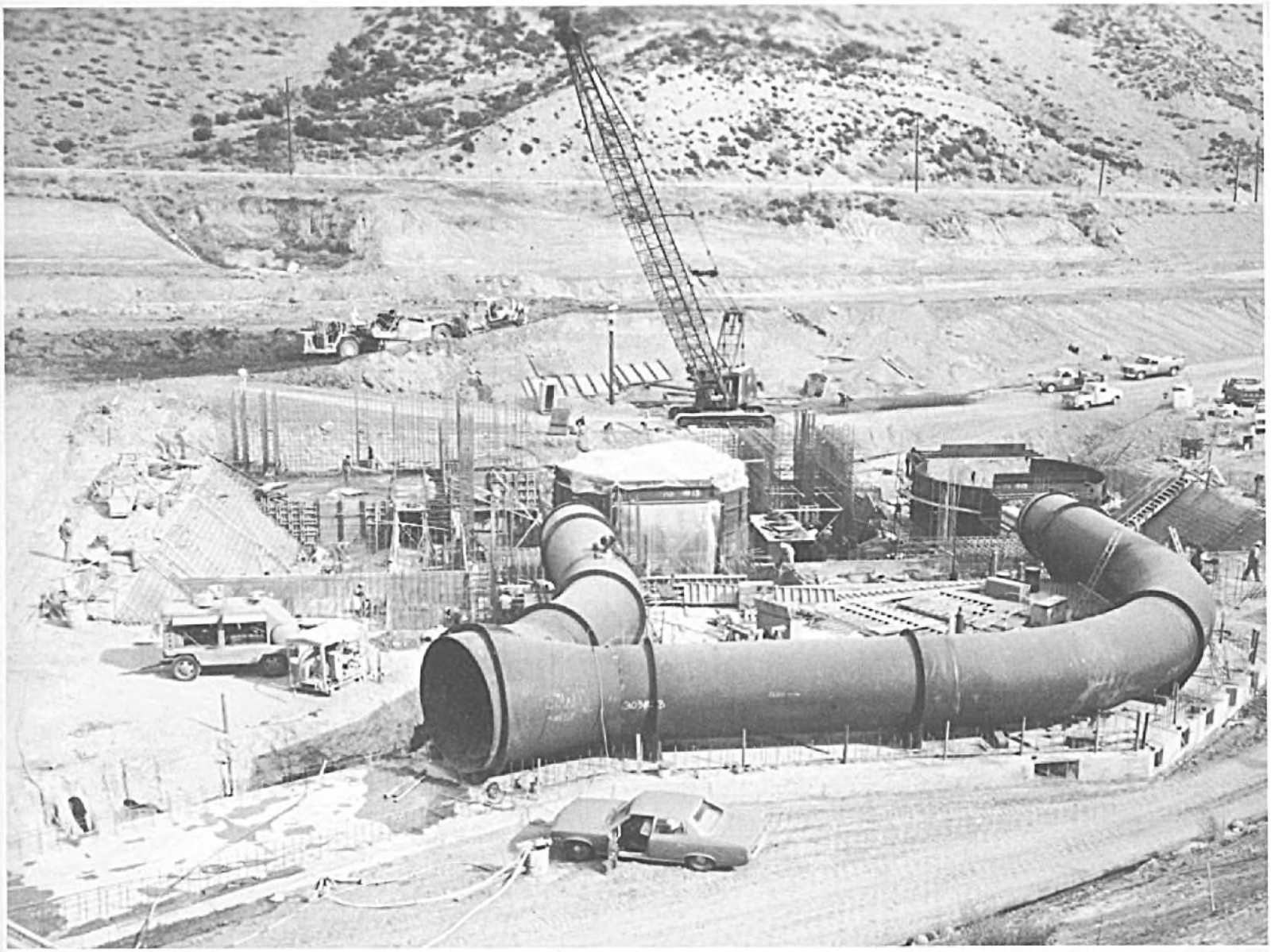

State of California
The Resources Agency

Department of
Water Resources

save water
DWR

The California State Water Project—1978 Activities and Future Management Plans

Bulletin 132-79
November 1979

Department of
Water Resources
Bulletin 132-79

The California State Water Project—1978 Activities and Future Management Plans.

November 1979

Huey D. Johnson
Secretary for Resources
The Resources Agency

Edmund G. Brown Jr.
Governor
State of California

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Director
Department of Water Resources

the SWP be a nonisolated facility, thereby, prohibiting an isolated water transfer facility such as the Peripheral Canal. The Delta package would also include: channel control structures, a submerged sill or sills in Carquinez Strait to retard salinity intrusion, and Suisun Marsh protection facilities. However, no specific provisions for project operation to guarantee Delta quality are included.

AB 1328 would also authorize the Cottonwood Creek Project (already authorized by the federal government) as a feature of the SWP. The project would be constructed by the State or jointly constructed by the State and the federal government under terms of the bill. Also the bill would declare as State policy support of full utilization of New Melones Reservoir, early construction of a safe Auburn Dam and completion of the Folsom-South Canal. It would also require DWR to prepare recommendations for a ground water management program that would be implemented solely at the discretion of local governmental agencies.

The Department continues to work with both Senator Ruben Ayala, Chairperson of the Senate Agriculture and Water Resources Committee, and Assemblyman Larry Kapiloff, Chairperson of the Assembly Committee on Water, Parks, and Wildlife, toward getting the best bill possible.

SWP Operations During the Year

Following one of the driest years of record during 1977, the wet year of 1978 was a welcome relief. The Project was able to meet all requests for entitlement water during the year. The Department delivered a total of 1 962 299 cubic dekametres (1,590,838 acre-feet) through Project facilities during the year, which includes many various categories of water as shown in Table 3.

Figure *c* shows cumulative natural runoff to Shasta and Oroville reservoirs for the last three years, runoff in the basins for 1923-24, and a multiyear average for the basins. The above-average runoff in northern California during the early months of 1978 allowed a quick recovery of water storage in the State Water Project reservoirs. Storage at the end of 1977 had reached the lowest levels since the initial filling of the reservoirs. The precipitation as a percentage of normal during water year 1977-78 is shown in Figure *d* (a water year begins October 1 and extends through September 30 of the following year). Most of the State received above-normal rainfall during the year.

ACCUMULATIVE NATURAL RUNOFF TO SELECTED RESERVOIRS

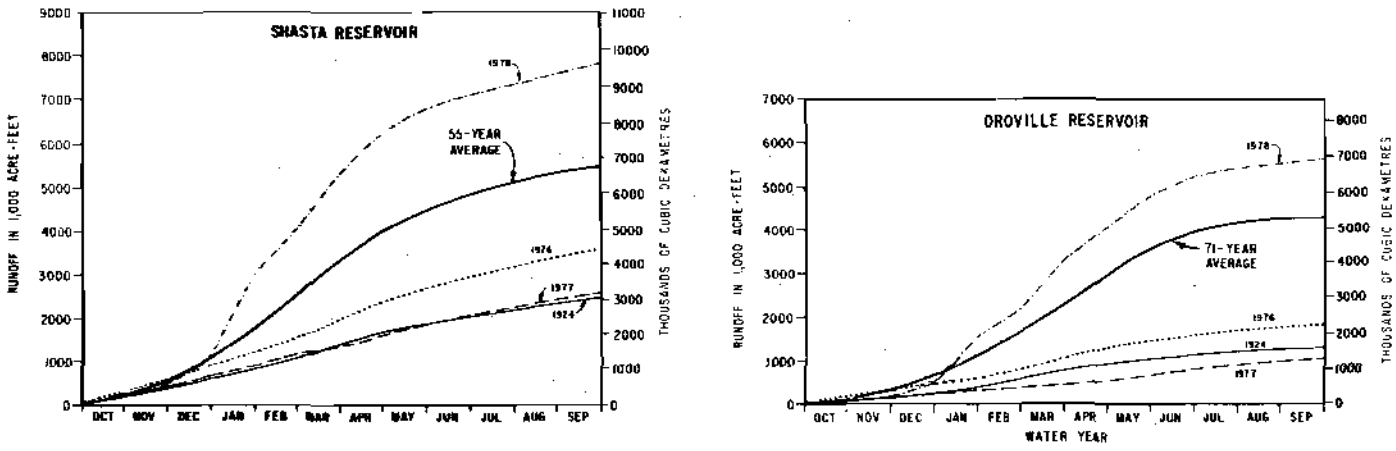


Figure *c*

The permissible level of operation of New Melones Reservoir is being considered by the SWRCB. The circulation facilities, if available today, could eliminate the pockets of poor quality water by dilution, thus degrading the quality in the current nonproblem areas. However, no quality guarantee as requested by the SDWA could be provided, since without an isolated cross-Delta transfer facility, there is no capability to assure the quality of supply at all times, which SDWA has requested.

One of the largest stumbling blocks in negotiations with SDWA is determining what mitigation is due. At the Agency's request, the Department of Interior, through the USBR, has instituted a series of technical meetings designed to answer that question. These meetings are: (1) to secure agreement on the impact of the CVP on the flow of the San Joaquin River, and the impact of both the CVP and the SWP export pumping on the water level and flow regimen in the south Delta channels; (2) to determine how these impacts might affect the south Delta water supply; and (3) to provide a base for evaluation of proposed actions to mitigate such impact. These meetings are scheduled to continue into 1979 with a report due in August or September. At SWDA's request further negotiations are being held in abeyance until completion of this report.

- *Central Delta Water Agency (CDWA)* - Several meetings were held with representatives of the CDWA during 1978 to: (1) review the results of the CDWA's corn salt-tolerance study; (2) review the results of the Department's subirrigation water movement study; and (3) discuss the CDWA's suggested water quality criteria. No significant progress towards an agreement was accomplished.

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

- *East Contra Costa Irrigation District (ECCID)* - Negotiations with ECCID continued in abeyance at the request of it's staff, pending more progress with one of the "big three agencies" to assure contracts with common terms, if at all possible. These negotiations also depend to some extent on the alignment selected for the relocation of the Contra Costa Canal Intake. If a low level alignment is selected, the ECCID is expected to ask for space in the new canal.

WATER CONTRACTS MANAGEMENT

The year 1978 was an unusual year from a water service standpoint and resulted in several unprecedented water project problems and activities. Above-normal precipitation throughout the State yielded abundant local supplies, thereby reducing the need for SWP water. All requested deliveries of SWP water were made, and SWP's depleted reservoirs were replenished.

Figure 5, herein, presents data concerning each of the 31 agencies which have executed long-term water service contracts with the State. Column 2 of Figure 5 shows the total cumulative water deliveries to each contractor through the end of 1978. These totals include all types of project water plus any local or USBR water delivered to project contractors. Deliveries of both

project and nonproject water have also been made to agencies other than long-term contractors. Such deliveries made in 1978 are included in Table 3 herein, along with 1978 deliveries to long-term contractors. As discussed under the Transfer of Water Entitlements section in Chapter I, the Department has developed a policy for giving agencies that contracted for more water than they can now use, some relief from the financial burden resulting from this imbalance. Column (4) of Figure 5 lists the total cumulative payments by each contractor pursuant to the terms of the long-term water supply contracts, through 1978. As will be noted, eight contractors have not yet taken any water from the project but still have had to pay the State large amounts of money under their water supply contracts. As shown in Table B-4, six of these have entitlement schedules calling for no delivery during 1978 while two, Palmdale Water District and Castaic Lake Water Agency, have entitlement schedules calling for delivery of entitlement water in 1972 and each year thereafter. Several other contractors have also taken far less water than their contracted amounts. Overall, however, the 31 long-term contractors have received more water from project facilities than the cumulative total of their annual entitlements through 1978 due to non-SWP water deliveries and deliveries of SWP surplus water.

Data in Columns 5, 6 and 7 of Figure 5 show that the SWP service area includes a substantial part of the State's area, assessed valuation, and population. The maximum annual quantity of entitlement water each contractor has contracted to receive is shown in column 3, of Figure 5. Annual entitlements are shown in Table B-4. Table B-4 shows that for most contractors, annual entitlements are initially low, increasing each year to the maximum annual entitlement in 1990 or thereafter. Table B-5B shows actual past annual entitlement water deliveries as well as the future annual entitlement amounts each contractor expects to take.

A comparison of Tables B-4 and B-5B values show many differences, which result primarily from the fact that several contractors are not increasing project water demands as rapidly as estimated at the time their contracts were signed in the early sixties. Another difference results from the fact that five contractors in 1978 took delivery of entitlement water to which they had acquired a credit under Article 12(d) of the Water Supply Contract as a result of the 1977 drought. (See Table 2.) Such water is treated as a part of the contractor's annual entitlement, insofar as scheduling and calculation of the variable OMP&R component of the Transportation Charge are concerned. Therefore, Table B-5B values include both entitlement and Article 12(d) water.

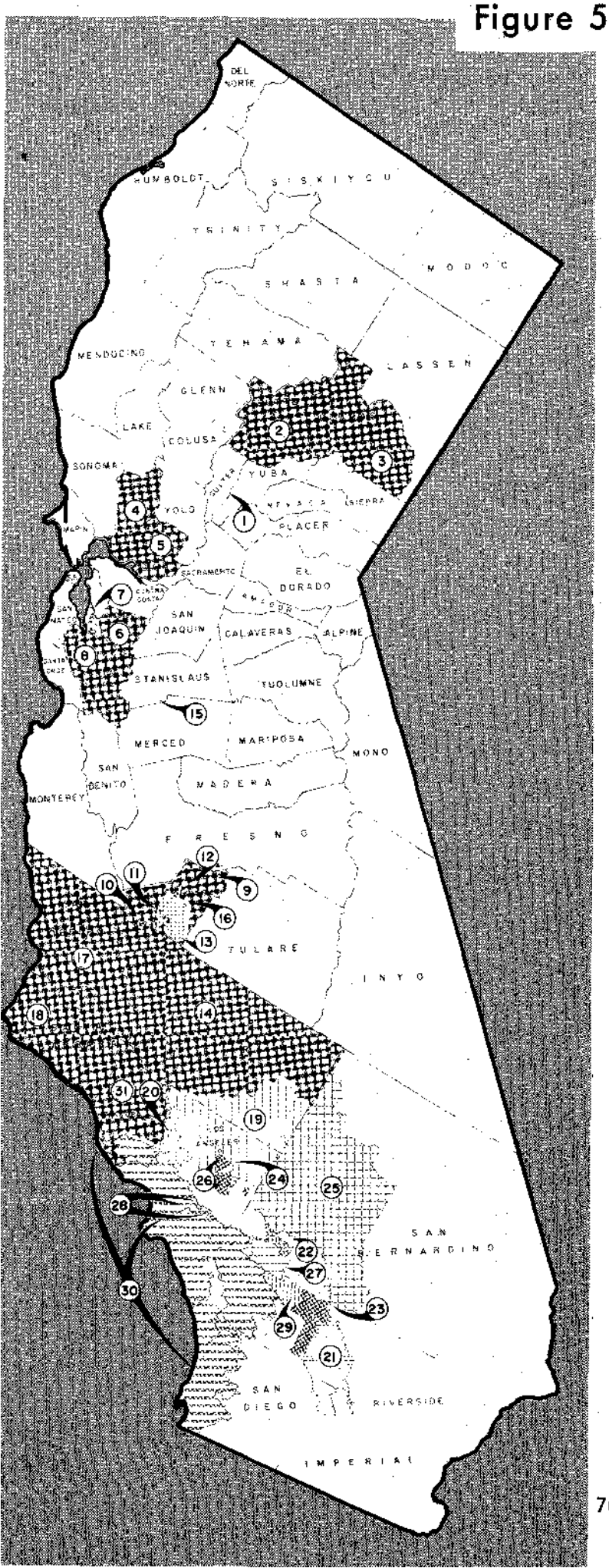
Table 1 gives further information concerning actual and projected annual water deliveries from projected facilities. It includes deliveries of project and nonproject water to long-term contractors, as well as water for initial fill, makeup of losses and recreation.

Water Deliveries in 1978

Project service during 1978 involved water deliveries to 32 agencies. Of these, 23 were long-term contractors and 9 were noncontractors. Monthly deliveries to each of the 32 are shown in Table 3 herein and include:

- 1 549 743 cubic dekametres (1,256,379 acre-feet) of 1978 entitlement water to 19 long-term contractors.
- 173 102 cubic dekametres (140,334 acre-feet) of "makeup" water which became available, pursuant to Article 12(d) of the long-term contract, as a result of the 1977 drought.
- 69 059 cubic dekametres (55,986 acre-feet) of 1977 entitlement water which under agreements with seven contractors was carried over to 1978.

Figure 5: LONG-TERM WATER SUPPLY



Location No.	Contracting Agency	Total Cumulative Deliveries through Dec. 31, 1978 (acre-feet)(a	Maximum Annual Entitlement (acre-feet)(a
	(1)	(2)	(3)
	UPPER FEATHER AREA		
1	City of Yuba City	0	9,600
2	County of Butte	2,623	27,500
3	Plumas County Flood Control and Water Conservation District	3,334	2,700
	Subtotal	5,957	39,800
	NORTH BAY AREA		
4	Napa County Flood Control and Water Conservation District	50,571	25,000
5	Solano County Flood Control and Water Conservation District	0	42,000
	Subtotal	50,571	67,000
	SOUTH BAY AREA		
6	Alameda County Flood Control and Water Conservation Dist., Zone 7	164,884	46,000
7	Alameda County Water District	254,705	42,000
8	Santa Clara Valley Water District	1,062,342	100,000
	Subtotal	1,481,931	188,000
	SAN JOAQUIN VALLEY AREA		
9	County of Kings	15,900	4,000
10	Devil's Den Water District	141,731	12,700
11	Dudley Ridge Water District	514,872	57,700
12	Empire West Side Irrigation District	43,828	3,000
13	Hacienda Water District	60,195	8,500
14	Kern County Water Agency	5,287,738	1,153,400
15	Oak Flat Water District	60,944	5,700
16	Tulare Lake Basin Water Storage District	1,031,557	110,000
	Subtotal	7,156,765	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	0	57,700
	Subtotal	0	82,700
	SOUTHERN CALIFORNIA AREA		
19	Antelope Valley-East Kern Water Agency	114,673	138,400
20	Castaic Lake Water Agency	0	41,500
21	Coachella Valley County Water District	36,884	23,100
22	Crestline-Lake Arrowhead Water Agency	5,625	5,800
23	Desert Water Agency	57,300	38,100
24	Littlerock Creek Irrigation District	2,959	2,300
25	Mojave Water Agency	733	50,800
26	Palmdale Water District	0	17,300
27	San Bernardino Valley Municipal Water District	105,332	102,600
28	San Gabriel Valley Municipal Water District	28,900	28,800
29	San Gorgonio Pass Water Agency	0	17,300
30	The Metropolitan Water District of Southern California	2,404,894	2,011,500
31	Ventura County Flood Control District	0	20,000
	Subtotal	2,757,300	2,497,500
	TOTAL STATE WATER PROJECT	11,452,524	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 1.2335 equals cubic dekametres.
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, 1978 (dollars)	Gross Area as of July 1, 1978 (acres)[b]	Assessed Valuation 1978-1979 (dollars)	Estimated Population (July 1, 1978)	Location No.
	(4)	(5)	(6)	(7)	
	0	3,290	84,668,000	16,700	1
	231,000	1,070,720	586,783,863	130,000	2
	200,000	1,644,000[c]	151,747,177[c]	15,200[c]	3
	431,000	2,718,010	823,199,040	161,900	
	2,597,000	512,000	478,511,307	94,000	4
	212,000	528,400	796,375,129	208,300	5
	2,809,000	1,040,400	1,274,886,436	302,300	
	8,288,000	272,000	493,261,000	107,000	6
	10,299,000	60,500	934,208,800	190,000	7
	38,982,000	849,000	6,059,000,000	1,228,000	8
	57,569,000	1,181,500	7,486,469,800	1,525,000	
	288,000	893,000[d]	268,286,700[d]	70,900[d]	9
	2,977,000	8,500	1,258,700	50	10
	6,262,000	29,900	3,539,600	50	11
	523,000	7,500	744,600	50	12
	708,000	15,300	244,800	50	13
	100,745,000	5,057,200[e]	2,917,002,500[e]	366,900[e]	14
	542,000	4,000	275,000	50	15
	11,773,000	193,000	14,750,000	50	16
	123,818,000	6,208,400	3,206,101,900	438,100	
	1,935,000	2,131,300	897,175,918	140,000	17
	4,553,000	1,756,900	1,551,813,301	292,500	18
	6,488,000	3,888,200	2,448,989,219	432,500	
	26,336,000	1,524,900	621,876,045	96,800	19
	10,590,000	125,000	347,293,679	66,500	20
	6,628,000	637,500	498,159,153	84,900	21
	1,877,000	55,100	97,994,390	10,500	22
	10,824,000	208,900	386,553,161	43,700	23
	489,000	43,300	8,937,891	1,600	24
	12,384,000	3,160,400	504,321,555	80,000	25
	3,253,000	73,800	77,155,902	24,900	26
	38,806,000	209,400	993,262,289	315,000	27
	10,236,000	16,300	533,172,123	146,200	28
	5,608,000	140,600	96,489,961	31,700	29
	630,560,000	3,267,488	53,572,000,943	11,144,100	30
	4,467,000	1,179,500[f]	2,381,079,748[f]	482,100[f]	31
	762,058,000	10,642,188	60,118,296,840	12,528,000	
	953,173,000	25,678,698[g]	75,357,943,235[g]	15,387,800[g]	
		24,530,598[h]	73,655,090,000[h]	15,067,050[h]	
		100,314,000	114,052,000,000	22,294,000	
		24.5	64.6	67.6	

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. Some areas which are within two or more agencies are included in each agency's total.

h) Excludes duplicate values where agencies have overlapping boundaries.

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
1978	1,850	0	130,700	647,262	0	1,060,722	1,840,534
Subtotal, 1962-1978	13,930	0	1,321,938	4,351,781	0	4,794,296	10,481,945
1979	2,130	0	132,700	707,700	0	1,177,873	2,020,403
1980	2,310	19,250	134,800	765,000	2,200	1,304,914	2,228,474
1981	6,840	21,750	137,000	828,500	3,300	1,425,865	2,423,255
1982	7,470	24,400	139,200	889,200	6,600	1,546,806	2,613,676
1983	8,150	27,050	141,400	955,500	9,900	1,668,557	2,810,557
1984	8,830	29,600	143,600	1,017,900	14,900	1,790,398	3,005,228
1985	9,510	32,750	145,800	1,079,100	24,800	1,912,549	3,204,509
7 years, 1979-1985	45,240	154,800	974,500	6,242,900	61,700	10,826,962	18,306,102
10 years, 1986-1995	252,920	587,500	1,650,200	13,032,300	688,000	23,869,646	40,080,566
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 1.2335 equals cubic dekametres.

b) Includes 1,256,379 acre-feet of 1978 entitlement water; 55,886 acre-feet of carryover from 1977; and 140,334 acre-feet of deferred deliveries pursuant to contract articles 12(d) and 14(b).

c) Includes 1,832,358 acre-feet 1979 entitlement water and 194,397 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 Emergency Relief Water, Repayment Water, Kern River Intertie Water, Exchange Water, Regulated Delivery of Local Supply, and Conveyance of Federal CVP Water.

WATER REQUIREMENTS

feet)[a]

Estimated Annual Water Demands								
Deliveries to Contracting Agencies								
Entitlement Water	Surplus Water[d]	Other Water [e]	Total	Initial Fill	Operational Losses and Storage Changes	Recreation Water	Total	Calendar Year
(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	7,853	5,812	8	711,151	1971
611,801	423,964	66,638	1,102,403	100,274	53,062	6,489	1,262,228	1972
694,388	296,416	42,511	1,033,315	204,638	53,798	1,155	1,292,906	1973
874,077	417,676	46,224	1,337,977	237,554	10,657	2,118	1,588,306	1974
1,223,990	622,902	63,793	1,910,685	103,352	-94,606	3,377	1,922,808	1975
1,373,002	580,110	115,217	2,068,329	61,122	-681,025	1,745	1,450,171	1976
574,155	0	389,065	963,220	0	-131,151	1,111	833,180	1977
1,452,699 [b	16,914	121,225	1,590,838	64,443	717,370	1,177	2,373,828	1978
7,771,712	2,980,956	1,199,368	11,952,036	1,821,395	133,750	17,180	13,924,361	17 years, 1962-1978
2,026,755 [c	734,731	195,500	2,956,986	12,302	112,654	6,320	3,088,262	1979
2,026,174	863,429	200,000	3,089,603	0	30,939	5,220	3,125,762	1980
2,164,013	803,910	200,000	3,167,923	0	259,326	10,480	3,437,729	1981
2,300,401	606,000	200,000	3,106,401	0	108,312	12,930	3,227,643	1982
2,408,652	428,000	190,000	3,026,652	0	-31,328	15,290	3,010,614	1983
2,495,503	314,000	180,000	2,989,503	0	160,973	15,640	3,166,116	1984
2,548,840	0	170,000	2,718,840	0	112,414	20,680	2,851,934	1985
15,970,338	3,750,070	1,335,500	21,055,908	12,302	753,290	86,560	21,908,060	7 years, 1979-1985
33,579,625	-	-	33,579,625	0	1,116,633	236,300	34,932,558	10 years, 1986-1995
38,801,285	-	-	38,801,285	0	862,260	244,300	39,907,845	10 years, 1996-2005
41,198,970	-	-	41,198,970	0	1,025,515	244,300	42,468,785	10 years, 2006-2015
42,011,400	-	-	42,011,400	0	1,024,915	244,300	43,280,615	10 years, 2016-2025
42,067,400	-	-	42,067,400	0	1,076,000	244,300	43,387,700	10 years, 2026-2035

- 20 863 cubic dekametres (16,914 acre-feet) of surplus water to three long-term contractors and one noncontractor.

- 1 200 cubic dekametres (973 acre-feet) of Metropolitan Exchange water to the San Francisco Water Department.

- 740 cubic dekametres (600 acre-feet) of emergency relief water to the Green Valley Water District.

- 3 718 cubic dekametres (3,014 acre-feet) of Repayment water to two noncontractors and one long-term contractor.

- 52,542 cubic dekametres (42,596 acre-feet) of excess Kern River flow which was diverted into the California Aqueduct through the Kern River Intertie and delivered to MWD in lieu of Colorado River water.

- 80 985 cubic dekametres (65,655 acre-feet) of local water to four noncontractors and three long-term contractors.

- 10 345 cubic dekametres (8, 387 acre-feet) of CVP water to Kern County Water Agency's Cross Valley Canal, pursuant to contracts with the United States and nine water agencies.

Entitlement Water Deliveries. In early September, 1977, contractors submitted monthly water delivery requests for years 1978 through 1984. Twenty-three contractors requested delivery of 2 255 608 cubic dekametres (1,828,624 acre-feet) of entitlement water in 1978. The initially approved monthly delivery schedules for 1978, issued in the third week of December called for delivery of 801 775 cubic dekametres (650,000 acre-feet) of entitlement water during the year. This was equivalent to the total amount of project water determined to be available on the basis of the new decision tool, referred to as the Rule Curve, which had just been developed. The Rule Curve is used by the Department to determine the total amount of project water that, based on current conditions and a conservative projection of water supply for the remainder of the water year, will be available for delivery during the year. (See pages 15 and 16 of Bulletin 132-78). The extremely low storage in Project reservoirs as of December 1, 1977 and the relatively low precipitation of October and November accounted for the low 1978 water supply projection. Updated water supply estimates, in accordance with Rule Curve criteria, were made during the early part of each of the following three months. Contractors were kept informed of these updated estimates, and revised monthly water delivery schedules were issued as the projected supply increased. On February 17, 1978 the Department announced that as a result of the significant December 1977 and January 1978 precipitation all requested entitlement deliveries could be made during 1978.

Total 1978 deliveries of entitlement water were, as shown in Table 2, 1 549 743 cubic dekametres (1,256,379 acre-feet). *This total is significantly less than* the requested total and the amount scheduled for delivery immediately following the February 17, 1978 announcement. Because of continuing above-normal precipitation after the end of January, 18 of the 23 contractors which had requested entitlement water deliveries took 705 864 cubic dekametres (572,245 acre-feet) less than the initially requested total amount.

Makeup Water Deliveries. As a result of the reduction to requested entitlement deliveries necessitated by the 1977 drought, 21 long-term contractors had accumulated future delivery rights to 563 871 cubic dekametres (457,131 acre-feet) of 1977 entitlement water pursuant to Article 12(d) of the long-term water supply contracts. In addition, one of these had rights to the future delivery of 5 905 cubic dekametres (4,787 acre-feet) of previously undelivered entitlement water, pursuant to Ariticle 14(b) of the long-term water supply contracts, and a second had an Article 12(d) right

to the future delivery of 32 872 cubic dekametres (26,649 acre-feet) as a result of a 1976 non-delivery. As of January 1, 1978, 21 contractors had future delivery rights to 602 647 cubic dekametres (488,567 acre-feet) of entitlement water which 5 905 cubic dekametres (4,787 acre-feet) had been acquired under Article 14(b) and the balance under Article 12(d).

During 1978, eight contractors received 173 102 cubic dekametres (140,334 acre-feet) of Article 12(d) water. Contractors were notified by Water Service Contractors Council Memo No. 1240, dated June 28, 1978, that Article 12(d) deliveries will be treated as a part of contractor's annual entitlement deliveries insofar as peaking, extra service and the variable OMP&R component of the Transportation Charge are concerned. At the beginning of 1979, sixteen contractors had future delivery rights totaling 438 180 cubic dekametres (355,233 acre-feet) pursuant to contract Articles 12(d) and 14(b). Individual contractor amounts making up this total are shown in column (9) of Table 2.

Carryover Water. Several contractors requested that they be permitted to delay taking a portion of the entitlement water allocated to them for delivery in 1977 until 1978. The purpose of such a carryover was to achieve a more efficient use of the remaining 1977 entitlement water supply and the limited 1978 supply which would have been available if the drought had continued. Contractors were notified by Water Service Contractors Council Memo No. 1163 that carryover of 1977 entitlement water would be allowed under executed letter agreements. In each case, the agreements specified that the contractor would pay its share of any costs that might have to be applied to the variable OMP&R component of the Transportation Charge in order to maintain those charges, in both 1977 and 1978, at levels no greater than those that would have occurred in the absence of the carryover program. The following tabulation shows for each of the ten contractors that signed carryover agreement letters, the maximum carryover allowed by the agreement, the actual carryover, and the carryover charge applicable to 1977 variable OMP&R costs only:

Contractor	Allowable Carryover (in Acre-feet)	Actual Carryover (in Acre-feet)	Carryover Charge Credited to 1977 Variable OMP&R Transportation Costs
Alameda County FC&WCD, Zone 7	3,500	3,387	$ 0
Alameda County WD	1,500	1,140	0
Antelope Valley-East Kern WA	11,000	11,000	24,853
Castaic Lake WA	4,500	0	0
Dudley Ridge WD	2,000	1,007	144
Empire West Side ID	750	454	66
Kern County WA	34,000	30,583	13,422
Littlerock Creek ID	212	0	408
The Metropolitan WD of So. CA	90,000	0	0
Tulare Lake Basin WSD	8,500	8,415	1,204
Total	155,962	55,986	$40,097

The above tabulation shows that six contractors incurred carryover adjustment charges of $40,097, assessed for the purpose of maintaining 1977 variable OMP&R charges at the "no carryover" level. The effect that the "carryover" had on 1978 variable OMP&R charges will be determined in 1979. As shown in Table 2, 69 059 cubic dekametres (55,986 acre-feet) of 1977 entitlement water were delivered in 1978 to seven contractors under the executed carryover agreements for water carried over

TABLE 2: SUMMARY OF 1978 ENTITLEMENT AND SURPLUS WATER SERVICE TO LONG-TERM CONTRACTORS

(acre-feet)[a]

Long-Term Contractor	Entitlement Water Deliveries				Surplus Water	Total Deliveries	Future Entitlement Delivery Credit as of 1/1/79			Future Entitlement Reduction Credit-Article 7 or 45
	1978 Entitlement	Article 12(d)	Carryover From 1977	Total			Article 7 or 45	Articles 12(d) and 14(b)	Total	
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)	(9)	(10)	(11)
UPPER FEATHER RIVER										
Butte County	579	0	0	579	0	579	-	0	0	-
Plumas County	278	0	0	278	0	278	-	0	0	-
SOUTH BAY AREA										
Alameda County FC&WCD, Zone 7	7,597	0	3,387	10,984	0	10,984	53,741	2,438	56,179	0
Alameda County WD	4,723	0	1,140	5,863	0	5,863	96,609	2,220	98,829	0
Santa Clara Valley WD	88,000	7,727	0	95,727	0	95,727	0	3,991	3,991	0
SAN JOAQUIN VALLEY AREA										
County of Kings	1,900	170	0	2,070	0	2,070	0	0	0	0
Devil's Den WD	11,362	0	0	11,362	0	11,362	-	7,620	7,620	-
Dudley Ridge WD	32,500	18,240	1,007	51,747	7,586	59,333	-	0	0	-
Empire West Side ID	0	0	454	454	0	454	0	1,800	1,800	0
Hacienda WD	0	2,520[b]	0	2,520	0	2,520	4,600	0	4,600	0
Kern County WA	527,300	109,464	30,583	667,347	8,623[a]	675,970	-	162,146	162,146	-
Oak Flat WD	3,835	71	0	3,906	6[a]	3,912	0	2,149	2,149	2,466
Tulare Lake Basin WSD	1,118	0	8,415	9,533	0	9,533	57,582	32,880	90,462	74,852
SOUTHERN CALIFORNIA AREA										
Antelope Valley-East Kern WA	33,137	0	11,000	44,137	0	44,137	-	31,372	31,372	-
Castaic Lake WA	0	0	0	0	0	0	-	500	500	-
Coachella Valley County WD	9,242	842	0	10,084	0	10,084	-	0	0	-
Crestline-Lake Arrowhead WA	1,209	0	0	1,209	0	1,209	-	151	151	-
Desert WA	14,000	1,300	0	15,300	0	15,300	-	0	0	-
Littlerock Creek ID	208	0	0	208	0	208	-	438	438	-
Mojave WA	0	0	0	0	0	584[d]	-	20	20	-
Palmdale WD	0	0	0	0	0	0	-	0	0	-
San Bernardino Valley MWD	4,055	0	0	4,055	0	4,055	-	4,269	4,269	-
San Gabriel Valley MWD	7,771	0	0	7,771	0	7,771	-	1,000	1,000	-
The Metropolitan WD of SC	507,565	0	0	507,565	0	550,161[e]	-	102,239	102,239	-
TOTAL	1,256,379	140,334	55,986	1,452,699	16,215	1,512,094	212,532	355,233	567,765[f]	77,318

a) Metric conversion is acre-feet times 1.2335 equals cubic dekametres.
b) Delivery classified as 12(d) water even though no surplus water taken in order to facilitate the approved future dissolution of the Hacienda water supply contract by transfer of its water and repayment obligations to Tulare Lake Basin Water Storage District.
c) Surplus water available only in March and April for ground water recharge.
d) Repayment water released into Mojave River from Silverwood Lake in payment for construction water obtained several years ago from a well within agency boundaries.
e) Includes 42,586 acre-feet of Project water which was diverted into the California Aqueduct through the Kern River Intertie and taken by Metropolitan in lieu of Colorado River water in order to utilize excess Kern River flows.
f) Includes 151,406 acre-feet accumulated prior to 1977; 316,797 acre-feet acquired in 1977; and 99,562 acre-feet acquired in 1978.

into 1978 which was not delivered that year. Contractors have no further rights under the carryover agreements to water carried over into 1978 which was not delivered that year.

Surplus Water Deliveries. September 1977 requested SWP water deliveries for 1978 included approximately 1 118 784 cubic dekametres (907,000 acre-feet) of surplus water to nine long-term contractors. Due to the necessity of building up Project reservoir storage, which had been severely depleted after two years of drought, it seemed unlikely in early 1978 that surplus water could be scheduled and delivered during the year. However, at an April 19, 1978 meeting with contractors in Fresno, the Department was able to announce that a dramatic improvement in SWP water supply resulting from four months of above-normal precipitation would enable the scheduling of surplus water for delivery during the balance of the year. Contractors were requested to submit updated schedules if they wished to receive surplus water. Because of above-average water supplies and the fact that contractors had substantial quantities of Article 12(d) makeup water which had to be used before surplus water could be delivered, only Dudley Ridge Water District executed a surplus water contract and received surplus water after April 1978.

Contractors were notified in late February that during March and probably in April water would be available in the Delta in excess of the amount that could be pumped for storage and that was needed to both make scheduled deliveries and satisfy Delta outflow water quality requirements. Contractors were told that such temporarily available water (extra surplus water) would be delivered for either direct or indirect ground water recharge. An exception to this use stipulation was made to allow Dudley Ridge Water District to utilize extra surplus water to restore the depleted soil moisture in the root zone of trees within the District. Continued rainfall made the application of water for that purpose unnecessary, however. Three contractors requested delivery of extra surplus water and two contractors received deliveries as follows:

Contractor	Acre-feet Requested	Acre-feet Delivered
Dudley Ridge WD	4,500	0
Kern County WA	50,000	8,623
Oak Flat WD	500	6

Extra surplus water is being treated as regular surplus water for billing purposes.

Green Valley Water District, a noncontractor, requested 1978 surplus water deliveries, and a surplus water contract between the State and District was subsequently signed. Under the contract, 862 cubic dekametres (699 acre-feet) of surplus water were delivered as shown in Table 3. The District paid $23,100 for this service.

Section (d) of amended Article 21 of the long-term water supply contracts specifies that the State would order the estimated power required to pump a specified quantity of surplus water for a contractor if the contractor would guarantee repaying the resulting costs. As shown in Table B-31, five contractors had incurred repayment obligations under this provision for 1978 surplus water service. Since only a small amount of surplus water was delivered during the year, little of the ordered power could

TABLE 3: WATER

(in acre

Line No.	Contracting Agency and Type of Service	Month					
		Jan.	Feb.	Mar.	Apr.	May	June
	FEATHER RIVER SERVICE AREA						
	County of Butte:						
1.	Entitlement Water	5	44	374	77	18	0
	Last Chance Creek Water District:						
2.	Regulated Delivery of Local Supply	0	0	0	210	3,060	3,650
	Plumas County Flood Control & Water Cons. District:						
3.	Entitlement Water	4	0	0	0	19	76
	Thermalito Irrigation District:						
4.	Regulated Delivery of Local Supply	0	0	1	0	81	193
5.	AREA TOTAL	9	44	375	287	3,178	3,919
	NORTH BAY SERVICE AREA						
	Napa County Flood Control & Water Cons. District:						
6.	Regulated Delivery of Local Supply	347	293	367	324	738	551
	SOUTH BAY SERVICE AREA						
	Alameda County Flood Control & Water Cons. Dist., Zone 7:						
7.	Entitlement Water	0	0	0	42	13	26
8.	Carryover Water	0	0	53	17	128	269
9.	Regulated Delivery of Local Supply	583	626	672	846	1,352	1,564
10.	Agency Total	583	626	725	905	1,493	1,859
	Alameda County Water District:						
11.	Entitlement Water	0	0	0	0	596	716
12.	Carryover Water	0	0	0	0	0	178
13.	Regulated Delivery of Local Supply	913	485	638	1,094	641	610
14.	Agency Total	913	485	638	1,094	1,237	1,504
	San Francisco Water Department:						
15.	Exchange Water	973	0	0	0	0	0
	Santa Clara Valley Water District:						
16.	Entitlement Water	4,100	3,640	4,677	5,420	8,205	10,063
17.	Article 12(d) Make-up Water	0	284	1,261	0	466	0
18.	Agency Total	4,100	3,924	5,938	5,420	8,671	10,063
19.	AREA TOTAL	6,569	5,035	7,301	7,419	11,401	13,426
	SAN JOAQUIN VALLEY SERVICE AREA						
	Belridge Oil Company:						
20.	Repayment Water	0	0	0	349	319	267
	County of Kings:						
21.	Entitlement Water	165	0	0	0	0	248
22.	Article 12(d) Make-up Water	0	0	0	0	0	25
23.	Agency Total	165	0	0	0	0	273
	Devil's Den Water District:						
24.	Entitlement Water	0	0	0	258	19	1,560
	Dudley Ridge Water District:						
25.	Entitlement Water	0	0	792	978	4,012	5,850
26.	Surplus Water	0	0	0	0	0	3,571
27.	Carryover Water	0	0	0	0	0	0
28.	Article 12(d) Make-up Water	0	0	0	0	1,663	3,464
29.	Agency Total	0	0	792	978	5,675	12,885
	Empire West Side Irrigation District:						
30.	Entitlement Water	0	0	0	0	0	0
31.	Carryover Water	0	0	0	110	158	37
32.	Agency Total	0	0	0	110	158	37
	Green Valley Water District:						
33.	Surplus Water	0	0	0	0	0	0
34.	Emergency Relief Water	0	0	0	0	0	293
35.	Agency Total	0	0	0	0	0	293
	Hacienda Water District:						
36.	Entitlement Water	0	0	0	0	0	0
37.	Article 12(d) Make-up Water	0	0	0	0	0	840
38.	Agency Total	0	0	0	0	0	840
	J. G. Boswell Company:						
39.	Repayment Water	0	0	0	0	0	160

a) Metric conversion is acre-feet times 1.2335 equals cubic dekametres.

DELIVERIES IN 1978

Feet)[a]

Month							1978 Contract Entitlement	1978 Entitlement Not Delivered	Net Cumulative Entitlement Not Delivered Thru		Line No.
July	Aug.	Sept.	Oct.	Nov.	Dec.	Total			1977	1978	
2	20	0	13	11	15	579	1,200	621	5,506	6,127	1.
2,099	1,857	520	116	0	0	11,512	—	—	—	—	2.
80	47	12	23	15	2	278	650	372	1,474	1,846	3.
218	217	181	157	41	32	1,121	—	—	—	—	4.
2,399	2,141	713	309	67	49	13,490	1,850	993	6,980	7,973	5.
386	590	604	655	645	534	6,034	—	—	—	—	6.
0	1,702	255	2,122	1,737	1,700	7,597	19,600	12,003	52,495	61,111	7.
331	647	1,877	0	0	65	3,387	—	—	—	—	8.
2,034	0	0	69	51	0	7,797	—	—	—	—	9.
2,365	2,349	2,132	2,191	1,788	1,765	18,781	—	—	—	—	10.
746	763	260	396	504	742	4,723	23,100	18,377	100,858	118,095	11.
676	0	286	0	0	0	1,140	—	—	—	—	12.
2,239	2,075	405	0	0	0	9,100	—	—	—	—	13.
3,661	2,838	951	396	504	742	14,963	—	—	—	—	14.
0	0	0	0	0	0	973	—	—	—	—	15.
10,313	10,270	10,003	10,388	6,963	3,958	88,000	88,000	0	50,494	42,767	16.
0	0	0	0	1,374	4,342	7,727	—	—	—	—	17.
10,313	10,270	10,003	10,388	8,337	8,300	95,727	—	—	—	—	18.
16,339	15,457	13,086	12,975	10,629	10,807	130,444	130,700	30,380	203,847	221,973	19.
308	299	296	112	0	0	1,950	—	—	—	—	20.
248	248	248	248	0	495	1,900	1,900	0	170	0	21.
24	24	24	24	0	49	170	—	—	—	—	22.
272	272	272	272	0	544	2,070	—	—	—	—	23.
2,248	2,423	1,054	1,026	1,343	1,431	11,362	11,362	0	7,625	7,625	24.
5,850	5,850	1,016	1,449	4,798	1,905	32,500	32,500	0	19,247	0	25.
4,015	0	0	0	0	0	7,586	—	—	—	—	26.
0	1,007	0	0	0	0	1,007	—	—	—	—	27.
5,342	5,685	649	0	0	1,437	18,240	—	—	—	—	28.
15,207	12,542	1,665	1,449	4,798	3,342	59,333	—	—	—	—	29.
0	0	0	0	0	0	0	0	0	2,262	1,808	30.
0	0	2	2	0	145	454	—	—	—	—	31.
0	0	2	2	0	145	454	—	—	—	—	32.
100	372	61	166	0	0	699	—	—	—	—	33.
307	0	0	0	0	0	600	—	—	—	—	34.
407	372	61	166	0	0	1,299	—	—	—	—	35.
0	0	0	0	0	0	0	4,600	4,600	2,520	4,600	36.
840	840	0	0	0	0	2,520	—	—	—	—	37.
840	840	0	0	0	0	2,520	—	—	—	—	38.
160	160	0	0	0	0	480	—	—	—	—	39.

TABLE 3: WATER

(in acre-

Line No.	Contracting Agency and Type of Service	Month					
		Jan.	Feb.	Mar.	Apr.	May	June
	Kern County Water Agency:						
40.	Entitlement Water	0	59	311	3,770	60,836	82,724
41.	Surplus Water	0	0	2,757	5,866	0	0
42.	Article 12(d) Make-up Water	0	0	0	0	0	28,725
43.	Carryover Water	2,024	4,568	3,450	8,817	4,906	68
44.	Agency Total	2,024	4,627	6,518	18,453	65,742	111,517
	Oak Flat Water District:						
45.	Entitlement Water	0	0	0	0	794	794
46.	Surplus Water	0	0	0	6	0	0
47.	Article 12(d) Make-up Water	0	0	0	0	0	0
48.	Agency Total	0	0	0	6	794	794
	Tulare Lake Basin Water Storage District:						
49.	Entitlement Water	0	0	0	0	0	1,025
50.	Carryover Water	584	0	0	0	14	0
51.	Agency Total	584	0	0	0	14	1,025
	United States Bureau of Reclamation:						
52.	Conveyance of Federal CVP Water	1,727	751	0	0	0	0
	Wheeler Ridge Water Storage District:						
53.	Regulated Delivery of Local Supply	91	0	0	0	0	0
54.	AREA TOTAL	4,591	5,378	7,310	20,154	72,721	129,651
	SOUTHERN CALIFORNIA SERVICE AREA						
	Antelope Valley-East Kern Water Agency:						
55.	Entitlement Water	39	73	211	1,332	5,450	3,714
56.	Carryover Water	0	0	0	0	0	3,973
57.	Agency Total	39	73	211	1,332	5,450	7,687
58.	Castaic Lake Water Agency	0	0	0	0	0	0
	Coachella Valley County Water District:						
59.	Entitlement Water	289	521	1,500	770	770	770
60.	Article 12(d) Make-up Water	0	0	0	0	105	105
61.	Agency Total	289	521	1,500	770	875	875
	Crestline-Lake Arrowhead Water Agency:						
62.	Entitlement Water	84	78	87	59	78	119
	Desert Water Agency:						
63.	Entitlement Water	437	789	2,272	1,166	1,166	1,166
64.	Article 12(d) Make-up Water	0	0	0	0	162	162
65.	Agency Total	437	789	2,272	1,166	1,328	1,328
	Littlerock Creek Irrigation District:						
66.	Entitlement Water	0	0	0	0	0	3
	Mojave Water Agency:						
67.	Entitlement Water	0	0	0	0	0	0
68.	Repayment Water	0	0	0	0	0	584
69.	Agency Total	0	0	0	0	0	584
70.	Palmdale Water District	0	0	0	0	0	0
	San Bernardino Valley Municipal Water District:						
71.	Entitlement Water	968	851	9	0	100	291
	San Gabriel Valley Municipal Water District:						
72.	Entitlement Water	573	520	0	0	0	0
	The Metropolitan Water Dist. of Southern California:						
73.	Entitlement Water	2,858	6,713	11,726	21,783	30,446	65,071
74.	Kern River Intertie Water	0	0	0	0	42,596	0
75.	Agency Total	2,858	6,713	11,726	21,783	73,042	65,071
	United Water Conservation District:						
76.	Regulated Delivery of Local Supply	0	0	0	0	4,660	14,307
77.	AREA TOTAL	5,248	9,545	15,805	25,110	85,533	90,265
	ALL AGENCIES						
78.	Entitlement Water	9,522	13,288	21,959	35,655	112,522	174,216
79.	Surplus Water	0	0	2,757	5,872	0	3,571
80.	Article 12(d) Make-up Water	0	284	1,261	0	2,396	33,321
81.	Carryover Water	2,608	4,568	3,503	8,944	5,206	4,525
82.	Emergency Relief Water	0	0	0	0	0	293
83.	Repayment Water	0	0	0	349	319	1,011
84.	Kern River Intertie Water	0	0	0	0	42,596	0
85.	Exchange Water	973	0	0	0	0	0
86.	Subtotal	13,103	18,140	29,480	50,820	163,039	216,937
87.	Regulated Delivery of Local Supply	1,934	1,404	1,678	2,474	10,532	20,875
88.	Conveyance of Federal CVP Water	1,727	751	0	0	0	0
89.	TOTAL WATER	16,764	20,295	31,158	53,294	173,571	237,812

a) Metric conversion is acre-feet times 1.2335 equals cubic dekametres.
b) 65 acre-feet was delivered in December 1977.

DELIVERIES IN 1978

feet)[a]

Month							1978 Contract Entitlement	1978 Entitlement Not Delivered	Net Cumulative Entitlement Not Delivered Thru		Line No.
July	Aug.	Sept.	Oct.	Nov.	Dec.	Total			1977	1978	
119,851	141,212	44,541	26,772	23,033	24,191	527,300	534,300	7,000	295,193	162,146	40.
0	0	0	0	0	0	8,623					41.
28,392	28,908	0	0	0	23,439	109,464					42.
1,068	4,948	327	265	117	25	30,583					43.
149,311	175,068	44,868	27,037	23,150	47,655	675,970					44.
1,051	874	169	97	56	0	3,835[b]	3,900	0	2,220	2,149	45.
0	0	0	0	0	0	6					46.
71	0	0	0	0	0	71					47.
1,122	874	169	97	56	0	3,912					48.
93	0	0	0	0	0	1,118	58,700	57,582	41,295	90,462	49.
2,530	4,281	840	135	20	11	8,415					50.
2,623	4,281	840	135	20	11	9,533					51.
1,257	4,652	0	0	0	0	8,387					52.
0	0	0	0	0	0	91					53.
173,755	201,783	49,227	30,296	29,367	53,128	777,361	647,262	69,182	370,532	268,790	54.
7,199	6,919	4,437	2,948	376	489	33,137	57,000	23,863	155,616	168,479	55.
1,900	1,870	1,628	1,334	272	23	11,000					56.
9,099	8,789	6,065	4,282	648	462	44,137					57.
0	0	0	0	0	0	0	13,400	13,400	39,036	52,436	58.
770	770	770	770	770	772	9,242	9,242	0	13,621	12,779	59.
105	105	105	105	105	107	842					60.
875	875	875	875	875	879	10,084					61.
135	145	98	113	84	129	1,209	2,320	1,111	3,360	4,471	62.
1,166	1,166	1,166	1,166	1,166	1,174	14,000	14,000	0	21,000	19,700	63.
162	162	162	162	162	166	1,300					64.
1,328	1,328	1,328	1,328	1,328	1,340	15,300					65.
93	3	7	81	21	0	208	920	712	670	1,382	66.
0	0	0	0	0	0	0	22,500	22,500	85,451	107,951	67.
0	0	0	0	0	0	584					68.
0	0	0	0	0	0	584					69.
0	0	0	0	0	0	0	9,340	9,340	29,520	38,860	70.
0	0	1,836	0	0	0	4,055	60,000	55,945	147,400	203,345	71.
0	200	1,480	1,491	2,029	1,478	7,771	15,700	7,929	44,693	52,622	72.
73,624	65,479	69,079	73,051	47,608	40,127	507,565	856,300	348,735	676,239	1,024,974	73.
0	0	0	0	0	0	42,596					74.
73,624	65,479	69,079	73,051	47,608	40,127	550,161					75.
7,085	1,544	1,229	1,175	0	0	30,000					76.
92,239	78,363	81,997	82,396	52,593	44,415	663,509	1,060,722	483,535	1,216,606	1,686,999	77.
223,469	238,091	136,431	122,154	90,514	78,558	1,256,379	1,840,534	584,090	1,797,965	2,185,735	78.
4,115	372	61	166	0	0	16,914					79.
34,936	35,724	940	291	1,641	29,540	140,334					80.
6,505	12,753	4,960	1,736	409	269	55,986					81.
307	0	0	0	0	0	600					82.
468	459	296	112	0	0	3,014					83.
0	0	0	0	0	0	42,596					84.
0	0	0	0	0	0	973					85.
269,800	287,399	142,688	124,459	92,564	108,367	1,516,796					86.
14,061	6,283	2,939	2,172	737	566	65,655					87.
1,257	4,652	0	0	0	0	8,387					88.
285,118	298,334	145,627	126,631	93,301	108,933	1,590,838	1,840,534	584,090	1,797,965	2,185,735	89.

be used for its originally intended purpose. As a result, a policy was developed concerning use of this power. It would be used, in order of priority, for (1) surplus water service; (2) for delivery of Article 12(d) and 14(b) makeup water and (3) for any other type of water that might be delivered in lieu of surplus water, such as water delivered under the wet weather provision. If all the power was not used for the above purposes, it would be used for entitlement water service to the extent that power scheduled for that service was considered deficient. Although a final accounting had not been made at the time this was written, it is apparent that this policy resulted in much of the committed power being used to pump Article 12(d) makeup water which was delivered during 1978.

Repayment Water. The State entered into two contracts in 1964 to acquire a water supply for preconsolidation purposes. Each of the contracts provided that the State would deliver project water to the contractors in future years as partial payment for the preconsolidation water. The contracts have since been acquired by the J. G. Boswell Company and the Belridge Oil Company. During 1978, 592 cubic dekametres (480 acre-feet) were delivered to the J. G. Boswell Company, leaving an end-of-year balance of 104 718 cubic dekametres (84,895 acre-feet) to be delivered prior to 1985. Deliveries to the Belridge Oil Company totaled 2 405 cubic dekametres (1,950 acre-feet) leaving a balance of 71 515 cubic dekametres (57,977 acre-feet) to be delivered before 1985.

The State and the Mojave Water Agency entered into an agreement in 1967 to make available a water supply to the State for use in construction of the San Bernardino Tunnel, and so that the State might provide Crestline-Lake Arrowhead Water Agency an interim water supply if tunnel construction caused a depletion in the agency's ground water supply. Water obtained by the State under the agreement was pumped by the State from a well that tapped a ground water basin underlying a portion of the Agency's area. The agreement provided that the State would repay Mojave for the ground water by delivering an equal amount of SWP water to the agency by means of releases from Lake Silverwood. The total amount of water owed the agency under the agreement at the beginning of 1978 was 720 cubic dekametres (584 acre-feet). This amount was released to the agency from Silverwood in June 1978.

Local Water Deliveries. SWP facilities are used to make deliveries of nonproject water to both contractors and noncontractors. These deliveries are shown as local water deliveries in Table 3. The agencies shown as having received local water, excepting the Wheeler Ridge Maricopa Water Storage District, have also received such deliveries in prior years and will again in the future. The Wheeler Ridge delivery was made under a 3-month extension of an agreement made during the 1977 drought for the purpose of distributing locally pumped ground water.

1977 Exchange Water. All 1977 exchange agreements with the exception of those with the City of San Francisco and the Marin Municipal Water District terminated at the end of 1977. The latter two continued through February 15, 1978. San Francisco took 1 200 cubic dekametres (973 acre-feet) of exchange water in 1978, all during January, while Marin took none.

Emergency Relief Water. As noted in Bulletin 132-78 (see pages 62 and 63) 110 841 cubic dekametres (89,859 acre-feet) of Metropolitan Exchange water and 6 559 cubic dekametres (5,317 acre-feet) of purchased water remained undelivered after all deliveries under the contracts had ended. The total of 117 400 cubic dekametres (95,176 acre-feet) was held in SWP reservoirs and was available for an extension of the 1977 emergency drought relief program in the event the drought continued through 1978. When it became apparent that no drought relief

measures would be required in 1978, the water was sold. The following three entities purchased the water for $36.50 per cubic dekametre ($45 per acre-foot) plus the variable OMP&R transportation cost to be incurred in its delivery:

Entity	Acre-feet Purchased
Kern County Water Agency	94,526
Green Valley Water District	600
Tracy Golf and Country Club	50
Total	95,176

The emergency relief water sale price of $36.50 per cubic dekametre was considered to be a favorable one from a SWP standpoint considering there was no longer a water shortage. However, this price was about $21 per cubic dekametre less than the costs incurred by the State in acquiring the water. The State thus incurred an unrecovered cost of about $2,480,000 for the 1977 exchange and purchase water acquired for the emergency drought relief program. This cost has been declared nonreimbursable.

Green Valley took delivery of its purchased amount during 1978 in accordance with its agreement with the State. Tracy Golf and Country Club's agreement also called for delivery in 1978, but, since the Club was unable to complete construction of the turnout structure, the agreement was extended to allow delivery in 1979. Kern purchased Emergency Relief water on behalf of the Lost Hills Water District for delivery during the years 1978 through 1983. Beginning in 1979, at least 23 436 cubic dekametres (19,000 acre-feet) a year must be scheduled as long as the total undelivered water equals or exceeds that amount. The agency elected to take none of the water during 1978.

1978 Exchange Water. Bulletin 132-78 (see pages 16 and 17) noted that in late 1977 an exchange agreement had been signed, under which MWD would release 246 700 cubic dekametres (200,000 acre-feet) of its project water for delivery to other contractors in 1978, and, in exchange, would pump an additional 246 700 cubic dekametres (200,000 acre-feet) of its Colorado River supply. Pursuant to this agreement, 37 005 cubic dekametres (30,000 acre-feet) of Colorado River exchange water were pumped in January, before it became apparent that an emergency drought relief program would not be required in 1978. Under three-party agreements, 6 168 cubic dekametres (5,000 acre-feet) of this water were later sold to the Dudley Ridge Water District, and 30 838 cubic dekametres (25,000 acre-feet) to Kern County Water Agency. The agreements provide that the State will deliver the 37 005 cubic dekametres (30,000 acre-feet) of exchange water, which was held in project reservoirs at the end of 1978, to MWD in 1979. MWD will take the water and store it in local ground water basins. When the water is scheduled for delivery to Kern and Dudley Ridge, the State will deliver project water to them, and MWD will use a like amount of the stored exchange water in lieu of delivered water. Kern and Dudley Ridge must take delivery of the water prior to March 31, 1983 and pay all State incurred costs in connection therewith.

Ground Water Demonstration Program. The Mojave Water Agency and the San Bernardino Valley Municipal Water District agreed to participate in demonstration projects, involving the storage of project water in local ground water basins.

Pursuant to an agreement between Mojave and the Department, 29 214 cubic dekametres (23,684 acre-feet) of project

water were released into the West Fork of the Mojave River through the outlet works of Cedar Springs Dam. A total of 27 754 cubic dekametres (22,500 acre-feet) of released water is considered to have reached and to be available for future extraction from those ground water basins within the agency, which are replenished from Mojave River flows. Pursuant to the agreement, the State purchased Mojave's full 1978 entitlement, and the agency received full credit for its 1978 Delta Water Charge. The Agency is to recapture all the demonstration water by December 31, 1982 in lieu of delivery of project water in quantities equal to the recaptured amounts. Payment will be made on the recaptured water as though the water has been delivered from the Delta. Costs associated with the 1978 storage of the water will be treated as SWP conservation costs, and payments made by Mojave for recaptured water will be credited to SWP conservation costs.

The ground water demonstration program agreement between the State and San Bernardino provides for the storage of up to 61 675 cubic dekametres (50,000 acre-feet) of project water in ground water basins within the District. Up to 12 335 cubic dekametres (10,000 acre-feet), can be stored annually from 1979 to 1985. The State will credit the District each year an amount equal to the product of the then current Delta Water Rate and the quantity of project water stored, to the extent that deliveries of entitlement water to the District, plus the stored amount, do not exceed the District's annual entitlement for the year. The State will credit San Bernardino for costs incurred: (1) in using San Bernardino's facilities for transporting and spreading demonstration water and related services and (2) in using capital improvements of any additional distribution or spreading facilities to the extent they are necessary, if approved by the State prior to the time costs are incurred. The State will reduce San Bernardino's credit by one-half of the ground water pumping costs not incurred as a result of indirect storage. All stored water is to be recaptured by the District within 15 years. The District will pay the State for recaptured water as if the water was delivered from the California Aqueduct in that year. The State will credit San Bernardino for costs incurred (1) in using local extraction facilities, (2) in using capital improvements of any additional pumping or distribution facilities required to recapture the demonstration water, if approved by the State prior to the time costs are incurred, and (3) in lifting the recaptured water to an operating hydraulic gradient equivalent to that San Bernardino would have had in the absence of this program, but not to exceed the hydraulic gradient at the San Bernardino delivery point. An operations agreement between the District and the State which specifies recapture criteria has been executed. As in the Mojave program, all costs associated with the storage of this water are treated as conservation costs, and all revenues associated with its recovery are treated as conservation cost credits. Storage of Project water in the District's ground water basins during 1978 totaled 11 405 cubic dekametres (9,246 acre-feet).

Wheeling of Federal Water. The State has entered into contracts with the United States and nine agencies calling for the wheeling of CVP water to Kern County Water Agency's Cross Valley Canal for the agencies. Under another contract between the State and the United States, the USBR provides the water and power for the wheeling. Subject to the availability of water, up to 155 214 cubic dekametres (125,832 acre-feet) of water per year is wheeled. Only 10 345 cubic dekametres (8,387 acre-feet) were wheeled during 1978 because of low local demand. The following tabulation shows the agencies contracting for wheeling service, the maximum annual amount of wheeling contracted for, the amount wheeled in 1978, and the charge to each for the 1978 wheeling service:

Agency	Maximum Annual Contractual Amount (cubic Dekametres)	Maximum Annual Contractual Amount (Acre-Feet)	Wheeled During 1978 (cubic Dekametres)	Wheeled During 1978 (Acre-Feet)	Charge for 1978 Wheeling (dollars)
County of Fresno	3 701	3,000	367	298	1,672
County of Tulare	3 701	3,000	1 918	1,555	8,723
Ducor Irrigation District	1 480	1,200	50	41	230
Hills Valley Irrigation District	2 647	2,146	263	213	1,195
Kern-Tulare WD	49 340	40,000	0	0	0
Lower Tule River Irrigation District	38 364	31,102	3 813	3,091	17,340
Pixley Irrigation District	38 364	31,102	3 813	3,091	17,341
Rag Gulch WD	16 406	13,300	0	0	0
Tri Valley WD	1 211	982	121	98	549
Total	155 214	125,832	10,345	8,387	47,050

Wet Weather Related Activities.

Above-normal precipitation during late 1977 and in 1978 resulted in heavy spring snowpacks in the Sierra Nevada and the potential for spring flooding in the San Joaquin Valley with substantial losses to agriculture. Through operation of the SWP under special agreements, losses from flooding in the State service areas of the San Joaquin Valley and in Southern California were considerably lessened.

Kern River Intertie. The Kern River Intertie was completed in November 1976 for the purpose of making gravity diversions of Kern River flood flows into the California Aqueduct. The State is reimbursed for all expenses incurred in operating the intertie structure. Diverted water was to be used to meet Project delivery and storage demands south of the intertie. In 1978 the intertie was used for the first time, with a total of 219 478 cubic dekametres (177,931 acre-feet) diverted into the California Aqueduct during April, May and June. Included in this total were 11 240 cubic dekametres (9,112 acre-feet) of Kaweah River flood water, which was introduced into the Kern River Channel via the Friant-Kern Canal following approval by the USBR, the State, and the Kern River Watermaster.

In April 1978 when diversions commenced, there was little remaining storage space in Southern California reservoirs in which to place the water, and SWP water delivery demands to the South were low because of the abundance of local supplies.

Pumpback Agreement. Under an agreement between the State and Delta Lands Reclamation District No. 770, a portion of the Kern River flood flow water entering the California Aqueduct through the Kern River Intertie was used to make project deliveries from aqueduct turnouts north of the intertie. The District, at no cost to the State, installed pumps at check structures No. 25 and 23 and paid all costs associated with their operation, including power costs, and removal costs. During May 1978 these pumps delivered a total of 22 162 cubic dekametres (17,967 acre-feet) of Kern River water to Project water users north of the intertie. Although this amount was less than the anticipated pumping because

Kern River flows were of a lesser magnitude than had been projected, it did allow the beneficial use of Kern River flood flows, which would otherwise have flooded agricultural lands.

Additional Water. MWD agreed to a request by Delta Lands Reclamation District No. 770 that it take additional Project water, in lieu of an equivalent amount of scheduled Colorado River water, for purposes of increasing the use of Kern River flood flows. Two agreements were executed in order to implement this arrangement. Under the first, between MWD and the State, Metropolitan agreed to take up to 154 188 cubic dekametres (125,000 acre-feet) of Kern River flood flow water in place of an equivalent amount of Colorado River water, and to pay the State $4.67 per acre-foot for all Kern River water delivered. The $4.67 amount was the unit power cost incurred by MWD for the importation of Colorado River water. Although the water delivered under this agreement became Project water after entering the California Aqueduct by way of the Kern River Intertie, the agreement specifically provided that this additional water was not entitlement water. The second agreement, between the State and Delta Lands Reclamation District No. 770, provided that the District would pay the estimated power cost on each acre-foot of water delivered under the MWD agreement minus the $4.67 per acre-foot MWD payment, plus a $0.50 per acre-foot service charge. The power charge was made subject to end of year redetermination based on actual 1978 conditions.

Deliveries under these agreements totaled 52 542 cubic dekametres (42,596 acre-feet). Deliveries, all of which occurred during May 1978, were terminated when it was determined that flooding was no longer probable.

Storage of Local Inflow in Castaic and Pyramid Lakes. The Department obtained a temporary right to store local inflow in Castaic and Pyramid Lakes in 1978. A total of 168 037 cubic dekametres (136,228 acre-feet) of water was subsequently stored in the two lakes for future project uses. This water was stored during periods of high runoff, when releases at rates comparable to inflow rates would have resulted in (1) ocean recharge and (2) some damage due to high flows between the lakes and the ocean.

United Water Conservation District of Ventura County requested the State to provide temporary storage of some of the inflow water for later use. A letter agreement between United and the Department provided for the temporary storage of 25 904 cubic dekametres (21,000 acre-feet) of inflow water in Castaic Lake and 11 102 cubic dekametres (9,000 acre-feet) in Pyramid Lake. The District was assessed an administrative charge of $0.50 per acre-foot for the water stored, except for 3 700 cubic dekametres (3,000 acre-feet) released from Pyramid Lake for maintaining flows as requested by the Department of Fish and Game.

Excess Peaking. Above average precipitation during the early part of 1978 resulted in Project water deliveries being considerably less than the amounts scheduled for that period. The Department was requested to reschedule much of this undelivered entitlement and Article 12(d) water for delivery later in the year. In eight cases this shift resulted in monthly deliveries of entitlement plus Article 12(d) makeup water in amounts exceeding the monthly peaking limitations specified in Article 12(b) of the long-term contracts. The eight contractors were asked to sign agreements that would require them to pay a charge that would apply against power costs, in order to adjust downward the variable rates paid by other contractors to the amount that would prevail if peaking was within contractual limitations. Five contractors signed the agreements, and the schedules of the remaining three were adjusted to eliminate excess peaking. Any charges to be assessed under the five agreements will be determined in 1979.

Action Related to Wet Weather Provisions. Eight of the long-term water supply contracts contain the so-called "wet weather" provisions. These provisions were included in order to provide a means of taking delivery of entitlement water in amounts either greater or lesser than Table A amounts when the local water supply was respectively less than or greater than normal. It was intended that over the years the total amount of Project water taken would be equivalent to the sum of the Table A amounts through those years and that total contractor payments would also be about the same as those which would have been received if there had been no deviation to Table A amounts. Table 2 shows the future delivery credits and the rights to future Table A reductions, which have been accumulated under these provisions as of January 1, 1979.

Five of the eight contractors having the "wet weather" provisions were unable to take full 1978 entitlements due to above-normal local water supplies. The five and the quantities of entitlement water not used are shown in the following tabulations:

1978 Entitlement Water Not Taken

Contractor	Cubic Dekametres	Acre-feet
Alameda Co. FC&WCD, Zone 7	14 806	12,003
Alameda Co. WD.	22 668	18,377
Empire West Side ID	3 701	3,000
Hacienda WD	5 674	4,600
Tulare Lake Basin WSD	71 027	57,582
TOTAL	117 876	95,562

Alameda County FC&WCD, Zone 7, Alameda County Water District, Hacienda Water District, and Tulare Lake Basin Water Storage District each acquired a credit to the future delivery of the water not taken in 1978. This water has a future delivery priority ahead of agricultural surplus water and repayment water. Tulare preferred to increase its future delivery rights rather than offset previous credits for increased deliveries and was allowed to do so after a determination was made that a decrease was not mandatory under the "wet weather" provisions.

Although Empire West Side Irrigation District's contract contains the "wet weather" provisions, they are not applicable because the District is at its maximum annual entitlement. Therefore, under present contract provisions the District could not take delivery of the 3,000 acre-feet of entitlement water it did not take in 1978.

Devil's Den Water District annual entitlements are also at the maximum annual entitlement level. The District requested the Department to amend its long-term contract to include the "wet weather" provision, because it was unable to use 1 650 cubic dekametres (1,338 acre-feet) of its entitlement water in 1978. Since the provisions could not be used (because the District is at its maximum annual entitlement), the requested amendment was not executed. As explained in the section on contract amendments in this chapter, the two Districts were given wet-weather relief under a newly approved policy.

Project Water Delivery Plans

In early September 1978, SWP contractors submitted their estimated monthly project water delivery requirements for the six-year period of 1979 through 1984. Estimates included entitlement, makeup (Article 12(d), Article 14(b) water), and surplus water.

Entitlement Water. The following tabulation shows the estimated entitlement plus makeup water needs submitted in 1978 and, for comparison purposes, similar estimates submitted in each of the five previous years.

Year Estimate Submitted	Year and Delivery in Acre-feet[a/b/]					
	1979	1980	1981	1982	1983	1984
1978 c/	2,026,755	2,026,174	2,164,013	2,300,401	2,408,652	2,495,503
1977	2,108,541	2,170,409	2,374,135	2,574,831	2,371,140	2,482,275
1976	1,919,070	2,026,880	2,168,335	2,273,925	2,376,990	
1975	1,813,362	1,931,067	2,027,770	2,131,960		
1974	1,925,483	2,022,548	2,112,251			
1973 c/	1,864,075					

a/ *Metric conversion is acre-feet times 1.2335 equals cubic dekametres.*
b/ *Includes anticipated delivery of Article 12(d) water and project entitlement water recaptured from ground water storage pursuant to demonstration project agreement.*
c/ *Six-year requests received, whereas in intervening years seven-year requests were received.*

The tabulation shows that, although estimates of future use vary somewhat, overall use of entitlement water is expected to be substantially lower than the total entitlement water contracted. The estimates of 1979 usage made in 1977 and 1978 exceed the contractual amount only because these estimates include large quantities of Article 12(d) water, which agricultural contractors will use in place of surplus water.

The rule curve, mentioned previously in this chapter, developed for determining the quantity of SWP water that could be approved for delivery in 1978 was updated for 1979 determinations. Schedules were therefore not issued on December 1, 1978 for 1979 as called for in Article 12(a) of the long-term surplus water contracts. Based on water supply conditions on December 1, 1978, the Department, through use of the rule curve, was able to announce on December 12 that all requested entitlement and makeup water deliveries could be met in 1979, even if the year was as dry as 1977. Approved monthly water delivery schedules were issued soon after that announcement. The schedules call for 1979 deliveries of 2 261 632 cubic dekametres (1,833,508 acre-feet) of entitlement water and 268 085 cubic dekametres (217,337 acre-feet) of emergency relief, Article 12(d) and Article 14(b) water.

Surplus Water. Surplus water, including preconsolidation repayment water, was not scheduled for delivery on the initial 1979 water delivery schedules. Contractors were told that such water could not be approved for delivery until the rule curve criteria indicated a 1979 water supply sufficient to make such deliveries. Use of the criteria based on actual December 1, 1978 conditions showed there would be no additional water for surplus water service in 1979, if 1979 should be a critically dry year. Since it was unlikely that the year would be that dry, the major concern of potential surplus water users at that time was how much surplus water could eventually be made available in 1979 and how soon could it be scheduled for delivery.

Wheeling of Federal Water. Pursuant to contracts under which the State conveys water, a request was received in December 1978 for the delivery of 153 734 cubic dekametres (124,632 acre-feet) of such water to eight of the nine

agencies which had contracted for this service. USBR was not sure how much CVP water could be made available in 1979 for the eight agencies, and could guarantee only the quantity requested for delivery in January 1979. Initial schedules issued by the Department approved only January deliveries and tentatively approved, from a State delivery capability standpoint, deliveries requested in each of the remaining months of the year. Revised schedules were later issued approving delivery of the full requested amount following a determination by the Bureau that the water and power for pumping that water would be available.

Contract Amendments

Each of the thirty-one long-term contracts has been amended. These amendments now total 286. Figure 6 shows for each contract the amendments to that contract by number and general subject. In addition to the numbered amendments shown in Table 6 some Table A amounts in a few contracts have been revised by unnumbered amendments or notices of Table A revisions. Such notices are used when a Table A change is dictated by actions and agreements other than an executed contract amendment, such as a provision in the amended Article 21 if surplus water received exceeds that year's annual entitlement.

Several amendments to the long-term water supply contracts sent to contractors for signature prior to 1977 have never been signed. These include:

- Amendment to the City of Yuba City contract concerning calculation of the Project interest rate and the Delta Water Charge. All other contracts have been amended to include the change in interest rates provided in this proposed amendment.

- An amendment to the contract with Solano County Flood Control and Water Conservation District concerning calculation of the Delta Water Charge. All other contracts except the Yuba City contract have been amended to include this provision.

- 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. All other contracts reflect the amendment.

- An amendment to realign and clarify the surplus water provision; the amendment has been signed by 23 contractors, but has not been signed by the 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 Gabriel Valley Municipal Water District, San Gorgonio Pass Water Agency, and The Metropolitan Water District of Southern California.

Butte County has been unable to market a large portion of the Project water it contracted for in 1963. As a result, the County has for several years been attempting to have its annual entitlements reduced. Following approval of the modified report of the Task Force on Water Deliveries (Transfer of Entitlements section in Chapter I), an amendment providing for reductions in Butte County's Table A amounts was developed by the end of 1978. The approved report recommends that requested decreases in entitlement amounts be approved providing that the contractor agrees to make accelerated payments in an amount up to the Delta Water Rate on each acre-foot of reduction and that this payment be credited against the contractor's allocated transportation costs. It further recommended that contractors, such as Butte, which do not have transportation charges, be allowed to decrease entitlements without the accelerated payment requirement. Not all the details and language concerning the accelerated payment had been worked out at this writing, therefore, amendments to the contracts

Figure 6: WATER SUPPLY CONTRACT AMENDMENTS AS OF DECEMBER 31, 1978

Contracting Agency	Minimum Project Yield Increased	Delta Water Charge, "Del" Costs Delayed			Project Interest Rate Modified	Surcharge and Surcharge Credit Provisions						"Net Negative" Provisions Added	"A & B" Surplus Water Provisions		Turnout Construction by Agency	Pooling Service		Annual Entitlements Revised	Excess Capacity Purchased	Article 21 Revised	Special Conditions	Subdivision (i) of Article 1 Revised (Project Repayment Period)
		1970	1971	1972 till construction		Added	Revised	Moratorium Declared From 1969	Moratorium Declared 1970	Moratorium Declared 1971	Moratorium Declared Waived		Added	Revised		Increased	Decreased					
FEATHER RIVER AREA																						
City of Yuba City	1	2P	2P	2P	2P		1							1				1		NA		
County of Butte	1	3	5	5	5		1	2		4	5			1				6[1]		NA		6
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	3		1	11	2				10	1,6	
Santa Clara Valley Water District	2	6	8	10	6	2		3	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	3		3	6					7		
Devil's Den Water District	1	3	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	13			1,15				1,2 3,4		12		
Empire West Side Irrigation District	1	4	6	7	4			3	5	8	9	3		1,11				2		10		
Hacienda Water District	1	4	6	7	4			3	8	8	9	3		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		7	8	8	3			2	4	7	9	3		3	11	1		8		10		
Tulare Lake Basin Water Storage District	2	5	6	7	5			4		8	10	3		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 3,7				2				
SOUTHERN CALIFORNIA AREA																						
Antelope Valley-East Kern Water Agency	1	5	6	7	5	1					8			1 10			3 2	1	4	9	4,3 4	
Castaic Lake Water Agency	2	4	5	6	4	1	2				7			1 2,10			2	2,3 4		8		
Coachella Valley County Water District	2	3	4	5	3	1	2				6			1 2,9				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			3 2			3	2		8	5	
Palmdale Water District	2	3	4	5	3	1	2				8			1 2,8				2		7		
San Bernardino Valley Municipal Water District	2	4	5	6	4	1	2				7			1 2				1,2 3,8		8		
San Gabriel Valley Municipal Water District	2	4	5	6	4	1	2				7			1 2			2	2,9	1	8		
San Gorgonio 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				1,5 6V,15	12,6 7	14	Ca	
Ventura County Flood Control District	1	2	3	4	2		1				5			1,7						6		

1) *Approved by the County of Butte on January 23, 1979*

P = Pending
S = Special provisions of basic contract.

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

of contractors, other than Butte, which have indicated a desire for decreases, have not been pursued. The executed amendment, dated January 23, 1979 reduced Butte County's annual entitlements for 1978 through 1990. The amendment also revised the definition of the Project repayment period to provide that it would end December 31, 2035.

Kern County Water Agency requested that its water supply contract be amended to provide a contractual means of delaying payment of all, or a portion of, the capital components of the Delta and Transportation charges for up to three months in any year. All contractors were sent a draft of an amendment that would accomplish the requested delay and asked to comment on it and to notify the Department if they wished their contracts so amended. At year's end no objections to such an amendment had been received, and Kern was told that its contract would be amended to include the requested provision. No other requests for the amendment were made.

Hacienda Water District requested that the Department approve a transaction under which Hacienda's obligations under its water supply contract with the State be assumed by Tulare Lake Basin Water Storage District. Tulare Lake Drainage District intends to annex the Hacienda lands and Tulare Lake Basin Water Storage District would acquire Hacienda's Project water and contractual repayment obligation. The drainage district intends to use Hacienda land for the disposal of drainage water. The Department has agreed to the proposal because it will remove from future use certain agricultural lands thereby reducing ground water overdraft, provide beneficial wildlife habitat, and provide a needed disposal area for agricultural drainage water. Pending formal implementation of the proposal Hacienda's Project water will be delivered to Tulare under an interim agreement.

A previous section of this chapter discussed the fact that although Empire West Side Irrigation District has the "wet weather" provisions in its contract, they are inapplicable because the District has reached its maximum annual entitlement. The District took none of its Project entitlement water in 1978 due to an above-average local supply. Since the District would obtain no benefit through the wet weather provisions, its Table A amount for 1978 was amended by reducing it to zero. This action was made possible under the approved criteria set forth in the modified report of the Task Force on Water Deliveries. Under that criteria, the District's 1978 Delta Water Charge payment was credited to the District's long-term allocated Transportation capital costs. Project cash flow was thereby not adversely affected by this Table A change.

Devil's Den Water District, also at maximum entitlement, was unable to use all of its 1978 entitlement water. The District's request to amend its contract to include the wet weather provisions, so that it could use the undelivered 1979 entitlement water in a later year, was refused because the provisions, as in the case of Empire, would not be applicable. Devil's Den was also offered a reduction in its 1978 entitlement amount under the newly approved Task Force criteria and upon acceptance, its 1978 entitlement was reduced from 15 665 cubic dekametres (12,700 acre-feet) to 14 015 cubic dekametres (11,362 acre-feet). That portion of the District's Delta Water Charge payment in 1978 associated with the reduced entitlements was credited to the District's allocated Transportation capital costs.

During the year, the Department announced that the public would be welcome to observe contractual negotiations involving the Department and that notice of scheduled meetings would be furnished upon request.

Negotiation of Water Charge Settlements

A task force consisting of representatives of the State Water Contractors

Audit Committee, MWD and the Department's Water Service Contract Cost Negotiation Committee continued its discussions and negotiations during 1978.

Protests of Water Contractor Charges. Several issues concerning contractor's water service charges have not yet been resolved. It is the Department's desire to finalize certain computational methods used in determining water charges which need not be protested, therefore reducing the number of issues that remain unresolved. Water Service contractors Council Memo No. 1257, dated September 22, 1978, extended until December 21, 1979 the time for the Department and the water contractors to reach agreement on the following items:

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

Replacement of Project Operating Facilities. In 1978 the Department's Replacement Committee continued its study of the Department's procedures for establishing fund reserves necessary to finance future costs of replacement of Project facilities. Meetings were held with the Task Force and the Technical Accounting Subcommittee. The resulting financing and accounting procedures were approved by the Director on April 17, 1979 to be effective with the 1980 annual statement of charges to water contractors. The final report on Replacement of Operating Facilities of the State Water Project will be completed in 1979.

Project Purpose Cost Allocation. Assembly Bill No. 1514 was introduced in the Legislature in 1977 requesting reimbursement under provisions of the Davis-Dolwig Act for recreation and fish and wildlife enhancement costs that have previously been financed by SWP. The bill included requests for reimbursement of recreation capital costs totalling about $67,130,000 based on revised cost allocations for the California Aqueduct, Dos Amigos Pumping Plant and the Oroville Division. Assembly Bill No. 1514 was approved by the Legislature and signed by the Governor on August 22, 1978.

The study and negotiations to establish a project purpose cost allocation for the California Aqueduct, Dos Amigos Pumping Plant to termini continued in 1978. Department staff met with representatives of the water contractors twice in late 1978 and the meetings will continue through 1979. The cost allocation for Dos Amigos Pumping Plant to termini is scheduled to be reported to the Legislature in 1980 (Bulletin 132-80, Appendix D).

Budget Review

In the fall of 1978, in line with passage of Proposition 13, the Governor asked all State departments to review their 1978-79 budgets and to identify their lowest priority programs and activities making up 10 percent of their State funded operations. Accordingly, the Department reviewed all programs supported by the State's General Fund, Special State Funds, and SWP funds, and identified the lowest in priority. Implementation of the Governor's request together with a State hiring freeze resulted in planned budget reductions of about $6 million, including $2.6 million in Project funds for the 1978-79 fiscal year.

In September 1978 the Director had his annual meeting with representatives of the water contractors to review SWP expenditures for the 1979-80 fiscal year. This is the third year of water contractors' participation in the revised budget review process. This process replaced the after-the-fact negotiations of protested capital costs practiced in prior

years. This is done annually in order to answer questions concerning the Department's program direction and expenditure levels, to clarify any issues concerning specific planned actions and to reduce the number of cost items that might be contested by the water contractors.

In 1978 at the request of water contractor representatives, the Department expanded its cost accounting system to provide additional budget and accounting information for their review. The additional information was requested by the representatives to aid in auditing SWP expenditures by the Department. The additional information was limited to five sample work programs during the 1979-80 fiscal year. If the additional information proves helpful in the audit process, the Department has agreed to expand its accounting system to provide this information for all SWP work programs.

POWER CONTRACT MANAGEMENT AND ENERGY ACTIVITIES

Energy Activities

The Department's continuing activities regarding electrical energy for project pumping cover two distinct areas: (1) the management of current power purchase-sale contracts and development of power costs and use data required for the administration of SWP water supply contracts, and (2) the acquisition of cost-effective and reliable power supplies for SWP operations beyond March 31, 1983, when current firm power purchase-sale contracts terminate.

The Energy Committee, established in 1976, (see p. 72, Bulletin 132-77), provides a forum for water contractor briefing and commentary on current events and activities concerning the Department's energy activities. The treatment of power costs in computing water bills is also discussed. During 1978, the Committee met four times.

Power Contract Management Activities in 1978

Highlights of the Department's power contracts management during 1978 primarily reflected the rapid transition from unprecedented drought to abundant water supplies.

Pumping Power for the 1978 Exchange Program. MWD Exchange Programs were conducted to stretch total available water supplies during the 1976-77 drought. A major contribution to the cost-effectiveness of these programs was the power which was provided (for pumping additional water through MWD's Colorado River Aqueduct) by electric utilities at rates similar to those under the Suppliers Contract. (See pgs. 71-72, Bulletin 132-77, and p. 84, Bulletin 132-78, regarding power aspects of the 1976 and 1977 programs, respectively.)

The drought effectively ended in mid-December 1977, when most areas in California began to receive abundant precipitation. As part of the contingency preparations, should the drought extend into 1978, a 1978 Exchange Program was planned and implemented. In January 1978 the program was terminated. Again, electric utilties provided pumping energy for the program at rates similar to those under the Suppliers Contract.

In anticipation of a 1978 Exchange Program, 37 000 cubic dekametres (30,000 acre-feet) of water was pumped from the