

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**

**OCTOBER 7, 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 September 26, 2014, the United States Bureau of Reclamation (Reclamation) submitted a request to temporarily modify requirements in its water right permits to meet San Joaquin River flow requirements at Airport Way Bridge, Vernalis, during October 2014, in response to drought conditions. This request is to make additional changes associated with the Temporary Urgency Change Petition (TUCP) filed on January 29, 2014, by the Department of Water Resources (DWR) and Reclamation (collectively, Petitioners) pursuant to Water Code section 1435 et seq. In the TUCP, Petitioners sought to temporarily modify requirements in their water right permits and license for the State Water Project (SWP) and Central Valley Project (CVP) (collectively Projects) for 180 days in response to drought conditions. On January 31, 2014, the Executive Director conditionally approved the TUCP. That Order was modified by the Executive Director on February 7, 2014, February 28, 2014, March 18, 2014, April 9, 2014, April 11, 2014, April 18, 2014, and May 2, 2014.² On May 2, the Executive Director also granted Petitioners' request for renewal of the TUCP Order for another 180 days. On September 24, 2014, the State Water Resources Control Board (State Water Board) considered and denied petitions for

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. However, the request to modify the October San Joaquin River flow requirement only applies to Reclamation's permits that include this condition - Permits 16597 and 16600 (Applications 14858A and 19304, respectively).

² The Executive Director's January 31, 2014, Order Approving a Temporary Urgency Change Petition and subsequent modifications thereto, are referred to as the "TUCP Order."

reconsideration of the TUCP Order, and made modifications to the Order in response to certain issues raised. (State Water Board Order WR 2014-0029.) This Order acts upon Reclamation's September 26, 2014, request and further modifies the TUCP Order in response to that request.³

2.0 BACKGROUND ON THE TUCP AND TUCP ORDER, INCLUDING ASSOCIATED MODIFICATIONS AND ACTIONS BY THE BOARD ON RECONSIDERATION

In the January 29, 2014 TUCP, in response to critical drought conditions, the Petitioners requested temporary modification of certain requirements included in State Water Board Revised Decision 1641 (Decision 1641) to meet water quality objectives in the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan) (attached).⁴ The TUCP requested modifications to the requirement to meet the Delta Outflow objective during February and the Delta Cross Channel (DCC) Gate closure objective from February through May 20. The TUCP also proposed modification of limits on exports at the SWP and CVP pumping facilities in the south Delta. In addition, the TUCP requested additional unspecified changes to requirements included in Decision 1641 in the future that may be needed to respond to continued drought conditions to best balance protection of all beneficial uses. Additional information concerning the drought and the 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 Executive Director's January 31, 2014 TUCP Order allowed DWR and Reclamation 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 20.⁵ As proposed by DWR and Reclamation, the TUCP Order restricted exports from the Delta at the SWP and CVP pumping facilities to health and safety needs of no more than 1,500 cubic-feet per second (cfs), with the exception of transfers. The TUCP Order also required that DWR and Reclamation consult with the State Water Board, Department of Fish and Wildlife (DFW), National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) (collectively the fisheries agencies) through a Real-Time Drought Operations Management Team (RTDOMT) to discuss real time operational issues. The TUCP 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 TUCP Order required DWR and Reclamation to develop a water balance and to conduct necessary modeling and monitoring to inform real time operational decisions. The TUCP Order stated that it may be modified based on additional public input or changed circumstances.

³ This amendment to the TUCP Order solely addresses Reclamation's September 26, 2014, request. It does not address issues previously considered by the State Water Board in Order WR 2014-0029 or by the Executive Director.

⁴ In Decision 1641, the State Water Board amended Petitioners' water rights to require implementation of certain water quality objectives in the Bay-Delta Plan. Accordingly, Petitioners' request is to amend their water rights.

⁵ The required Delta outflow pursuant to Decision 1641 without the temporary change in February was 7,100 cubic-feet per second. In addition, without the temporary change, Decision 1641 requires that the DCC Gates to be closed from February through May 20 of each year.

2.2 February 7 Modification

The February 7, 2014 modification to the TUCP Order clarified requirements related to exports that would apply when DWR and Reclamation were meeting Decision 1641 requirements. The February 7 modification of the TUCP Order adjusted the temporary export limitations when precipitation events occurred that enabled DWR and Reclamation to comply with the Delta outflow and DCC Gate closure requirements contained in Decision 1641. In these circumstances, exports greater than 1,500 cfs were allowed up to the export limits contained in Decision 1641, except that any SWP and CVP exports greater than 1,500 cfs were required to be limited to natural or abandoned flows, or transfers. The TUCP Order did not require DWR and Reclamation to meet the Decision 1641 Delta outflow requirements unless exports, other than transfers, were greater than 1,500 cfs. All other provisions of the January 31, 2014 TUCP Order were continued.

2.3 February 28 Modification

The February 28, 2014 modification to the TUCP Order continued the modified Delta outflow levels of 3,000 cfs originally approved on January 31, 2014, through the month of March. All other provisions of the TUCP Order continued to be in effect.

2.4 March 18 Modification

The March 18, 2014 modification of the TUCP Order provided additional flexibility to export water while Delta inflows were elevated following precipitation events by adding an alternate set of compliance requirements for the end of March that would be in effect while higher Delta inflows persisted. Specifically, when precipitation and runoff events occurred that allowed the DCC Gates to be closed and compliance with the flow or salinity requirements included in footnote 10 of Table 3 in Decision 1641, but the additional Delta outflow requirements contained in Table 4 of Decision 1641 were not being met, the Order permitted exports of natural and abandoned flows up to the Export Limits contained in Table 3 of Decision 1641. The Order also modified the health and safety restriction on exported water to allow the use of exported water for other SWP and CVP purposes, provided that health and safety needs and other critical water needs were first met. All other provisions of the TUCP Order continued to be in effect.

2.5 Drought Operations Plan

To plan for future operations during the drought, DWR and Reclamation developed a comprehensive Drought Operations Plan (DOP), which was released on April 8, 2014. The stated intent of the DOP was to provide flows for human health and safety needs, control saltwater intrusion in the Delta, preserve cold water pools in upstream reservoirs, and provide minimum protections for fish and wildlife. The DOP was developed in coordination with the RTDOMT and described DWR's and Reclamation's proposed range of coordinated operations from April through mid-November, including flows and storage levels in Project reservoirs. Specifically, the DOP included proposed operations assuming an average and a very dry hydrology and included an analysis of the effects of those operations on biological resources. Under the drier hydrology, the DOP proposed operations with and without temporary rock barriers in the Delta to reduce the need for upstream releases to repel salinity. DWR later determined that the barriers would not be needed this year. The DOP also identified proposed changes to the TUCP Order and various Endangered Species Act (ESA) requirements. Following release of the DOP, the fisheries agencies confirmed that the DOP conformed with

ESA requirements. On April 9, 2014, DWR and Reclamation requested changes to the TUCP Order in accordance with the DOP.

2.6 April 9 Modification

The April 9, 2014 modification of the TUCP Order extended the Delta outflow and Export modifications of the March 18 TUCP Order into April. All other provisions of the TUCP Order continued to be in effect. The April 9 TUCP Order stated that a comprehensive update to the TUCP Order would be issued in the near future to address other changes included in the DOP that had not yet been acted on by the Executive Director.

2.7 April 11 Modification

The April 11 modification of the TUCP Order allowed Reclamation to meet modified San Joaquin River flow requirements from April 11 through June as proposed in the DOP. Specifically, from April 11 until the start of the 31-day pulse flow period beginning in mid-April, minimum San Joaquin River flows at Vernalis were required to be no less than 700 cfs on a 3-day average. During the pulse flow period from mid-April through mid-May, the Order required that minimum flows be no less than 3,300 cfs for 16 days and 1,500 cfs for the remaining 31-day pulse flow period, or any pulse or pulses with an equivalent flow volume that was approved by the fisheries agencies. From the end of the pulse flow period through May, flows were required to be no less than 500 cfs. For June, Reclamation was required to operate to achieve the applicable NMFS Biological Opinion flows, dissolved oxygen requirements on the Stanislaus River at Ripon and Decision 1641 salinity requirements at Vernalis on the San Joaquin River. All other provisions of the TUCP Order continued to be in effect.

2.8 April 18 Modification

The April 18 modification allowed DWR and Reclamation to export additional supplies while inflows to the Delta were increased during the April and May San Joaquin River pulse flow period. Specifically, the modifications to the TUCP Order allowed for exports of 100 percent of the 3-day average of San Joaquin River flows at Vernalis or 1,500 cfs, whichever is greater, during the pulse flow period. These export limits were not constrained by meeting Decision 1641 Delta outflow conditions, including Footnote 10 of Table 3 in Decision 1641.

2.9 May 2 Modification

The May 2 modification of the TUCP Order acted on the remaining applicable changes proposed in the DOP. The modification of the Delta outflow requirement to 3,000 cfs was extended to May and July.⁶ The requirement to meet the Sacramento River flow objective at Rio Vista for the protection of fish and wildlife, was modified from September through November 15 to 2,000 cfs on a monthly average, with a 7-day running average of no less than 1,500 cfs. The compliance point for the requirement to meet the Western Delta electrical conductivity (EC – a measure of salinity) objective for the protection of agriculture at Emmaton on the Sacramento River was moved to Threemile Slough on the Sacramento River from May through August 15. The TUCP Order also included additional deadlines for reporting amounts of water conserved and submittal of updated water balance information. The export limits in the TUCP Order were

⁶ DWR and Reclamation did not request any changes to the Delta outflow requirement for June or beyond July.

also modified to reflect the current status of the ordering conditions. In addition, the Executive Director renewed the January TUCP Order, which now expires on January 27, 2015.

2.10 State Water Board WR Order 2014-0029

On September 24, 2014, in Order WR 2014-0029 the State Water Board considered and denied petitions for reconsideration of the Executive Director's January 31, 2014 TUCP Order, and subsequent modifications thereto, concluding that the TUCP Order and the various modifications were appropriate and proper. In addition, the State Water Board modified the TUCP Order in response to issues raised by some of the petitioners and commenters in order to improve planning and coordination now and in the future if dry conditions continue. Specifically, the following modifications were made to the TUCP Order: require earlier reporting of actual operations; ensure that information is available to the fisheries agencies, the State Water Board, and the public to understand and consider the effects of real-time operations on fish and wildlife and other beneficial uses of water; require the preparation of a drought contingency plan in the event of continued drought conditions; and require advanced planning for and consideration of concerns related to protection of Sacramento River winter-run Chinook salmon and other fisheries needs, including spring- and fall-run Chinook salmon.

3.0 BACKGROUND ON THE CALIFORNIA DROUGHT

California is currently in the third year of a drought. The San Joaquin River Watershed in particular has experienced severely dry conditions for the past three years. Water year 2012 was classified as dry and water years 2013 and 2014 as critically dry. The Southern Sierra 5-Station Precipitation Index (California Data Exchange Center October 3, 2014) indicates that the San Joaquin Basin received below average rainfall in 2011-2012 at 25.0 inches, 2012-2013 at 26.5 inches, and 2013-2014 at 20.4 inches. This compares to an average rainfall of 40.8 inches from 1956 to 2005. The lack of precipitation in the last few years has contributed to low reservoir storage levels throughout the San Joaquin River Watershed. As of October 3, 2014, New Exchequer Reservoir on the Merced River, New Don Pedro Reservoir on the Tuolumne River, New Melones Reservoir on the Stanislaus River, and Millerton Reservoir on the upper San Joaquin River were at 12, 38, 22, and 36 percent of capacity, respectively (26, 56, 39, and 88 percent of average, respectively). Further, there are no forecasted storm events projected in the area so far this month.

A further summary of drought conditions and Governor Edmund G. Brown, Jr.'s actions in response to the drought are described in section 2.2 of Order WR 2014-0029 and previous versions of this TUCP Order. Of note, on January 17, 2014, Governor Brown issued a Drought Emergency Proclamation that directed the State Water Board, among other things, to consider petitions, such as the TUCP, to modify requirements for reservoir releases or diversion limitations that were established to implement a water quality control plan. As indicated in the Proclamation, such modifications may be necessary to conserve cold water stored in upstream reservoirs that may be needed later in the year to protect salmon and steelhead, to maintain water supply, and to improve water quality.

4.0 REQUESTED CHANGE TO SAN JOAQUIN RIVER FLOW REQUIREMENTS DURING OCTOBER

Under Decision 1641, Reclamation is required to ensure that the water quality objectives for fish and wildlife beneficial uses are achieved by meeting the San Joaquin River flows at Airport Way

Bridge, Vernalis, as set forth in Table 3. During October in critically dry years following critically dry years (including this year), Decision 1641 requires Reclamation to meet a minimum monthly average flow rate of 1,000 cfs at Vernalis on the San Joaquin River. In all other years except a critical year following a critical year, the flow requirement during October is 1,000 cfs plus up to an additional 28 thousand acre-feet pulse/attraction flow limited to the amount necessary to provide a monthly average flow of 2,000 cfs. Reclamation typically meets the October flow requirements through a combination of natural and abandoned flows, flow releases from other tributaries, water releases from New Melones Reservoir on the Stanislaus River and purchases of water from other water right holders.

In its request, Reclamation indicates that water is not available this year for purchase due to the critically dry conditions. Reclamation further indicates that there is little water available in New Melones Reservoir to meet the various needs for water from the reservoir. Accordingly, Reclamation is requesting that its water rights requirements be changed to allow for a modification of the Table 3, Decision 1641 San Joaquin River flow requirements during October. Specifically, Reclamation is requesting a modification of the timing and quantity of required flows on the San Joaquin River at Vernalis to allow for a 31-day pulse flow period spanning October and November of 2014 with a minimum average flow of 800 cfs. Reclamation proposes to comply with flow requirements included in the NMFS 2009 Biological Opinion, Appendix 2-E, critically dry year schedule or as these flows may be modified in consultation with the fisheries agencies. Reclamation proposes to consult with USFWS, DFW, and NMFS, as well as seek concurrence through the RTDOMT, on the actual release schedule for the flows. Reclamation proposes that the water saved be used for fishery and water supply purposes in 2015.

5.0 MODIFIED TUCP ORDER

This Order approves Reclamation's request to modify flow requirements imposed on its water rights under Decision 1641, Table 3, River Flows for the San Joaquin at Vernalis, for the month of October 2014. Specifically, this Order allows for a modification to the magnitude and timing of the San Joaquin River flow requirement to allow for a 31-day pulse flow period spanning October and November of 2014 with a minimum average monthly flow of 800 cfs. This Order includes and continues conditions from Order WR 2014-0029 approved by the State Water Board and previous versions of the TUCP Order approved by the Executive Director that are intended to ensure that the changes are in the public interest and do not injure other legal users of water or unreasonably impact fish, wildlife and other beneficial uses of water. Those conditions are described in Order WR 2014-0029 and the previous versions of the TUCP Order approved by the Executive Director and include requirements that: the Petitioners consult with the State Water Board and fisheries agencies regarding planning and decision making and provide timely information to support decision making; water conserved under the change be maintained in storage to protect flows for fisheries, water supplies or water quality; the Petitioners comply with ESA requirements; and natural and abandoned flows be bypassed in order to prevent injury to other lawful users of water. The TUCP Order also reserves jurisdiction by the Executive Director to further modify requirements to protect the public trust, other legal users of water, or fish, wildlife and other beneficial uses. This Order also clarifies the time period for previous modifications to the spring San Joaquin River flow requirements approved by the Executive Director on April 11, 2014.

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

As discussed in section 4.0 of the January 31, 2014 TUCP Order, pursuant to the Governor's Drought Proclamation, CEQA and Water Code section 13247 are suspended as applied to action on the TUCP.

7.0 PROCEDURAL REQUIREMENTS CONCERNING THE TEMPORARY URGENCY CHANGE PETITION

The procedural requirements for a TUCP are described in section 5.0 of the January 31, 2014 TUCP Order.

8.0 REQUIRED FINDINGS OF FACT

The required findings of fact for approval of a TUCP are described in section 6.0 of the January 31, 2014 TUCP Order. As necessary, additional findings of fact supporting this Order are described below.

8.1 Urgent Need for the Proposed Change

The urgent need for the changes proposed by Reclamation is consistent with the urgent need addressed in previous versions of the TUCP Order. As stated above, currently, New Melones Reservoir storage is at approximately 520,000 acre-feet (af), or 39 percent of historical average for this time of year, and 22 percent of its capacity. The changes approved in this Order are urgently needed to conserve storage to assure that water is available into the future to reasonably protect fish and wildlife beneficial uses while balancing water supply conditions and other beneficial uses for this year and 2015. Approximately 12,000 acre-feet of water will be conserved under this change. While a relatively small amount, given the critically dry hydrologic conditions and very low storage levels, there is an urgent need to maintain these supplies in storage in the event of continued dry conditions to assure that minimal water supplies are available for the various uses that depend on New Melones Reservoir storage.

8.2 No Injury to Any Other Lawful User of Water

Consistent with previous versions of the TUCP Order, this Order requires Reclamation to bypass inflows at New Melones Reservoir while Reclamation is operating under the changes approved by this Order. This condition will ensure that other legal users of water are not impacted by the changes because the Order will only allow a reduction in the amount of stored water that is released and not in the amount of natural flow that is released. As used in Water Code section 1435, the term "injury" means invasion of a legally protected interest. (*State Water Resources Control Board Cases* (2006) 136 Cal.App.4th 674, 738-743.) Riparian and appropriative water right holders with rights to divert water below Project reservoirs only are entitled to divert natural and abandoned flows, and in the case of riparians, only natural flows; they are not entitled to divert water previously stored or imported by the Projects that is released for use downstream. (*Id.*, at pp. 738, 743, 771.) Similarly, water right holders only are entitled to the natural flows necessary to provide adequate water quality for their purposes of use; they are not entitled to have water released from upstream storage in order to provide better water quality than would exist under natural conditions, and they are not entitled to better water quality

than necessary to allow them to use the water to which they are entitled. (See *Wright v. Best* (1942) 19 Cal.2d 368, 378-379; see also *Deetz v. Carter* (1965) 232 Cal.App.2d 851, 856.)

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

The proposed change to the San Joaquin River flow requirements for October will not unreasonably affect fish, wildlife or other instream beneficial uses of water. This Order allows Reclamation to reduce its minimum monthly October San Joaquin River flow requirement for the protection of fish and wildlife from 1,000 cfs to 800 cfs and to change the timing of these flows in coordination with the fisheries agencies and the RTDOMT. The change will allow for approximately 12,000 acre-feet of storage to be preserved in New Melones Reservoir for fisheries and other purpose, while at the same time achieving the minimum NMFS BO flow requirements. The change in the timing of flows to later in the year is also expected to promote adult fall-run Chinook salmon to migrate later in the season when temperature conditions are expected to be more favorable. The timing of the flows is also planned to be coordinated with other flow releases in the basin to maximize the benefits of these and other pulse flows.

The State Water Board received statements from the fisheries agencies (DFW, USFWS, and NMFS) concurring with the proposed modifications to the San Joaquin River flow requirements. DFW (October 2, 2014) stated that it concurs with the changes given the current critical drought conditions, limited reservoir storage and the need to prepare for possible dry conditions in 2015. DFW further stated that it believes that the proposed operations are consistent with the state ESA determinations. USFWS (October 1, 2014) also concurred with Reclamation's determination that the proposed modifications will have no additional adverse effects on delta smelt or its critical habitat. NMFS (October 3, 2014) further determined that the proposed changes fall within the incidental take statement that it issued for the DOP.

The existing conditions included in the TUCP Order will also help to ensure that the changes do not unreasonably affect fish, wildlife and other beneficial uses of water. Specifically those conditions require the Petitioners to comply with ESA requirements and to coordinate with the fisheries agencies and the State Water Board on real time operations to ensure that the changes pursuant to the TUCP Order do not unreasonably affect fish and wildlife and other instream uses of water. The conditions also require the Petitioners to provide information and modeling to support decision-making relative to the protection of fish and wildlife and other beneficial uses of water. To ensure that water conserved by the proposed changes is available this year and next to reasonably protect fish and wildlife and other beneficial uses, the conditions also require the Petitioners to conserve the water saved by the changes approved in the TUCP Order in storage for critical fisheries and water supply needs. In addition, to assure that natural flows are not reduced by the TUCP Order changes, the conditions provide that inflows to Project reservoirs must be bypassed when operating under the changes approved in the TUCP Order. Further, the conditions reserve the Executive Director's authority to require modifications to the TUCP Order to protect fish and wildlife or other beneficial uses of water based on additional information or changed circumstances. These conditions remain unchanged in this Order.

As conditioned, the proposed changes to the San Joaquin River flow requirements will not unreasonably impact fish, wildlife, or other beneficial uses of water. The changes provide a reasonable balance between protection of fish, wildlife and other instream beneficial uses of water and other needed uses for water from the San Joaquin River basin. Although fish and wildlife may be affected by the changes in this Order, those effects are not unreasonable given

the tradeoffs in this third year of a drought with the potential for a continuation of the drought into the future. In determining whether the impact of the proposed changes on fish and wildlife is reasonable, the short-term impact to fish and wildlife must be weighed against the long-term impact to all beneficial uses of water, including fish and wildlife, if the changes are not approved. Without the proposed changes, storage levels in New Melones Reservoir would be further reduced and water supplies from New Melones for various purposes would be diminished. The need to conserve storage for cold water fisheries and flow purposes this year and in the future remains important. In addition, the need to conserve storage for water supply purposes also remains critical for this year and next. Accordingly, the proposed changes are not unreasonable.

8.4 The Proposed Change is in the Public Interest

The temporary modifications authorized in this Order will make the best use of limited water supplies and are accordingly in the public interest. Hydrologic and water supply conditions in the San Joaquin River basin continue to be highly impacted by the drought and are inadequate to meet all of the demands for water in the basin this year and heading into next year if conditions continue to be dry. To respond to these conditions, the changes in the Order are warranted to assure that minimal protections for beneficial uses and the public trust are in place now, and to support reservoir storage conditions in the future. The changes approved in this Order balance the various uses of water now and in the future while preserving water right priorities and protecting the public interest. The Order also continues reporting, consulting, and monitoring requirements and authority to modify the Order to ensure that it remains in the public interest.

9.0 CONCLUSIONS

The State Water Board has adequate information in its files to make the findings required by Water Code section 1435 and to issue this modification of the TUCP Order, as discussed above.

I conclude that, based on the available evidence:

1. The Petitioner has 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

For convenience, the entire ordering section of the State Water Resources Control Board's September 24, 2014 Order WR 2014-0029 is reproduced below. Changes to the TUCP Order from Order WR 2014-0029 are provided in **bold underline** and ~~**bold strikethrough**~~ below.

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 (Decision 1641) shall remain in effect. This Order shall be effective until January 27, 2015.

1. Except as otherwise provided in condition 2, below, for a period not to exceed 360 days or until such time as this Order is amended or rescinded based on changed circumstances, the requirements of Decision 1641 for DWR and Reclamation (or Petitioners) 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 Decision 1641 during the months of February, March, April, May and July shall be no less than 3,000 cubic-feet per second (cfs) on a monthly average. The 7-day running average shall not be less than 1,000 cfs below the monthly average. 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: With the exception of the San Joaquin River pulse flow period, during the effective period of this Order, when the Decision 1641 Delta outflow requirements, DCC Gate closure requirements, Sacramento River flow and electric conductivity (EC) requirements are not being met 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 1,500 cfs on a 3-day running average. During the May San Joaquin River pulse flow period, exports are permitted up to 100 percent of the 3-day running average of San Joaquin River flows at Vernalis or 1,500 cfs, whichever is greater, provided DWR and Reclamation are complying with Decision 1641 requirements as modified by this Order. 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. 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.
 - d. Table 3 San Joaquin River flow requirements at Airport Way Bridge, Vernalis, from ~~April 11 the date of this order~~ through June are modified as follows:
 - From ~~April 11 the date of this Order~~ to the start of the pulse flow period, flows shall be no less than 700 cfs, on a 3-day running average.
 - The spring 31-day pulse flow period shall consist of an overall pulse flow volume equivalent to 16-days of flow at 3,300 cfs, and 15 days of flow at 1,500 cfs. The start date and flow schedule for the overall pulse flow volume of water shall be determined through consultation with the Department of Fish and Wildlife, National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (fisheries agencies).
 - From the end of the spring pulse flow period through May 31, an average flow of 500 cfs shall be maintained.
 - For the month of June, flows shall be maintained on the Stanislaus River to meet the NMFS Biological Opinion requirements and water right permit requirements for dissolved oxygen on the Stanislaus River and water right permit salinity requirements on the San Joaquin River at Vernalis.
 - e. The Table 3 Sacramento River at Rio Vista flow requirements from September through November 15 of 2014 are modified as follows: flows shall be no less than 2,000 cfs on a monthly average. The 7-day running average shall not be less than 1,500 cfs.
 - f. The Table 2 Western Delta Sacramento River at Emmaton EC requirement is modified as follows: the compliance location is moved from Emmaton on the Sacramento River to Threemile Slough on the Sacramento River.
 - g. **The Table 3 San Joaquin River Flow requirements at Airport Way Bridge, Vernalis during October are modified as follows: for a 31-day pulse flow period spanning October and November of 2014, flows shall be no less than 800 cfs on a monthly average. The timing and shaping of these flows shall be determined through consultation with the fisheries agencies and the Real Time Drought Operations Management Team.**
2. During the effective period of this Order, if precipitation events occur that enable DWR and Reclamation to fully comply with the Delta outflow, DCC Gate Closure, Rio Vista flow and Sacramento River at Emmaton EC requirements contained in Decision 1641, then Decision 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.

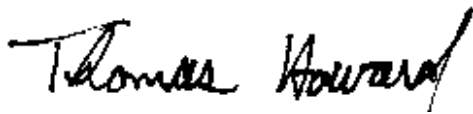
3. DWR and Reclamation shall convene a Real-Time Drought Operations Management Team with designated representatives from DWR, Reclamation, the State Water Board, and the fisheries agencies. The Real-Time Drought Operations Management Team shall be convened to discuss potential changes to SWP and CVP 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 and shall submit such records on a monthly basis to the State Water Board within 20 working days after the first day of the following month. 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. Monthly updates shall be posted and provided to the State Water Board within 20 working days after the first day of the following month.
6. DWR and Reclamation shall consult with the fisheries agencies and the State Water Board on a weekly basis regarding operational decisions that may affect listed species and other beneficial uses of water, including fall-run Chinook salmon. DWR and Reclamation shall conduct necessary modeling and monitoring and prepare other necessary technical information to inform operational decisions. DWR and Reclamation shall make available, upon request of State Water Board or fisheries agency staff, technical information to inform these operational decisions, including planned operations, temperature models, modeling and monitoring information, water quality modeling and monitoring information, and information about potential impacts of operational changes on other water users. DWR and Reclamation shall report to the Board monthly at its Board meetings on their drought operations and the information discussed above beginning with the first October Board meeting.

7. While DWR and Reclamation are operating under the changes approved by this order, they shall bypass natural and abandoned flows in order to prevent injury to other lawful users of water.
8. This Order may be further modified by the Executive Director based on additional public input or changed circumstances.
9. 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.
10. 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.
11. In consultation with the fisheries agencies, DWR and Reclamation shall develop a water year 2015 drought contingency plan for operations in the Delta and the associated Project reservoirs in the event that water supplies remain inadequate to satisfy the Projects’ water right permit and license requirements and other uses. The drought contingency plan shall identify the biological and other justifications for the plan. The drought contingency plan shall also identify planned minimum monthly flow and storage conditions that consider Delta salinity control, fishery protection, and supplies for municipal water users related to projected flow and storage conditions using 50, 90, and 99 percent exceedance probabilities for assumed hydrology, and any other information that may be requested by the Executive Director or his designee. The plan for the beginning of the water year through January 15, 2015, shall be submitted to the Executive Director by October 15, 2014. The plan for the remainder of the water year after January 15, 2015, shall be submitted to the Executive Director by January 15, 2015. The plan shall be updated as necessary based on changed circumstances. Following submittal, the plans and any updates to the plans will be posted on the State Water Board’s website for public review. The Executive Director will consider public comments that may be submitted when determining whether to take any action based on the plan or whether to request additional information.
12. Pursuant to the requirements of this Order and State Water Board Order WR 90-5, Reclamation, in consultation with the fisheries agencies, shall take the following actions:
 - a. Reclamation shall immediately identify and evaluate all available options for reducing temperature and redd dewatering impacts to winter-run Chinook salmon on the Sacramento River for the remainder of this fall. Reclamation shall immediately make available technical information requested by the Executive Director or his designee through the Real Time Drought Operations Management Team process to evaluate the feasibility of various options. Reclamation shall report monthly to the State Water Board during its Board meeting on actions that

have been or will be taken to reduce impacts to winter-run Chinook salmon, beginning with the first October Board meeting and continuing through the drought.

- b. Reclamation, in coordination with the fisheries agencies, shall prepare by January 15, 2015, a temperature management plan for the Sacramento River for the 2015 winter-run Chinook salmon spawning and rearing period that considers other fisheries needs, including spring- and fall-run Chinook salmon. That plan shall identify actions that will be taken throughout the year to manage storage, cold water pool and flow conditions under different potential hydrologic conditions to protect winter-run Chinook salmon and other salmon runs in the Sacramento River from redd dewatering, stranding, and temperature impacts. Reclamation shall update the plan as conditions change or upon the request of the fisheries agencies or State Water Board staff. For the remainder of the drought, Reclamation shall meet weekly with the Sacramento River Temperature Task Group (SRTTG) to discuss operations and options for reducing or avoiding redd dewatering, stranding and temperature impacts to winter-run Chinook salmon. Reclamation shall confer on recommendations from the SRTTG at the Real Time Drought Operations Management Team meeting and other applicable CVP and SWP operational decision-making meetings.

STATE WATER RESOURCES CONTROL BOARD

A handwritten signature in black ink that reads "Thomas Howard". The signature is written in a cursive, flowing style.

Thomas Howard
Executive Director

Dated: October 7, 2014

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 \geq 150 mg/l Cl ⁻ 240 (66%)
-or-				AN		190 (52%)
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)	BN		175 (48%)
				D		165 (45%)
				C		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	
				W	Aug 15	----
				AN	Jul 1	0.63
				BN	Jun 20	1.14
San Joaquin River at Jersey Point	D-15 (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	
				W	Aug 15	----
				AN	Aug 15	----
				BN	Jun 20	0.74
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	
				W	Aug 15	----
				AN	Aug 15	----
				BN	Jun 20	0.74
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	
				W	Aug 15	----
				AN	Aug 15	----
				BN	Jun 20	0.74
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	
				W	Aug 15	----
				AN	Aug 15	----
				BN	Jun 20	0.74
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	
				W	Aug 15	----
				AN	Aug 15	----
				BN	Jun 20	0.74
SOUTHERN DELTA						
San Joaquin River at Airport Way Bridge, Vernalis	C-10 (RSAN112)	Electrical Conductivity (EC)	Maximum 30-day running average of mean daily EC (mmhos/cm)	All	Apr-Aug	0.7
						1.0
San Joaquin River at Brandt Bridge site[5]	C-6 (RSAN073)	Electrical Conductivity (EC)	Maximum 30-day running average of mean daily EC (mmhos/cm)	All	Apr-Aug	0.7
						1.0
Old River near Middle River [5]	C-8 (ROLD69)	Electrical Conductivity (EC)	Maximum 30-day running average of mean daily EC (mmhos/cm)	All	Apr-Aug	0.7
						1.0
Old River at Tracy Road Bridge [5]	P-12 (ROLD59)	Electrical Conductivity (EC)	Maximum 30-day running average of mean daily EC (mmhos/cm)	All	Apr-Aug	0.7
						1.0
EXPORT AREA						
West Canal at mouth of Clifton Court Forebay	C-9 (CHWST0)	Electrical Conductivity (EC)	Maximum monthly average of mean daily EC (mmhos/cm)	All	Oct-Sep	1.0
Delta-Mendota Canal at Tracy Pumping Plant	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	C-2 (RSAC081) S-64 (SLMZU25)	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
Montezuma Slough near Beldon Landing	S-49 (SLMZU11)					
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(RK11[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 BN,D C	Feb-Apr 14 and May 16-Jun	2,130 or 3,420 1,420 or 2,280 710 or 1,140
				W	Apr 15- May 15 [14]	7,330 or 8,620
				AN		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]
				All	Feb-Jun	35% Delta inflow [21]
			Maximum percent of Delta inflow diverted [19] [20]	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:

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

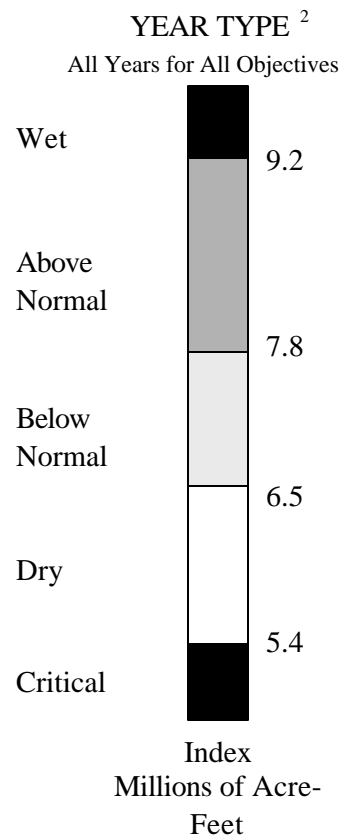
Where: X = Current year's April – July
Sacramento Valley unimpaired runoff

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:

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

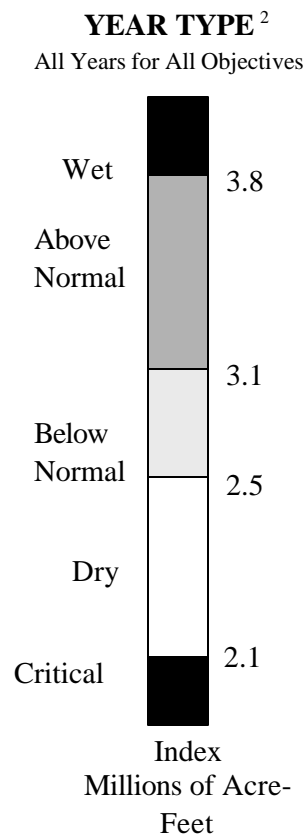
Where: X = Current year's April – July
San Joaquin Valley unimpaired runoff

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 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 DIVERTED ¹

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.

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- 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)	Chipps Island (Chipps 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.