

STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

**In the Matter of Specified License and Permits¹ of the
Department of Water Resources and U.S. Bureau of Reclamation
for the State Water Project and Central Valley Project**

**MARCH 18, 2014 ORDER MODIFYING AN ORDER THAT APPROVED A
TEMPORARY URGENCY CHANGE
IN LICENSE AND PERMIT TERMS AND CONDITIONS
REQUIRING COMPLIANCE WITH DELTA WATER QUALITY OBJECTIVES
IN RESPONSE TO DROUGHT CONDITIONS**

BY THE EXECUTIVE DIRECTOR

1.0 INTRODUCTION

On January 29, 2014, the Department of Water Resources (DWR) and the United States Bureau of Reclamation (Reclamation) (hereinafter Petitioners) jointly filed a Temporary Urgency Change Petition (TUCP) pursuant to Water Code section 1435 et seq., to temporarily modify requirements in their water right permits and license for the State Water Project (SWP) and Central Valley Project (CVP) (hereinafter Projects) for the next 180 days in response to drought conditions. An order approving the TUCP was issued on January 31, 2014. That Order was modified on February 7, 2014, in response to a precipitation event; and on February 28, 2014, to extend a modification to Sacramento-San Joaquin Delta Estuary (Delta) Outflow requirements through March 2014. This Order further modifies the Order.

2.0 BACKGROUND

The January 29, 2014 TUCP requested temporary modification of requirements included in State Water Resources Control Board (State Water Board) Revised Decision 1641 (D-1641) to meet water quality objectives in the Water Quality Control Plan (Plan) for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta). Specifically, the TUCP requested modifications to the requirement to meet the Delta Outflow objective during February and the

¹ The petition was filed for Permits 16478, 16479, 16481, 16482 and 16483 (Applications 5630, 14443, 14445A, 17512 and 17514A, respectively) of the Department of Water Resources for the State Water Project and License 1986 and Permits 11315, 11316, 11885, 11886, 11887, 11967, 11968, 11969, 11970, 11971, 11972, 11973, 12364, 12721, 12722, 12723, 12725, 12726, 12727, 12860, 15735, 16597, 20245, and 16600 (Applications 23, 234, 1465, 5638, 13370, 13371, 5628, 15374, 15375, 15376, 16767, 16768, 17374, 17376, 5626, 9363, 9364, 9366, 9367, 9368, 15764, 22316, 14858A, 14858B, and 19304, respectively) of the United States Bureau of Reclamation for the Central Valley Project.

Delta Cross Channel (DCC) Gate closure objective from February through May 20. The TUCP also proposed limits on exports at the SWP and CVP pumping facilities in the south Delta and a process to determine other changes that will best balance protection of all beneficial uses. The Petitioners requested these temporary modifications in order to respond to unprecedented critically dry hydrological conditions as California enters its third straight year of below average rainfall and snowmelt runoff. Additional information concerning the drought and the January 29, 2014 TUCP can be found on the State Water Board's website at:

http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/tucp.shtml

2.1 January 31 Order

The January 31, 2014 TUCP Order allowed DWR and the Bureau to meet a lower Delta Outflow level of 3,000 cubic feet per-second (cfs) in February and allowed the DCC Gates to be operated flexibly from February 1 through May 20.² The Order restricted exports in the Delta at the SWP and CVP pumping facilities to health and safety needs of no more than 1,500 cfs, with the exception of transfers. The Order also required that DWR and the Bureau consult with the State Water Board, Department of Fish and Wildlife, National Marine Fisheries Service and U.S. Fish and Wildlife Service (fisheries agencies) through a Real-Time Drought Operations Management Team (RTDOMT) to discuss real time operational issues. The Order further required DWR and Reclamation to calculate and maintain a record of the amount of water conserved by the changes and keep that water in storage for use later in the year for purposes of maintaining water supplies, improving water quality, or protecting flows for fisheries. The Order required DWR and Reclamation to develop a water balance and to conduct necessary modeling and monitoring to inform real time operational decisions. The Order stated that it may be modified based on additional public input or changed circumstances.

2.2 February 7 Modification

The February 7, 2014 modification to the TUCP Order clarified requirements that would apply when the requirements of D-1641 are met. The February 7 Revised Order adjusted the temporary export limitations when precipitation events occur that enable DWR and Reclamation to comply with the Delta Outflow and DCC Gate Closure requirements contained in Table 3 of D-1641. In these circumstances, exports greater than 1,500 cfs would be allowed up to the export limits contained in D-1641, except that any SWP and CVP exports greater than 1,500 cfs shall be limited to natural or abandoned flows, or transfers. The Order did not require DWR and Reclamation to meet the D-1641 Delta Outflow requirements unless exports were greater than 1,500 cfs. All other provisions of the January 31, 2014 Order were continued.

2.3 February 28 Modification

The February 28, 2014 modification to the TUCP Order continued for the month of March the modified Delta Outflow levels of 3,000 cfs originally approved on January 31, 2014. This modification to the Order continued to allow DWR and Reclamation to conserve stored water needed to maintain water supplies, improve water quality, and protect fishery resources later in the year. All other provisions of the February 7, 2014 Order continued to be in effect.

² The required Delta Outflow pursuant to D-1641 without the temporary change in February was 7,100 cfs. In addition, without the temporary change, D-1641 requires that the Delta Cross Channel Gate be closed from February through May 20 of each year.

2.4 Additional Context Related to the Public Interest

The latest National Weather Service data continue to show nearly the entire state in severe drought and nearly two-thirds in extreme drought. According to this same data, more of the state is in exceptional or extreme drought than when the Governor issued his drought proclamation. In this extraordinarily dry year, all water users, including agricultural, municipal, and fish and wildlife uses, will suffer hardship.

One primary concern is to ensure that enough water can be directed to communities for human health and safety purposes, which includes drinking water and water for sanitation. While some communities have adequate water supplies saved locally for such purposes, other communities need continued exports from the Delta for these essential purposes. As described below, DWR and Reclamation have proposed a process to identify and account for these needs. DWR and Reclamation intend to ensure enough water is supplied to communities for these essential purposes, but not to deliver exports for all normal usage (such as exterior landscape irrigation).

Another primary concern is to prevent saltwater intrusion into the interior Delta where a large portion of the state's freshwater supplies are conveyed for human and agricultural use. A certain amount of outflow from the Delta must be provided throughout dry months to repel saltwater from entering the interior Delta. If there is not enough water to maintain this outflow throughout the year, the SWP and CVP will lose control over salinity in the Delta and fresh water sources travelling through the interior Delta will be contaminated. Such a condition would severely compromise the SWP and CVP's ability to deliver water for basic public health and safety or irrigation uses, increasing the chances for a major catastrophe. This is a very real concern this year.

2.5 March 18, 2014 Request to Modify TUCP Order

On March 18, 2014, DWR submitted a further request to modify the TUCP Order for the remainder of March to provide for additional flexibility for diversions while Delta inflows remain elevated following earlier precipitation events. The request proposes to add an alternate set of compliance requirements for the remainder of March that would be in effect while higher Delta inflows persist. Specifically, while higher inflows persist, DWR and Reclamation propose to comply with footnote 10 to Table 3 of D-1641 but not Table 4, to maintain the DCC Gates in the closed position and to conform with export limits in D-1641 and applicable Endangered Species Act requirements. Footnote 10 requires a Delta Outflow of 7,100 cfs calculated as a 3-day running average. This requirement is also met if either the daily average or 14-day running average electrical conductivity (EC - a measure of salinity) at the confluence of the Sacramento and San Joaquin rivers is less than or equal to 2.64 millimhos per centimeter (mmhos/cm). Pursuant to Table 4 of D-1641, DWR and Reclamation are required to meet 29 days of flows at 11,400 cfs on a 3-day average or alternate compliance through meeting a daily or 14-day running average EC level of 2.64 mmhos/cm at Chipps Island (station D10) in March. The proposed change would eliminate the additional Table 4 requirements for the remainder of the month and allow DWR and Reclamation to export water pursuant to the requirements included in D-1641 while the DCC Gates are closed, provided that the requirements of footnote 10 are met.

The March 18 request also proposes a process whereby DWR and Reclamation will estimate human health and safety needs from the SWP and CVP. Those estimates will take account of local and alternate supplies available to communities served by the SWP and CVP. After those

estimated health and safety needs are accounted for, DWR and Reclamation propose to export water for any lawful project water uses.

3.0 MODIFIED TUCP ORDER

This Order modifies the February 28, 2014 TUCP Order based on the March 18, 2014 request from DWR and Reclamation. This Order does not specifically address the comments, objections and petitions for reconsideration received to date, but may touch on issues raised in those documents. As necessary, actions will be taken to address the objections and petitions for reconsideration at a later date. This modified order does the following:

1. Provides additional flexibility to export water while Delta inflows remain elevated following precipitation events by adding an alternate set of compliance requirements for the remainder of March that would be in effect while higher Delta inflows persist. Specifically, when precipitation and runoff events occur that allow the DCC Gates to be closed and compliance with the flow or salinity requirements included in footnote 10 of D-1641, but the additional Delta Outflow requirements contained in Table 4 of D-1641 are not being met, the Order permits exports of natural and abandoned flows up to the Export Limits contained in Table 3 of D-1641.
2. Clarifies the use of exported water when D-1641 Delta Outflow or DCC Gate requirements are not being met.

4.0 APPLICABILITY OF THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) AND WATER CODE SECTION 13247

As discussed in section 4.0 of the January 31 TUCP Order, pursuant to the Governor's Drought Proclamation, CEQA and Water Code section 13247 are suspended as applied to action on the TUCP.

5.0 PROCEDURAL REQUIREMENTS CONCERNING THE TEMPORARY URGENCY CHANGE PETITION

The procedural requirements for a TUCP are described in section 5 of the January 31 TUCP Order.

6.0 REQUIRED FINDINGS OF FACT

The required findings of fact for a TUCP order are described in section 6.0 of the January 31 TUCP Order. As necessary, additional findings of fact as they apply to this Order are described below.

6.1 Urgency of the Proposed Change

The urgency of the changes included in the TUCP Orders of January 31, February 7, and February 28 TUCP Orders is described in section 6.1 of those orders. The "urgent need" described in the previous orders continues to exist. During February and March, the State received several precipitation events. Those precipitation events have, and continue to, improve hydrologic conditions in the Delta and upstream for an interim period. However, it is expected that the additional inflows to the Delta resulting from the earlier storm events will

recede very quickly. In addition, while the precipitation events have improved water supply conditions to some extent, San Luis Reservoir and DWR's and Reclamation's reservoirs north of the Delta remain critically low. As a result, the proposed change remains urgent. This Order adds additional measures to help address critically low storage levels in San Luis Reservoir and DWR's and Reclamation's reservoirs north of the Delta and associated water supply needs of those reservoirs.

6.2 No Injury to Any Other Lawful User of Water

In the TUCP, the Petitioners stated that, under the proposed changes to Delta Outflow requirements, the Projects would continue to augment natural flows with storage releases, unless the hydrology within the Delta watershed were to improve significantly. As explained in the January 31 TUCP Order, other water right holders could not be injured by a decrease in the amount of stored water released to meet Delta outflow requirements because they are not entitled to divert water previously stored or imported by the Projects that is released for use downstream.

During any period when the Projects are operated consistent with the alternate set of compliance requirements approved by this Order, the Projects would not be augmenting natural flows with storage releases. Nonetheless, other lawful users will not be injured by the proposed change because the Projects will continue to meet modified Delta Outflow requirements and adequate flows are expected to remain in the system to meet the demands of other lawful users of water. Moreover, approval of the proposed modification does not affect the Petitioners' obligation to curtail their diversions of natural and abandoned flows to the extent necessary to protect senior water right holders. A condition will be added to the TUCP Order to ensure that the Petitioners' bypass adequate natural and abandoned flows to prevent injury to senior water right holders.

6.3 No Unreasonable Effect upon Fish, Wildlife, or Other Instream Beneficial Uses

As discussed in the January 31 TUCP Order, the changes as conditioned will not cause unreasonable effects on fish, wildlife, or other instream beneficial uses of water. The effects of the proposed changes under this Order are discussed below in the context of the previous findings. In addition to the option of complying with Delta outflow levels of 3,000 cfs, with the DCC Gates open and exports of 1,500 cfs or less discussed in the previous orders, this Order allows for alternate set of compliance requirements including: compliance with the Delta Outflow or salinity levels specified in footnote 10 of D-1641 (7,100 cfs as a 3-day average or an EC of 2.64 mmhos/cm on a daily or 14-day running average at station C2) along with Delta Exports and DCC Gate operations (closed) in compliance with D-1641 requirements. The additional Delta Outflows above 3,000 cfs are expected to improve conditions for numerous estuarine and anadromous species in the Delta. In addition, closure of the DCC Gates is expected to improve conditions for fish by reducing entrainment of migrating salmonids into the interior Delta. The effects of higher exports are expected to be offset to some extent by the additional Delta outflows and closure of the DCC Gates. Further, the export of additional water is limited to natural and abandoned flows ensuring that stored water is maintained in upstream reservoirs for use later in the season for fish and wildlife and other purposes. The March 18, 2014 request from DWR includes concurrence letters from the fisheries agencies that the modifications included in this order will comply with federal and state endangered species act requirements.

6.4 The Proposed Change is in the Public Interest

The reasons why the TUCP Order is in the public interest were described in section 6.4 of the January 31 TUCP Order.

7.0 CONCLUSIONS

The State Water Board has adequate information in its files to make the evaluation required by Water Code section 1435 concerning the additional modifications of the TUCP Order discussed above. Changes to the TUCP Order from the February 28, 2014 modified version are provided in underline and strikeout below.

I conclude that, based on the available evidence:

1. The Petitioners have an urgent need to make the proposed changes;
2. The petitioned changes, as conditioned by this Order, will not operate to the injury of any other lawful user of water;
3. The petitioned changes, as conditioned by this Order, will not have an unreasonable effect upon fish, wildlife, or other instream beneficial uses; and,
4. The petitioned changes, as conditioned by this Order, are in the public interest.

ORDER

NOW, THEREFORE, IT IS ORDERED that the petition for temporary urgency change in permit and license conditions under Permits 16478, 16479, 16481, 16482 and 16483 (Applications 5630, 14443, 14445A, 17512 and 17514A, respectively) of the Department of Water Resources (DWR) for the State Water Project (SWP) and License 1986 and Permits 11315, 11316, 11885, 11886, 11887, 11967, 11968, 11969, 11970, 11971, 11972, 11973, 12364, 12721, 12722, 12723, 12725, 12726, 12727, 12860, 15735, 16597, 20245, and 16600 (Applications 23, 234, 1465, 5638, 13370, 13371, 5628, 15374, 15375, 15376, 16767, 16768, 17374, 17376, 5626, 9363, 9364, 9366, 9367, 9368, 15764, 22316, 14858A, 14858B, and 19304, respectively) of the United States Bureau of Reclamation (Reclamation) for the Central Valley Project (CVP); is approved subject to the following terms and conditions. All other terms and conditions of the subject license and permits, including those added by the State Water Resources Control Board (State Water Board) in Revised Decision 1641 (D-1641) shall remain in effect. This Order shall be effective until July 30, 2014.

1. Except as otherwise provided in condition 2, below, for a period not to exceed 180 days or until such time as this Order is amended or rescinded based on changed circumstances, the requirements of D-1641 for DWR and Reclamation to meet specified water quality objectives are amended as follows:
 - a. The minimum Delta Outflow levels specified in Table 3 are modified as follows: the minimum Net Delta Outflow Index (NDOI) described in Figure 3 of D-1641 during the months of February and March shall be no less than 3,000 cubic-feet per second (cfs). In addition to base Delta Outflows, pursuant to this Order, a higher pulse flow may also be required through the Real-Time Drought Operations Management Process described below.
 - b. The maximum Export Limits included in Table 3 are modified as follows: **during March when footnote 10 of D-1641 is not being met, or the Delta Cross Channel (DCC) Gates are open,** the combined maximum SWP and CVP export rate for SWP and CVP contractors at the Harvey O. Banks and C.W. "Bill" Jones pumping plants shall be no greater ~~than the minimum pumping levels required for health and safety purposes and shall be no greater~~ than 1,500 cfs on a 3-day running average. ~~Deliveries to SWP and CVP export contractors from the SWP and CVP shall also be limited to health and safety needs.~~ **When precipitation and runoff events occur that allow the DCC to be closed and footnote 10 of D-1641 to be met (Delta Outflow of 7,100 cfs or electrical conductivity of 2.64 millimhos per centimeter on a daily or 14-day running average at the confluence of the Sacramento and the San Joaquin rivers (Collinsville station C2)), but the additional Delta Outflow requirements contained in Table 4 of D-1641 are not being met, then exports of natural and abandoned flows are permitted up to D-1641 Export Limits contained in Table 3. The use of the water exported pursuant this ordering provision 1.b, including previous versions of this ordering provision, is conditioned on DWR and Reclamation following the process described in their March 18, 2014 letter.** These limitations do not apply to water transfers under non-SWP or CVP water rights or between SWP and CVP contractors. DWR and Reclamation shall refine ~~what~~ **estimates of** export

amounts and deliveries **are** required to maintain health and safety and shall provide **documentation these estimates** to the State Water Board **to support that determination** by **February 14-March 21**. Based on additional information or changed circumstances, the export limits imposed pursuant to this Order may be modified through the Real-Time Drought Operations Management Process described below.

- c. The Delta Cross Channel (DCC) Gate Closure requirements included in Table 3 are modified as follows: the DCC gates may be opened from February 1 through May 20 as necessary to preserve limited storage in upstream reservoirs and reduce infiltration of high salinity water into the Delta while reducing impacts on migrating Chinook salmon. Requirements for closure of the DCC gates during March through May 20 shall be determined through the Real-Time Drought Operations Management Process described below.
2. During the effective period of this Order, if precipitation events occur that enable DWR and Reclamation to comply with the Delta Outflow and DCC Gate Closure requirements contained in Table 3 of D-1641, then D-1641 requirements shall be operative, except that any SWP and CVP exports greater than 1500 cfs shall be limited to natural or abandoned flow, or transfers as specified in condition 1b.
3. DWR and Reclamation shall convene a Real-Time Drought Operations Management Team with designated representatives from DWR, Reclamation, the State Water Board, Department of Fish and Wildlife, National Marine Fisheries Service and U.S. Fish and Wildlife Service (fisheries agencies). The Real-Time Drought Operations Management Team shall be convened to discuss potential changes to SWP and CVP operations to meet health and safety requirements and to reasonably protect all beneficial uses of water. The team shall meet on a regular basis, and no less than weekly, to discuss current conditions and may be combined with the existing Water Operations Management Team as appropriate. The State Water Board representative shall be designated by the Executive Director of the State Water Board and shall be authorized to make real-time operational decisions to modify requirements to meet pulse flows associated with the modification to the Delta Outflow objective described above, Export Limits, DCC gate closures, and the associated requirements of this Order. If the State Water Board approves any additional temporary urgency changes pursuant to the temporary urgency change petition that is the subject of this Order, or otherwise modifies this Order, the State Water Board will provide notice and an opportunity for interested persons to comment or object. Based on public comments or objections, further changes may be made to this Order. Information concerning changes to this Order will be posted on the State Water Board's website within 24 hours.
4. DWR and Reclamation shall calculate and maintain a record of the amount of water conserved through the changes authorized by this Order. The water conserved shall be maintained in storage to protect flows for fisheries, used to maintain water supplies, or used to improve water quality. The use of such water shall be determined through the Real-Time Drought Operations Management Team Process described above.
5. DWR and Reclamation shall develop monthly water balance estimates indicating actual and proposed operations through the end of the water year. Specifically, actual and projected inflows, north of Delta contract deliveries, other channel depletions, exports,

and Delta outflows shall be identified. The water balance shall be posted on DWR's website and updated as necessary based on changed conditions.

6. DWR and Reclamation shall conduct necessary modeling and monitoring to inform real time operational decisions. Required modeling and monitoring shall be determined through the Real-Time Drought Operations Management Team Process or as may be required pursuant to any modification to this Order.

7. **DWR and Reclamation shall bypass natural and abandoned flows to the extent necessary to prevent injury to senior water right holders.**

87. This Order may be further modified by the Executive Director based on additional public input or changed circumstances. Specifically, the State Water Board will hold a workshop on February 18 and 19, 2014, to receive public comment on what if any modifications should be made to this Order to ensure that the changes approved by this Order will not injure any lawful user of water, will not unreasonably affect fish and wildlife, and will be in the public interest.

98. This Order does not authorize any act that results in the taking of a candidate, threatened or endangered species, or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). If a "take" will result from any act authorized under this Order, the Petitioners shall obtain authorization for an incidental take permit prior to construction or operation of the project. Petitioners shall be responsible for meeting all requirements of the applicable Endangered Species Act for the temporary urgency change authorized under this Order.

109. Petitioners shall immediately notify the Executive Director of the State Water Board if any significant change in conditions occurs that warrants reconsideration of this Order.

STATE WATER RESOURCES CONTROL BOARD

Original Signed By

Thomas Howard
Executive Director
Dated: 03/18/14

TABLE 1
WATER QUALITY OBJECTIVES FOR
MUNICIPAL AND INDUSTRIAL BENEFICIAL USES

COMPLIANCE LOCATION	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT)	WATER YEAR TYPE [2]	TIME PERIOD	VALUE
Contra Costa Canal at Pumping Plant #1	C-5 (CHCCC06)	Chloride (Cl ⁻)	Maximum mean daily 150 mg/l Cl ⁻ for at least the number of days shown during the Calendar Year.	W		No. of days each Calendar Year ≤ 150 mg/l Cl ⁻
-or-						
San Joaquin River at Antioch Water Works Intake	D-12 (near) (RSAN007)		Must be provided in intervals of not less than two weeks duration. (Percentage of Calendar Year shown in parenthesis)	AN		240 (66%)
				BN		190 (52%)
				D		175 (48%)
				C		165 (45%)
						155 (42%)
Contra Costa Canal at Pumping Plant #1	C-5 (CHCCC06)	Chloride (Cl ⁻)	Maximum mean daily (mg/l)	All	Oct-Sep	250
-and-						
West Canal at mouth of Clifton Court Forebay	C-9 (CHWST0)					
-and-						
Delta-Mendota Canal at Tracy Pumping Plant	DMC-1 (CHDMC004)					
-and-						
Barker Slough at North Bay Aqueduct Intake	---- (SLSAR3)					
-and-						
Cache Slough at City of Vallejo Intake [3]	C-19 (SLCCH16)					

[1] River Kilometer Index station number.

[2] The Sacramento Valley 40-30-30 water year hydrologic classification index (see Figure 1) applies for determinations of water year type.

[3] The Cache Slough objective to be effective only when water is being diverted from this location.

**TABLE 2
WATER QUALITY OBJECTIVES FOR AGRICULTURAL BENEFICIAL USES**

COMPLIANCE LOCATION	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE
WESTERN DELTA						
Sacramento River at Emmaton	D-22 (RSAC092)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC	EC from date shown to Aug 15 [4]
					April 1 to date shown	Aug 15 [4]
				W	Aug 15	----
				AN	Jul 1	0.63
				BN	Jun 20	1.14
	D	Jun 15	1.67			
	C	----	2.78			
San Joaquin River at Jersey Point	D-15I (RSAN018)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC	EC from date shown to Aug 15 [4]
					April 1 to date shown	Aug 15 [4]
				W	Aug 15	----
				AN	Aug 15	----
				BN	Jun 20	0.74
	D	Jun 15	1.35			
	C	----	2.20			
INTERIOR DELTA						
South Fork Mokelumne River at Terminous	C-13 (RSMKL08)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC	EC from date shown to Aug 15 [4]
					April 1 to date shown	Aug 15 [4]
				W	Aug 15	----
				AN	Aug 15	----
				BN	Aug 15	----
	D	Aug 15	----			
	C	----	0.54			
San Joaquin River at San Andreas Landing	C-4 (RSAN032)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC	EC from date shown to Aug 15 [4]
					April 1 to date shown	Aug 15 [4]
				W	Aug 15	----
				AN	Aug 15	----
				BN	Aug 15	----
	D	Jun 25	0.58			
	C	----	0.87			
SOUTHERN DELTA						
San Joaquin River at Airport Way Bridge, Vernalis -and- San Joaquin River at Brandt Bridge site[5] -and- Old River near Middle River [5] -and- Old River at Tracy Road Bridge [5]	C-10 (RSAN112) C-6 (RSAN073) C-8 (ROLD69) P-12 (ROLD59)	Electrical Conductivity (EC)	Maximum 30-day running average of mean daily EC (mmhos/cm)	All	Apr-Aug Sep-Mar	0.7
						1.0
EXPORT AREA						
West Canal at mouth of Clifton Court Forebay -and- Delta-Mendota Canal at Tracy Pumping Plant	C-9 (CHWST0) DMC-1 (CHDMC004)	Electrical Conductivity (EC)	Maximum monthly average of mean daily EC (mmhos/cm)	All	Oct-Sep	1.0

[1] River Kilometer Index station number.

[2] Determination of compliance with an objective expressed as a running average begins on the last day of the averaging period. The averaging period commences with the first day of the time period for the applicable objective. If the objective is not met on the last day of the averaging period, all days in the averaging period are considered out of compliance.

[3] The Sacramento Valley 40-30-30 water year hydrologic classification index (see Figure 1) applies for determinations of water year type.

[4] When no date is shown, EC limit continues from April 1.

[5] The 0.7 EC objective becomes effective on April 1, 2005. The DWR and the USBR shall meet 1.0 EC at these stations year round until April 1, 2005. The 0.7 EC objective is replaced by the 1.0 EC objective from April through August after April 1, 2005 if permanent barriers are constructed, or equivalent measures are implemented, in the southern Delta and an operations plan that reasonably protects southern Delta agriculture is prepared by the DWR and the USBR and approved by the Executive Director of the SWRCB. The SWRCB will review the salinity objectives for the southern Delta in the next review of the Bay-Delta objectives following construction of the barriers.

**TABLE 3
WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE BENEFICIAL USES**

COMPLIANCE LOCATION	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE
SAN JOAQUIN RIVER SALINITY						
San Joaquin River at and between Jersey Point and Prisoners Point [4]	D-15 (RSAN018) -and- D-29 (RSAN038)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC(mmhos/cm)	W,AN,BN,D	Apr-May	0.44 [5]
EASTERN SUISUN MARSH SALINITY						
Sacramento River at Collinsville -and- Montezuma Slough at National Steel -and- Montezuma Slough near Beldon Landing	C-2 (RSAC081) S-64 (SLMZU25) S-49 (SLMZU11)	Electrical Conductivity (EC)	Maximum monthly average of both daily high tide EC values (mmhos/cm), or demonstrate that equivalent or better protection will be provided at the location	All	Oct Nov-Dec Jan Feb-Mar Apr-May	19.0 15.5 12.5 8.0 11.0
WESTERN SUISUN MARSH SALINITY						
Chadbourne Slough at Sunrise Duck Club -and- Suisun Slough, 300 feet south of Volanti Slough	S-21 (SLCBN1) S-42 (SLSUS12)	Electrical Conductivity (EC)	Maximum monthly average of both daily high tide EC values (mmhos/cm), or demonstrate that equivalent or better protection will be provided at the location	All but deficiency period [6] Deficiency Period [6]	Oct Nov Dec Jan Feb-Mar Apr-May Oct Nov Dec-Mar Apr May	19.0 16.5 15.5 12.5 8.0 11.0 19.0 16.5 15.6 14.0 12.5

TABLE 3 (continued)
WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE BENEFICIAL USES

COMPLIANCE LOCATION	INTERAGENCY STATION NUMBER(RK14[1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE
DELTA OUTFLOW						
		Net Delta Outflow Index (NDOI) [7]	Minimum monthly average [8] NDOI (cfs)	All	Jan	4,500 [9]
				All	Feb-Jun	[10]
				W,AN	Jul	8,000
				BN		6,500
				D		5,000
				C		4,000
				W,AN,BN	Aug	4,000
				D		3,500
				C		3,000
				All	Sep	3,000
				W,AN,BN,D	Oct	4,000
				C		3,000
				W,AN,BN,D	Nov-Dec	4,500
				C		3,500
RIVER FLOWS						
Sacramento River at Rio Vista	D-24 (RSAC101)	Flow rate	Minimum monthly average [11] flow rate (cfs)	All	Sep	3,000
				W,AN,BN,D	Oct	4,000
				C		3,000
				W,AN,BN,D	Nov-Dec	4,500
				C		3,500
San Joaquin River at Airport Way Bridge, Vernalis	C-10 (RSAN112)	Flow rate	Minimum monthly average [12] flow rate (cfs) [13]	W,AN	Feb-Apr 14 and May 16-Jun	2,130 or 3,420 1,420 or 2,280 710 or 1,140
				BN,D		
				C		
				W	Apr 15- May 15 [14]	7,330 or 8,620 5,730 or 7,020
				BN		4,620 or 5,480
				D		4,020 or 4,880
				C		3,110 or 3,540
				All	Oct	1,000 [15]
EXPORT LIMITS						
		Combined export rate [16]	Maximum 3-day running average (cfs)	All	Apr 15- May 15 [17]	[18]
			Maximum percent of Delta inflow diverted [19] [20]	All	Feb-Jun	35% Delta inflow [21]
				All	Jul-Jan	65% Delta inflow
DELTA CROSS CHANNEL GATES CLOSURE						
Delta Cross Channel at Walnut Grove	—	Closure of gates	Closed gates	All	Nov-Jan Feb-May 20 May 21- Jun 15	[22] ---- [23]

Table 3 Footnotes

- [1] River Kilometer Index station number.
- [2] Determination of compliance with an objective expressed as a running average begins on the last day of the averaging period. The averaging period commences with the first day of the time period of the applicable objective. If the objective is not met on the last day of the averaging period, all days in the averaging period are considered out of compliance.
- [3] The Sacramento Valley 40-30-30 Water Year Hydrologic Classification Index (see Figure 1) applies unless otherwise specified.
- [4] Compliance will be determined at Jersey Point (station D15) and Prisoners Point (station D29).
- [5] This standard does not apply in May when the best available May estimate of the Sacramento River Index for the water year is less than 8.1 MAF at the 90% exceedence level. [Note: The Sacramento River Index refers to the sum of the unimpaired runoff in the water year as published in the DWR Bulletin 120 for the following locations: Sacramento River above Bend Bridge, near Red Bluff; Feather River, total unimpaired inflow to Oroville Reservoir; Yuba River at Smartville; and American River, total unimpaired inflow to Folsom Reservoir.]
- [6] A deficiency period is: (1) the second consecutive dry water year following a critical year; (2) a dry water year following a year in which the Sacramento River Index (described in footnote 5) was less than 11.35 MAF; or (3) a critical water year following a dry or critical water year. The determination of a deficiency period is made using the prior year's final Water Year Type determination and a forecast of the current year's Water Year Type; and remains in effect until a subsequent water year is other than a Dry or Critical water year as announced on May 31 by DWR and USBR as the final water year determination.
- [7] Net Delta Outflow Index (NDOI) is defined in Figure 3.
- [8] For the May-January objectives, if the value is less than or equal to 5,000 cfs, the 7-day running average shall not be less than 1,000 cfs below the value; if the value is greater than 5,000 cfs, the 7-day running average shall not be less than 80% of the value.
- [9] The objective is increased to 6,000 cfs if the best available estimate of the Eight River Index for December is greater than 800 TAF. [Note: The Eight River Index refers to the sum of the unimpaired runoff as published in the DWR Bulletin 120 for the following locations: Sacramento River flow at Bend Bridge, near Red Bluff; Feather River, total inflow to Oroville Reservoir; Yuba River flow at Smartville; American River, total inflow to Folsom Reservoir; Stanislaus River, total inflow to New Melones Reservoir; Tuolumne River, total inflow to Don Pedro Reservoir; Merced River, total inflow to Exchequer Reservoir; and San Joaquin River, total inflow to Millerton Lake.]
- [10] The minimum daily net Delta outflow shall be 7,100 cfs for this period, calculated as a 3-day running average. This requirement is also met if either the daily average or 14-day running average EC at the confluence of the Sacramento and the San Joaquin rivers is less than or equal to 2.64 mmhos/cm (Collinsville station C2). If the best available estimate of the Eight River Index (described in footnote 9) for January is more than 900 TAF, the daily average or 14-day running average EC at station C2 shall be less than or equal to 2.64 mmhos/cm for at least one day between February 1 and February 14; however, if the best available estimate of the Eight River Index for January is between 650 TAF and 900 TAF, the Executive Director of the SWRCB is delegated authority to decide whether this requirement applies. If the best available estimate of the Eight River Index for February is less than 500 TAF, the standard may be further relaxed in March upon the request of the DWR and the USBR, subject to the approval of the Executive Director of the SWRCB. The standard does not apply in May and June if the best available May estimate of the Sacramento River Index (described in footnote 5) for the water year is less than 8.1 MAF at the 90% exceedence level.

Under this circumstance, a minimum 14-day running average flow of 4,000 cfs is required in May and June. Additional Delta outflow objectives are contained in Table 4.

- [11] The 7-day running average shall not be less than 1,000 cfs below the monthly objective.
- [12] Partial months are averaged for that period. For example, the flow rate for April 1-14 would be averaged over 14 days. The 7-day running average shall not be less than 20% below the flow rate objective, with the exception of the April 15-May 15 pulse flow period when this restriction does not apply.
- [13] The water year classification for the San Joaquin River flow objectives will be established using the best available estimate of the 60-20-20 San Joaquin Valley Water Year Hydrologic Classification (see Figure 2) at the 75% exceedence level. The higher flow objective applies when the 2-ppt isohaline (measured as 2.64 mmhos/cm surface salinity) is required to be at or west of Chipps Island.
- [14] This time period may be varied based on real-time monitoring. One pulse, or two separate pulses of combined duration equal to the single pulse, should be scheduled to coincide with fish migration in San Joaquin River tributaries and the Delta. The USBR will schedule the time period of the pulse or pulses in consultation with the USFWS, the NMFS, and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement. The schedule is subject to the approval of the Executive Director of the SWRCB.
- [15] Plus up to an additional 28 TAF pulse/attraction flow during all water year types. The amount of additional water will be limited to that amount necessary to provide a monthly average flow of 2,000 cfs. The additional 28 TAF is not required in a critical year following a critical year. The pulse flow will be scheduled by the DWR and the USBR in consultation with the USFWS, the NMFS and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.
- [16] Combined export rate for this objective is defined as the Clifton Court Forebay inflow rate (minus actual Byron-Bethany Irrigation District diversions from Clifton Court Forebay) and the export rate of the Tracy pumping plant.
- [17] This time period may be varied based on real-time monitoring and will coincide with the San Joaquin River pulse flow described in footnote 18. The DWR and the USBR, in consultation with the USFWS, the NMFS and the DFG, will determine the time period for this 31-day export limit. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.
- [18] Maximum export rate is 1,500 cfs or 100% of 3-day running average of San Joaquin River flow at Vernalis, whichever is greater. Variations to this maximum export rate may be authorized if agreed to by the USFWS, the NMFS and the DFG. This flexibility is intended to result in no net water supply cost annually within the limits of the water quality and operational requirements of this plan. Variations may result from recommendations of agencies for protection of fish resources, including actions taken pursuant to the State and federal Endangered Species Act. Any variations will be effective immediately upon notice to the Executive Director of the SWRCB. If the Executive Director of the SWRCB does not object to the variations within 10 days, the variations will remain in effect. The Executive Director of the SWRCB is also authorized to grant short-term exemptions to export limits for the purpose of facilitating a study of the feasibility of recirculating export water into the San Joaquin River to meet flow objectives.
- [19] Percent of Delta inflow diverted is defined in Figure 3. For the calculation of maximum percent Delta inflow diverted, the export rate is a 3-day running average and the Delta inflow is a 14-day running average, except when the CVP or the SWP is making storage withdrawals for export, in which case both the export rate and the Delta inflow are 3-day running averages.

- [20] The percent Delta inflow diverted values can be varied either up or down. Variations are authorized subject to the process described in footnote 18.
- [21] If the best available estimate of the Eight River Index (described in footnote 9) for January is less than or equal to 1.0 MAF, the export limit for February is 45% of Delta inflow. If the best available estimate of the Eight River Index for January is greater than 1.5 MAF, the February export limit is 35% of Delta inflow. If the best available estimate of the Eight River Index for January is between 1.0 MAF and 1.5 MAF, the DWR and the USBR will set the export limit for February within the range of 35% to 45%, after consultation with the USFWS, the NMFS and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.
- [22] For the November-January period, close Delta Cross Channel gates for a total of up to 45 days. The USBR will determine the timing and duration of the gate closure after consultation with the USFWS, the NMFS and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.
- [23] For the May 21-June 15 period, close Delta Cross Channel gates for a total of 14 days. The USBR will determine the timing and duration of the gate closure after consultation with the USFWS, the NMFS and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.

Figure 1
Sacramento Valley
Water Year Hydrologic Classification

Year classification shall be determined by computation of the following equation:

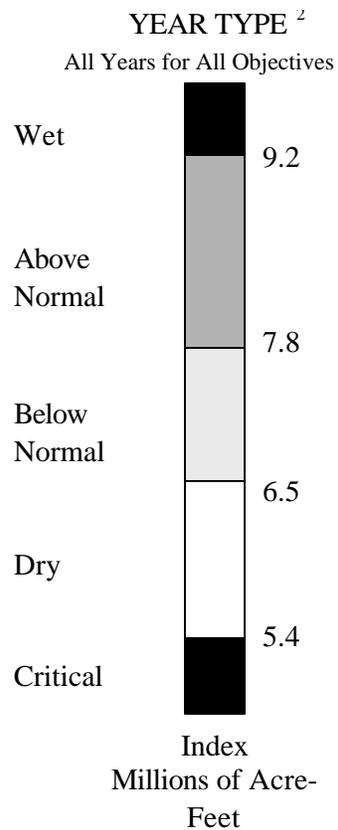
$$\text{INDEX} = 0.4 * X + 0.3 * Y + 0.3 * Z$$

Where: X = Current year's April – July
 Sacramento Valley unimpaired runoff

Y = Current October – March
 Sacramento Valley unimpaired runoff

Z = Previous year's index¹

The Sacramento Valley unimpaired runoff for the current water year (October 1 of the preceding calendar year through September 30 of the current calendar year), as published in California Department of Water Resources Bulletin 120, is a forecast of the sum of the following locations: Sacramento River above Bend Bridge, near Red Bluff; Feather River, total inflow to Oroville Reservoir; Yuba River at Smartville; American River, total inflow to Folsom Reservoir. Preliminary determinations of year classification shall be made in February, March, and April with final determination in May. These preliminary determinations shall be based on hydrologic conditions to date plus forecasts of future runoff assuming normal precipitation for the remainder of the water year.



<u>Classification</u>	<u>Index</u> <u>Millions of Acre-Feet (MAF)</u>
Wet	Equal to or greater than 9.2
Above Normal	Greater than 7.8 and less than 9.2
Below Normal	Equal to or less than 7.8 and greater than 6.5
Dry	Equal to or less than 6.5 and greater than 5.4
Critical	Equal to or less than 5.4

¹ A cap of 10.0 MAF is put on the previous year's index (Z) to account for required flood control reservoir releases during wet years.

² The year type for the preceding water year will remain in effect until the initial forecast of unimpaired runoff for the current water year is available.

Figure 2
San Joaquin Valley
Water Year Hydrologic Classification

Year classification shall be determined by computation of the following equation:

$$\text{INDEX} = 0.6 * X + 0.2 * Y + 0.2 * Z$$

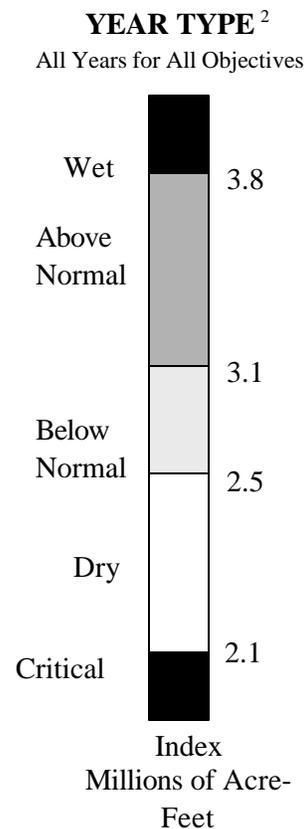
Where: X = Current year's April – July
 San Joaquin Valley unimpaired runoff

Y = Current October – March
 San Joaquin Valley unimpaired runoff

Z = Previous year's index¹

The San Joaquin Valley unimpaired runoff for the current water year (October 1 of the preceding calendar year through September 30 of the current calendar year), as published in California Department of Water Resources Bulletin 120, is a forecast of the sum of the following locations: Stanislaus River, total flow to New Melones Reservoir; Tuolumne River, total inflow to Don Pedro Reservoir; Merced River, total flow to Exchequer Reservoir; San Joaquin River, total inflow to Millerton Lake. Preliminary determinations of year classification shall be made in February, March, and April with final determination in May. These preliminary determinations shall be based on hydrologic conditions to date plus forecasts of future runoff assuming normal precipitation for the remainder of the water year.

<u>Classification</u>	<u>Index</u> <u>Millions of Acre-Feet (MAF)</u>
Wet	Equal to or greater than 3.8
Above Normal	Greater than 3.1 and less than 3.8
Below Normal	Equal to or less than 3.1 and greater than 2.5
Dry	Equal to or less than 2.5 and greater than 2.1
Critical	Equal to or less than 2.1



¹ A cap of 4.5 MAF is put on the previous year's index (Z) to account for required flood control reservoir releases during wet years.

² The year type for the preceding water year will remain in effect until the initial forecast of unimpaired runoff for the current water year is available.

Figure 3
NDOI and PERCENT INFLOW DIVERTED¹

The NDOI and the percent inflow diverted, as described in this footnote, shall be computed daily by the DWR and the USBR using the following formulas (all flows are in cfs):

$NDOI = DELTA\ INFLOW - NET\ DELTA\ CONSUMPTIVE\ USE - DELTA\ EXPORTS$ $PERCENT\ INFLOW\ DIVERTED = (CCF + TPP) \div DELTA\ INFLOW$

where $DELTA\ INFLOW = SAC + SRTP + YOLO + EAST + MISC + SJR$

- SAC* = Sacramento River at Freeport mean daily flow for the previous day; the 25-hour tidal cycle measurements from 12:00 midnight to 1:00 a.m. may be used instead.
- SRTP* = Sacramento Regional Treatment Plant average daily discharge for the previous week.
- YOLO* = Yolo Bypass mean daily flow for the previous day, which is equal to the flows from the Sacramento Weir, Fremont Weir, Cache Creek at Rumsey, and the South Fork of Putah Creek.
- EAST* = Eastside Streams mean daily flow for the previous day from the Mokelumne River at Woodbridge, Cosumnes River at Michigan Bar, and Calaveras River at Bellota.
- MISC* = Combined mean daily flow for the previous day of Bear Creek, Dry Creek, Stockton Diverting Canal, French Camp Slough, Marsh Creek, and Morrison Creek.
- SJR* = San Joaquin River flow at Vernalis, mean daily flow for the previous day.

where $NET\ DELTA\ CONSUMPTIVE\ USE = GDEPL - PREC$

- GDEPL* = Delta gross channel depletion for the previous day based on water year type using the DWR's latest Delta land use study.²
- PREC* = Real-time Delta precipitation runoff for the previous day estimated from stations within the Delta.

and where $DELTA\ EXPORTS^3 = CCF + TPP + CCC + NBA$

- CCF* = Clifton Court Forebay inflow for the current day.⁴
- TPP* = Tracy Pumping Plant pumping for the current day.
- CCC* = Contra Costa Canal pumping for the current day.
- NBA* = North Bay Aqueduct pumping for the current day.

1 Not all of the Delta tributary streams are gaged and telemetered. When appropriate, other methods of estimating stream flows, such as correlations with precipitation or runoff from nearby streams, may be used instead.

2 The DWR is currently developing new channel depletion estimates. If these new estimates are not available, DAYFLOW channel depletion estimates shall be used.

3 The term "Delta Exports" is used only to calculate the NDOI. It is not intended to distinguish among the listed diversions with respect to eligibility for protection under the area of origin provisions of the California Water Code.

4 Actual Byron-Bethany Irrigation District withdrawals from Clifton Court Forebay shall be subtracted from Clifton Court Forebay inflow. (Byron-Bethany Irrigation District water use is incorporated into the GDEPL term.)

Table 4. Number of Days When Maximum Daily Average Electrical Conductivity of 2.64 mmhos/cm Must Be Maintained at Specified Location

Number of Days When Maximum Daily Average Electrical Conductivity of 2.64 mmhos/cm Must Be Maintained at Specified Location ^[a]																	
PMI ^[b] (TAF)	Chippis Island (Chippis Island Station D10)					PMI ^[b] (TAF)	Port Chicago (Port Chicago Station C14) ^[d]					PMI ^[b] (TAF)	Port Chicago (Port Chicago Station C14) ^[d]				
	FEB	MAR	APR	MAY	JUN		FEB	MAR	APR	MAY	JUN		FEB	MAR	APR	MAY	JUN
≤ 500	0	0	0	0	0	0	0	0	0	0	0	5250	27	29	25	26	6
750	0	0	0	0	0	250	1	0	0	0	0	5500	27	29	26	28	9
1000	28 ^[c]	12	2	0	0	500	4	1	0	0	0	5750	27	29	27	28	13
1250	28	31	6	0	0	750	8	2	0	0	0	6000	27	29	27	29	16
1500	28	31	13	0	0	1000	12	4	0	0	0	6250	27	30	27	29	19
1750	28	31	20	0	0	1250	15	6	1	0	0	6500	27	30	28	30	22
2000	28	31	25	1	0	1500	18	9	1	0	0	6750	27	30	28	30	24
2250	28	31	27	3	0	1750	20	12	2	0	0	7000	27	30	28	30	26
2500	28	31	29	11	1	2000	21	15	4	0	0	7250	27	30	28	30	27
2750	28	31	29	20	2	2250	22	17	5	1	0	7500	27	30	29	30	28
3000	28	31	30	27	4	2500	23	19	8	1	0	7750	27	30	29	31	28
3250	28	31	30	29	8	2750	24	21	10	2	0	8000	27	30	29	31	29
3500	28	31	30	30	13	3000	25	23	12	4	0	8250	28	30	29	31	29
3750	28	31	30	31	18	3250	25	24	14	6	0	8500	28	30	29	31	29
4000	28	31	30	31	23	3500	25	25	16	9	0	8750	28	30	29	31	30
4250	28	31	30	31	25	3750	26	26	18	12	0	9000	28	30	29	31	30
4500	28	31	30	31	27	4000	26	27	20	15	0	9250	28	30	29	31	30
4750	28	31	30	31	28	4250	26	27	21	18	1	9500	28	31	29	31	30
5000	28	31	30	31	29	4500	26	28	23	21	2	9750	28	31	29	31	30
5250	28	31	30	31	29	4750	27	28	24	23	3	10000	28	31	30	31	30
≤ 5500	28	31	30	31	30	5000	27	28	25	25	4	>10000	28	31	30	31	30

- [a] The requirement for number of days the maximum daily average EC (EC) of 2.64 mmhos per centimeter (mmhos/cm) must be maintained at Chippis Island and Port Chicago can also be met with maximum 14-day running average EC of 2.64 mmhos/cm, or 3-day running average NDOIs of 11,400 cfs and 29,200 cfs, respectively. If salinity/flow objectives are met for a greater number of days than the requirements for any month, the excess days shall be applied to meeting the requirements for the following month. The number of days for values of the PMI between those specified in this table shall be determined by linear interpolation.
- [b] PMI is the best available estimate of the previous month's Eight River Index. (Refer to Footnote 10 for Table 3 for a description of the Eight River Index.)
- [c] When the PMI is between 800 TAF and 1000 TAF, the number of days the maximum daily average EC of 2.64 mmhos/cm (or maximum 14-day running average EC of 2.64 mmhos/cm, or 3-day running average NDOI of 11,400 cfs) must be maintained at Chippis Island in February is determined by linear interpolation between 0 and 28 days.
- [d] This standard applies only in months when the average EC at Port Chicago during the 14 days immediately prior to the first day of the month is less than or equal to 2.64 mmhos/cm.