654	96,017	355,671	336,539	367,134	1,463,859	2,167,532	244,543	615,155	859,698
1983	431,863	326,841	758,704	338,812	369,213	1,468,813	2,176,838	355,171	901,510	1,256,681
1984	666,820	611,776	1,278,596	341,220	371,415	1,474,059	2,186,694	776,423	2,041,398	2,817,821
1985	761,352	629,111	1,390,463	342,308	372,409	1,476,428	2,191,145	1,256,052	3,399,382	4,655,434
1986	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
1987	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
1988	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
1989	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
1990	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
1991	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
1992	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
1993	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
1994	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
1995	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
1996	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
1997	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
1998	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
1999	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
2000	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
2001	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
2002	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
2003	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
2004	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
2005	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
2006	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
2007	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
2008	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
2009	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
2010	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
2011	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
2012	766,226	629,111	1,395,337	342,357	372,454	1,476,534	2,191,345	1,651,467	4,499,663	6,151,130
2013	766,226	629,111	1,395,337	233,928	272,486	1,120,164	1,626,578	1,643,299	4,479,369	6,122,668
2014	766,226	629,111	1,395,337	199,389	218,867	958,804	1,377,060	1,637,693	4,466,114	6,103,807
2015	766,226	629,111	1,395,337	162,245	156,977	598,314	917,536			
2016	747,667	629,111	1,376,778	143,577	133,682	428,451	705,710	1,628,644	4,444,778	6,073,422
2017	724,370	629,111	1,353,481	113,122	105,690	316,708	535,520	1,610,628	4,402,545	6,013,173
2018	646,010	629,111	1,275,121	72,449	67,245	197,138	336,832	1,596,610	4,369,632	5,966,242
2019	603,129	629,111	1,232,240	35,154	33,355	97,763	166,272	1,593,001	4,361,074	5,954,075
2020	599,141	629,111	1,228,252	21,647	20,572	59,866	102,085	1,591,105	4,356,559	5,947,664
2021	596,715	629,111	1,225,826	18,707	17,740	53,113	89,560	1,589,864	4,353,578	5,943,442
2022	595,385	629,111	1,224,496	18,106	17,024	48,929	84,059	1,588,940	4,351,304	5,940,244
2023	594,381	602,725	1,197,106	17,494	16,441	45,765	79,700	1,588,481	4,350,184	5,938,665
2024	591,502	601,372	1,192,874	16,972	15,917	43,802	76,691	1,588,139	4,349,330	5,937,469
2025	582,944	598,595	1,181,539	16,175	15,016	40,096	71,287	1,587,744	4,348,376	5,936,120
2026	578,099	595,005	1,173,104	15,336	14,234	38,005	67,575	1,484,805	4,107,906	5,592,711
2027	575,130	591,575	1,166,705	13,937	12,857	33,085	59,879	1,482,546	4,102,228	5,584,774
2028	571,583	588,370	1,159,953	11,158	10,225	24,915	46,298	1,476,282	4,087,484	5,563,766
2029	567,239	583,306	1,150,545	9,109	8,333	20,121	37,563	1,474,595	4,083,351	5,557,946
2030	563,071	578,132	1,141,203	8,436	7,716	18,496	34,648	1,461,179	4,044,757	5,505,936
2031	541,527	561,126	1,102,653	7,190	6,576	15,723	29,489	1,437,509	3,976,173	5,413,682
2032	506,573	533,094	1,039,667	5,818	5,319	12,676	23,813	1,406,924	3,884,507	5,291,431
2033	334,364	302,270	636,634	3,544	3,240	7,722	14,506	1,296,296	3,598,152	4,894,448
2034	99,407	17,335	116,742	1,136	1,039	2,476	4,651	875,044	2,458,264	3,333,308
2035	4,875	0	4,875	49	45	107	201	395,415	1,100,281	1,495,696
TOTAL	38,311,311	31,455,552	69,766,863	16,805,312	18,622,693	73,826,713	109,254,718	82,573,344	224,983,136	307,556,480

a) Unadjusted for prior overpayments or underpayments of charges.
 b) Determined at the current project interest rate of 4.462 percent per annum.

TRANSPORTATION CHARGE FOR EACH CONTRACTOR^{(a)(b)}

(in dollars)

Sheet 2 of 4

Calendar Year	SAN JOAQUIN VALLEY AREA									
	Devil's Den Water District	Dudley Ridge Water District	Empire West Side Irrigation District	Hacienda Water 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)	(19)	(20)
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	63,740	0	0	0	0	63,740
1966	0	0	0	0	119,284	0	0	0	0	119,284
1967	0	0	0	0	231,687	0	0	0	0	231,687
1968	32,384	68,030	3,254	0	333,649	379,927	8,403	3,969	54,981	884,597
1969	43,762	68,149	9,763	12,033	389,440	780,236	8,902	4,314	197,258	1,513,857
1970	49,889	74,691	9,763	12,534	420,719	949,001	9,147	4,487	142,726	1,672,957
1971	58,642	85,157	9,763	11,531	442,029	1,260,443	9,286	4,832	153,498	2,035,181
1972	67,394	95,147	9,763	13,035	451,897	1,887,404	9,353	9,260	493,706	3,036,959
1973	76,147	104,662	9,763	14,540	456,155	2,176,833	9,383	5,350	182,456	3,035,289
1974	84,899	158,848	9,763	16,545	458,082	2,437,727	9,396	5,990	309,639	3,490,889
1975	93,652	192,935	9,763	18,841	460,281	2,919,728	9,416	6,171	370,280	4,081,067
1976	102,404	147,102	9,763	19,553	462,084	3,147,439	9,449	6,970	259,452	4,164,216
1977	111,157	144,624	9,763	21,057	463,892	3,448,604	9,461	6,385	245,956	4,460,985
1978	111,157	154,614	9,763	23,063	466,604	3,833,509	9,513	6,730	263,460	4,878,413
1979	111,157	164,605	9,763	24,567	468,512	4,209,359	9,556	6,903	280,964	5,285,386
1980	111,157	174,595	9,763	26,071	470,855	4,593,362	9,618	7,248	298,468	5,701,137
1981	111,157	184,586	9,763	28,076	475,302	5,027,098	9,733	7,420	315,972	6,169,107
1982	111,157	195,052	9,763	29,580	481,637	5,427,404	9,886	7,765	333,476	6,605,723
1983	111,157	204,091	9,763	31,085	491,597	5,883,156	10,174	7,938	350,980	7,099,941
1984	111,157	214,557	9,763	32,589	503,928	6,294,063	10,568	8,283	368,484	7,553,392
1985	111,157	224,548	9,763	34,594	518,189	6,694,372	11,038	8,456	385,989	7,998,106
1986	111,157	234,538	9,763	36,098	530,026	7,091,420	11,427	8,801	403,942	8,437,172
1987	111,157	244,528	9,763	37,602	530,026	7,495,806	11,427	9,373	421,446	8,870,728
1988	111,157	254,519	9,763	39,106	530,026	7,873,286	11,427	9,319	438,950	9,277,553
1989	111,157	264,509	9,763	41,112	530,026	8,145,594	11,427	9,664	456,454	9,579,706
1990	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
1991	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
1992	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
1993	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
1994	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
1995	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
1996	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
1997	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
1998	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
1999	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
2000	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
2001	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
2002	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
2003	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
2004	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
2005	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
2006	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
2007	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
2008	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
2009	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
2010	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
2011	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
2012	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
2013	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
2014	111,157	274,500	9,763	42,616	530,026	8,428,501	11,427	9,836	493,706	9,911,532
2015	111,157	274,500	9,763	42,616	466,286	8,428,501	11,427	9,836	493,706	9,847,792
2016	111,157	274,500	9,763	42,616	410,742	8,428,501	11,427	9,836	493,706	9,792,248
2017	111,157	274,500	9,763	42,616	298,339	8,428,501	11,427	9,836	493,706	9,679,845
2018	111,157	274,500	9,763	42,616	196,377	8,428,501	3,024	9,836	493,706	9,569,480
2019	111,157	274,500	9,763	42,616	140,586	8,428,501	2,525	9,836	493,706	9,513,190
2020	111,157	274,500	9,763	42,616	109,307	8,428,501	2,280	9,836	493,706	9,481,666
2021	111,157	274,500	9,763	42,616	87,997	8,428,501	2,141	9,836	493,706	9,460,217
2022	111,157	274,500	9,763	42,616	78,129	8,428,501	2,074	9,836	493,706	9,450,282
2023	111,157	274,500	9,763	42,616	73,871	8,428,501	2,044	9,836	493,706	9,445,994
2024	111,157	274,500	9,763	42,616	71,944	8,428,501	2,031	9,836	493,706	9,444,054
2025	111,157	274,500	9,763	42,616	69,744	8,428,501	2,012	9,836	493,706	9,441,835
2026	111,157	274,500	9,763	42,616	67,942	8,428,501	1,979	9,836	493,706	9,440,000
2027	111,157	274,500	9,763	42,616	66,134	8,428,501	1,966	9,836	493,706	9,438,179
2028	111,157	274,500	9,763	42,616	63,422	8,428,501	1,914	9,836	493,706	9,435,415
2029	111,157	274,500	9,763	42,616	61,514	8,428,501	1,871	9,836	493,706	9,433,464
2030	111,157	274,500	9,763	42,616	59,171	8,428,501	1,809	9,836	493,706	9,431,059
2031	111,157	274,500	9,763	42,616	54,724	8,428,501	1,695	9,836	493,706	9,426,498
2032	111,157	274,500	9,763	42,616	48,389	8,428,501	1,541	9,836	493,706	9,420,009
2033	111,157	274,500	9,763	42,616	38,429	8,428,501	1,253	9,836	493,706	9,409,761
2034	111,157	274,500	9,763	42,616	26,098	8,428,501	860	9,836	493,706	9,397,037
2035	111,157	274,500	9,763	42,616	11,837	8,428,501	390	9,836	493,706	9,382,306
TOTAL	7,167,436	16,281,087	657,375	2,483,548	26,501,299	479,666,906	571,355	607,684	29,439,013	563,375,703

TABLE B-15: CAPITAL COST COMPONENT OF

(in dollars)

Sheet 3 of 4

Calendar Year	SOUTHERN CALIFORNIA AREA									
	Antelope Valley East Kern Water Agency	Castaic Lake Water Agency	Coachella Valley County 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)
1963	33,287	0	0	0	0	0	0	0	51,610	0
1964	62,406	19,871	14,156	4,280	36,678	1,130	27,924	8,120	81,235	34,542
1965	118,029	37,913	24,807	7,100	40,317	2,068	49,766	15,123	133,432	34,934
1966	214,785	71,840	44,375	12,368	72,590	3,732	89,706	27,529	230,605	60,980
1967	415,967	148,052	85,682	23,342	140,712	7,255	174,308	53,816	431,109	114,992
1968	667,220	291,269	140,049	38,284	230,375	11,714	284,422	86,802	725,474	193,376
1969	965,265	441,961	208,241	56,888	342,838	17,123	422,615	126,286	1,125,061	299,600
1970	1,261,271	564,223	294,275	84,387	484,727	23,296	588,326	170,317	1,676,886	439,765
1971	1,520,744	697,557	399,005	119,858	657,452	28,759	786,164	208,189	2,376,774	615,137
1972	1,654,618	787,398	454,202	137,276	748,485	31,266	893,727	226,199	2,793,352	716,761
1973	1,705,193	803,553	471,317	142,023	776,711	32,258	928,223	233,170	2,933,508	753,133
1974	1,723,299	843,798	479,413	146,224	790,064	32,580	940,371	235,524	3,020,453	772,945
1975	1,746,416	855,624	492,660	150,013	811,910	32,997	966,866	238,554	3,100,218	793,941
1976	1,759,314	865,386	502,544	152,709	828,211	33,249	986,882	240,288	3,178,163	814,676
1977	1,770,635	874,921	509,385	154,577	839,493	33,453	1,000,765	241,770	3,226,593	827,554
1978	1,781,364	886,580	514,145	155,921	847,343	33,655	1,010,336	243,218	3,257,268	835,631
1979	1,795,320	907,062	517,631	156,876	853,093	33,894	1,017,401	244,859	3,276,696	840,785
1980	1,826,775	957,757	523,856	158,623	863,359	34,376	1,029,921	248,402	3,315,449	850,889
1981	1,913,662	1,010,245	539,762	162,794	889,592	35,752	1,062,501	258,670	3,392,956	871,697
1982	2,016,075	1,045,100	557,238	167,250	918,413	37,339	1,098,555	270,564	3,472,558	893,455
1983	2,085,520	1,066,745	567,252	169,803	934,927	38,245	1,119,229	277,351	3,518,182	905,928
1984	2,158,306	1,077,754	571,490	170,877	941,916	38,633	1,128,020	280,255	3,537,236	911,158
1985	2,568,125	1,083,674	574,465	171,631	946,823	38,909	1,134,214	282,324	3,550,591	914,830
1986	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
1987	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
1988	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
1989	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
1990	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
1991	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
1992	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
1993	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
1994	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
1995	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
1996	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
1997	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
1998	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
1999	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
2000	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
2001	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
2002	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
2003	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
2004	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
2005	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
2006	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
2007	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
2008	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
2009	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
2010	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
2011	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
2012	3,030,843	1,087,580	576,802	172,225	950,677	39,125	1,139,077	283,943	3,561,168	917,734
2013	2,997,556	1,087,580	576,802	172,225	937,345	39,125	1,139,077	283,943	3,509,557	904,664
2014	2,968,437	1,067,709	562,646	167,946	927,925	37,995	1,111,154	275,824	3,479,933	896,845
2015	2,912,814	1,049,667	551,995	165,126	910,360	37,058	1,089,311	268,820	3,427,736	882,800
2016	2,816,058	1,015,739	532,426	159,857	878,087	35,393	1,049,371	256,414	3,330,563	856,754
2017	2,614,876	939,528	491,120	148,883	809,965	31,870	964,769	230,128	3,130,059	802,742
2018	2,363,623	796,311	436,752	133,941	720,302	27,411	854,655	197,141	2,835,693	724,358
2019	2,065,578	645,619	368,560	115,337	607,839	22,002	716,462	157,657	2,436,107	618,134
2020	1,769,572	523,356	282,527	87,838	465,950	15,829	550,751	113,626	1,884,282	477,969
2021	1,510,099	390,023	177,797	52,367	293,224	10,366	352,913	75,754	1,184,394	302,598
2022	1,376,225	300,182	122,599	34,949	202,192	7,859	245,350	57,745	767,816	200,974
2023	1,325,650	284,027	105,484	30,202	173,966	6,867	210,854	50,773	627,660	164,601
2024	1,307,544	243,782	97,388	26,001	160,612	6,545	198,706	48,419	540,715	144,789
2025	1,284,427	231,956	84,142	22,212	138,766	6,128	172,211	45,389	460,950	123,793
2026	1,271,529	222,194	74,258	19,516	122,465	5,876	152,195	43,655	383,005	103,058
2027	1,260,208	212,659	67,417	17,649	111,183	5,672	138,312	42,173	334,575	90,180
2028	1,249,479	201,000	62,657	16,305	103,333	5,470	128,741	40,726	303,900	82,103
2029	1,235,523	180,518	59,171	15,350	97,584	5,231	121,677	39,085	284,472	76,949
2030	1,204,068	129,823	52,945	13,602	87,317	4,749	109,156	35,541	245,719	66,845
2031	1,117,181	77,334	37,039	9,431	61,085	3,373	76,576	25,273	168,212	46,037
2032	1,014,768	42,480	19,563	4,976	32,264	1,786	40,522	13,379	88,610	24,279
2033	945,323	20,834	9,550	2,422	15,750	880	19,848	6,593	42,986	11,807
2034	872,537	9,826	5,312	1,348	8,761	492	11,057	3,689	23,932	6,576
2035	462,718	3,905	2,337	594	3,854	216	4,863	1,619	10,577	2,904
TOTAL	151,542,150	54,378,995	28,840,091	8,611,256	47,534,437	1,956,251	56,953,852	14,197,157	178,058,398	45,887,286

TRANSPORTATION CHARGE FOR EACH CONTRACTOR^{(a)(b)}

(in dollars)

Sheet 4 of 4

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA				FUTURE CONTRACTOR	GRAND TOTAL
	San Geronimo Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC & WCD	Total	South Bay	
	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)
1963	0	692,316	0	777,213	0	0	0	0	45,086	1,381,016
1964	21,459	1,263,910	9,294	1,585,005	0	0	0	0	81,491	2,485,614
1965	21,611	2,183,484	17,676	2,686,260	0	0	395	395	135,899	4,178,111
1966	37,664	3,899,505	33,297	4,798,976	0	0	551	551	159,310	6,627,974
1967	70,922	7,691,038	68,007	9,425,202	0	0	549	549	199,839	11,656,593
1968	119,384	14,344,989	133,202	17,266,560	0	0	551	551	275,080	20,544,625
1969	185,165	21,810,931	202,334	26,204,308	0	0	3,117	3,117	338,165	30,398,098
1970	272,555	28,943,868	257,660	35,061,556	0	0	14,768	14,768	359,528	39,520,385
1971	382,122	37,277,582	316,768	45,386,111	0	0	15,575	15,575	363,428	50,230,699
1972	445,405	44,160,301	354,986	53,403,976	0	0	16,928	16,928	364,238	59,311,112
1973	468,051	46,449,814	358,399	56,055,353	0	0	16,929	16,929	364,946	61,994,856
1974	480,658	48,482,029	373,199	58,320,557	0	0	16,930	16,930	365,430	64,724,584
1975	493,682	49,447,386	377,465	59,507,732	0	0	16,933	16,933	367,205	66,521,803
1976	506,584	50,296,190	381,597	60,545,793	0	0	16,934	16,934	367,637	67,999,004
1977	514,580	50,977,378	385,750	61,356,854	0	0	16,937	16,937	368,484	69,129,714
1978	519,591	51,569,807	391,262	62,046,121	0	0	16,938	16,938	369,965	70,279,232
1979	522,779	52,436,830	400,945	63,004,171	0	0	16,938	16,938	370,792	71,669,046
1980	529,045	54,461,633	425,075	65,225,160	0	0	16,938	16,938	371,100	74,370,357
1981	541,866	56,745,460	450,033	67,874,990	0	0	16,938	16,938	371,614	77,624,635
1982	555,242	58,400,152	466,710	69,898,651	0	0	16,938	16,938	372,157	80,276,370
1983	562,908	59,409,881	476,762	71,132,733	0	0	16,938	16,938	372,972	82,814,807
1984	566,118	59,903,709	481,524	71,766,996	0	0	16,938	16,938	373,836	85,994,273
1985	568,368	60,184,576	484,233	72,502,763	0	0	16,938	16,938	374,226	89,129,075
1986	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	91,760,386
1987	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	92,193,942
1988	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	92,600,767
1989	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	92,902,920
1990	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
1991	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
1992	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
1993	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
1994	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
1995	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
1996	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
1997	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
1998	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
1999	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
2000	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
2001	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
2002	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
2003	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
2004	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
2005	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
2006	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
2007	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
2008	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
2009	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
2010	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
2011	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
2012	570,148	60,378,784	486,114	73,194,220	0	0	16,938	16,938	374,244	93,234,746
2013	562,015	59,686,468	486,114	72,382,471	0	0	16,938	16,938	329,158	91,813,144
2014	557,185	59,114,874	476,819	71,645,292	0	0	16,938	16,938	292,753	90,761,580
2015	548,537	58,195,299	468,438	70,507,961	0	0	16,543	16,543	238,345	89,027,321
2016	532,484	56,479,279	452,817	68,395,242	0	0	16,387	16,387	214,933	86,574,720
2017	499,225	52,687,745	418,106	63,769,016	0	0	16,389	16,389	174,405	81,541,829
2018	450,764	46,033,794	352,911	55,927,656	0	0	16,387	16,387	99,164	73,190,882
2019	384,983	38,567,853	283,779	46,989,910	0	0	13,821	13,821	36,079	63,905,587
2020	297,593	31,434,916	228,453	38,132,662	0	0	2,170	2,170	14,716	54,909,215
2021	188,026	23,101,202	169,345	27,808,108	0	0	1,363	1,363	10,816	44,539,332
2022	124,743	16,218,483	131,128	19,790,245	0	0	9	9	10,005	36,499,340
2023	102,097	13,928,970	127,715	17,138,866	0	0	9	9	9,298	33,809,638
2024	89,490	11,896,755	112,914	14,873,660	0	0	8	8	8,814	31,533,570
2025	76,466	10,931,398	108,649	13,686,487	0	0	5	5	7,039	30,324,312
2026	63,564	10,082,594	104,517	12,648,426	0	0	3	3	6,607	28,928,426
2027	55,568	9,401,406	100,363	11,837,365	0	0	1	1	5,760	28,092,663
2028	50,557	8,808,977	94,852	11,148,100	0	0	0	0	4,279	27,357,811
2029	47,369	7,941,954	85,169	10,190,052	0	0	0	0	3,451	26,373,021
2030	41,103	5,917,150	61,038	7,969,056	0	0	0	0	3,144	24,085,046
2031	28,282	3,633,323	36,081	5,319,227	0	0	0	0	2,630	21,294,179
2032	14,905	1,978,632	19,403	3,295,567	0	0	0	0	2,087	19,072,574
2033	7,239	968,902	9,352	2,061,486	0	0	0	0	1,271	17,018,106
2034	4,030	475,074	4,590	1,427,224	0	0	0	0	408	14,279,370
2035	1,780	194,208	1,881	691,456	0	0	0	0	18	11,574,552
TOTAL	28,507,760	3,018,939,193	24,305,690	3,659,712,516	0	0	846,898	846,898	18,712,196	4,729,225,374

TABLE B-16: MINIMUM OMP&R COMPONENT OF

(in dollars)

Sheet 1 of 4

Calendar Year	NORTH BAY AREA			SOUTH BAY AREA				CENTRAL COASTAL AREA		
	Napa County FC & WCD	Solano County FC & WCD	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	9,699	8,868	0	18,567	0	0	0
1963	0	0	0	38,048	34,788	82,896	155,732	0	0	0
1964	0	0	0	41,148	38,323	91,320	170,791	0	0	0
1965	0	0	0	78,529	75,616	195,792	349,937	0	0	0
1966	0	0	0	79,907	78,939	219,185	378,031	0	0	0
1967	0	0	0	128,144	123,929	336,130	588,203	0	0	0
1968	130	0	130	123,330	117,923	326,165	567,418	11,436	26,696	38,132
1969	76,244	0	76,244	138,328	131,168	353,024	622,520	62,511	145,936	208,447
1970	88,810	0	88,810	123,249	114,759	305,413	543,421	73,491	171,569	245,060
1971	34,038	0	34,038	107,435	102,966	281,113	491,514	73,284	171,090	244,374
1972	32,893	0	32,893	116,611	111,936	318,950	547,497	78,419	183,076	261,495
1973	29,040	0	29,040	116,018	110,345	307,727	534,090	74,927	174,928	249,855
1974	41,250	0	41,250	146,490	139,316	381,746	667,548	75,800	176,960	252,760
1975	33,024	0	33,024	181,716	174,914	493,632	850,266	91,764	214,232	305,996
1976	65,248	0	65,248	240,325	229,150	620,573	1,090,048	97,111	226,715	323,826
1977	61,306	0	61,306	130,452	121,739	368,114	620,305	105,092	245,346	350,438
1978	66,929	0	66,929	230,942	220,405	591,949	1,043,296	109,626	255,933	365,559
1979	58,942	0	58,942	245,405	234,367	623,157	1,102,929	116,424	271,806	388,230
1980	67,180	0	67,180	247,530	236,261	622,618	1,106,409	120,027	280,217	400,244
1981	71,585	0	71,585	248,310	236,972	624,295	1,109,577	120,371	281,017	401,388
1982	64,360	0	64,360	247,581	236,279	622,455	1,106,315	120,455	281,214	401,669
1983	97,989	47,285	145,274	253,663	241,887	635,827	1,131,377	123,591	288,530	412,121
1984	187,474	177,236	364,710	255,448	243,528	639,761	1,138,737	124,532	290,728	415,260
1985	225,323	163,728	389,051	254,882	242,993	638,346	1,136,221	124,273	290,126	414,399
1986	225,720	164,000	389,720	254,430	242,557	637,148	1,134,135	208,138	497,592	705,730
1987	225,275	163,483	388,758	254,197	242,335	636,569	1,133,101	205,174	490,074	695,248
1988	228,331	164,995	393,326	257,117	245,112	643,809	1,146,038	206,674	493,681	700,355
1989	227,586	164,438	392,024	256,257	244,293	641,642	1,142,192	205,911	491,771	697,682
1990	227,664	164,501	392,165	256,383	244,412	641,943	1,142,738	205,973	491,920	697,893
1991	227,638	164,490	392,128	256,359	244,389	641,882	1,142,630	206,198	492,621	698,819
1992	227,369	164,286	391,655	256,033	244,080	641,061	1,141,174	205,932	492,055	697,987
1993	229,318	165,727	395,045	257,907	245,966	646,085	1,150,048	207,430	495,626	703,056
1994	229,371	165,810	395,181	258,338	246,205	646,864	1,151,487	208,257	498,004	706,261
1995	229,364	165,798	395,162	258,476	246,409	647,193	1,152,078	208,236	497,952	706,188
1996	228,035	164,799	392,834	256,943	244,942	643,327	1,145,212	206,904	494,809	701,713
1997	228,052	164,825	392,877	257,056	245,048	643,584	1,145,688	207,500	496,434	703,934
1998	227,899	164,706	392,605	256,852	244,855	643,069	1,144,776	207,254	495,824	703,078
1999	227,910	164,723	392,633	256,942	244,938	643,279	1,145,159	207,489	496,529	704,018
2000	227,898	164,705	392,603	256,856	244,859	643,083	1,144,798	207,286	495,946	703,232
2001	228,856	165,429	394,285	257,935	245,889	645,809	1,149,633	208,201	498,188	706,389
2002	228,613	165,257	393,870	257,957	245,901	645,766	1,149,624	207,939	497,454	705,393
2003	228,619	165,264	393,883	257,984	245,925	645,830	1,149,739	208,109	498,085	706,194
2004	228,624	165,272	393,896	258,032	245,970	645,934	1,149,936	208,200	498,394	706,594
2005	227,840	164,679	392,519	257,124	245,102	643,646	1,145,872	207,469	496,523	703,992
2006	227,832	164,667	392,499	256,849	244,849	643,042	1,144,740	207,403	496,292	703,695
2007	227,846	164,689	392,535	257,178	245,154	643,772	1,146,104	207,546	496,780	704,326
2008	227,843	164,684	392,527	257,144	245,122	643,695	1,145,961	207,501	496,635	704,136
2009	227,844	164,687	392,531	257,167	245,142	643,750	1,146,059	207,563	496,845	704,408
2010	228,436	165,123	393,559	257,770	245,721	645,289	1,148,780	207,924	497,585	705,509
2011	228,432	165,119	393,551	257,764	245,715	645,271	1,148,750	207,921	497,573	705,494
2012	228,448	165,142	393,590	257,866	245,810	645,507	1,149,183	208,088	498,160	706,248
2013	228,454	165,151	393,605	257,890	245,834	645,564	1,149,288	208,090	498,158	706,248
2014	228,441	165,132	393,573	257,810	245,759	645,383	1,148,952	208,071	498,111	706,182
2015	228,438	165,126	393,564	257,780	245,730	645,310	1,148,820	207,943	497,657	705,600
2016	228,454	165,152	393,606	257,899	245,840	645,581	1,149,320	208,128	498,295	706,423
2017	228,439	165,127	393,566	257,784	245,735	645,321	1,148,840	207,976	497,783	705,759
2018	228,436	165,125	393,561	257,784	245,732	645,316	1,148,832	207,948	497,668	705,616
2019	228,451	165,146	393,597	257,884	245,827	645,546	1,149,257	208,108	498,231	706,339
2020	228,452	165,149	393,601	257,953	245,893	645,710	1,149,556	208,173	498,421	706,594
2021	228,452	165,149	393,601	257,953	245,893	645,710	1,149,556	208,173	498,421	706,594
2022	228,452	165,149	393,601	257,953	245,893	645,710	1,149,556	208,173	498,421	706,594
2023	228,452	165,149	393,601	257,953	245,893	645,710	1,149,556	208,173	498,421	706,594
2024	228,452	165,149	393,601	257,953	245,893	645,710	1,149,556	208,173	498,421	706,594
2025	228,452	165,149	393,601	257,953	245,893	645,710	1,149,556	208,173	498,421	706,594
2026	228,452	165,149	393,601	257,953	245,893	645,710	1,149,556	208,173	498,421	706,594
2027	228,452	165,149	393,601	257,953	245,893	645,710	1,149,556	208,173	498,421	706,594
2028	228,452	165,149	393,601	257,953	245,893	645,710	1,149,556	208,173	498,421	706,594
2029	228,452	165,149	393,601	257,953	245,893	645,710	1,149,556	208,173	498,421	706,594
2030	228,452	165,149	393,601	257,953	245,893	645,710	1,149,556	208,173	498,421	706,594
2031	228,452	165,149	393,601	257,953	245,893	645,710	1,149,556	208,173	498,421	706,594
2032	228,452	165,149	393,601	257,953	245,893	645,710	1,149,556	208,173	498,421	706,594
2033	228,452	165,149	393,601	257,953	245,893	645,710	1,149,556	208,173	498,421	706,594
2034	228,452	165,149	393,601	257,953	245,893	645,710	1,149,556	208,173	498,421	706,594
2035	228,452	165,149	393,601	257,953	245,893	645,710	1,149,556	208,173	498,421	706,594
TOTAL	12,712,773	8,637,890	21,350,663	16,656,275	15,878,896	41,907,418	74,442,589	12,088,386	28,826,110	40,914,496

a) Unadjusted for prior overpayments or underpayments of charges.

TRANSPORTATION CHARGE FOR EACH CONTRACTOR^(a)

(in dollars)

Sheet 2 of 4

Calendar Year	SAN JOAQUIN VALLEY AREA									
	Devil's Den Water District	Dudley Ridge Water District	Empire West Side Irrigation District	Hacienda Water 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)	(19)	(20)
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	8,133	36,767	1,910	5,415	59,032	659,444	1,952	2,026	70,044	844,723
1969	43,907	44,293	2,179	6,525	78,347	1,173,024	2,229	2,045	81,925	1,434,474
1970	51,598	45,716	2,232	6,734	93,795	1,351,967	2,284	2,112	84,231	1,640,669
1971	51,457	46,727	2,255	6,884	103,443	1,606,740	2,308	2,238	85,532	1,907,584
1972	55,059	48,590	2,354	7,158	118,358	1,687,523	2,409	2,209	89,157	2,012,817
1973	52,616	48,745	2,329	7,181	121,493	1,676,886	2,383	2,262	88,745	2,002,640
1974	53,234	51,494	2,495	7,585	131,192	1,776,285	2,553	2,478	94,480	2,121,796
1975	64,455	65,256	3,165	9,613	157,501	2,178,693	3,237	3,127	119,761	2,604,808
1976	68,229	73,739	3,709	10,863	168,483	2,324,071	3,796	3,551	138,069	2,794,510
1977	73,789	65,904	3,295	9,709	172,069	2,297,662	3,368	2,884	122,943	2,751,623
1978	77,036	87,106	4,326	12,832	208,654	2,696,054	4,426	4,395	161,955	3,256,784
1979	81,791	86,919	4,316	12,803	205,077	2,707,049	4,412	4,270	161,533	3,268,170
1980	84,306	85,137	4,220	12,542	202,473	2,698,480	4,317	4,104	158,116	3,253,695
1981	84,552	86,670	4,299	12,769	204,910	2,724,975	4,399	4,257	161,039	3,287,870
1982	84,611	86,309	4,282	12,713	204,101	2,714,776	4,380	4,243	160,364	3,275,779
1983	86,817	89,671	4,454	13,208	210,952	2,797,646	4,553	4,352	166,689	3,378,342
1984	87,480	91,117	4,528	13,425	213,680	2,830,297	4,629	4,438	169,417	3,419,011
1985	87,298	90,810	4,511	13,377	213,069	2,822,798	4,614	4,417	168,839	3,409,733
1986	91,842	90,427	4,492	13,321	212,401	2,785,661	4,593	4,406	168,117	3,375,260
1987	91,709	90,312	4,485	13,305	212,152	2,782,134	4,587	4,403	167,899	3,370,986
1988	92,730	91,527	4,547	13,484	214,818	2,816,448	4,650	4,450	170,166	3,412,820
1989	92,408	91,173	4,528	13,432	214,030	2,806,208	4,631	4,435	169,512	3,400,357
1990	92,443	91,224	4,530	13,438	214,147	2,807,576	4,635	4,438	169,602	3,402,033
1991	92,517	91,255	4,532	13,443	214,210	2,808,837	4,635	4,439	169,661	3,403,529
1992	92,334	91,132	4,526	13,425	213,944	2,804,793	4,630	4,434	169,434	3,398,652
1993	93,099	91,928	4,566	13,542	215,688	2,827,887	4,670	4,468	170,914	3,426,762
1994	93,248	92,168	4,580	13,578	216,215	2,834,261	4,682	4,474	171,365	3,434,571
1995	93,240	92,136	4,578	13,575	216,153	2,833,608	4,681	4,473	171,306	3,433,750
1996	92,692	91,496	4,545	13,478	214,753	2,815,541	4,649	4,447	170,110	3,411,711
1997	92,793	91,578	4,549	13,490	214,921	2,817,942	4,652	4,450	170,265	3,414,640
1998	92,651	91,492	4,544	13,478	214,726	2,814,972	4,649	4,446	170,102	3,411,060
1999	92,742	91,543	4,547	13,484	214,850	2,816,938	4,651	4,448	170,199	3,413,402
2000	92,652	91,494	4,544	13,478	214,730	2,815,019	4,649	4,446	170,106	3,411,118
2001	93,121	91,960	4,568	13,545	215,762	2,828,863	4,674	4,464	170,978	3,427,935
2002	93,032	91,891	4,565	13,538	215,605	2,826,655	4,670	4,461	170,851	3,425,268
2003	93,035	91,898	4,565	13,538	215,624	2,826,848	4,670	4,462	170,861	3,425,501
2004	93,047	91,936	4,567	13,543	215,705	2,827,698	4,672	4,463	170,934	3,426,565
2005	92,723	91,546	4,547	13,486	214,851	2,816,777	4,651	4,447	170,206	3,413,234
2006	92,710	91,510	4,546	13,480	214,777	2,815,968	4,649	4,445	170,137	3,412,222
2007	92,735	91,588	4,550	13,492	214,935	2,817,687	4,653	4,449	170,283	3,414,372
2008	92,725	91,554	4,547	13,487	214,865	2,816,952	4,652	4,448	170,219	3,413,449
2009	92,735	91,585	4,550	13,491	214,930	2,817,605	4,653	4,449	170,278	3,414,276
2010	92,963	91,814	4,561	13,525	215,438	2,824,442	4,665	4,458	170,705	3,422,571
2011	92,963	91,814	4,561	13,525	215,433	2,824,385	4,665	4,458	170,703	3,422,507
2012	92,983	91,882	4,564	13,537	215,585	2,826,064	4,669	4,460	170,833	3,424,577
2013	92,989	91,898	4,565	13,540	215,618	2,826,425	4,671	4,461	170,862	3,425,029
2014	92,974	91,850	4,562	13,531	215,515	2,825,231	4,668	4,459	170,775	3,423,565
2015	92,966	91,817	4,561	13,525	215,446	2,824,517	4,665	4,458	170,710	3,422,665
2016	92,990	91,900	4,565	13,540	215,621	2,826,471	4,671	4,461	170,864	3,425,083
2017	92,966	91,818	4,561	13,526	215,446	2,824,544	4,666	4,458	170,714	3,422,699
2018	92,966	91,820	4,561	13,527	215,449	2,824,563	4,666	4,458	170,714	3,422,724
2019	92,987	91,894	4,565	13,539	215,609	2,826,347	4,671	4,461	170,857	3,424,930
2020	93,008	91,952	4,568	13,546	215,743	2,827,806	4,673	4,461	170,961	3,426,718
2021	93,008	91,952	4,568	13,546	215,743	2,827,806	4,673	4,461	170,961	3,426,718
2022	93,008	91,952	4,568	13,546	215,743	2,827,806	4,673	4,461	170,961	3,426,718
2023	93,008	91,952	4,568	13,546	215,743	2,827,806	4,673	4,461	170,961	3,426,718
2024	93,008	91,952	4,568	13,546	215,743	2,827,806	4,673	4,461	170,961	3,426,718
2025	93,008	91,952	4,568	13,546	215,743	2,827,806	4,673	4,461	170,961	3,426,718
2026	93,008	91,952	4,568	13,546	215,743	2,827,806	4,673	4,461	170,961	3,426,718
2027	93,008	91,952	4,568	13,546	215,743	2,827,806	4,673	4,461	170,961	3,426,718
2028	93,008	91,952	4,568	13,546	215,743	2,827,806	4,673	4,461	170,961	3,426,718
2029	93,008	91,952	4,568	13,546	215,743	2,827,806	4,673	4,461	170,961	3,426,718
2030	93,008	91,952	4,568	13,546	215,743	2,827,806	4,673	4,461	170,961	3,426,718
2031	93,008	91,952	4,568	13,546	215,743	2,827,806	4,673	4,461	170,961	3,426,718
2032	93,008	91,952	4,568	13,546	215,743	2,827,806	4,673	4,461	170,961	3,426,718
2033	93,008	91,952	4,568	13,546	215,743	2,827,806	4,673	4,461	170,961	3,426,718
2034	93,008	91,952	4,568	13,546	215,743	2,827,806	4,673	4,461	170,961	3,426,718
2035	93,008	91,952	4,568	13,546	215,743	2,827,806	4,673	4,461	170,961	3,426,718
TOTAL	5,839,206	5,817,062	288,671	856,938	13,628,469	179,805,133	295,282	282,121	10,809,457	217,622,339

TABLE B-16: MINIMUM OMP&R COMPONENT OF

(in dollars)

Sheet 3 of 4

Calendar Year	SOUTHERN CALIFORNIA AREA									
	Antelope Valley East Kern Water Agency	Castaic Lake Water Agency	Coachella Valley County Water District	Crestline Lake Arrowhead Water Agency	Desert Water Agency	Littlerock Creek Irrigation District	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal District	San Gabriel Valley Municipal Water District
	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
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	63,285	19,179	11,375	2,876	18,760	1,059	23,711	7,948	50,876	14,003
1969	83,975	25,450	15,096	3,817	24,896	1,405	31,462	10,547	67,518	18,584
1970	104,558	31,688	18,808	4,757	31,016	1,748	39,171	13,133	84,112	23,145
1971	172,860	52,389	31,157	7,878	51,378	2,893	64,764	21,711	139,330	38,313
1972	348,726	142,209	101,525	29,422	167,435	6,322	202,687	46,094	520,785	136,964
1973	387,328	166,703	114,408	32,627	188,685	7,011	229,569	51,534	680,486	178,723
1974	415,557	177,287	122,172	34,512	201,487	7,304	246,042	53,709	729,371	192,334
1975	482,819	223,308	140,632	40,020	231,929	8,640	282,615	62,527	835,223	220,607
1976	550,736	186,682	152,529	41,930	251,552	9,807	309,547	71,791	900,941	240,089
1977	638,102	222,570	172,770	46,199	284,926	11,195	353,116	82,316	1,019,095	273,716
1978	662,049	348,129	187,863	56,930	309,830	12,012	369,546	87,500	1,192,509	308,555
1979	671,472	276,325	184,929	51,230	304,982	12,111	374,035	88,365	1,077,102	286,259
1980	674,860	300,482	187,391	55,846	309,046	12,036	370,507	88,085	1,162,672	302,874
1981	675,816	299,169	184,781	52,766	304,742	12,045	370,287	88,170	1,107,638	292,084
1982	672,203	309,965	183,578	52,013	302,756	11,989	368,755	87,715	1,093,897	289,116
1983	703,793	326,390	199,857	59,167	329,610	12,703	395,943	92,658	1,222,131	318,901
1984	711,970	306,295	187,909	40,920	309,892	12,904	403,740	94,000	898,154	257,062
1985	710,657	352,524	197,779	53,214	326,169	12,878	403,215	93,835	1,116,310	299,510
1986	752,735	325,340	210,814	69,003	347,685	12,878	403,521	93,813	1,396,633	354,231
1987	750,332	343,571	204,012	60,879	336,467	12,867	403,128	93,724	1,252,113	325,961
1988	758,853	265,229	226,767	86,206	375,956	13,022	408,390	94,842	1,703,868	415,114
1989	756,664	345,611	199,098	52,918	328,353	12,984	407,308	94,580	1,111,723	299,370
1990	757,126	340,180	217,918	75,734	359,404	12,998	407,667	94,649	1,517,288	378,557
1991	757,346	355,781	189,992	41,538	313,331	13,000	407,862	94,684	909,629	260,047
1992	756,634	337,552	206,980	62,428	341,355	12,988	407,555	94,604	1,280,720	332,380
1993	761,535	345,226	216,411	72,902	356,917	13,066	409,798	95,172	1,468,036	369,390
1994	763,776	330,192	218,806	74,893	360,868	13,118	411,794	95,526	1,503,562	376,675
1995	763,574	364,197	210,690	65,059	347,478	13,116	411,627	95,495	1,328,790	342,550
1996	759,323	357,010	191,303	42,478	315,493	13,040	409,264	94,960	926,650	263,626
1997	759,937	366,486	220,922	78,396	364,360	13,055	409,820	95,058	1,564,941	388,252
1998	759,313	389,259	206,093	60,462	339,893	13,043	409,441	94,973	1,246,105	325,974
1999	759,945	312,744	209,471	64,333	345,464	13,058	409,989	95,078	1,315,030	339,523
2000	759,335	331,848	209,082	64,104	344,825	13,044	409,460	94,976	1,310,818	338,602
2001	762,481	298,388	211,482	66,235	348,778	13,100	411,168	95,372	1,349,336	346,456
2002	762,160	365,815	209,086	62,428	344,355	13,096	411,221	95,349	1,296,923	336,239
2003	762,328	365,030	209,647	63,879	345,755	13,104	411,422	95,383	1,307,396	338,315
2004	762,674	346,294	211,727	66,288	349,189	13,110	411,710	95,436	1,350,196	346,712
2005	759,941	368,189	195,604	47,344	322,588	13,059	410,098	95,080	1,013,034	280,623
2006	759,734	337,797	222,511	80,307	366,978	13,054	409,897	95,048	1,598,841	394,873
2007	760,352	300,471	214,605	70,377	353,937	13,068	410,469	95,149	1,422,423	360,558
2008	760,092	394,242	193,571	44,770	319,231	13,062	410,282	95,111	967,319	271,733
2009	760,202	368,013	220,120	77,204	363,036	13,064	410,275	95,119	1,543,745	384,193
2010	761,737	357,437	199,654	51,837	329,270	13,090	411,069	95,307	1,093,285	296,475
2011	761,616	337,864	214,611	70,181	353,948	13,086	410,915	95,285	1,419,284	360,046
2012	762,297	329,646	215,723	71,263	355,778	13,102	411,494	95,389	1,438,540	363,904
2013	762,450	377,488	201,599	53,934	332,475	13,106	411,655	95,415	1,130,556	303,845
2014	761,956	364,573	203,051	55,923	334,871	13,093	411,195	95,334	1,165,926	310,671
2015	761,768	355,268	214,969	70,529	354,536	13,091	411,107	95,312	1,425,432	361,281
2016	762,499	318,784	217,896	73,781	359,357	13,110	411,774	95,425	1,483,284	372,680
2017	761,767	362,102	212,243	67,201	350,043	13,091	411,097	95,311	1,366,369	349,756
2018	761,787	373,802	191,034	41,286	315,048	13,091	411,122	95,314	905,744	259,896
2019	762,436	326,414	220,864	77,471	364,256	13,106	411,646	95,415	1,548,836	385,447
2020	762,778	353,753	209,918	63,974	346,196	13,115	411,913	95,470	1,309,009	338,706
2021	762,778	353,753	209,918	63,974	346,196	13,115	411,913	95,470	1,309,009	338,706
2022	762,778	353,753	209,918	63,974	346,196	13,115	411,913	95,470	1,309,009	338,706
2023	762,778	353,753	209,918	63,974	346,196	13,115	411,913	95,470	1,309,009	338,706
2024	762,778	353,753	209,918	63,974	346,196	13,115	411,913	95,470	1,309,009	338,706
2025	762,778	353,753	209,918	63,974	346,196	13,115	411,913	95,470	1,309,009	338,706
2026	762,778	353,753	209,918	63,974	346,196	13,115	411,913	95,470	1,309,009	338,706
2027	762,778	353,753	209,918	63,974	346,196	13,115	411,913	95,470	1,309,009	338,706
2028	762,778	353,753	209,918	63,974	346,196	13,115	411,913	95,470	1,309,009	338,706
2029	762,778	353,753	209,918	63,974	346,196	13,115	411,913	95,470	1,309,009	338,706
2030	762,778	353,753	209,918	63,974	346,196	13,115	411,913	95,470	1,309,009	338,706
2031	762,778	353,753	209,918	63,974	346,196	13,115	411,913	95,470	1,309,009	338,706
2032	762,778	353,753	209,918	63,974	346,196	13,115	411,913	95,470	1,309,009	338,706
2033	762,778	353,753	209,918	63,974	346,196	13,115	411,913	95,470	1,309,009	338,706
2034	762,778	353,753	209,918	63,974	346,196	13,115	411,913	95,470	1,309,009	338,706
2035	762,778	353,753	209,918	63,974	346,196	13,115	411,913	95,470	1,309,009	338,706
TOTAL	46,781,919	21,184,635	12,871,603	3,874,138	21,228,020	809,862	25,365,560	5,901,846	79,504,669	20,644,090

TRANSPORTATION CHARGE FOR EACH CONTRACTOR^(a)

(in dollars)

Sheet 4 of 4

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA				FUTURE CONTRACTOR	GRAND TOTAL
	San Gorgonio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC & WCD	Total	South Bay	
	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)		(40)
1962	0	0	0	0	0	0	0	0	0	18,567
1963	0	0	0	0	0	0	0	0	12,626	168,358
1964	0	0	0	0	0	0	0	0	13,938	184,729
1965	0	0	0	0	0	0	0	0	28,937	378,874
1966	0	0	0	0	0	0	0	0	31,396	409,427
1967	0	0	0	0	0	0	0	0	47,836	636,039
1968	8,579	945,999	9,243	1,176,893	0	0	0	0	45,901	2,673,197
1969	11,386	1,260,039	12,265	1,566,440	0	0	0	0	50,234	3,958,359
1970	14,183	1,575,474	15,273	1,957,066	0	0	0	0	65,184	4,540,210
1971	23,491	2,625,782	25,246	3,257,192	0	0	58	58	51,039	5,985,799
1972	84,705	7,721,401	66,054	9,574,329	0	0	40	40	75,874	12,504,945
1973	110,686	9,670,491	76,726	11,894,977	0	0	1	1	48,855	14,759,458
1974	119,048	11,050,984	81,520	13,431,327	0	0	144	144	70,359	16,585,184
1975	136,571	13,056,924	100,974	15,822,789	0	0	1,073	1,073	79,342	19,697,298
1976	148,408	12,070,995	92,013	15,027,020	0	0	140	140	126,179	19,426,971
1977	169,079	14,260,676	107,712	17,641,472	0	0	878	878	70,082	21,496,104
1978	191,797	19,640,851	152,600	23,520,171	0	0	200	200	131,497	28,384,436
1979	177,142	16,478,594	129,021	20,111,567	0	0	200	200	137,463	25,067,501
1980	188,066	17,625,823	137,386	21,415,074	0	0	200	200	135,690	26,378,492
1981	181,004	16,699,863	136,808	20,405,173	0	0	200	200	135,927	25,411,720
1982	179,100	17,821,364	142,643	21,515,094	0	0	200	200	135,400	26,498,817
1983	197,946	19,043,377	149,090	23,051,566	0	0	200	200	141,289	28,260,169
1984	157,232	18,068,826	142,854	21,591,758	0	0	200	200	142,815	27,072,491
1985	185,060	20,319,460	157,912	24,228,523	0	0	200	200	142,501	29,720,628
1986	220,912	20,569,985	148,981	24,906,531	0	0	200	200	142,360	30,653,936
1987	202,401	20,148,028	154,927	24,288,410	0	0	200	200	142,160	30,018,863
1988	260,676	19,569,727	129,760	24,306,450	0	0	200	200	143,856	30,103,045
1989	184,863	18,639,469	156,001	22,588,942	0	0	200	200	143,316	28,364,713
1990	236,742	22,715,676	154,260	27,268,999	0	0	200	200	143,420	33,046,648
1991	159,081	19,711,760	159,379	23,373,430	0	0	200	200	143,339	29,154,075
1992	206,489	19,336,437	153,375	23,529,497	0	0	200	200	143,084	29,302,249
1993	230,680	22,020,015	156,175	26,515,323	0	0	200	200	144,019	32,334,453
1994	235,399	20,248,058	151,351	24,784,018	0	0	200	200	144,366	30,616,084
1995	213,043	21,467,790	162,478	25,785,887	0	0	200	200	144,793	31,618,058
1996	161,391	19,578,371	159,893	23,272,802	0	0	200	200	143,866	29,068,338
1997	243,039	22,318,103	163,040	26,985,409	0	0	200	200	143,969	32,786,717
1998	202,245	21,980,413	170,458	26,197,672	0	0	200	200	143,836	31,993,227
1999	211,108	19,335,045	145,447	23,556,235	0	0	200	200	143,936	29,355,583
2000	210,518	20,754,390	151,669	24,992,671	0	0	200	200	143,841	30,788,463
2001	215,618	19,619,470	140,897	23,878,781	0	0	200	200	144,444	29,701,667
2002	208,920	20,870,977	162,943	25,140,846	0	0	200	200	144,446	30,959,647
2003	210,278	21,822,784	162,711	26,108,032	0	0	200	200	144,475	31,928,024
2004	215,773	20,427,935	156,593	24,753,637	0	0	200	200	144,525	30,575,353
2005	172,511	20,914,513	163,607	24,756,191	0	0	200	200	143,986	30,555,994
2006	247,382	21,621,687	153,655	26,301,764	0	0	200	200	143,858	32,098,978
2007	224,878	19,392,013	141,476	23,759,776	0	0	200	200	144,046	29,561,359
2008	166,681	21,733,636	172,156	25,541,886	0	0	200	200	144,011	31,342,170
2009	240,372	21,719,563	163,594	26,358,500	0	0	200	200	144,032	32,160,006
2010	182,870	20,476,733	160,208	24,428,972	0	0	200	200	144,344	30,243,935
2011	224,532	20,730,835	153,800	25,146,003	0	0	200	200	144,335	30,960,840
2012	227,045	20,540,131	151,151	24,975,463	0	0	200	200	144,450	30,793,711
2013	187,688	21,596,750	166,813	25,633,774	0	0	200	200	144,475	31,452,619
2014	192,168	20,602,828	162,565	24,674,154	0	0	200	200	144,387	30,491,013
2015	225,335	21,271,071	159,501	25,719,200	0	0	200	200	144,356	31,534,405
2016	232,789	20,941,204	147,602	25,430,185	0	0	200	200	144,484	31,249,301
2017	217,782	21,465,644	161,739	25,834,145	0	0	200	200	144,361	31,649,570
2018	158,902	20,172,196	165,560	23,864,782	0	0	200	200	144,360	29,680,075
2019	241,159	21,013,993	150,097	25,611,140	0	0	200	200	144,467	31,429,930
2020	210,523	21,071,588	159,061	25,346,004	0	0	200	200	144,549	31,167,222
2021	210,523	21,071,588	159,061	25,346,004	0	0	200	200	144,549	31,167,222
2022	210,523	21,071,588	159,061	25,346,004	0	0	200	200	144,549	31,167,222
2023	210,523	21,071,588	159,061	25,346,004	0	0	200	200	144,549	31,167,222
2024	210,523	21,071,588	159,061	25,346,004	0	0	200	200	144,549	31,167,222
2025	210,523	21,071,588	159,061	25,346,004	0	0	200	200	144,549	31,167,222
2026	210,523	21,071,588	159,061	25,346,004	0	0	200	200	144,549	31,167,222
2027	210,523	21,071,588	159,061	25,346,004	0	0	200	200	144,549	31,167,222
2028	210,523	21,071,588	159,061	25,346,004	0	0	200	200	144,549	31,167,222
2029	210,523	21,071,588	159,061	25,346,004	0	0	200	200	144,549	31,167,222
2030	210,523	21,071,588	159,061	25,346,004	0	0	200	200	144,549	31,167,222
2031	210,523	21,071,588	159,061	25,346,004	0	0	200	200	144,549	31,167,222
2032	210,523	21,071,588	159,061	25,346,004	0	0	200	200	144,549	31,167,222
2033	210,523	21,071,588	159,061	25,346,004	0	0	200	200	144,549	31,167,222
2034	210,523	21,071,588	159,061	25,346,004	0	0	200	200	144,549	31,167,222
2035	210,523	21,071,588	159,061	25,346,004	0	0	200	200	144,549	31,167,222
TOTAL	12,823,121	1,262,409,561	9,594,178	1,522,993,202	0	0	13,934	13,934	9,129,151	1,886,466,374

TABLE B-17: UNIT VARIABLE OMP&R COMPONENT

(in dollars per acre-foot)^(b)

Sheet 1 of 3

Calendar Year	NORTH BAY AQUEDUCT				SOUTH BAY AQUEDUCT		CALIFORNIA AQUEDUCT			
	Reach 1		Reach 3		Reach 1		Reach 1		Reach 4	
	Calhoun and Travis Pumping Plants		Cordelia Pumping Plant (c)		South Bay and Del Valle Pumping Plant (d)		Delta Pumping Plant		Dos Amigos 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)	
1962	0	0	0	0	4.1511341	4.1511341	0	0	0	0
1963	0	0	0	0	4.5639383	4.5639383	0	0	0	0
1964	0	0	0	0	3.5452154	3.5452154	0	0	0	0
1965	0	0	0	0	4.1911773	4.1911773	0	0	0	0
1966	0	0	0	0	3.5074573	3.5074573	0	0	0	0
1967	0	0	0	0	3.9306767	5.1337448	1.2030681	1.2030681	0	0
1968	0	0	5.7570016	5.7570016	3.3315620	4.8674486	1.5358866	1.5358866	1.0686976	2.6045842
1969	0	0	3.1823595	3.1823595	3.6949019	4.7931699	1.0982680	1.0982680	6939369	1.7922049
1970	0	0	3.7584301	3.7584301	4.4256141	5.3660194	9404053	9404053	7750129	1.7154182
1971	0	0	4.2082507	4.2082507	3.8714396	4.7488429	8774033	8774033	4093968	1.2868001
1972	0	0	3.9577735	3.9577735	4.3250690	5.2259931	9009301	9009301	5535632	1.4544933
1973	0	0	3.8103903	3.8103903	5.2455409	6.1812087	9356678	9356678	5970606	1.5327284
1974	0	0	3.5878850	3.5878850	6.3321503	7.2268245	8946742	8946742	5714974	1.4661716
1975	0	0	2.1606725	2.1606725	3.7365711	4.8309404	1.0943693	1.0943693	4587400	1.5531093
1976	0	0	2.9281101	2.9281101	4.5187414	5.7243834	1.2056420	1.2056420	5154823	1.7211243
1977	0	0	2.4732555	2.4732555	5.2643891	6.6705970	1.4062079	1.4062079	6103652	2.0165731
1978	0	0	3.1784841	3.1784841	4.8515780	6.1905718	1.3389938	1.3389938	6710922	2.0100860
1979	0	0	3.1698113	3.1698113	4.5169921	6.3647017	1.8477096	1.8477096	6071761	2.4548857
1980	0	0	3.5346097	3.5346097	5.1471588	6.6401932	1.4930344	1.4930344	6916158	2.1846502
1981	0	0	3.3045977	3.3045977	4.9033723	6.5359795	1.6326072	1.6326072	6302226	2.2628298
1982	0	0	3.2485876	3.2485876	4.7578807	5.9656074	1.2077267	1.2077267	6081188	1.8158455
1983	7.5811510	7.5811510	18.6499652	26.2311162	17.6601273	23.7361510	6.0760237	6.0760237	2.7400927	8.8161164
1984	8.4237227	8.4237227	20.7728814	29.1966041	20.2133496	27.7324319	7.5190823	7.5190823	3.3380843	10.8571666
1985	8.5037317	8.5037317	20.8674699	29.3712016	20.3374211	27.9038384	7.5664173	7.5664173	3.3600760	10.9264933
1986	8.7639681	8.7639681	21.5348837	30.2988518	21.0176907	28.8378216	7.8201309	7.8201309	3.4739120	11.2940429
1987	8.7255592	8.7255592	21.5865922	30.3121514	20.9327212	28.7213592	7.7886380	7.7886380	3.4612668	11.2499048
1988	9.0882749	9.0882749	22.4946237	31.5828986	21.8999016	30.0470073	8.1471057	8.1471057	3.6234522	11.7705579
1989	9.0953041	9.0953041	22.5846154	31.6799195	21.9529483	29.9449551	7.9920068	7.9920068	3.6342777	11.6628245
1990	9.1381172	9.1381172	22.6200000	31.7581172	22.0475575	30.0650773	8.0175198	8.0175198	3.6514997	11.62690195
1991	9.2102479	9.2102479	22.8490566	32.0593045	22.2052644	30.3011182	8.0958538	8.0958538	3.6809933	11.7768471
1992	9.1995918	9.1995918	22.8750000	32.0745918	22.2090750	30.2990391	8.0899641	8.0899641	3.6801854	11.7701495
1993	9.0690726	9.0690726	22.4745763	31.5436489	21.8601917	29.8224137	7.9622220	7.9622220	3.6239983	11.5862203
1994	9.4559761	9.4559761	23.4032258	32.8592019	22.7881374	31.1048724	8.3167350	8.3167350	3.7785674	12.0953024
1995	9.4037205	9.4037205	23.3230769	32.7267974	22.7003859	31.0075925	8.3072066	8.3072066	3.7620072	12.0692138
1996	9.3346214	9.3346214	23.1532847	32.4879061	22.4841290	30.6923146	8.2081856	8.2081856	3.7322512	11.9404368
1997	9.4576628	9.4576628	23.4861111	32.9437739	22.8138883	31.1311977	8.3173094	8.3173094	3.7842655	12.1015749
1998	9.4272212	9.4272212	23.3245033	32.7517245	22.7044947	30.9914301	8.2869354	8.2869354	3.7664459	12.0533813
1999	9.5088100	9.5088100	23.6202532	33.1290592	22.9389149	31.3207383	8.3818234	8.3818234	3.8053387	12.1871621
2000	9.4236096	9.4236096	23.2848485	32.7084581	22.7149096	31.0092133	8.2943037	8.2943037	3.7677831	12.0620868
2001	9.4986239	9.4986239	23.5449102	33.0435341	22.8727447	31.2314715	8.3587268	8.3587268	3.7973139	12.1560407
2002	9.5731079	9.5731079	23.6804734	33.2535813	23.0602926	31.4836228	8.4233302	8.4233302	3.8259387	12.2492689
2003	9.6108561	9.6108561	23.7543860	33.3652421	23.1384415	31.5882131	8.4497716	8.4497716	3.8385226	12.2882462
2004	9.6483303	9.6483303	23.8843931	33.527234	23.2530532	31.7483252	8.4952720	8.4952720	3.8573786	12.3526506
2005	9.5777215	9.5777215	23.7257143	33.3034358	23.0759255	31.5056441	8.4297186	8.4297186	3.8288575	12.2585761
2006	9.5195543	9.5195543	23.5538117	33.0733660	22.9508883	31.3382024	8.3873141	8.3873141	3.8078043	12.1951184
2007	9.6218650	9.6218650	23.8283828	33.4502478	23.2165797	31.6994741	8.4828943	8.4828943	3.8516042	12.3344985
2008	9.5994318	9.5994318	23.7688985	33.3683303	23.1332283	31.5884332	8.4552045	8.4552045	3.8382152	12.2934197
2009	9.6123544	9.6123544	23.8176034	33.4299578	23.1853245	31.6568238	8.4714993	8.4714993	3.8466904	12.3181897
2010	9.5728070	9.5728070	23.7083333	33.2811403	23.0707128	31.5045632	8.4338504	8.4338504	3.8280754	12.2619258
2011	9.5477336	9.5477336	23.6809816	33.2287152	23.0498723	31.4763037	8.4264314	8.4264314	3.8242469	12.2506783
2012	9.6607588	9.6607588	23.9558233	33.6165821	23.3259894	31.8536298	8.5276404	8.5276404	3.8697924	12.3974328
2013	9.7039256	9.7039256	24.0236686	33.7275942	23.3780851	31.9292154	8.5511303	8.5511303	3.8791276	12.4302579
2014	9.6104723	9.6104723	23.7984496	33.4089219	23.1696968	31.6401936	8.4704968	8.4704968	3.8440639	12.3145607
2015	9.5857993	9.5857993	23.7238095	33.3096088	23.0967606	31.5417849	8.4450243	8.4450243	3.8323203	12.2773446
2016	9.7061318	9.7061318	24.0280374	33.7341692	23.4041330	31.9602557	8.5561227	8.5561227	3.8832978	12.4394205
2017	9.5913255	9.5913255	23.7247706	33.3160961	23.1123883	31.5606740	8.4482857	8.4482857	3.8348770	12.2831627
2018	9.5774667	9.5774667	23.7027027	33.2801694	23.1019681	31.5545463	8.4525782	8.4525782	3.8330119	12.2858801
2019	9.6790066	9.6790066	23.9911504	33.6019570	23.3624574	31.9009675	8.5385101	8.5385101	3.8762070	12.4147171
2020 (e)	9.6912102	9.6912102	23.9680000	33.6592102	23.3728777	32.1777287	8.8048510	8.8048510	3.8870287	12.6918797

a) Unit rates as shown constitute the rate for the indicated pumping plants, powerplants, and reservoirs. Cumulative unit rates as shown constitute the total rate, cumulative from the Sacramento-San Joaquin Delta, applicable to deliveries from or downstream of the indicated pumping plants and power plants. Excludes extra peaking service costs.
 b) Metric conversion is dollars per acre-foot times .0008107 equals dollars per cubic metre.
 c) For the period 1968 through 1982, rates are for an interim facility.

OF TRANSPORTATION CHARGE^(a)

(in dollars per acre-foot)^(b)

Calendar Year	CALIFORNIA AQUEDUCT (Continued)											
	Reach 14A		Reach 15A		Reach 16A		Reach 17E		Reach 18A		Reach 22B	
	Buena Vista Pumping Plant		Wheeler Ridge Pumping Plant		Wind Gap Pumping Plant		A.D. Edmonston (Tehachapi) Pumping Plant		Cottonwood Powerplant		Pearblossom 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	Unit Rate	Cumulative Unit Rate
(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	
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	3333333	2 0487515	0	0	0	0	0	0	0	0	0	
1971	1 3439298	2 6307299	4 6711712	7 3019011	0	0	0	0	0	0	0	
1972	1 0672954	2 5217887	1 1178389	3 6396276	2 2553270	5 8949546	7 2408159	13 1357705	0	0	13 3773690	26 5131395
1973	9749081	2 5076365	1 2016196	3 7092561	2 0873866	5 7966427	7 3928434	13 1894861	0	0	4 3984406	17 5879267
1974	9145153	2 3806869	1 0834811	3 4641680	1 9327647	5 3949327	6 8602694	12 2572021	0	0	3 4230870	15 6802891
1975	8145662	2 3676755	9526191	3 3202946	1 9544540	5 2747486	6 9742716	12 2490202	0	0	3 1630777	15 4120979
1976	9590360	2 6801603	1 0172562	3 6974165	2 2218251	5 9192416	7 9187728	13 8380144	0	0	3 9257582	17 7637726
1977	1 0809717	3 0975448	1 2939469	4 3914917	2 7730475	7 1645392	9 3314057	16 4959449	0	0	3 7391572	20 2351021
1978	1 1767218	3 1868078	1 1132631	4 3000709	2 6012366	6 9013075	10 1654842	17 0667917	0	0	3 6840667	20 7505884
1979	1 0404975	3 4953832	9772058	4 4725890	2 2449100	6 7174990	8 2225730	14 9400720	0	0	3 4609874	18 4010594
1980	1 1908288	3 3754790	1 2153533	4 5089323	2 7904107	7 3812430	10 2247144	17 6057144	0	0	3 9135033	21 5192177
1981	1 1883974	3 4512272	1 2242378	4 6754650	2 8107808	7 4862458	10 3304610	17 8167068	0	0	3 8993048	21 7160116
1982	1 1023934	2 9182389	1 1355652	4 0538041	2 6093869	6 6631910	9 5895566	16 2530476	- 2255072	16 0275404	3 5062265	19 5337669
1983	4 9584421	13 7745585	5 1202363	18 8947948	12 0598515	30 9544663	43 8408764	74 7955227	- 1 6690456	73 1264771	13 9330261	87 0595032
1984	6 1402888	16 9974554	6 3565416	23 3539970	15 0233987	38 3773957	55 1386711	93 5160668	- 2 1179609	91 3981059	16 8546042	108 2527101
1985	6 1774762	17 1039695	6 3948812	23 4988507	15 1163480	38 6152887	55 4782803	94 0935690	- 2 0861383	92 0074307	16 9585879	108 9660186
1986	6 3826883	17 6767312	6 6077535	24 2844847	15 6212390	39 9057237	57 3315331	97 2372568	- 2 3343157	94 9029411	17 5245846	112 4275257
1987	6 3571565	17 6070613	6 5810614	24 1881227	15 5597928	39 7479155	57 1044570	96 8523725	- 2 1578617	94 6945108	17 4679661	112 1524769
1988	6 6504996	18 4210575	6 8843571	25 3054146	16 2804562	41 5858708	59 7478107	101 3336815	- 2 5701307	98 7635508	18 2671054	117 0306562
1989	6 6672696	18 2935541	6 9008095	25 1943636	16 3224024	41 5167660	59 9002132	101 4169792	- 2 5364980	98 8804812	18 3197228	117 2002040
1990	6 6945993	18 3636188	6 9292540	25 2928728	16 3916342	41 6845070	60 1520758	101 8365828	- 2 2950718	99 5415110	18 3970812	117 9385922
1991	6 7486765	18 5255236	6 9852261	25 5107497	16 5242531	42 0350028	60 6385934	102 6735962	- 2 6792153	99 9943809	18 5486549	118 5430358
1992	6 7468813	18 5170308	6 9833291	25 5003599	16 5202642	42 0206241	60 6236172	102 6442413	- 2 3355574	100 3086939	18 5445857	118 8532696
1993	6 6425082	18 2287285	6 8753450	25 1040735	16 2654503	41 3695238	59 6875603	101 0570841	- 2 2809093	98 7749938	18 5457818	117 0326296
1994	6 9254679	19 0207703	7 1679451	26 1887154	16 9587339	43 1474943	62 2315096	105 3789589	- 2 4222139	102 9567450	19 0361750	121 9929200
1995	6 8945901	18 9638099	7 1359038	26 0997077	16 8832336	42 9849913	61 9541146	104 9370559	- 2 3480471	102 5890088	18 9529380	121 5419468
1996	6 8400866	18 7805234	7 0796590	25 8601824	16 7495991	42 6097815	61 4635791	104 0733606	- 2 2020274	101 8713332	18 8038603	120 6751935
1997	6 9348682	19 0364431	7 1775028	26 2139459	16 9820368	43 1959827	62 3163245	105 5123072	- 2 5752588	102 9370484	19 0627922	121 9998406
1998	6 9016163	18 9549976	7 1432755	26 0982731	16 9015285	42 9980116	62 0193042	105 0191058	- 2 4250323	102 5940735	18 9734544	121 5675279
1999	6 9731587	19 1603208	7 2172692	26 3775900	17 0764179	43 4540079	62 6615415	106 1155494	- 2 2573411	103 8582083	19 1697764	123 0279847
2000	6 9040295	18 9661163	7 1459561	26 1120724	16 9070852	43 0191576	62 0410123	105 0601699	- 2 4171445	102 6430254	18 9805152	121 6235406
2001	6 9576473	19 1136880	7 2015339	26 3152219	17 0391180	43 3543399	62 5240234	105 8783633	- 2 6752594	103 2031039	19 1277285	122 3308324
2002	7 0098003	19 2590692	7 2551219	26 5141911	17 1671094	43 6813005	62 9934797	106 6747802	- 2 5974146	104 0773656	19 2730363	123 3504019
2003	7 0324428	19 3207370	7 2787947	26 5995317	17 2263880	43 8221697	63 1964277	107 0185974	- 2 3556885	104 6647289	19 3346176	123 9993465
2004	7 0665462	19 4191968	7 3140498	26 7332466	17 3060996	44 0393462	63 5042348	107 5435810	- 2 2317410	105 3118400	19 4283213	124 7401613
2005	7 0142194	19 2727955	7 2598796	26 5326751	17 182739	43 7109490	63 0341756	106 7451246	- 2 5647457	104 1803789	19 2851333	123 4655122
2006	6 9754883	19 1706067	7 2194381	26 3980448	17 0831251	43 4731499	62 6849438	106 1581137	- 2 2340873	103 9240264	19 1785006	123 1025270
2007	7 0553969	19 3898954	7 3025080	26 6924034	17 2795552	43 9719586	63 4051738	107 3771324	- 2 3074601	105 0696723	19 3992376	124 4689099
2008	7 0306040	19 3240237	7 2765020	26 6005257	17 2183863	43 819120	63 1803283	106 9992403	- 2 2772612	104 7219791	19 3311983	124 8531774
2009	7 0457635	19 3639532	7 2925755	26 6565287	17 2562128	43 9127415	63 3192302	107 2319717	- 2 2557582	104 4762135	19 3738230	123 0503665
2010	7 0118124	19 2737382	7 2570223	26 5307605	17 1726472	43 7034077	63 0125708	106 7159785	- 2 2807569	104 4352216	19 2812175	123 7164391
2011	7 0045007	19 2551790	7 2493327	26 5045117	17 1549004	43 6594121	62 9472807	106 6066928	- 2 6471575	103 9595353	19 2601227	123 2196580
2012	7 0877199	19 4851527	7 3356116	26 8207643	17 3587371	44 1795014	63 6960699	107 8755713	- 2 6168701	105 2587012	19 4887983	124 7474995
2013	7 1040868	19 5343447	7 3526725	26 8870172	17 3994243	44 2864415	63 8449978	108 1314393	- 2 4123177	105 7191216	19 5364083	125 2555299
2014	7 0400710	19 3646317	7 2864788	26 6411105	17 246391	43 8837496	63 2690778	107 1528274	- 2 5721831	104 5806443	19 597351	123 9403794
2015	7 0185650	19 2959096	7 2641781	26 5600877	17 1902053	43 7502930	63 0767909	106 8270839	- 2 2963295	104 5307544	19 3008445	123 8315989
2016	7 1119459	19 5513664	7 3605171	26 9118835	17 4182985	44 3301820	63 9140959	108 2442779	- 2 3362744	105 9080035	19 5563220	125 4643255
2017	7 0233974	19 3065601	7 2689845	26 5755446	17 2014275	43 7769721	63 1174492	106 8944213	- 2 4013117	104 4931096	19 3134885	123 8065981
2018	7 0208042	19 3066843	7 2664989	26 5731832	17 1951325	43 7683157	63 0942575	106 8625732	- 2 2909815	104 5715917	19 3076804	123 8792721
2019	7 0990764	19 5137935	7 3471583	26 8609518	17 3869987	44 2479505	63 7981518	108 0461023	- 2 3397669	105 7063354	19 5209648	125 2273002
2020 ^(e)	7 1256638	19 8175435	7 3766339	27 1941774	17 4573405	44 6515179	64 0631306	108 7146485	- 2 3574653	106 3571832	19 4277789	125 7849621

d) The relatively minor estimated costs of the Del Valle Pumping Plant have been combined with those of the South Bay Pumping Plant to simplify the allocation procedure.
 e) And each year thereafter for the remainder of the project repayment period.

TABLE B-17: UNIT VARIABLE OMP&R COMPONENT OF TRANSPORTATION CHARGE^(a)

(in dollars per acre-foot)^(b)

Sheet 3 of 3

Calendar Year	CALIFORNIA AQUEDUCT (continued)											
	Reach 26A		Reach 29A		Reach 29 G		Reach 29J		Reach 31A		Reach 33	
	Devil Canyon Powerplant		Oso Pumping Plant		Pyramid Powerplant		Castaic Powerplant		Las Perillas and Badger Hill Pumping Plants		Devil's Den, Sawtooth, and Polonio Pumping Plants and San Luis Obispo Powerplant	
	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	Unit Rate	Cumulative Unit Rate
(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	
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	1 5014866	4 1060708	0	0
1969	0	0	0	0	0	0	0	0	1 2624065	3 0546114	0	0
1970	0	0	0	0	0	0	0	0	1 6309699	3 3463881	0	0
1971	0	0	0	0	0	0	0	1 4985537	2 7853538	0	0	0
1972	-2 4407843	24 0723552	1 3985359	14 5343064	0	0	-2 9829158	11 5513906	1 7489056	3 2033989	0	0
1973	-9 9059291	7 6819976	1 0046872	14 1941733	0	0	-6 1986838	7 9954895	1 4609575	2 9936859	0	0
1974	-5 2254491	10 4548400	9120198	13 1692219	0	0	-6 2552215	6 9140004	1 4255635	2 8917351	0	0
1975	-5 5237065	9 8883914	9294374	13 1784576	0	0	-6 2506760	6 9277816	1 0379624	2 9510717	0	0
1976	-6 3491394	11 4146332	8561639	14 6941783	0	0	-5 5090519	9 1851264	1 5460703	3 2671946	0	0
1977	-12 7235829	7 5115192	8565828	17 3525277	0	0	-15 1895187	2 1630090	2 0408958	4 0574689	0	0
1978	-9 1660187	11 5848397	1 0556731	18 1224648	0	0	-9 1970380	8 9254268	2 0604511	4 0705371	0	0
1979	-6 3357986	12 0652608	9102992	15 8503712	0	0	-9 6839404	6 1664308	1 8799267	4 3348124	0	0
1980	-4 9166667	16 6025510	1 1007693	18 7064837	0	0	-7 9774380	10 7290457	2 1170136	4 3306640	0	0
1981	-4 4469454	17 2690662	1 1145865	18 9312933	0	0	-6 2263021	12 7049912	1 9610429	4 2238727	0	0
1982	-5 3496469	14 1841200	1 1455704	17 3986180	-2 6523243	14 7452937	-6 7117533	8 0355404	1 8706045	3 6864500	0	0
1983	-24 4676569	62 5918463	5 0632232	79 8787459	-17 9059008	61 9718451	-25 0596803	36 9121648	5 8309367	14 6470531	0	0
1984	-32 8703367	75 3823734	6 7596856	100 2757524	-27 6819906	72 5937618	-34 4814155	38 1123463	6 6485191	17 5056985	0	0
1985	-32 1467227	76 8192459	6 7979185	100 8914875	-25 6177598	75 2737277	-32 2211812	43 0525465	6 6791852	17 6056785	0	0
1986	-31 9702287	80 4572970	7 0214169	104 2586737	-25 5630255	78 6956482	-31 0423902	47 6532580	6 9036367	18 1976796	39 3059333	57 5036129
1987	-31 4957588	80 6567181	6 9851298	103 8375023	-23 6111495	80 2263528	-30 8695422	49 3568106	6 8800036	18 1299084	38 2791886	56 4090970
1988	-31 4787364	85 5519198	7 2997899	108 6334714	-23 6540343	84 9794371	-31 1852706	53 7941665	7 1911814	18 9617393	40 1821018	59 1438411
1989	-31 3526137	85 8475903	7 3064464	108 7234256	-18 0855256	90 6378999	-26 9071219	63 7307780	7 2141418	18 8404263	40 0647899	58 9052162
1990	-30 2641409	87 6745513	7 3718853	109 1684681	-16 2449276	92 9234955	-26 7062319	66 2172636	7 2426370	18 9116565	39 9938099	58 9054664
1991	-30 4718045	88 0712313	7 3895301	110 0631263	-15 3286572	94 7344691	-25 1785713	69 5558978	7 2993832	19 0762303	40 9103990	59 9866293
1992	-31 2142222	87 6418474	7 6889231	110 0310438	-15 2625214	94 7685224	-26 1461931	68 4223293	7 3008187	19 0709882	41 2830700	60 3540382
1993	-29 0044115	88 0278581	7 2718627	108 3289468	-14 0318408	94 2971060	-24 8372130	69 4598930	7 1900156	18 7762359	41 4893220	60 7251681
1994	-30 9876527	91 0052673	7 5808556	112 9588145	-20 2099243	92 7498902	-25 1177656	66 8321246	7 4901883	19 5854907	43 8613974	63 4468881
1995	-30 8000470	90 7418998	7 5451968	112 4822527	-19 3181800	93 1640727	-24 4503847	68 7136880	7 4546491	19 5238629	43 8684186	63 3922815
1996	-29 7200144	90 9551791	7 4856034	111 5589640	-18 9155740	92 6433900	-25 9482513	66 6951387	7 4009360	19 3413728	43 9601262	63 3014990
1997	-29 9229019	92 0769387	7 5886201	113 1009273	-18 0893287	95 0115986	-26 0006749	69 8109233	7 5059594	19 0675343	45 0583380	64 6658723
1998	-29 6905832	91 8769447	7 5517224	112 5708282	-17 8410910	94 7297372	-24 8955516	69 8341856	7 4695724	19 5229537	44 9709418	64 4938955
1999	-30 0594611	92 9685236	7 6203818	113 7459312	-18 0719600	95 6739712	-24 3531736	71 3207976	7 5439438	19 7311059	45 6874116	65 4185175
2000	-30 5478447	91 1687559	7 5544502	112 6146201	-17 9634752	94 6511449	-23 7061703	70 9449746	7 4644708	19 5265576	45 2461538	64 7727114
2001	-29 3971590	92 9336734	7 6126269	113 4909902	-17 9388807	95 5521095	-26 4001892	69 1519203	7 5257557	19 6817964	45 6938471	65 3756435
2002	-30 6970717	92 6533902	7 6685306	114 3433108	-17 2151304	97 1281804	-25 4115922	71 7165882	7 5808337	19 8301026	44 7842654	64 6143680
2003	-30 2025104	93 7968361	7 6929188	114 7115162	-16 8953303	97 8161859	-25 4601467	72 3560392	7 6085391	19 8968333	46 1455383	66 0423716
2004	-30 4354894	94 3046719	7 7301734	115 2737544	-16 7719257	98 5018287	-23 6559918	74 8458468	7 6411553	19 9938059	46 6801851	66 6739910
2005	-29 9799923	93 4855199	7 6729062	114 4180308	-16 3473879	98 0708455	-25 1148866	73 9591697	7 5891210	19 8716571	45 7876346	65 6353317
2006	-29 9216464	93 1808806	7 6303307	113 7884444	-16 0702495	97 7181949	-24 7940129	72 9241820	7 5418698	19 7369882	45 4542396	65 1912278
2007	-30 1684827	94 3004272	7 7176367	115 0947691	-16 2017423	98 8930268	-26 1105542	72 7824726	7 6311227	19 9656212	46 1710296	66 1366508
2008	-29 1324481	94 9207293	7 6889231	114 6881634	-15 1117702	99 5763932	-24 4593461	75 1170471	7 6048697	19 8982894	45 9709960	65 8629584
2009	-30 4657834	93 3842531	7 7056535	114 9376252	-15 4121234	99 5255018	-24 6010207	74 9244811	7 6206236	19 9388133	46 3543910	66 2932043
2010	-29 5543659	94 1620732	7 6684298	114 3844083	-15 2572135	99 1271948	-23 4240496	75 7031452	7 5891210	19 8510468	45 7876346	65 6386814
2011	-31 5850525	91 6346055	7 6602143	114 2669071	-15 0946046	99 1723025	-24 3614275	74 8108750	7 5786219	19 8293002	45 7876346	65 6169348
2012	-29 9622249	94 7852746	7 7514872	115 6270585	-14 6924738	100 9345847	-24 9700474	75 9645373	7 6678749	20 0653077	46 7377860	66 8030937
2013	-32 1821242	93 0734057	7 7685305	115 8999698	-14 5470035	101 3529663	-24 2873644	77 0656019	7 6888731	20 1191310	46 6377692	66 7569002
2014	-31 1280303	92 8123491	7 6987364	114 8515638	-13 9820194	100 8695444	-23 4325156	77 4370288	7 6153741	19 9293948	46 8378028	66 7677376
2015	-32 2359075	91 5956914	7 6755258	114 5026097	-14 6179641	99 8846456	-23 6198391	76 2648065	7 5943706	19 8717152	45 9209791	65 7926943
2016	-31 3560054	94 1083201	7 7772977	116 0215756	-14 6966815	101 3248941	-24 4819168	76 8429773	7 6941226	20 1335431	46 9378197	67 0713628
2017	-32 2880346	91 5185635	7 6804928	114 5749141	-14 4067433	100 1681708	-23 5031139	76 6505669	7 5943706	19 8775333	46 2043742	66 0819075
2018	-31 9338883	91 9453838	7 6773799	114 5399531	-14 5317997	100 0081534	-22 9146221	77 0886913	7 5943706	19 8802507	45 9376514	65 8179021
2019	-31 5117513	93 7155489	7 7630225	115 8091248	-14 6509845	101 1581403	-24 4056924	76 7524479	7 6783740	20 0930911	46 8378028	66 9308939
2020 (e)	-31 6300766	94 1548855	7 8370213	116 5516698	-14 4944477	102 0572221	-24 1341958	77 9230263	7 6783740	20 3702537	46 8544751	67 2247288

TABLE B-18: VARIABLE OMP&R COMPONENT OF TRANSPORTATION CHARGE FOR EACH CONTRACTOR^a

(in dollars)

Sheet 1 of 4

Calendar Year	NORTH BAY AREA			SOUTH BAY AREA				CENTRAL COASTAL AREA		
	Napa County FC & WCD	Solano County FC & WCD	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	2,051	34,919	0	36,970	0	0	0
1963	0	0	0	7,900	49,811	0	57,711	0	0	0
1964	0	0	0	5,931	68,203	0	74,134	0	0	0
1965	0	0	0	10,918	68,765	62,926	142,609	0	0	0
1966	0	0	0	19,330	52,135	121,140	192,605	0	0	0
1967	0	0	0	19,399	56,949	160,650	236,998	0	0	0
1968	6,989	0	6,989	29,852	120,795	341,233	491,880	0	0	0
1969	8,551	0	8,551	31,803	3,897	298,442	334,142	0	0	0
1970	13,598	0	13,598	49,631	0	430,950	480,581	0	0	0
1971	10,609	0	10,609	23,825	28,308	416,027	468,160	0	0	0
1972	14,434	0	14,434	54,816	144,609	523,990	723,415	0	0	0
1973	14,449	0	14,449	18,389	15,583	547,544	581,516	0	0	0
1974	17,473	0	17,473	9,496	29	635,961	645,486	0	0	0
1975	14,779	0	14,779	22,309	4,763	425,123	452,195	0	0	0
1976	20,854	0	20,854	98,065	121,929	503,745	723,739	0	0	0
1977	20,345	0	20,345	84,343	132,971	508,433	725,747	0	0	0
1978	26,000	0	26,000	86,668	150,059	617,312	854,039	0	0	0
1979	21,000	0	21,000	147,903	166,246	560,093	874,242	0	0	0
1980	24,000	0	24,000	146,084	164,677	584,337	895,098	0	0	0
1981	23,000	0	23,000	150,328	169,936	575,165	895,429	0	0	0
1982	23,000	0	23,000	143,174	162,264	524,974	830,412	0	0	0
1983	188,471	81,876	270,347	593,404	674,107	2,088,781	3,356,292	0	0	0
1984	215,325	101,927	317,252	721,043	820,880	2,440,454	3,982,377	0	0	0
1985	243,781	109,443	353,224	753,403	859,439	2,455,538	4,068,380	0	0	0
1986	260,570	133,563	394,133	807,459	925,694	2,537,729	4,270,882	320,237	1,020,114	1,340,351
1987	271,294	159,852	431,146	832,920	956,422	2,527,479	4,316,821	353,854	1,081,080	1,434,934
1988	293,721	226,298	520,019	901,410	1,036,622	2,644,136	4,582,168	412,647	1,217,771	1,630,418
1989	308,879	285,138	594,017	928,293	1,069,035	2,695,047	4,692,375	452,452	1,296,798	1,749,250
1990	317,581	345,421	663,002	962,083	1,109,401	2,765,987	4,837,471	493,923	1,380,744	1,874,667
1991	339,829	348,147	687,976	1,030,238	1,163,563	2,848,305	5,042,106	564,113	1,474,472	2,038,585
1992	359,235	347,745	706,980	1,090,766	1,208,932	2,908,708	5,208,406	629,070	1,552,306	2,181,376
1993	372,215	342,811	715,026	1,135,251	1,234,648	2,922,597	5,290,496	694,818	1,631,078	2,325,896
1994	407,454	357,436	764,890	1,244,194	1,306,405	3,110,487	5,661,086	790,612	1,776,513	2,567,125
1995	425,448	355,461	780,909	1,302,319	1,302,319	3,100,760	5,705,398	854,528	1,847,251	2,701,779
1996	445,084	352,849	797,933	1,350,462	1,289,077	3,069,232	5,708,771	917,302	1,911,705	2,829,007
1997	474,390	357,500	831,890	1,432,035	1,307,510	3,113,120	5,852,665	1,002,450	2,021,455	3,023,905
1998	494,551	356,349	850,900	1,425,606	1,301,640	3,099,143	5,826,389	1,064,987	2,084,444	3,149,431
1999	523,439	359,433	882,872	1,440,754	1,315,471	3,132,074	5,888,299	1,146,394	2,183,670	3,330,064
2000	539,690	356,212	895,902	1,426,424	1,302,387	3,100,921	5,829,732	1,200,562	2,230,772	3,431,334
2001	551,827	359,048	910,875	1,436,647	1,311,722	3,123,148	5,871,517	1,296,202	2,251,537	3,547,739
2002	561,986	361,863	923,849	1,448,246	1,322,312	3,148,363	5,918,921	1,364,591	2,225,318	3,589,909
2003	570,546	363,290	933,836	1,453,057	1,326,705	3,158,821	5,938,583	1,480,076	2,274,499	3,754,575
2004	580,116	364,707	944,823	1,460,423	1,333,429	3,174,833	5,968,685	1,580,372	2,296,252	3,876,624
2005	582,810	362,038	944,848	1,449,260	1,323,237	3,150,564	5,923,061	1,640,883	2,260,481	3,901,364
2006	590,029	359,839	949,868	1,441,557	1,316,204	3,133,820	5,891,581	1,629,781	2,245,186	3,874,967
2007	608,126	363,706	971,832	1,458,176	1,331,378	3,169,947	5,959,501	1,653,416	2,277,746	3,931,162
2008	617,981	362,859	980,840	1,453,068	1,326,715	3,158,842	5,938,625	1,646,732	2,268,538	3,915,270
2009	630,489	363,347	993,836	1,456,214	1,329,587	3,165,682	5,951,483	1,657,330	2,283,137	3,940,467
2010	638,998	361,852	1,000,850	1,449,210	1,323,192	3,150,456	5,922,858	1,640,967	2,260,596	3,901,563
2011	649,954	360,904	1,010,858	1,447,910	1,322,005	3,147,630	5,917,545	1,640,424	2,259,847	3,900,271
2012	669,642	365,177	1,034,819	1,465,267	1,337,853	3,185,362	5,988,482	1,670,078	2,300,699	3,970,777
2013	683,996	366,808	1,050,804	1,468,744	1,341,027	3,192,921	6,002,692	1,668,922	2,299,108	3,968,030
2014	689,560	363,276	1,052,836	1,455,449	1,328,888	3,164,020	5,948,357	1,669,193	2,299,481	3,968,674
2015	699,502	362,343	1,061,845	1,450,922	1,324,755	3,154,178	5,929,855	1,644,817	2,265,901	3,910,718
2016	721,911	366,892	1,088,803	1,470,172	1,342,331	3,196,025	6,008,528	1,676,783	2,309,939	3,986,722
2017	726,291	362,552	1,088,843	1,451,791	1,325,548	3,156,068	5,933,407	1,652,047	2,275,861	3,927,908
2018	738,820	362,028	1,100,848	1,451,510	1,325,291	3,155,454	5,932,255	1,645,447	2,266,769	3,912,216
2019	760,946	365,866	1,126,812	1,467,444	1,339,840	3,190,097	5,997,381	1,673,272	2,305,100	3,978,372
2020	841,480	366,328	1,207,808	1,480,175	1,351,465	3,217,773	6,049,413	1,680,618	2,315,219	3,995,837
2021	841,480	366,328	1,207,808	1,480,175	1,351,465	3,217,773	6,049,413	1,680,618	2,315,219	3,995,837
2022	841,480	366,328	1,207,808	1,480,175	1,351,465	3,217,773	6,049,413	1,680,618	2,315,219	3,995,837
2023	841,480	366,328	1,207,808	1,480,175	1,351,465	3,217,773	6,049,413	1,680,618	2,315,219	3,995,837
2024	841,480	366,328	1,207,808	1,480,175	1,351,465	3,217,773	6,049,413	1,680,618	2,315,219	3,995,837
2025	841,480	366,328	1,207,808	1,480,175	1,351,465	3,217,773	6,049,413	1,680,618	2,315,219	3,995,837
2026	841,480	366,328	1,207,808	1,480,175	1,351,465	3,217,773	6,049,413	1,680,618	2,315,219	3,995,837
2027	841,480	366,328	1,207,808	1,480,175	1,351,465	3,217,773	6,049,413	1,680,618	2,315,219	3,995,837
2028	841,480	366,328	1,207,808	1,480,175	1,351,465	3,217,773	6,049,413	1,680,618	2,315,219	3,995,837
2029	841,480	366,328	1,207,808	1,480,175	1,351,465	3,217,773	6,049,413	1,680,618	2,315,219	3,995,837
2030	841,480	366,328	1,207,808	1,480,175	1,351,465	3,217,773	6,049,413	1,680,618	2,315,219	3,995,837
2031	841,480	366,328	1,207,808	1,480,175	1,351,465	3,217,773	6,049,413	1,680,618	2,315,219	3,995,837
2032	841,480	366,328	1,207,808	1,480,175	1,351,465	3,217,773	6,049,413	1,680,618	2,315,219	3,995,837
2033	841,480	366,328	1,207,808	1,480,175	1,351,465	3,217,773	6,049,413	1,680,618	2,315,219	3,995,837
2034	841,480	366,328	1,207,808	1,480,175	1,351,465	3,217,773	6,049,413	1,680,618	2,315,219	3,995,837
2035	841,480	366,328	1,207,808	1,480,175	1,351,465	3,217,773	6,049,413	1,680,618	2,315,219	3,995,837
TOTAL	32,477,248	17,737,104	50,214,352	71,856,146	68,755,859	169,959,142	310,571,147	68,319,170	104,979,672	173,298,842

a) Unadjusted for prior overpayments or underpayments of charges.

TABLE B-18: VARIABLE OMP&R COMPONENT OF

(in dollars)

Sheet 2 of 4

Calendar Year	SAN JOAQUIN VALLEY AREA									
	Devil's Den Water District	Dudley Ridge Water District	Empire West Side Irrigation District	Hacienda Water District	Kern County Water Agency ^(b)		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)	(20)	
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	30,311	68,657	5,152	0	0	439,374	2,344	4,737	65,375	615,950
1969	30,455	56,230	101	5,093	0	318,939	179	3,312	12,691	427,000
1970	39,283	69,315	6,762	16,430	0	468,317	0	5,559	0	605,666
1971	34,789	52,827	7,708	8,569	0	764,038	4,761	6,328	149,045	1,028,065
1972	44,543	61,733	8,429	8,520	0	1,119,134	2,036	7,357	367,321	1,619,073
1973	28,194	33,807	4,598	4,444	0	761,611	2,300	3,007	72,903	910,864
1974	28,050	48,955	4,398	4,838	46,552	669,109	2,199	3,105	101,150	908,356
1975	27,725	62,986	4,659	5,837	34,474	840,436	2,485	3,913	128,131	1,110,646
1976	38,226	71,291	5,163	6,712	95,102	968,610	2,754	4,958	94,509	1,287,325
1977	38,634	57,911	4,749	7,735	69,629	1,102,235	3,085	4,739	89,782	1,378,499
1978	81,411	104,016	8,567	14,312	132,992	2,068,902	4,161	8,108	200,999	2,621,468
1979	56,439	84,939	9,820	12,029	168,555	1,647,170	4,909	7,391	153,676	2,144,928
1980	54,632	80,176	6,554	11,360	171,427	1,708,892	4,807	6,271	145,279	2,189,398
1981	53,643	87,798	6,789	12,672	183,537	1,915,420	5,205	7,020	159,304	2,431,388
1982	46,818	74,450	5,447	10,714	163,102	1,731,635	4,539	5,435	134,917	2,177,057
1983	186,018	378,211	26,448	54,660	812,221	8,667,435	24,685	27,950	689,420	10,867,048
1984	222,322	489,659	32,571	70,572	1,063,763	11,400,058	33,657	36,092	891,374	14,240,068
1985	223,592	515,731	32,779	75,393	1,137,066	12,243,378	37,150	37,075	939,679	15,241,843
1986	231,111	556,796	33,882	81,317	1,252,675	13,462,580	41,787	39,883	1,016,464	16,716,495
1987	230,250	578,245	33,750	84,375	1,332,895	14,258,787	45,000	40,501	1,056,366	17,660,169
1988	240,814	629,725	35,311	91,810	1,479,954	15,755,056	47,082	43,994	1,151,161	19,474,907
1989	239,273	646,422	34,879	95,335	1,542,763	16,217,071	46,505	44,755	1,182,393	20,049,396
1990	240,178	673,303	35,007	99,187	1,614,001	16,928,391	46,676	45,700	1,283,592	20,966,035
1991	242,268	679,524	35,331	100,103	1,628,020	17,079,612	47,107	46,146	1,295,453	21,153,564
1992	242,201	679,138	35,311	100,047	1,627,338	17,071,629	47,081	46,113	1,294,716	21,143,574
1993	238,458	668,525	34,759	98,483	1,602,049	16,805,834	46,345	45,385	1,274,484	20,814,322
1994	248,736	697,899	36,286	102,810	1,671,416	17,537,802	48,381	47,405	1,330,483	21,721,218
1995	247,953	696,394	36,208	102,588	1,665,969	17,489,458	48,277	47,351	1,327,614	21,661,812
1996	245,636	688,963	35,822	101,494	1,650,394	17,315,737	47,762	46,787	1,313,448	21,446,043
1997	249,016	698,261	36,305	102,863	1,672,958	17,551,289	48,406	47,409	1,331,173	21,737,680
1998	247,942	695,480	36,160	102,454	1,665,666	17,477,789	48,214	47,236	1,325,872	21,646,813
1999	250,585	703,199	36,561	103,590	1,683,560	17,668,137	48,748	47,776	1,340,588	21,882,744
2000	247,988	695,982	36,186	102,528	1,666,568	17,487,853	48,248	47,278	1,326,829	21,659,460
2001	249,959	701,404	36,468	103,326	1,679,548	17,624,405	48,624	47,645	1,337,165	21,828,544
2002	251,842	706,783	36,748	104,118	1,692,289	17,758,608	48,997	48,013	1,347,419	21,994,817
2003	252,689	709,035	36,865	104,450	1,697,722	17,815,795	49,153	48,164	1,351,712	22,065,585
2004	253,922	712,748	37,058	104,998	1,706,297	17,906,834	49,411	48,423	1,358,792	22,178,483
2005	252,065	707,320	36,776	104,198	1,693,481	17,771,971	49,034	48,049	1,348,443	22,011,337
2006	250,660	703,658	36,585	103,658	1,684,421	17,677,730	48,780	47,808	1,341,463	21,894,763
2007	253,563	711,701	37,004	104,844	1,703,716	17,880,307	49,338	48,352	1,356,794	22,145,619
2008	252,708	709,330	36,881	104,494	1,697,876	17,819,928	49,174	48,195	1,352,276	22,070,862
2009	253,223	710,760	36,954	104,705	1,701,435	17,856,478	49,273	48,288	1,355,001	22,116,117
2010	252,109	707,513	36,786	104,227	1,693,441	17,774,324	49,047	48,073	1,348,812	22,014,332
2011	251,832	706,864	36,752	104,131	1,691,789	17,757,145	49,003	48,031	1,347,574	21,993,121
2012	254,829	715,332	37,192	105,378	1,711,979	17,969,343	49,590	48,608	1,363,717	22,255,968
2013	255,513	717,226	37,290	105,658	1,716,250	18,015,810	49,722	48,741	1,367,328	22,313,538
2014	253,110	710,550	36,943	104,674	1,700,521	17,848,995	49,258	48,282	1,354,602	22,106,935
2015	252,371	708,403	36,832	104,358	1,695,360	17,795,176	49,109	48,137	1,350,508	22,040,254
2016	255,696	717,754	37,318	105,735	1,717,805	18,030,344	49,757	48,770	1,368,337	22,331,516
2017	252,445	708,738	36,850	104,406	1,696,318	17,803,911	49,133	48,155	1,351,147	22,051,103
2018	252,480	708,896	36,858	104,430	1,696,219	17,805,534	49,143	48,180	1,351,447	22,053,187
2019	255,182	716,329	37,245	105,525	1,714,542	17,995,139	49,659	48,670	1,365,619	22,287,910
2020	258,702	732,322	38,076	107,881	1,737,744	18,309,106	50,767	50,188	1,396,107	22,680,893
2021	258,702	732,322	38,076	107,881	1,737,744	18,309,106	50,767	50,188	1,396,107	22,680,893
2022	258,702	732,322	38,076	107,881	1,737,744	18,309,106	50,767	50,188	1,396,107	22,680,893
2023	258,702	732,322	38,076	107,881	1,737,744	18,309,106	50,767	50,188	1,396,107	22,680,893
2024	258,702	732,322	38,076	107,881	1,737,744	18,309,106	50,767	50,188	1,396,107	22,680,893
2025	258,702	732,322	38,076	107,881	1,737,744	18,309,106	50,767	50,188	1,396,107	22,680,893
2026	258,702	732,322	38,076	107,881	1,737,744	18,309,106	50,767	50,188	1,396,107	22,680,893
2027	258,702	732,322	38,076	107,881	1,737,744	18,309,106	50,767	50,188	1,396,107	22,680,893
2028	258,702	732,322	38,076	107,881	1,737,744	18,309,106	50,767	50,188	1,396,107	22,680,893
2029	258,702	732,322	38,076	107,881	1,737,744	18,309,106	50,767	50,188	1,396,107	22,680,893
2030	258,702	732,322	38,076	107,881	1,737,744	18,309,106	50,767	50,188	1,396,107	22,680,893
2031	258,702	732,322	38,076	107,881	1,737,744	18,309,106	50,767	50,188	1,396,107	22,680,893
2032	258,702	732,322	38,076	107,881	1,737,744	18,309,106	50,767	50,188	1,396,107	22,680,893
2033	258,702	732,322	38,076	107,881	1,737,744	18,309,106	50,767	50,188	1,396,107	22,680,893
2034	258,702	732,322	38,076	107,881	1,737,744	18,309,106	50,767	50,188	1,396,107	22,680,893
2035	258,702	732,322	38,076	107,881	1,737,744	18,309,106	50,767	50,188	1,396,107	22,680,893
TOTAL	13,852,924	37,594,044	2,023,073	5,512,283	87,929,559	930,793,191	2,594,352	2,585,668	71,302,059	1,154,187,153

b) Includes extra peaking service costs.

TRANSPORTATION CHARGE FOR EACH CONTRACTOR^(a)

(in dollars)

Sheet 3 of 4

Calendar Year	SOUTHERN CALIFORNIA AREA									
	Antelope Valley East Kern Water Agency	Castaic Lake Water Agency	Coachella Valley County 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)
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	771	0	0	12,302	0	4,440	1,458	0	30,693	0
1973	284	0	102,009	6,841	158,292	3,824	0	0	249,096	0
1974	15,464	0	100,355	9,830	156,804	4,903	220	0	173,603	6,399
1975	98,849	0	107,885	12,715	169,533	6,370	0	0	137,102	53,892
1976	384,468	0	135,006	17,800	213,165	8,151	0	0	140,092	69,297
1977	566,206	0	0	22,441	0	1,832	1,619	0	186,533	67,572
1978	1,695,960	0	191,779	37,351	290,512	4,266	52,665	0	278,037	181,882
1979	941,247	40,082	200,663	43,260	299,937	22,081	274,175	0	808,494	212,348
1980	1,218,342	75,102	234,216	55,196	365,827	20,246	370,130	0	1,087,467	288,884
1981	1,336,283	104,181	262,873	64,497	412,606	22,627	642,794	1,781	1,182,930	316,024
1982	1,303,073	75,515	260,307	67,880	410,208	22,118	623,126	4,808	1,014,163	270,917
1983	6,414,711	391,268	1,266,454	326,908	2,002,369	109,689	2,986,142	43,877	4,663,093	1,245,578
1984	8,593,863	449,724	1,706,929	439,507	2,706,318	147,151	3,972,875	91,398	5,879,825	1,560,413
1985	9,240,433	559,683	1,851,224	474,003	2,942,083	159,172	4,249,675	276,022	6,260,769	1,674,659
1986	10,129,652	648,084	2,047,306	521,664	3,260,398	174,621	4,654,498	360,631	6,838,871	1,866,610
1987	10,704,367	700,868	2,179,236	552,913	3,532,801	185,602	4,901,062	435,596	7,178,448	1,984,155
1988	11,797,055	796,153	2,416,918	610,900	3,979,044	204,443	5,383,410	533,323	7,956,328	2,224,351
1989	12,434,445	981,453	2,563,519	645,773	4,277,808	216,547	5,684,210	613,059	8,327,217	2,352,223
1990	13,154,969	1,059,475	2,724,383	684,045	4,493,461	228,945	5,991,280	696,790	8,898,957	2,525,025
1991	13,845,514	1,154,628	2,738,344	687,550	4,516,490	229,987	6,021,986	799,955	9,036,109	2,536,452
1992	13,888,800	1,180,303	2,745,511	689,350	4,528,310	230,710	6,037,746	902,779	8,992,053	2,524,085
1993	13,676,430	1,236,387	2,703,445	678,788	4,458,930	227,182	5,945,240	987,750	9,031,657	2,535,203
1994	14,255,466	1,229,712	2,818,038	707,560	4,647,931	236,800	6,197,242	1,132,524	9,337,141	2,620,952
1995	14,204,502	1,305,560	2,807,618	704,944	4,630,748	235,955	6,174,330	1,231,067	9,310,118	2,613,368
1996	14,105,049	1,293,886	2,787,597	699,916	4,597,725	234,303	6,130,300	1,330,440	9,332,002	2,619,509
1997	14,252,840	1,366,416	2,818,197	707,599	4,648,194	236,756	6,197,591	1,453,470	9,447,093	2,651,816
1998	14,205,256	1,410,651	2,808,210	705,091	4,631,723	235,967	6,175,629	1,557,379	9,426,575	2,646,056
1999	14,380,155	1,469,210	2,841,946	713,562	4,687,365	238,874	6,249,821	1,686,657	9,538,570	2,677,495
2000	14,212,028	1,489,843	2,809,504	705,417	4,633,859	236,079	6,178,476	1,775,725	9,353,915	2,625,660
2001	14,289,739	1,493,681	2,825,844	709,518	4,660,803	237,368	6,214,406	1,785,415	9,534,994	2,676,491
2002	14,410,724	1,592,109	2,849,393	715,432	4,699,651	239,379	6,266,200	1,800,540	9,506,232	2,668,415
2003	14,491,878	1,649,719	2,864,385	719,196	4,724,376	240,729	6,299,167	1,810,699	9,623,555	2,701,348
2004	14,581,384	1,751,393	2,881,498	723,493	4,752,599	242,217	6,336,802	1,821,895	9,675,660	2,715,977
2005	14,424,963	1,775,020	2,852,053	716,098	4,704,035	239,615	6,272,048	1,802,320	9,591,615	2,692,383
2006	14,389,251	1,779,349	2,843,668	713,994	4,690,206	239,026	6,253,608	1,797,886	9,560,358	2,683,610
2007	14,547,909	1,805,005	2,875,233	721,920	4,742,266	241,661	6,323,019	1,817,705	9,675,225	2,715,851
2008	14,499,751	1,892,948	2,865,629	719,510	4,726,427	240,860	6,301,901	1,811,689	9,738,867	2,733,717
2009	14,466,046	1,918,067	2,860,936	718,331	4,718,688	240,294	6,291,582	1,807,439	9,581,223	2,689,466
2010	14,460,054	1,968,282	2,857,850	717,556	4,713,597	240,201	6,284,796	1,806,729	9,661,029	2,711,867
2011	14,394,443	1,989,970	2,846,375	714,673	4,694,669	239,107	6,259,559	1,798,499	9,401,713	2,639,077
2012	14,574,284	2,066,236	2,881,666	723,536	4,752,879	242,096	6,337,172	1,820,975	9,724,970	2,729,816
2013	14,637,889	2,142,423	2,893,402	726,484	4,772,236	243,154	6,362,982	1,828,941	9,549,330	2,680,515
2014	14,480,380	2,199,212	2,863,024	718,854	4,722,130	240,535	6,296,171	1,809,245	9,522,547	2,672,995
2015	14,473,287	2,211,679	2,860,512	718,222	4,717,983	240,421	6,290,644	1,808,382	9,397,719	2,637,957
2016	14,663,989	2,274,552	2,898,226	727,694	4,780,191	243,588	6,373,588	1,832,209	9,655,513	2,710,319
2017	14,468,147	2,315,284	2,859,933	718,077	4,717,031	240,334	6,289,375	1,807,730	9,389,804	2,635,735
2018	14,478,937	2,374,332	2,861,611	718,501	4,719,802	240,516	6,293,067	1,809,089	9,433,598	2,648,027
2019	14,636,072	2,410,027	2,892,750	726,319	4,771,161	243,125	6,361,547	1,828,719	9,615,214	2,699,009
2020	14,726,205	3,233,805	2,905,633	729,553	4,792,408	244,621	6,389,876	1,839,980	9,660,291	2,711,660
2021	14,726,205	3,233,805	2,905,633	729,553	4,792,408	244,621	6,389,876	1,839,980	9,660,291	2,711,660
2022	14,726,205	3,233,805	2,905,633	729,553	4,792,408	244,621	6,389,876	1,839,980	9,660,291	2,711,660
2023	14,726,205	3,233,805	2,905,633	729,553	4,792,408	244,621	6,389,876	1,839,980	9,660,291	2,711,660
2024	14,726,205	3,233,805	2,905,633	729,553	4,792,408	244,621	6,389,876	1,839,980	9,660,291	2,711,660
2025	14,726,205	3,233,805	2,905,633	729,553	4,792,408	244,621	6,389,876	1,839,980	9,660,291	2,711,660
2026	14,726,205	3,233,805	2,905,633	729,553	4,792,408	244,621	6,389,876	1,839,980	9,660,291	2,711,660
2027	14,726,205	3,233,805	2,905,633	729,553	4,792,408	244,621	6,389,876	1,839,980	9,660,291	2,711,660
2028	14,726,205	3,233,805	2,905,633	729,553	4,792,408	244,621	6,389,876	1,839,980	9,660,291	2,711,660
2029	14,726,205	3,233,805	2,905,633	729,553	4,792,408	244,621	6,389,876	1,839,980	9,660,291	2,711,660
2030	14,726,205	3,233,805	2,905,633	729,553	4,792,408	244,621	6,389,876	1,839,980	9,660,291	2,711,660
2031	14,726,205	3,233,805	2,905,633	729,553	4,792,408	244,621	6,389,876	1,839,980	9,660,291	2,711,660
2032	14,726,205	3,233,805	2,905,633	729,553	4,792,408	244,621	6,389,876	1,839,980	9,660,291	2,711,660
2033	14,726,205	3,233,805	2,905,633	729,553	4,792,408	244,621	6,389,876	1,839,980	9,660,291	2,711,660
2034	14,726,205	3,233,805	2,905,633	729,553	4,792,408	244,621	6,389,876	1,839,980	9,660,291	2,711,660
2035	14,726,205	3,233,805	2,905,633	729,553	4,792,408	244,621	6,389,876	1,839,980	9,660,291	2,711,660
TOTAL	742,044,889	108,368,352	147,153,588	36,945,859	242,111,699	12,377,803	323,043,350	79,760,817	490,500,773	137,379,960

TABLE B-18: VARIABLE OMP&R COMPONENT OF TRANSPORTATION CHARGE FOR EACH CONTRACTOR^(a)

(in dollars)

Sheet 4 of 4

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA				FUTURE CONTRACTOR	GRAND TOTAL
	San Geronio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC & WCD	Total	South Bay	
	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	
1962	0	0	0	0	0	0	0	0	0	36,970
1963	0	0	0	0	0	0	0	0	0	57,711
1964	0	0	0	0	0	0	0	0	0	74,134
1965	0	0	0	0	0	0	0	0	0	142,609
1966	0	0	0	0	0	0	0	0	0	192,605
1967	0	0	0	0	0	0	0	0	0	236,998
1968	0	0	0	0	0	0	0	0	0	1,114,819
1969	0	0	0	0	0	0	0	0	0	769,693
1970	0	0	0	0	0	0	0	0	0	1,099,845
1971	0	0	0	0	0	0	0	0	0	1,506,834
1972	0	830,984	0	880,648	0	0	0	0	0	3,237,570
1973	0	1,130,300	0	1,650,646	0	0	0	0	0	3,157,475
1974	0	2,077,251	0	2,544,829	0	0	0	0	0	4,116,144
1975	0	3,998,625	0	4,584,971	0	0	0	0	0	6,162,591
1976	0	5,997,030	0	6,965,009	0	0	0	0	0	8,996,927
1977	0	770,444	0	1,616,647	0	0	0	0	0	3,741,238
1978	0	8,240,147	0	10,972,599	0	0	0	0	0	14,474,106
1979	0	9,852,760	0	12,695,047	0	0	0	0	0	15,735,217
1980	0	14,961,471	10,729	18,687,610	0	0	0	0	0	21,796,106
1981	67,350	17,333,705	25,409	21,773,060	0	0	0	0	0	25,122,877
1982	62,410	14,122,500	24,101	18,261,126	0	0	0	0	0	21,291,595
1983	306,699	49,516,756	147,648	69,421,192	0	0	0	0	0	83,914,879
1984	407,065	57,746,021	190,560	83,891,649	0	0	0	0	0	102,431,346
1985	906,468	59,116,928	258,316	87,969,435	0	0	0	0	0	107,632,882
1986	1,037,899	64,514,741	381,226	96,436,201	0	0	0	0	0	119,158,062
1987	1,129,194	67,174,047	493,570	101,151,859	0	0	0	0	0	124,994,929
1988	1,291,834	78,849,686	699,324	116,742,769	0	0	0	0	0	142,950,281
1989	1,390,732	92,856,780	1,019,691	133,363,457	0	0	0	0	0	160,448,495
1990	1,516,768	103,706,723	1,324,346	147,006,167	0	0	0	0	0	175,346,342
1991	1,523,633	109,350,604	1,391,120	153,832,372	0	0	0	0	0	182,754,603
1992	1,516,204	110,770,519	1,372,447	155,378,817	0	0	0	0	0	184,619,153
1993	1,522,881	114,470,446	1,389,197	158,863,536	0	0	0	0	0	188,009,276
1994	1,574,392	115,934,313	1,336,643	162,028,714	0	0	0	0	0	192,743,033
1995	1,569,835	120,233,182	1,374,273	166,395,500	0	0	0	0	0	197,245,398
1996	1,573,525	119,781,325	1,333,904	165,819,481	0	0	0	0	0	196,601,235
1997	1,592,930	124,376,105	1,380,217	171,129,224	0	0	0	0	0	202,575,364
1998	1,589,472	126,709,680	1,396,684	173,498,373	0	0	0	0	0	204,971,906
1999	1,608,356	130,511,246	1,426,416	178,029,673	0	0	0	0	0	210,013,652
2000	1,577,220	130,621,471	1,418,900	177,638,097	0	0	0	0	0	209,454,525
2001	1,607,754	131,309,449	1,383,038	178,728,500	0	0	0	0	0	210,887,175
2002	1,602,905	135,848,084	1,434,332	183,633,396	0	0	0	0	0	216,060,892
2003	1,622,685	139,063,690	1,447,120	187,258,547	0	0	0	0	0	219,951,126
2004	1,631,471	144,203,637	1,496,916	192,814,942	0	0	0	0	0	225,783,557
2005	1,617,299	144,483,420	1,479,182	192,650,051	0	0	0	0	0	225,430,661
2006	1,612,030	144,571,778	1,458,485	192,593,249	0	0	0	0	0	225,204,428
2007	1,631,397	146,564,554	1,455,649	195,117,394	0	0	0	0	0	228,125,508
2008	1,642,128	151,648,839	1,502,341	200,324,607	0	0	0	0	0	233,230,204
2009	1,615,548	152,060,520	1,498,491	200,466,631	0	0	0	0	0	233,468,534
2010	1,629,003	155,236,921	1,514,063	203,801,948	0	0	0	0	0	236,641,551
2011	1,585,278	156,201,186	1,496,218	204,260,767	0	0	0	0	0	237,082,562
2012	1,639,785	161,400,086	1,519,291	210,412,792	0	0	0	0	0	243,662,838
2013	1,610,170	163,871,855	1,541,313	212,860,694	0	0	0	0	0	246,195,758
2014	1,605,653	164,320,945	1,548,742	213,000,433	0	0	0	0	0	246,077,235
2015	1,584,606	161,938,297	1,525,296	210,405,005	0	0	0	0	0	243,347,677
2016	1,628,074	164,177,813	1,536,859	213,502,615	0	0	0	0	0	246,918,184
2017	1,583,270	162,477,743	1,533,303	211,035,766	0	0	0	0	0	244,037,027
2018	1,590,656	163,331,643	1,541,775	212,041,554	0	0	0	0	0	245,040,060
2019	1,621,279	163,827,512	1,535,048	213,167,782	0	0	0	0	0	246,558,257
2020	1,628,881	165,775,196	1,558,461	216,196,570	0	0	0	0	0	250,130,521
2021	1,628,881	165,775,196	1,558,461	216,196,570	0	0	0	0	0	250,130,521
2022	1,628,881	165,775,196	1,558,461	216,196,570	0	0	0	0	0	250,130,521
2023	1,628,881	165,775,196	1,558,461	216,196,570	0	0	0	0	0	250,130,521
2024	1,628,881	165,775,196	1,558,461	216,196,570	0	0	0	0	0	250,130,521
2025	1,628,881	165,775,196	1,558,461	216,196,570	0	0	0	0	0	250,130,521
2026	1,628,881	165,775,196	1,558,461	216,196,570	0	0	0	0	0	250,130,521
2027	1,628,881	165,775,196	1,558,461	216,196,570	0	0	0	0	0	250,130,521
2028	1,628,881	165,775,196	1,558,461	216,196,570	0	0	0	0	0	250,130,521
2029	1,628,881	165,775,196	1,558,461	216,196,570	0	0	0	0	0	250,130,521
2030	1,628,881	165,775,196	1,558,461	216,196,570	0	0	0	0	0	250,130,521
2031	1,628,881	165,775,196	1,558,461	216,196,570	0	0	0	0	0	250,130,521
2032	1,628,881	165,775,196	1,558,461	216,196,570	0	0	0	0	0	250,130,521
2033	1,628,881	165,775,196	1,558,461	216,196,570	0	0	0	0	0	250,130,521
2034	1,628,881	165,775,196	1,558,461	216,196,570	0	0	0	0	0	250,130,521
2035	1,628,881	165,775,196	1,558,461	216,196,570	0	0	0	0	0	250,130,521
TOTAL	80,487,954	7,414,496,898	71,777,559	9,886,449,501	0	0	0	0	0	11,574,720,995

TABLE B-19: TOTAL TRANSPORTATION CHARGE FOR EACH CONTRACTOR^(a)

(in dollars)

Sheet 1 of 4

Calendar Year	NORTH BAY AREA			SOUTH BAY AREA				CENTRAL COASTAL AREA		
	Napa County FC & WCD	Solano County FC & WCD	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	11,750	43,787	0	55,537	0	0	0
1963	0	0	0	148,327	184,567	439,266	772,160	0	0	0
1964	0	0	0	166,418	260,113	609,051	1,035,582	8,168	20,293	28,461
1965	0	0	0	240,246	359,857	1,136,938	1,737,041	13,774	33,548	47,322
1966	18,560	0	18,560	265,968	369,846	1,388,409	2,024,223	22,822	54,884	77,706
1967	41,856	0	41,856	340,458	447,642	1,656,606	2,444,706	40,838	97,117	137,955
1968	127,336	0	127,336	381,310	543,926	1,946,794	2,872,030	66,293	156,727	223,020
1969	247,892	0	247,892	430,761	474,164	2,030,237	2,935,162	120,977	284,524	405,501
1970	269,493	0	269,493	445,355	466,641	2,153,032	3,065,028	133,853	314,672	448,525
1971	214,158	0	214,158	406,329	485,988	2,120,562	3,012,879	134,887	317,175	452,062
1972	218,168	0	218,168	495,678	611,974	2,270,545	3,378,197	140,946	331,434	472,380
1973	215,334	26,386	241,720	459,269	481,941	2,286,041	3,227,251	137,912	324,406	462,318
1974	233,447	27,739	261,186	481,371	495,882	2,450,435	3,427,688	139,128	327,293	466,421
1975	231,085	30,517	261,602	530,206	537,115	2,355,198	3,422,519	155,486	365,519	521,005
1976	274,230	34,107	308,337	665,410	709,299	2,562,848	3,937,557	263,773	618,472	882,245
1977	272,748	37,536	310,284	543,215	614,306	2,319,997	3,477,518	274,013	642,780	916,793
1978	287,573	40,741	328,314	648,809	732,693	2,660,880	4,042,382	284,810	668,112	952,922
1979	278,930	45,805	324,735	726,555	764,734	2,639,664	4,130,953	293,296	588,118	981,414
1980	294,336	50,979	345,315	727,534	765,675	2,664,993	4,158,202	310,314	735,122	1,045,436
1981	319,284	67,985	387,269	733,804	772,786	2,660,271	4,166,861	334,329	804,506	1,138,835
1982	347,014	96,017	443,031	727,294	765,677	2,611,288	4,104,259	364,998	896,369	1,261,367
1983	718,323	456,002	1,174,325	1,185,879	1,285,207	4,193,421	6,664,507	478,762	1,190,040	1,668,802
1984	1,069,619	890,939	1,960,558	1,317,711	1,435,823	4,554,274	7,307,808	900,955	2,332,126	3,233,081
1985	1,230,456	902,282	2,132,738	1,350,593	1,474,841	4,570,312	7,395,746	1,380,325	3,689,508	5,069,833
1986	1,252,516	926,674	2,179,190	1,404,246	1,540,705	4,651,411	7,596,362	2,179,842	6,017,369	8,197,211
1987	1,262,795	952,446	2,215,241	1,429,474	1,571,211	4,640,582	7,641,267	2,210,495	6,070,817	8,281,312
1988	1,288,278	1,020,404	2,308,682	1,500,884	1,654,188	4,764,479	7,919,551	2,270,788	6,211,115	8,481,903
1989	1,302,691	1,078,687	2,381,378	1,526,907	1,685,782	4,813,223	8,025,912	2,309,830	6,288,232	8,598,062
1990	1,311,471	1,139,033	2,450,504	1,560,823	1,726,267	4,884,464	8,171,554	2,351,363	6,372,327	8,723,690
1991	1,333,693	1,141,748	2,475,441	1,628,954	1,780,406	4,966,721	8,376,081	2,421,778	6,466,756	8,888,534
1992	1,352,830	1,141,142	2,493,972	1,689,156	1,825,466	5,026,303	8,540,925	2,486,469	6,544,024	9,030,493
1993	1,367,759	1,137,649	2,505,408	1,733,605	1,853,068	5,045,216	8,631,889	2,553,715	6,626,367	9,180,082
1994	1,403,051	1,152,357	2,555,408	1,844,889	1,925,144	5,233,885	9,003,918	2,650,336	6,774,180	9,424,516
1995	1,421,038	1,150,370	2,571,408	1,903,152	1,921,182	5,224,487	9,048,821	2,714,231	6,844,866	9,559,097
1996	1,439,345	1,146,759	2,586,104	1,949,762	1,906,473	5,189,093	9,045,328	2,775,673	6,906,177	9,681,850
1997	1,468,668	1,151,436	2,620,104	2,031,448	1,925,012	5,233,238	9,189,698	2,861,417	7,017,552	9,878,969
1998	1,488,676	1,150,166	2,638,842	2,024,815	1,918,949	5,218,746	9,162,510	2,923,708	7,079,931	10,003,639
1999	1,517,575	1,153,267	2,670,842	2,040,053	1,932,863	5,251,887	9,224,803	3,005,350	7,179,862	10,185,212
2000	1,533,814	1,150,028	2,683,842	2,025,637	1,919,700	5,220,538	9,165,875	3,059,315	7,226,381	10,285,696
2001	1,546,909	1,153,588	2,700,497	2,036,939	1,930,065	5,245,491	9,212,495	3,155,870	7,249,388	10,405,258
2002	1,556,825	1,156,231	2,713,056	2,048,560	1,940,667	5,270,663	9,259,890	3,223,997	7,222,435	10,446,432
2003	1,565,391	1,157,665	2,723,056	2,053,398	1,945,084	5,281,185	9,279,667	3,339,652	7,272,247	10,611,899
2004	1,574,966	1,159,090	2,734,056	2,060,812	1,951,853	5,297,301	9,309,966	3,440,039	7,294,309	10,734,348
2005	1,576,876	1,159,828	2,732,704	2,048,741	1,940,793	5,270,744	9,260,278	3,499,819	7,256,667	10,756,486
2006	1,584,087	1,153,617	2,737,704	2,040,763	1,933,507	5,253,396	9,227,666	3,488,651	7,241,141	10,729,792
2007	1,602,198	1,157,506	2,759,704	2,057,711	1,948,986	5,290,253	9,296,950	3,512,429	7,274,189	10,786,618
2008	1,612,050	1,156,654	2,768,704	2,052,569	1,944,291	5,279,071	9,275,931	3,505,700	7,264,836	10,770,536
2009	1,624,559	1,157,145	2,781,704	2,055,738	1,947,183	5,285,966	9,288,887	3,516,360	7,279,645	10,796,005
2010	1,633,660	1,156,086	2,789,746	2,049,337	1,941,367	5,272,279	9,262,983	3,500,358	7,257,844	10,758,202
2011	1,644,612	1,155,134	2,799,746	2,048,031	1,940,174	5,269,435	9,257,640	3,499,812	7,257,083	10,756,895
2012	1,664,316	1,159,430	2,823,746	2,065,490	1,956,117	5,307,403	9,329,010	3,529,633	7,298,522	10,828,155
2013	1,678,676	1,161,070	2,839,746	1,960,562	1,859,347	4,958,649	8,778,558	3,528,479	7,296,929	10,825,408
2014	1,684,227	1,157,519	2,841,746	1,912,648	1,793,514	4,768,207	8,474,369	3,520,563	7,276,961	10,797,524
2015	1,694,166	1,156,580	2,850,746	1,870,947	1,727,462	4,397,802	7,996,211	3,490,453	7,229,672	10,720,125
2016	1,698,032	1,161,155	2,859,187	1,871,648	1,721,853	4,270,057	7,863,558	3,513,555	7,253,012	10,766,567
2017	1,679,100	1,156,790	2,835,890	1,822,697	1,676,973	4,118,097	7,617,767	3,470,651	7,176,189	10,646,840
2018	1,613,266	1,156,264	2,769,530	1,781,743	1,638,268	3,997,908	7,417,919	3,450,005	7,134,069	10,584,074
2019	1,592,526	1,160,123	2,752,649	1,760,482	1,619,022	3,933,406	7,312,910	3,474,381	7,164,405	10,638,786
2020	1,669,073	1,160,588	2,829,661	1,759,775	1,617,930	3,923,349	7,301,054	3,479,896	7,170,199	10,650,095
2021	1,666,647	1,160,588	2,827,235	1,756,835	1,615,098	3,916,596	7,288,529	3,478,655	7,167,218	10,645,873
2022	1,665,317	1,160,588	2,825,905	1,756,234	1,614,382	3,912,412	7,283,028	3,477,731	7,164,944	10,642,675
2023	1,664,313	1,134,202	2,798,515	1,755,622	1,613,799	3,909,248	7,278,669	3,477,272	7,163,824	10,641,096
2024	1,661,434	1,132,849	2,794,283	1,755,100	1,613,275	3,907,285	7,275,660	3,476,930	7,162,970	10,639,900
2025	1,652,876	1,130,072	2,782,948	1,754,303	1,612,374	3,903,579	7,270,256	3,476,535	7,162,016	10,638,551
2026	1,648,031	1,126,482	2,774,513	1,753,464	1,611,592	3,901,488	7,266,544	3,373,596	6,921,546	10,295,142
2027	1,645,062	1,123,052	2,768,114	1,752,065	1,610,215	3,896,568	7,258,848	3,371,337	6,915,868	10,287,205
2028	1,641,515	1,119,847	2,761,362	1,749,286	1,607,583	3,888,398	7,245,267	3,365,073	6,901,124	10,266,197
2029	1,637,171	1,114,783	2,751,954	1,747,237	1,605,691	3,883,604	7,236,532	3,363,386	6,896,991	10,260,377
2030	1,633,003	1,109,609	2,742,612	1,746,564	1,605,074	3,881,979	7,233,617	3,349,970	6,858,397	10,208,367
2031	1,611,459	1,092,603	2,704,062	1,745,318	1,603,934	3,879,206	7,228,458	3,326,300	6,789,813	10,116,113
2032	1,576,505	1,064,571	2,641,076	1,713,946	1,602,677	3,876,159	7,222,782	3,295,715	6,698,147	9,993,862
2033	1,404,296	833,747	2,238,043	1,741,672	1,600,598	3,871,205	7,213,475	3,185,087	6,411,792	9,596,879
2034	1,169,339	548,812	1,718,151	1,739,264	1,598,397	3,865,959	7,203,420	2,763,837	5,271,904	8,035,739
2035	1,074,807	531,477	1,606,284	1,738,177	1,597,403	3,863,590	7,199,170	2,284,206	3,913,921	6,198,127
TOTAL	83,501,332	57,830,546	141,331,878	105,317,733	103,257,448	285,693,273	494,268,454	162,980,900	358,788,918	521,769,818

a) Unadjusted for prior overpayments or underpayments of charges.

TABLE B-19: TOTAL TRANSPORTATION

(in dollars)

Sheet 2 of 4

Calendar Year	SAN JOAQUIN VALLEY AREA									
	Devil's Den Water District	Dudley Ridge Water District	Empire West Side Irrigation District	Hacienda Water 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)	(19)	(20)
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	63,740	0	0	0	0	63,740
1966	0	0	0	0	119,284	0	0	0	0	119,284
1967	0	0	0	0	231,687	0	0	0	0	231,687
1968	70,828	173,454	10,316	5,415	392,681	1,478,745	12,699	10,732	190,400	2,345,270
1969	118,124	168,672	12,043	23,651	467,787	2,272,199	11,310	9,671	291,874	3,375,331
1970	140,770	189,722	18,757	35,698	514,514	2,769,285	11,431	12,158	226,957	3,919,292
1971	144,888	184,711	19,726	26,984	545,472	3,631,221	16,355	13,398	388,075	4,970,830
1972	166,996	205,470	20,546	28,713	570,255	4,694,061	13,798	18,826	950,184	6,668,849
1973	156,957	187,214	16,690	26,165	577,648	4,615,330	14,066	10,619	344,104	5,948,793
1974	166,183	259,297	16,656	28,968	635,826	4,883,121	14,148	11,573	505,269	6,521,041
1975	185,832	321,177	17,587	34,291	652,256	5,938,857	15,138	13,211	618,172	7,796,521
1976	208,859	292,132	18,635	37,128	725,669	6,440,120	15,999	15,479	492,030	8,246,051
1977	223,580	268,439	17,807	38,501	705,590	6,848,587	15,914	14,008	458,681	8,591,107
1978	269,604	345,736	22,656	50,207	808,250	8,596,465	18,100	19,233	626,414	10,756,665
1979	249,387	336,463	23,899	49,399	842,144	8,563,578	18,877	18,564	596,173	10,698,484
1980	250,095	339,908	20,537	49,973	844,755	9,000,734	18,742	17,623	601,863	11,144,230
1981	249,352	359,054	20,851	53,517	863,749	9,667,493	19,337	18,697	636,315	11,888,365
1982	242,586	355,811	19,492	53,007	848,840	9,873,818	18,805	17,443	628,757	12,058,559
1983	383,992	671,973	40,665	98,953	1,514,770	17,348,237	39,412	40,240	1,207,089	21,345,331
1984	420,959	795,333	46,862	116,586	1,781,371	20,524,418	48,854	48,813	1,429,275	25,212,471
1985	422,047	831,089	47,053	123,364	1,868,324	21,760,548	52,802	49,948	1,494,507	26,649,682
1986	434,110	881,761	48,137	130,736	1,995,102	23,339,661	57,807	53,090	1,588,523	28,528,927
1987	433,116	913,085	47,998	135,282	2,075,073	24,536,727	61,014	53,877	1,645,711	29,901,883
1988	444,701	975,771	49,621	144,400	2,224,798	26,444,790	63,159	57,763	1,760,277	32,165,280
1989	442,838	1,002,104	49,170	149,879	2,286,819	27,168,873	62,563	58,854	1,808,359	33,029,459
1990	443,778	1,039,027	49,300	155,241	2,358,174	28,164,468	62,738	59,974	1,946,900	34,279,600
1991	445,942	1,045,279	49,626	156,162	2,372,256	28,316,950	63,169	60,421	1,958,820	34,468,625
1992	445,692	1,044,770	49,600	156,088	2,371,308	28,304,923	63,138	60,383	1,957,856	34,453,758
1993	442,714	1,034,953	49,088	154,641	2,347,763	28,062,222	62,442	59,689	1,939,104	34,152,616
1994	453,141	1,064,567	50,629	159,004	2,417,657	28,800,564	64,490	61,715	1,995,554	35,067,321
1995	452,350	1,063,030	50,549	158,779	2,412,148	28,751,567	64,385	61,660	1,992,626	35,007,094
1996	449,485	1,054,959	50,130	157,588	2,395,173	28,559,779	63,838	61,070	1,977,264	34,769,286
1997	452,966	1,064,339	50,617	158,969	2,417,905	28,797,732	64,485	61,695	1,995,144	35,063,852
1998	451,750	1,061,472	50,467	158,548	2,410,418	28,721,262	64,290	61,518	1,989,680	34,969,405
1999	454,484	1,069,242	50,871	159,690	2,428,436	28,913,576	64,826	62,060	2,004,493	35,207,678
2000	451,797	1,061,976	50,493	158,622	2,411,324	28,731,373	64,324	61,560	1,990,641	34,982,110
2001	454,237	1,067,864	50,799	159,487	2,425,336	28,881,769	64,725	61,945	2,001,849	35,168,011
2002	456,031	1,073,174	51,076	160,272	2,437,920	29,013,764	65,094	62,310	2,011,976	35,331,617
2003	456,881	1,075,433	51,193	160,604	2,443,372	29,071,144	65,250	62,462	2,016,279	35,402,618
2004	458,126	1,079,184	51,388	161,157	2,452,028	29,163,033	65,510	62,722	2,023,432	35,516,580
2005	455,945	1,073,366	51,086	160,300	2,438,358	29,017,249	65,112	62,332	2,012,355	35,336,103
2006	454,527	1,069,668	50,894	159,754	2,429,224	28,922,199	64,856	62,089	2,005,306	35,218,517
2007	457,455	1,077,789	51,317	160,952	2,448,677	29,126,495	65,418	62,637	2,020,783	35,471,523
2008	456,590	1,075,384	51,191	160,597	2,442,767	29,065,381	65,253	62,479	2,016,201	35,395,843
2009	457,115	1,076,845	51,267	160,812	2,446,391	29,102,584	65,353	62,573	2,018,985	35,441,925
2010	456,229	1,073,827	51,110	160,368	2,438,905	29,027,267	65,139	62,367	2,013,223	35,348,435
2011	455,952	1,073,178	51,076	160,272	2,437,248	29,010,031	65,095	62,325	2,011,983	35,327,160
2012	458,969	1,081,714	51,519	161,531	2,457,590	29,223,908	65,686	62,904	2,028,256	35,592,077
2013	459,659	1,083,624	51,618	161,814	2,461,894	29,270,736	65,820	63,038	2,031,896	35,650,099
2014	457,241	1,076,900	51,268	160,821	2,446,062	29,102,727	65,353	62,577	2,019,083	35,442,032
2015	456,494	1,074,720	51,156	160,499	2,377,092	29,048,194	65,201	62,431	2,014,924	35,310,711
2016	459,843	1,084,154	51,646	161,891	2,344,168	29,285,316	65,855	63,067	2,032,907	35,548,847
2017	456,568	1,075,056	51,174	160,548	2,210,103	29,056,956	65,226	62,449	2,015,567	35,153,647
2018	456,603	1,075,216	51,182	160,573	2,108,045	29,058,598	56,833	62,474	2,015,867	35,045,391
2019	459,326	1,082,723	51,573	161,680	2,070,737	29,249,987	56,855	62,967	2,030,182	35,226,030
2020	462,867	1,098,774	52,407	164,043	2,062,794	29,565,413	57,720	64,485	2,060,774	35,589,277
2021	462,867	1,098,774	52,407	164,043	2,041,484	29,565,413	57,581	64,485	2,060,774	35,567,828
2022	462,867	1,098,774	52,407	164,043	2,031,616	29,565,413	57,514	64,485	2,060,774	35,557,893
2023	462,867	1,098,774	52,407	164,043	2,027,358	29,565,413	57,484	64,485	2,060,774	35,553,605
2024	462,867	1,098,774	52,407	164,043	2,025,431	29,565,413	57,471	64,485	2,060,774	35,551,665
2025	462,867	1,098,774	52,407	164,043	2,023,231	29,565,413	57,452	64,485	2,060,774	35,549,446
2026	462,867	1,098,774	52,407	164,043	2,021,429	29,565,413	57,419	64,485	2,060,774	35,547,611
2027	462,867	1,098,774	52,407	164,043	2,019,621	29,565,413	57,406	64,485	2,060,774	35,545,790
2028	462,867	1,098,774	52,407	164,043	2,016,909	29,565,413	57,354	64,485	2,060,774	35,543,026
2029	462,867	1,098,774	52,407	164,043	2,015,001	29,565,413	57,311	64,485	2,060,774	35,541,075
2030	462,867	1,098,774	52,407	164,043	2,012,658	29,565,413	57,249	64,485	2,060,774	35,538,670
2031	462,867	1,098,774	52,407	164,043	2,008,211	29,565,413	57,135	64,485	2,060,774	35,534,109
2032	462,867	1,098,774	52,407	164,043	2,001,876	29,565,413	56,981	64,485	2,060,774	35,527,620
2033	462,867	1,098,774	52,407	164,043	1,991,916	29,565,413	56,693	64,485	2,060,774	35,517,372
2034	462,867	1,098,774	52,407	164,043	1,979,585	29,565,413	56,300	64,485	2,060,774	35,504,648
2035	462,867	1,098,774	52,407	164,043	1,965,324	29,565,413	55,830	64,485	2,060,774	35,489,917
TOTAL	26,859,566	59,692,193	2,969,119	8,852,769	128,059,327	1,590,265,230	3,460,989	3,475,473	111,550,529	1,935,185,195

CHARGE FOR EACH CONTRACTOR^(a)

(in dollars)

Sheet 3 of 4

Calendar Year	SOUTHERN CALIFORNIA AREA									
	Antelope Valley East Kern Water Agency	Castaic Lake Water Agency	Coachella Valley County 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)
1962	0	0	0	0	0	0	0	0	0	0
1963	33,287	0	0	0	0	0	0	0	51,610	0
1964	62,406	19,871	14,156	4,280	36,678	1,130	27,924	8,120	81,235	34,542
1965	118,029	37,913	24,807	7,100	40,317	2,068	49,766	15,123	133,432	34,934
1966	214,785	71,840	44,375	12,368	72,590	3,732	89,706	27,529	230,605	60,980
1967	415,967	148,052	85,682	23,342	140,712	7,255	174,308	53,816	431,109	114,992
1968	730,505	310,448	151,424	41,160	249,135	12,773	308,133	94,750	776,350	207,379
1969	1,049,240	467,411	223,337	60,705	367,734	18,528	454,077	136,833	1,192,579	318,184
1970	1,365,829	595,911	313,083	89,144	515,743	25,044	627,497	183,450	1,760,998	462,910
1971	1,693,604	749,946	430,162	127,736	708,830	31,652	850,928	229,900	2,516,104	653,450
1972	2,004,115	929,607	555,727	179,000	915,920	42,028	1,097,872	272,293	3,344,830	853,725
1973	2,092,605	970,256	687,734	181,491	1,123,688	43,093	1,157,792	284,704	3,863,090	931,856
1974	2,154,320	1,021,085	701,940	190,566	1,148,355	44,787	1,186,633	289,233	3,923,427	971,678
1975	2,328,084	1,078,932	741,177	202,748	1,213,372	48,007	1,249,481	301,081	4,072,543	1,068,440
1976	2,694,518	1,052,068	790,079	212,439	1,292,928	51,207	1,296,429	312,079	4,219,196	1,124,062
1977	2,974,943	1,097,491	682,155	223,217	1,124,419	46,480	1,355,500	324,086	4,432,221	1,168,842
1978	4,139,373	1,234,709	893,787	250,202	1,447,685	49,933	1,432,547	330,718	4,727,814	1,326,068
1979	3,408,039	1,223,469	903,223	251,366	1,458,012	68,086	1,665,611	333,224	5,162,292	1,339,392
1980	3,719,977	1,333,341	945,463	269,665	1,538,232	66,658	1,770,558	336,487	5,565,588	1,442,647
1981	3,925,761	1,413,595	987,416	280,057	1,606,940	70,424	2,075,582	348,621	5,683,524	1,479,805
1982	3,991,351	1,430,580	1,001,123	287,143	1,631,377	71,446	2,090,436	363,087	5,580,618	1,453,488
1983	9,204,024	1,784,403	2,033,563	555,878	3,266,906	160,637	4,501,314	413,886	9,403,406	2,470,407
1984	11,464,139	1,833,773	2,466,328	651,304	3,958,126	198,688	5,504,635	465,653	10,315,215	2,728,633
1985	12,519,215	1,995,881	2,623,468	698,848	4,215,075	210,959	5,787,104	652,181	10,927,670	2,888,999
1986	13,913,230	2,061,004	2,834,922	762,892	4,558,760	226,624	6,197,096	738,387	11,796,672	3,138,575
1987	14,485,542	2,132,019	2,960,050	786,017	4,819,945	237,594	6,443,267	813,263	11,991,729	3,227,850
1988	15,586,751	2,148,962	3,220,487	869,331	5,303,717	256,590	6,930,877	912,108	13,221,364	3,557,199
1989	16,221,952	2,414,644	3,339,419	870,916	5,556,838	268,656	7,230,595	991,582	13,000,108	3,569,327
1990	16,942,938	2,487,235	3,519,103	932,004	5,803,542	281,068	7,538,024	1,075,382	13,977,413	3,821,316
1991	17,633,703	2,597,989	3,505,138	901,313	5,780,498	282,112	7,568,925	1,178,582	13,506,906	3,714,233
1992	17,676,277	2,605,435	3,529,293	924,003	5,820,342	282,823	7,584,378	1,281,326	13,833,941	3,774,199
1993	17,468,808	2,669,193	3,496,658	923,915	5,766,524	279,373	7,494,115	1,366,865	14,060,861	3,822,327
1994	18,050,085	2,647,484	3,613,646	954,678	5,959,476	289,043	7,748,113	1,511,993	14,401,871	3,915,361
1995	17,998,919	2,757,337	3,595,110	942,228	5,928,903	288,196	7,725,034	1,610,505	14,200,076	3,873,652
1996	17,895,215	2,738,476	3,555,702	914,619	5,863,895	286,468	7,678,641	1,709,343	13,819,820	3,800,869
1997	18,043,620	2,820,482	3,615,921	958,220	5,963,231	288,936	7,746,488	1,832,471	14,573,202	3,857,802
1998	17,995,412	2,887,490	3,591,105	937,778	5,922,293	288,135	7,724,147	1,936,295	14,233,848	3,889,764
1999	18,170,943	2,869,534	3,628,219	950,120	5,983,506	291,057	7,798,887	2,065,678	14,414,768	3,934,752
2000	18,002,206	2,909,271	3,595,388	941,746	5,929,361	288,248	7,727,013	2,154,644	14,225,901	3,881,996
2001	18,083,063	2,879,649	3,614,128	947,978	5,960,258	289,593	7,764,651	2,164,730	14,445,498	3,940,681
2002	18,203,727	3,045,504	3,635,281	950,944	5,995,158	291,600	7,816,498	2,179,832	14,364,323	3,922,388
2003	18,285,049	3,102,329	3,650,834	955,300	6,020,808	292,958	7,849,666	2,190,025	14,492,119	3,957,397
2004	18,374,901	3,185,267	3,670,027	962,006	6,052,467	294,452	7,887,589	2,201,274	14,587,024	3,980,423
2005	18,215,747	3,230,789	3,624,459	935,667	5,977,300	291,799	7,821,223	2,181,343	14,165,817	3,890,740
2006	18,179,828	3,204,726	3,642,981	966,526	6,007,861	291,205	7,802,582	2,176,877	14,720,367	3,996,217
2007	18,339,104	3,193,056	3,666,640	964,522	6,046,880	293,854	7,872,565	2,196,797	14,658,816	3,994,143
2008	18,290,686	3,374,770	3,636,002	936,505	6,096,335	293,047	7,851,260	2,190,743	14,267,354	3,923,184
2009	18,257,091	3,373,660	3,657,858	967,760	6,032,401	292,483	7,840,934	2,186,501	14,686,136	3,991,393
2010	18,252,634	3,413,299	3,634,306	941,618	5,993,544	292,416	7,834,942	2,185,979	14,315,482	3,926,076
2011	18,186,902	3,415,414	3,637,788	957,079	5,999,294	291,318	7,809,551	2,177,727	14,382,165	3,916,857
2012	18,367,424	3,483,462	3,674,191	967,024	6,059,334	294,323	7,887,743	2,200,307	14,724,678	4,011,454
2013	18,397,895	3,607,491	3,671,803	952,643	6,042,056	295,385	7,913,714	2,208,299	14,189,443	3,889,024
2014	18,210,773	3,631,494	3,628,721	942,723	5,984,926	291,623	7,818,520	2,180,403	14,168,406	3,880,511
2015	18,147,869	3,616,614	3,627,476	953,877	5,982,879	290,570	7,791,062	2,172,514	14,250,887	3,882,038
2016	18,242,546	3,609,075	3,648,548	961,332	6,017,635	292,091	7,834,733	2,184,048	14,469,360	3,939,753
2017	17,844,790	3,616,914	3,563,296	934,161	5,877,039	285,295	7,665,241	2,133,169	13,886,232	3,788,233
2018	17,604,347	3,544,445	3,489,397	893,728	5,755,152	281,018	7,558,844	2,101,544	13,175,035	3,632,281
2019	17,464,086	3,382,060	3,482,174	919,127	5,743,256	278,233	7,489,655	2,081,791	13,600,157	3,702,590
2020	17,258,555	4,110,914	3,398,078	881,365	5,604,554	273,565	7,352,540	2,049,076	12,853,582	3,528,335
2021	16,999,082	3,977,581	3,293,348	845,894	5,431,828	268,102	7,154,702	2,011,204	12,153,694	3,352,964
2022	16,865,208	3,887,740	3,238,150	828,476	5,340,796	265,595	7,047,139	1,993,195	11,737,116	3,251,340
2023	16,814,633	3,871,585	3,221,035	823,729	5,312,570	264,603	7,012,643	1,986,223	11,596,960	3,214,967
2024	16,796,527	3,831,340	3,212,939	819,528	5,299,216	264,281	7,000,495	1,983,869	11,510,015	3,195,155
2025	16,773,410	3,819,514	3,199,693	815,739	5,277,370	263,864	6,974,000	1,980,839	11,430,250	3,174,159
2026	16,760,512	3,809,752	3,189,809	813,043	5,261,069	263,612	6,953,984	1,979,105	11,352,305	3,153,424
2027	16,749,191	3,800,217	3,182,968	811,176	5,249,787	263,408	6,940,101	1,977,623	11,303,875	3,140,546
2028	16,738,462	3,788,558	3,178,208	809,832	5,241,937	263,206	6,930,530	1,976,176	11,273,200	3,132,469
2029	16,724,506	3,768,076	3,174,722	808,877	5,236,188	262,967	6,923,466	1,974,535	11,253,772	3,127,315
2030	16,693,051	3,717,381	3,168,496	807,129	5,225,921	262,485	6,910,945	1,970,991	11,215,019	3,117,211
2031	16,606,164	3,664,892	3,152,590	802,958	5,199,689	261,109	6,878,365	1,960,723	11,137,512	3,096,403
2032	16,503,751	3,630,038	3,135,114	798,503	5,170,868	259,522	6,842,311	1,948,829	11,057,910	3,074,645
2033	16,434,306	3,608,392	3,125,101	795,949	5,154,354	258,616	6,821,637	1,942,403	11,012,286	3,062,173
2034	16,361,520	3,597,384	3,109,863	794,875	5,147,365	258,228	6,812,846	1,939,139	10,993,232	3,056,942
2035	15,951,701	3,591,463	3,117,888	794,121	5,142,458	257,952	6,806,652	1,937,069	10,979,877	3,053,270
TOTAL	940,368,958	183,931,982	188,865,282	49,431,253	310,874,156	15,143,916	405,362,762	99,859,820	748,063,840	203,911,336

TABLE B-19: TOTAL TRANSPORTATION CHARGE FOR EACH CONTRACTOR^(a)

(in dollars)

Sheet 4 of 4

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA				FUTURE CONTRACTOR		GRAND TOTAL
	San Geronio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC & WCD	Total	South Bay		
	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)		
1962	0	0	0	0	0	0	0	0	0	0	55,537
1963	0	692,316	0	777,213	0	0	0	0	0	57,712	1,607,085
1964	21,459	1,263,910	9,294	1,585,005	0	0	0	0	0	95,429	2,744,477
1965	21,611	2,183,484	17,676	2,686,260	0	0	395	395	0	164,836	4,699,594
1966	37,664	3,899,505	33,297	4,798,976	0	0	551	551	0	190,706	7,230,006
1967	70,922	7,691,038	68,007	9,425,202	0	0	549	549	0	247,675	12,529,630
1968	127,963	15,290,988	142,445	18,443,453	0	0	551	551	0	320,981	24,332,641
1969	196,551	23,070,970	214,599	27,770,748	0	0	3,117	3,117	0	388,399	35,126,150
1970	286,738	30,519,342	272,933	37,018,622	0	0	14,768	14,768	0	424,712	45,160,440
1971	405,613	39,903,364	342,014	48,643,303	0	0	15,633	15,633	0	414,467	57,723,332
1972	530,110	52,712,686	421,040	63,858,953	0	0	16,968	16,968	0	440,112	75,053,627
1973	578,737	57,250,605	435,125	69,600,976	0	0	16,930	16,930	0	413,801	79,911,789
1974	599,706	61,610,264	454,719	74,296,713	0	0	17,074	17,074	0	435,789	85,425,912
1975	630,253	66,502,935	478,439	79,915,492	0	0	18,006	18,006	0	446,547	92,381,692
1976	654,992	68,364,215	473,610	82,537,822	0	0	17,074	17,074	0	493,816	96,422,902
1977	683,659	66,008,498	493,462	80,614,973	0	0	17,815	17,815	0	438,566	94,367,056
1978	711,388	79,450,805	543,862	96,538,891	0	0	17,138	17,138	0	501,462	113,137,774
1979	699,921	78,768,184	529,966	95,810,785	0	0	17,138	17,138	0	508,255	112,471,764
1980	717,111	87,048,927	573,190	105,327,844	0	0	17,138	17,138	0	506,790	122,544,955
1981	790,220	90,779,028	612,250	110,053,223	0	0	17,138	17,138	0	507,541	128,159,232
1982	796,752	90,344,016	633,454	109,674,871	0	0	17,138	17,138	0	507,557	128,066,782
1983	1,067,553	127,970,014	773,500	163,605,491	0	0	17,138	17,138	0	514,261	194,989,855
1984	1,130,415	135,718,556	814,938	177,250,403	0	0	17,138	17,138	0	516,651	215,498,110
1985	1,659,896	139,620,964	900,461	184,700,721	0	0	17,138	17,138	0	516,727	226,482,585
1986	1,828,959	145,463,510	1,016,321	194,536,952	0	0	17,138	17,138	0	516,604	241,572,384
1987	1,901,743	147,700,859	1,134,611	198,634,489	0	0	17,138	17,138	0	516,404	247,207,734
1988	2,122,658	158,798,197	1,315,198	214,243,439	0	0	17,138	17,138	0	518,100	265,654,093
1989	2,145,743	171,875,033	1,661,806	229,146,619	0	0	17,138	17,138	0	517,560	281,716,128
1990	2,323,658	186,801,183	1,964,720	247,467,586	0	0	17,138	17,138	0	517,664	301,627,736
1991	2,252,862	189,441,148	2,036,613	250,400,022	0	0	17,138	17,138	0	517,583	305,143,424
1992	2,292,841	190,485,740	2,011,936	252,102,534	0	0	17,138	17,138	0	517,328	307,156,148
1993	2,323,709	196,869,245	2,031,486	258,573,079	0	0	17,138	17,138	0	518,263	313,578,475
1994	2,379,939	196,561,155	1,974,108	260,006,952	0	0	17,138	17,138	0	518,610	316,593,863
1995	2,353,026	202,079,756	2,022,865	265,375,607	0	0	17,138	17,138	0	519,037	322,098,202
1996	2,305,064	199,738,480	1,979,911	262,286,503	0	0	17,138	17,138	0	518,110	318,904,319
1997	2,406,117	207,072,992	2,029,371	271,308,853	0	0	17,138	17,138	0	518,213	328,596,827
1998	2,361,865	209,068,877	2,053,256	272,890,265	0	0	17,138	17,138	0	518,080	330,199,879
1999	2,389,612	210,225,075	2,057,977	274,780,128	0	0	17,138	17,138	0	518,180	332,603,981
2000	2,357,886	211,754,645	2,056,683	275,824,988	0	0	17,138	17,138	0	518,085	333,477,734
2001	2,393,520	211,307,703	2,010,049	275,801,501	0	0	17,138	17,138	0	518,688	333,823,588
2002	2,381,973	217,097,845	2,083,389	281,968,462	0	0	17,138	17,138	0	518,690	340,255,285
2003	2,403,111	221,265,258	2,095,945	286,560,799	0	0	17,138	17,138	0	518,719	345,113,896
2004	2,417,392	225,010,356	2,139,623	290,762,799	0	0	17,138	17,138	0	518,769	349,593,656
2005	2,359,958	225,776,717	2,128,903	290,600,462	0	0	17,138	17,138	0	518,230	349,221,401
2006	2,429,560	226,572,249	2,098,254	292,089,233	0	0	17,138	17,138	0	518,102	350,538,152
2007	2,426,423	226,335,351	2,083,239	292,071,390	0	0	17,138	17,138	0	518,290	350,921,613
2008	2,378,957	233,761,259	2,160,611	299,060,713	0	0	17,138	17,138	0	518,255	357,807,120
2009	2,426,068	234,158,867	2,148,199	300,019,351	0	0	17,138	17,138	0	518,276	358,863,286
2010	2,382,021	236,092,438	2,160,385	301,425,140	0	0	17,138	17,138	0	518,588	360,120,232
2011	2,379,958	237,310,805	2,136,132	302,600,990	0	0	17,138	17,138	0	518,579	361,278,148
2012	2,436,978	242,319,001	2,156,556	308,582,475	0	0	17,138	17,138	0	518,694	367,691,295
2013	2,359,873	245,155,073	2,194,240	310,876,939	0	0	17,138	17,138	0	473,633	369,461,521
2014	2,355,006	244,038,647	2,188,126	309,319,879	0	0	17,138	17,138	0	437,140	367,329,828
2015	2,358,478	241,404,667	2,153,235	306,632,166	0	0	16,743	16,743	0	382,701	363,909,403
2016	2,393,347	241,598,296	2,137,278	307,328,042	0	0	16,587	16,587	0	359,417	364,742,205
2017	2,300,277	236,631,132	2,113,148	300,638,927	0	0	16,589	16,589	0	318,766	357,228,426
2018	2,200,322	229,537,633	2,060,246	291,833,992	0	0	16,587	16,587	0	243,524	347,911,017
2019	2,247,421	223,409,358	1,968,924	285,768,832	0	0	14,021	14,021	0	180,546	341,893,774
2020	2,136,997	218,281,700	1,945,975	279,675,236	0	0	2,370	2,370	0	159,265	336,206,958
2021	2,027,430	209,947,986	1,886,867	269,350,682	0	0	1,563	1,563	0	155,365	325,837,075
2022	1,964,147	203,065,267	1,848,650	261,332,819	0	0	209	209	0	154,554	317,797,083
2023	1,941,501	200,775,754	1,845,237	258,681,440	0	0	209	209	0	153,847	315,107,381
2024	1,928,894	198,743,539	1,830,436	256,416,234	0	0	208	208	0	153,363	312,831,313
2025	1,915,870	197,778,182	1,826,171	255,229,061	0	0	205	205	0	151,588	311,622,055
2026	1,902,968	196,929,378	1,822,039	254,191,000	0	0	203	203	0	151,156	310,226,169
2027	1,894,972	196,248,190	1,817,885	253,379,939	0	0	201	201	0	150,309	309,390,406
2028	1,889,961	195,655,761	1,812,374	252,690,674	0	0	200	200	0	148,828	308,655,554
2029	1,886,773	194,788,738	1,802,691	251,732,626	0	0	200	200	0	148,000	307,670,764
2030	1,880,507	192,763,934	1,778,560	249,511,630	0	0	200	200	0	147,693	305,382,789
2031	1,867,686	190,480,107	1,753,603	246,861,801	0	0	200	200	0	147,179	302,591,922
2032	1,854,309	188,825,416	1,736,925	244,838,141	0	0	200	200	0	146,636	300,370,317
2033	1,846,643	187,815,686	1,726,874	243,604,060	0	0	200	200	0	145,820	298,315,849
2034	1,843,434	187,321,858	1,722,112	242,969,798	0	0	200	200	0	144,957	295,577,113
2035	1,841,184	187,040,992	1,719,403	242,234,030	0	0	200	200	0	144,567	292,872,295
TOTAL	121,818,835	11,695,845,652	105,677,427	15,069,155,219	0	0	860,832	860,832	27,841,347	18,190,412,743	

TABLE B-20: CALCULATION OF DELTA WATER RATES

[values in millions of dollars (\$) or millions of acre-feet (AF)^(a)
discounted to 1978 at 4.462 percent per annum]

Procedure	Capital Cost Component	Minimum Operation Maintenance, Power and Replacement Component ^(b)	Total Delta Water Rate ^(c)
<u>In accordance with amendment to Articles 22(e) and 22(g)^(d)</u>			
<u>Commencing in 1979:</u>			
Total costs of "initial conservation facilities" to be reimbursed, and project water entitlements to be delivered, during the project repayment period	\$1,228.74 ^(e) 87.88 AF	\$349.50 ^(f) 87.88 AF	\$1,578.24 87.88 AF
Less, project power revenues to be realized during the project repayment period	\$ 504.97	\$ 99.40	\$ 604.37
Less, Delta Water Charges paid, and project water entitlements, prior to 1979 ^(g)	\$ 85.66 12.09 AF	\$ 21.84 12.09 AF	\$ 107.50 12.09 AF
Subtotal	\$ 638.11 75.79 AF	\$ 228.26 75.79 AF	\$ 866.37 75.79 AF
Rate applicable 1979 through 1982	\$ 8.42 per acre-foot	\$ 3.01 per acre-foot	\$11.43 per acre-foot
<u>Commencing in 1983</u>			
Additional costs to be reimbursed during the project repayment period for Los Vaqueros Reservoir facilities	\$ 114.48	\$ 56.85	\$ 171.33
Less, Delta Water Charges paid, and project water entitlements delivered, during the period 1978-1982	\$ 69.97 8.31 AF	\$ 25.01 8.31 AF	\$ 94.98 8.31 AF
Cumulative Subtotal	\$ 682.63 67.48 AF	\$ 260.10 67.48 AF	\$ 942.73 67.48 AF
Rate applicable 1983	\$10.12 per acre-foot	\$ 3.85 per acre-foot	\$13.97 per acre-foot
<u>Commencing in 1984</u>			
Additional costs to be reimbursed during the project repayment period for ground water storage facilities	\$ 175.50	\$ 80.50	\$ 256.00
Less, Delta Water Charges paid, and project water entitlements delivered, during 1983	\$ 22.77 2.25 AF	\$ 8.66 2.25 AF	\$ 31.43 2.25 AF
Cumulative Subtotal	\$ 835.36 65.23 AF	\$ 331.94 65.23 AF	\$1,167.30 65.23 AF
Rate applicable 1984 through 1988	\$12.81 per acre-foot	\$5.09 per acre-foot	\$17.90 per acre-foot
<u>Commencing in 1989</u>			
Additional costs to be reimbursed during the project repayment period for Glenn Reservoir Complex	\$ 271.93	\$ 74.28	\$ 346.21
Less, Delta Water Charges paid, and project water entitlements delivered, during the period 1984-1988	\$ 154.10 12.03 AF	\$ 61.23 12.03 AF	\$ 215.33 12.03 AF
Cumulative Subtotal	\$ 953.19 53.20 AF	\$ 344.99 53.20 AF	\$1,298.18 53.20 AF
Rate applicable 1989	\$17.92 per acre-foot	\$ 6.48 per acre-foot	\$24.40 per acre-foot
<u>Commencing in 1990</u>			
Additional costs to be reimbursed during the project repayment period for Cottonwood Creek Project	\$ 186.42	\$ 10.40	\$ 196.82
Less, Delta Water Charges paid, and project water entitlements delivered, during 1989	\$ 44.62 2.49 AF	\$ 16.14 2.49 AF	\$ 60.76 2.49 AF
Cumulative Subtotal	\$1,094.99 50.71 AF	\$ 339.25 50.71 AF	\$1,434.24 50.71 AF
Rate applicable 1990 through 1995	\$21.59 per acre-foot	\$ 6.69 per acre-foot	\$28.28 per acre-foot
<u>Commencing in 1996</u>			
Additional costs to be reimbursed during the project repayment period for additional conservation facilities (Phase I)	\$ 126.16	\$ 17.19	\$ 143.35
Less, Delta Water Charges paid, and project water entitlements delivered, during the period 1990-1995	\$ 291.03 13.48 AF	\$ 90.18 13.48 AF	\$ 381.21 13.48 AF
Cumulative Subtotal	\$ 930.12 37.23 AF	\$ 266.26 37.23 AF	\$1,196.38 37.23 AF
Rate applicable 1996 through 2004	\$24.98 per acre-foot	\$ 7.15 per acre-foot	\$32.13 per acre-foot
<u>Commencing in 2005</u>			
Additional costs to be reimbursed during the project repayment period for additional conservation facilities (Phase II)	\$ 57.86	\$ 6.94	\$ 64.80
Less, Delta Water Charges paid, and project water entitlements, delivered, during the period 1996-2004	\$ 365.46 14.63 AF	\$104.60 14.63 AF	\$ 470.06 14.63 AF
Cumulative Subtotal	\$ 622.52 22.60 AF	\$168.60 22.60 AF	\$ 791.12 22.60 AF
Rate applicable 2005 through 2035	\$27.55 per acre-foot	\$ 7.46 per acre-foot	\$35.01 per acre-foot
<u>Calculation Under Original Provisions of Article 22(e) and 22(g)^(d)</u>			
<u>Commencing in 1979</u>			
Total costs of "initial" and "additional" project conservation facilities to be reimbursed and project water entitlements to be delivered during the project repayment period.	\$2,161.09 ^(e) 87.88 AF	\$595.66 ^(f) 87.88 AF	\$2,756.75 87.88 AF
Less, project power revenues to be realized during the project repayment period	\$ 504.97	\$ 99.40	\$ 604.37
Less, Delta Water Charges paid, and project water entitlements delivered, prior to 1979 ^(g)	\$ 85.66 12.09 AF	\$ 21.84 12.09 AF	\$ 107.50 12.09 AF
TOTAL	\$1,570.46 75.79 AF	\$474.41 75.79 AF	\$2,044.88 75.79 AF
Rate applicable 1979 through 2035	\$20.72 per acre-foot	\$ 6.26 per acre-foot	\$26.98 per acre-foot

a) Metric conversion is acre-feet times 1233.5 equals cubic metres.

b) 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.

c) Metric conversion is dollars per acre-foot times .0008107 equals dollars per cubic metre.

d) Future projects shown in the calculation of rates are assumed to be authorized in accordance with SB346. Also included are undefined additional conservation facilities (Phase I and Phase II). These facilities are assumed needed to develop full yield for the State Water Project with operation of the facilities after year 2000.

e) Including net credits of \$4,850,000 for settlements as to the magnitude of project capital costs incurred prior to December 31, 1980, and net credits of \$6,331,928 for settlement as to the magnitude of project capital costs incurred during the 1961 through 1976 period.

f) Includes conservation power costs and credits at San Luis.

g) Applying all Delta Water Charges paid prior to 1970 to reimburse capital costs (the Charge is not divided into components until 1970).

TABLE B-21: TOTAL DELTA WATER

(in dollars)

Sheet 1 of 4

Calendar Year	NORTH BAY AREA			SOUTH BAY AREA				CENTRAL COASTAL AREA		
	Napa County FC & WCD	Solano County FC & WCD	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)
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	142,891	183,042	325,933	251,489	283,497	1,005,955	1,540,941	11,431	13,718	25,149
1981	157,181	216,939	374,120	262,920	297,214	1,005,955	1,566,089	11,431	26,292	37,723
1982	171,470	254,903	426,373	274,351	310,932	1,005,955	1,591,238	22,863	52,584	75,447
1983	227,023	292,868	519,891	349,266	396,766	1,229,415	1,975,447	41,912	96,397	138,309
1984	313,143	328,120	641,263	465,241	529,659	1,574,661	2,569,561	80,522	186,096	266,618
1985	335,510	379,643	715,153	483,135	551,131	1,574,661	2,608,927	134,204	309,564	443,768
1986	357,877	447,437	805,314	501,028	574,393	1,574,661	2,650,082	178,939	413,348	592,287
1987	380,245	542,348	922,593	518,922	595,866	1,574,661	2,689,449	223,673	515,344	739,017
1988	402,612	732,169	1,134,781	536,816	617,339	1,574,661	2,728,816	277,355	640,601	917,956
1989	579,520	935,550	1,515,070	756,426	871,110	2,196,074	3,823,610	488,017	1,124,878	1,612,895
1990	707,048	1,138,930	1,845,978	905,021	1,043,602	2,601,935	4,550,558	707,048	1,631,866	2,338,914
1991	707,048	1,138,930	1,845,978	961,585	1,086,025	2,658,499	4,706,109	707,048	1,631,866	2,338,914
1992	707,048	1,138,930	1,845,978	1,018,149	1,128,448	2,715,063	4,861,660	707,048	1,631,866	2,338,914
1993	707,048	1,138,930	1,845,978	1,074,712	1,170,871	2,771,627	5,017,210	707,048	1,631,866	2,338,914
1994	707,048	1,138,930	1,845,978	1,131,276	1,187,840	2,828,191	5,147,307	707,048	1,631,866	2,338,914
1995	707,048	1,138,930	1,845,978	1,187,840	1,187,840	2,828,191	5,203,871	707,048	1,631,866	2,338,914
1996	803,408	1,138,930	1,942,338	1,413,998	1,349,726	3,213,633	5,977,357	803,408	1,854,266	2,657,674
1997	803,408	1,138,930	1,942,338	1,478,271	1,349,726	3,213,633	6,041,630	803,408	1,854,266	2,657,674
1998	803,408	1,138,930	1,942,338	1,478,271	1,349,726	3,213,633	6,041,630	803,408	1,854,266	2,657,674
1999	803,408	1,138,930	1,942,338	1,478,271	1,349,726	3,213,633	6,041,630	803,408	1,854,266	2,657,674
2000	803,408	1,138,930	1,942,338	1,478,271	1,349,726	3,213,633	6,041,630	803,408	1,854,266	2,657,674
2001	803,408	1,138,930	1,942,338	1,478,271	1,349,726	3,213,633	6,041,630	803,408	1,854,266	2,657,674
2002	803,408	1,138,930	1,942,338	1,478,271	1,349,726	3,213,633	6,041,630	803,408	1,854,266	2,657,674
2003	803,408	1,138,930	1,942,338	1,478,271	1,349,726	3,213,633	6,041,630	803,408	1,854,266	2,657,674
2004	803,408	1,138,930	1,942,338	1,478,271	1,349,726	3,213,633	6,041,630	803,408	1,854,266	2,657,674
2005	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2006	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2007	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2008	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2009	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2010	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2011	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2012	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2013	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2014	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2015	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2016	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2017	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2018	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2019	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2020	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2021	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2022	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2023	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2024	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2025	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2026	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2027	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2028	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2029	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2030	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2031	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2032	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2033	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2034	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
2035	875,157	1,138,930	2,014,087	1,610,289	1,470,264	3,500,628	6,581,181	875,157	2,019,862	2,895,019
TOTAL	41,670,299	56,703,799	98,374,098	75,329,015	71,527,283	176,704,407	323,560,705	40,073,174	92,474,134	132,547,308

CHARGE FOR EACH CONTRACTOR

(in dollars)

Sheet 2 of 4

Calendar Year	SAN JOAQUIN VALLEY AREA									
	Devil's Den Water District	Dudley Ridge Water District	Empire West Side Irrigation District	Hacienda Water 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)	(19)	(20)	
1967	0	0	0	0	0	0	0	0	0	0
1968	13,060	40,695	10,469	4,511	0	165,522	3,177	8,073	94,097	339,604
1969	17,804	61,267	3,281	3,744	0	337,686	4,200	8,805	98,734	535,521
1970	37,905	104,405	19,950	16,625	0	964,915	8,645	17,290	211,470	1,381,205
1971	48,508	129,596	21,720	16,652	0	1,377,772	9,412	20,272	247,608	1,871,540
1972	61,891	160,756	24,113	20,898	0	2,175,835	11,253	43,131	884,159	3,382,036
1973	77,328	195,541	26,664	25,776	386,638	2,373,167	13,333	27,553	347,531	3,475,531
1974	90,239	224,202	27,909	30,700	446,545	2,781,595	13,954	29,770	414,438	4,059,352
1975	97,774	329,688	27,413	32,896	481,560	3,041,048	14,620	33,702	794,695	4,853,396
1976	114,612	414,245	29,388	39,712	549,549	3,931,785	15,673	35,966	837,439	5,968,369
1977	119,360	312,532	28,195	39,473	569,545	4,071,218	15,977	40,289	586,737	5,783,326
1978	133,724	342,208	31,588	48,436	674,939	4,950,959	20,006	41,065	618,080	6,861,005
1979	145,178	395,523	34,294	56,013	772,757	5,901,986	22,863	41,725	715,600	8,089,939
1980	145,178	419,529	34,294	59,443	812,766	6,440,401	25,149	48,012	760,182	8,744,954
1981	145,178	443,535	34,294	64,015	855,062	7,048,546	26,292	49,155	804,764	9,470,841
1982	145,178	468,684	34,294	67,445	909,932	7,609,824	28,578	51,441	849,346	10,164,722
1983	177,427	599,340	41,912	86,618	1,166,547	10,081,201	39,118	64,265	1,092,503	13,348,931
1984	227,252	807,014	53,682	116,310	1,585,397	13,814,069	55,471	85,891	1,469,087	18,214,173
1985	227,252	844,591	53,682	123,468	1,680,235	14,692,658	60,839	87,680	1,538,873	19,309,278
1986	227,252	882,168	53,682	128,836	1,760,757	15,564,090	66,207	91,259	1,610,448	20,384,699
1987	227,252	919,745	53,682	134,204	1,862,752	16,451,626	71,575	93,048	1,680,235	21,494,119
1988	227,252	957,322	53,682	139,572	1,948,643	17,280,112	71,575	96,627	1,750,021	22,524,806
1989	309,891	1,356,686	73,202	200,087	2,762,174	24,378,867	97,603	136,645	2,481,564	31,796,719
1990	359,180	1,631,866	84,846	240,396	3,382,516	29,237,834	113,128	161,207	3,111,010	38,321,983
1991	359,180	1,631,866	84,846	240,396	3,382,516	29,237,834	113,128	161,207	3,111,010	38,321,983
1992	359,180	1,631,866	84,846	240,396	3,382,516	29,237,834	113,128	161,207	3,111,010	38,321,983
1993	359,180	1,631,866	84,846	240,396	3,382,516	29,237,834	113,128	161,207	3,111,010	38,321,983
1994	359,180	1,631,866	84,846	240,396	3,382,516	29,237,834	113,128	161,207	3,111,010	38,321,983
1995	359,180	1,631,866	84,846	240,396	3,382,516	29,237,834	113,128	161,207	3,111,010	38,321,983
1996	408,131	1,854,266	96,409	273,159	3,843,505	33,222,536	128,545	183,177	3,534,996	43,544,724
1997	408,131	1,854,266	96,409	273,159	3,843,505	33,222,536	128,545	183,177	3,534,996	43,544,724
1998	408,131	1,854,266	96,409	273,159	3,843,505	33,222,536	128,545	183,177	3,534,996	43,544,724
1999	408,131	1,854,266	96,409	273,159	3,843,505	33,222,536	128,545	183,177	3,534,996	43,544,724
2000	408,131	1,854,266	96,409	273,159	3,843,505	33,222,536	128,545	183,177	3,534,996	43,544,724
2001	408,131	1,854,266	96,409	273,159	3,843,505	33,222,536	128,545	183,177	3,534,996	43,544,724
2002	408,131	1,854,266	96,409	273,159	3,843,505	33,222,536	128,545	183,177	3,534,996	43,544,724
2003	408,131	1,854,266	96,409	273,159	3,843,505	33,222,536	128,545	183,177	3,534,996	43,544,724
2004	408,131	1,854,266	96,409	273,159	3,843,505	33,222,536	128,545	183,177	3,534,996	43,544,724
2005	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2006	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2007	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2008	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2009	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2010	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2011	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2012	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2013	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2014	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2015	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2016	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2017	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2018	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2019	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2020	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2021	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2022	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2023	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2024	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2025	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2026	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2027	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2028	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2029	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2030	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2031	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2032	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2033	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2034	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
2035	444,580	2,019,862	105,019	297,553	4,186,751	36,189,488	140,025	199,536	3,850,690	47,433,504
TOTAL	22,626,734	99,504,584	5,403,736	14,580,384	203,901,720	1,761,738,838	6,871,968	9,957,115	189,740,025	2,314,325,104

TABLE B-21: TOTAL DELTA WATER

(in dollars)

Sheet 3 of 4

Calendar Year	SOUTHERN CALIFORNIA AREA									
	Antelope Valley East Kern Water Agency	Castaic Lake Water Agency	Coachella Valley County 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)
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	160,756	12,860	41,797	4,662	64,303	1,367	67,518	13,021	369,739	85,202
1973	222,207	29,835	51,552	7,279	79,994	2,577	95,104	26,131	54,908	14,338
1974	279,090	53,027	59,539	10,791	93,030	3,721	121,869	39,631	465,150	114,427
1975	319,822	68,533	63,964	13,250	100,515	4,752	140,722	50,989	479,733	119,705
1976	431,018	93,061	74,449	17,045	117,550	6,269	174,366	67,591	538,772	137,142
1977	469,922	107,142	79,144	19,079	122,180	6,861	189,848	77,255	540,410	139,097
1978	600,180	141,095	97,313	24,428	147,413	9,687	236,913	98,345	631,768	165,313
1979	720,173	174,899	115,033	29,836	171,470	11,889	284,640	117,285	714,457	189,760
1980	791,047	202,334	124,418	33,151	194,332	13,146	310,932	127,802	748,751	198,905
1981	857,348	229,769	138,376	36,466	217,195	14,518	338,367	133,746	783,045	209,193
1982	929,366	252,632	152,334	39,781	240,058	15,775	364,659	140,834	817,339	218,338
1983	1,225,224	343,677	203,231	52,669	321,324	20,956	479,192	180,780	1,040,811	278,015
1984	1,682,024	481,345	282,151	72,649	447,347	28,809	656,705	242,641	1,395,722	370,403
1985	1,796,545	520,712	303,999	77,838	483,135	30,956	697,861	253,735	1,458,351	390,086
1986	1,909,276	552,921	325,847	83,028	518,922	32,925	740,806	264,829	1,520,979	415,138
1987	2,022,007	588,708	347,696	88,217	563,657	35,072	781,962	275,923	1,592,555	440,189
1988	2,136,528	631,654	369,544	93,406	608,392	37,040	823,118	287,018	1,664,130	465,241
1989	3,067,184	912,591	533,719	134,449	890,630	53,438	1,183,440	406,518	2,366,880	668,583
1990	3,736,040	1,111,479	653,312	164,035	1,077,541	65,048	1,436,721	489,277	2,870,613	814,519
1991	3,914,216	1,173,699	653,312	164,035	1,077,541	65,048	1,436,721	489,277	2,901,723	814,519
1992	3,914,216	1,173,699	653,312	164,035	1,077,541	65,048	1,436,721	489,277	2,901,723	814,519
1993	3,914,216	1,173,699	653,312	164,035	1,077,541	65,048	1,436,721	489,277	2,901,723	814,519
1994	3,914,216	1,173,699	653,312	164,035	1,077,541	65,048	1,436,721	489,277	2,901,723	814,519
1995	3,914,216	1,173,699	653,312	164,035	1,077,541	65,048	1,436,721	489,277	2,901,723	814,519
1996	4,447,668	1,333,658	742,349	186,391	1,224,394	73,914	1,632,525	555,958	3,297,187	925,526
1997	4,447,668	1,333,658	742,349	186,391	1,224,394	73,914	1,632,525	555,958	3,297,187	925,526
1998	4,447,668	1,333,658	742,349	186,391	1,224,394	73,914	1,632,525	555,958	3,297,187	925,526
1999	4,447,668	1,333,658	742,349	186,391	1,224,394	73,914	1,632,525	555,958	3,297,187	925,526
2000	4,447,668	1,333,658	742,349	186,391	1,224,394	73,914	1,632,525	555,958	3,297,187	925,526
2001	4,447,668	1,333,658	742,349	186,391	1,224,394	73,914	1,632,525	555,958	3,297,187	925,526
2002	4,447,668	1,333,658	742,349	186,391	1,224,394	73,914	1,632,525	555,958	3,297,187	925,526
2003	4,447,668	1,333,658	742,349	186,391	1,224,394	73,914	1,632,525	555,958	3,297,187	925,526
2004	4,447,668	1,333,658	742,349	186,391	1,224,394	73,914	1,632,525	555,958	3,297,187	925,526
2005	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2006	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2007	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2008	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2009	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2010	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2011	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2012	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2013	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2014	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2015	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2016	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2017	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2018	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2019	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2020	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2021	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2022	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2023	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2024	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2025	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2026	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2027	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2028	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2029	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2030	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2031	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2032	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2033	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2034	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
2035	4,844,869	1,452,760	808,645	203,036	1,333,739	80,514	1,778,319	605,609	3,591,644	1,008,181
TOTAL	233,146,788	69,415,251	39,033,114	9,793,869	64,212,148	3,881,206	86,128,962	29,517,237	175,578,375	49,089,534

CHARGE FOR EACH CONTRACTOR

(in dollars)

Sheet 4 of 4

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA				FUTURE CONTRACTOR	GRAND TOTAL
	San Geronio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC & WCD	Total	South Bay	
	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)
1967	0	0	0	0	0	0	0	0	0	241,150
1968	0	0	0	0	0	1,050	875	1,925	0	583,631
1969	0	0	0	0	0	1,225	929	2,154	0	827,578
1970	0	0	0	0	0	3,848	1,995	5,843	0	2,160,886
1971	0	0	0	0	0	4,546	3,186	7,732	0	2,696,792
1972	0	2,043,211	0	2,864,436	0	4,929	3,778	8,707	0	7,206,052
1973	0	2,317,893	0	2,901,818	0	7,059	4,444	11,503	0	7,456,998
1974	0	4,231,933	0	5,472,208	0	8,336	4,931	13,267	0	10,683,514
1975	0	5,073,286	0	6,435,271	0	9,416	5,117	14,533	0	12,440,851
1976	0	6,422,167	0	8,079,430	0	7,004	5,780	12,784	0	15,299,760
1977	0	7,104,278	0	8,855,216	0	16,917	5,827	22,744	0	15,869,924
1978	0	9,016,389	0	11,168,844	0	23,165	6,844	30,009	0	19,436,061
1979	0	10,935,192	0	13,464,634	0	29,721	7,773	37,494	0	23,109,001
1980	77,733	12,082,896	11,431	14,916,878	0	45,725	8,116	53,841	0	25,607,696
1981	89,164	13,229,456	22,863	16,299,506	112,472	62,301	8,459	183,232	0	27,931,511
1982	100,596	14,376,017	34,294	17,682,023	123,183	78,876	8,802	210,861	0	15,869,924
1983	136,912	18,972,105	55,882	23,310,778	135,234	116,655	11,176	263,065	0	39,556,421
1984	193,254	26,094,633	89,469	32,037,152	147,284	175,360	14,852	337,496	0	54,066,263
1985	211,148	27,891,178	107,363	34,222,907	159,335	219,200	15,389	393,924	0	57,693,957
1986	230,831	29,691,301	143,151	36,429,954	176,741	263,040	15,926	455,707	0	61,318,043
1987	250,514	31,489,635	178,939	38,655,074	195,487	306,880	16,462	518,829	0	65,019,081
1988	270,197	33,289,759	232,620	40,908,647	214,232	368,614	17,178	600,024	0	68,815,030
1989	395,293	47,850,023	390,413	58,853,161	235,655	586,840	24,401	846,896	0	98,448,351
1990	489,277	56,889,052	565,638	70,362,552	257,078	777,752	29,413	1,064,243	0	118,484,228
1991	489,277	56,889,052	565,638	70,634,058	257,078	777,752	30,544	1,065,374	0	118,912,416
1992	489,277	56,889,052	565,638	70,634,058	257,078	777,752	31,676	1,066,506	0	119,069,099
1993	489,277	56,889,052	565,638	70,634,058	257,078	777,752	32,807	1,067,637	0	119,225,780
1994	489,277	56,889,052	565,638	70,634,058	257,078	777,752	33,938	1,068,768	0	119,379,008
1995	489,277	56,889,052	565,638	70,634,058	257,078	777,752	35,352	1,070,182	0	119,414,986
1996	555,958	64,642,225	642,727	80,260,480	257,078	883,749	41,777	1,182,604	0	135,565,177
1997	555,958	64,642,225	642,727	80,260,480	257,078	883,749	43,384	1,184,211	0	135,631,057
1998	555,958	64,642,225	642,727	80,260,480	257,078	883,749	44,991	1,185,818	0	135,632,664
1999	555,958	64,642,225	642,727	80,260,480	257,078	883,749	46,598	1,187,425	0	135,634,271
2000	555,958	64,642,225	642,727	80,260,480	257,078	883,749	48,526	1,189,353	0	135,636,199
2001	555,958	64,642,225	642,727	80,260,480	257,078	883,749	50,454	1,191,281	0	135,638,127
2002	555,958	64,642,225	642,727	80,260,480	257,078	883,749	52,382	1,193,209	0	135,640,055
2003	555,958	64,642,225	642,727	80,260,480	257,078	883,749	54,310	1,195,137	0	135,641,983
2004	555,958	64,642,225	642,727	80,260,480	257,078	883,749	56,239	1,197,066	0	135,643,912
2005	605,609	70,415,123	700,126	87,428,174	257,078	962,673	63,361	1,283,112	0	147,635,077
2006	605,609	70,415,123	700,126	87,428,174	257,078	962,673	65,812	1,285,563	0	147,637,528
2007	605,609	70,415,123	700,126	87,428,174	257,078	962,673	68,262	1,288,013	0	147,639,978
2008	605,609	70,415,123	700,126	87,428,174	257,078	962,673	70,713	1,290,464	0	147,642,429
2009	605,609	70,415,123	700,126	87,428,174	257,078	962,673	73,163	1,292,914	0	147,644,879
2010	605,609	70,415,123	700,126	87,428,174	257,078	962,673	75,614	1,295,365	0	147,647,330
2011	605,609	70,415,123	700,126	87,428,174	257,078	962,673	78,414	1,298,165	0	147,650,130
2012	605,609	70,415,123	700,126	87,428,174	257,078	962,673	81,215	1,300,966	0	147,652,931
2013	605,609	70,415,123	700,126	87,428,174	257,078	962,673	84,365	1,304,116	0	147,656,081
2014	605,609	70,415,123	700,126	87,428,174	257,078	962,673	87,516	1,307,267	0	147,659,232
2015	605,609	70,415,123	700,126	87,428,174	257,078	962,673	91,016	1,310,767	0	147,662,732
2016	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
2017	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
2018	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
2019	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
2020	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
2021	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
2022	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
2023	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
2024	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
2025	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
2026	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
2027	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
2028	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
2029	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
2030	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
2031	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
2032	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
2033	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
2034	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
2035	605,609	70,415,123	700,126	87,428,174	257,078	962,673	94,517	1,314,268	0	147,666,233
TOTAL	28,668,805	3,408,094,502	32,148,702	4,228,708,493	13,325,211	44,803,823	3,554,422	61,683,456	0	7,159,199,164

TABLE B-22: TOTAL TRANSPORTATION^(a) AND

(in dollars)

Sheet 1 of 4

Calendar Year	NORTH BAY AREA			SOUTH BAY AREA				CENTRAL COASTAL AREA		
	Napa County FC & WCD	Solano County FC & WCD	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	11,750	43,787	0	55,537	0	0	0
1963	0	0	0	148,327	184,567	439,266	772,160	0	0	0
1964	0	0	0	166,418	260,113	609,051	1,035,582	8,168	20,293	28,461
1965	0	0	0	240,246	359,857	1,136,938	1,737,041	13,774	33,548	47,322
1966	18,560	0	18,560	265,968	369,846	1,388,409	2,024,223	22,822	54,884	77,706
1967	41,856	0	41,856	354,458	497,692	1,833,706	2,685,856	40,838	97,117	137,955
1968	127,336	0	127,336	400,466	573,627	2,140,039	3,114,132	66,293	156,727	223,020
1969	247,892	0	247,892	461,085	518,260	2,245,720	3,225,065	120,977	284,524	405,501
1970	269,493	0	269,493	526,263	574,371	2,738,232	3,838,866	133,853	314,672	448,525
1971	214,158	0	214,158	463,649	609,068	2,757,682	3,830,399	134,887	317,175	452,062
1972	218,168	0	218,168	595,346	755,851	2,977,873	4,329,070	140,946	331,434	472,380
1973	215,334	26,386	241,720	580,149	649,040	3,068,208	4,297,397	137,912	324,406	462,318
1974	233,447	27,739	261,186	619,055	678,221	3,269,099	4,566,375	139,128	327,293	466,421
1975	231,085	30,517	261,602	676,410	724,439	3,159,321	4,560,170	155,486	365,519	521,005
1976	274,230	34,107	308,337	833,899	917,951	3,424,884	5,176,734	263,773	618,472	882,245
1977	272,748	37,536	310,284	716,146	822,951	3,147,059	4,686,156	274,013	642,780	916,793
1978	287,573	40,741	328,314	855,187	975,924	3,587,474	5,418,585	284,810	668,112	952,922
1979	278,930	45,805	324,735	964,326	1,037,942	3,645,619	5,647,887	293,296	688,118	981,414
1980	437,227	234,021	671,248	979,023	1,049,172	3,670,948	5,699,143	321,745	748,840	1,070,585
1981	476,465	284,924	761,389	996,724	1,070,000	3,666,226	5,732,950	345,760	830,798	1,176,558
1982	518,484	350,920	869,404	1,001,645	1,076,609	3,617,243	5,695,497	387,861	948,953	1,336,814
1983	945,346	748,870	1,694,216	1,535,145	1,681,973	5,422,836	8,639,954	520,674	1,286,437	1,807,111
1984	1,382,762	1,219,059	2,601,821	1,782,952	1,965,482	6,128,935	9,877,369	981,477	2,518,222	3,499,699
1985	1,565,966	1,281,925	2,847,891	1,833,728	2,025,972	6,144,973	10,004,673	1,514,529	3,999,072	5,513,601
1986	1,610,393	1,374,111	2,984,504	1,905,274	2,115,098	6,226,072	10,246,444	2,358,781	6,430,717	8,789,498
1987	1,643,040	1,494,794	3,137,834	1,948,396	2,167,077	6,215,243	10,330,716	2,434,168	6,586,161	9,020,329
1988	1,690,890	1,752,573	3,443,463	2,037,700	2,271,527	6,339,140	10,648,367	2,548,143	6,851,716	9,399,859
1989	1,882,211	2,014,237	3,896,448	2,283,333	2,556,892	7,009,297	11,849,522	2,797,847	7,413,110	10,210,957
1990	2,018,519	2,277,963	4,296,482	2,465,844	2,769,869	7,486,399	12,722,112	3,058,411	8,004,193	11,062,604
1991	2,040,741	2,280,678	4,321,419	2,590,539	2,866,431	7,625,220	13,082,190	3,128,826	8,098,622	11,227,448
1992	2,059,878	2,280,072	4,339,950	2,707,305	2,953,914	7,741,366	13,402,585	3,193,517	8,175,890	11,369,407
1993	2,074,807	2,276,579	4,351,386	2,808,317	3,023,939	7,816,843	13,649,099	3,260,763	8,258,233	11,518,996
1994	2,110,099	2,291,287	4,401,386	2,976,165	3,112,984	8,062,076	14,151,225	3,357,384	8,406,046	11,763,430
1995	2,128,086	2,289,300	4,417,386	3,090,992	3,109,022	8,052,678	14,252,692	3,421,279	8,476,732	11,898,011
1996	2,242,753	2,285,689	4,528,442	3,363,760	3,256,199	8,402,726	15,022,685	3,579,081	8,760,443	12,339,524
1997	2,272,076	2,290,366	4,562,442	3,509,719	3,274,738	8,446,871	15,231,328	3,664,825	8,871,818	12,536,643
1998	2,292,084	2,289,096	4,581,180	3,503,086	3,268,675	8,432,379	15,204,140	3,727,116	8,934,197	12,661,313
1999	2,320,983	2,292,197	4,613,180	3,518,324	3,282,589	8,465,520	15,266,433	3,808,758	9,034,128	12,842,886
2000	2,337,222	2,288,958	4,626,180	3,503,908	3,269,426	8,434,171	15,207,505	3,862,723	9,080,647	12,943,370
2001	2,350,317	2,292,518	4,642,835	3,515,210	3,279,791	8,459,124	15,254,125	3,959,278	9,103,654	13,062,932
2002	2,360,233	2,295,161	4,655,394	3,526,831	3,290,393	8,484,296	15,301,520	4,027,405	9,076,701	13,104,106
2003	2,368,799	2,296,595	4,665,394	3,531,669	3,294,810	8,494,818	15,321,297	4,143,060	9,126,513	13,269,573
2004	2,378,374	2,298,020	4,676,394	3,539,083	3,301,579	8,510,934	15,351,596	4,243,447	9,148,575	13,392,022
2005	2,452,033	2,294,758	4,746,791	3,659,030	3,411,057	8,771,372	15,841,459	4,374,976	9,276,529	13,651,505
2006	2,459,244	2,292,547	4,751,791	3,651,052	3,403,771	8,754,024	15,808,847	4,363,808	9,261,003	13,624,811
2007	2,477,355	2,296,436	4,773,791	3,668,000	3,419,250	8,790,889	15,878,131	4,387,586	9,294,051	13,681,637
2008	2,487,207	2,295,584	4,782,791	3,662,858	3,414,555	8,779,691	15,857,112	4,380,857	9,284,698	13,665,555
2009	2,499,716	2,296,075	4,795,791	3,666,027	3,417,447	8,786,594	15,870,068	4,391,517	9,299,507	13,691,024
2010	2,508,817	2,295,016	4,803,833	3,659,626	3,411,631	8,772,907	15,844,164	4,375,515	9,277,706	13,653,221
2011	2,519,769	2,294,064	4,813,833	3,658,320	3,410,438	8,770,063	15,838,821	4,374,969	9,276,945	13,651,914
2012	2,539,473	2,298,360	4,837,833	3,675,779	3,426,381	8,808,031	15,910,191	4,404,790	9,318,384	13,723,174
2013	2,553,833	2,300,000	4,853,833	3,570,851	3,329,611	8,459,277	15,359,739	4,403,636	9,316,791	13,720,427
2014	2,559,384	2,296,449	4,855,833	3,522,937	3,263,778	8,268,835	15,055,550	4,395,720	9,296,823	13,692,543
2015	2,569,323	2,295,510	4,864,833	3,481,236	3,197,726	7,898,430	14,577,392	4,365,610	9,249,534	13,615,144
2016	2,573,189	2,300,085	4,873,274	3,481,937	3,192,117	7,770,685	14,444,739	4,388,712	9,272,874	13,661,586
2017	2,554,257	2,295,720	4,849,977	3,432,986	3,147,237	7,618,725	14,198,948	4,345,808	9,196,051	13,541,859
2018	2,488,423	2,295,194	4,783,617	3,392,032	3,108,532	7,498,536	13,999,100	4,325,162	9,153,931	13,479,093
2019	2,467,683	2,299,053	4,766,736	3,370,771	3,089,286	7,434,034	13,894,091	4,349,538	9,184,267	13,533,805
2020	2,544,230	2,299,518	4,843,748	3,370,064	3,088,194	7,423,977	13,882,235	4,355,053	9,190,061	13,545,114
2021	2,541,804	2,299,518	4,841,322	3,367,124	3,085,362	7,417,224	13,869,710	4,353,812	9,187,080	13,540,892
2022	2,540,474	2,299,518	4,839,992	3,366,523	3,084,646	7,413,040	13,864,209	4,352,888	9,184,806	13,537,694
2023	2,539,470	2,273,132	4,812,602	3,365,911	3,084,063	7,409,876	13,859,850	4,352,429	9,183,686	13,536,115
2024	2,536,591	2,271,779	4,808,370	3,365,389	3,083,539	7,407,913	13,856,841	4,352,087	9,182,832	13,534,919
2025	2,528,033	2,269,002	4,797,035	3,364,592	3,082,638	7,404,207	13,851,437	4,351,692	9,181,878	13,533,570
2026	2,523,188	2,265,412	4,788,600	3,363,753	3,081,856	7,402,116	13,847,725	4,248,753	8,941,408	13,190,161
2027	2,520,219	2,261,982	4,782,201	3,362,354	3,080,479	7,397,196	13,840,029	4,246,494	8,935,730	13,182,224
2028	2,516,672	2,258,777	4,775,449	3,359,575	3,077,847	7,389,026	13,826,448	4,240,230	8,920,986	13,161,216
2029	2,512,328	2,253,713	4,766,041	3,357,526	3,075,955	7,384,232	13,817,713	4,238,543	8,916,853	13,155,396
2030	2,508,160	2,248,539	4,756,699	3,356,853	3,075,338	7,382,607	13,814,798	4,225,127	8,878,259	13,103,386
2031	2,486,616	2,231,533	4,718,149	3,355,607	3,074,198	7,379,834	13,809,639	4,201,457	8,809,675	13,011,132
2032	2,451,662	2,203,501	4,655,163	3,354,235	3,072,941	7,376,787	13,803,963	4,170,872	8,718,009	12,888,881
2033	2,279,453	1,972,677	4,252,130	3,351,961	3,070,862	7,371,833	13,794,656	4,060,244	8,431,654	12,491,898
2034	2,044,496	1,687,742	3,732,238	3,349,553	3,068,661	7,366,587	13,784,801	3,638,992	7,291,766	10,930,758
2035	1,949,964	1,670,407	3,620,371	3,348,466	3,067,667	7,364,218	13,780,351	3,159,363	5,933,783	9,093,146
TOTAL	125,171,631	114,534,345	239,705,976	180,646,748	174,784,731	462,397,680	817,829,159	203,054,074	451,263,052	654,317,126

a) Unadjusted for prior overpayments or underpayments of charges. See Table B-19 for total Transportation Charge for each contractor.
 b) See Table B-21 for total Delta Water Charge for each contractor.

DELTA WATER^(b) CHARGE FOR EACH CONTRACTOR

(in dollars)

Sheet 2 of 4

Calendar Year	SAN JOAQUIN VALLEY AREA									
	Devil's Den Water District	Dudley Ridge Water District	Empire West Side Irrigation District	Hacienda Water 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)	(19)	(20)
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	63,740	0	0	0	0	63,740
1966	0	0	0	0	119,284	0	0	0	0	119,284
1967	0	0	0	0	231,687	0	0	0	0	231,687
1968	83,888	214,149	20,785	9,926	392,681	1,644,267	15,876	18,805	284,497	2,684,874
1969	135,928	229,939	15,324	27,395	467,787	2,609,885	15,510	18,476	390,608	3,910,852
1970	178,675	294,127	38,707	52,323	514,514	3,734,200	20,076	29,448	438,427	5,300,497
1971	193,396	314,307	41,446	43,636	545,472	5,008,993	25,767	33,670	635,683	6,842,370
1972	228,887	366,226	44,659	49,611	570,255	6,869,896	25,051	61,957	1,834,343	10,050,885
1973	234,285	382,755	43,354	51,941	964,286	6,988,497	27,399	38,172	691,635	9,422,324
1974	256,422	483,499	44,565	59,668	1,082,371	7,664,716	28,102	41,343	919,707	10,580,393
1975	283,606	650,865	45,000	67,187	1,133,816	8,979,905	29,758	46,913	1,412,867	12,649,917
1976	323,471	706,377	48,023	76,840	1,275,218	10,371,905	31,672	51,445	1,329,469	14,214,420
1977	342,940	580,971	46,002	77,974	1,275,135	10,919,805	31,891	54,297	1,045,418	14,374,433
1978	403,328	687,944	54,244	98,643	1,483,189	13,547,424	38,106	60,298	1,244,494	17,617,670
1979	394,565	731,986	58,193	105,412	1,614,901	14,465,564	41,740	64,289	1,311,773	18,788,423
1980	395,273	759,437	54,831	109,416	1,657,521	15,441,135	43,891	65,635	1,362,045	19,889,184
1981	394,530	802,589	55,145	117,532	1,718,811	16,716,039	45,629	67,852	1,441,079	21,359,206
1982	387,764	824,495	53,786	120,452	1,758,772	17,483,642	47,383	68,884	1,478,103	22,223,281
1983	561,419	1,271,313	82,577	185,571	2,681,317	27,429,438	78,530	104,505	2,299,592	34,694,262
1984	648,211	1,602,347	100,544	232,896	3,366,768	34,338,487	104,325	134,704	2,898,362	43,426,644
1985	649,299	1,675,680	100,735	246,832	3,548,559	36,453,206	113,641	137,628	3,033,380	45,958,960
1986	661,362	1,763,929	101,819	259,572	3,755,859	38,903,751	124,014	144,349	3,198,971	48,913,626
1987	660,368	1,832,830	101,680	269,486	3,937,825	40,988,353	132,589	146,925	3,325,946	51,396,002
1988	671,953	1,933,093	103,303	283,972	4,173,441	43,724,902	134,734	154,390	3,510,298	54,690,086
1989	752,729	2,358,790	122,372	349,966	5,048,993	51,547,740	160,166	195,499	4,289,923	64,826,178
1990	802,958	2,670,893	134,146	395,637	5,740,690	57,402,302	175,866	221,181	5,057,910	72,601,583
1991	805,122	2,677,145	134,472	396,558	5,754,772	57,554,784	176,297	221,628	5,069,830	72,790,608
1992	804,872	2,676,636	134,446	396,484	5,753,824	57,542,757	176,266	221,590	5,068,866	72,775,741
1993	801,894	2,666,819	133,934	395,037	5,730,279	57,300,056	175,570	220,896	5,050,114	72,474,599
1994	812,321	2,696,433	135,475	399,400	5,800,173	58,038,398	177,618	222,922	5,106,564	73,389,304
1995	811,530	2,694,896	135,395	399,175	5,794,664	57,989,401	177,513	222,867	5,103,636	73,329,077
1996	857,616	2,909,225	146,539	430,747	6,238,678	61,782,315	192,383	244,247	5,512,260	78,314,010
1997	861,097	2,918,605	147,026	432,128	6,261,410	62,020,268	193,030	244,872	5,530,140	78,608,576
1998	859,881	2,915,738	146,876	431,707	6,253,923	61,943,798	192,835	244,695	5,524,676	78,514,129
1999	862,615	2,923,508	147,280	432,849	6,271,941	62,136,112	193,371	245,237	5,539,489	78,752,402
2000	859,928	2,916,242	146,902	431,781	6,254,829	61,953,909	192,869	244,737	5,525,637	78,526,834
2001	862,368	2,922,130	147,208	432,646	6,268,841	62,104,305	193,270	245,122	5,536,845	78,712,735
2002	864,162	2,927,440	147,485	433,431	6,281,425	62,236,300	193,639	245,487	5,546,972	78,876,341
2003	865,012	2,929,699	147,602	433,763	6,286,877	62,293,680	193,795	245,639	5,551,275	78,947,342
2004	866,257	2,933,450	147,797	434,316	6,295,533	62,385,569	194,055	245,899	5,558,428	79,061,304
2005	900,525	3,093,228	156,105	457,853	6,625,109	65,206,737	205,137	261,868	5,863,045	82,769,607
2006	899,107	3,089,530	155,913	457,307	6,615,975	65,111,687	204,881	261,625	5,855,996	82,652,021
2007	902,035	3,097,651	156,336	458,505	6,635,428	65,315,983	205,443	262,173	5,871,473	82,905,027
2008	901,170	3,095,246	156,210	458,150	6,629,518	65,254,869	205,278	262,015	5,866,891	82,829,347
2009	901,695	3,096,707	156,286	458,365	6,633,142	65,292,072	205,378	262,109	5,869,675	82,875,429
2010	900,809	3,093,689	156,129	457,921	6,625,656	65,216,755	205,164	262,903	5,863,913	82,781,939
2011	900,532	3,093,040	156,095	457,825	6,623,999	65,199,519	205,120	261,861	5,862,673	82,760,664
2012	903,549	3,101,576	156,538	459,084	6,644,341	65,413,396	205,711	262,440	5,878,946	83,025,581
2013	904,239	3,103,486	156,637	459,367	6,648,645	65,460,224	205,845	262,574	5,882,586	83,083,603
2014	901,821	3,096,762	156,287	458,374	6,632,813	65,292,215	205,378	262,113	5,869,773	82,875,536
2015	901,074	3,094,582	156,175	458,052	6,636,843	65,237,682	205,226	261,967	5,865,614	82,744,215
2016	904,423	3,104,016	156,665	459,444	6,530,919	65,474,804	205,880	262,603	5,883,597	82,982,351
2017	901,148	3,094,918	156,193	458,101	6,396,854	65,246,444	205,251	261,985	5,866,257	82,587,151
2018	901,183	3,095,078	156,201	458,126	6,294,796	65,248,086	196,858	262,010	5,866,557	82,478,895
2019	903,906	3,102,585	156,592	459,233	6,257,488	65,439,475	196,880	262,503	5,880,872	82,659,534
2020	907,447	3,118,636	157,426	461,596	6,249,545	65,754,901	197,745	264,021	5,911,464	83,022,781
2021	907,447	3,118,636	157,426	461,596	6,228,235	65,754,901	197,606	264,021	5,911,464	83,001,332
2022	907,447	3,118,636	157,426	461,596	6,218,367	65,754,901	197,539	264,021	5,911,464	82,991,397
2023	907,447	3,118,636	157,426	461,596	6,214,109	65,754,901	197,509	264,021	5,911,464	82,987,109
2024	907,447	3,118,636	157,426	461,596	6,212,182	65,754,901	197,496	264,021	5,911,464	82,985,169
2025	907,447	3,118,636	157,426	461,596	6,209,982	65,754,901	197,477	264,021	5,911,464	82,982,950
2026	907,447	3,118,636	157,426	461,596	6,208,180	65,754,901	197,444	264,021	5,911,464	82,981,115
2027	907,447	3,118,636	157,426	461,596	6,206,372	65,754,901	197,431	264,021	5,911,464	82,979,294
2028	907,447	3,118,636	157,426	461,596	6,203,660	65,754,901	197,379	264,021	5,911,464	82,976,530
2029	907,447	3,118,636	157,426	461,596	6,201,752	65,754,901	197,336	264,021	5,911,464	82,974,579
2030	907,447	3,118,636	157,426	461,596	6,199,409	65,754,901	197,274	264,021	5,911,464	82,972,174
2031	907,447	3,118,636	157,426	461,596	6,194,962	65,754,901	197,160	264,021	5,911,464	82,967,613
2032	907,447	3,118,636	157,426	461,596	6,188,627	65,754,901	197,006	264,021	5,911,464	82,961,124
2033	907,447	3,118,636	157,426	461,596	6,178,667	65,754,901	196,718	264,021	5,911,464	82,950,876
2034	907,447	3,118,636	157,426	461,596	6,166,336	65,754,901	196,325	264,021	5,911,464	82,938,152
2035	907,447	3,118,636	157,426	461,596	6,152,075	65,754,901	195,855	264,021	5,911,464	82,923,421
TOTAL	49,486,300	159,196,777	8,372,855	23,433,153	331,961,047	3,352,004,068	10,332,957	13,432,588	301,290,554	4,249,510,299

TABLE B-22: TOTAL TRANSPORTATION^(a) AND

(in dollars)

Sheet 3 of 4

Calendar Year	SOUTHERN CALIFORNIA AREA									
	Antelope Valley East Kern Water Agency	Castaic Lake Water Agency	Coachella Valley County 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)
1962	0	0	0	0	0	0	0	0	0	0
1963	33,287	0	0	0	0	0	0	0	51,610	0
1964	62,406	19,871	14,156	4,280	36,678	1,130	27,924	8,120	81,235	34,544
1965	118,029	37,913	24,807	7,100	40,317	2,068	49,766	15,123	133,432	34,932
1966	214,785	71,840	44,375	12,368	72,590	3,732	89,706	27,529	230,605	60,980
1967	415,967	148,052	85,682	23,342	140,712	7,255	174,308	53,816	431,109	114,992
1968	730,553	310,448	151,424	41,160	249,135	12,773	308,133	94,750	776,350	207,379
1969	1,049,240	467,411	223,337	60,705	367,734	18,528	454,077	136,833	1,192,579	318,184
1970	1,365,829	595,911	313,083	89,144	515,743	25,044	627,497	183,450	1,760,998	462,910
1971	1,693,604	749,946	430,162	127,736	708,830	31,652	850,928	229,900	2,516,104	653,450
1972	2,164,871	942,467	597,524	183,662	980,223	43,395	1,165,390	285,314	3,714,569	938,927
1973	2,315,012	1,000,091	739,286	188,770	1,203,682	45,670	1,252,896	310,835	3,917,998	946,194
1974	2,433,410	1,074,112	761,479	201,357	1,241,385	48,508	1,308,502	328,864	4,388,577	1,086,105
1975	2,647,906	1,147,465	805,141	215,998	1,313,887	52,759	1,390,203	352,070	4,552,276	1,188,145
1976	3,125,536	1,145,129	864,528	229,484	1,410,478	57,476	1,470,795	379,670	4,757,968	1,261,204
1977	3,444,865	1,204,633	761,299	242,296	1,246,599	53,341	1,545,348	401,341	4,972,631	1,307,939
1978	4,739,553	1,375,804	991,100	274,630	1,595,098	59,620	1,669,460	429,063	5,359,582	1,491,381
1979	4,128,212	1,398,368	1,018,256	281,202	1,629,482	79,975	1,950,251	450,509	5,876,749	1,529,152
1980	4,511,024	1,535,675	1,069,881	302,816	1,732,564	79,804	2,081,490	464,289	6,314,339	1,641,552
1981	4,783,109	1,643,364	1,125,792	316,523	1,824,135	84,942	2,413,949	482,367	6,466,569	1,688,998
1982	4,920,717	1,663,212	1,153,457	326,924	1,871,435	87,221	2,455,095	503,921	6,397,957	1,671,826
1983	10,429,248	2,128,080	2,236,794	628,547	3,588,230	181,593	4,980,506	594,666	10,444,217	2,748,422
1984	13,146,163	2,315,118	2,748,479	723,953	4,405,473	227,497	6,161,340	708,294	11,710,937	3,099,036
1985	14,315,760	2,516,593	2,927,467	776,686	4,698,210	241,915	6,484,965	905,916	12,386,021	3,279,085
1986	15,822,506	2,613,925	3,160,769	845,920	5,077,682	259,549	6,937,902	1,003,216	13,317,651	3,553,713
1987	16,507,549	2,720,727	3,307,746	874,234	5,383,602	272,666	7,225,229	1,089,186	13,584,284	3,668,039
1988	17,723,279	2,780,616	3,590,031	962,737	5,912,109	293,630	7,753,995	1,199,126	14,885,494	4,022,440
1989	19,289,136	3,327,235	3,873,138	1,005,365	6,447,468	322,094	8,414,035	1,398,100	15,366,988	4,237,910
1990	20,678,978	3,598,714	4,172,415	1,096,039	6,881,083	346,116	8,974,745	1,564,659	16,848,026	4,635,835
1991	21,547,919	3,771,688	4,158,450	1,065,348	6,858,039	347,160	9,005,646	1,667,859	16,408,629	4,528,752
1992	21,590,493	3,779,134	4,182,605	1,088,038	6,897,883	347,871	9,021,099	1,770,603	16,735,664	4,588,718
1993	21,383,024	3,842,892	4,149,970	1,087,950	6,844,065	344,421	8,930,836	1,856,142	16,962,584	4,636,846
1994	21,964,301	3,821,183	4,266,958	1,118,713	7,037,017	354,091	9,184,834	2,001,270	17,303,594	4,729,880
1995	21,913,135	3,931,036	4,248,422	1,106,263	7,006,444	353,244	9,161,755	2,099,782	17,101,799	4,688,171
1996	22,342,883	4,072,134	4,298,051	1,101,010	7,088,289	360,382	9,311,166	2,265,301	17,117,007	4,726,395
1997	22,491,288	4,154,140	4,358,270	1,144,611	7,187,625	362,850	9,379,013	2,388,429	17,870,389	4,883,328
1998	22,443,080	4,221,148	4,333,454	1,124,169	7,146,687	362,049	9,356,672	2,492,253	17,531,035	4,815,290
1999	22,618,611	4,203,192	4,370,568	1,136,511	7,207,900	364,971	9,431,412	2,621,636	17,711,955	4,860,278
2000	22,449,874	4,242,929	4,337,737	1,128,137	7,153,755	362,162	9,359,538	2,710,602	17,523,088	4,807,522
2001	22,530,731	4,213,307	4,356,477	1,134,369	7,184,652	363,507	9,397,176	2,720,688	17,742,685	4,866,207
2002	22,651,395	4,370,162	4,377,630	1,137,335	7,219,552	365,514	9,444,023	2,735,790	17,661,510	4,847,914
2003	22,732,717	4,435,987	4,393,183	1,141,691	7,245,202	366,872	9,482,191	2,745,983	17,789,306	4,882,923
2004	22,822,569	4,518,925	4,412,376	1,148,397	7,276,859	368,366	9,520,114	2,757,232	17,884,211	4,905,949
2005	23,060,616	4,683,549	4,433,104	1,138,703	7,311,039	372,313	9,599,542	2,786,952	17,757,461	4,898,921
2006	23,024,697	4,657,486	4,451,626	1,169,562	7,341,600	371,719	9,580,901	2,782,486	18,312,011	5,004,398
2007	23,183,973	4,645,816	4,475,285	1,167,558	7,380,619	374,368	9,650,884	2,802,406	18,250,460	5,002,324
2008	23,135,555	4,827,530	4,444,647	1,139,541	7,330,074	373,561	9,629,579	2,796,352	17,858,998	4,931,365
2009	23,101,960	4,826,420	4,466,503	1,170,796	7,366,140	372,997	9,619,253	2,792,110	18,277,780	4,999,574
2010	23,097,503	4,866,059	4,442,951	1,144,654	7,327,283	372,930	9,613,261	2,791,588	17,907,126	4,934,257
2011	23,031,771	4,868,174	4,446,433	1,160,115	7,333,033	371,832	9,587,870	2,783,336	17,973,809	4,925,038
2012	23,212,293	4,936,222	4,482,836	1,170,060	7,393,073	374,837	9,666,062	2,805,916	18,316,322	5,019,635
2013	23,242,764	5,060,251	4,480,448	1,155,679	7,375,795	375,899	9,692,033	2,813,908	17,781,087	4,897,205
2014	23,055,642	5,084,254	4,437,366	1,145,759	7,318,665	372,137	9,596,839	2,786,012	17,760,050	4,888,692
2015	22,992,738	5,069,374	4,436,121	1,156,913	7,316,618	371,084	9,569,381	2,778,123	17,842,531	4,890,219
2016	23,087,415	5,061,835	4,457,193	1,164,368	7,351,374	372,605	9,613,052	2,789,657	18,061,004	4,947,934
2017	22,689,659	5,069,674	4,371,941	1,137,197	7,210,778	365,809	9,443,560	2,738,778	17,477,876	4,796,414
2018	22,449,216	4,997,205	4,298,042	1,096,764	7,088,891	361,532	9,337,163	2,707,153	16,766,679	4,640,462
2019	22,308,955	4,834,820	4,290,819	1,122,163	7,076,995	358,747	9,267,974	2,687,400	17,191,801	4,710,771
2020	22,103,424	5,563,674	4,206,723	1,084,401	6,938,293	354,079	9,130,859	2,654,685	16,445,226	4,536,516
2021	21,843,951	5,430,341	4,101,993	1,048,930	6,765,567	348,616	8,933,021	2,616,813	15,745,338	4,361,145
2022	21,710,077	5,340,500	4,046,795	1,031,512	6,674,535	346,109	8,825,458	2,598,804	15,328,760	4,259,521
2023	21,659,502	5,324,345	4,029,680	1,026,765	6,646,309	345,117	8,790,962	2,591,832	15,188,604	4,223,148
2024	21,641,396	5,284,100	4,021,584	1,022,564	6,632,955	344,795	8,778,814	2,589,478	15,101,659	4,203,336
2025	21,618,279	5,272,274	4,008,338	1,018,775	6,611,109	344,378	8,752,319	2,586,448	15,021,894	4,182,340
2026	21,605,381	5,262,512	3,998,454	1,016,079	6,594,808	344,126	8,732,303	2,584,714	14,943,949	4,161,605
2027	21,594,060	5,252,977	3,991,613	1,014,212	6,583,526	343,922	8,718,420	2,583,232	14,895,519	4,148,727
2028	21,583,331	5,241,318	3,986,853	1,012,868	6,575,676	343,720	8,708,849	2,581,785	14,864,844	4,140,650
2029	21,569,375	5,220,836	3,983,367	1,011,913	6,569,927	343,481	8,701,785	2,580,144	14,845,416	4,135,496
2030	21,537,920	5,170,141	3,977,141	1,010,165	6,559,660	342,999	8,689,264	2,576,600	14,806,663	4,125,392
2031	21,451,033	5,117,652	3,961,235	1,005,994	6,533,428	341,623	8,656,684	2,566,332	14,729,156	4,104,584
2032	21,348,620	5,082,798	3,943,759	1,001,539	6,504,607	340,036	8,620,630	2,554,438	14,649,554	4,082,826
2033	21,279,175	5,061,152	3,933,746	998,985	6,488,093	339,130	8,599,956	2,547,652	14,603,930	4,070,354
2034	21,206,389	5,050,144	3,929,508	997,911	6,481,104	338,742	8,591,165	2,544,748	14,584,876	4,065,123
2035	20,796,570	5,044,223	3,926,533	997,157	6,476,197	338,466	8,584,971	2,542,678	14,571,521	4,061,451
TOTAL	1,173,515,746	253,347,233	227,898,396	59,225,122	375,086,304	19,025,122	491,491,724	129,377,057	923,642,215	253,000,870

DELTA WATER^(b) CHARGE FOR EACH CONTRACTOR

(in dollars)

Sheet 4 of 4

Calendar Year	SOUTHERN CALIFORNIA AREA (continued)				FEATHER RIVER AREA				FUTURE CONTRACTOR	GRAND TOTAL
	San Geronio Pass Water Agency	The Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC & WCD	Total	South Bay	
	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)
1962	0	0	0	0	0	0	0	0	0	55,537
1963	0	692,316	0	777,213	0	0	0	0	57,712	1,607,085
1964	21,459	1,263,910	9,294	1,585,005	0	0	0	0	95,429	2,744,477
1965	21,611	2,183,484	17,676	2,686,260	0	0	395	395	164,836	4,699,594
1966	37,664	3,899,505	33,297	4,798,976	0	0	551	551	190,706	7,230,006
1967	70,922	7,691,038	68,007	9,425,202	0	0	549	549	247,675	12,770,780
1968	127,963	15,290,988	142,445	18,443,453	0	1,050	1,426	2,476	320,981	24,916,272
1969	196,551	23,070,970	214,599	27,770,748	0	1,225	4,046	5,271	388,399	35,953,723
1970	286,738	30,519,342	272,933	37,018,622	0	3,848	16,763	20,611	424,712	47,321,326
1971	405,613	39,903,364	342,014	48,643,303	0	4,546	18,819	23,365	414,467	60,420,124
1972	530,110	54,755,897	421,040	66,723,389	0	4,929	20,746	25,675	440,112	82,259,679
1973	578,737	59,568,498	435,125	72,502,794	0	7,059	21,374	28,433	413,801	87,368,787
1974	599,706	65,842,197	454,719	79,768,921	0	8,336	22,005	30,342	435,789	96,109,426
1975	630,253	71,576,221	478,439	86,350,763	0	9,416	23,123	32,539	446,547	104,822,543
1976	654,992	74,786,382	473,610	90,617,252	0	7,004	22,854	29,858	493,816	111,722,662
1977	683,659	73,112,776	493,462	89,470,189	0	16,917	23,642	40,559	438,566	110,236,980
1978	711,388	88,467,194	543,862	107,707,735	0	23,165	23,982	47,147	501,462	132,573,835
1979	699,921	89,703,376	529,966	109,275,419	0	29,721	24,911	54,632	508,255	135,580,765
1980	794,844	99,131,823	584,621	120,244,722	0	45,725	25,254	70,979	506,790	148,152,651
1981	879,384	104,008,484	635,113	126,352,729	112,472	62,301	25,597	200,370	507,541	156,090,743
1982	897,348	104,720,033	667,748	127,356,894	123,183	78,876	25,940	227,999	507,557	158,217,446
1983	1,204,465	146,942,119	829,382	186,916,269	135,234	116,655	28,314	280,203	514,261	234,546,276
1984	1,323,669	161,813,189	904,407	209,287,555	147,284	175,360	31,990	354,634	516,651	269,564,373
1985	1,871,044	167,512,142	1,007,824	218,923,628	159,335	219,200	32,527	411,062	516,727	284,176,542
1986	2,059,790	175,154,811	1,159,472	230,966,906	176,741	263,040	33,064	472,845	516,604	302,890,427
1987	2,152,257	179,190,494	1,313,550	237,289,563	195,487	306,880	33,600	535,967	516,404	312,226,815
1988	2,392,855	192,087,956	1,547,818	255,152,086	214,232	368,614	34,316	617,162	518,100	334,469,123
1989	2,541,036	219,725,056	2,052,219	287,999,780	235,655	586,840	41,539	864,034	517,560	380,164,479
1990	2,812,935	243,690,235	2,530,358	317,830,138	257,078	777,752	46,551	1,081,381	517,664	420,111,964
1991	2,742,139	246,330,200	2,602,251	321,034,080	257,078	777,752	47,682	1,082,512	517,583	424,055,840
1992	2,782,118	247,374,792	2,577,574	322,736,592	257,078	777,752	48,814	1,083,644	517,328	426,225,247
1993	2,812,986	253,758,297	2,597,124	329,207,137	257,078	777,752	49,945	1,084,775	518,263	432,804,255
1994	2,869,216	253,450,207	2,539,746	330,641,010	257,078	777,752	51,076	1,085,906	518,610	435,950,871
1995	2,842,303	258,968,808	2,588,503	336,009,665	257,078	777,752	52,490	1,087,320	519,037	441,513,188
1996	2,861,022	264,380,705	2,622,638	342,546,983	257,078	883,749	58,915	1,199,742	518,110	454,469,496
1997	2,962,075	271,715,217	2,672,098	351,569,333	257,078	883,749	60,522	1,201,349	518,213	464,227,884
1998	2,917,823	273,711,102	2,695,983	353,150,745	257,078	883,749	62,129	1,202,956	518,080	465,832,543
1999	2,945,570	274,867,300	2,700,704	355,040,608	257,078	883,749	63,736	1,204,563	518,180	468,238,252
2000	2,913,844	276,396,870	2,699,410	356,085,468	257,078	883,749	65,664	1,206,491	518,085	469,113,933
2001	2,949,478	275,949,928	2,652,776	356,061,981	257,078	883,749	67,592	1,208,419	518,688	469,461,715
2002	2,937,931	281,740,070	2,726,116	362,228,942	257,078	883,749	69,520	1,210,347	518,690	475,895,340
2003	2,959,069	285,907,483	2,738,672	366,821,279	257,078	883,749	71,448	1,212,275	518,719	480,755,879
2004	2,973,350	289,652,581	2,782,350	371,023,279	257,078	883,749	73,377	1,214,204	518,769	485,237,568
2005	2,965,567	296,191,840	2,829,029	378,028,636	257,078	962,673	80,499	1,300,250	518,230	496,856,478
2006	3,035,169	296,987,372	2,798,380	379,517,407	257,078	962,673	82,950	1,302,701	518,102	498,175,680
2007	3,032,032	296,750,474	2,783,365	379,499,564	257,078	962,673	85,400	1,305,151	518,290	498,561,591
2008	2,984,566	304,176,382	2,860,737	386,488,887	257,078	962,673	87,851	1,307,602	518,255	505,449,549
2009	3,031,677	304,573,990	2,848,325	387,447,525	257,078	962,673	90,301	1,310,052	518,276	506,508,165
2010	2,987,630	306,507,561	2,860,511	388,853,314	257,078	962,673	92,752	1,312,503	518,588	507,767,562
2011	2,985,567	307,725,928	2,836,258	390,029,164	257,078	962,673	95,552	1,315,303	518,579	508,928,278
2012	3,042,587	312,734,124	2,856,682	396,010,649	257,078	962,673	98,353	1,318,104	518,694	515,344,226
2013	2,965,482	315,570,196	2,894,366	398,305,113	257,078	962,673	101,503	1,321,254	473,633	517,117,602
2014	2,960,615	314,453,770	2,888,252	396,748,053	257,078	962,673	104,654	1,324,405	437,140	514,989,060
2015	2,964,087	311,819,790	2,853,361	394,060,340	257,078	962,673	107,759	1,327,510	382,701	511,572,135
2016	2,998,956	312,013,419	2,837,404	394,756,216	257,078	962,673	111,104	1,330,855	359,417	512,408,438
2017	2,905,886	307,046,255	2,813,274	388,067,101	257,078	962,673	111,106	1,330,857	318,766	504,894,659
2018	2,805,931	299,952,756	2,760,372	379,262,166	257,078	962,673	111,104	1,330,855	243,524	495,577,250
2019	2,853,030	293,824,481	2,669,050	373,197,006	257,078	962,673	108,538	1,328,289	180,546	489,560,007
2020	2,742,606	288,696,823	2,646,101	367,103,410	257,078	962,673	96,887	1,316,638	159,265	483,873,191
2021	2,633,039	280,363,109	2,586,993	356,778,856	257,078	962,673	96,080	1,315,831	155,365	473,503,308
2022	2,569,756	273,480,390	2,548,776	348,760,993	257,078	962,673	94,726	1,314,477	154,554	465,463,316
2023	2,547,110	271,190,877	2,545,363	346,109,614	257,078	962,673	94,726	1,314,477	153,847	462,773,614
2024	2,534,503	269,158,662	2,530,562	343,844,408	257,078	962,673	94,725	1,314,476	153,363	460,497,546
2025	2,521,479	268,193,305	2,526,297	342,657,235	257,078	962,673	94,722	1,314,473	151,588	459,288,288
2026	2,508,577	267,344,501	2,522,165	341,619,174	257,078	962,673	94,720	1,314,471	151,156	457,892,402
2027	2,500,581	266,663,313	2,518,011	340,808,113	257,078	962,673	94,718	1,314,469	150,309	457,056,639
2028	2,495,570	266,070,884	2,512,500	340,118,848	257,078	962,673	94,717	1,314,468	148,828	456,321,787
2029	2,492,382	265,203,861	2,502,817	339,160,800	257,078	962,673	94,717	1,314,468	148,000	455,336,997
2030	2,486,116	263,179,057	2,478,686	336,939,804	257,078	962,673	94,717	1,314,468	147,693	453,049,022
2031	2,473,295	260,895,230	2,453,729	334,289,975	257,078	962,673	94,717	1,314,468	147,179	450,258,155
2032	2,459,918	259,240,539	2,437,051	332,266,315	257,078	962,673	94,717	1,314,468	146,636	448,036,550
2033	2,452,252	258,230,809	2,427,000	331,032,234	257,078	962,673	94,717	1,314,468	145,820	445,982,082
2034	2,449,043	257,736,981	2,422,238	330,397,972	257,078	962,673	94,717	1,314,468	144,957	443,243,346
2035	2,446,793	257,456,115	2,419,529	329,662,204	257,078	962,673	94,717	1,314,468	144,567	440,538,528
TOTAL	150,487,640	137,826,129	137,826,129	19,297,863,712	13,325,211	44,803,823	4,415,254	62,544,288	27,841,347	25,349,611,907

TABLE B-23: EQUIVALENT UNIT CHARGE FOR WATER SUPPLY FOR EACH CONTRACTOR^(a)

(in dollars per acre-foot)^(b)

Project Service Area and Water Supply Contractor	Transportation Charge				Delta Water Charge	Total Equivalent Unit Charge
	Capital Cost Component	Minimum OMP&R Component	Variable OMP&R Component	Total		
	(1)	(2)	(3)	(4)	(5)	(6)
FEATHER RIVER AREA						
City of Yuba City	0	0	0	0	26.78	26.78
County of Butte	0	0	0	0	28.91	28.91
Plumas County Flood Control and Water Conservation District	15.18	0.21	0.00	15.39	26.71	42.10
Feather River Area	0.82	0.01	0.00	0.83	28.25	29.08
NORTH BAY AREA						
Napa County Flood Control and Water Conservation District	45.88	13.79	25.00	84.67	35.64	120.31
Solano County Flood Control and Water Conservation District	19.78	5.02	9.36	34.16	31.02	65.18
North Bay Area	29.77	8.38	15.35	53.50	32.79	86.29
SOUTH BAY AREA						
Alameda County Flood Control and Water Conservation District, Zone 7	13.07	8.99	24.38	46.44	24.89	71.33
Alameda County Water District	12.49	7.16	20.94	40.59	20.97	61.56
Santa Clara Valley Water District	16.22	6.18	18.02	40.42	18.24	58.66
South Bay Area	14.93	6.85	19.70	41.48	19.93	61.41
SAN JOAQUIN VALLEY AREA						
County of Kings	3.58	1.42	8.90	13.90	22.86	36.76
Devil's Den Water District	7.81	6.15	11.48	25.44	17.96	43.40
Dudley Ridge Water District	4.25	1.66	7.82	13.73	19.86	33.59
Empire West Side Irrigation District	3.02	1.20	6.51	10.73	17.26	27.99
Hacienda Water District	4.49	1.76	8.12	14.37	20.59	34.96
Kern County Water Agency	7.60	3.36	12.41	23.37	23.05	46.42
Oak Flat Water District	1.54	0.73	4.95	7.22	18.56	25.78
Tulare Lake Basin Water Storage District	4.11	1.62	7.71	13.44	20.00	33.44
San Joaquin Valley Area	7.02	3.11	11.62	21.75	22.47	44.22
CENTRAL COASTAL AREA						
San Luis Obispo County Flood Control and Water Conservation District	110.65	19.15	64.82	194.62	42.90	237.52
Santa Barbara County Flood Control and Water Conservation District	171.52	26.09	64.05	261.66	56.85	318.51
Central Coastal Area	149.31	23.56	64.33	237.20	51.76	288.96
SOUTHERN CALIFORNIA AREA						
Antelope Valley-East Kern Water Agency	28.38	7.53	86.82	122.73	26.38	149.11
Castaic Lake Water Agency	76.74	22.09	64.76	163.59	51.37	214.96
Coachella Valley County Water District	36.42	12.04	100.91	149.37	25.87	175.24
Crestline-Lake Arrowhead Water Agency	44.69	14.61	103.90	163.20	26.55	189.75
Desert Water Agency	36.97	12.23	101.80	151.00	26.06	177.06
Littlerock Creek Irrigation District	25.32	7.77	86.01	119.10	25.93	145.03
Mojave Water Agency	35.95	11.94	109.85	157.74	28.68	186.42
Palmdale Water District	41.78	12.90	103.08	157.76	45.87	203.63
San Bernardino Valley Municipal Water District	49.46	16.14	74.19	139.79	26.38	166.17
San Gabriel Valley Municipal Water District	46.02	15.21	74.75	135.98	26.40	162.38
San Geronio Pass Water Agency	59.74	19.72	87.55	167.01	30.10	197.11
The Metropolitan Water District of Southern California	50.42	15.47	61.88	127.77	30.47	158.24
Ventura County Flood Control District	46.93	13.79	68.13	128.85	30.06	158.91
Southern California Area	48.45	14.89	66.91	130.25	30.04	160.29
ALL AREAS	30.47	9.68	41.27	81.42	26.65	108.06

a) Hypothetical charges which, if assessed on all entitlement water delivered to date, all surplus water delivered prior to May 1, 1973 and all entitlement water now estimated to be delivered during the remainder of the project repayment period (Table B5-B), 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; 4.462 percent per annum.

b) Metric conversion is dollars per acre-foot times 0.0008107 giving dollars per cubic metre.

TABLE B-24: EQUIVALENT UNIT COSTS OF WATER DELIVERED FROM OR THRU EACH AQUEDUCT REACH^(a)

(in dollars per acre-foot)^(b)

Aqueduct Reach	Unit Costs of Reach (c)				Cumulative Unit Costs from the Delta			
	Capital Costs	Minimum OMP&R	Variable OMP&R	Total	Capital Costs	Minimum OMP&R	Variable OMP&R	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
NORTH BAY AQUEDUCT								
1	14.62	4.21	8.44	27.27	14.62	4.21	8.44	27.27
2	5.87	.93	.00	6.80	20.49	5.14	8.44	34.07
3	25.05	8.43	18.04	51.52	45.54	13.57	26.48	85.59
SOUTH BAY AQUEDUCT								
1	5.15	4.54	14.58	24.27	6.32	5.34	21.06	32.72
2	.47	.54	.00	1.01	6.79	5.88	21.06	33.73
4	1.67	.83	.00	2.50	8.46	6.71	21.06	36.23
5	3.67	.77	.00	4.44	12.13	7.48	21.06	40.67
6	.21	.09	.00	.30	12.34	7.57	21.06	40.97
7	1.68	.09	.00	1.77	14.02	7.66	21.06	42.74
8	2.53	.15	.00	2.68	16.55	7.81	21.06	45.42
9	4.92	.51	.00	5.43	21.47	8.32	21.06	50.85
CALIFORNIA AQUEDUCT								
1	1.17	.80	6.48	8.45	1.17	.80	6.48	8.45
2A	.89	.15	.00	1.04	2.06	.95	6.48	9.49
2B	.43	.12	.00	.55	2.49	1.07	6.48	10.04
3	.35	.08	.00	.43	2.84	1.15	6.48	10.47
4	.66	.46	2.96	4.08	3.50	1.61	9.44	14.55
5	.60	.10	.00	.70	4.10	1.71	9.44	15.25
6	.16	.03	.00	.19	4.26	1.74	9.44	15.44
7	.46	.06	.00	.52	4.72	1.80	9.44	15.96
8C	.01	.02	.00	.03	4.73	1.82	9.44	15.99
8D	.29	.09	.00	.38	5.02	1.91	9.44	16.37
9	.21	.07	.00	.28	5.23	1.98	9.44	16.65
10A	.24	.08	.00	.32	5.47	2.06	9.44	16.97
11B	.36	.06	.00	.42	5.83	2.12	9.44	17.39
12D	.34	.05	.00	.39	6.17	2.17	9.44	17.78
12E	.22	.09	.00	.31	6.39	2.26	9.44	18.09
13B	.49	.11	.00	.60	6.88	2.37	9.44	18.69
14A	1.81	.75	5.64	8.20	8.69	3.12	15.08	26.89
14B	.28	.10	.00	.38	8.97	3.22	15.08	27.27
14C	.24	.07	.00	.31	9.21	3.29	15.08	27.58
15A	1.30	.74	5.88	7.92	10.51	4.03	20.96	35.50
16A	2.13	1.17	13.91	17.21	12.64	5.20	34.87	52.71
17E	7.66	2.12	50.94	60.72	20.30	7.32	85.81	113.43
17F	2.06	.04	.00	2.10	22.36	7.36	85.81	115.53
18A	1.43	.24	-1.84	-.17	23.79	7.60	83.97	115.36
19	1.32	.37	.00	1.69	25.11	7.97	83.97	117.05
19C	13.63	.56	.00	14.19	38.74	8.53	83.97	131.24
20A	1.18	.36	.00	1.54	26.29	8.33	83.97	118.59
20B	1.63	.29	.00	1.92	27.92	8.62	83.97	120.51
21	.82	.20	.00	1.02	28.74	8.82	83.97	121.53
22A	.54	.14	.00	.68	29.28	8.96	83.97	122.21
22B	6.42	2.74	15.09	24.25	35.70	11.70	99.06	146.46
23	.36	.10	.00	.46	36.06	11.80	99.06	146.92
24	4.29	1.30	.00	5.59	40.35	13.10	99.06	152.51
25	2.19	.04	.00	2.23	42.54	13.14	99.06	154.74
26A	3.08	1.76	-24.73	-19.89	45.62	14.90	74.33	134.85
28G	4.59	.31	.00	4.90	50.21	15.21	74.33	139.75
28H	4.49	.28	.00	4.77	54.70	15.49	74.33	144.52
28J	13.43	6.24	.00	19.67	68.13	21.73	74.33	164.19
WEST BRANCH								
29A	2.13	2.09	6.39	10.61	24.49	9.45	92.20	126.14
29F	1.77	.35	.00	2.12	26.26	9.80	92.20	128.26
29G	4.41	1.03	-14.12	-8.68	30.67	10.83	78.08	119.58
29H	3.21	1.27	.00	4.48	33.88	12.10	78.08	124.06
29J	5.78	.25	-22.33	-16.30	39.66	12.35	55.75	107.76
30	9.42	1.42	.00	10.84	49.08	13.77	55.75	118.60
COASTAL BRANCH								
31A	5.47	6.33	5.28	17.08	10.49	8.24	14.72	33.45
33A	95.81	5.06	44.66	145.53	106.30	13.30	59.38	178.98
34	9.13	.21	.00	9.34	115.43	13.51	59.38	188.32
35	31.27	.49	.00	31.76	146.70	14.00	59.38	220.08

a) Representative of water transportation costs only; does not include conservation costs. The Delta Water Rate should be added to these values in order to approximate total water costs at canalside. Includes surplus water prior to May 1, 1973.

b) Metric conversion is dollars per acre-foot times .0008107 equals dollars per cubic metre.

c) Hypothetical charges which, if assessed on all entitlement water delivered to date, all surplus water delivered prior to May 1, 1973, and all entitlement water now estimated to be delivered during the remainder of the project repayment period (Table B-5B), would provide a sum at the end of the period financially equivalent to all Transportation Charge and Delta Water Charge payments required under a water supply contract, considering interest at the project interest rate; 4.462 percent per annum.

TABLE B-25: ANNUAL SURPLUS WATER DELIVERIES

(in acre-feet)^(a)

Area/Agency	Calendar Year				
	1973 ^(b)	1974	1975	1976	1977
SOUTH BAY AREA					
Alameda County Flood Control and Water Conservation District, Zone 7	0	0	0	3,636	0
Alameda County Water District	0	0	0	4,147	0
Santa Clara Valley Water District	<u>2,499</u>	<u>2,934</u>	<u>18,470</u>	<u>24,705</u>	<u>0</u>
Total	2,499	2,934	18,470	32,488	0
SAN JOAQUIN VALLEY AREA					
Devil's Den Water District	4,104	4,128	7,495	5,727	0
Dudley Ridge Water District	13,192	33,391	40,555	30,922	0
Empire West Side Irrigation District	2,814	1,539	3,448	3,457	0
Hacienda Water District	5,600	1,972	3,759	3,720	0
Kern County Water Agency	163,774	299,433	410,820	442,150	0
Oak Flat Water District	1,013	3,471	3,576	3,840	0
Tulare Lake Basin Water Storage District	<u>63,988</u>	<u>68,989</u>	<u>132,206</u>	<u>57,806</u>	<u>0</u>
Total	254,485	412,923	601,859	547,622	0
SOUTHERN CALIFORNIA AREA					
Littlerock Creek Irrigation District	<u>80</u>	<u>67</u>	<u>356</u>	<u>0</u>	<u>0</u>
Total	80	67	356	0	0
GRAND TOTAL	257,064	415,924	620,685	580,110	0

a) Metric conversion is acre-feet times 1233.5 equals cubic metres.

b) May through December only.

TABLE B-26: POWER COSTS FOR PUMPING SURPLUS WATER

(in dollars)

Area/Pumping Plant	Calendar Year									
	1973 ^(a)		1974		1975		1976		1977	
	Capacity	Energy	Capacity	Energy	Capacity	Energy	Capacity	Energy	Capacity	Energy
SOUTH BAY AQUEDUCT										
<u>Reach 1</u>										
South Bay and Del Valle Pumping Plants	5,290	6,302	21,773	7,561	32,288	47,597	41,897	83,722	0	0
CALIFORNIA AQUEDUCT										
<u>Reach 1</u>										
Delta Pumping Plant	0	231,691	0	374,506	298,709	617,396	60,502	597,636	0	0
<u>Reach 4</u>										
Dos Amigos Pumping Plant	37,033	102,725	81,328	181,827	126,806	264,000	63,788	225,126	0	0
<u>Reach 14A</u>										
Buena Vista Pumping Plant	25,622	53,375	69,381	95,596	99,676	99,745	85,415	103,213	0	0
<u>Reach 15A</u>										
Wheeler Ridge Pumping Plant	29,816	12,819	62,301	22,550	30,049	313	8,579	4,885	0	0
<u>Reach 16A</u>										
Wind Gap Pumping Plant	0	1,697	0	5,599	0	661	0	5,385	0	0
<u>Reach 17E</u>										
A. D. Edmonston (Tehachapi Pumping Plant)	0	526	0	450	0	2,391	0	0	0	0
<u>Reach 31A</u>										
Las Perillas & Badger Hill Pumping Plants	15,588	24,245	31,511	33,406	32,231	49,501	30,449	45,101	0	0
TOTAL	113,349	433,380	266,294	721,495	619,759	1,081,604	290,630	1,065,068	0	0
COMBINED TOTAL	546,729		987,789		1,701,363		1,355,698		0	

a) May through December only.

TABLE B-27: POWER, REPLACEMENT, AND ADMINISTRATIVE CHARGE
FOR SURPLUS WATER DELIVERIES

(in dollars)

Area/Agency	Calendar Year				
	1973	1974	1975	1976	1977
SOUTH BAY AREA					
Alameda County FC&WCD, Zone 7					
Capacity	0	0	0	5,873	0
Energy	0	0	0	13,116	0
Replacement	0	0	0	252	0
Administrative	0	0	0	1,640	0
Total	0	0	0	20,881	0
Alameda County Water District					
Capacity	0	0	0	6,126	0
Energy	0	0	0	14,959	0
Replacement	0	0	0	286	0
Administrative	0	0	0	1,758	0
Total	0	0	0	23,129	0
Santa Clara Valley Water District					
Capacity	5,290	21,773	42,153	32,954	0
Energy	8,554	10,203	65,969	89,116	0
Replacement	-	-	1,216	1,703	0
Administrative	1,916	3,451	5,023	7,675	0
Total	15,760	35,427	114,361	131,448	0
SAN JOAQUIN VALLEY AREA					
Devil's Den Water District					
Capacity	2,722	3,308	7,972	4,473	0
Energy	8,712	9,105	17,011	13,047	0
Replacement	-	0	259	288	0
Administrative	1,573	1,187	2,038	1,779	0
Total	13,007	13,600	27,280	19,587	0
Dudley Ridge Water District					
Capacity	2,603	6,394	23,216	6,629	0
Energy	17,235	44,892	58,225	44,658	0
Replacement	-	-	1,052	1,273	0
Administrative	5,056	10,006	11,029	10,804	0
Total	24,894	61,292	93,522	63,364	0
Empire West Side Irrigation District					
Capacity	342	324	2,333	685	0
Energy	3,676	2,069	4,950	4,993	0
Replacement	-	-	89	143	0
Administrative	1,078	460	938	1,074	0
Total	5,096	2,853	8,310	6,895	0
Hacienda Water District					
Capacity	244	654	2,665	1,588	0
Energy	7,316	2,652	5,397	5,373	0
Replacement	-	-	97	153	0
Administrative	2,146	953	1,022	2,197	0
Total	9,706	4,259	9,181	9,311	0
Kern County Water Agency					
Capacity	90,152	216,862	441,640	220,439	0
Energy	302,474	555,925	732,538	792,366	0
Replacement	-	-	15,889	24,127	0
Administrative	62,767	95,360	111,724	162,001	0
Total	455,393	868,147	1,301,791	1,198,933	0
Oak Flat Water District					
Capacity	0	0	1,644	424	0
Energy	913	3,125	3,557	3,956	0
Replacement	-	-	58	119	0
Administrative	728	998	972	1,216	0
Total	1,641	4,123	6,231	5,715	0
Tulare Lake Basin Water Storage District					
Capacity	11,808	16,713	97,316	11,425	0
Energy	83,596	92,750	189,808	83,484	0
Replacement	-	-	3,428	2,378	0
Administrative	24,523	40,687	35,954	19,750	0
Total	119,927	150,150	326,506	117,037	0
SOUTHERN CALIFORNIA AREA					
Littlerock Creek Irrigation District					
Capacity	188	266	820	14	0
Energy	904	774	4,149	0	0
Replacement	-	-	138	0	0
Administrative	63	47	97	6	0
Total	1,155	1,087	5,204	20	0
TOTAL, ALL CONTRACTORS					
Capacity	113,349	266,294	619,759	290,630	0
Energy	433,380	721,495	1,081,604	1,065,068	0
Replacement	-	-	22,226	30,722	0
Administrative	99,850	153,149	168,797	209,900	0
Total	646,579	1,140,938	1,892,386	1,596,320	0

TABLE B-28: PROJECTED ANNUAL SURPLUS WATER DELIVERIES

(in acre-feet)^(a)

Area/Agency	Calendar Year					
	1978	1979	1980	1981	1982	1983
SOUTH BAY AREA						
Alameda County FC&WCD, Zone 7	0	2,900	2,200	872	2,000	2,000
Alameda County WD	0	11,347	7,255	2,166	7,294	11,268
Santa Clara Valley WD	0	21,977	13,265	3,685	11,600	16,823
Total	0	36,224	22,720	6,723	20,894	30,091
SAN JOAQUIN VALLEY AREA						
Devil's Den WD	0	7,300	6,747	1,624	5,800	7,300
Dudley Ridge WD	0	31,842	19,500	4,964	18,728	27,861
Empire West Side ID	0	2,760	1,592	384	1,370	1,950
Hacienda WD	0	4,508	2,762	717	2,695	4,026
Kern County WA	0	491,006	309,678	81,642	318,765	491,640
Oak Flat WD	0	2,999	1,904	542	1,780	2,643
Tulare Lake Basin WSD	0	57,608	35,336	8,998	33,950	50,778
Total	0	598,023	377,519	98,871	383,088	586,198
SOUTHERN CALIFORNIA AREA						
Antelope Valley-East Kern WA	0	80,490	75,817	25,470	66,624	56,627
Littlerock Creek ID	0	165	165	165	165	165
San Bernardino Valley MWD	0	14,772	14,772	14,772	14,772	14,772
Total	0	95,427	90,754	40,407	81,561	71,564
GRAND TOTAL	0	729,674	490,993	146,001	485,543	687,853

a) Metric conversion is acre-feet times 1233.5 equals cubic metres.

TABLE B-29: PROJECTED POWER COSTS FOR PUMPING SURPLUS WATER^(a)

(in dollars)

Area/Pumping Plant	Calendar Year					
	1978	1979	1980	1981	1982	1983 (b)
SOUTH BAY AQUEDUCT						
<u>Reach 1</u>						
South Bay & Del Valle Pumping Plants	0	149,775	91,003	33,309	127,487	668,270
CALIFORNIA AQUEDUCT						
<u>Reach 1</u>						
Delta Pumping Plant	0	1,237,582	1,436,618	219,162	1,285,651	6,467,378
<u>Reach 4</u>						
Dos Amigos Pumping Plant	0	470,380	332,191	104,812	573,043	3,077,229
<u>Reach 14A</u>						
Buena Vista Pumping Plant	0	290,537	221,520	110,767	333,354	1,507,288
<u>Reach 15A</u>						
Wheeler Ridge Pumping Plant	0	182,274	187,676	135,928	309,533	987,905
<u>Reach 16A</u>						
Wind Gap Pumping Plant	0	394,790	372,637	122,195	547,138	1,869,428
<u>Reach 17E</u>						
A. D. Edmonston (Tehachapi) Pumping Plant	0	1,352,816	5,387,704	696,755	1,386,996	5,062,391
<u>Reach 18A</u>						
Cottonwood Power Plant	0	0	0	0	-6,516	-289,727
<u>Reach 22B</u>						
Pearblossom Pumping Plant	0	30,693	154,694	30,621	30,693	318,377
<u>Reach 26A</u>						
Devil Canyon Power Plant	0	-53,556	-53,562	-53,562	-13,392	-495,432
<u>Reach 31A</u>						
Las Perillas & Badger Hill Pumping Plants	0	57,452	34,147	8,821	53,396	325,384
TOTAL	0	4,112,743	8,164,628	1,408,808	4,627,383	19,498,491

a) Estimated costs for capacity and energy which would be incurred in delivering the annual amounts of surplus water shown in Table B-28.

b) Based on rates under current suppliers contract for first three months of year and on estimated rates which will prevail for the balance of year.

TABLE B-30: PROJECTED UNIT POWER RATES FOR PUMPING SURPLUS WATER^(a)

(in dollars per acre-foot)^(b)

Area/Pumping Plant	Calendar Year					
	1978	1979	1980	1981	1982	1983
SOUTH BAY AQUEDUCT						
<u>Reach 1</u>						
South Bay & Del Valle Pumping Plants						
Unit Rate	0	4.135	4.005	4.954	6.102	22.208
Cumulative Rate	0	5.831	6.931	6.455	8.750	31.610
CALIFORNIA AQUEDUCT						
<u>Reach 1</u>						
Delta Pumping Plant						
Unit Rate	0	1.696	2.926	1.501	2.648	9.402
Cumulative Rate	0	1.696	2.926	1.501	2.648	9.402
<u>Reach 4</u>						
Dos Amigos Pumping Plant						
Unit Rate	0	0.681	0.712	0.755	1.238	4.697
Cumulative Rate	0	2.377	3.638	2.256	3.886	14.099
<u>Reach 14A</u>						
Buena Vista Pumping Plant						
Unit Rate	0	1.444	1.404	1.907	2.236	8.800
Cumulative Rate	0	3.821	5.042	4.163	6.122	22.899
<u>Reach 15A</u>						
Wheeler Ridge Pumping Plant						
Unit Rate	0	1.429	1.669	2.934	2.970	9.403
Cumulative	0	5.250	6.711	7.097	9.092	32.302
<u>Reach 16A</u>						
Wind Gap Pumping Plant						
Unit Rate	0	3.667	3.721	2.832	5.941	21.451
Cumulative Rate	0	8.917	10.432	9.929	15.033	53.753
<u>Reach 17E</u>						
A.D. Edmonston Tehachapi Pumping Plant						
Unit Rate	0	14.176	59.366	17.243	17.006	70.739
Cumulative Rate	0	23.093	69.798	27.172	32.039	124.492
<u>Reach 18A</u>						
Cottonwood Power Plant						
Unit Rate	0	0	0	0	-0.083	-4.192
Cumulative Rate	0	23.093	69.798	27.172	31.956	120.300
<u>Reach 22B</u>						
Pearblossom Pumping Plant						
Unit Rate	0	2.078	10.472	2.073	2.078	21.553
Cumulative Rate	0	25.171	80.270	29.245	34.034	141.853
<u>Reach 26A</u>						
Devil Canyon Power Plant						
Unit Rate	0	-3.626	-3.626	-3.626	-0.907	-33.539
Cumulative Rate	0	21.545	76.644	25.619	33.127	108.314
<u>Reach 31A</u>						
Las Perillas & Badger Hill Pumping Plants						
Unit Rate	0	1.398	1.271	1.327	2.174	9.464
Cumulative Rate	0	3.775	4.909	3.583	6.060	23.563

a) Rates are based on estimated costs of capacity and energy required to make the deliveries shown in Table B-28.

b) Metric conversion is dollars per acre-foot times 0.0008107 equals dollars per cubic metre.

TABLE B-31: COMMITMENT FOR THE COST OF POWER FOR PUMPING SURPLUS WATER^(a)

(in dollars)

Contractor	Year of Obligation					
	1978	1979	1980	1981	1982	1983 ^(c)
Antelope Valley-East Kern Water Agency						
Surplus Water Requested (acre-feet)	0	0	0	0	43,216	0
Obligation Incurred (dollars)	0	0	0	0	668,300	0
Devil's Den Water District						
Surplus Water Requested (acre-feet)	0	0	0	0	4,000	1,825
Obligation Incurred (dollars)	0	0	0	0	18,100	5,900
Dudley Ridge Water District						
Surplus Water Requested (acre-feet)	43,300	23,100	39,100	37,000	42,805	10,380
Obligation Incurred (dollars)	15,800	29,000	27,100	48,000	126,400	27,800
Empire Westside Irrigation District						
Surplus Water Requested (acre-feet)	0	0	0	0	3,000	700
Obligation Incurred (dollars)	0	0	0	0	8,900	1,900
Hacienda Water District						
Surplus Water Requested (acre-feet)	4,600	4,900 ^(b)	5,200	5,600	5,900	1,500
Obligation Incurred (dollars)	2,000	0	3,600	6,700	17,800	4,100
Kern County Water Agency						
Surplus Water Requested (acre-feet)	584,790	462,100	554,900	509,617	777,073	58,797
Obligation Incurred (dollars)	278,200	873,000	655,500	802,500	2,863,200	238,300
Santa Clara Valley Water District						
Surplus Water Requested (acre-feet)	12,000	12,000	12,000	12,000	12,000	10,000
Obligation Incurred (dollars)	13,300	10,800	22,800	65,000	95,700	53,500
Tulare Lake Basin Water Storage District						
Surplus Water Requested (acre-feet)	170,400	140,000	203,500	158,700	154,800	34,900
Obligation Incurred (dollars)	30,800	173,000	141,200	98,000	452,600	93,600
Totals						
Surplus Water Requested (acre-feet)	815,090	642,100	814,700	722,917	1,042,794	118,102
Obligation Incurred (dollars)	340,100	1,085,800	850,200	1,020,200	4,251,000	425,100

a) Metric conversion is acre-feet times 1233.5 equals cubic metres.

b) Power not ordered to pump this amount as the request was not made in time to allow the State to place an order resulting in a rate advantage.

c) Commitments made for deliveries during first three months of year only as existing power contracts not applicable beyond that time.

INDEX TO TABULAR MATERIAL IN BULLETIN

SUBJECT MATTER	BULLETIN 132-78			CORRESPONDING TABLE NOS. IN PREVIOUS BULLETINS 132															
	TABLE NO.	TABLE TITLE	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963		
MAIN TEXT (with allowance for future capital price escalation, for financial planning purposes)																			
PROJECTED ANNUAL OPERATIONS	1	Annual Water Requirements	1	1	1	1	1	1	1	1	1	3	4	5	7	8	6,9		
	4	Annual Project Energy Requirements for Pumping	4	4	4	3	3	3	3	3	3	4,5	6,7	6,7	8,9	9,10	10,11		
ACTUAL OPERATIONS FOR PRIOR YEAR	2	Summary of 1977 Entitlement and Surplus Water Service to Long-term Contractors	2	2	2	none	none	none	none	none	none	none	none	none	none	none	none		
	3	Water Deliveries in 1977	3	3	3	2	2	2	2	2	none	none	none	none	none	none	none		
	5	Water Quality Measurements at Selected Stations in 1977	5	5	5	4	4	none	none	none	none								
PROJECTED ANNUAL FINANCING OF CAPITAL AND OPERATING EXPENDITURES	6	Monthly Power Operations in 1977	6	6	6	5	5	7	7	7	7	none	none	none	none	none	none		
	7	Project Financial Analysis, December 31, 1977	*	7	7	6	6	8	14-16	15	14-16	21-24	23-26	23,24 26	24-27	24,25 27-31	40,42		
	8	Project Capital Expenditures	7	8	8	7	7	9	9,11	8,10	8,11	10,13	19,15	19,15	20,16	22,17	12		
	9	Bond Sales and Project Interest Rates	*	9	9	8	8	10	8	none	none	none	none	none	none	none	none		
	10	Project Operating Costs	8	10	10	9	9	11	12,13	11,12	12,13	18,19	14,16	14,16	15,17	15,20	15		
	11	Annual Service on Bonds Sold as of December 31, 1977	*	11	11	10	10	12,13	none	none	none	none	none	none	none	21	none		
12	Annual Service on Assumed Future Bond Sales	*	12	12	11	11	12,13	18	17	18	26	28	28	29	34	43			
APPENDIX B (No allowance for future price escalation, for billing purposes)																			
AQUEDUCT REACHES	B-1	Factors for Distributing Reach Capital Costs Among Contractors	B-1	B-1	B-1	B-1	B-1	B-1	B-1	B-2	B-2	B-2	B-3	B-3	B-3	C-3	26-29		
	B-2	Factors for Distributing Reach Minimum OMP&R Costs Among Contractors	B-2	B-2	B-2	B-2	B-2	B-2	B-2	B-2	B-2	B-2	B-3	B-3	B-3	C-3	26-29		
VARIABLE COSTS	B-3	Power Costs and Credits and Annual Replacement Deposits for Each Aqueduct Pumping and Power Recovery Plant	B-3	B-3	B-3	B-3	B-3	B-3	B-3	B-3	B-3	B-4	B-8	B-8	B-9	C-7	none		
ANNUAL WATER DELIVERY QUANTITIES	B-4	Annual Entitlements to Project Water	B-4	B-4	B-4	B-4	B-4	B-4	B-4	B-4	B-4	B-6	5	4	6	7	6		
	B-5A	Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor	B-5A	B-5A	B-5	B-5	B-5	B-5	B-5	B-5	B-5	B-7	B-4	B-4	B-5	C-4	5		
	B-5B	Annual Water Quantities Delivered to Each Contractor	B-5B	B-5B	B-5	none	none	none	none	none	none	none	none	none	none	none	none		
	B-6	Annual Water Quantities conveyed thru Each Pumping and Power Recovery Plant of Project Transportation Facilities	B-6	B-6	B-6	B-6	B-6	B-6	B-6	B-6	B-6	B-3	B-5	B-5	B-6	C-5	8		
RECONCILIATION OF CAPITAL EXPENDITURES	B-7	Reconciliation of Capital Costs Allocated to Water Supply and Power Generation for the Period 1952-2035	B-7	B-7	B-7	B-7	B-7	B-7	B-7	B-7	B-7	B-8	none	none	none	none	none		
	B-8	Capital Costs of Requested Delivery Structures	B-8	B-8	B-8	B-8	B-8	B-8	B-8	B-8	B-8	B-8	B-9	none	none	none	none		
	B-9	Capital Costs of Requested Excess Peaking Capacity	B-9	B-9	B-9	B-9	B-9	B-9	B-9	B-9	B-9	B-9	B-10	B-6	B-6	B-7	none		
COSTS PAID THRU.	TRANSPORTATION CHARGE	B-10	Capital Costs of Each Aqueduct Reach to be Reimbursed thru Capital Cost Component of Transportation Charge	B-10	B-10	B-10	B-10	B-10	B-10	B-10	B-10	B-10	B-11	B-7	B-7	B-8	C-6	17-19	
		B-11	Minimum OMP&R Costs of Each Aqueduct Reach to be Reimbursed thru Minimum OMP&R Component of Transportation Charge	B-11	B-11	B-11	B-11	B-11	B-11	B-11	B-11	B-11	B-11	B-13	B-9	B-9	B-11	C-8	20-22
	DELTA WATER CHARGE	B-12	Variable OMP&R Costs to be Reimbursed thru Variable OMP&R Component of Transportation Charge	B-12	B-12	B-12	B-12	B-12	B-12	B-12	B-12	B-12	B-12	B-14	B-10	B-10	B-12	C-9	23-25
		B-13	Capital and Operating Costs of Project Conservation Facilities to be Reimbursed Thru Delta Water Charge	B-13	B-13	B-13	B-13	B-13	B-13	B-13	B-13	B-13	B-13	B-12	none	none	none	none	16
RE-DETERMINED ANNUAL TRANSPORTATION CHARGE FOR EACH WATER CONTRACTOR	B-14	Capital Costs of Transportation Facilities Allocated to Each Contractor	B-14	B-14	B-14	B-14	B-14	B-14	B-14	B-14	B-14	B-14	B-17	B-11	B-11	B-13	C-10	33	
	B-15	Capital Cost Component of Transportation Charge for Each Contractor	B-15	B-15	B-15	B-15	B-15	B-15	B-15	B-15	B-15	B-15	B-18	B-12	B-12	B-14	C-11	34	
	B-16	Minimum OMP&R Component of Transportation Charge for Each Contractor	B-16	B-16	B-16	B-16	B-16	B-16	B-16	B-16	B-16	B-16	B-19	B-13	B-13	B-15	C-12	35	
	B-17	Unit Variable OMP&R Component of Transportation Charge	B-17	B-17	B-17	B-17	B-17	B-17	B-17	B-17	B-17	B-17	B-5	B-14	B-14	B-16	C-13	none	
	B-18	Variable OMP&R Component of Transportation Charge For Each Contractor	B-18	B-18	B-18	B-18	B-18	B-18	B-18	B-18	B-18	B-18	B-20	B-15	B-15	B-17	C-14	36	
	B-19	Total Transportation Charge for Each Contractor	B-19	B-19	B-19	B-19	B-19	B-19	B-19	B-19	B-19	B-19	B-21	B-16	B-16	B-18	C-15	37	
FUTURE DELTA WATER RATES	B-20	Calculation of Delta Water Rates	B-20	B-20	B-20	B-20	B-20	B-20	B-20	B-20	B-20	none	none	none	none	none	30		
TOTAL CHARGES	B-21	Total Delta Water Charge for Each Contractor	B-21*	B-21	none	none	none	none	none	none	none	none	none	none	none	none	none		
	B-22	Total Transportation and Delta Water Charge for Each Contractor	B-22*	B-22	none	none	none	none	none	none	none	none	none	none	none	none	none		
EQUIVALENT COSTS OF WATER	B-23	Equivalent Unit Charge for Water Supply for Each Contractor	B-23	B-23	B-21	B-21	B-21	B-21	B-21	B-21	B-23	B-23	none	none	none	none	39		
	B-24	Equivalent Unit Costs of Water Delivered From or Thru Each Aqueduct Reach	B-24	B-24	B-22	B-21	B-22	B-22	B-22	none	none	none	none	none	none	none	none		
SURPLUS WATER SERVICE AND CHARGES	B-25	Annual Surplus Water Deliveries	B-25	B-25	none	none	none	none	none	none	none	none	none	none	none	none	none		
	B-26	Power Costs for Pumping Surplus Water	B-26	B-26	none	none	none	none	none	none	none	none	none	none	none	none	none		
	B-27	Power, Replacement and Administrative Charge for Surplus Water Deliveries	B-27	B-27	none	none	none	none	none	none	none	none	none	none	none	none	none		
	B-28	Projected Annual Surplus Water Deliveries	B-28*	B-28	none	none	none	none	none	none	none	none	none	none	none	none	none		
	B-29	Projected Power costs for Pumping Surplus Water	B-29*	B-29	none	none	none	none	none	none	none	none	none	none	none	none	none		
	B-30	Projected Unit Power Rates for Pumping Surplus Water	B-30*	B-30	none	none	none	none	none	none	none	none	none	none	none	none	none		
B-31	Commitment for the Cost of Power for Pumping Surplus Water	B-31	B-31	none	none	none	none	none	none	none	none	none	none	none	none	none			

* This table not included in Bulletin.

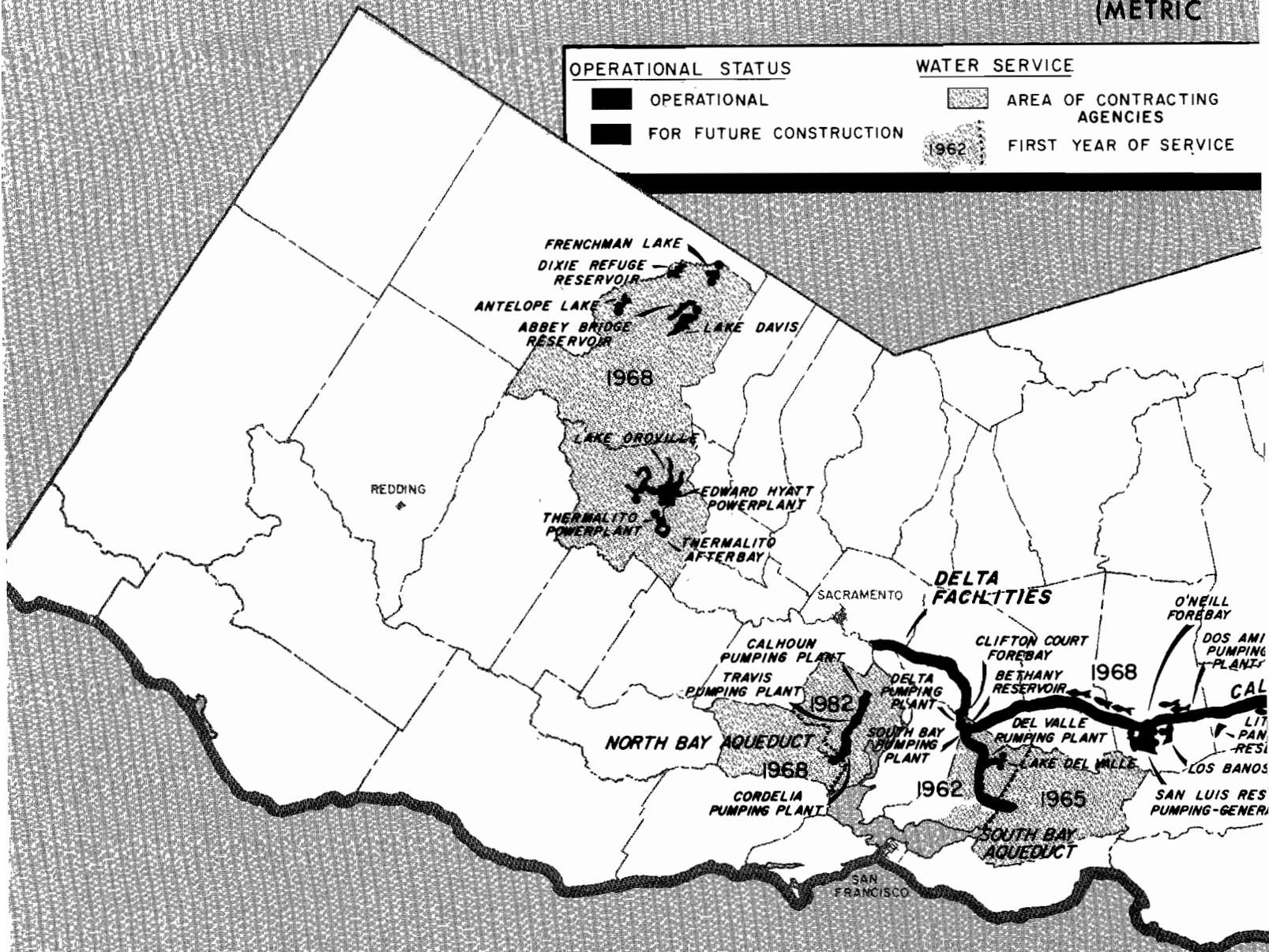
PROJECT (METRIC)

OPERATIONAL STATUS

- OPERATIONAL
- FOR FUTURE CONSTRUCTION

WATER SERVICE

- AREA OF CONTRACTING AGENCIES
- 1962 FIRST YEAR OF SERVICE



25 DAMS AND RESERVOIRS

	Reservoirs			Dams			
	Capacity (millions of cubic metres)	Surface Area (hectares)	Shore-line (kilometres)	Crest Elevation ⁽¹⁾ (metres)	Structural Height (metres)	Crest Length (metres)	Volume (cubic metres)
Frenchman Lake	68.43	839	33.8	1 709	42	219	410 600
Antelope Lake	27.84	377	24.1	1 532	37	402	290 500
Lake Davis	104.07	1 629	51.5	1 763	40	244	193 400
Abbey Bridge	55.51	789	33.8	1 669	36	351	382 300
Dixie Refuge	19.74	364	24.1	1 754	30	320	305 800
Lake Oroville	4 363.60	6 396	268.8	281	235	2 109	61 164 000
Thermalito Diversion Pool	16.44	131	16.1	71	44	396	117 700
Fish Barrier Pool	0.72	21	1.6	55	28	183	8 000
Thermalito Forebay	14.52	255	16.1	70	28	4 846	1 406 800
Thermalito Afterbay	70.36	1 741	41.8	43	12	12 802	3 838 000
Clifton Court Forebay	35.34	853	12.9	4	9	11 125	1 865 500
Bethany	5.93	65	9.7	76	37	1 201	1 070 300
Lake Del Valle	95.11	429	25.8	236	72	268	3 172 900
San Luis	2 514.82	5 140	104.6	169	117	5 669	59 363 500
O'Neill Forebay	69.60	1 093	19.3	71	27	4 374	2 293 700
Los Banos	42.63	252	19.3	117	51	418	1 605 600
Little Panoche	16.33	143	16.1	206	46	439	925 100
Buttes	26.89	235	9.7	850	58	680	2 393 000
Silverwood Lake	92.48	395	20.9	1 030	76	680	5 810 600
Lake Perris	162.15	938	16.1	468	39	3 536	15 291 000
Quail Lake	6.19	90	4.8	NA	12	—	—
Pyramid Lake	211.17	525	33.8	794	122	332	5 244 800
Elderberry Forebay	34.82	186	11.3	472	61	607	4 587 300
Castaic Lake	399.29	904	46.7	468	130	1 494	35 169 300
Castaic Lagoon	6.98	79	4.8	NA	8	—	—
Totals	8 460.96	23 669	867.5	—	—	52 695	206 909 700

1). Above sea level.

AQUEDUCTS

Name	Length (kilometres)				
	Total	Canal	Pipeline	Tunnel	Channel and Reservoir
North Bay Aqueduct	42.6	23.0	19.6	0	0
South Bay Aqueduct	69.1	13.5	53.0	2.6	0
Subtotal	111.7	36.5	72.6	2.6	0
California Aqueduct (main line):					
Delta to O'Neill Forebay	110.1	107.8	0	0	2.3
O'Neill Forebay to Kettleman City	170.1	166.6	0	0	3.5
Kettleman City to A.D. Edmonston Pumping Plant	194.6	194.6	0	0	0
A.D. Edmonston Pumping Plant thru Tehachapi Afterbay	17.0	0.3	4.0	12.7	0
Tehachapi Afterbay thru Lake Perris	222.7	150.3	61.6	6.1	4.7
Subtotal, main line	714.5	619.6	65.6	18.8	10.5
California Aqueduct (branches)					
West Branch	51.3	14.6	10.3	11.6	14.8
Coastal Branch	154.8	23.8	131.0	0	0
Subtotal, branches	206.1	38.4	141.3	11.6	14.8
Totals ⁽¹⁾	1 032.3	694.5	279.5	33.0	25.3

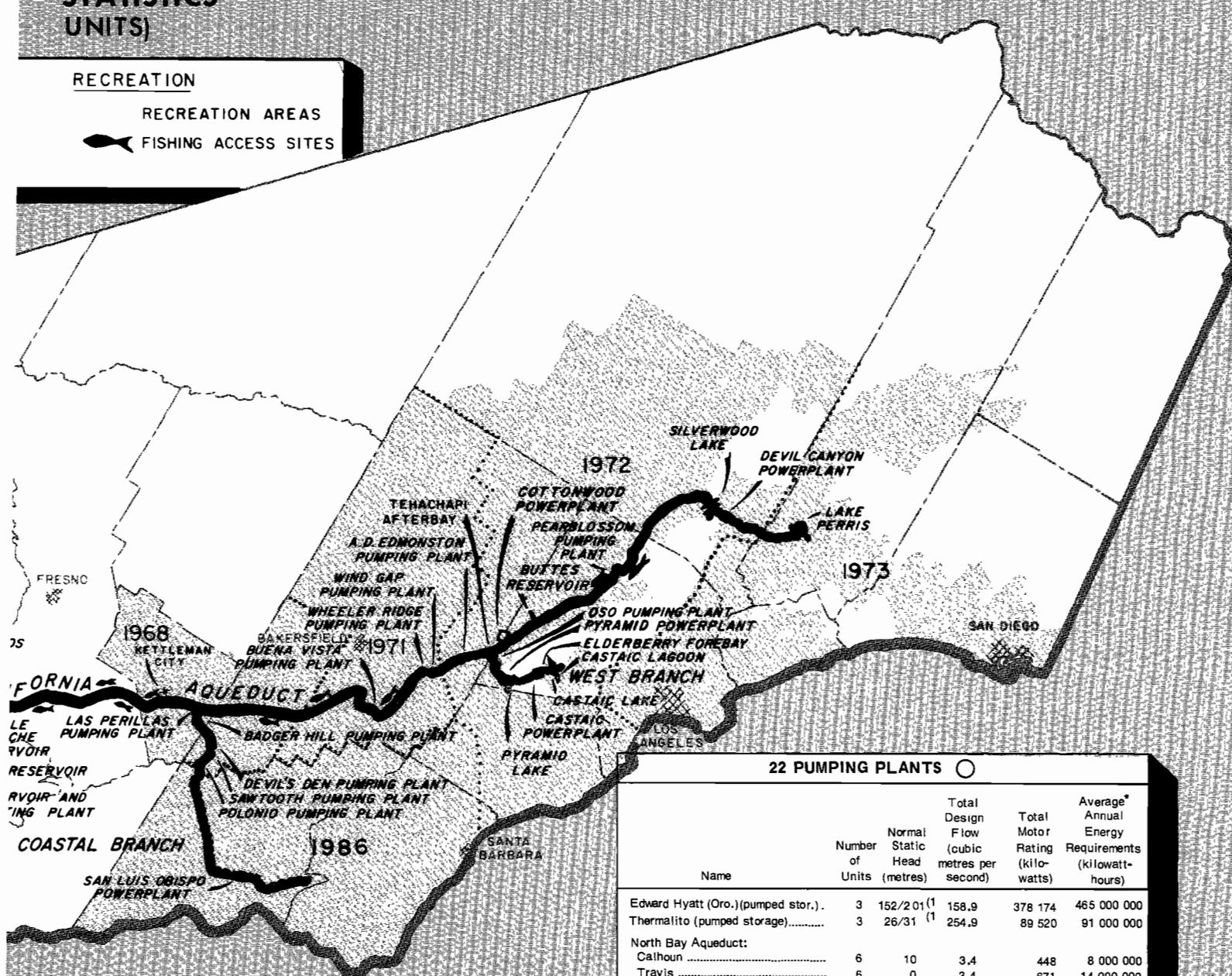
1) Does not include Delta Facilities

STATISTICS (UNITS)

RECREATION

RECREATION AREAS

FISHING ACCESS SITES



Name	Number of Units	Normal Static Head (metres)	Total Design Flow (cubic metres per second)	Power Generator Output (kilowatts)	Average* Annual Energy Output (kilowatt-hours)
Edward Hyatt (Oro.)	6	125/206 ⁽¹⁾	412.0	678 750	2 475 000 000
Thermalito	4	26/30 ⁽¹⁾	478.6	119 600	383 000 000
San Luis					
Total	8	30/100 ⁽¹⁾	371.6	424 000	
State Share			194.6	222 100	182 000 000
Cottonwood	1	43	46.4	15 000	112 000 000
Devil Canyon	2	432	34.0	119 700	878 000 000
Pyramid	2	226	87.8	157 000	898 000 000
Castaic					
Total	7	324	521.0	1 250 000	
State Share ⁽²⁾			87.6	214 000	1 469 000 000
San Luis Obispo	1	223	3.1	5 900	23 000 000
Total, State Share					6 420 000 000

1) Minimum and maximum static heads.
 2) The City of Los Angeles Department of Water and Power constructed and operates a 1,250,000-kilowatt Castaic Powerplant and will supply the Project with electrical power and energy equivalent to the generation from a 213,984-kilowatt powerplant the State originally planned to construct
 * Under full development

Name	Number of Units	Normal Static Head (metres)	Total Design Flow (cubic metres per second)	Total Motor Rating (kilowatts)	Average* Annual Energy Requirements (kilowatt-hours)
Edward Hyatt (Oro.) (pumped stor.)	3	152/201 ⁽¹⁾	158.9	378 174	465 000 000
Thermalito (pumped storage)	3	26/31 ⁽¹⁾	254.9	89 520	91 000 000
North Bay Aqueduct:					
Calhoun	6	10	3.4	448	8 000 000
Travis	6	0	3.4	671	14 000 000
Cordelia	3	137	1.4	2 313	21 000 000
South Bay Aqueduct:					
South Bay	9	166	9.3	20 702	158 000 000
Del Valle	4	0/12 ⁽²⁾	3.4	746	2 000 000
California Aqueduct (main line):					
Delta	11	74	291.8	248 418	1 351 000 000
San Luis					
Total	8	30/100 ⁽²⁾	311.5	375 984	
State Share			163.2	196 944	335 000 000
Dos Amigos					
Total	6	34	373.8	179 040	
State Share			201.1	96 980	555 000 000
Buena Vista	10 ⁽³⁾	62	143.0	101 456	728 000 000
Wheeler Ridge	9 ⁽³⁾	71	130.2	104 440	705 000 000
Wind Gap	9 ⁽³⁾	158	124.9	229 268	1 635 000 000
A. D. Edmonston (Tehachapi)	14 ⁽³⁾	587	116.0	757 840	5 834 000 000
Pearblossom	6	165	39.1	84 447	589 000 000
California Aqueduct (branches):					
Oso	8	70	88.6	69 975	430 000 000
Las Perillas	6	70	12.7	3 021	17 000 000
Badger Hill	6	46	12.7	7 833	36 000 000
Devil's Den	4	125	7.6	5 968	33 000 000
Sawtooth	4	101	3.6	4 849	26 000 000
Polonio	4	247	3.6	11 936	69 000 000
Peripheral Canal					
Total	9 ⁽³⁾	3	617.3	26 483	
State Share			308.7	13 242	50 000 000
Total State Share					13 152 000

1) Minimum and maximum total pumping heads.
 2) Minimum and maximum static heads.
 3) Includes one spare unit.

* Under full development.

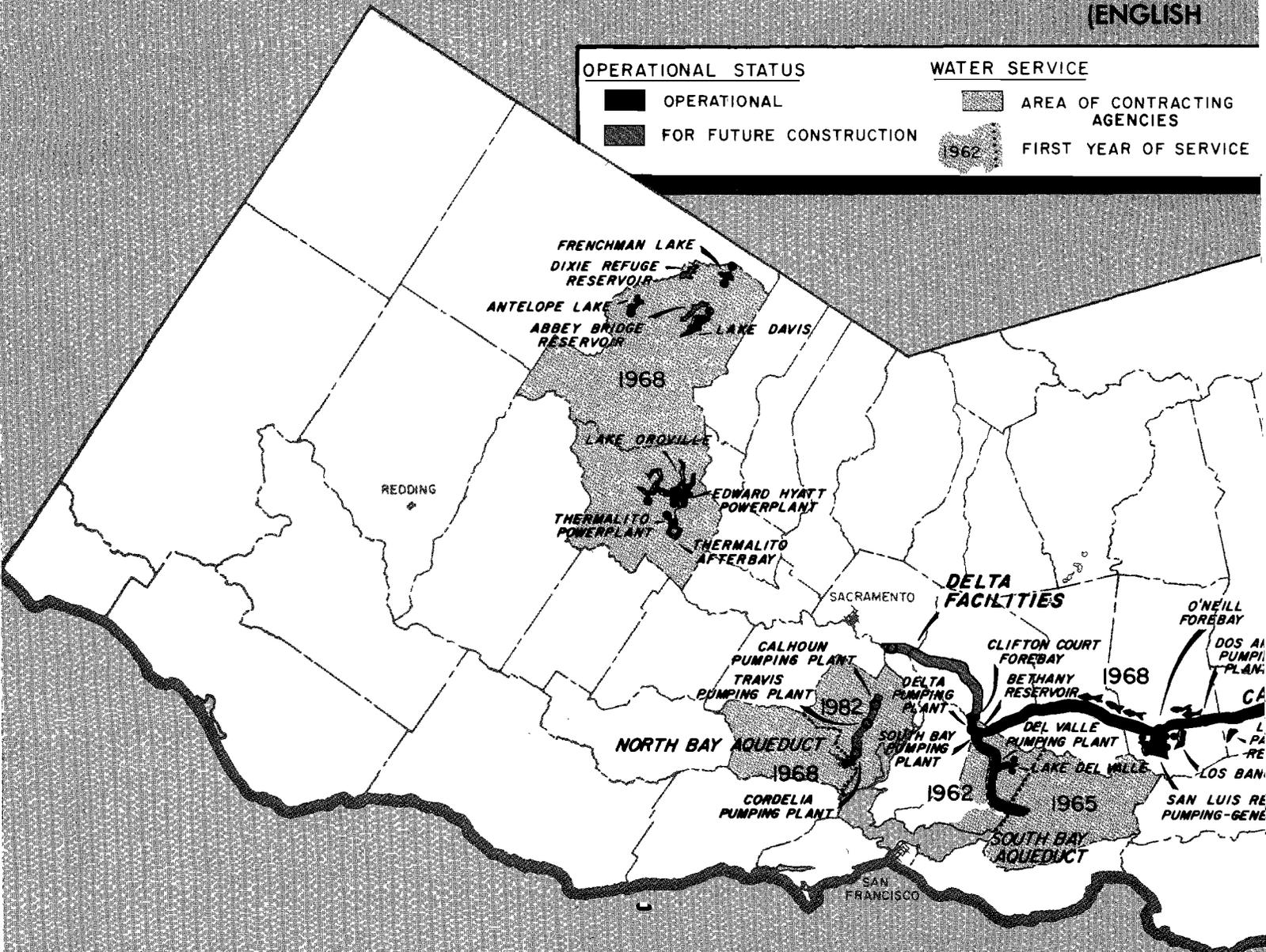
PROJECT (ENGLISH)

OPERATIONAL STATUS

- OPERATIONAL
- FOR FUTURE CONSTRUCTION

WATER SERVICE

- AREA OF CONTRACTING AGENCIES
- FIRST YEAR OF SERVICE



25 DAMS AND RESERVOIRS

Name of Reservoir	Reservoirs			Dams			
	Capacity (Acre-feet)	Surface Area (acres)	Shore-line (miles)	Crest Elevation (feet)	Structural Height (feet)	Crest Length (feet)	Volume (cubic yards)
Frenchman Lake	55,477	1,580	21	5,607	139	720	537,000
Antelope Lake	22,566	931	15	5,025	120	1,320	380,000
Lake Davis	84,371	4,026	32	5,785	132	800	253,000
Abbey Bridge	45,000	1,950	21	5,475	117	1,150	500,000
Dixie Refuge	16,000	900	15	5,754	100	1,050	400,000
Lake Oroville	3,537,577	15,805	167	922	770	6,920	80,000,000
Thermalito Diversion Pool	13,328	323	10	233	143	1,300	154,000
Fish Barrier Pool	580	52	1	181	91	600	10,500
Thermalito Forebay	11,768	630	10	231	91	15,900	1,840,000
Thermalito Afterbay	57,041	4,302	26	142	39	42,000	5,020,000
Clifton Court Forebay	28,653	2,109	8	14	30	36,500	2,440,000
Bethany	4,804	161	6	250	121	3,940	1,400,000
Lake Del Valle	77,106	1,060	16	773	235	880	4,150,000
San Luis	2,038,771	12,700	65	554	385	18,600	77,645,000
O'Neill Forebay	56,426	2,700	12	233	88	14,350	3,000,000
Los Banos	34,562	623	12	384	167	1,370	2,100,000
Little Panoche	13,236	354	10	676	152	1,440	1,210,000
Buttes	21,800	580	6	2,790	190	2,230	3,130,000
Silverwood Lake	74,970	976	13	3,378	249	2,230	7,600,000
Lake Perris	131,452	2,318	10	1,600	128	11,600	20,000,000
Quail Lake	5,020	223	3	NA	40	—	—
Pyramid Lake	171,196	1,297	21	2,606	400	1,090	6,860,000
Elderberry Forebay	28,231	460	7	1,550	200	1,990	6,000,000
Castaic Lake	323,702	2,235	29	1,535	425	4,900	46,000,000
Castaic Lagoon	5,662	196	3	NA	25	—	—
Totals	6,859,299	58,491	539			172,880	270,629,500

1) Above sea level.

AQUEDUCTS

Name	Length (miles)				Channel and Reservoir
	Total	Canal	Pipeline	Tunnel	
North Bay Aqueduct	26.5	14.3	12.2	0	0
South Bay Aqueduct	42.9	8.4	32.9	1.6	0
Subtotal	69.4	22.7	45.1	1.6	0
California Aqueduct (main line):					
Delta to O'Neill Forebay	68.4	67.0	0	0	1.4
O'Neill Forebay to Kettleman City	105.7	103.5	0	0	2.2
Kettleman City to A. D. Edmonston Pumping Plant	120.9	120.9	0	0	0
A. D. Edmonston Pumping Plant thru Tehachapi Afterbay	10.6	0.2	2.5	7.9	0
Tehachapi Afterbay thru Lake Perris	138.4	93.4	38.3	3.8	2.9
Subtotal, main line	444.0	385.0	40.8	11.7	6.5
California Aqueduct (branches):					
West Branch	31.9	9.1	6.4	7.2	9.2
Coastal Branch	96.2	14.6	81.4	0	0
Subtotal, branches	128.1	23.9	87.8	7.2	9.2
Totals¹⁾	641.5	431.6	173.7	20.5	15.7

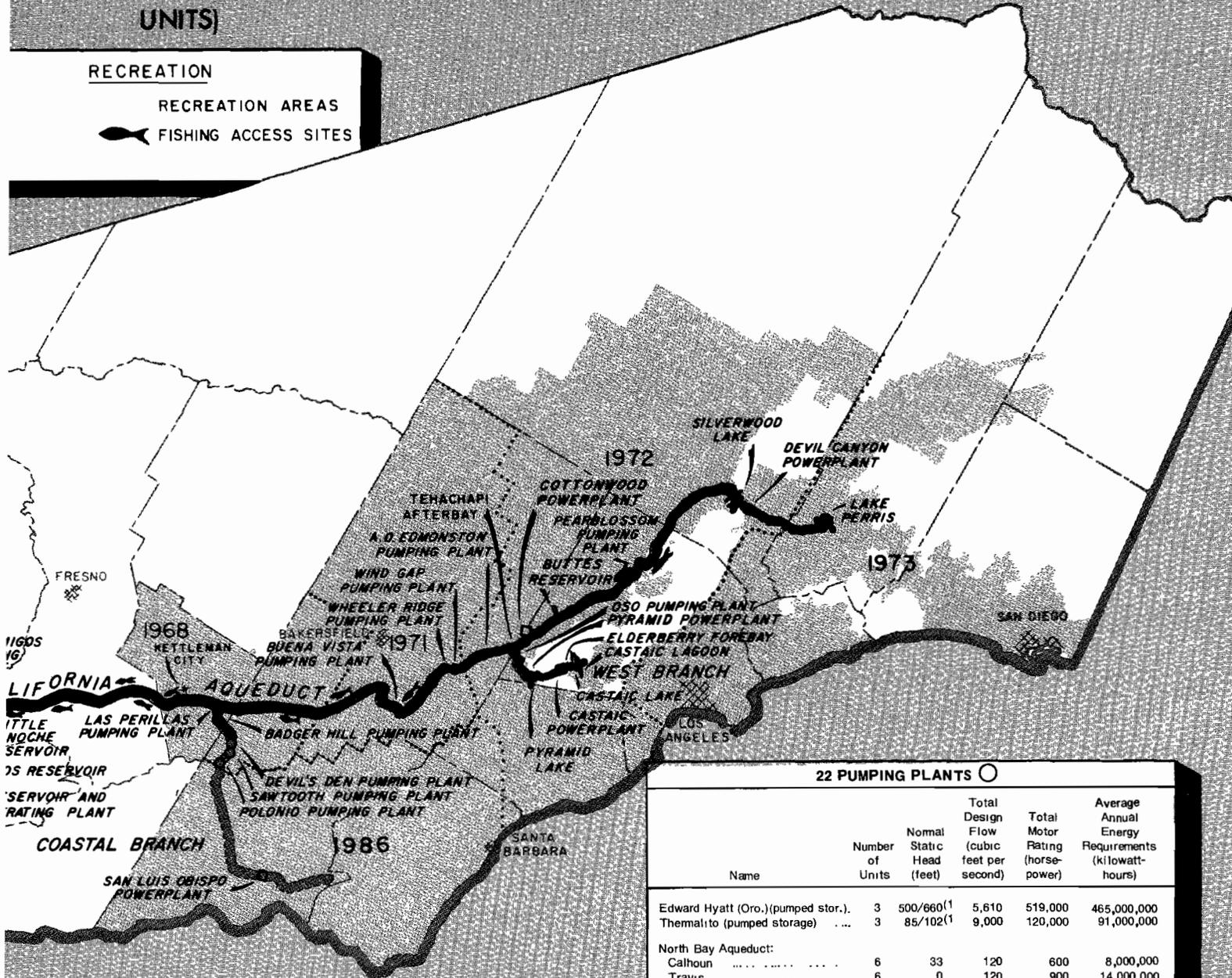
1) Does not include Delta Facilities

STATISTICS (UNITS)

RECREATION

RECREATION AREAS

FISHING ACCESS SITES



Name	Number of Units	Normal Static Head (feet)	Total Design Flow (cubic feet per second)	Power Generator Output (kilowatts)	Average* Annual Energy Output (kilowatt-hours)
Edward Hyatt (Oroville)	6	410/676 ⁽¹⁾	14,550	678,750	2,475,000,000
Thermalito	4	85/100 ⁽¹⁾	16,900	119,600	383,000,000
San Luis	8	99/327 ⁽¹⁾	13,120	424,000	182,000,000
State Share			6,872	222,100	182,000,000
Cottonwood	1	140	1,637	15,000	112,000,000
Devil Canyon	2	1,418	1,200	119,700	878,000,000
Pyramid	2	740	3,100	157,000	898,000,000
Castaic	7	1,063	18,400	1,250,000	---
State Share ⁽²⁾			3,092	214,000	1,469,000,000
San Luis Obispo	1	790	111	5,900	23,000,000
Total, State Share					6,420,000,000

1) Minimum and maximum static heads.
 2) The City of Los Angeles Department of Water and Power constructed and operates a 1,250,000-kilowatt Castaic Powerplant and will supply the Project with electrical power and energy equivalent to the generation from a 213,984-kilowatt powerplant the State originally planned to construct
 * Under full development

Name	Number of Units	Normal Static Head (feet)	Total Design Flow (cubic feet per second)	Total Motor Flating (horsepower)	Average Annual Energy Requirements (kilowatt-hours)
Edward Hyatt (Oro.) (pumped stor.)	3	500/660 ⁽¹⁾	5,610	519,000	465,000,000
Thermalito (pumped storage)	3	85/102 ⁽¹⁾	9,000	120,000	91,000,000
North Bay Aqueduct:					
Calhoun	6	33	120	600	8,000,000
Travis	6	0	120	900	14,000,000
Cordelia	3	448	48	3,100	21,000,000
South Bay Aqueduct:					
South Bay	9	545	330	27,750	158,000,000
Del Valle	4	0/36 ⁽²⁾	120	1,000	2,000,000
California Aqueduct (main line):					
Delta	11	244	10,303	333,000	1,351,000,000
San Luis	8	99/327 ⁽²⁾	11,000	504,000	---
State Share			5,762	264,000	335,000,000
Dos Amigos					
Total	6	113	13,200	240,000	---
State Share			7,100	130,000	555,000,000
Buena Vista					
Buena Vista	10 ⁽³⁾	205	5,049	136,000	728,000,000
Wheeler Ridge	9 ⁽³⁾	233	4,598	140,000	705,000,000
Wind Gap	9 ⁽³⁾	518	4,410	308,000	1,635,000,000
A. D. Edmonston (Tehachapi)	14 ⁽³⁾	1,926	4,095	1,040,000	5,834,000,000
Pearlblossom	6	540	1,380	113,200	589,000,000
California Aqueduct (branches):					
Oso	8	231	3,128	93,800	430,000,000
Las Perillas	6	55	450	4,050	17,000,000
Badger Hill	6	151	450	10,500	36,000,000
Devil's Den	4	409	126	8,000	33,000,000
Sawtooth	4	331	126	6,500	26,000,000
Polonio	4	810	126	16,000	69,000,000
Peripheral Canal					
Total	9 ⁽³⁾	10	21,800	35,500	---
State Share			10,900	17,750	50,000,000
Total, State Share					13,152,000,000

1) Minimum and maximum total pumping heads.
 2) Minimum and maximum static heads.
 3) Includes one spare unit.

CONVERSION FACTORS

English to Metric System of Measurement

<u>Quantity</u>	<u>English unit</u>	<u>Multiply by</u>	<u>To get metric equivalent</u>
Length	inches (in)	25.4	millimetres (mm)
		.0254	metres (m)
	feet (ft)	.3048	metres (m)
	miles (mi)	1.6093	kilometres (km)
Area	square inches (in ²)	6.4516×10^{-4}	square metres (m ²)
	square feet (ft ²)	.092903	square metres (m ²)
	acres	4046.9	square metres (m ²)
		.40469	hectares (ha)
		.40469	square hectometres (hm ²)
		.0040469	square kilometres (km ²)
	square miles (mi ²)	2.590	square kilometres (km ²)
Volume	gallons (gal)	3.7854	litres (l)
		.0037854	cubic metres (m ³)
	million gallons (10 ⁶ gal)	3785.4	cubic metres (m ³)
	cubic feet (ft ³)	.028317	cubic metres (m ³)
	cubic yards (yd ³)	.76455	cubic metres (m ³)
	acre-feet (ac-ft)	1233.5	cubic metres (m ³)
		.0012335	cubic hectometres (hm ³)
	1.233×10^{-6}	cubic kilometres (km ³)	
Volume/Time (Flow)	cubic feet per second (ft ³ /s)	28.317	litres per second (l/s)
		.028317	cubic metres per second (m ³ /s)
	gallons per minute (gal/min)	.06309	litres per second (l/s)
		6.309×10^{-5}	cubic metres per second (m ³ /s)
	million gallons per day (mgd)	.043813	cubic metres per second (m ³ /s)
Mass	pounds (lb)	.45359	kilograms (kg)
	tons (short, 2,000 lb)	.90718	tonne (t)
		907.18	kilograms (kg)
Power	horsepower (hp)	0.7460	kilowatts (kW)
Pressure	pounds per square inch (psi)	6894.8	pascal (Pa)
Temperature	Degrees Fahrenheit (°F)	$\frac{t_F - 32}{1.8} = t_C$	Degrees Celsius (°C)

