STATE OF CALIFORNIA—RESOURCES AGENCY GEORGE DEUKMEJIAN, *Governor*

DEPARTMENT OF WATER RESOURCES
CENTRAL DISTRICT
P. O. BOX 160088
SACRAMENTO
95816

February 1986

DAYFLOW Data Users:

Historical hydrologic data for the Sacramento-San Joaquin Delta for October 1955 through September 1984 as reported by the DAYFLOW program are presented and documented in this report. The data are distributed to revise and update all previous DAYFLOW Data Summary reports. These data are intended for use in evaluating flow and flow-related ecologic conditions in the Delta. The input data for water year 1983-84 are preliminary, and the DAYFLOW data base is subject to revision.

The DAYFLOW program is summarized and documented in the following attachments:

Attachment A: DAYFLOW Program Documentation and Data Summary User's Guide

Attachment B: Summary Documentation of Several Existing Data Bases of Historical Delta Hydrology

Attachment C: Errata to Previous DAYFLOW Data Summary Reports

Attachment D: STORET DAYFLOW Data Base Documentation

Attachment E: Computer Program Documentation

Attachment F: Tables of Mean and Total Monthly Delta Inflow and Estimated Net Delta Outflow at Chipps Island

Attachment G: DAYFLOW Data Summary for Water Years 1955-56 through 1983-84* (includes first publication of September 1984 data)

The DAYFLOW data base is available on EPA's data base system, STORET. To gain access to the STORET DAYFLOW data base, please contact the Interagency Data Management Technical Committee (Chairperson Sheryl Baughman, (916) 978-4923). Questions, concerns, or suggestions regarding this report should be addressed to: Kamyar Guivetchi, Department of Water Resources, Central District, 3251 S Street, Sacramento, CA 95816, (916) 445-5157.

*Available upon request at $50 per copy.

Attachment A

DAYFLOW PROGRAM DOCUMENTATION AND

DAYFLOW DATA SUMMARY

USER'S GUIDE

Introduction

DAYFLOW* is a computer program developed in 1978 as an accounting tool for determining historical Delta boundary hydrology. DAYFLOW output is used extensively in studies initiated by the Department of Water Resources (DWR), the Department of Fish and Game (DFG), and less frequently by other State and Federal agencies (e.g., U. S. Bureau of Reclamation (USBR)) and private consultants. The output has been put in STORET, The Environmental Protection Agency's data storage and retrieval system, making it available for use nationally.

The DAYFLOW program presently provides the best estimate of historical mean daily flows: (1) through the Delta Cross Channel and Georgiana Slough; (2) past Jersey Point; and (3) past Chipps Island to San Francisco Bay (net Delta outflow). The degree of accuracy of DAYFLOW output is affected by the DAYFLOW computational scheme and the accuracy and limitations of the input data. The input data include the principal Delta stream inflows, Delta precipitation, Delta exports, and Delta gross channel depletions. These data include both monitored and estimated values as described in this DAYFLOW program documentation. Currently, flows are not routed to account for travel time through the Delta. All calculations involving inflows, depletions, transfers, exports, and outflow are performed using data for the same day. All DAYFLOW summary reports distributed through January 1985, providing flow data through August 1984, and data for September 1984 reported herein were generated according to the algorithm described in the Computational Scheme section.

DAYFLOW program documentation is presented as follows:

- Computational Scheme
- Summary Tables of Monthly Data
- Input Data Documentation
- Methodology for DAYFLOW Data Summary Generation
- Summary of Equations

Computational Scheme

The DAYFLOW computational scheme was developed to derive three types of quantities:

- Net Delta Outflow estimates at Chipps Island
- Interior Delta flow estimates at significant locations
- Summary and fish-related parameters and indices

The DAYFLOW FORTRAN program listing is presented in Attachment E.

*This program has also been referred to as the DAYFLO and DAY FLOW model.

Net Delta Outflow Estimates At Chipps Island

An estimate of net Delta outflow at Chipps Island is derived by performing a water balance about the boundary of the Sacramento-San Joaquin Delta, taking Chipps Island as the western limit (this quantity should not be confused with the total tidal flow, which is much larger). Figure 1 is a map of the area of interest. A flow schematic is shown in Figure 2. In its most general form, the water balance equation is (using DAYFLOW parameters; see Table 1 for a complete listing of DAYFLOW parameters and their definitions):

$$QOUT = QTOT + QPREC - QDEPL - QEXP \quad (1)$$

Where:

QOUT = Net Delta outflow at Chipps Island
QTOT = Total Delta inflow
QPREC = Delta precipitation runoff estimate
QDEPL = Deltawide gross channel depletion estimate (consumptive use)
QEXP = Total Delta exports and diversions/transfers

The parameters on the right side of the equation are input data used to calculate net Delta outflow. These input parameters are further defined in the Input Data Documentation Section, including exceptions and changes made to the parameters appearing in the equations presented.

Total Delta Inflow (QTOT). The principal surface water inflows, miscellaneous stream flows, and the Yolo Bypass flow addition near Rio Vista are included in determination of total Delta inflow according to the following equation:

$$QTOT = QSAC + QEAST + QYOLO \quad (2)$$

Eastern Delta inflow (QEAST) includes inflow to the Delta from the northeast, east, and southeast (Marsh Creek is the exception, flowing to the Delta from the southwest). QEAST is defined as:

$$QEAST = QSJR + QCRM + QMOKE + QMISC \quad (3)$$

Miscellaneous stream flow (QMISC) is a composite flow defined as:

QMISC = Calaveras River flow
+ Bear Creek flow
+ Dry Creek flow
+ Stockton Diverting Canal flow
+ French Camp Slough flow
+ Marsh Creek flow
+ Morrison Creek flow (4)

The Yolo Bypass flow addition to the Delta water balance is calculated as:

QYOLO = Yolo Bypass flow at Woodland
+ Sacramento Weir Spill
+ South Fork Putah Creek (5)

FIGURE 1

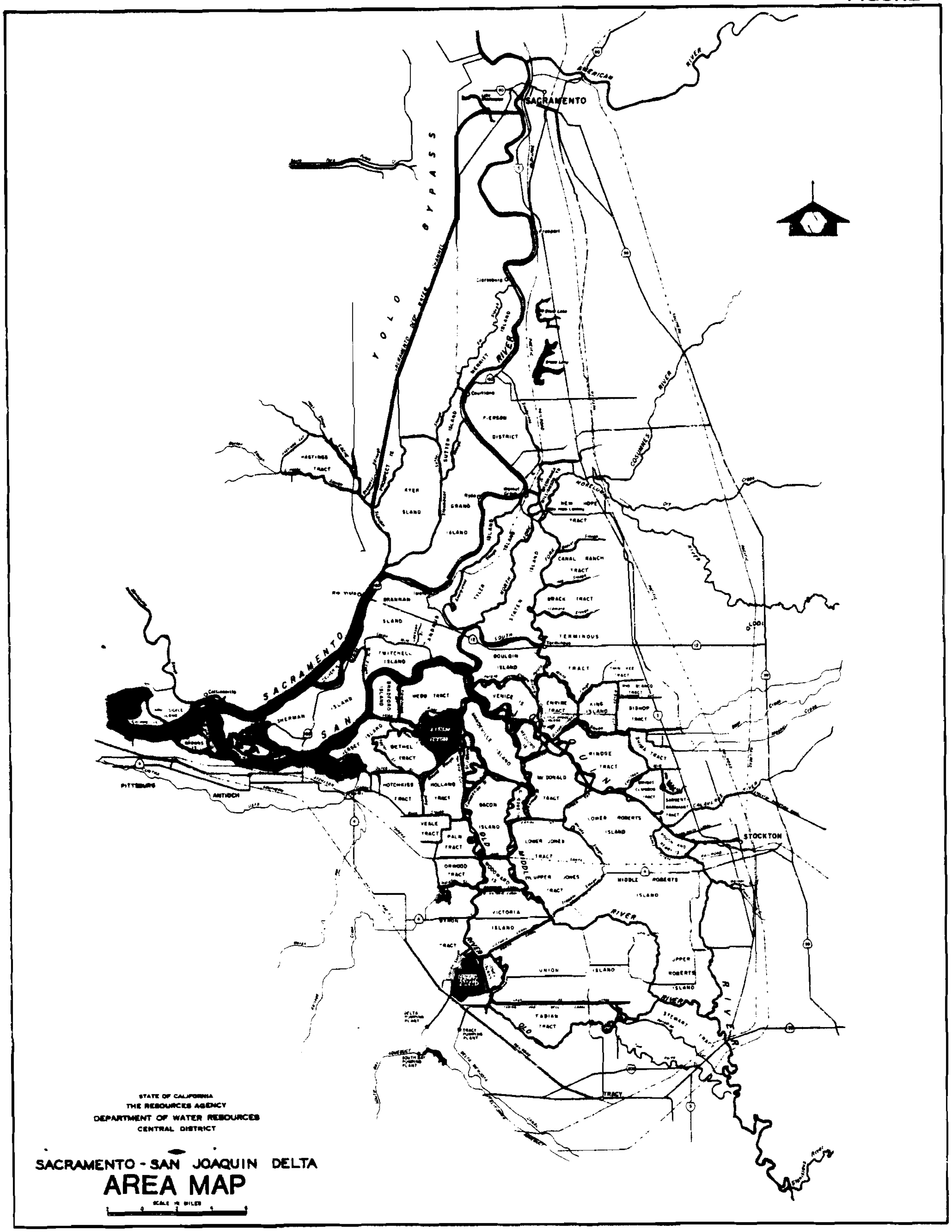

SACRAMENTO
AMERICAN RIVER
YOLO BYPASS
RIVER
PIERSON DISTRICT
HASTINGS TRACT
RYER ISLAND
GRAND ISLAND
NEW HOPE TRACT
CANAL RANCH TRACT
BRACK TRACT
TERMINOUS
LODI
BRANNAN ISLAND
TWITCHELL ISLAND
SACRAMENTO
SHERMAN ISLAND
SAN
WEBB TRACT
BOULDIN ISLAND
VENICE IS.
EMPIRE TRACT
KING ISLAND
BISHOP TRACT
BETHEL TRACT
HOTCHKISS TRACT
HOLLAND TRACT
RINDGE TRACT
PITTSBURG
ANTIOCH
BACON ISLAND
LOWER ROBERTS ISLAND
STOCKTON
LOWER JONES TRACT
UPPER JONES TRACT
MIDDLE ROBERTS ISLAND
PALM TRACT
ORWOOD TRACT
VICTORIA ISLAND
UNION ISLAND
UPPER ROBERTS ISLAND
FABIAN TRACT
TRACY
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
CENTRAL DISTRICT
SACRAMENTO - SAN JOAQUIN DELTA
AREA MAP
SCALE IN MILES

FIGURE 2

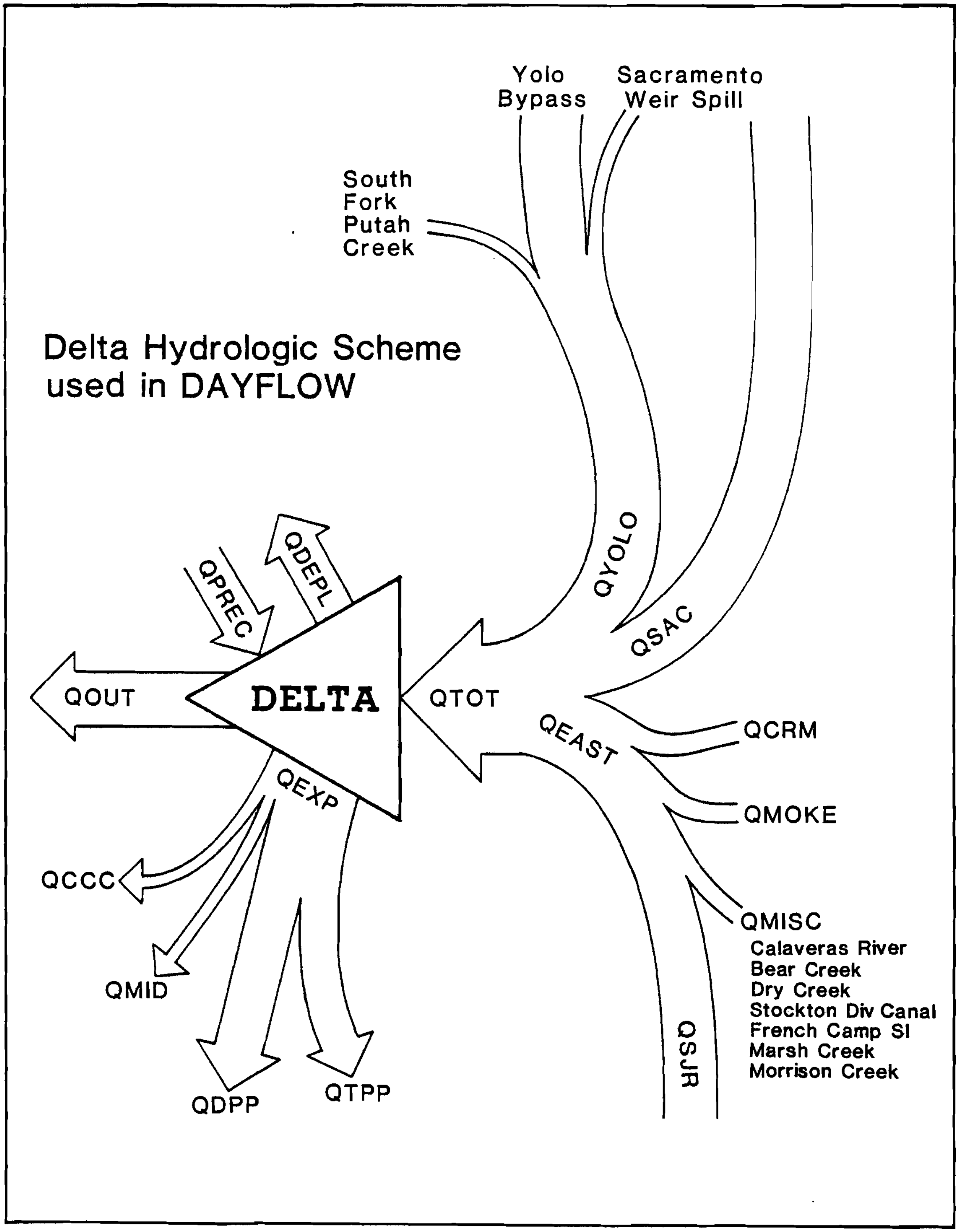

Delta Hydrologic Scheme
used in DAYFLOW
Yolo
Bypass
Sacramento
Weir Spill
South
Fork
Putah
Creek
QYOLO
QSAC
QDEPL
QPREC
QOUT
DELTA
QTOT
QEAST
QCRM
QMOKE
QMISC
Calaveras River
Bear Creek
Dry Creek
Stockton Div Canal
French Camp Sl
Marsh Creek
Morrison Creek
QSJR
QEXP
QCCC
QMID
QDPP
QTPP

Table 1

SUMMARY DAYFLOW PROGRAM DOCUMENTATION

Column No. 1/	DAYFLOW Parameter	Description	Pre – Execution Calculation	DAYFLOW Program Calculation	Comments
(1)	QSJR	San Joaquin River at Vernalis	None	None	Measured
(2)	QCRM	Cosumnes River at Michigan Bar	None	None	Measured
(3)	QMOKE	Mokelumne River at Woodbridge	None	None	Measured
(4)	QMISC	Miscellaneous Stream Flow	Sum of Calaveras River, Bear Creek, Marsh Creek, Dry Creek, Stockton Div. Canal, Morrison Creek and French Camp Slough	None	Sum of measured flows; hand calculated or intermediate program used (e.g., DFDAT84)
(5)	QEAST	East Delta Inflow	None	Sum of flows (1) through (4)	Calculated
(6)	QSAC	Sacramento River at Freeport	None	None	Measured
(7)	QYOLO	Yolo Bypass flow	Sum of Yolo Bypass near Woodland, Sacramento Weir Spill and South Fork Putah Creek	None	Sum of measured flows; hand calculated or intermediate program used (e.g., DFDAT84)
(8)	QTOT	Total inflow	None	Sum of flows (5) through (7)	Calculated
(9)	QDEPL	Gross channel depletion	None	None	Estimated by DWR (1965); repeating annual cycle
(10)	QPREC	Delta precipitation runoff	Depth converted to volume; evenly distributed over 5 days from event	None	Measured precipitation; estimated runoff pattern (5-day)
(11)	QCD	Net channel depletion	None	Depl(9) - flow(10)	Calculated
(12)	QTPP	CVP Tracy export	None	None	Operation records
(13)	QDPP	SWP export	BBID pumping subtracted (from 5/01/71)	None	Op. records; Delta PP through 4/30/71, Clifton Court intake from 5/01/71
(14)	QCCC	Contra Costa Canal export	None	None	Operations records
(15)	QMID	Miscellaneous diversions	Determine intensity and duration of event	None	Estimated diversions/transfers (e.g., island flooding/pumping)
(16)	QEXP	Total exports	None	Sum of exports (12) through (15)	Calculated
(17)	QXGEO	Delta Cross Channel and Georgiana Slough	Gate operation code and partial settings determined	Calculated by empirical formula based on gate settings and Sacramento River flow	Estimated; times determined and operations coded by hand
(18)	QWEST	Flow past Jersey Point	None	Flow(5)+flow(17)-exp(16)-65%depl(11)	Calculated
(19)	QOUT	Delta outflow at Chipps Island	None	Flow(8) - depl(11) - exp(16)	Calculated
(20)	QDIVER	Percent diverted	None	[Exp(16) + depl(11)]/ flow(8)	Calculated
(21)	QEFFECT	Effective inflow	None	A. If [exp(16) + 42% depl(11)] >=flow(1), then flow (21) = flow(8) - flow(1) B. If [exp(16) + 42% depl(11)] < flow(1), then flow(21) = Flow(8) - lower [(65% flow(1) + 15% depl(11)) OR (exp(16) + 42% depl(11))]	Calculated
(22)	QEFFDIV	Effective % diverted	None	[Flow(21) - flow(19)]/ flow(21)	Calculated

1/ Column numbers refer to DAYFLOW Data Summary report layout.

Some of the calculations (summarized in Table 1) associated with the determination of total surface water inflow to the Delta are performed prior to the execution of the DAYFLOW program, while others are performed during program execution, as described in the Methodology for DAYFLOW Data Summary Generation section.

Delta Precipitation Runoff Estimate (QPREC). In DAYFLOW, daily Delta precipitation is approximated using precipitation measured at Stockton Fire Station No. 4 in units of inches. It is assumed that the entire Delta receives the same depth when calculating the volume of water precipitated (depth multiplied by the area of the Delta (see pertinent notes in the Input Data Section). It is further assumed that the storm drainage is distributed evenly over five days, the day the precipitation was measured and the following four days. Precipitation is converted to a volumetric flow rate by dividing the volume of water (in cubic feet) by five days (in seconds) making its units consistent with other input data (e.g., streamflow).

Deltawide Gross Channel Depletion Estimate (QDEPL). Gross channel depletion (consumptive use) in the Delta is a difficult quantity to estimate because of the many variables involved. Direct monitoring is impractical at present; therefore, various approximation techniques are used.

Gross channel depletion is a significant parameter in the DAYFLOW program. Each month of the year has been assigned an average value, but the same annual pattern is used regardless of meteorological and hydrological conditions. Daily mean estimates were determined graphically by fitting the monthly averages with a continuous curve (see Input Data Documentation section).

The DAYFLOW parameter net channel depletion (QCD) is an estimate of the quantity of water removed from Delta channels to meet consumptive use (QDEPL).

QCD is defined as:

$$QCD = QDEPL - QPREC \tag{6}$$

The assumption is made that all of the precipitation runoff is available to meet consumptive use.

Total Delta Exports and Diversions/Transfers (QEXP). The primary purpose of including the total exports parameter is to account for all water diverted from the Delta by the Federal and State governments to meet water agreements and contracts. These include Central Valley Project pumping at Tracy (QTPP) and Contra Costa Canal (QCCC) and State Water Project exports (Banks Pumping Plant or Clifton Court Intake, QDPP). In addition, other water transfers between Delta channels and islands have been included in the parameter QEXP when applicable (e.g., island flooding and pumpage, QMID). The equation for total exports is:

$$QEXP = QTPP + QCCC + QDPP + QMID \tag{7}$$

It should be noted that since Clifton Court Forebay came on line, the SWP export (QDPP) has been taken as Clifton Court Forebay intake minus the Byron-Bethany Irrigation District diversion (explained in the Input Data Documentation section).

Interior Delta Flow Estimates

The DAYFLOW program has been used to evaluate flow at three interior Delta locations: (1) flow through the Delta Cross Channel and Georgiana Slough (QXGEO), (2) San Joaquin River flow past Jersey Point (QWEST), and (3) Sacramento River flow past Rio Vista (QRIO, used exclusively by the Department of Fish and Game). The derivations of these flow estimates are described below.

Delta Cross Channel and Georgiana Slough Flow Estimate. To obtain an approximation for cross-Delta flow (north Delta water reaching the central and southern Delta channels), the amount of water reaching the Mokelumne River system from the Sacramento River via the Delta Cross Channel and Georgiana Slough must be known. Because there are no streamflow gaging stations on either channel, empirical relationships have been developed to estimate Delta Cross Channel and Georgiana Slough flow given the Sacramento River flow at I Street Bridge in Sacramento. Since the Delta Cross Channel has two separately operated gates, three relationships are needed, for conditions when (1) both gates are closed (i.e., only Georgiana Slough flow), (2) one gate is open, and (3) both gates are open. The amount of time that each condition exists during a day is used to estimate the mean daily flow. It should be noted that even though the Sacramento River flow gaging station was moved to Freeport in October 1979, the relationships have not been reverified. Details of the empirical relationships now used, which were revised in 1978, are presented in the Input Parameter Documentation section.

San Joaquin River Flow Estimate Past Jersey Point. The amount and direction of San Joaquin River flow past Jersey Point is indicative of the water balance about the central and southern Delta. In particular, net reverse flow past Jersey Point indicates that higher salinity water (ocean) is being drawn into the interior Delta as a result of high depletions and exports with respect to stream inflows, precipitation, and cross-Delta flows. The following is used to determine this flow (using DAYFLOW parameters):

$$QWEST = QSJR + QCRM + QMOKE + QMISC + QXGEO - QEXP - 0.65\ (QDEPL - QPREC) \quad (8)$$

It is assumed that 65 percent of the net Delta channel depletions occur in the central and southern Delta (i.e., San Joaquin River system).

Sacramento River Flow Estimate Past Rio Vista. Assuming that 28 percent of the net Delta channel depletions (QDEPL - QPREC) occur along the Sacramento River between Freeport and Rio Vista, the following equation has been used to provide DFG with estimated flows past Rio Vista (using DAYFLOW Parameters):

$$QRIO = QSAC + QYOLO - QXGEO - 0.28\ (QDEPL - QPREC) \quad (9)$$

In other DWR studies, the depletions allocated to this area have been as high as 35 percent of the Deltawide net channel depletion.

Summary and Fish-Related Parameters and Indices

The DAYFLOW data base was developed by DWR in 1964 at the request of DFG. The data base was originally intended for fish and fisheries studies and, for many years, was used solely by DFG and DWR (primarily in biological work). The computational scheme used to generate the data base was partially automated (computerized) in 1978. The following are parameters or indices used by DFG:

- Percent water diverted from the Delta (QDIVER)
- Effective inflow to the western/central Delta (QEFFECT)
- Effective precent diverted from the western/central Delta (QEFFDIV)

A brief description of each parameter follows.

Percent Water Diverted (QDIVER). This index is calculated to quantify the portion of Delta water diverted for internal use and exports. In the most general form, it can be defined as:

$$QDIVER = \frac{(QTOT - QOUT)}{QTOT} \times 100 \qquad (10)$$

Expressing net Delta outflow (QOUT) by its components (see equations 1 and 6), the percent water diverted can be expressed as:

$$QDIVER = \frac{(QCD + QEXP)}{QTOT} \times 100 \qquad (11)$$

Effective Western/Central Delta Inflow (QEFFECT). This parameter was developed for the purpose of striped bass studies. Since striped bass are primarily in the western/central Delta, a water balance for this region would be more informative than a similar balance for the entire Delta. The parameter QEFFECT was defined to factor out from total Delta inflow (QTOT) the portion of San Joaquin River water not reaching the western/central Delta. This portion is the water diverted either by southern Delta water users or for exports. Therefore, QEFFECT is defined as:

$$QEFFECT = QTOT - QSJ4SD \qquad (12)$$

Where:

QSJ4SD = amount of San Joaquin River water used in, or diverted from, the southern Delta (i.e., not reaching the western/central Delta; this is not a parameter in DAYFLOW).

QTOT = as defined in equation 2.

To determine the amount of San Joaquin River water not reaching the western/central Delta (QSJ4SD), three general southern Delta flow patterns or cases are considered. Several flow quantities used to describe these cases are defined in Table 2. The three flow patterns and their associated equations for determining QSJ4SD are (the symbolic expressions are presented here and defined in Table 2):

Table 2

DEFINITION OF QUANTITIES
USED TO DETERMINE PARAMETER QEFFECT

Quantity	Definition
0.42 (QCD)	It is assumed that about 42 percent of Deltawide net channel depletions occur in the southern Delta.*
0.65 (QSJR)	It is assumed that 65 percent of the San Joaquin River flow splits into Old River (just upstream of Mossdale) and toward CVP and SWP export sites during certain hydrologic conditions.**
0.15 (QCD)	It is assumed that 15 percent of Deltawide net channel depletions occur along the San Joaquin River from the Old River split to the central Delta.*
QEXP + 0.42 (QCD)	Total amount of water either exported from or used in the southern Delta.
0.65 (QSJR) + 0.15 (QCD)	The amount of San Joaquin River water (1) flowing into Old River, and (2) diverted for use along the San Joaquin River from the Old River split to the central Delta.

* See Figure III-6 of the Draft EIR PC Project, Department of Water Resources, August 1974.

** See the Salinity Incursion and Water Resources Appendix to DWR Bulletin 76, April 1962.

Case 1.

If $QSJR \leq [QEXP + 0.42 (QCD)]$,

then $QSJ4SD = QSJR$ (13)

Case 2.

If $QSJR > [QEXP + 0.42 (QCD)] > [0.65 (QSJR) + 0.15 (QCD)]$,

then $QSJ4SD = [0.65 (QSJR) + 0.15 (QCD)]$ (14)

Case 3.

If $QSJR > [QEXP + 0.42 (QCD)] \leq [0.65 (QSJR) + 0.15 (QCD)]$,

then $QSJ4SD = [QEXP + 0.42 (QCD)]$ (15)

Effective Percent Western/Central Delta Water Diverted (QEFFDIV). This index used for striped bass studies is defined as:

$$QEFFDIV = \frac{(QEFFECT - QOUT)}{QEFFECT} X100 \qquad (16)$$

Substituting into equation 16 the equations defining QEFFECT for each of the three cases described above (equations 13, 14, and 15 into 12) and equations 1 and 6 for QOUT, the following observations are made regarding net diversions from the western/central Delta:

Case 1. Water is needed from the western/central Delta to meet the difference between Delta net channel depletions plus exports and San Joaquin River flow.

Case 2. Water is needed from the western/central Delta to meet the difference between 85 percent of Delta net channel depletions plus exports and 65 percent of San Joaquin River flow.

Case 3. Water is needed from the western/central Delta to meet 58 percent of Delta net channel depletions.

Summary Tables of Monthly Data

Summary tables were generated for DAYFLOW mean monthly Delta inflow and net Delta outflow (in cubic feet per second) and total monthly Delta inflow and net Delta outflow (in thousands of acre-feet). These tables are presented in Attachment F. The data are presented for each month of water years 1955-56 through 1983-84 along with the water year type assigned by the State Water Resources Control Board.

Refer to Attachment B for a discussion on other data bases of historical Delta hydrology.

Input Data Documentation

The calculations described in the Computational Scheme Section can be performed once the necessary input data have been acquired and assembled in a data base. The methodology for constructing the input data base and generating the Data Summary report is outlined in the next section. The input data parameters used to run the DAYFLOW program are briefly described herein. References for more detailed documentation are also provided.

The input data parameters are the principal streamflows to the Delta, Delta precipitation, exports and diversions from the Delta, and Delta consumptive use (gross channel depletions). The input data include both monitored and estimated values. These parameters are listed in Table 3, along with the DAYFLOW parameter(s) affected, data type (monitored, estimated, etc.), the source agency and reference, the station or parameter code used by the source agency, and comments.

The streamflow and precipitation stations are designated on the map in Figure 3. The labels (numbers) used on the map appear in Table 3 under the DWR Station Number column to allow cross referencing. The source agency references reported in Table 3 can be used to obtain additional information about data monitoring history and methodology and techniques used to collect the streamflow and precipitation data.

Estimated input parameters requiring further explanation are discussed below.

Delta Gross Channel Depletion Estimates (QDEPL)

Estimates for mean monthly gross channel depletion currently used to run the DAYFLOW program were derived at the Central District office. These values are:

Month	Gross Channel Depletion* (cfs month)	Month	Gross Channel Depletion* (cfs month)
October	1,865	April	1,880
November	1,730	May	2,434
December	2,081	June	3,747
January	1,210	July	4,352
February	883	August	3,785
March	1,310	September	2,632

Estimates for daily mean gross channel depletions were determined graphically using the above monthly mean estimates. These values are reported in Table 4. The data in Table 4 are used for all water years regardless of meteorological and hydrological conditions.

*The Byron-Bethany ID diversion is included in the mean monthly gross channel depletion value. Mean monthly gross channel depletion is monthly total cubic feet per second divided by the number of days in the month.

Table 3

INPUT DATA DOCUMENTATION

Input Data/ DWR Station Name	DAYFLOW Parameter Affected[1/]	Data Type	Source Agency[2/]	DWR Station Number[3/]	USGS Station Number	Comments
Bear Creek-Lodi	QMISC	Stream gage	CD	B0-2010		
Byron-Bethany ID Pumping	QDPP	Operation records	O&M			Included from 5/01/71; monitored by BBID
Calaveras River-Stockton	QMISC	Stream gage	CD	B0-2520	11-3107.00	
Clifton Court Forebay Intake	QDPP	Operations records	O&M			Included from 5/01/71
Contra Costa Canal Pumping	QCCC	Operations records	USBR			
Cosumnes River-McConnell	QCRM	Stream gage	USGS	B0-1125	11-3360.00	Discontinued 9/30/82
Cosumnes River-Michigan Bar	QCRM	Stream gage	USGS	B1-1150	11-3350.00	Included from 10/01/82
Cross Channel Gates Open	QXGEO	Operations records	USBR			Converted to gate operation code
Cross Channel Gate Change Time	QXGEO	Operations records	USBR			Account for partial gate settings
Delta (Banks) Pumping Plant	QDPP	Operations records	O&M			Included through 4/30/71
Dry Creek-Galt	QMISC	Stream gage	USGS	B0-1520	11-3295.00	
French Camp Slough-French Camp	QMISC	Stream gage	CD	B0-2805	11-3046.00	
Cross Channel Depletion	QDEPL	Derived estimate	CD			Repeating annual cycle; C. 1965
Marsh Creek-Byron	QMISC	Stream gage	USGS	B8-9100	11-3375.00	Discontinued 9/30/83
Mokelumne River-Woodbridge	QMOKE	Stream gage	USGS	B0-2105	11-3255.00	
Morrison Creek-Sacramento	QMISC	Stream gage	USGS	A0-0020	11-3365.80	Included through 9/30/79
Sacramento River-Freeport	QSAC	AVM monitoring	USGS	B9-1840	11-4476.50	Included from 10/01/79
Sacramento River-Sacramento	QSAC	Stream gage	USGS	A0-2100	11-4475.00	Included through 9/30/79
Sacramento Weir Spill	QYOLO	Weir discharge	CD	A0-2903	11-4260.00	

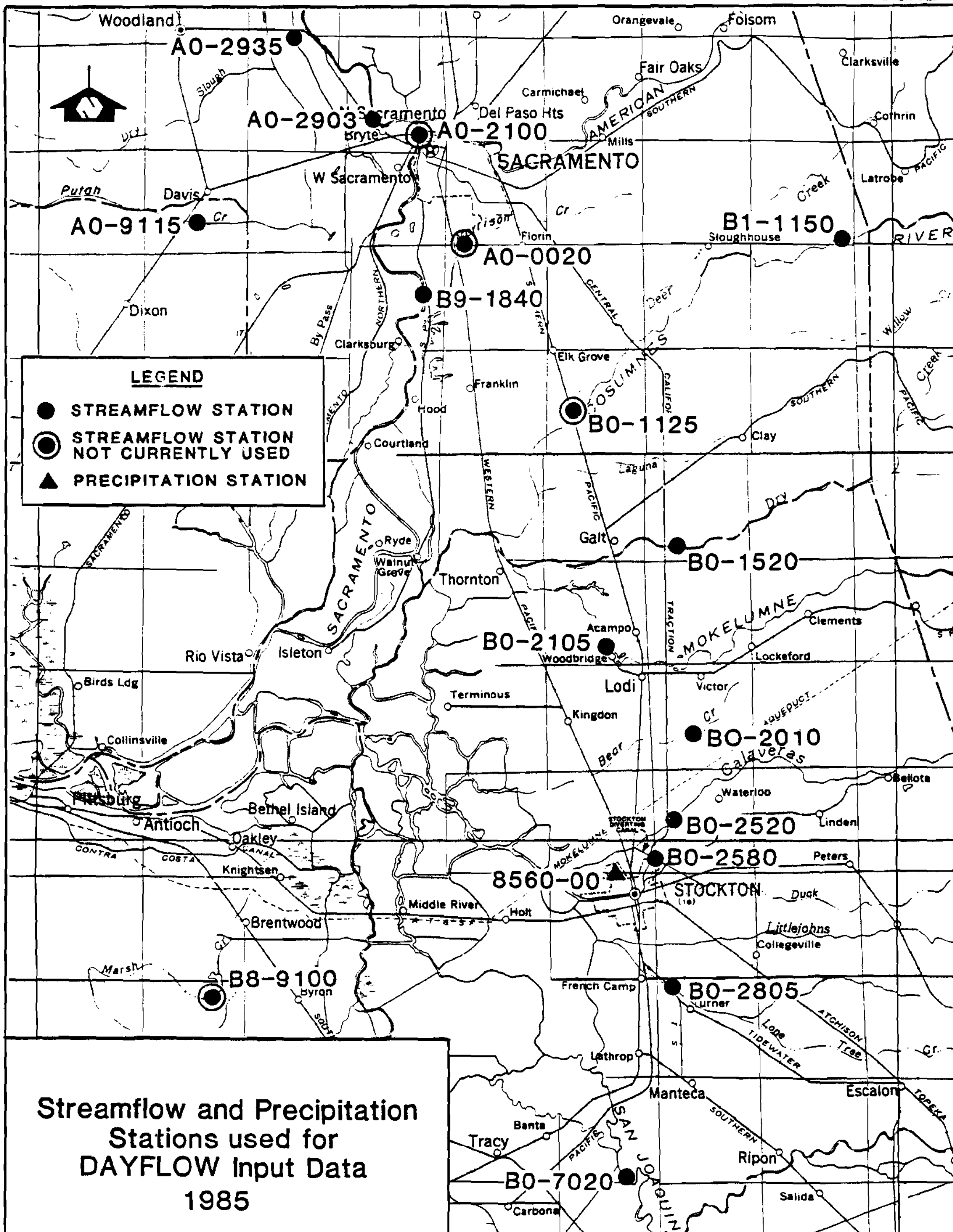
Table 3 (Continued)

INPUT DATA DOCUMENTATION

Input Data/ DWR Station Name	DAYFLOW Parameter Affected 1/	Data Type	Source Agency 2/	DWR Station Number 3/	USGS Station Number	Comments
San Joaquin River-Vernalis	QSJR	Stream gage	USGS	B0-7020	11-3035.00	
South Fork Putah Creek-Davis	QYOLO	Stream gage	CD	A0-9115	11-4550.50	
Stockton Diverting Canal	QMISC	Stream gage	CD	B0-2580	11-3109.90	
Stockton Fire Station 4	QPREC	Precipitation gage	NWS	8560-00		Representative station; Delta = 738,000 acres (10/55-9/80) Delta = 682,230 acres (10/80-9/84)
Tracy Pumping Plant	QTPP	Operations records	USBR			
Yolo Bypass-Woodland	QYOLO	Stream gage	USGS	A0-2935	11-4530.00	

1/ See Table 1 for DAYFLOW parameter definitions.
2/ CD - Central District, DWR; computer printout or data forms.
O&M - Operations and Maintenance, DWR, Dispatcher's Daily Report; computer printout.
USBR - U. S. Bureau of Reclamation, Sacramento, CA; data acquired from O&M.
USGS - U. S. Geological Survey, Sacramento and Merced, CA; magnetic computer tape.
NWS - U. S. National Weather Service; data acquired from CD.
3/ See DWR Bulletin 230-81 (December 1981) for details; refer to Figure 3 for locations.

FIGURE 3



Streamflow and Precipitation Stations used for DAYFLOW Input Data 1985

TABLE 4
DELTA-WIDE GROSS CHANNEL DEPLETION ESTIMATES
MEAN DAILY VALUES IN CFS

19:25 WEDNESDAY,
JUNE 26, 1985 1

FROM DAYFLOW DATA SUMMARY
DEVELOPED IN 1965 --- USED FOR ALL YEARS

CALIFORNIA DEPARTMENT OF WATER RESOURCES
CENTRAL DISTRICT

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2150	1700	2000	1700	900	950	1750	2000	3050	4300	4200	3200
2	2100	1700	2000	1650	900	1000	1750	2000	3100	4300	4200	3200
3	2050	1700	2000	1600	900	1000	1750	2050	3150	4350	4150	3150
4	2050	1700	2050	1550	900	1000	1800	2100	3200	4350	4150	3100
5	2000	1700	2100	1500	900	1050	1800	2100	3250	4400	4100	3050
6	2000	1700	2100	1450	900	1050	1800	2100	3300	4400	4100	3000
7	1950	1700	2150	1400	900	1050	1800	2150	3350	4400	4050	2950
8	1950	1650	2150	1400	900	1100	1850	2150	3400	4400	4050	2900
9	1950	1650	2150	1350	900	1100	1850	2200	3450	4400	4000	2900
10	1900	1650	2200	1300	850	1100	1850	2200	3500	4400	4000	2850
11	1900	1650	2200	1300	850	1150	1850	2250	3550	4400	3950	2800
12	1900	1650	2200	1250	850	1150	1850	2300	3600	4400	3950	2750
13	1900	1650	2200	1250	850	1200	1900	2300	3650	4400	3900	2700
14	1850	1650	2200	1200	850	1250	1900	2350	3700	4400	3850	2650
15	1850	1700	2200	1200	850	1250	1900	2350	3750	4400	3850	2600
16	1850	1700	2200	1150	850	1300	1900	2400	3800	4400	3800	2600
17	1850	1700	2200	1150	850	1350	1900	2450	3850	4400	3800	2550
18	1800	1700	2150	1100	850	1350	1900	2450	3900	4400	3750	2500
19	1800	1700	2150	1100	850	1400	1900	2500	3950	4400	3700	2450
20	1800	1750	2150	1100	850	1400	1900	2550	4000	4350	3700	2450
21	1800	1750	2100	1050	900	1450	1900	2550	4050	4350	3650	2400
22	1800	1750	2100	1050	900	1500	1900	2600	4100	4350	3600	2350
23	1750	1750	2050	1000	900	1500	1900	2650	4100	4350	3600	2350
24	1750	1750	2050	1000	900	1550	1950	2700	4150	4350	3550	2300
25	1750	1800	2000	1000	900	1550	1950	2750	4200	4300	3500	2250
26	1750	1800	2000	1000	900	1600	1950	2750	4200	4300	3450	2250
27	1750	1850	1950	950	900	1600	1950	2800	4250	4300	3450	2200
28	1750	1900	1950	950	900	1650	2000	2850	4250	4250	3400	2200
29	1700	1900	1900	950	950	1650	2000	2900	4300	4250	3350	2150
30	1700	1950	1850	950	.	1650	2000	2950	4300	4250	3300	2150
31	1700	.	1800	900	.	1700	.	3000	.	4200	3250	.

TABLE 5
MISCELLANEOUS DIVERSIONS
MEAN MONTHLY VALUES IN CFS

13:49 THURSDAY,
OCTOBER 24, 1985 1

FROM DAYFLOW PROGRAM SUMMARY
PROGRAM VERSION : JAN. 1985 RUN DATE : FEB. 1985

CALIFORNIA DEPARTMENT OF WATER RESOURCES
CENTRAL DISTRICT

WATER YEAR	YEAR TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5556	W	0	0	0	0	0	0	0	0	0	0	0	0
5657	BN	0	0	0	0	0	0	0	0	0	0	0	0
5758	W	0	0	0	0	0	0	0	0	0	0	0	0
5859	D	0	0	0	0	0	0	0	0	0	0	0	0
5960	BN	0	0	0	0	0	0	0	0	0	0	0	0
6061	D	0	0	0	0	0	0	0	0	0	0	0	0
6162	BN	0	0	0	0	0	0	0	0	0	0	0	0
6263	W	0	0	0	0	0	0	0	0	0	0	0	0
6364	D	0	0	0	0	0	0	0	0	0	0	0	0
6465	W	0	0	0	0	0	0	0	0	0	0	0	0
6566	BN	0	0	0	0	0	0	0	0	0	0	0	0
6667	W	0	0	0	0	0	0	0	0	0	0	0	0
6768	BN	0	0	0	0	0	0	0	0	0	0	0	0
6869	W	0	0	0	1464	-119	-280	-280	-280	-280	-130	-80	-46
6970	W	0	0	0	0	0	0	0	0	0	0	0	0
7071	W	0	0	0	0	0	0	0	0	0	0	0	0
7172	BN	0	0	0	0	0	0	0	0	2761	-73	-914	-904
7273	W	-565	-238	-20	0	0	0	0	0	0	0	0	0
7374	W	0	0	0	0	0	0	0	0	0	0	0	0
7475	AN	0	0	0	0	0	0	0	0	0	0	0	0
7576	C	0	0	0	0	0	0	0	0	0	0	0	0
7677	C	0	0	0	0	0	0	0	0	0	0	0	103
7778	W	91	107	70	40	0	0	0	0	0	0	0	0
7879	D	0	0	0	0	0	0	0	0	0	0	0	0
7980	W	0	0	0	0	0	0	0	0	0	0	0	0
8081	D	0	0	0	0	0	0	0	0	0	0	0	0
8182	W	0	0	0	0	0	0	0	0	0	0	0	0
8283	W	0	0	0	0	0	0	0	0	0	0	0	0
8384	W	0	0	0	0	0	0	0	0	0	0	0	0

Preliminary evaluations indicate that refinement of the input data for gross channel depletions to reflect annual as well as seasonal variations would result in significant changes in estimates of net Delta outflow. This refinement is in progress. By using existing land-use survey and pan evaporation data from 1955 as input to the DWR Division of Planning consumptive use model, a data base of historical monthly total gross channel depletion estimates for the Delta has been developed. Work is underway to document this data base and to quantitatively evaluate how its use as input to the DAYFLOW program would affect estimates of net Delta outflow. This data base will also be made available for other studies requiring better estimates of historical Delta gross channel depletions.

Delta Precipitation Runoff estimates (QPREC)

Only the precipitation station at Stockton Fire Station No. 4 has been used to represent Deltawide precipitation. The assumption is made that runoff from precipitation during a particular day takes place uniformly over that day and the following four days. Also, the precipitation occurring naturally on water surfaces in the Delta (7 to 8 percent of the total Delta area) is not routed explicitly. Finally, it is assumed that all of the precipitation runoff occurring daily is available for consumptive use for the same day (i.e., gross channel depletions; net channel depletion = gross channel depletion - precipitation runoff).

The volume of water precipitated is calculated by multiplying the depth of precipitation measured at Stockton Fire Station 4 during a day by the area of the watersheds making up the Delta. For October 1, 1955, through September 30, 1980, this area was taken to be 738,000 acres. For October 1, 1980 through September 30, 1984, this area was changed to 682,230 acres, an area about 7.6 percent smaller than the former. Documentation for this change is not available, and Delta precipitation runoff (QPREC) has not been revised using a single value for the area of the Delta. Therefore, the values for QPREC reported in the DAYFLOW Data Summary reflect this discrepancy in Delta watershed area.

Work has been initiated to develop a data base of total daily precipitation for seven stations in the Delta to provide a better estimate of available precipitation. These stations are used in the DWR Division of Planning consumptive use model discussed in the previous section. They are: Brentwood (Contra Costa County), Davis 2 WSW Experimental Farm, Galt Fire Station, Lodi, Rio Vista, Stockton Fire Station 4, and Tracy-Carbona. When data from these stations are used, the Delta watershed area will be the total area of the Theissen polygons applyed to these stations (678,200 acres).

The following evaluations need to be made.

- Whether the runoff distribution pattern now used is valid.
- How the explicit routing of precipitation on water surfaces would affect the runoff distribution pattern.
- Whether all runoff is available for meeting consumptive use.

Delta Cross Channel and Georgiana Slough Flow Estimate (QXGEO)

Flows through the Delta Cross Channel and Georgiana Slough are not gaged. Therefore, empirical equations were developed in 1978 using historical data to relate these flows to Sacramento River flow (QSAC) at I Street Bridge in Sacramento. Two independently operated gates control flow through the Delta Cross Channel. Consequently, three equations are needed, one for each of the following conditions:

- Both gates closed; flow only through Georgiana Slough

$$QXGEO = 0.133\ (QSAC) + 829 \qquad (17)$$

- One gate open plus flow through Georgiana Slough

$$QXGEO = 0.216\ (QSAC) + 2660 \qquad (18)$$

- Both gates open plus flow through Georgiana Slough

$$QXGEO = 0.293\ (QSAC) + 2090 \qquad (19)$$

Available definition plots are presented in Figure 4.

These equations have not been checked for accuracy after Sacramento River flow measurements were taken at Freeport in October 1979. The magnitude of the error introduced into flow estimates for the Delta Cross Channel and Georgiana Slough since October 1979 should be evaluated.

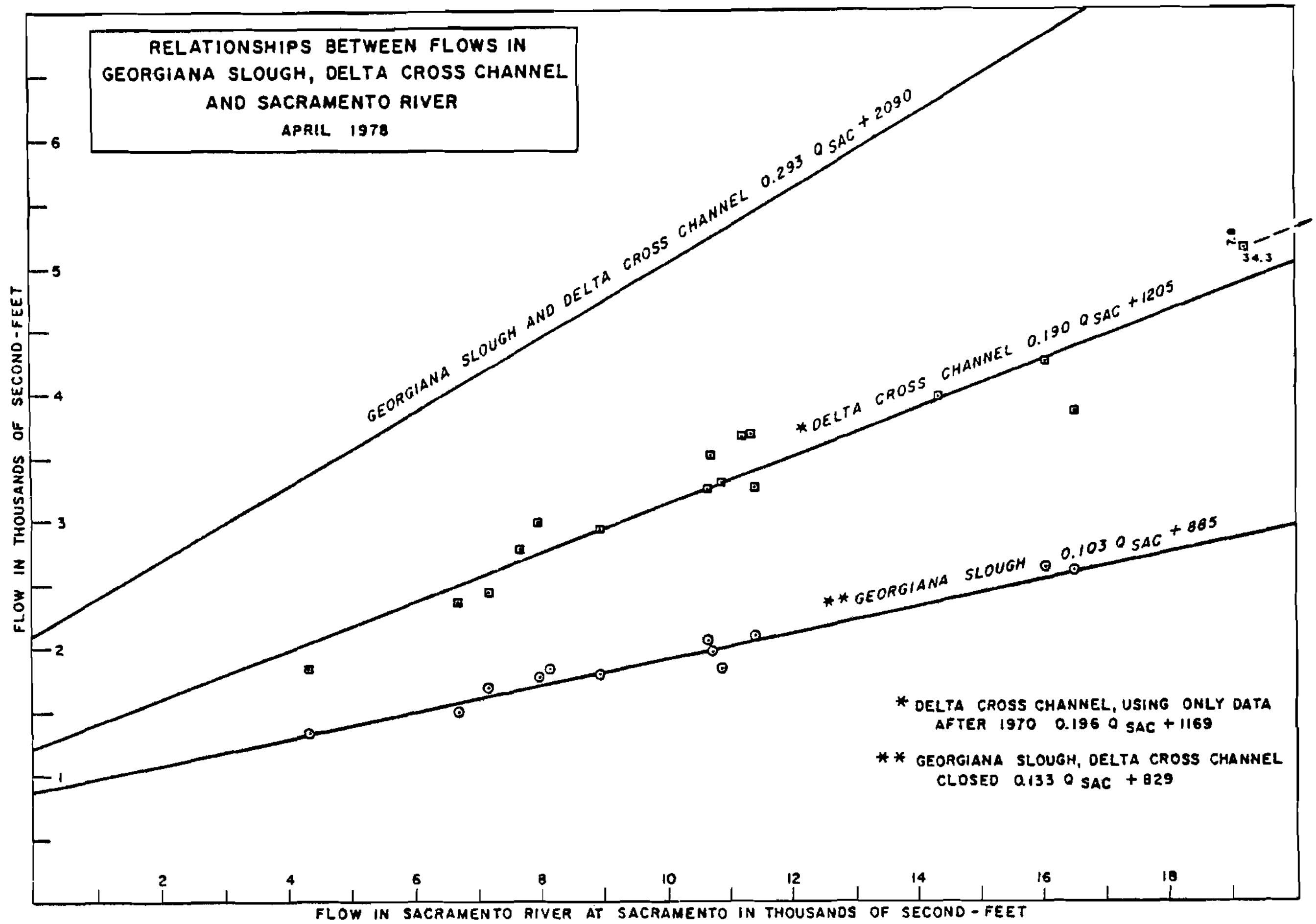
State Water Project Exports (QDPP)

The parameter QDPP (representing Banks Pumping Plant flow) has been used in the DAYFLOW program to account for daily exports from the Delta by the State Water Project. In the DAYFLOW data base, QDPP represents daily mean pumping rates at the Harvey O. Banks Delta Pumping Plant (formerly Delta Pumping Plant) from October 1, 1967, through April 30, 1971. During this period, SWP export pumping was direct from Delta channels.

Since Clifton Court Forebay came on line, SWP exports have been taken from the forebay and not directly from Delta channels. Consequently, estimates of net Delta outflow are affected by the amount of water diverted into Clifton Court Forebay (intake) from Old River at West Canal. Therefore, values for QDPP used in the DAYFLOW data base for May 1, 1971, through September 30, 1984, represent daily mean Clifton Court Forebay intake flows after a necessary correction.

Before Clifton Court Forebay came on line, Byron-Bethany Irrigation District (BBID) withdrawals were channel depletions. As noted in the documentation for gross channel depletions (see QDEPL above), an average value for the BBID withdrawal was included in QDEPL estimates as a portion of gross channel depletions (i.e., the BBID withdrawal was not explicitly accounted for). Since Clifton Court Forebay has been on line, BBID diversions have been taken out of the forebay and are no longer a direct channel depletion. To correct for the current inclusion of BBID withdrawals in QDEPL values, actual BBID withdrawals from Clifton Court Forebay (as reported by DWR operations) are subtracted from the Clifton Court Forebay intake (QDPP) to prevent double-counting. As a result, the value reported for QDPP from May 1, 1971, through September 30, 1984, is actually Clifton Court Forebay intake minus the BBID withdrawal.

FIGURE 4



RELATIONSHIPS BETWEEN FLOWS IN GEORGIANA SLOUGH, DELTA CROSS CHANNEL AND SACRAMENTO RIVER
APRIL 1978
GEORGIANA SLOUGH AND DELTA CROSS CHANNEL 0.293 Q SAC + 2090
* DELTA CROSS CHANNEL 0.190 Q SAC + 1205
** GEORGIANA SLOUGH 0.103 Q SAC + 885
* DELTA CROSS CHANNEL, USING ONLY DATA AFTER 1970 0.196 Q SAC + 1169
** GEORGIANA SLOUGH, DELTA CROSS CHANNEL CLOSED 0.133 Q SAC + 829
7.9
34.3
FLOW IN THOUSANDS OF SECOND-FEET
FLOW IN SACRAMENTO RIVER AT SACRAMENTO IN THOUSANDS OF SECOND-FEET

Once the estimates for historical gross channel depletion (see QDEPL above) are used in running the DAYFLOW program, this correction will not be needed.

Miscellaneous Water Diversions/Transfers (QMID)

The parameter QMID was added to the DAYFLOW program when it was partially automated in 1978. It was included to account for water diversions and transfers other than consumptive use (gross channel depletions, QDEPL) and exports (QCCC, QTPP, and QDPP) that would affect daily estimates of historical net Delta outflow. Mean monthly values for QMID are reported in Table 5. To date, QMID has been used to simulate:

- Sherman Island flooding (diversion in January 1969) and pumping (inflow from February to September 1969).
- Andrus and Brannan Island flooding (diversion in June 1972) and pumping (inflow from July to December 1972).
- Water transfers from Middle River to the East Bay Aqueduct (diversion from Delta from September 1977 to January 1978).

Daily quantities assigned to simulate these events were determined by Central District staff using available flood management and operations records.

Listed in Table 6 are other water diversions and transfers occurring in the Delta from October 1955 through September 1984 (DAYFLOW data base period of record) that have not been accounted for. These events need to be evaluated with respect to their effect on estimates of net Delta outflow for possible inclusion in the DAYFLOW data base as QMID.

Methodology for DAYFLOW Data Summary Generation

The procedure used to generate the DAYFLOW data summary for water year 1983-84 involved:

- Acquiring input data
- Creating the DAYFLOW Program input data deck
- Executing the DAYFLOW program

A brief discussion of this procedure is presented herein as a concrete example of the steps involved in generating and reporting results from the DAYFLOW program. This discussion documents the generation of hydrologic data for the latest water year added to the DAYFLOW data base (see the DAYFLOW Summary Addendum, DWR, January 1985, for details).

DAYFLOW data were hand calculated prior to 1978. The general method of input data acquisition and hydrologic data generation has not changed. Details of prior DAYFLOW data generation and report preparation are not available.

Table 6

DELTA ISLANDS FLOODED FROM 1955-1984

Island (Tract)	Year(s) Flooded
Bradford	1983
Deadhorse	1955, 1980
Empire	1955
Holland	1980
Jones	1980
New Hope	1955
McCormack-Williamson	1955, 1958, 1964
McDonald	1982
Mildred	1969, 1983
Quimby	1955
Shima	1983 (twice)
Shin Kee	1958
Terminous	1958
Venice	1982
Webb	1980

Source: Sacramento-San Joaquin Delta Investigation, USCE Sacramento District, July 1979. Delta Levees Investigation, DWR Bulletin 192-82, December 1982.

Input Data Acquisition

Input data were acquired from three sources: DWR Central District, DWR Division of Operations and Maintenance, and U. S. Geological Survey Sacramento office. The data were received on data forms, computer printouts, or computer tapes. After being keyed in or transmitted via modem, the input data (see Table 3) were organized and placed in individual computer files using an IBM-XT microcomputer. Specific changes and assumptions are summarized in the notes below pertaining to the 1983-84 water year.

All available major inputs were acquired for October 1983 through August 1984; no data for Mokelumne River were available for September 1984; no data were available for Dry Creek; and Marsh Creek was not monitored during water year 1983-84. However, since these streamflows are relatively small when compared to total inflow, the DAYFLOW output are still meaningful, particularly the estimates of Delta outflow. In addition, Morrison Creek is no longer included in the calculation for miscellaneous stream inflow (OMISC) since its flow is ponded along the east side of the Sacramento River at Freeport and only a portion is pumped into the Sacramento River downstream of Freeport.

Input Data Deck Creation

Use of the DAYFLOW program in its present form requires that various input data be manipulated and combined before executing the program. A brief description of DAYFLOW input and output parameters, pre-execution calculations, and program calculations is presented in Table 1. The column numbers in the table refer to the sample DAYFLOW data summary report for August 1984 shown in Figure 5 (see Note 5 below). The report shown was prepared using the DAYFLOW SAS data set -- Statistical Analysis System -- and two SAS programs presented in Attachment E.

The process of creating the DAYFLOW input data deck consisted of several steps. Once the input data were acquired, precipitation and Delta Cross Channel gate operation codes were hand-calculated or determined, and unit conversions (acre-feet to cubic feet per second) were made using spreadsheet software. Individual computerized data files were then made for the input data (see Table 3). Finally, a FORTRAN program (DFDAT84; see Attachment E for listing) was executed on an IBM-XT to: (1) read the individual input data files; (2) perform the pre-execution calculations for QMISC and QYOLO (QDPP was determined using spreadsheet software); and (3) write the DAYFLOW input data deck in the format required.

DAYFLOW Program Execution

The DAYFLOW Program (FORTRAN) residing on DWR's mainframe computer (CDC 720) was down-loaded to an IBM-XT and, with only minor adjustments, successfully executed using the input data deck for water year 1982-83 (see DAYFLOW program listing in Attachment E). During this process, an error was discovered in the read format statement for the Delta Cross Channel gate operation codes. This affected the values reported in the June 1984 DAYFLOW Data Summary for the Cross Channel and Georgiana Slough (QXGEO), as well as the estimate of flow past Jersey Point (QWEST). Specifically, values were incorrect for day 12 and day 23 of each month when both gates were closed. In addition, values reported are incorrect for days from the twelfth to the end of the month when gate settings were changed. This format error was corrected before final execution. (See Note 4 below for details on water year 1982-83 revisions.) DAYFLOW was executed using the water year 1983-84 input data deck (October 1983 through August 1984, data for September 1984 was later generated in February 1985); the output is reported in Attachment G.

Notes

In using the DAYFLOW data reported for water year 1983-84, certain information is essential for proper interpretation.

1. All input data acquired for water year 1983-84 is preliminary and subject to revision following final screening by the respective sources (see Table 3).

2. The DAYFLOW program was run for water year 1983-84 only through August, because data for Mokelumne River were not available at time of execution. Also, the program was run without data for Marsh Creek (not monitored) and Dry Creek (not available).

3. Certain input parameter records were missing data for various days. The specific parameters, the dates for which data are missing, and the estimated or assumed values substituted are presented in Table 3 of the DAYFLOW Data Summary Addendum (January 1985). The DAYFLOW program was executed for water year 1983-84 with these substituted values.

4. The read statement format error (mentioned in the previous section) was corrected, and the DAYFLOW program was run using the input data deck for water year 1982-83. For water years prior to 1982-83, revisions were made in February 1985. The changes for water years prior to 1983-84 are documented in Attachment C and reported in Attachment G.

5. Outdated headings used in prior DAYFLOW output listings were revised, as shown in Figure 5.

FIGURE 5

HYDROLOGIC DATA FOR THE SACRAMENTO-SAN JOAQUIN ESTUARY (CFS)
DAYFLOW PROGRAM SUMMARY

PROGRAM VERSION : JAN. 1985 RUN DATE : FEB. 1985
* SEE DOCUMENTATION FOR PARAMETER DESCRIPTIONS AND REVISIONS *

CALIFORNIA DEPARTMENT OF WATER RESOURCES
CENTRAL DISTRICT

AUG 1984

DAY	(1) SAN JOAQ RIVER -- MEASRD	(2) COSUMNES RIVER -- MEASRD	(3) MOKELUMNE RIVER -- MEASRD	(4) MISC FLOWS -- MEAS SUM	(5) E. DELTA INFLOW -- CALC	(6) SAC RIVER -- MEASRD	(7) YOLO BYPASS -- MEAS SUM	(8) TOT DELT INFLOW -- CALC	(9) DELTA CONSUMP'N -- ESTMTD	(10) PRECIP RUNOFF -- MEAS EST	(11) CHANNEL DEPLE'N -- CALC
1	1950	48	303	80	2381	22000	16	24397	4200	0	4200
2	1930	46	309	66	2351	21300	16	23667	4200	0	4200
3	1910	46	342	86	2384	21000	15	23399	4150	0	4150
4	1910	45	380	84	2419	20700	15	23134	4150	0	4150
5	1930	45	367	111	2453	20300	15	22768	4100	0	4100
6	2030	44	389	124	2587	20400	14	23001	4100	0	4100
7	1950	43	377	88	2458	20500	14	22972	4050	0	4050
8	1830	42	348	78	2298	20100	14	22412	4050	0	4050
9	1830	40	331	71	2272	19800	14	22086	4000	0	4000
10	1850	40	345	74	2309	19300	11	21620	4000	0	4000
11	1890	38	370	88	2376	18900	13	21289	3950	0	3950
12	1970	37	387	101	2495	18100	12	20607	3950	0	3950
13	2110	37	413	104	2664	17200	15	19879	3900	0	3900
14	2100	37	404	96	2637	16700	16	19353	3850	0	3850
15	2010	36	460	124	2630	16500	18	19148	3850	0	3850
16	2010	36	466	162	2674	16700	17	19391	3800	0	3800
17	2090	36	451	148	2725	16700	18	19443	3800	0	3800
18	2210	36	463	170	2879	16800	16	19695	3750	0	3750
19	2230	36	471	146	2883	17100	13	19996	3700	0	3700
20	2300	34	444	147	2925	17600	13	20538	3700	0	3700
21	2240	34	458	132	2864	17800	15	20679	3650	0	3650
22	2360	33	440	155	2988	18200	15	21203	3600	0	3600
23	2440	32	442	147	3061	18400	17	21478	3600	0	3600
24	2490	32	448	178	3148	18400	17	21565	3550	0	3550
25	2470	32	490	138	3130	18700	17	21847	3500	0	3500
26	2490	31	485	192	3198	18800	20	22018	3450	0	3450
27	2750	32	497	212	3491	19400	20	22911	3450	0	3450
28	2630	33	489	174	3326	19500	21	22847	3400	0	3400
29	2520	32	451	157	3160	19000	19	22179	3350	0	3350
30	2570	32	491	183	3276	18300	20	21596	3300	0	3300
31	2570	31	524	168	3293	18100	18	21411	3250	229	3021
TOTAL CFS	67560	1156	13035	3984	85735	582300	494	668529	117350	229	117121
MONTHLY MEAN	2179	37	420	129	2766	18784	16	21565	3785	7	3778

DAY	(12) CVP EXPORT -- MEASRD	(13) SWP EXPORT -- MEASRD	(14) CCC EXPORT -- MEASRD	(15) MISC DIVER'N -- ESTMTD	(16) TOT DELT EXPORTS -- CALC	(17) X-CHNL GEORG SL -- ESTMTD	(18) JERSEY PT FLOW -- CALC	(19) DELTA OUTFLOW -- CALC	(20) PERCENT DIVERTED -- CALC	(21) EFFECTIV INFLOW -- CALC	(22) EFFECTIV % DIVRTD -- CALC
1	4647	5196	238	0	10081	8536	-1894	10116	59	22447	55
2	4675	4873	247	0	9795	8331	-1843	9672	59	21737	56
3	4643	4874	250	0	9767	8243	-1838	9482	59	21489	56
4	4650	5198	257	0	10105	8155	-2228	8879	62	21224	58
5	4632	5321	257	0	10210	8038	-2384	8458	63	20838	59
6	4648	5478	257	0	10383	8067	-2394	8518	63	20971	59
7	4656	5408	247	0	10311	8096	-2390	8611	63	21022	59
8	4650	5410	254	0	10314	7979	-2669	8048	64	20582	61
9	4451	5818	249	0	10518	7891	-2955	7568	66	20256	63
10	4678	4996	243	0	9917	7745	-2463	7703	64	19770	61
11	4682	5381	240	0	10303	7628	-2867	7036	67	19409	64
12	4656	5378	216	0	10250	7393	-2929	6407	69	18637	66
13	4642	5416	257	0	10315	7130	-3056	5664	72	17769	68
14	4647	5401	279	0	10327	6983	-3209	5176	73	17253	70
15	4636	5407	288	0	10331	6925	-3280	4967	74	17138	71
16	4625	5167	283	0	10075	6983	-2088	5516	72	17381	68
17	4569	4633	269	0	9471	6983	-2233	6172	68	17353	64
18	4612	4916	270	0	9798	7012	-2344	6147	69	17485	65
19	3971	5384	279	0	9634	7100	-2056	6662	67	17766	63
20	4239	5302	257	0	9798	7247	-2031	7040	66	18238	61
21	4513	4955	246	0	9714	7305	-1917	7315	65	18439	60
22	4458	4401	243	0	9102	7423	-1031	8501	60	18843	55
23	4449	4529	248	0	9226	7481	-1024	8652	60	19038	55
24	4439	4643	236	0	9318	7481	-996	8697	60	19075	54
25	4425	4898	239	0	9562	7569	-1138	8785	60	19377	55
26	4390	4216	224	0	8830	7598	-276	9738	56	19528	50
27	4121	5086	238	0	9445	7774	-422	10016	56	20161	50
28	3378	4958	241	0	8577	7804	343	10870	52	20217	46
29	3027	3732	244	0	7003	7657	1637	11826	47	19659	40
30	3222	2926	231	0	6379	7452	2204	11917	45	19026	37
31	3690	2198	220	0	6108	7393	2615	12282	43	18841	35
TOTAL CFS	135721	151499	7747	0	294967	235404	-49953	256441		600969	
MONTHLY MEAN	4378	4887	250	0	9515	7594	-1611	8272	62	19386	57

Summary of Equations

$$QOUT = QTOT + QPREC - QDEPL - QEXP \quad (1)$$

$$QTOT = QSAC + QEAST + QYOLO \quad (2)$$

$$QEAST = QSJR + QCRM + QMOKE + QMISC \quad (3)$$

QMISC = Calaveras River flow
+ Bear Creek flow
+ Dry Creek flow
+ Stockton Diverting Canal flow
+ French Camp Slough flow
+ Marsh Creek flow
+ Morrison Creek flow (4)

QYOLO = Yolo Bypass flow at Woodland
+ Sacramento Weir Spill
+ South Fork Putah Creek (5)

$$QCD = QDEPL - QPREC \quad (6)$$

$$QEXP = QTPP + QCCC + QDPP + QMID \quad (7)$$

$$QWEST = QSJR + QCRM + QMOKE + QMISC + QXGEO - QEXP - 0.65\ (QDEPL - QPREC) \quad (8)$$

$$QRIO = QSAC + QYOLO - QXGEO - 0.28\ (QDEPL - QPREC) \quad (9)$$

$$QDIVER = \frac{(QTOT - QOUT)}{QTOT} \times 100 \quad (10)$$

$$QDIVER = \frac{(QCD + QEXP)}{QTOT} \times 100 \quad (11)$$

$$QEFFECT = QTOT - QSJ4SD \quad (12)$$

If $QSJR \leq [QEXP + 0.42\ (QCD)]$,

then $QSJ4SD = QSJR$ (13)

If $QSJR > [QEXP + 0.42\ (QCD)] > [0.65\ (QSJR) + 0.15\ (QCD)]$,

then $QSJ4SD = [0.65\ (QSJR) + 0.15\ (QCD)]$ (14)

If $QSJR > [QEXP + 0.42\ (QCD)] \leq [0.65\ (QSJR) + 0.15\ (QCD)]$,

then $QSJ4SD = [QEXP + 0.42\ (QCD)]$ (15)

$$QEFFDIV = \frac{(QEFFECT - QOUT)}{QEFFECT} X100 \qquad (16)$$

- Both gates closed; flow only through Georgiana Slough
  $QXGEO = 0.133\ (QSAC) + 829$ (17)

- One gate open plus flow through Georgiana Slough
  $QXGEO = 0.216\ (QSAC) + 2660$ (18)

- Both gates open plus flow through Georgiana Slough
  $QXGEO = 0.293\ (QSAC) + 2090$ (19)

Attachment B

SUMMARY DOCUMENTATION OF

SEVERAL DATA BASES

OF HISTORICAL DELTA HYDROLOGY

Some Historical Delta Hydrology Data Bases

In addition to DAYFLOW data for historical Delta inflow and net Delta outflow, other data bases have been developed and are being used by Federal and State agencies. The computational schemes used to generate several of these data bases are documented herein to enable DAYFLOW data users to make proper comparisons.

The Interagency Data Management Technical Committee is conducting a more thorough comparison to document differences between the various data bases of net Delta outflow. This will allow better qualification of analyses made using net Delta outflow estimates from a particular data base.

Federal and State agencies will soon be analyzing Delta hydrologic data in preparation for the 1986 Decision 1485 hearings. In prior hearings, the use of different data bases made it difficult or impossible to compare and contrast exhibits submitted by the various agencies. With prior coordination among these agencies, this problem can be averted.

Informal and formal communications with the U. S. Bureau of Reclamation (Sheryl Baughman), Department of Fish and Game (Dan Odenweller), State Water Resourcs Control Board (Jim Sutton), and the Interagency Data Management Technical Committee indicate that agreement upon a common data base of historical Delta hydrology is urgently needed for interagency activities.

DAYFLOW Program Documentation for Calculating Historical Net Delta Outflow and Total Delta Inflow

Total Delta Inflow =

Sacramento River flow at Freeport (at I Street Bridge, Sacramento through September 1979)

+ San Joaquin River flow at Vernalis

+ Consumnes River flow at Michigan Bar (previously at McConnell)

+ Mokelumne River flow at Woodbridge

+ Calaveras River flow at Stockton

+ Bear Creek flow at Lodi

+ Stockton Diverting Canal flow

+ French Camp Slough flow at French Camp

+ Marsh Creek flow at Byron (discontinued October 1983)

+ Yolo Bypass flow near Woodland

+ Sacramento Weir Spill

+ South Fork Putah Creek flow

Net Delta Outflow =

Total Delta Inflow (see above)

- Delta Gross Channel Depletions (estimated values including Byron-Bethany Irrigation District diversion; Table 4)

+ Delta precipitation runoff estimate using Stockton Fire Station #4 data

+ Byron-Bethany Irrigation District diversion

- CVP Tracy pumping

- Contra Costa Canal pumping

- Clifton Court Inflow (from May 1971; SWP pumping plant from October 1967 through April 1971)

- Miscellaneous diversions/transfers (e.g., island flooding or pumpage)

It should be noted that precipitation runoff is subtracted from gross channel depletion giving an estimate of net channel depletions (actual water removed to meet consumptive needs) rather than being included in total Delta inflow.

Documentation of Historical Net Delta Outflow as Calculated by DWR Operation and Maintenance

O&M calculates daily mean net Delta outflow as follows:

Net Delta Outflow =

Sacramento River flow at Freeport (0600 reading at I Street Bridge, Sacramento through September 1979)

+ San Joaquin River flow near Vernalis (0600 reading)

+ Sacramento Treatment Plant discharge (since January 1, 1983)

- CVP Tracy pumping

- Contra Costa Canal pumping

- Clifton Court Forebay inflow (SWP pumping plant diversion from October 1967 through April 1971)

- Net consumptive use estimate (see Table 7)

+ Byron-Bethany Irrigation District diversion (since April 1, 1980)

TABLE 7
NET DELTA WATER REQUIREMENTS (CONSUMPTIVE USE)
FEDERAL-STATE MEMORANDUM OF AGREEMENT DATED APRIL 9, 1969
(TABLE COMPUTED BY USBR-WPCD OCTOBER 1969)

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	- 600	- 900	- 400	400	1,500	2,500	4,000	4,600	3,500	2,400	1,400	500
2	- 700	- 800	- 400	500	1,500	2,600	4,000	4,600	3,400	2,400	1,300	400
3	- 800	- 800	- 400	600	1,500	2,600	4,000	4,600	3,400	2,400	1,300	400
4	- 800	- 800	- 400	700	1,600	2,700	4,100	4,500	3,300	2,300	1,300	400
5	- 900	- 800	- 400	800	1,600	2,700	4,100	4,500	3,300	2,300	1,300	300
6	- 900	- 800	- 300	800	1,600	2,800	4,100	4,500	3,200	2,300	1,200	300
7	- 900	- 800	- 300	900	1,700	2,800	4,100	4,400	3,200	2,200	1,200	300
8	- 900	- 800	- 300	900	1,700	2,800	4,200	4,400	3,200	2,200	1,200	200
9	- 900	- 800	- 300	900	1,700	2,900	4,200	4,400	3,100	2,200	1,100	200
10	- 900	- 700	- 300	1,000	1,800	2,900	4,200	4,300	3,100	2,100	1,100	200
11	- 1,000	- 700	- 300	1,000	1,800	3,000	4,300	4,300	3,100	2,100	1,100	100
12	- 1,000	- 700	- 300	1,000	1,800	3,000	4,300	4,300	3,000	2,000	1,000	100
13	- 1,000	- 700	- 200	1,000	1,900	3,100	4,300	4,200	3,000	2,000	1,000	100
14	- 1,000	- 700	- 200	1,000	1,900	3,100	4,300	4,200	3,000	2,000	1,000	0
15	- 1,000	- 700	- 200	1,100	1,900	3,200	4,400	4,100	2,900	1,900	900	0
16	- 1,000	- 600	- 200	1,100	2,000	3,200	4,400	4,100	2,900	1,900	900	0
17	- 1,000	- 600	- 200	1,100	2,000	3,300	4,400	4,100	2,900	1,900	900	0
18	- 1,000	- 600	- 200	1,100	2,000	3,300	4,400	4,000	2,800	1,800	800	0
19	- 1,000	- 600	- 100	1,200	2,100	3,400	4,500	4,000	2,800	1,800	800	- 100
20	- 1,000	- 600	- 100	1,200	2,100	3,500	4,500	4,000	2,800	1,800	800	- 100
21	- 900	- 600	- 100	1,200	2,100	3,500	4,500	3,900	2,700	1,800	700	- 100
22	- 900	- 600	- 100	1,200	2,200	3,500	4,500	3,900	2,700	1,700	700	- 100
23	- 900	- 500	- 100	1,300	2,200	3,600	4,500	3,800	2,700	1,700	700	- 100
24	- 900	- 500	- 100	1,300	2,200	3,600	4,600	3,800	2,600	1,600	700	- 200
25	- 900	- 500	0	1,300	2,300	3,700	4,600	3,800	2,600	1,600	600	- 200
26	- 900	- 500	0	1,300	2,300	3,700	4,600	3,700	2,600	1,600	600	- 200
27	- 900	- 500	0	1,400	2,300	3,800	4,600	3,700	2,500	1,600	600	- 200
28	- 900	- 500	100	1,400	2,400	3,800	4,600	3,600	2,500	1,500	500	- 200
29	- 900		100	1,400	2,400	3,800	4,600	3,600	2,500	1,500	500	- 300
30	- 900		200	1,500	2,500	3,900	4,600	3,600	2,400	1,500	500	- 300
31	- 900		300		2,500		4,600	3,500		1,400		- 400
Mean	-28,200	-18,700	- 5,200	31,600	61,100	96,300	135,100	127,000	87,700	59,500	27,700	1,000
Acre-feet	-56,000	-37,000	-10,000	63,000	121,000	191,000	268,000	252,000	174,000	118,000	55,000	2,000

- Sacramento River flow at Freeport for a particular day is taken as the previous mean daily flow as measured by the USGS acoustic velocity meter (AVM) at Freeport (an averaging technique is used if the AVM was out of service, see the Operations Control Branch Standing Operating Order Number PC700.23, July 1, 1982 for details).

- The estimates obtained using the equation presented above are published in the following reports:

  - Dispatcher's Daily Report (6 a.m.) - daily
  - Summary of Daily Operational Report - monthly
  - Delta Outflow Index - monthly table
  - State Water Project Operations Data - monthly report
  - State Water Project Annual Report of Operations
  - DWR Bulletin 132, Appendix E, "Management of California State Water Project, Water Operation in the Sacramento-San Joaquin Delta"

- DWR, O&M calculate two other estimates of net Delta outflow:

  1. The value presented above plus Sacramento Weir and Freemont Weir (inclusion of Yolo Bypass flow addition). These estimates of net Delta outflow are reported in a monthly table titled Delta Outflow Index With Bypass.

  2. The value presented in the above plus Sacramento Weir, Freemont Weir and Cache Creek flow at Rumsey (refinement of Yolo Bypass flow estimate). These estimates of net Delta outflow are published by the O&M Water Quality Section in the following reports:

     - Daily Delta Water Quality Conditions
     - Water Quality at Selected Delta Stations (formerly "Delta Water Quality Compliance Report)

- Values for Sacramento Weir, Freemont Weir and Cache Creek at Rumsey are obtained from DWR Flood Management.

- For details contact DWR, O&M Project Records and Reports at (916) 324-9687 and O&M Water Quality at (916) 324-0072.

Documentation of Historical Net Delta Outflow as Calculated by USBR Central Valley Operation

CVOP calculates daily mean net Delta outflow as follows:

Net Delta Outflow =

Sacramento River flow at Freeport (0600 reading at I Street Bridge, Sacramento through September 1979)

\+ San Joaquin River flow near Vernalis (0600 reading)

\+ Sacramento Treatment Plant discharge (since January 1, 1983)

- CVP Tracy pumping

- Contra Costa Canal pumping

- Clifton Court Forebay inflow (SWP pumping plant diversion from October 1967 through April 1971)

- Net consumptive use estimate (see Table 8)

+ Byron-Bethany Irrigation District diversion (since April 1980)

° Sacramento River flow at Freeport (see above, NOTES on O&M's NET DELTA OUTFLOW ESTIMATES).

° The estimates obtained using the equation presented in the above are published in a monthly report entitled "State Federal Sacramento-San Joaquin Delta Daily Operations".

° The values for net Delta outflow currently reported in EPA's data base STORET are determined using Sacramento River flow at Sacramento I Street Bridge (6 a.m. instantaneous flow). NDO estimates determined using Sacramento River flow at Freeport as reported by CVOP will be entered into STORET in the future. For details, contact CVOP in Sacramento, CA at (916) 978-5221.

Documentation of Historical Flow to Delta Available for Consumptive Use and Salinity Control as Reported by the USBR (Water Years 1923-24 through 1957-58)

Flow to the Delta available for consumptive use and salinity control for water years 1923-24 to 1957-58 is shown in Table 9. As footnoted on the table, the monthly mean values were calculated as follows:

Total Delta Inflow =

Sacramento River flow at Sacramento

+ Yolo Bypass flow near Woodland

+ Putah Creek flow near Davis

+ Cosumnes River flow at McConnell

+ Dry Creek flow near Galt

+ Mokelumne River flow at Woodbridge

+ Stockton Diverting Canal flow at Stockton

+ San Joaquin River flow near Vernalis

- Contra Costa Canal pumping

TABLE 8
NET DELTA WATER REQUIREMENTS (CONSUMPTIVE USE)
FEDERAL-STATE MEMORANDUM OF AGREEMENT DATED APRIL 9, 1969
(TABLE COMPUTED BY USBR-WPCD OCTOBER 1969)

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	- 600	- 900	- 400	400	1,500	2,500	4,000	4,600	3,500	2,400	1,400	500
2	- 700	- 800	- 400	500	1,500	2,600	4,000	4,600	3,400	2,400	1,300	400
3	- 800	- 800	- 400	600	1,500	2,600	4,000	4,600	3,400	2,400	1,300	400
4	- 800	- 800	- 400	700	1,600	2,700	4,100	4,500	3,300	2,300	1,300	400
5	- 900	- 800	- 400	800	1,600	2,700	4,100	4,500	3,300	2,300	1,300	300
6	- 900	- 800	- 300	800	1,600	2,800	4,100	4,500	3,200	2,300	1,200	300
7	- 900	- 800	- 300	900	1,700	2,800	4,100	4,400	3,200	2,200	1,200	300
8	- 900	- 800	- 300	900	1,700	2,800	4,200	4,400	3,200	2,200	1,200	200
9	- 900	- 800	- 300	900	1,700	2,900	4,200	4,400	3,100	2,200	1,100	200
10	- 900	- 700	- 300	1,000	1,800	2,900	4,200	4,300	3,100	2,100	1,100	200
11	- 1,000	- 700	- 300	1,000	1,800	3,000	4,300	4,300	3,100	2,100	1,100	100
12	- 1,000	- 700	- 300	1,000	1,800	3,000	4,300	4,300	3,000	2,000	1,000	100
13	- 1,000	- 700	- 200	1,000	1,900	3,100	4,300	4,200	3,000	2,000	1,000	100
14	- 1,000	- 700	- 200	1,000	1,900	3,100	4,300	4,200	3,000	2,000	1,000	0
15	- 1,000	- 700	- 200	1,100	1,900	3,200	4,400	4,100	2,900	1,900	900	0
16	- 1,000	- 600	- 200	1,100	2,000	3,200	4,400	4,100	2,900	1,900	900	0
17	- 1,000	- 600	- 200	1,100	2,000	3,300	4,400	4,100	2,900	1,900	900	0
18	- 1,000	- 600	- 200	1,100	2,000	3,300	4,400	4,000	2,800	1,800	800	0
19	- 1,000	- 600	- 100	1,200	2,100	3,400	4,500	4,000	2,800	1,800	800	- 100
20	- 1,000	- 600	- 100	1,200	2,100	3,500	4,500	4,000	2,800	1,800	800	- 100
21	- 900	- 600	- 100	1,200	2,100	3,500	4,500	3,900	2,700	1,800	700	- 100
22	- 900	- 600	- 100	1,200	2,200	3,500	4,500	3,900	2,700	1,700	700	- 100
23	- 900	- 500	- 100	1,300	2,200	3,600	4,500	3,800	2,700	1,700	700	- 100
24	- 900	- 500	- 100	1,300	2,200	3,600	4,600	3,800	2,600	1,600	700	- 200
25	- 900	- 500	0	1,300	2,300	3,700	4,600	3,800	2,600	1,600	600	- 200
26	- 900	- 500	0	1,300	2,300	3,700	4,600	3,700	2,600	1,600	600	- 200
27	- 900	- 500	0	1,400	2,300	3,800	4,600	3,700	2,500	1,600	600	- 200
28	- 900	- 500	100	1,400	2,400	3,800	4,600	3,600	2,500	1,500	500	- 200
29	- 900		100	1,400	2,400	3,800	4,600	3,600	2,500	1,500	500	- 300
30	- 900		200	1,500	2,500	3,900	4,600	3,600	2,400	1,500	500	- 300
31	- 900		300		2,500		4,600	3,500		1,400		- 400
Mean	-28,200	-18,700	- 5,200	31,600	61,100	96,300	135,100	127,000	87,700	59,500	27,700	1,000
Acre-feet	-56,000	-37,000	-10,000	63,000	121,000	191,000	268,000	252,000	174,000	118,000	55,000	2,000

TABLE 9
FLOW TO DELTA (TAF)*
1923 - 1924 to 1957 - 1958
AVAILABLE FOR CONSUMPTIVE USE AND SALINITY CONTROL

WATER YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
1923-24	624	499	551	617	1254	579	622	350	113	77	105	183	5574
1924-25	375	790	1083	1088	5632	2587	3995	3475	1422	441	227	334	21449
1925-26	522	597	824	738	4598	1796	4052	1385	367	144	141	309	15473
1926-27	462	1253	2834	2502	7180	4822	4951	3392	2219	591	299	388	30893
1927-28	564	1397	1306	1543	2605	5394	5165	2040	605	293	218	360	21490
1928-29	488	659	765	802	1384	1147	1048	1254	677	200	187	316	8927
1929-30	418	428	2422	2009	1857	3521	2127	1478	736	240	207	398	15841
1930-31	534	596	618	963	888	1058	493	291	133	0	38	188	5800
1931-32	293	418	1564	2157	2330	2222	2043	2981	2153	627	202	256	17246
1932-33	353	402	589	882	934	1612	1463	1334	1278	235	130	259	9471
1933-34	386	516	1030	2071	1625	1728	1063	483	240	86	92	214	9534
1934-35	325	842	796	2677	1675	2888	6960	4179	2264	459	243	345	23653
1935-36	548	568	722	3926	7362	4059	3698	2962	1869	478	243	366	26801
1936-37	461	487	628	807	3304	4835	4236	3811	1968	445	182	315	21479
1937-38	578	2461	6010	2462	10398	11602	7306	7341	4963	1589	534	515	55759
1938-39	719	888	1129	1052	1098	1636	1221	619	221	99	110	314	9106
1939-40	432	428	726	4016	5772	8658	7371	2945	1410	333	234	432	32757
1940-41	524	767	3672	7193	7616	7781	6709	5083	2927	1115	407	415	44209
1941-42	586	747	3758	5524	8662	3026	5117	4447	3490	1068	348	466	37239
1942-43	656	986	1928	5471	4422	6948	4413	2925	1727	433	265	387	30561
1943-44	617	675	782	947	1776	2214	1233	1702	761	246	229	381	11563
1944-45	428	1022	1439	1292	4405	2454	2267	2628	1639	634	494	588	19290
1945-46	759	1235	4539	4946	1771	2040	2408	2572	1086	484	464	582	22886
1946-47	653	939	1326	938	1555	2125	1576	778	546	318	355	474	11483
1947-48	661	820	1684	1586	827	1295	3577	3779	2719	676	545	678	18847
1948-49	744	806	998	899	941	3667	2132	1832	758	441	475	552	14245
1949-50	529	629	610	1807	2974	2145	2682	2316	1480	529	460	582	16743
1950-51	707	4162	7973	4749	5086	3294	1894	2270	886	556	588	642	32807
1951-52	720	986	2866	6498	5978	5304	6275	6650	4085	1318	645	728	42053
1952-53	690	768	2518	7076	2165	1637	1781	2321	2071	568	380	759	22734
1953-54	759	936	1038	1987	3843	3497	3389	1876	509	282	393	563	19072
1954-55	643	939	1686	1729	1018	858	731	1218	604	323	334	491	10574
1955-56	442	649	7362	11498	5696	3950	2272	3720	2243	743	599	855	40029
1956-57	897	1014	933	891	1268	3824	1151	2054	1112	339	408	638	14529
1957-58	1206	1249	1619	2571	9806	6590	8822	4922	3185	965	760	980	42675

*From Table 31 of USBR Report, Region 2, Division of Irrigation and Power Report of Operations, December 1960.

- CVP Tracy pumping

- 0.89 (diversions from Old River
  + diversions from Tom Paine Slough
  + diversions from the San Joaquin River from Stockton to Vernalis)

Values reported in Table 9 were calculated as described below:

- Water years 1923-24 through 1928-29 from State Division of Water Resources Bulletin 27, page 428.

- Water years 1929-30 through 1957-58 see above equation.

Attachment C

ERRATA TO PREVIOUS

DAYFLOW DATA SUMMARY REPORTS

The DAYFLOW Data Summary reports published through January 1985 have been updated and revised as needed. Revisions have been required when preliminary input data were revised by the source agencies, assumptions or estimates were changed (e.g., QMID assigned non-zero values), errors were discovered in the DAYFLOW program or input data deck, etc. These revisions are reported in this attachment.

Revisions Made in 1985

An incorrect FORTRAN read format statement was discovered that affected the accuracy of the Delta Cross Channel gate operation code for particular cases (see Attachment A, Methodology for DAYFLOW Data Summary Generation for details). This error resulted in incorrect values for parameters QXGEO and QWEST. The format statement in the DAYFLOW program was corrected, and correct values for water year 1983-84 were generated. Since the input data deck for water year 1982-83 was available, DAYFLOW data for this water year were revised. The DAYFLOW Data Summary for water years 1982-83 and 1983-84 were subsequently reported in an addendum to the June 1984 Data Summary in January 1985.

Remaining errors in QXGEO and QWEST were revised in February 1985. This involved: (1) regenerating the input data deck for Delta Cross Channel gate operations; (2) recalculating QXGEO and QWEST; and (3) storing the revised DAYFLOW data base.

A FORTRAN program named XCHNLOP (see listing in Appendix E) was developed to create a data deck for Delta Cross Channel gate operations. This output data deck was used to revise errors in the June 1984 DAYFLOW Data Summary. The input data to this program is the USBR gate operation schedule, namely, the date and time of gate setting change and the number of gates open after the setting change (i.e., 0, 1, or 2). The output data deck contains daily records (expressed as Julian days counted from January 1, 1900, as day one) indicating the fraction of the day when zero, one, or two gates were open. This output data deck of daily Delta Cross Channel gate settings is available upon request.

A second FORTRAN program named DFREVIZ (see listing in Attachment E) was developed to: (1) read the DAYFLOW data; (2) read the Delta Cross Channel gate operations generated using the program XCHNLOP (see above); (3) recalculate the daily, monthly total, and monthly average flows for Georgiana Slough and Delta Cross Channel (QXGEO, TXGEO, and AXGEO of the DAYFLOW program), and the corresponding flows past Jersey Point (QWEST, TWEST, and AWEST); and (4) write the revised DAYFLOW data to tape. These revisions are reported in the present DAYFLOW Data Summary and the STORET DAYFLOW data base.

Errors in Yolo Bypass flows for October and November 1983 reported in the DAYFLOW Data Summary Addendum (January 1985) were cited in the April 1985 DAYFLOW UPDATE newsletter. These flows were corrected in May 1985 on the STORET DAYFLOW data base and are presented in this report.

Errata Format

Previous and revised values for DAYFLOW parameters are presented in Table 10 for DAYFLOW Data Summaries distributed through January 1985. Only observations (rows) that required revision are reported, identified by the date parameters YEAR, MONTH, and DAY. Each column contains either the previous or revised value for a particular DAYFLOW parameter. If no correction was needed for a parameter in the observation, a period (.) is shown. DAYFLOW parameter definitions are presented in Table 1 of Attachment A. For table column headings (parameter names), the prefix P- is used to designate the previous (incorrect) value; the prefix Q- is used to designate the revised value. Small roundoff differences were not considered errors and are not reported.

TABLE 10

ERRATA TO DAYFLOW SUMMARIES THROUGH JAN. 1905 (CFS) 19:28 WEDNESDAY, JUNE 5, 1905 1

PREVIOUS (P-) AND REVISED (Q-) VALUES ARE SHOWN BY DAY
MINOR ROUND OFF DIFFERENCES NOT SHOWN
CALIFORNIA DEPARTMENT OF WATER RESOURCES, CENTRAL DISTRICT

YEAR	MONTH	DAY	PSJR	QSJR	PCRM	QCRM	PMOKE	QMOKE	PEAST	QEAST	PSAC	QSAC	PYOLO	QYOLO	PTOT	QTOT	PPREC	QPREC	PCD	QCD
60	2	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
70	3	26	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
73	7	13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
74	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3530	3536	.	.
74	1	3	.	.	1426	1420	.	.	.	.	.	.	.	.	.	.	.	.	.	.
74	1	4	6380	6360	1280	1260	.	.	.	.	.	.	.	.	.	.	.	.	.	.
74	1	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
74	1	9	7330	7830	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
74	1	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
74	1	14	.	.	.	.	.	.	.	.	80400	60400	.	.	.	.	.	.	-2396	-2398
74	1	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-3008	-3068
74	1	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
74	1	18	.	.	.	.	.	.	.	.	.	.	97230	97236	.	.	.	.	.	.
77	6	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
77	6	30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
78	1	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
78	5	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
79	1	19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
79	1	20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
80	10	21	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
80	10	22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
80	10	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
80	10	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
80	10	29	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

YEAR	MONTH	DAY	PDPP	QDPP	PEXP	QEXP	PXGEO	QXGEO	PWEST	QWEST	POUT	QOUT	PDIVER	QDIVER	PEFFECT	QEFFECT	PEFFDIV	QEFFDIV
60	2	3	.	.	.	.	8132	8167	14431	14466	.	.	.	.	.	.	.	.
70	3	26	.	.	.	.	7300	7333	9229	9262	.	.	.	.	.	.	.	.
73	7	13	.	.	.	.	4960	4633	-4264	-4591	.	.	.	.	.	.	.	.
74	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
74	1	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
74	1	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
74	1	7	.	.	.	.	.	.	.	.	100890	100690	.	.	.	.	.	.
74	1	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
74	1	11	.	.	.	.	9848	9048	.	.	.	.	.	.	.	.	.	.
74	1	14	.	.	.	.	8852	8862	.	.	.	.	.	.	.	.	.	.
74	1	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
74	1	17	.	.	.	.	.	.	21685	21885	.	.	.	.	.	.	.	.
74	1	18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
77	6	7	.	.	.	.	3211	3249	-136	-98	.	.	.	.	.	.	.	.
77	6	30	.	.	.	.	3613	3565	682	634	.	.	.	.	.	.	.	.
78	1	6	.	.	.	.	8509	8544	10571	10606	.	.	.	.	.	.	.	.
78	5	9	.	.	.	.	7730	7762	30096	30928	.	.	.	.	.	.	.	.
79	1	19	.	.	.	.	13361	5923	25413	17975	.	.	.	.	.	.	.	.
79	1	20	.	.	.	.	11922	5271	19532	12881	.	.	.	.	.	.	.	.
80	10	21	.	.	.	.	3119	4606	-88	1399	.	.	.	.	.	.	.	.
80	10	22	.	.	.	.	1994	4552	-2361	197	.	.	.	.	.	.	.	.
80	10	23	.	.	.	.	3397	4630	1456	2689	.	.	.	.	.	.	.	.
80	10	28	.	.	.	.	4835	3273	2157	595	.	.	.	.	.	.	.	.
80	10	29	.	.	.	.	4027	2071	1720	-1036	.	.	.	.	.	.	.	.

YEAR	MONTH	DAY	PSJR	QSJR	PCRM	QCRM	PMOKE	QMOKE	PEAST	QEAST	PSAC	QSAC	PYOLO	QYOLO	PTOT	QTOT	PPREC	QPREC	PCD	QCD
80	10	30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
80	10	31	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
80	11	30	.	.	.	.	.	.	.	.	0	11600	.	.	3558	15158	.	.	.	.
81	1	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	1	20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	115	1108	965
81	1	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	9917	11006	-8917	-10006
81	1	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	9917	11006	-0917	-10006
81	1	26	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10204	11293	-9204	-10293
81	1	27	.	.	.	.	.	.	.	.	.	.	.	.	.	.	16796	17886	-15846	-16936
81	1	28	.	.	.	.	.	.	.	.	.	.	.	.	.	.	16223	17312	-15273	-16362
81	1	29	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	1	30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	1	31	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	13013	3669	-12113	-2769
01	2	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	12726	287	-11826	613
81	2	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	9344	0	-8444	900
81	2	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	2	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	2	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	2	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	2	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	2	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	2	19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	2	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	688	0	212	900

YEAR	MONTH	DAY	PDPP	QDPP	PEXP	QEXP	PXGEO	QXGEO	PWEST	QWEST	POUT	QOUT	PDIVER	QDIVER	PEFFECT	QEFFECT	PEFFDIV	QEFFDIV
80	10	30	.	.	.	.	4844	2079	1577	-1188	.	.	.	.	.	.	.	.
80	10	31	.	.	.	.	4891	2100	1508	-1283	.	.	.	.	.	.	.	.
80	11	30	.	.	.	.	2090	5489	-1662	1737	-4419	7181	224	53	378	11978	1269	40
81	1	17	5088	5105	9392	9409	.	.	-1311	-1328	3858	3841	.	.	.	.	.	.
81	1	20	.	.	.	.	.	.	-2518	-2443	3012	3127	78	77	.	.	74	73
81	1	24	4814	4828	9175	9189	.	.	3798	4492	25965	27040	1	0	.	.	.	.
81	1	25	.	.	.	.	.	.	4624	5332	36820	37909	2	0	.	.	.	.
81	1	26	.	.	.	.	.	.	4492	5200	37192	38281	1	0	.	.	.	.
81	1	27	5251	5278	9576	9603	.	.	8968	9649	41644	42707	.	.	32564	36088	.	.
81	1	28	3149	3353	7464	7668	.	.	14418	14922	51635	57520	.	.	43946	44109	.	.
81	1	29	3089	3435	7101	7447	.	.	20839	20493	70597	70251	.	.	59777	59431	.	.
81	1	30	3199	3450	7536	7787	.	.	20313	20062	73781	73530	.	.	62795	62544	.	.
81	1	31	3364	3467	7665	7768	.	.	19497	19394	75308	75205	.	.	64459	64356	.	.
81	2	2	.	.	.	.	.	.	11972	5398	59203	49859	0	9	53977	50729	0	2
81	2	3	3409	3457	7824	7872	.	.	9637	1504	48947	36460	0	19	44587	41665	0	12
81	2	4	3433	3457	7734	7758	.	.	6876	779	39212	29844	0	22	.	.	0	15
81	2	5	3447	3453	7742	7748	.	.	240	234	25760	25754	.	.	.	.	.	.
81	2	8	3439	3452	7704	7717	.	.	-1509	-1523	15131	15118	.	.	.	.	.	.
81	2	9	3428	3452	7702	7726	.	.	-1584	-1608	13910	13886	.	.	.	.	.	.
81	2	10	2932	3341	7203	7612	.	.	-1480	-1890	12903	12494	36	38	.	.	28	30
81	2	12	2966	2999	6275	6308	.	.	-270	-304	12293	12260	34	35	.	.	.	.
81	2	14	3077	3110	5491	5524	.	.	481	448	12951	12918	.	.	.	.	16	17
81	2	19	2986	3137	7286	7437	.	.	-561	-712	20617	20466	.	.	.	.	20	21
81	2	24	3521	3546	6783	6808	.	.	-1329	-1801	13992	13279	33	37	.	.	26	30

PREVIOUS (P-) AND REVISED (Q-) VALUES ARE SHOWN BY DAY
MINOR ROUND OFF DIFFERENCES NOT SHOWN
CALIFORNIA DEPARTMENT OF WATER RESOURCES, CENTRAL DISTRICT

YEAR	MONTH	DAY	PSJR	QSJR	PCRM	QCRM	PMOKE	QMOKE	PEAST	QEAST	PSAC	QSAC	PYOLO	QYOLO	PTOT	QTOT	PPREC	QPREC	PCD	QCD
81	2	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1490	803	-590	97
81	2	26	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1548	860	-648	40
81	2	27	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2236	1548	-1336	-648
81	2	28	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2236	1548	-1336	-648
81	3	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	3	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2924	2121	-1924	-1121
81	3	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2236	2064	-1236	-1064
81	3	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2866	2064	-1866	-1064
81	3	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	3	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	3	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	3	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	3	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	3	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	3	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	3	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	3	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	3	19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	3	20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10548	8312	-9148	-6912
81	3	21	.	.	.	.	.	.	.	.	.	.	.	.	.	.	8140	7510	-6690	-6060
81	3	22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	8427	7796	-6927	-6296
81	3	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	8427	7796	-6927	-6296
81	3	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2580	1949	-1030	-399
81	3	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	745	2350	805	-800

YEAR	MONTH	DAY	PDPP	QDPP	PEXP	QEXP	PXGEO	QXGEO	PWEST	QWEST	POUT	QOUT	PDIVER	QDIVER	PEFFECT	QEFFECT	PEFFDIV	QEFFDIV
81	2	25	.	.	.	.	.	.	212	-235	15554	14867	27	30	.	.	17	20
81	2	26	2850	2853	6117	6120	.	.	466	16	15482	14791	26	29	.	.	15	19
81	2	27	.	.	.	.	.	.	-18	-466	16712	16024	26	29	.	.	16	20
81	2	28	4530	4652	7781	7903	.	.	-448	-1017	16543	15733	28	32	.	.	18	22
81	3	1	5993	6000	9258	9265	.	.	-2395	-2402	13784	13777	.	.	.	.	.	.
81	3	2	.	.	.	.	.	.	-1368	-1870	14355	13552	31	35	.	.	23	27
81	3	3	.	.	.	.	.	.	-961	-1073	13746	13574	30	31	.	.	22	23
81	3	4	3439	3525	6718	6804	.	.	157	-450	14742	13854	25	29	.	.	15	20
81	3	5	3080	3135	6347	6402	.	.	3833	3778	20144	20089	.	.	.	.	.	.
81	3	7	2078	2115	5336	5373	.	.	5569	5532	26852	26815	.	.	.	.	.	.
81	3	8	2681	2705	5946	5970	.	.	4288	4264	24340	24316	.	.	.	.	.	.
81	3	9	1204	2212	2958	3958	.	.	5948	4940	23855	22847	8	2	.	.	.	.
81	3	10	2211	1204	3961	2954	.	.	1374	2381	16220	17227	24	19	.	.	14	8
81	3	14	3231	3315	4974	5058	.	.	477	393	12391	12307	.	.	.	.	.	.
81	3	15	4156	4212	5897	5953	.	.	-388	-444	11790	11734	.	.	.	.	22	23
81	3	16	4044	4066	5786	5808	.	.	1665	1643	15804	15862	.	.	.	.	.	.
81	3	17	2476	2502	4231	4257	.	.	3491	3465	17776	17750	.	.	.	.	.	.
81	3	19	2195	2231	3973	4009	.	.	9248	9212	28967	28931	.	.	.	.	.	.
81	3	20	1851	1995	3627	3771	.	.	16315	14718	40129	37749	.	.	34823	33740	.	.
81	3	21	1969	1976	3742	3749	.	.	13599	13182	41153	40516	.	.	37273	37001	.	.
81	3	22	1356	1651	3125	3420	.	.	13033	12328	41464	40535	.	.	37446	36806	.	.
81	3	23	.	.	.	.	.	.	12139	11729	44011	43380	.	.	39993	39728	.	.
81	3	24	2166	2446	3931	4211	.	.	7675	6984	39375	38464	7	9	39714	39619	1	3
81	3	25	2613	2680	4364	4431	.	.	6470	7446	37268	38806	12	9	38177	39788	.	.

YEAR	MONTH	DAY	PSJR	QSJR	PCRM	QCRM	PMOKE	QMOKE	PEAST	QEAST	PSAC	QSAC	PYOLO	QYOLO	PTOT	QTOT	PPREC	QPREC	PCD	QCD
81	3	28	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	3	29	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	3	30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	3	31	.	.	.	.	0	20	4065	4085	.	.	.	.	39289	39309	.	.	.	.
81	4	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	4	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	4	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	4	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	4	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	4	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	4	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	4	19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	4	20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	4	21	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	4	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	5	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	5	13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	5	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	5	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	5	18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	57	2450	2393
81	5	19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	57	2500	2443
81	5	20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	57	2550	2493
81	5	21	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	57	2550	2493
81	5	22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	57	2600	2543

YEAR	MONTH	DAY	PDPP	QDPP	PEXP	QEXP	PXGEO	QXGEO	PWEST	QWEST	POUT	QOUT	PDIVER	QDIVER	PEFFECT	QEFFECT	PEFFDIV	QEFFDIV
81	3	28	3187	3322	4140	4275	.	.	8122	7987	42418	42283	.	.	.	.	.	.
81	3	29	3563	3586	4524	4547	.	.	6637	6614	39199	39176	10	9	.	.	.	.
81	3	30	2642	2648	3598	3604	.	.	6697	6691	38317	38311	.	.	.	.	.	.
81	3	31	1910	2005	2864	2959	.	.	5793	5718	35012	34937	3	11	36379	36399	1	4
81	4	1	3395	3413	4351	4369	.	.	3938	3920	32865	32847	.	.	.	.	.	.
81	4	2	4381	4391	5334	5344	.	.	2503	2493	30478	30468	.	.	.	.	.	.
81	4	4	3864	3878	4842	4856	.	.	1792	1778	26197	26183	.	.	.	.	.	.
81	4	5	4769	4780	5855	5866	.	.	325	314	22736	22725	.	.	.	.	.	.
81	4	7	4907	4928	6743	6764	.	.	-1731	-1752	16087	16066	.	.	.	.	.	.
81	4	12	4778	4785	9426	9433	.	.	-5571	-5578	6335	6328	.	.	.	.	.	.
81	4	14	4948	4958	9639	9649	.	.	-5963	-5974	4282	4272	.	.	.	.	.	.
81	4	19	5324	5346	10081	10103	.	.	2134	2112	9629	9607	.	.	.	.	.	.
81	4	20	4605	4612	9284	9291	.	.	4818	4811	14291	14284	.	.	.	.	.	.
81	4	21	2541	2723	6855	7037	.	.	7242	7059	17350	17168	2	3	.	.	.	.
81	4	23	3078	3088	7818	7828	.	.	6228	6218	16546	16536	.	.	.	.	.	.
81	5	12	385	397	3860	3872	4467	4472	1548	1541	10095	10083	.	.	.	.	.	.
81	5	13	409	424	3894	3909	.	.	2971	2956	9857	9842	.	.	.	.	.	.
81	5	16	1618	1181	4244	3807	.	.	2661	3098	10069	10506	40	37	.	.	32	29
81	5	17	2484	2500	5094	5110	.	.	1785	1769	9255	9239	.	.	.	.	.	.
81	5	18	.	.	.	.	.	.	1481	1518	9377	9434	.	.	.	.	40	39
81	5	19	.	.	.	.	.	.	1506	1543	10296	10353	.	.	.	.	.	.
81	5	20	.	.	.	.	.	.	2663	2700	11721	11778	.	.	.	.	33	32
81	5	21	.	.	.	.	.	.	4897	4934	14730	14787	.	.	.	.	.	.
81	5	22	.	.	.	.	.	.	4299	4336	13615	13672	.	.	.	.	24	23

TABLE 10 (CON'T)

ERRATA TO DAYFLOW SUMMARIES THROUGH JAN. 1985 (CFS)   19:28 WEDNESDAY, JUNE 5, 1985   5

PREVIOUS (P-) AND REVISED (Q-) VALUES ARE SHOWN BY DAY
MINOR ROUND OFF DIFFERENCES NOT SHOWN
CALIFORNIA DEPARTMENT OF WATER RESOURCES, CENTRAL DISTRICT

YEAR	MONTH	DAY	PSJR	QSJR	PCRM	QCRM	PMOKE	QMOKE	PEAST	QEAST	PSAC	QSAC	PYOLO	QYOLO	PTOT	QTOT	PPREC	QPREC	PCD	QCD	PDOP	QDOP	PEXP	QEXP	PXGEO	QXGEO	PWEST	QWEST	POUT	QOUT	PDIVER	QDIVER	PEFFECT	QEFFECT	PEFFDIV	QEFFDIV
81	6	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	301	328	3458	3485	.	.	1998	1971	6919	6892	48	49	.	.	.	.
81	6	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	22	0	22	.	.	4803	4781	9319	9297	.	.	11291	11269	.	.
81	7	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	290	324	5257	5291	.	.	-1034	-1068	4259	4225	69	70	.	.	.	.
81	7	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	183	217	5122	5156	.	.	-1027	-1061	3989	3955	70	71	.	.	.	.
81	7	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1164	1199	6117	6152	.	.	-1528	-1563	4692	4657	.	.	.	.	.	.
81	7	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3267	3302	7526	7561	.	.	-2135	-2170	5990	5955	.	.	.	.	.	.
81	7	20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5655	5690	9881	9916	.	.	-3826	-3861	5444	5409	72	73	.	.	.	.
81	7	21	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5395	5429	9548	9582	.	.	-3729	-3763	5408	5374	.	.	.	.	.	.
81	7	22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5300	5335	9560	9595	.	.	-3948	-3983	4978	4943	.	.	.	.	.	.
81	7	28	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3346	3355	7557	7566	.	.	-1989	-1998	6314	6305	.	.	.	.	.	.
81	8	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4244	4271	8425	8452	.	.	-2910	-2937	5289	5262	70	71	.	.	68	69
81	8	13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4140	4148	8730	8738	.	.	-3661	-3669	3008	3000	.	.	.	.	.	.
81	9	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2144	2194	6623	6673	.	.	-915	-965	5827	5777	.	.	.	.	.	.
81	9	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2995	3004	7492	7501	.	.	-1751	-1760	4939	4930	.	.	.	.	.	.
81	9	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3464	3500	7733	7769	.	.	-2048	-2076	4629	4593	.	.	.	.	.	.
81	9	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4027	4924	8006	8103	.	.	-2474	-2571	3931	3834	73	74	.	.	.	.
81	9	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3898	4002	6558	6662	.	.	-1105	-1209	5300	5196	63	64	.	.	.	.
81	10	29	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4251	4296	5306	5351	.	.	4938	4893	12017	11972	.	.	.	.	.	.
81	11	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3455	3467	4412	4424	.	.	3012	3000	8520	8508	.	.	.	.	.	.
81	11	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3847	3969	4769	4891	5252	5261	8643	8530	23782	23660	.	.	.	.	.	.
81	11	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4289	4317	5210	5238	.	.	5999	5971	28419	28391	.	.	.	.	.	.
81	11	18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3081	3109	4551	4579	.	.	7397	7369	43039	43011	.	.	.	.	.	.
81	11	19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2488	2497	4272	4281	.	.	5698	5689	44057	44048	.	.	.	.	.	.
81	11	20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3202	3211	4989	4998	.	.	4465	4456	43706	43697	.	.	.	.	.	.
81	11	22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4674	4696	7561	7583	.	.	3156	3134	40333	40311	.	.	.	.	.	.
81	11	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3944	3950	7236	7242	.	.	5865	5859	52220	52214	.	.	.	.	.	.
81	11	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1834	1840	5032	5038	.	.	8652	8646	59275	59269	.	.	.	.	.	.
81	11	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1059	1065	4244	4250	.	.	11412	11406	74121	74115	.	.	.	.	0	1
81	11	26	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1567	1573	4752	4758	.	.	11560	11554	90185	90179	.	.	.	.	.	.
81	11	27	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1430	1440	4653	4663	.	.	12695	12605	108777	108767	.	.	.	.	.	.
81	11	28	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1322	1335	3524	3537	.	.	11890	11677	101103	101090	.	.	.	.	.	.
81	12	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2306	2319	2362	2375	.	.	9896	9883	71200	71187	.	.	.	.	.	.
81	12	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3421	3439	3448	3466	.	.	5266	5248	47236	47218	.	.	.	.	.	.
81	12	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3338	3357	3368	3387	.	.	4546	4527	40597	40578	.	.	.	.	.	.
81	12	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5524	5533	5554	5563	.	.	2178	2169	34580	34571	.	.	.	.	.	.
81	12	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6091	6100	6122	6131	.	.	1659	1650	34755	34746	.	.	.	.	.	.
81	12	21	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5209	5296	7188	7275	.	.	28719	28632	219369	219282	.	.	.	.	.	.
81	12	22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4240	4300	5980	6040	.	.	20263	20203	106654	106594	.	.	.	.	.	.
81	12	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4278	4318	6022	6062	.	.	18198	18158	201120	201080	.	.	.	.	.	.
81	12	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4184	4206	5926	5948	.	.	15696	15674	184762	184740	.	.	.	.	.	.
81	12	26	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4811	4829	7236	7254	.	.	8559	8541	133847	133829	.	.	.	.	.	.
81	12	27	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3640	3658	6229	6247	.	.	8582	8564	118832	118814	.	.	.	.	.	.
81	12	29	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3037	3074	5581	5618	.	.	10259	10222	107946	107909	.	.	.	.	.	.
81	12	30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2921	3360	5477	5916	.	.	22361	21922	1[illegible]3062	132623	.	.	.	.	.	.
81	12	31	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3200	3423	5166	5389	.	.	21456	21233	143064	142841	.	.	.	.	.	.
82	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3119	3216	4817	4914	.	.	22958	22861	149905	149800	.	.	.	.	.	.

TEAR	MONTH	DAY	PSJR	QSJR	PCRM	QCRM	PMOKE	QMOKE	PEAST	QEAST	PSAC	QSAC	PYOLO	QYOLO	PTOT	QTOT	PPREC	QPREC	PCD	QCD	PDOP	QDOP	PEXP	QEXP	PXGEO	QXGEO	PWEST	QWEST	POUT	QOUT	PDIVER	QDIVER	PEFFECT	QEFFECT	PEFFDIV	QEFFDIV
82	1	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3069	3179	4759	4869	.	.	25415	25305	162717	162607	.	.	.	.	.	.
82	1	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2462	2589	4720	4847	.	.	24857	24730	157160	157033	.	.	.	.	.	.
82	1	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2860	3626	5377	6143	.	.	30140	29374	158048	157282	.	.	150402	150295	.	.
82	1	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-1184	3283	1362	5029	.	.	74783	70316	226537	222070	.	.	213143	208676	.	.
82	1	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	537	1501	3090	4054	.	.	58295	57331	214676	213712	.	.	201586	200622	.	.
82	1	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1692	2053	3608	3969	.	.	46394	46033	184565	184204	.	.	172643	172282	.	.
82	1	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1876	2177	3510	3811	.	.	40816	40515	164409	164108	.	.	152819	152518	.	.
82	1	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2647	2678	4206	4337	.	.	14119	14068	88955	88904	.	.	.	.	.	.
82	1	13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2216	2249	3853	3886	.	.	14107	14074	81399	81366	.	.	.	.	.	.
82	1	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3045	3078	4674	4707	.	.	11881	11848	72668	72635	.	.	.	.	.	.
82	1	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3499	3526	5112	5139	.	.	10215	10188	65983	65956	.	.	.	.	.	.
82	1	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3303	3323	4915	4935	.	.	9184	9164	59428	59408	.	.	.	.	.	.
82	1	18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3260	3274	4885	4899	.	.	8159	8145	54313	54299	.	.	.	.	.	.
82	1	19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3698	3755	5320	5378	.	.	7685	7627	50982	50924	.	.	.	.	.	.
82	1	20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4663	4687	6281	6305	.	.	8423	8399	49938	49914	.	.	.	.	.	.
82	1	21	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4540	4786	6167	6405	.	.	16094	15856	62825	62587	.	.	.	.	.	.
82	1	22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3012	3125	5140	5253	.	.	15303	15190	61742	61629	.	.	61355	59537	.	.
82	1	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4026	4105	6430	6509	.	.	11562	11483	61128	61049	.	.	.	.	.	.
82	1	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2393	2500	4801	4908	.	.	11036	10929	60293	60186	.	.	.	.	.	.
82	1	26	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3630	3730	5567	5667	.	.	7505	7405	54265	54165	.	.	.	.	.	.
82	1	27	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3155	2265	4823	3933	.	.	9576	10466	57756	58646	7	6	.	.	2	1
82	1	28	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3405	3443	5044	5082	.	.	11874	11836	62690	62652	.	.	.	.	.	.
82	1	29	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3688	3766	5322	5400	.	.	11607	11529	64025	63947	.	.	.	.	.	.
82	1	30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3004	3082	4649	4727	.	.	12256	12178	65757	65679	.	.	.	.	.	.
82	1	31	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5551	5598	7177	7224	.	.	8605	8558	61011	60964	.	.	.	.	.	.
82	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3486	3506	5123	5143	.	.	9561	9541	60486	60466	.	.	.	.	.	.
82	2	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4671	4712	7923	7964	.	.	5305	5264	49[illegible]	49653	.	.	.	.	.	.
82	2	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4710	4737	8324	8351	.	.	4549	4522	46730	46673	16	17	.	.	.	.
82	2	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4590	4623	8554	8587	.	.	4069	4036	43142	43109	.	.	.	.	10	11
82	2	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4856	4873	8844	8861	.	.	4530	4513	46294	46277	.	.	.	.	.	.
82	2	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6383	6407	10339	10363	.	.	1817	1793	35368	35344	.	.	.	.	.	.
82	2	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6205	6236	10145	10176	.	.	1204	1173	33543	33512	.	.	.	.	.	.
82	2	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5842	5856	9804	9818	.	.	492	478	31530	31516	.	.	.	.	.	.
82	2	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5970	5990	9982	10002	.	.	9[illegible]1	921	30350	30330	.	.	.	.	.	.
82	2	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5786	5803	9795	9812	.	.	12[illegible]	1263	29474	29457	.	.	.	.	.	.
82	2	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5421	5435	9426	9440	.	.	1599	1505	28666	28652	.	.	.	.	.	.
82	2	13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5842	5848	9842	9848	.	.	973	967	26740	26734	.	.	.	.	.	.
82	2	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6033	6096	10039	10102	.	.	2361	2298	28524	28461	.	.	.	.	.	.
82	2	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4442	4908	8436	8902	.	.	19796	19330	56441	55975	3	4	.	.	.	.
82	2	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2344	3896	6354	7906	.	.	57588	56036	145592	144040	.	.	.	.	.	.
82	2	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4787	5258	8788	9259	.	.	50342	49871	197819	197348	.	.	.	.	.	.
82	2	18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5958	6285	9942	10269	.	.	41820	41493	197582	197255	.	.	.	.	.	.
82	2	19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6010	6200	9902	10172	.	.	34899	34709	185739	185549	.	.	.	.	.	.
82	2	20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6358	6443	10331	10416	.	.	27692	27607	165608	165523	.	.	.	.	.	.
82	2	21	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6516	6604	10474	10562	.	.	21932	21844	146659	146571	.	.	.	.	.	.
82	2	22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6169	6251	10453	10535	.	.	20554	20472	138157	138075	.	.	.	.	.	.

PREVIOUS (P-) AND REVISED (Q-) VALUES ARE SHOWN BY DAY
MINOR ROUND OFF DIFFERENCES NOT SHOWN
CALIFORNIA DEPARTMENT OF WATER RESOURCES, CENTRAL DISTRICT

YEAR	MONTH	DAY	PSJR	QSJR	PCRM	QCRM	PMOKE	QMOKE	PEAST	QEAST	PSAC	QSAC	PYOLO	QYOLO	PTOT	QTOT	PPREC	QPREC	PCD	QCD	PDP	QDP	PEXP	QEXP	PXGEO	QXGEO	PWEST	QWEST	POUT	QOUT	PDIVER	QDIVER	PEFFECT	QEFFECT	PEFFDIV	QEFFDIV
82	2	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6113	6193	10388	10468	.	.	19195	19115	134323	134243	.	.	138456	134811	3	0
82	2	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6429	6439	10635	10645	.	.	17961	17951	130802	130792	.	.	.	.	.	.
82	2	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6144	6224	10262	10342	.	.	17708	17628	127230	127150	.	.	.	.	.	.
82	2	26	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6295	6343	10351	10399	.	.	16485	16437	117058	117010	.	.	.	.	.	.
82	2	27	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6082	6135	10204	10257	.	.	15258	15205	104569	104516	.	.	.	.	.	.
82	2	28	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6062	6114	10236	10288	.	.	14686	14634	94997	94945	10	11	.	.	1	2
82	3	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5813	5838	10045	10070	.	.	15888	15863	80220	88195	.	.	.	.	.	.
82	3	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6544	6632	10721	10809	.	.	20706	20618	96146	96058	.	.	.	.	.	.
82	3	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5755	5918	9978	10141	.	.	23513	23350	102867	102704	.	.	.	.	.	.
82	3	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6207	6304	10406	10503	.	.	19910	19813	99671	99574	.	.	.	.	.	.
82	3	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6338	6420	10563	10645	.	.	18434	18352	80721	80639	.	.	.	.	.	.
82	3	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6355	6415	10561	10621	.	.	16174	16114	84527	84467	8	9	.	.	.	.
82	3	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6697	6756	10934	10993	.	.	13272	13213	77919	77860	12	13	.	.	.	.
82	3	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6393	6442	10588	10637	.	.	12670	12621	75454	75405	.	.	.	.	.	.
82	3	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6291	6340	10481	10530		.	12424	12375	73473	73424	.	.	.	.	.	.
82	3	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6454	6496	10667	10709	.	.	12710	12668	71868	71826	.	.	.	.	.	.
82	3	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6589	6639	10890	10940	.	.	17031	16981	76753	76703	.	.	.	.	.	.
82	3	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5996	6124	10211	10339	.	.	19589	19461	81077	80949	.	.	.	.	.	.
82	3	13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5942	6038	10156	10252	.	.	17733	17637	80376	80280	.	.	.	.	.	.
82	3	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6335	6424	10551	10640	.	.	18729	18640	80713	80624	6	7	.	.	.	.
82	3	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5228	5328	9462	9562	.	.	22414	22314	83225	83125	.	.	.	.	.	.
82	3	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4926	4991	8921	8986	.	.	21231	21166	80858	80793	.	.	.	.	.	.
82	3	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5589	5725	9887	10023	.	.	27016	26880	88579	88443	5	6	.	.	.	.
82	3	18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5902	6202	10282	10582	.	.	32744	32444	97951	97651	3	4	.	.	.	.
82	3	19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5349	5747	9548	9946	.	.	31506	31108	99480	99082	1	2	94773	94589	.	.
82	3	20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6384	6596	10538	10750	.	.	25556	25344	92566	92354	.	.	.	.	.	.
82	3	21	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6337	6476	10520	10659	.	.	22709	22570	87667	87528	5	6	.	.	.	.
82	3	22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6247	6352	10216	10321	.	.	20345	20240	83089	82984	.	.	.	.	.	.
82	3	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6484	6544	10422	10482	.	.	17021	16961	75399	75339	.	.	.	.	.	.
82	3	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6363	6451	10392	10480	.	.	14255	14167	67684	67596	.	.	.	.	.	.
82	3	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6383	6431	10409	10457	.	.	13642	13594	62665	62617	.	.	.	.	.	.
82	3	26	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6500	6586	10579	10665	.	.	14217	14131	60688	60602	.	.	.	.	.	.
82	3	27	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5793	5852	9974	10033	.	.	16136	16077	59397	59338	.	.	.	.	.	.
82	3	28	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6533	6618	10714	10799	.	.	16121	16036	57200	57115	.	.	.	.	.	.
82	3	29	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5525	5799	9796	10070	.	.	20474	20200	60850	60594	.	.	.	.	.	.
82	3	30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5597	6117	9698	10218	.	.	25958	25438	67193	66673	.	.	59539	59356	.	.
82	3	31	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4444	7027	8487	11070	.	.	38116	35533	93919	91336	.	.	85861	83512	.	.
82	4	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4735	6196	8508	9969	.	.	64345	62084	149492	148031	.	.	139535	138074	.	.
82	4	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4786	6431	8404	10049	.	.	52217	50572	153406	151761	.	.	144181	142536	.	.
82	4	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5503	6315	8795	9607	.	.	46355	45543	168043	167231	.	.	160181	159369	.	.
82	4	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5859	6236	9153	9530	.	.	46709	46412	181541	181164	.	.	174971	174594	.	.
82	4	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6157	6483	9462	9788	.	.	37742	37416	168359	168033	.	.	163784	163458	.	.
82	4	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6493	6729	9802	10038	.	.	29653	29417	146888	146652	.	.	.	.	.	.
82	4	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5883	6073	9183	9373	.	.	27796	27606	130698	130508	.	.	130811	130621	.	.
82	4	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5841	6143	9149	9451	.	.	27309	27007	118699	118397	.	.	119197	118895	.	.
82	4	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6260	6406	9561	9707	.	.	27503	27357	107670	107524	.	.	108743	108597	.	.
82	4	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6079	6338	9374	9633	.	.	30959	30700	103455	103196	.	.	103265	103006	.	.
82	4	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5779	7450	9086	10757	.	.	45191	43520	134045	132374	2	3	130530	128359	.	.
82	4	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4836	5794	8205	9163	.	.	59641	58683	197833	196875	0	1	193387	192429	.	.
82	4	13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5807	6172	9085	9450	.	.	50921	50555	210202	209837	.	.	205785	205420	.	.
82	4	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5474	5822	8786	9134	.	.	45600	45252	211293	210945	.	.	206543	206195	.	.
82	4	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5805	5978	9084	9257	.	.	40088	39915	196647	196474	.	.	193161	192988	.	.
82	4	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5556	5766	8869	9079	.	.	36910	36700	188723	188513	.	.	188562	188352	.	.
82	4	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6129	6284	9411	9566	.	.	37012	36857	177735	177580	.	.	178505	178350	.	.
82	4	18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6085	6232	9380	9527	.	.	38585	38438	174362	174215	.	.	175132	174985	.	.
82	4	19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6529	6665	9830	9966	.	.	37246	37110	162252	162116	.	.	163354	163218	.	.
82	4	20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6549	6627	9815	9893	.	.	36548	36470	148027	147949	.	.	149129	149051	.	.
82	4	21	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6377	6469	9605	9697	.	.	35948	35856	134550	134458	.	.	135652	135560	.	.
82	4	22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4912	3772	8371	7231	.	.	36175	37315	123412	124552	8	7	124514	125654	.	.
82	4	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3447	3510	7136	7199	.	.	36030	35967	109680	109617	.	.	110782	110719	.	.
82	4	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5996	6064	10001	10069	.	.	31448	31380	96526	96458	.	.	97657	97589	.	.
82	4	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6110	6173	9965	10028	.	.	30739	30676	92239	92176	11	12	93370	93307	.	.
82	4	26	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6235	6292	10302	10359	.	.	30601	30544	89441	89384	.	.	90572	90515	.	.
82	4	27	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6048	6084	10043	10079	.	.	30422	30386	86896	86860	.	.	88027	87991	.	.
82	4	28	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6222	6258	10249	10285	.	.	29393	29357	84266	84230	.	.	85426	85390	.	.
82	4	29	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6015	6049	10039	10073	.	.	28883	28849	84133	84099	.	.	85293	85259	.	.
82	4	30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6066	6127	10076	10137	.	.	28173	28112	83744	83683	.	.	84904	84843	.	.
82	5	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4218	4252	8230	8264	.	.	29176	29142	83204	83170	.	.	84364	84330	.	.
82	5	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1224	1251	5232	5259	.	.	31342	31315	82906	82879	.	.	84066	84039	.	.
82	5	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2208	2250	5777	5819	.	.	31329	31287	81342	81300	.	.	82531	82489	.	.
82	5	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2909	2951	6209	6251	.	.	30998	30956	79913	79871	.	.	81131	81089	.	.
82	5	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2014	1928	5403	5317	.	.	31227	31313	78128	78214	.	.	79346	79432	.	.
82	5	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1967	1904	5310	5247	.	.	29613	29676	74867	74930	.	.	76085	76148	.	.
82	5	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2316	2246	5655	5585	.	.	29605	29675	73974	74044	10	9	75221	75291	.	.
82	5	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2469	2400	5802	5733	.	.	29041	29110	71990	72059	.	.	73237	73306	.	.
82	5	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3369	3286	6697	6614	.	.	27447	27530	68512	68595	.	.	69788	69871	.	.
82	5	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2136	2075	5438	5377	.	.	28384	28445	67677	67738	.	.	68953	69014	.	.
82	5	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2116	2040	5889	5813	.	.	27066	27142	64764	64840	.	.	66069	66145	.	.
82	5	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2411	2308	6418	6315	.	.	25916	26019	62379	62482	.	.	63713	63816	.	.
82	5	13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1902	1855	5842	5795	.	.	26143	26190	60604	60651	.	.	61938	61985	.	.
82	5	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2087	2065	6115	6093	.	.	25097	25119	56558	56580	.	.	57921	57943	.	.
82	5	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2400	2302	5322	5224	.	.	24860	24958	54493	54591	.	.	55856	55954	.	.
82	5	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1944	1862	4430	4348	.	.	24630	24712	52511	52593	12	11	53903	53985	.	.
82	5	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1963	1885	4487	4409	.	.	23449	23527	50450	50528	.	.	51871	51949	.	.
82	5	18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2704	2616	5235	5147	.	.	22064	22152	48888	48976	14	13	50309	50397	.	.
82	5	19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2767	2676	5402	5311	.	.	21254	21345	48489	48580	.	.	49939	50030	.	.
82	5	20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2681	2581	5364	5264	.	.	20731	20831	48987	49087	.	.	50466	50566	.	.
82	5	21	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2915	2818	5575	5478	.	.	19626	19723	47186	47283	.	.	48665	48762	.	.
82	5	22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3041	2950	5682	5591	.	.	18547	18638	45046	45137	16	15	46554	46645	.	.
82	5	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4818	4726	7465	7373	.	.	15649	15741	41436	41528	20	19	42973	43065	.	.
82	5	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3886	3792	6534	6440	.	.	15620	15714	42166	42260	.	.	43732	43826	.	.
82	5	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4021	3900	6645	6524	.	.	14578	14699	41457	41578	.	.	43052	43173	.	.

TABLE 10 (CON'T)

PREVIOUS (P-) AND REVISED (Q-) VALUES ARE SHOWN BY DAY
MINOR ROUND OFF DIFFERENCES NOT SHOWN
CALIFORNIA DEPARTMENT OF WATER RESOURCES, CENTRAL DISTRICT

YEAR	MONTH	DAY	PSJR	QSJR	PCRM	QCRM	PMOKE	QMOKE	PEAST	QEAST	PSAC	QSAC	PYOLO	QYOLO	PTOT	QTOT	PPREC	QPREC	PCD	QCD	PDP	QDP	PEXP	QEXP	PXGEO	QXGEO	PWEST	QWEST	POUT	QOUT	PDIVER	QDIVER	PEFFECT	QEFFECT	PEFFDIV	QEFFDIV
82	5	26	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4513	4392	7140	7019	.	.	13472	13593	42428	42549	.	.	44023	44144	.	.
82	5	27	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4245	4108	6832	6745	.	.	13203	13340	45605	45742	18	17	.	.	.	.
82	5	28	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3390	3247	6044	5901	.	.	13354	13497	47478	47621	.	.	49250	49274	4	3
82	5	29	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4337	4202	6986	6851	.	.	11777	11912	45538	45673	.	.	.	.	.	.
82	5	30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4387	4277	7485	7375	.	.	10496	10606	42511	42621	.	.	.	.	.	.
82	5	31	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4139	3996	7468	7325	.	.	9968	10111	40316	40459	21	20	.	.	.	.
82	6	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2693	2552	6031	5890	.	.	11111	11252	40828	40969	.	.	.	.	.	.
82	6	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2133	1999	5000	4066	.	.	11765	11899	41115	41249	.	.	42991	43047	.	.
82	6	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2349	2236	5418	5305	.	.	10939	11052	39319	39432	.	.	.	.	.	.
82	6	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3579	3460	6956	6837	.	.	8902	9021	35102	35221	.	.	.	.	10	9
82	6	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3680	3561	7033	6914	.	.	8551	8670	33344	33463	24	23	.	.	.	.
82	6	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3533	3407	6885	6759	.	.	8400	8526	30834	30960	.	.	.	.	.	.
82	6	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1980	1825	5310	5155	.	.	9542	9677	31004	31159	22	21	33039	33102	.	.
82	6	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	524	369	3861	3706	.	.	10403	10558	32804	32959	.	.	34776	34931	.	.
82	6	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-7	-147	3316	3176	.	.	10410	10550	33051	33191	.	.	35052	35192	.	.
82	6	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-4	-138	3335	3201	.	.	9592	9726	30222	30356	.	.	32252	32386	.	.
82	6	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	-130	3325	3195	6792	6751	11475	11564	29895	30025	19	18	31954	32084	.	.
02	6	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	-162	3318	3156	.	.	13941	14103	29101	29263	.	.	31189	31351	.	.
82	6	13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	467	337	3779	3649	.	.	13166	13296	28378	28508	21	20	30495	30625	.	.
82	6	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-7	-86	3314	3235	6543	6544	9909	9938	28025	28104	.	.	30171	30250	.	.
82	6	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	-120	3322	3202	.	.	6855	6975	27304	27424	21	20	29479	29599	.	.
82	6	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-4	-139	3332	3197	.	.	6354	6489	26787	26922	.	.	.	.	.	.
82	6	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	-134	3344	3210	.	.	6031	6165	25748	25882	22	21	.	.	.	.
82	6	18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	-177	3384	3207	6488	6499	8303	8491	24585	24762	23	22	.	.	10	9
82	6	19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	-68	3269	3201	.	.	11211	11279	25033	25101	.	.	.	.	.	.
82	6	20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-49	-91	3271	3229	.	.	11197	11240	24367	24409	.	.	.	.	10	9
82	6	21	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	-176	2855	2679	5972	5953	8729	8885	24697	24873	22	21	27046	27222	.	.
82	6	22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	-131	2688	2557	.	.	6493	6624	23884	24015	.	.	26262	26393	.	.
82	6	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1002	918	3562	3478	.	.	5745	5829	23206	23290	.	.	.	.	.	.
82	6	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	-144	2541	2397	.	.	6806	6950	23985	24129	22	21	26392	26536	.	.
82	6	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1890	1789	4508	4407	5923	5947	7061	7186	21109	21210	.	.	.	.	16	15
82	6	26	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1862	1775	4518	4431	.	.	9125	9212	19604	19691	31	30	.	.	.	.
82	6	27	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1135	1034	3798	3697	.	.	10131	10232	20308	20409	.	.	.	.	.	.
82	6	28	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	783	676	3895	3788	.	.	10366	10473	20684	20791	.	.	.	.	12	11
82	6	29	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	44	-53	3329	3232	.	.	12635	12732	24090	24187	.	.	25254	25351	.	.
82	6	30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	940	858	3186	3104	.	.	15649	15731	33404	33486	.	.	34568	34650	.	.
82	7	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-7	-98	968	877	.	.	16246	16337	28911	29002	.	.	30075	30166	.	.
82	7	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	730	635	1703	1608	.	.	16673	16768	28983	29078	.	.	30147	30242	.	.
82	7	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1143	1048	2108	2013	.	.	16108	16203	26748	26843	.	.	29271	29366	.	.
82	7	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	894	781	1908	1795	.	.	15497	15610	25408	25521	.	.	27960	28073	.	.
82	7	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	155	959	1114	.	.	14855	14700	23781	23626	18	19	26333	26178	.	.
82	7	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	697	557	1646	1506	.	.	12964	13104	21249	21389	.	.	23801	23941	.	.
82	7	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	-76	953	877	.	.	12308	12304	20028	20104	.	.	22580	22656	.	.
82	7	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	-101	1353	1252	.	.	10608	10709	18400	18501	24	23	20952	21053	.	.
82	7	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	-101	1709	1608	.	.	9139	9240	16996	17097	.	.	19548	19649	.	.
82	7	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	-191	1693	1502	.	.	8535	8726	16461	16652	27	26	19013	19204	.	.

YEAR	MONTH	DAY	PSJR	QSJR	PCRM	QCRM	PMOKE	QMOKE	PEAST	QEAST	PSAC	QSAC	PYOLO	QYOLO	PTOT	QTOT	PPREC	QPREC	PCD	QCD	PDP	QDP	PEXP	QEXP	PXGEO	QXGEO	PWEST	QWEST	POUT	QOUT	PDIVER	QDIVER	PEFFECT	QEFFECT	PEFFDIV	QEFFDIV
82	7	13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	-131	2854	2723	.	.	6807	6938	14662	14793	.	.	17306	18260	15	19
82	7	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	555	440	4459	4344	.	.	5023	5138	12809	12924	41	40	.	.	.	.
82	7	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1389	1251	5696	5558	.	.	3654	3792	11369	11507	47	46	.	.	.	.
82	7	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	853	703	5682	5532	.	.	3567	3717	11136	11286	48	47	.	.	34	33
82	7	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1256	1130	6072	5946	.	.	3147	3273	10561	10687	50	49	.	.	.	.
82	7	18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	67	-59	4912	4786	.	.	4238	4364	11233	11359	.	.	.	.	30	29
82	7	19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1144	1015	5980	5851	.	.	3348	3477	10983	11112	49	48	.	.	35	34
82	7	20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	-151	4862	4711	.	.	4481	4632	12898	13049	42	41	.	.	27	26
82	7	21	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1694	1500	6034	5840	.	.	3536	3730	12242	12436	46	45	.	.	33	32
82	7	22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	-139	4186	4047	.	.	5338	5477	14113	14252	38	37	.	.	.	.
82	7	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1742	1591	5990	5839	.	.	3532	3683	12165	12316	46	45	.	.	.	.
82	7	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2197	2132	6826	6761	.	.	2688	2753	11400	11465	50	49	.	.	.	.
82	7	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2698	2597	6941	6840	.	.	2861	2962	11741	11842	49	48	.	.	37	36
82	7	26	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1907	1787	6106	5986	.	.	4137	4257	13581	13701	.	.	.	.	30	29
82	7	27	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3537	3404	7736	7603	.	.	2465	2598	11907	12040	.	.	.	.	39	38
82	7	28	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2646	2523	6864	6741	.	.	3299	3422	12758	12881	47	46	.	.	34	33
82	7	29	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2256	2103	6421	6268	.	.	3825	3978	13285	13438	45	44	.	.	.	.
82	7	30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1923	1795	6134	6006	.	.	4168	4296	13631	13759	.	.	.	.	30	29
82	7	31	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3443	3317	7646	7520	.	.	2359	2485	11686	11812	.	.	.	.	39	38
82	8	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2938	2812	7102	6976	.	.	3053	3179	12739	12865	47	46	.	.	35	34
82	8	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2335	2241	6483	6389	.	.	3651	3745	13982	14076	.	.	.	.	32	31
82	8	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4489	4408	8699	8618	.	.	710	791	9855	9936	57	56	.	.	.	.
82	8	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3799	3700	8350	8251	.	.	863	962	9150	9249	58	57	.	.	.	.
82	8	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2373	2258	7287	7172	.	.	1813	1928	9836	9951	54	53	.	.	42	41
82	8	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2306	2189	7180	7063	.	.	2294	2411	11173	11290	.	.	.	.	39	38
82	8	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2300	2192	7170	7062	.	.	3123	3231	13641	13749	.	.	.	.	34	33
82	8	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3100	2987	7776	7663	.	.	2446	2559	12392	12505	49	48	.	.	.	.
82	8	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3400	3340	8051	7991	.	.	2013	2073	12330	12390	.	.	.	.	.	.
82	8	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3390	3329	8213	8152	.	.	1397	1458	11930	11991	51	50	.	.	.	.
82	8	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3761	3626	8605	8470	.	.	1237	1372	11927	12062	.	.	.	.	.	.
82	8	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3516	3394	8362	8240	.	.	1388	1510	11938	12060	51	50	.	.	.	.
82	8	13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3483	3352	8357	8226	.	.	1362	1493	11644	11775	.	.	.	.	42	41
82	8	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3961	3830	8835	8704	.	.	1105	1236	11826	11957	52	51	.	.	43	42
82	8	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4300	4220	9175	9095	.	.	1042	1122	12046	12126	.	.	.	.	43	42
82	8	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4234	4124	9063	8953	.	.	1346	1456	12792	12902	.	.	.	.	41	40
82	8	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4607	4475	9453	9321	.	.	769	901	12218	12350	.	.	.	.	.	.
82	8	18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4327	4190	9178	9041	.	.	1039	1176	12504	12641	51	50	.	.	42	41
82	8	19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4537	4418	9399	9280	.	.	910	1029	12395	12514	.	.	.	.	.	.
82	8	20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3810	3702	8656	8548	.	.	1728	1836	13285	13393	.	.	.	.	39	38
82	8	21	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4516	4350	9361	9195	.	.	1147	1313	12863	13029	.	.	.	.	.	.
82	8	22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3767	3659	8569	8461	.	.	2087	2195	13962	14070	47	46	.	.	.	.
82	8	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3736	3631	8543	8438	.	.	2307	2412	14677	14782	.	.	.	.	36	35
82	8	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5630	5511	10413	10294	.	.	107	226	12208	12327	.	.	.	.	46	45
82	8	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5060	4930	9894	9764	.	.	636	766	12825	12955	.	.	.	.	43	42
82	8	26	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4358	4241	8444	8327	.	.	2444	2561	15215	15332	44	43	.	.	35	34
82	8	27	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4294	4182	8566	8454	.	.	2672	2784	15795	15907	.	.	.	.	34	33

PREVIOUS (P-) AND REVISED (Q-) VALUES ARE SHOWN BY DAY
MINOR ROUND OFF DIFFERENCES NOT SHOWN
CALIFORNIA DEPARTMENT OF WATER RESOURCES, CENTRAL DISTRICT

YEAR	MONTH	DAY	PSJR	QSJR	PCRM	QCRM	PMOKE	QMOKE	PEAST	QEAST	PSAC	QSAC	PYOLO	QYOLO	PTOT	QTOT	PPREC	QPREC	PCD	QCD	PDPP	QDPP	PEXP	QEXP	PXGEO	QXGEO	PWEST	QWEST	POUT	QOUT	PDIVER	QDIVER	PEFFECT	QEFFECT	PEFFDIV	QEFFDIV
82	8	28	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3027	2914	7307	7194	.	.	4122	4235	17402	17515	.	.	.	.	28	27
82	8	29	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3397	3284	7212	7099	.	.	4408	4522	17777	17890	.	.	.	.	27	26
82	8	30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3046	2982	6137	6073	.	.	5755	5819	19636	19700	.	.	.	.	.	.
82	8	31	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2071	2014	4505	4448	.	.	7256	7313	21227	21284	.	.	.	.	.	.
82	9	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2611	2545	5238	5172	.	.	6606	6672	20875	20941	.	.	.	.	18	17
82	9	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3059	2936	5669	5596	.	.	6378	6451	20999	21072	30	29	.	.	.	.
82	9	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3377	3298	5984	5905	.	.	6212	6292	20705	20784	31	30	.	.	.	.
82	9	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3045	2996	5630	5581	.	.	6818	6067	21185	21234	.	.	.	.	.	.
82	9	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3050	2994	5635	5579	.	.	7656	7712	22605	22661	.	.	.	.	.	.
82	9	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1714	1658	4277	4221	.	.	9286	9342	24677	24733	.	.	.	.	.	.
82	9	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2189	2105	4252	4168	.	.	8472	8556	24094	24178	.	.	.	.	11	10
82	9	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2783	2670	4844	4731	.	.	7764	7877	23473	23586	25	24	.	.	.	.
82	9	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2806	2783	4695	4592	.	.	8420	8523	23704	23807	.	.	.	.	.	.
82	9	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2743	2646	4570	4473	.	.	8770	8867	24142	24239	24	23	.	.	9	8
82	9	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3709	3608	5520	5419	.	.	7903	8004	23222	23323	.	.	.	.	.	.
82	9	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4666	4565	6475	6374	.	.	7392	7493	22659	22760	.	.	.	.	.	.
82	9	13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3275	3239	5096	5060	.	.	8523	8559	22888	22924	.	.	.	.	.	.
82	9	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3111	3020	4934	4843	.	.	7829	7920	21363	21454	.	.	.	.	.	.
82	9	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2847	2795	4666	4614	.	.	8741	8793	22649	22701	.	.	.	.	.	.
82	9	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3079	2952	4850	4723	.	.	12208	12335	27755	27882	.	.	.	.	.	.
82	9	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3005	2950	5211	5156	.	.	13275	13331	29103	29158	.	.	.	.	.	.
82	9	18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4146	4070	6745	6669	.	.	12477	12553	28779	28855	9	8	.	.	.	.
82	9	19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5115	5040	7673	7598	.	.	12325	12400	29238	29313	.	.	.	.	.	.
82	9	20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4160	4142	6788	6770	.	.	13802	13820	31423	31441	.	.	.	.	.	.
82	9	21	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3223	3160	5786	5723	.	.	11711	11774	27503	27566	.	.	.	.	.	.
82	9	22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3837	3798	6404	6365	.	.	9858	9897	24760	24799	.	.	.	.	.	.
82	9	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3623	3578	6192	6147	.	.	9872	9917	24674	24719	.	.	.	.	12	11
82	9	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3663	3641	6253	6231	.	.	9869	9891	24518	24540	.	.	.	.	.	.
82	9	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4059	4034	6318	5293	.	.	11338	11363	26176	26201	.	.	.	.	.	.
82	9	26	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3532	3521	5288	5277	.	.	15474	15485	31425	31436	.	.	29439	29450	.	.
82	9	27	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2678	2658	4497	4477	.	.	16562	16582	33026	33046	.	.	31011	31031	.	.
82	9	28	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1293	1267	3122	3096	.	.	17361	17387	33752	33778	.	.	31737	31763	.	.
82	9	29	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2149	2139	3873	3863	.	.	16660	16670	32855	32865	.	.	30811	30821	.	.
82	9	30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2195	2187	3809	3801	.	.	16103	16111	31780	31788	.	.	30367	30375	.	.
82	11	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	8038	5409	7720	5099	.	.	.	.	.	.	.	.
82	11	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5322	3462	6725	4865	.	.	.	.	.	.	.	.
82	11	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	14836	6615	26327	18106	.	.	.	.	.	.	.	.
82	12	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	12550	5577	22198	15225	.	.	.	.	.	.	.	.
82	12	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	30247	13610	83575	66938	.	.	.	.	.	.	.	.
83	1	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10646	4713	16230	10297	.	.	.	.	.	.	.	.
83	1	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	15363	6054	48734	40225	.	.	.	.	.	.	.	.
83	2	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	26292	11015	66903	52426	.	.	.	.	.	.	.	.
83	2	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	23655	10618	49468	36431	.	.	.	.	.	.	.	.
83	3	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	24358	10937	75309	61888	.	.	.	.	.	.	.	.
83	3	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	24036	10791	78027	64702	.	.	.	.	.	.	.	.
83	4	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	21575	9674	59355	47454	.	.	.	.	.	.	.	.

YEAR	MONTH	DAY	PSJR	QSJR	PCRM	QCRM	PMOKE	QMOKE	PEAST	QEAST	PSAC	QSAC	PYOLO	QYOLO	PTOT	QTOT	PPREC	QPREC	PCD	QCD	PDPP	QDPP	PEXP	QEXP	PXGEO	QXGEO	PWEST	QWEST	POUT	QOUT	PDIVER	QDIVER	PEFFECT	QEFFECT	PEFFDIV	QEFFDIV
83	4	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	16476	7359	54303	45186	.	.	.	.	.	.	.	.
83	5	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	22776	10219	55959	43402	.	.	.	.	.	.	.	.
83	5	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	16769	7492	43248	33971	.	.	.	.	.	.	.	.
83	6	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	17473	7812	41518	31857	.	.	.	.	.	.	.	.
83	6	23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	13341	5936	32899	25494	.	.	.	.	.	.	.	.
83	7	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	11700	5191	34900	28391	.	.	.	.	.	.	.	.
83	7	22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4287	7540	13066	16319	.	.	.	.	.	.	.	.
83	10	4	.	.	.	.	.	.	.	.	.	.	398038	193	435589	37744	.	.	.	.	.	.	.	.	.	.	.	.	432374	34529	1	9	432100	34255	.	.
83	10	5	.	.	.	.	.	.	.	.	.	.	889029	184	926862	38017	.	.	.	.	.	.	.	.	.	.	.	.	922543	33698	0	11	923404	34559	0	2
83	10	6	.	.	.	.	.	.	.	.	.	.	889033	108	928968	40123	.	.	.	.	.	.	.	.	.	.	.	.	924108	35263	1	12	925268	36423	0	3
83	10	7	.	.	.	.	.	.	.	.	.	.	809033	108	928151	39306	.	.	.	.	.	.	.	.	.	.	.	.	923274	34429	1	12	924405	35560	0	3
83	10	8	.	.	.	.	.	.	.	.	.	.	657037	192	697051	40206	.	.	.	.	.	.	.	.	.	.	.	.	691404	34559	1	14	692535	35690	0	3
83	10	9	.	.	.	.	.	.	.	.	.	.	55733	180	97467	41922	.	.	.	.	.	.	.	.	.	.	.	.	92692	37147	5	11	93823	38278	1	3
83	10	10	.	.	.	.	.	.	.	.	.	.	889033	108	931088	42243	.	.	.	.	.	.	.	.	.	.	.	.	926424	37579	1	11	927526	38681	0	3
83	10	11	.	.	.	.	.	.	.	.	.	.	889040	195	931106	42261	.	.	.	.	.	.	.	.	.	.	.	.	926691	37845	0	10	927793	38948	0	3
83	10	12	.	.	.	.	.	.	.	.	.	.	889037	192	930974	42129	.	.	.	.	.	.	.	.	.	.	.	.	926598	37753	0	10	927700	38855	0	3
83	10	13	.	.	.	.	.	.	.	.	.	.	889029	184	930380	41535	.	.	.	.	.	.	.	.	.	.	.	.	926545	37700	0	9	927647	38802	0	3
83	10	14	.	.	.	.	.	.	.	.	.	.	889027	182	929294	40449	.	.	.	.	.	.	.	.	.	.	.	.	925620	36775	0	9	926693	37848	0	3
83	10	15	.	.	.	.	.	.	.	.	.	.	889027	182	927561	38716	.	.	.	.	.	.	.	.	.	.	.	.	923167	34322	0	11	924240	35395	0	3
83	10	16	.	.	.	.	.	.	.	.	.	.	889027	182	925933	37008	.	.	.	.	.	.	.	.	.	.	.	.	921580	32735	0	12	922653	33808	0	3
83	10	17	.	.	.	.	.	.	.	.	.	.	889027	182	924097	35252	.	.	.	.	.	.	.	.	.	.	.	.	920464	31619	0	10	921537	32692	0	3
83	10	18	.	.	.	.	.	.	.	.	.	.	889028	183	922294	33449	.	.	.	.	.	.	.	.	.	.	.	.	917734	28889	0	14	918778	29933	0	3
83	10	19	.	.	.	.	.	.	.	.	.	.	889028	183	921085	32240	.	.	.	.	.	.	.	.	.	.	.	.	917534	28689	0	11	918578	29733	0	4
83	10	20	.	.	.	.	.	.	.	.	.	.	889028	183	920471	31626	.	.	.	.	.	.	.	.	.	.	.	.	915922	27077	0	14	916966	28121	0	4
83	10	21	.	.	.	.	.	.	.	.	.	.	889028	183	920221	31376	.	.	.	.	.	.	.	.	.	.	.	.	916307	27462	0	12	917351	28506	0	4
83	10	22	.	.	.	.	.	.	.	.	.	.	889027	182	920366	31521	.	.	.	.	.	.	.	.	.	.	.	.	916000	27155	0	14	917044	28199	0	4
83	10	23	.	.	.	.	.	.	.	.	.	.	556027	182	587524	31679	.	.	.	.	.	.	.	.	.	.	.	.	583173	27328	1	14	584188	28343	0	4
83	10	24	.	.	.	.	.	.	.	.	.	.	778027	182	809411	31566	.	.	.	.	.	.	.	.	.	.	.	.	805240	27395	1	13	806255	28410	0	4
83	10	25	.	.	.	.	.	.	.	.	.	.	889027	182	920137	31292	.	.	.	.	.	.	.	.	.	.	.	.	916634	27709	0	11	917649	28804	0	4
83	10	26	.	.	.	.	.	.	.	.	.	.	889027	182	920047	31202	.	.	.	.	.	.	.	.	.	.	.	.	915717	26872	0	14	916732	27887	0	4
83	10	27	.	.	.	.	.	.	.	.	.	.	889027	182	920698	31853	.	.	.	.	.	.	.	.	.	.	.	.	916828	27983	0	12	917843	28998	0	4
83	10	28	.	.	.	.	.	.	.	.	.	.	491027	182	522526	31681	.	.	.	.	.	.	.	.	.	.	.	.	518966	28121	1	11	519981	29136	0	3
83	10	29	.	.	.	.	.	.	.	.	.	.	565027	182	596663	31818	.	.	.	.	.	.	.	.	.	.	.	.	594078	29233	0	8	594432	29507	0	1
83	10	30	.	.	.	.	.	.	.	.	.	.	889029	184	921114	32269	.	.	.	.	.	.	.	.	.	.	.	.	919664	30819	0	4	919520	30675	.	.
83	10	31	.	.	.	.	.	.	.	.	.	.	889029	184	921180	32335	.	.	.	.	.	.	.	.	.	.	.	.	919767	30922	0	4	919623	30778	.	.
83	11	1	.	.	.	.	.	.	.	.	.	.	704028	183	736342	32497	.	.	.	.	.	.	.	.	.	.	.	.	734250	30405	0	6	734106	30261	.	.

STORET DAYFLOW

DATA BASE DOCUMENTATION

Accessing STORET DAYFLOW Data

The DAYFLOW data base used to prepare the DAYFLOW Data Summary Report (see Attachment G) is on EPA's storage and retrieval data base management system STORET (residing on the National Computer Center (NCC) IBM mainframe computer). The STORET DAYFLOW data base is currently stored under the agency code of the U. S. Bureau of Reclamation. Users can access this data in one of the following manners:

- Contact one of the representatives to the Interagency Data Management Technical Committee.

Representative	Agency	Phone No.
Sheryl Baughman	USBR	(916) 978-4923
Pat Brandes	USFWS	(209) 466-4421
Bellory Fong	DWR	(916) 445-4640
Jim Sutton	SWRCB	(916) 322-9874
Ann Baker	DFG	(209) 466-4421

- Contact Phil Daniels, Data Management Office, State Water Resources Control Board, (916) 322-4514.

STORET DAYFLOW Data Base Structure

DAYFLOW data is stored on STORET according to the general format of the STORET data base management system. Each DAYFLOW parameter (see Table 1 in Attachment A) is assigned a STORET station name according to the River Kilometer Index (RKI) convention. The comparable RKI station name for each DAYFLOW parameter is listed in Table 11. All values for a particular DAYFLOW parameter are stored under its respective RKI station name as STORET parameter 60 according to the date of observation (i.e., year, month, and day). To access DAYFLOW data on STORET, the user must specify the appropriate agency code and the desired station names, years, months, and days for parameter 60. The contacts listed above can assist users to access the DAYFLOW data on STORET either on-line or using a batch program. Inventory utility programs and simple statistical and graphical routines are also available on STORET.

Table 11

RKI SITES USED ON STORET FOR FLOW DATA GENERATED BY DAYFLOW PROGRAM

RKI Name	DAYFLOW Parameter	Description	Notes
FRSAC175	QSAC	Sacramento River Flow Station at Freeport	1
FRSAN112	QSJR	San Joaquin River Flow Station near Vernalis	1
FRMKLØ4Ø	QMOKE	Mokelumne River Flow Station at Woodbridge	1
FRCSM11	QCRM	Cosumnes River Flow Station at Michigan Bar	1
FRCSAC75	QOUT	Net Delta Outflow at Chipps Island	3
FDYOLO	QYOLO	Yolo Bypass near Woodland Plus Two Tributary Flows	2
FCCHXSLG	QXGEO	Delta Cross Channel and Georgiana Slough Flows	3
FDMISC	QMISC	Sum, 7 Minor Tributary Flows	2
FCEDELTA	QEAST	Total East Delta Inflow	3
FCWDELTA	QWEST	Flow Past Jersey Point	3
FCTOTIN	QTOT	Total Delta Inflow	3
FDPREC	QPREC	Delta Precipitation Runoff	2

RKI Name	DAYFLOW Parameter	Description	Notes
FDGDEPL	QDEPL	Gross Delta Channel Depletions	2
FCNDEPL	QCD	Net Delta Channel Depletions	3
FDMISDIV	QMID	Miscellaneous Diversions/ Transfers (Floods and Pumping)	2
FCHCCC	QCCC	Contra Costa Canal Flow near Oakley	3
FDCCFI	QDPP	SWP Export	2
FCHDMC	QTPP	CVP Export Pumping near Tracy	3
FCTOTEXP	QEXP	Total Delta Export Flows	3
FCGPTDIV	QDIVER	Percent of Flows Diverted	3
FCEFFIN	QEFFECT	Effective Delta Inflow for Striped Bass Survival	3
FCEPTDIV	QEFFDIV	Effective Percent Diverted for Bass Survival	3

Notes:

1 Actual measured flow, FR Prefix (except for FRCSAC75, which is calculated).

2 Flow derived from actual measured and estimated flows prior to model run, FD Prefix.

3 Flow computed by DAYFLOW program, FC Prefix (except for FCHCCC and FCHDMC, which are derived prior to model run).

Attachment E

COMPUTER PROGRAM DOCUMENTATION

Listings for the following FORTRAN and SAS programs are presented herein:

- DAYFLOW (FORTRAN)
- DFDAT84 (FORTRAN)
- XCHNLOP (FORTRAN)
- DFREVIZ (FORTRAN)
- DAYFLOW DATA SUMMARY REPORT - PART 1 (SAS)
- DAYFLOW DATA SUMMARY REPORT - PART 2 (SAS)

```
      PROGRAM DAYFLOW
      DIMENSION QSJR(31),QCRM(31),QMOKE(31),QMISC(31),QSAC(31)
      DIMENSION QYOLO(31),QCCC(31),QTPP(31),QXGEO(31),QDPP(31)
      DIMENSION QEAST(31),QMID(31),QTOT(31),QCD(31),QRIO(31)
      DIMENSION QEXP(31),QOUT(31),QDIVER(31),NDAYS(31),QEFFECT(31)
      DIMENSION QDEPL(31),QPREC(31),QSFCD(31),QWEST(31),QEFFDIV(31)
      DIMENSION OPENF(31),OPENP(31),OPEN(31),PART(31),CLOSE(31)
C
C
C
C
C                    * * * * * * * * * * * * * * * * *
C                      * * *  PROGRAMMED  BY  * * *
C                        * * *  VIC  CHICO  * * *
C                    * * * * * * C . D . * * * * * * *
C
C LINE 75 AND HEADINGS WERE MODIFIED 12/17/84 FOR 83-84 WY ADDENDUM.
C
C          COLUMN   VARIABLE              DESCRIPTION
C             1        QSJR     SAN JOAQUIN RIVER NEAR VERNALIS FLOW
C             2        QCRM     COSUMNES RIVER AT MCCONNELL FLOW
C             3        QMOKE    MOKELUMNE RIVER AT WOODBRIDGE FLOW
C             4        QMISC    MISCELLANEOUS FLOWS WHICH INCLUDES CALAV
C                               RAS RIVER,BEAR CREEK,MARSH CREEK,MORRISO
C                               CREEK,DRY CREEK,STOCKTON DIVERTING CANAL
C                               AND FRENCH CAMP SLOUGH.
C             5        QEAST    SUM OF SAN JOAQUIN RIVER,COSUMNES RIVER,
C                               MOKELUMNE RIVER AND MISCELLANEOUS FLOWS.
C             6         QSAC    SACRAMENTO RIVER AT EYE STREET BRIDGE
C             7        QYOLO    YOLO BY PASS NEAR WOODLAND WHICH INCLUDE
C                               SACRAMENTO WEIR SPILL TO YOLO BY PASS AN
C                               SOUTH FORK PUTAH CREEK NEAR DAVIS.
C             8         QTOT    TOTAL INFLOW TO THE DELTA
C             9        QXGEO    FLOW AT DELTA CROSS CHANNEL AND GEORGIA-
C                               NA SLOUGH.
C            10         QMID    MIDDLE RIVER PUMPING
C            11         QCCC    CONTRA COSTA CANAL PUMPING
C            12         QTPP    USBR TRACY PUMPING PLANT
C            13         QDPP    SWP DELTA PUMPING PLANT. CLIFTON COURT
C                               FERRY MINUS BETHANY DIVERSION
C            14         QEXP    TOTAL EXPORTS.
C            15        QDEPL    GROSS CHANNEL DEPLETION
C            16        QPREC    PRECIPITATION TAKEN AT STOCKTON FIRE
C                               STATION NO. 4
C            17          QCD    NET CHANNEL DEPLETION
C            18        QSFCD    65 PERCENT OF NET CHANNEL DEPLETION
C            19       QDIVER    PERCENT DIVERTED WHICH IS EQUAL TO TOTAL
C                               EXPORTS PLUS NET CHANNEL DEPLETION DIVID
C                               BY TOTAL INFLOW.
C            20        QWEST    FLOWS AT SAN JOAQUIN RIVER FROM WESTERN
C                               DELTA
C            21         QOUT    TOTAL DELTA OUTFLOW AT CHIPPS ISLAND
C            22      QEFFDIV    EFFECTIVE PERCENT DIVERTED FOR STRIPED
C                               BASS SURVIVAL.
```

```
      OPEN(60,FILE='DAYCHEK')
      OPEN(61,FILE='OUTPUT')
   50 READ(60,30) IYEAR,IMO,KDAYS
   30 FORMAT(10X,I4,A4,I4)
C     ALL FLOWS ARE READ IN CUBIC FEET PER SECOND (CFS)
      READ(60,10) (QSJR(I) ,I=1,KDAYS)
      READ(60,10) (QCRM(I) ,I=1,KDAYS)
      READ(60,10) (QMOKE(I),I=1,KDAYS)
      READ(60,10) (QMISC(I),I=1,KDAYS)
      READ(60,10) (QYOLO(I),I=1,KDAYS)
      READ(60,10) (QSAC(I) ,I=1,KDAYS)
      READ(60,10) (QMID(I) ,I=1,KDAYS)
      READ(60,10) (QCCC(I) ,I=1,KDAYS)
      READ(60,10) (QTPP(I) ,I=1,KDAYS)
      READ(60,10) (QDPP(I) ,I=1,KDAYS)
      READ(60,10) (QDEPL(I),I=1,KDAYS)
      READ(60,10) (QPREC(I),I=1,KDAYS)
      READ(60,11)(OPENF(I),OPENP(I),I=1,KDAYS)
   55 CONTINUE
   10 FORMAT(6X,11F6.0)
   11 FORMAT(6X,11(F3.0,F3.0)/(6X,11(F3.0,F3.0)))
      KOUNT=0
      TSJR=0
      TCRM=0
      TMOKE=0
      TMISC=0
      TEAST=0
      TSAC=0
      TYOLO=0
      TTOT=0
      TXGEO=0
      TMID=0
      TCCC=0
      TTPP=0
      TDPP=0
      TEXP=0
      TDEPL=0
      TPREC=0
      TCD=0
      TSFCD=0
      TWEST=0
      TOUT=0
      TEFFECT=0
      DO 20 I=1,KDAYS
      KOUNT = KOUNT + 1
      NDAYS(I) = KOUNT
      QEAST(I) = QSJR(I)+QCRM(I)+QMOKE(I)+QMISC(I)
      QTOT(I) = QSAC(I)+QYOLO(I)+QEAST(I)
C     DELTA CROSS CHANNEL AND GEORGINIANA FLOWS BASED ON THE LATEST CURV
C        OPENF = FULLY OPEN     OPENP = PARTIALLY OPEN
      OPEN(I) = OPENF(I)/100
      PART(I) = OPENP(I)/100
 4500 CONTINUE
C
```

```
C              GATES FULLY OPENED IN A DAY
C
      IF(OPEN(I).EQ.0.AND.PART(I).EQ.0) GO TO 21
      GO TO 22
   21 QXGEO(I)=(0.293*QSAC(I)+2090)
      GO TO 5
   22 IF(OPEN(I).NE.0.AND.PART(I).EQ.0) GO TO 23
      GO TO 25
C
C              GATES FULLY CLOSED IN A DAY
C
   23 CLOSE(I)=1-(OPEN(I))
      IF(CLOSE(I).EQ.0) GO TO 24
      GO TO 26
   24 QXGEO(I)=(0.133*QSAC(I)+829)
      GO TO 5
C
C              GATES OPENED AND CLOSED IN A DAY
C
   26 LOG1=OPEN(I)*(0.293*QSAC(I)+2090)
      LOG2=CLOSE(I)*(0.133*QSAC(I)+829)
      QXGEO(I)=LOG1+LOG2
      GO TO 5
C
C              GATES PARTIALLY OPENED AND CLOSED IN A DAY
C
   25 IF(OPEN(I).EQ.0.AND.PART(I).NE.0) GO TO 27
      GO TO 28
   27 CLOSE(I)= 1-PART(I)
      LOG1=PART(I)*(0.216*QSAC(I)+2660)
      LOG2=CLOSE(I)*(0.133*QSAC(I)+829)
      QXGEO(I)=LOG1+LOG2
      GO TO 5
C
C              GATES FULLY OPENED AND PARTIALLY OPENED AND/OR OPENED,
C              PARTIALLY OPENED AND CLOSED IN A DAY
C
   28 IF(OPEN(I).NE.0.AND.PART(I).NE.0) CLOSE(I)=1-(OPEN(I)+PART(I))
      LOG1=OPEN(I)*(0.293*QSAC(I)+2090)
      LOG2=PART(I)*(0.216*QSAC(I)+2660)
      LOG3=CLOSE(I)*(0.133*QSAC(I)+829)
      QXGEO(I)=LOG1+LOG2+LOG3
C
    5 QEXP(I) = QCCC(I)+QTPP(I)+QDPP(I)+QMID(I)
      QCD(I) = QDEPL(I)-QPREC(I)
      QSFCD(I) = 0.65 * QCD(I)
      IF(QCD(I).LE.0.AND.ABS(QCD(I)).GE.QEXP(I)) GO TO 15
      GO TO 16
   15 QDIVER(I) = 0.
      GO TO 17
   16 QDIVER(I) = ((QEXP(I) + QCD(I)) / QTOT(I)) * 100
   17 QWEST(I) = QEAST(I)+QXGEO(I)-QEXP(I)-QSFCD(I)
      QOUT(I) = QTOT(I)-QCD(I)-QEXP(I)
C              FOR DELTA STRIPED BASS STUDY
```

```
C         QEFFECT        EFFECTIVE INFLOW WHICH IS COMPUTED BASED ON TWO
C                        CONDITIOS:
C
C                      1.IF EXPORTS PLUS 42\ OF CHANNEL DEPLETION IS GREA
C                        OR EQUAL TO SAN JOAQUIN RIVER FLOW THEN EFFECTIV
C                        INFLOW EQUALS TOTAL INFLOW MINUS SAN JOAQUIN RI-
C                        VER FLOW.
C
C                      2.IF EXPORTS PLUS 42\ OF  CHANNEL DEPLETION IS LES
C                        THAN SAN JOAQUIN RIVER FLOW THEN EFFECTIVE INFLO
C                        EQUALS TOTAL INFLOW MINUS THE LESSER OF 65\ OF
C                        SAN JOAQUIN RIVER FLOW PLUS 15\ OF CHANNEL DEPLE
C                        TION  OR  EXPORTS PLUS 42\ OF CHANNEL DEPLETION.
C
      CHECK1=(0.42*QCD(I)+QEXP(I))
      IF(CHECK1.GE.QSJR(I)) GO TO 70
      GO TO 80
   70 QEFFECT(I)=QTOT(I)-QSJR(I)
      GO TO 90
   80 CHECK2=(0.65*QSJR(I)+0.15*QCD(I))
      IF(CHECK2.LT.CHECK1) GO TO 110
      GO TO 120
  110 QEFFECT(I)=QTOT(I)-CHECK2
      GO TO 90
  120 QEFFECT(I)=QTOT(I)-CHECK1
   90 IF(QEFFECT(I).LE.QOUT(I)) GO TO 91
      GO TO 93
   91 QEFFDIV(I) = 0.
      GO TO 92
   93 QEFFDIV(I)=((QEFFECT(I)-QOUT(I))/QEFFECT(I))*100
   92 CONTINUE
C
      TSJR = TSJR + QSJR(I)
      TCRM = TCRM + QCRM(I)
      TMOKE = TMOKE + QMOKE(I)
      TMISC = TMISC + QMISC(I)
      TEAST = TEAST + QEAST(I)
      TSAC = TSAC + QSAC(I)
      TYOLO = TYOLO + QYOLO(I)
      TTOT = TTOT + QTOT(I)
      TXGEO = TXGEO + QXGEO(I)
      TMID = TMID + QMID(I)
      TCCC = TCCC + QCCC(I)
      TTPP = TTPP + QTPP(I)
      TDPP = TDPP + QDPP(I)
      TEXP = TEXP + QEXP(I)
      TDEPL = TDEPL + QDEPL(I)
      TPREC = TPREC + QPREC(I)
      TCD = TCD + QCD(I)
      TEFFECT=TEFFECT+QEFFECT(I)
      TSFCD = TSFCD + QSFCD(I)
      TWEST = TWEST + QWEST(I)
      TOUT = TOUT + QOUT(I)
      TDAYS = NDAYS(I)
```

```
   20 CONTINUE
C
      ASJR = TSJR/TDAYS
      ACRM = TCRM/TDAYS
      AMOKE = TMOKE/TDAYS
      AMISC = TMISC/TDAYS
      AEAST = TEAST/TDAYS
      ASAC = TSAC/TDAYS
      AYOLO = TYOLO/TDAYS
      ATOT = TTOT/TDAYS
      AXGEO = TXGEO/TDAYS
      AMID = TMID/TDAYS
      ACCC = TCCC/TDAYS
      ATPP = TTPP/TDAYS
      ADPP = TDPP/TDAYS
      AEXP = TEXP/TDAYS
      ADEPL = TDEPL/TDAYS
      APREC = TPREC/TDAYS
      ACD = TCD/TDAYS
      AEFFECT=TEFFECT/TDAYS
      ASFCD = TSFCD/TDAYS
      IF(ACD.LE.0.AND.ABS(ACD).GE.AEXP) GO TO 41
      GO TO 42
   41 ADIVER = 0
      GO TO 43
   42 ADIVER = ((AEXP + ACD) / ATOT) * 100
   43 CONTINUE
      AWEST = TWEST/TDAYS
      AOUT = TOUT/TDAYS
      IF(AOUT.GE.AEFFECT) GO TO 31
      GO TO 32
   31 AEFFDIV=0
      GO TO 33
   32 AEFFDIV=((AEFFECT-AOUT)/AEFFECT)*100
   33 CONTINUE
      DO 9000 I=1,KDAYS
 9000 QRIO(I)=QSAC(I)+QYOLO(I)-QXGEO(I)-.28*QCD(I)
C
      WRITE(61,100)
      WRITE(61,800) IYEAR
      WRITE(61,900) IMO
      WRITE(61,200)
      WRITE(61,300)
      WRITE(61,400)
      WRITE(61,1000) (NDAYS(I),QSJR(I),QCRM(I),QMOKE(I),QMISC(I),QEAST(I
     $                ),QSAC(I),QYOLO(I),QTOT(I),QXGEO(I),QMID(I),QCCC(I)
     $                ,I=1,KDAYS)
      WRITE(61,2000)  TSJR,TCRM,TMOKE,TMISC,TEAST,TSAC,TYOLO,TTOT,TXGEO,
     $                TMID,TCCC
      WRITE(61,3000)  ASJR,ACRM,AMOKE,AMISC,AEAST,ASAC,AYOLO,ATOT,AXGEO,
     $                AMID,ACCC
      WRITE(61,100)
      WRITE(61,800) IYEAR
      WRITE(61,900) IMO
```

```
      WRITE(61,500)
      WRITE(61,600)
      WRITE(61,700)
      WRITE(61,4000) (NDAYS(I),QTPP(I),QDPP(I),QEXP(I),QDEPL(I),QPREC(I)
     *               ,QCD(I),QEFFECT(I),QDIVER(I),QWEST(I),QOUT(I),
     $               QEFFDIV(I),I=1,KDAYS)
      WRITE(61,2500) TTPP,TDPP,TEXP,TDEPL,TPREC,TCD,TEFFECT,TWEST,TOUT
      WRITE(61,3500) ATPP,ADPP,AEXP,ADEPL,APREC,ACD,AEFFECT,ADIVER,
     *               AWEST,AOUT,AEFFDIV
C
      READ(60,40) KONTROL
      IF(KONTROL.EQ.1111) GO TO 50
      CONTINUE
      IF(KONTROL.EQ.9999) STOP 123
C
   40 FORMAT(10X,I4)
  100 FORMAT(1H1,///43X,46HHISTORIC VALUES IN CUBIC FEET PER SECOND (CFS
     $)///)
  800 FORMAT(56X,13HCALENDAR YEAR,2X,I4///)
  900 FORMAT(52X,23HFLOWS FOR THE MONTH OF ,A4)
  200 FORMAT(1H0/,15X,111H   SAN JOA-  COSUMNES MOKELUMNE     MISC.  SUB
     *TOTAL SACRAMEN-       YOLO      TOTAL  DEL-X-CH     MISC.     CONTRA)
  300 FORMAT(1H0,6X,4HDATE,5X,110H  QUIN RIV  RIVER AT  RIVER AT    STRE
     *AM  SJR+COS+  TO RIVER    BYPASS    INFLOW GEORGIANA DIVERSION
     $ COSTA)
  400 FORMAT(1H0,15X,110H  VERNALIS  MICH.BAR WODBRIDGE      FLOWS MOKE+M
     *ISC  FREEPORT       FLOW      (CFS)       FLOW      (CFS)   PUMPING/)
  500 FORMAT(1H0/,15X,111H        TRACY   CLIFTON     TOTAL GROSS CHN    P
     *RECI-  NET CHN. EFFECTIVE   PERCENT  SJR FLOW   OUTFLOW EFFECTIVE)
  600 FORMAT(1H0,6X,4HDATE,5X,110H    PUMPING      COURT   EXPORTS DEPLETI
     *ON  PITATION DEPLETION    INFLOW  DIVERTED  FR. WES-    CHIPPS    P
     $ERCENT)
  700 FORMAT(1H0,15X,110H      PLANT     INFLOW      (CFS)      (CFS)      (C
     $FS)      (CFS)      (CFS)             TERN DELT    ISLAND  DIVERTED/)
 1000 FORMAT(1H ,6X,I4,5X,11F10.0)
 2000 FORMAT(1H0,5X,10HSUMMATION ,11F10.0)
 2500 FORMAT(1H0,5X,10HSUMMATION ,7F10.0,10X,2F10.0)
 3000 FORMAT(1H0,5X,10HAVERAGE   ,11F10.0)
 3500 FORMAT(1H0,5X,10HAVERAGE   ,7F10.0,7X,F3.0,2F10.0,7X,F3.0)
 4000 FORMAT(1H ,6X,I4,5X,7F10.0,7X,F3.0,2F10.0,7X,F3.0)
      END
```

```
      PROGRAM DFDAT84
C
C           DAYFLOW DATA DECK CREATION
C           FOR WATER YEAR 8384
C
C                 INDIVIDUAL INPUT DATA FILES ARE READ IN,
C                 PREPARATORY CALCULATIONS ARE MADE, AND
C                 THE OUTPUT IS WRITTEN ON A FILE IN THE
C                 FORMAT REQUIRED TO RUN THE DAYFLOW PGM.
C
      CHARACTER*3 MONTH(11)
      INTEGER BRCR(336), CALR(336), QCCC(336), QDPP(336), FCSL(336)
      INTEGER OPENF(336), OPENP(336), QPREC(336), SDC(336)
      INTEGER SPCR(336), QTPP(336), QCRM(336), QMOKE(336), QSAC(336)
      INTEGER QSJR(336), YOLOW(336), QMISC(336), QYOLO(336)
      INTEGER QDEPL(336), DRCR(336), SWSYBP(336), QMID(336)
      INTEGER YEAR(11), MDAY(11), DATFLG(11), FDAY(11), LDAY(11)
      INTEGER TDAY, TMONTH, FDM, LDM
C
C           OPEN INPUT FILES
C
      OPEN (10,FILE='DFHEAD.DAT')
      OPEN (11,FILE='BRCR84E.DAT')
      OPEN (12,FILE='CALR84.DAT')
      OPEN (13,FILE='CCC84.DAT')
      OPEN (14,FILE='CLBBD84.DAT')
      OPEN (15,FILE='FCSL84.DAT')
      OPEN (16,FILE='GATE84.DAT')
      OPEN (17,FILE='DFGCDLY.DAT')
      OPEN (18,FILE='PREC84.DAT')
      OPEN (19,FILE='SDC84E.DAT')
      OPEN (20,FILE='SPCR84E.DAT')
      OPEN (21,FILE='SWS84.DAT')
      OPEN (22,FILE='TPP84.DAT')
      OPEN (23,FILE='MOKE84.DAT')
      OPEN (24,FILE='CSMR84.DAT')
      OPEN (25,FILE='YOLW84E.DAT')
      OPEN (26,FILE='SJR84.DAT')
      OPEN (27,FILE='SAC84.DAT')
      OPEN (28,FILE='DRCR84E.DAT')
C
C           OPEN OUTPUT FILE
C
      OPEN (100,FILE='DFWY84.DAT',STATUS='NEW')
C
C           READ IN HEADERS
C
      READ (10,101)  TDAY, TMONTH
      READ (10,102)  ( YEAR(M), MONTH(M), MDAY(M), DATFLG(M),
     1                 M=1,TMONTH )
C
C           DETERMINATION OF I / O FLAGS
C
            FDAY(1) = 1
```

```
          LDAY(1) = MDAY(1)
      DO 300 M=2,TMONTH
          FDAY(M) = LDAY(M - 1) + 1
          LDAY(M) = FDAY(M) + MDAY(M) - 1
  300 CONTINUE
C
C         READ INPUT DATA
C
      DO 400 M=1,TMONTH
          FDM = FDAY(M)
          LDM = LDAY(M)
          READ (11,111)  ( BRCR(I), I=FDM,LDM )
          READ (12,111)  ( CALR(I), I=FDM,LDM )
          READ (13,111)  ( QCCC(I), I=FDM,LDM )
          READ (14,111)  ( QDPP(I), I=FDM,LDM )
          READ (15,111)  ( FCSL(I), I=FDM,LDM )
          READ (16,161)  ( OPENF(I), OPENP(I), I=FDM,LDM)
          READ (17,111)  ( QDEPL(I), I=FDM,LDM )
          READ (18,111)  ( QPREC(I), I=FDM,LDM )
          READ (19,111)  ( SDC(I),  I=FDM,LDM )
          READ (20,111)  ( SPCR(I), I=FDM,LDM )
          READ (21,111)  ( SWSYBP(I), I=FDM,LDM )
          READ (22,111)  ( QTPP(I), I=FDM,LDM )
          READ (23,231)  ( QMOKE(I), I=FDM,LDM )
          READ (24,231)  ( QCRM(I), I=FDM,LDM )
          READ (25,231)  ( YOLOW(I), I=FDM,LDM )
          READ (26,231)  ( QSJR(I), I=FDM,LDM )
          READ (27,271)  ( QSAC(I), I=FDM,LDM )
          READ (28,231)  ( DRCR(I), I=FDM,LDM )
  400 CONTINUE
C
C        CALCULATION OF QMISC
C
      DO 500 I=1,TDAY
          QMISC(I) = BRCR(I) + CALR(I) + FCSL(I) + SDC(I) + DRCR(I)
  500 CONTINUE
C
C         CALCULATION OF QYOLO
C
      DO 600 I=1,TDAY
          QYOLO(I) = YOLOW(I) + SWSYBP(I) + SPCR(I)
  600 CONTINUE
C
C         INPUT QMID AS ZERO
C
      DO 700 I=1,TDAY
          QMID(I) = 0
  700 CONTINUE
C
C         WRITE DATA DECK FILE
C
      DO 800 M=1,TMONTH
          FDM = FDAY(M)
          LDM = LDAY(M)
```

```
          WRITE(100,1010)  YEAR(M), MONTH(M), MDAY(M)
          WRITE(100,1020)  ( QSJR(I), I=FDM,LDM )
          WRITE(100,1020)  ( QCRM(I), I=FDM,LDM )
          WRITE(100,1020)  ( QMOKE(I), I=FDM,LDM )
          WRITE(100,1020)  ( QMISC(I), I=FDM,LDM )
          WRITE(100,1020)  ( QYOLO(I), I=FDM,LDM )
          WRITE(100,1020)  ( QSAC(I), I=FDM,LDM )
          WRITE(100,1020)  ( QMID(I), I=FDM,LDM )
          WRITE(100,1020)  ( QCCC(I), I=FDM,LDM )
          WRITE(100,1020)  ( QTPP(I), I=FDM,LDM )
          WRITE(100,1020)  ( QDPP(I), I=FDM,LDM )
          WRITE(100,1020)  ( QDEPL(I), I=FDM,LDM )
          WRITE(100,1020)  ( QPREC(I), I=FDM,LDM )
          WRITE(100,1030)  ( OPENF(I), OPENP(I), I=FDM,LDM )
          WRITE(100,1040)  DATFLG(M)
  800 CONTINUE
C
C             FORMAT STATEMENTS
C
  101 FORMAT(10X,I5,1X,I4)
  102 FORMAT(11X,I4,1X,A4,1X,I4,1X,I4)
  111 FORMAT(6X,11(I6,1X)/(6X,11(I6,1X)))
  161 FORMAT(6X,22(I3,1X)/(6X,22(I3,1X)))
  231 FORMAT(25X,8I7/25X,8I7)
  271 FORMAT(25X,8(I6,1X)/(25X,8(I6,1X)))
 1010 FORMAT(10X,I4,A4,I4)
 1020 FORMAT(6X,11I6/6X,11I6)
 1030 FORMAT(6X,22I3/6X,22I3)
 1040 FORMAT(10X,I4)
C
C             END OF PROGRAM
C
      STOP 123
      END
```

```
      PROGRAM XCHNLOP
C
C DEVELOPED IN JAN.  1985 TO CREATE A DATA DECK FOR DELTA CROSS
C CHANNEL GATE OPERATIONS.  THE OUTPUT IS USED TO REVISE EXISTING
C ERRORS IN THE DWR DAYFLOW SUMMARY.  THE INPUT DATA IS THE USBR
C GATE OPERATION SCHEDULE.  THE OUTPUT DATA DECK CONSISTS OF DAILY
C RECORDS INDICATING THE FRACTION OF THE DAY WHEN NO, ONE, OR TWO
C GATES WERE/WAS OPEN.
C CONTACT:  KAMYAR GUIVETCHI, DEPT. OF WATER RESOURCES, SAC., CA.
C           (916) 445-5157.
C
C PARAMETER DEFINITIONS:
C
      INTEGER  GRECRD, JULIAN, TDAYS, JULDAYS
      INTEGER  GYR(200), GMO(200), GDAY(200), GHR(200), GMIN(200)
      INTEGER  GATES(200), GJUL(200), GTYMM(200), GCODE(200)
      REAL     TGATE0, TGATE1, TGATE2, FIRST, MID, LAST
C
C GRECRD  = NUMBER OF XCHNL GATE OPERATION RECORDS; ONE PER CHANGE.
C JULIAN  = JULIAN DAY REFERENCED TO JAN. 1, 1900.
C TDAYS   = TOTAL NUMBER OF DAYS FOR WHICH GATE OPER. ARE GENERATED.
C GYR     = YEAR WHEN GATE SETTING CHANGED, TWO DIGITS.
C GMO     = MONTH WHEN GATE SETTING CHANGED, TWO DIGITS.
C GDAY    = DAY WHEN GATE SETTING CHANGED, TWO DIGITS.
C GHR     = HOUR WHEN GATE SETTING CHANGED, TWO DIGITS, 24-HOUR CLK.
C GMIN    = MINUTES PAST HOUR WHEN GATE SETTING CHANGED, TWO DIGITS.
C GATES   = NUMBER OF GATES OPEN AFTER GATE SETTING CHANGE.
C GJUL    = JULIAN DAY EQIV. FOR DATE GATE SETTING CHANGED.
C GTYMM   = MINUTES ELAPSED IN DAY WHEN GATE SETTING CHANGED.
C GCODE   = GATES MINUS ONE, USED IN ARITHMETIC IF STATEMENTS.
C TGATE0  = FRACTION OF DAY WITH NO GATES OPEN.
C TGATE1  = FRACTION OF DAY WITH ONE GATE OPEN.
C TGATE2  = FRACTION OF DAY WITH TWO GATES OPEN.
C FIRST   = STATEMENT FUNCTION USED TO DETERMINE FRACTION OF DAY
C           FROM TIME ZERO TO FIRST GATE SETTING CHANGE IN SAME DAY.
C MID     = STATEMENT FUNCTION USED TO DETERMINE FRACTION OF DAY
C           BETWEEN TWO CONSECUTIVE GATE SETTINGS IN SAME DAY.
C LAST    = STATEMENT FUNCTION USED TO DETERMINE FRACTION OF DAY
C           BETWEEN LAST GATE SETTING CHANGE AND END OF SAME DAY.
C JULDAYS = SUBROUTINE FUNCTION GIVING ELAPSED DAYS FROM 1/1/1900.
C
C STATEMENT FUNCTION DEFINTIONS:
C
      FIRST(K) = FLOAT(K) / 1440.
      MID(K,L) = ( FLOAT(K) - FLOAT(L) ) / 1440.
      LAST(K)  = ( 1440. - FLOAT(K) ) / 1440.
C
C OPEN INPUT AND OUTPUT FILES, FILE NAMES READ IN AT EXECUTION.
C
      OPEN(5,FILE = ' ')
      OPEN(6,FILE = ' ', STATUS = 'NEW')
C
C READ INPUT DATA.
C
```

```
      READ(5,400) GRECRD
      READ(5,410) (GMO(I), GDAY(I), GYR(I), GHR(I), GMIN(I),
     2             GATES(I), I = 2,GRECRD+1)
C
C
C DATA READ CHECK.
C
      WRITE(*,400) GRECRD
      WRITE(*,410) (GYR(I), GMO(I), GDAY(I), GHR(I), GMIN(I),
     2              GATES(I), I = 2,GRECRD+1)
C
C CREATE NEW PARAMETERS.
C
      DO 100 I = 2,GRECRD+1
            GYR(I) = GYR(I) + 1900
            GJUL(I) = JULDAYS( GYR(I),GMO(I),GDAY(I) )
            GTYMM(I) = 60 * GHR(I) + GMIN(I)
            GCODE(I) = GATES(I) - 1
  100 CONTINUE
C
C INITIALIZATIONS.
C
      GJUL(1) = GJUL(2) - 1
      GCODE(1) = GCODE(2)
      GJUL(GRECRD+2) = GJUL(GRECRD+1) + 1
      TDAYS = GJUL(GRECRD+1) - GJUL(2) + 1
      JULIAN = GJUL(2)
C
C DAY COUNTER LOOP RUNS WITH J SUBSCRIPT.
C
      DO 300 J = 1,TDAYS
C
            TGATE0 = 0
            TGATE1 = 0
            TGATE2 = 0
C
C GATE OPERATION TABLE LOOK-UP RUNS WITH M SUBSCRIPT.
C
      DO 200 M = 2,GRECRD+1
C
            IF (JULIAN .GT. GJUL(M)) GOTO 200
            IF (JULIAN .LT. GJUL(M)) GOTO 180
            IF (GJUL(M) .NE. GJUL(M-1)) GOTO 120
            IF (GJUL(M) .EQ. GJUL(M-1)) GOTO 140
C
C DETERMINATION OF DAILY GATE OPERATION.
C
  120 IF (GCODE(M-1)) 121,122,123
  121       TGATE0 = TGATE0 + FIRST(GTYMM(M))
            GOTO 125
  122       TGATE1 = TGATE1 + FIRST(GTYMM(M))
            GOTO 125
  123       TGATE2 = TGATE2 + FIRST(GTYMM(M))
C
```

```
  125 IF (GJUL(M) .NE. GJUL(M+1)) GOTO 160
      GOTO 200
C
  140 IF (GCODE(M-1)) 141,142,143
  141        TGATE0 = TGATE0 + MID(GTYMM(M),GTYMM(M-1))
             GOTO 145
  142        TGATE1 = TGATE1 + MID(GTYMM(M),GTYMM(M-1))
             GOTO 145
  143        TGATE2 = TGATE2 + MID(GTYMM(M),GTYMM(M-1))
C
  145 IF (GJUL(M) .NE. GJUL(M+1)) GOTO 160
      GOTO 200
C
  160 IF (GCODE(M)) 161,162,163
  161        TGATE0 = TGATE0 + LAST(GTYMM(M))
             GOTO 250
  162        TGATE1 = TGATE1 + LAST(GTYMM(M))
             GOTO 250
  163        TGATE2 = TGATE2 + LAST(GTYMM(M))
      GOTO 250
C
  180 IF (GCODE(M-1)) 181,182,183
  181        TGATE0 = 1.000
             GOTO 250
  182        TGATE1 = 1.000
             GOTO 250
  183        TGATE2 = 1.000
      GOTO 250
C
C END OF TABLE LOOK-UP LOOP.
  200 CONTINUE
C
C WRITE GATE OPERATION MODE FOR JULIAN DAY TO OUTPUT FILE.
  250 WRITE(6,420) JULIAN, TGATE0, TGATE1, TGATE2
C
      JULIAN = JULIAN + 1
C
C END OF DAY COUNTER LOOP.
  300 CONTINUE
C
C FORMAT STATEMENTS
C
  400 FORMAT(I10)
  410 FORMAT(3(I10),I8,I2,I10)
  420 FORMAT(I6,3(F6.3))
C
      STOP 'WE HAVE IGNITION !'
      END
C
C SUBROUTINE FUNCTION DEFINITION:
C
      INTEGER FUNCTION JULDAYS(IYR,MON,IDAY)
      J1 = 365 * (IYR - 1900) + (IYR - 1900) / 4
      C = 30.6 * FLOAT(MON) - 32.3
```

```
      IF (MON .GE. 3) GOTO 5
      IF ((MOD(IYR,4) .EQ. 0) .AND. (IYR .NE. 1900)) J1 = J1 - 1
      C = C + 2.3
    5 JULDAYS = J1 + INT(C) + IDAY
      RETURN
      END
```

```
      PROGRAM DFREVIZ
C
C THIS PROGRAM WAS DEVELOPED TO (1) READ THE EXISTING DAYFLOW SUMMARY
C TAPE (JAN. 1985), (2) READ THE DELTA CROSS CHANNEL GATE OPERATIONS
C GENERATED BY PROGRAM XCHNLOP, (3) RECALCULATE THE DAILY, MONTHLY
C TOTAL AND MONTHLY AVERAGE FLOWS FOR THE GEORGIANA SLOUGH AND DELTA
C CROSS CHANNEL (QXGEO, TXGEO AND AXGEO FROM DAYFLOW), AND THE
C SAN JOAQUIN RIVER FLOW TO THE WESTERN DELTA (CHIPPS ISLAND; QWEST,
C TWEST AND AWEST FROM DAYFLOW), AND (4) WRITE THE REVISED DAYFLOW
C SUMMARY DATA TO TAPE.
C CONTACT: K. GUIVETCHI, DEPT. OF WATER RESOURCES, SACRAMENTO, CA.
C          (916) 445-5157.
C
C PARAMETER.DEFINITIONS:
C
      INTEGER  MONTHS, IYEAR, IMO, KDAYS, NDAYS(40)
      REAL     QSJR(40), QCRM(40), QMOKE(40), QMISC(40), QEAST(40),
     2         QSAC(40), QYOLO(40), QTOT(40), BQXGEO(40), QMID(40),
     3         QCCC(40), QTPP(40), QDPP(40), QEXP(40), QDEPL(40),
     4         QPREC(40), QCD(40), QEFFECT(40),QDIVER(40),BQWEST(40),
     5         QOUT(40), QEFFDIV(40), QXGEO(40), QWEST(40), QGEO(40),
     6         QXCHG1(40), QXCHG2(40)
      REAL     TSJR, TCRM, TMOKE, TMISC, TEAST, TSAC, TYOLO, TTOT,
     2         BTXGEO, TMID, TCCC, TTPP, TDPP, TEXP, TDEPL, TPREC,
     3         TCD, TEFFECT, BTWEST, TOUT, TDAYS, TXGEO, TWEST,
     4         ASJR, ACRM, AMOKE, AMISC, AEAST, ASAC, AYOLO, ATOT,
     5         BAXGEO, AMID, ACCC, ATPP, ADPP, AEXP, ADEPL, APREC,
     6         ACD, AEFFECT, BAWEST, AOUT, AXGEO, AWEST
      REAL     TGATE0(40), TGATE1(40), TGATE2(40)
      CHARACTER*2 ADIVER, AEFFDIV
C
C OPEN INPUT AND OUTPUT FILES.
C
      OPEN(4,FILE='DFREVMO')
      OPEN(5,FILE='DFT5684')
      OPEN(6,FILE='DFXCHNL')
      OPEN(7,FILE='DFR5684')
C
C READ NUMBER OF MONTHS TO PROCESS.
C
      READ(4,10) MONTHS
C
C MONTH COUNTER LOOP USES SUBSCRIPT M.
C
      DO 200 M=1,MONTHS
             TXGEO = 0
             TWEST = 0
             AXGEO = 0
             AWEST = 0
C
```

```
C READ DAILY INPUT DATA FOR A MONTH.
C
      READ(5,20) IYEAR, IMO, KDAYS
      READ(5,30) (NDAYS(I), QSJR(I), QCRM(I), QMOKE(I), QMISC(I),
     2            QEAST(I), QSAC(I), QYOLO(I), QTOT(I), BQXGEO(I),
     3            QMID(I), QCCC(I), QTPP(I), QDPP(I), QEXP(I),
     4            QDEPL(I), QPREC(I), QCD(I), QEFFECT(I), QDIVER(I),
     5            BQXGEO(I), QOUT(I), QEFFDIV(I), I=1,KDAYS)
      READ(5,40) TSJR, TCRM, TMOKE, TMISC, TEAST, TSAC, TYOLO, TTOT,
     2           BTXGEO, TMID, TCCC, TTPP, TDPP, TEXP, TDEPL, TPREC,
     3           TCD, TEFFECT, BTWEST, TOUT
      READ(5,50) ASJR, ACRM, AMOKE, AMISC, AEAST, ASAC, AYOLO, ATOT,
     2           BAXGEO, AMID, ACCC, ATPP, ADPP, AEXP, ADEPL, APREC,
     3           ACD, AEFFECT, ADIVER, BAWEST, AOUT, AEFFDIV
      READ(6,60) (TGATE0(I), TGATE1(I), TGATE2(I), I=1,KDAYS)
C
C FLOW DETERMINATION THROUGH DELTA CROSS CHANNEL AND GEORGIANA SLOUGH
C USING EMPIRICAL FORMULAS BASED ON NUMBER OF GATES OPEN DURING A DAY
C AND SACRAMENTO RIVER FLOW AT I STREET BRIDGE, SACRACMENTO (FLOWS
C SINCE OCT. 1979 MEASURED AT FREEPORT, CA.: VALUE STILL USED IN
C EMPIRICAL FORMULAS - APPROXIMATE).
C
C DAY OF MONTH COUNTER LOOP USES SUBSCRIPT I.
C
      DO 100 I = 1,KDAYS
            QGEO(I) = TGATE0(I) * (0.133 * QSAC(I) + 829)
            QXCHG1(I) = TGATE1(I) * (0.216 * QSAC(I) + 2660)
            QXCHG2(I) = TGATE2(I) * (0.293 * QSAC(I) + 2090)
            QXGEO(I) = QGEO(I) + QXCHG1(I) + QXCHG2(I)
            QWEST(I) = BQWEST(I) - BQXGEO(I) + QXGEO(I)
C
            TXGEO = TXGEO + QXGEO(I)
            TWEST = TWEST + QWEST(I)
            TDAYS = KDAYS
C
C END OF DAY COUNTER LOOP.
  100 CONTINUE
C
      AXGEO = TXGEO / TDAYS
      AWEST = TWEST / TDAYS
C
C WRITE VALUES FOR MONTH TO REVISED TAPE.
C
      WRITE(7,20) IYEAR, IMO, KDAYS
      WRITE(7,30) (NDAYS(I), QSJR(I), QCRM(I), QMOKE(I), QMISC(I),
     2            QEAST(I), QSAC(I), QYOLO(I), QTOT(I), QXGEO(I),
     3            QMID(I), QCCC(I), OTPP(I), ODPP(I), QEXP(I),
     4            ODEPL(I), QPREC(I), QCD(I), QEFFECT(I), QDIVER(I),
     5            QWEST(I), QOUT(I), QEFFDIV(I), I=1,KDAYS)
      WRITE(7,40) TSJR, TCRM, TMOKE, TMISC, TEAST, TSAC, TYOLO, TTOT,
```

```
     2              TXGEO, TMID, TCCC, TTPP, TDPP, TEXP, TDEPL, TPREC,
     3              TCD, TEFFECT, TWEST, TOUT
      WRITE(7,50) ASJR, ACRM, AMOKE, AMISC, AEAST, ASAC, AYOLO, ATOT,
     2              AXGEO, AMID, ACCC, ATPP, ADPP, AEXP, ADEPL, APREC,
     3              ACD, AEFFECT, ADIVER, AWEST, AOUT, AEFFDIV
C
C END OF MONTH COUNTER LOOP.
  200 CONTINUE
      REWIND 5
      REWIND 6
      STOP 'AT LAST !'
C
C FORMAT STATEMENTS.
C
   10 FORMAT(10X,I4)
   20 FORMAT(10X,I10,20X,A4,10X,I10)
   30 FORMAT(6X,I4,5X,11F10.0/15X,11F10.0)
   40 FORMAT(5X,10F10.0/5X,10F10.0)
   50 FORMAT(5X,11F10.0/5X,7F10.0,8X,A2,2F10.0,8X,A2)
   60 FORMAT(6X,3F6.3)
      END
```

```
*   SAS PROGRAM TO GENERATE;
*   DAYFLOW DATA SUMMARY REPORT - PART 1;
*   USING SAS DAYFLOW DATA SET;

DATA ONE;SET WATER.DAYFLOW;
PROC SORT;BY YEAR MONTH DAY;

DATA TWO;SET WATER.SUMFLOW;
PROC SORT;BY YEAR MONTH;

DATA MERJ;MERGE TWO ONE;
BY YEAR MONTH;
IF WYEAR>8182;
YEAR = YEAR + 1900;
PROC SORT;BY YEAR MONTH DAY;

DATA _NULL_;SET MERJ;
BY YEAR MONTH;
FILE PRINT HEADER=H NOTITLES N=PS;
PUT @9 DAY 2. @15 QSJR 10. @25 QCRM 10. @35 QMOKE 10.
    @45 QMISC 10. @55 QEAST 10. @65 QSAC 10. @75 QYOLO 10.
    @85 QTOT 10. @95 QDEPL 10. @105 QPREC 10. @115 QCD 10.;
IF LAST.MONTH THEN DO;
PUT / @5 'TOTAL CFS' @15 TSJR 10. @25 TCRM 10. @35 TMOKE 10.
      @45 TMISC 10. @55 TEAST 10. @65 TSAC 10. @75 TYOLO 10.
      @85 TTOT 10. @95 TDEPL 10. @105 TPREC 10. @115 TCD 10.;
PUT / @5 'MONTHLY MEAN' @17 ASJR 8. @25 ACRM 10. @35 AMOKE 10.
      @45 AMISC 10. @55 AEAST 10. @65 ASAC 10. @75 AYOLO 10.
      @85 ATOT 10. @95 ADEPL 10. @105 APREC 10. @115 ACD 10.;
PUT #13 @62 AMONTH $3. @68 YEAR 4. _PAGE_;
END;
RETURN;

H: PUT #4 @37 'HYDROLOGIC DATA FOR THE SACRAMENTO-SAN JOAQUIN ESTUARY (CFS)'/
      @55 'DAYFLOW PROGRAM SUMMARY'//
      @39 'PROGRAM VERSION : JAN. 1985          RUN DATE : FEB. 1985'/
      @36 '* SEE DOCUMENTATION FOR PARAMETER DESCRIPTIONS AND REVISIONS *'//
      @47 'CALIFORNIA DEPARTMENT OF WATER RESOURCES'/
      @59 'CENTRAL DISTRICT'////
      @20 '(1)' @30 '(2)' @40 '(3)' @50 '(4)' @60 '(5)' @70 '(6)'
      @80 '(7)' @90 '(8)' @100 '(9)' @110 '(10)' @120 '(11)'//
      @18 'SAN JOAQ' @28 'COSUMNES' @37 'MOKELUMNE' @50 'MISC'
      @58 'E. DELTA' @70 'SAC' @80 'YOLO' @88 'TOT DELT'
      @99 'DELTA' @109 'PRECIP' @118 'CHANNEL'/
      @8 'DAY' @19 'RIVER' @29 'RIVER' @39 'RIVER' @49 'FLOWS'
      @59 'INFLOW' @69 'RIVER' @79 'BYPASS' @89 'INFLOW'
      @97 'CONSUMP''N' @109 'RUNOFF' @118 'DEPLE''N'/
      @21 11*'—         '/
      @19 'MEASRD' @29 'MEASRD' @39 'MEASRD' @48 'MEAS SUM'
      @60 'CALC' @69 'MEASRD' @78 'MEAS SUM' @90 'CALC'
      @99 'ESTMTD' @108 'MEAS EST' @120 'CALC'/
      @7 120*'-'/;
RETURN;
COMMAND?
```

```
*   SAS PROGRAM TO GENERATE;
*   DAYFLOW DATA SUMMARY REPORT - PART 2;
*   USING SAS DAYFLOW DATA SET;

DATA ONE;SET WATER.DAYFLOW;
PROC SORT;BY YEAR MONTH DAY;

DATA TWO;SET WATER.SUMFLOW;
PROC SORT;BY YEAR MONTH;

DATA MERJ;MERGE TWO ONE;
BY YEAR MONTH;
IF WYEAR>8182;
YEAR = YEAR + 1900;
PROC SORT;BY YEAR MONTH DAY;

DATA _NULL_;SET MERJ;
BY YEAR MONTH;
FILE PRINT HEADER=H NOTITLES N=PS;
PUT @9 DAY 2. @15 QTPP 10. @25 QDPP 10. @35 QCCC 10.
    @45 QMID 10. @55 QEXP 10. @65 QXGEO 10. @75 QWEST 10.
    @85 QOUT 10. @95 QDIVER 10. @105 QEFFECT 10. @115 QEFFDIV 10.;
IF LAST.MONTH THEN DO;
PUT / @5 'TOTAL CFS' @15 TTPP 10. @25 TDPP 10. @35 TCCC 10.
      @45 TMID 10. @55 TEXP 10. @65 TXGEO 10. @75 TWEST 10.
      @85 TOUT 10. @105 TEFFECT 10.;
PUT / @5 'MONTHLY MEAN' @17 ATPP 8. @25 ADPP 10. @35 ACCC 10.
      @45 AMID 10. @55 AEXP 10. @65 AXGEO 10. @75 AWEST 10.
      @85 AOUT 10. @95 ADIVER 10. @105 AEFFECT 10. @115 AEFFDIV 10.;
PUT #13 @62 AMONTH $3. @68 YEAR 4. _PAGE_;
END;
RETURN;

H: PUT #4 @37 'HYDROLOGIC DATA FOR THE SACRAMENTO-SAN JOAQUIN ESTUARY (CFS)'/
       @55 'DAYFLOW PROGRAM SUMMARY'//
       @39 'PROGRAM VERSION : JAN. 1985         RUN DATE : FEB. 1985'/
       @36 '* SEE DOCUMENTATION FOR PARAMETER DESCRIPTIONS AND REVISIONS *'//
       @47 'CALIFORNIA DEPARTMENT OF WATER RESOURCES'/
       @59 'CENTRAL DISTRICT'////
       @20 '(12)' @30 '(13)' @40 '(14)' @50 '(15)' @60 '(16)'
       @70 '(17)' @80 '(18)' @90 '(19)' @100 '(20)' @110 '(21)'
       @120 '(22)'//
       @20 'CVP' @30 'SWP' @40 'CCC' @50 'MISC' @58 'TOT DELT'
       @69 'X-CHNL' @79 'JERSEY' @89 'DELTA' @98 'PERCENT'
       @108 'EFFECTIV' @118 'EFFECTIV'/
       @8 'DAY' @19 'EXPORT' @29 'EXPORT' @39 'EXPORT' @48 'DIVER''N'
       @58 'EXPORTS' @68 'GEORG SL' @78 'PT FLOW' @88 'OUTFLOW'
       @98 'DIVERTED' @109 'INFLOW' @118 '% DIVRTD'/
       @21 11*'--        '/
       @19 'MEASRD' @29 'MEASRD' @39 'MEASRD' @49 'ESTMTD'
       @60 'CALC' @69 'ESTMTD' @80 'CALC' @90 'CALC'
       @100 'CALC' @110 'CALC' @120 'CALC'/
       @7 120*'-'/;
RETURN;
COMMAND?
```